Final

SEA LEVEL RISE RESILIENCE STRATEGY FOR MENDOCINO COUNTY

Sea Level Rise Analysis and Risk Assessment

Prepared for
Mendocino County

May 2026

ARUP ESA



Funded by California Coastal Commission

CALIFORNIA COASTAL COMMISSION

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[Additional info, if needed]

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This assessment is intended solely for the use and benefit of Mendocino County.

775 Baywood Drive
Suite 100
Petaluma, CA 94954
707.795.0900
esassoc.com

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1. INTRODUCTION

This report summarizes the results of the sea level rise (SLR) analysis and risk assessment for Mendocino County with the goal of gaining comprehensive insights into the vulnerability of coastal assets and resources to SLR, including their exposure, sensitivity, and adaptive capacity, and to identify consistently threatened community assets, such as habitats and ecosystems, across different SLR scenarios. This information will be used to prioritize risks related to community resources, critical infrastructure, ecosystems, and public access, among others. The findings of the sea level rise and risk assessment will serve as the basis for developing resilience strategies with the community.

1.1 Key Terms and Definitions

The following terms are used throughout the document based on the definitions included in this section:

- **Riverine flooding** refers to flooding originating from rainfall and high creek water levels.
- **Coastal flooding** refers to flooding due to waves and high-water levels originating from the ocean.
- **Coastal storms** impact the shoreline through higher water levels and waves from the ocean and are commonly associated with low-pressure weather systems. Planning and analysis often occurs for the "100-year storm conditions," which are essentially the individual storm conditions (e.g., river flow, storm surge, wave runup, etc.) that each have a 1% chance of occurring in any given year.
- **Coastal storm flooding** refers to coastal flooding that occurs during coastal storm events where storm surge and waves contribute to flooding of areas that are typically above tidal elevations.
- **Tidal inundation** refers to coastal flooding during regular high tides under non-storm conditions.
- **Coastal erosion** refers to loss of sandy beaches, dunes, and the low-lying backshore along the shoreline through natural processes such as waves, wind, or tides.
- **Coastal bluff erosion** refers to loss of coastal bluffs as material falls or collapses onto the beach or into the ocean below.

1.2 Disclaimer and Use Restrictions

This assessment has been prepared for planning-level purposes to evaluate potential exposure and vulnerability to projected sea level rise and coastal flooding scenarios. The analysis is based on currently available datasets, modeling tools, and guidance current at the time of preparation. Sea level rise projections are inherently uncertain and dependent on future emissions pathways, regional processes, and vertical land motion; therefore, results should be interpreted as indicative of relative risk under modeled scenarios rather than precise predictions of future conditions.

This assessment does not update or supersede FEMA Flood Insurance Studies or Rate Maps, should not be used in lieu of such Studies or Rate Maps, and is not intended for regulatory, insurance, or final design determinations. This assessment should not be used to assess actual coastal hazards, insurance requirements, or property values. Site-specific engineering analyses will be required to support detailed design, permitting, and implementation decisions.

Please reference ESA and ARUP as the originator of the datasets in any future products or research derived from these data. The data contained in this assessment are provided without any representation or warranty as to their accuracy, completeness, performance, merchantability, or fitness for a particular purpose. Data are based on model simulations, which are subject to revisions and updates and do not take into account many variables that could have substantial effects on erosion, flood extent, and depth. Real world results will differ from results shown in the data.

The entire risk associated with use of the assessment results is assumed by the user. The County of Mendocino, ESA, ARUP, and the California Coastal Commission shall not be responsible or liable for any loss or damage of any kind incurred in connection with the use of this assessment or any data contained herein.

2. PROJECT SETTING

2.1 Study Area

To evaluate coastal vulnerability in a way that reflects local conditions and community priorities, Mendocino County's coastline was divided into a series of planning zones aligned with those defined in the County's Coastal Element of the General Plan. Each zone encompasses a distinct stretch of shoreline characterized by its own combination of land uses, natural features, and infrastructure systems—from the remote Lost Coast to the more developed harbor and town centers of Fort Bragg and Gualala. This zone-based framework allows the analysis to capture spatial variation in exposure and risk in a more nuanced manner, allowing for adaptation strategies to be framed around these zones and tailored to the physical setting and types of assets present in each community.

TABLE 1. PLANNING AREAS

Zone ID	Description	Planning Area	Communities Described	Land Use Maps	Name for Analysis
1	Humboldt County Line to North of Rockport	Lost Coast	none	1, 2, 3, 4, 5	Lost Coast
2	Rockport to Little Valley Road	Rockport to Little Valley Road	Westport	6, 7, 8, 9, 10, 11, 12	Westport
3	Little Valley Road to Fort Bragg City Limits	North Fort Bragg	Cleone	11, 12, 13	North Fort Bragg
4	Fort Bragg City Limits to Hare Creek	South Fort Bragg Area	Noyo	13, 14	South Fort Bragg (Noyo & City)
5	Hare Creek to Jug Handle Creek		South Fort Bragg	14	South Fort Bragg (Hare Creek to Jug Handle)
6	Jug Handle Creek to Russian Gulch	Jug Handle Creek	Caspar	14, 15	Caspar

7	Russian Gulch to Van Damme State Park	Big River	Mendocino Town	15, 16, 17	Mendocino Town
8	Van Damme State Park to Dark Gulch	Little River	Little River	17, 18	Little River
9	Dark Gulch to Navarro River	Albion	Albion Village	18, 19	Albion
10	Navarro River to Mallo Pass Creek	Greenwood/Elk	Elk	19, 20, 21, 22	Elk
11	Mallo Pass Creek to Iverson Road	Iverson Road	Irish Beach, Manchester, Point Arena	22, 23, 24, 25, 26, 27, 28	Manchester & Point Arena
12	Iverson Road to Sonoma County Line	Anchor Bay - Gualala; Iverson Road South	Anchor Bay, Gualala	27, 28, 29, 30, 31	Anchor Bay & Gualala

SOURCE: Mendocino County General Plan Coastal Element 2021

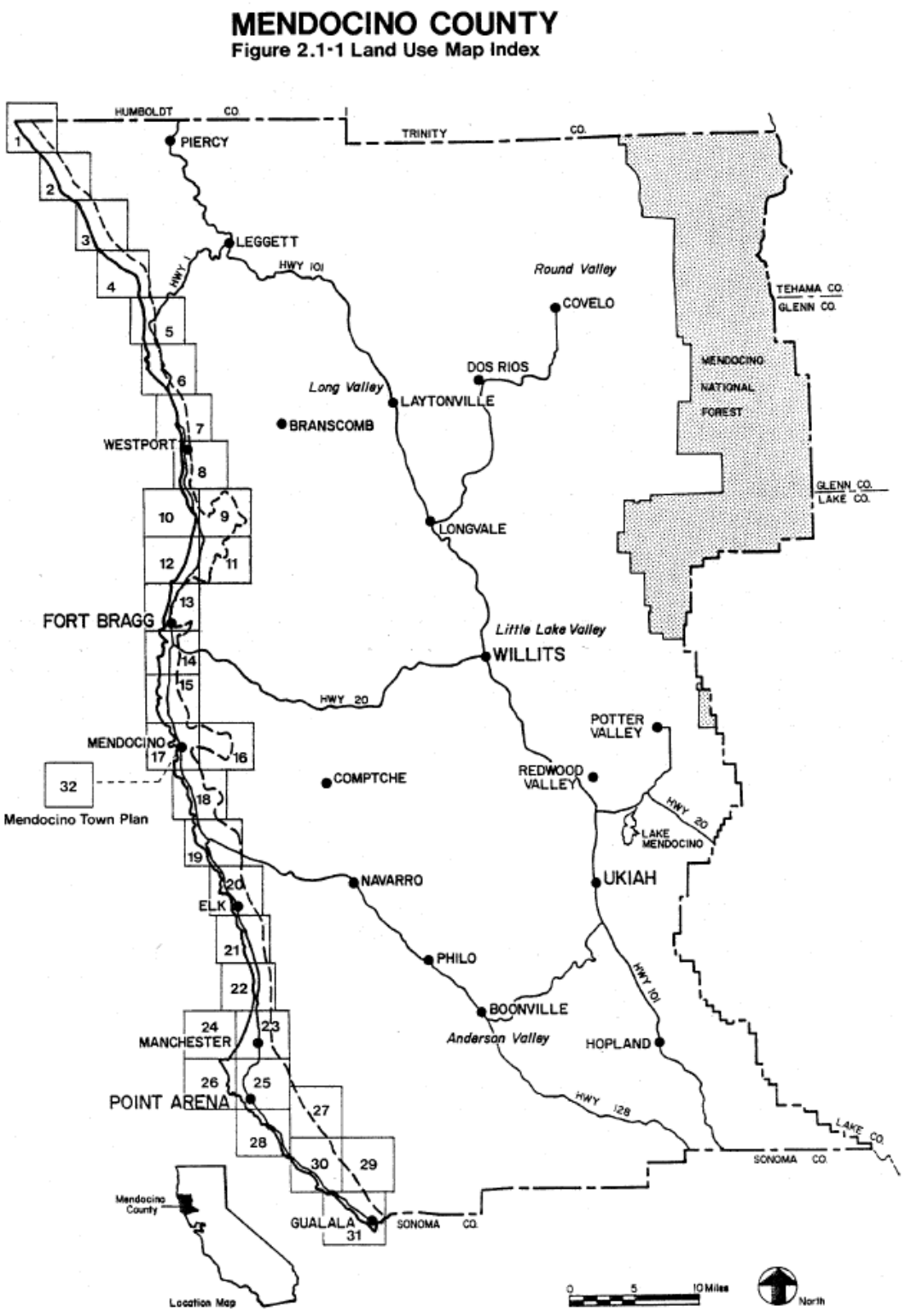

Figure 1. Study Area **SOURCE: Mendocino County General Plan Coastal Element 2021**

2.2 Background Information

2.1.1 History and Demographics

For approximately 10,000 years, the Pomo people inhabited the coastal areas of what is today known as Mendocino County. They were hunter-gatherers who established seasonal villages along the coast, and permanent settlements inland. The arrival of European settlers in the 19th century disrupted their subsistence practices and ways of life, leading to forced relocations to the Mendocino Indian Reservation, near the Noyo River, in 1865—which then closed two years later. There are 11 federally recognized tribal nations in the county: Cahto Tribe, Coyote Valley Band of Pomo Indians, Guidiville Indian Rancheria, Hopland Band of Pomo Indians, Manchester Band of Pomo Indians, Pinoleville Pomo Nation, Potter Valley Tribe, Redwood Valley Little River Band of Rancheria of Pomo Indians, Round Valley Reservation, and Sherwood Valley Rancheria. There are dozens of tribal cultural sites scattered throughout the county.

The county has over 40 cultural and historic sites in different subregions. These sites include schoolhouses, cemeteries, cottages and homes, hotels, and train depots scattered throughout the county's landscape.[1] Coastal tribes include the Kashaya Pomo and Manchester Band of Pomo Indians; inland tribes with ancestral ties to coastal areas include the Sherwood Valley Rancheria of Pomo Indians and the Round Valley Indian Tribes (including Pomo and Coast Yuki peoples).[2] [3]

Modern development began in the mid-19th century, with the town of Mendocino founded in 1852 as a logging settlement. The coastline was modified with the creation of docks and chutes. The region's forest became central to California's timber industry, and the coastal towns of Albion, Caspar, Little River, and Fort Bragg also emerged around mills and harbors. Mill towns included hotels, homes, stores, and restaurants, and would move as forest resources were depleted. The town of Mendocino has the most buildings still standing from the mill town era in present day and is a historic preservation district.[4] The timber industry significantly shaped Mendocino County from the mid-19th century until the mid-20th century, when developers took an interest in the area following increased tourism interests.

The 20th century also saw federal and military interest in the Mendocino coast. Roads were constructed, and by the 1930s, the alignment of what would become State Route 1 was carved along coastal bluffs, connecting previously isolated towns. Following World War II, the State expanded State Route 1, allowing greater automobile access and enabling coastal tourism. During the war, the U.S. Navy established radar installations and lookout towers along the bluffs, further altering the coastal landscape. Environmentalists and tribal leaders opposed a number of development proposals, including subdivisions of vacation homes throughout the 1960's and a nuclear power plant proposed for Point Arena in 1970. The town of Mendocino reinvented itself as an artists' enclave and historic district.[5] These conservation and environmentalist efforts led to the establishment of state parks, such as Mendocino Headlands State Park in 1974, the establishment of the Mendocino Land Trust in 1976, and the establishment of the

[1] https://www.mendocinocounty.gov/home/showpublisheddocument/54483.
[2] https://libguides.sdsu.edu/AmericanIndianStudies/ ;
[3] https://www.doi.gov/sites/doi.gov/files/uploads/12_bia_regions.pdf
[4] https://savingplaces.org/stories/pacific-time-mendocino-county-california?utm_source=chatgpt.com
[5] https://www.mendocinoartcenter.org/

statewide California Coastal Commission in 1976. The decline of the timber industry led to economic stagnation in many former logging towns, and tourism now drives much of the county's current economy.

Mendocino County has a population of just over 90,000. One quarter of the county's population is 65 years or older, notably higher than the older adult population composition throughout the state (16%). Hispanic or Latino-identifying populations are lower than those statewide (28% vs. 40%), as are populations who are foreign-born (14% vs. 27%), populations identifying as Asian (2% vs. 15%) and Black or African American (1% vs. 5%). Concentrations of populations who identify as American Indian or Alaskan Native are higher in Mendocino County than throughout the entire state (4% vs. 0.4%). Median household income in Mendocino County is $67,454, which is substantially lower than California's median household income of $96,334. The employment rate in Fort Bragg (52%) is also lower than the state's (60%). The older population in the county may contribute to its relatively lower income and employment rates, as these populations may be retirees. Sixty-two percent of residents in Fort Bragg are homeowners, compared to 56% statewide. Eighteen percent of the population identifies as having a disability, which is also substantially higher than the 12% statewide rate.[6]

As measured by CalEnviroScreen, coastal Mendocino County has a relatively low environmental justice burden, with most census tracts below 30th percentile. However, a few notable impacts are present. Two tracts in the City of Fort Bragg area are somewhat burdened, with a total score in the 47th (6045010500) and 49th (6045010400) percentiles; these two tracts, and one more tract in the Fort Bragg vicinity (6045010300), have high incidences of asthma—in the 79th percentile. Four tracts at the north and south end of the coastal county have higher groundwater threats, with percentiles between 84-92. The three southernmost census tracts along the coast (6045011102, 6045011002, 6045011001), as well as the northernmost tract (6045010200), have solid waste environmental burdens in the 89th percentile or above. All tracts along Mendocino's coast are over 70% white, apart from one tract in the City of Fort Bragg (6045010500), which is 54% white and 41% Hispanic or Latino. In the southernmost census tract in coastal Mendocino (6045011102), which contains Point Arena and Gualala, 6% of the population identifies as American Indian or Alaskan Native; and the northernmost tract (6045010200) is comprised of 11% American Indian or Alaskan Native—both tracts are markedly higher than the statewide composition of 0.4%.

2.1.2 Shoreline Types

Mendocino County's shoreline features a dynamic mix of beaches, dunes, bluffs, bluff-backed beaches, rivers, estuaries, and armored segments, each facing distinct vulnerabilities.

Beaches / Dunes

Beaches along Mendocino County's coastline are characterized by a mix of sandy stretches and rocky intertidal zones. These beaches are dynamic environments, shaped by the interplay of ocean currents, wave action, sediment supply from rivers, and littoral drift. They serve as critical habitats for various species and are popular recreational areas. They are vulnerable to erosion, especially during storm events and periods of high wave energy. Due to a combination of high wave energy and relatively steep coastal topography, many of Mendocino's beaches are narrower, and steeper compared to southern California

[6] US Census Bureau (2020-2023)

beaches. Erosion is significant: models from the California Climate Change Center project up to 623 feet of dune retreat along these beaches by 2100 under high sea level rise scenarios (80 inches).[7]

The dune fields at MacKerricher State Park are the largest coastal dune system on the Mendocino coast, stretching inland up to one mile from Ten Mile Beach. Unlike the region's dominant rocky cliffs, these dunes were formed by riverine and wind-driven sediment processes. The dune fields support a diverse array of habitats and species, including critical habitat for several rare and threatened species, such as the western snowy plover and Menzies' wallflower. Over the last 20 years, ongoing restoration efforts led by California State Parks and the Mendocino Land Trust have included removal of invasive species, reintroduction of native dune plants, restoration of natural sand movement and topography, and protection of snowy plover nesting zones.[8] Similarly, the dune fields at Stoneboro Beach provide critical habitat for endangered species, and the area includes a unique mix of grasslands, wetlands, and sandy beachfront.

Coastal Bluffs

The county's coastal bluffs are steep landforms composed of sedimentary rocks and soils. These bluffs are subject to natural erosional processes, which will be exacerbated by sea level rise and increased storm intensity. Bluffs erode at an average rate of -1.3 feet per year, with hotspots like Rockport Bay experiencing rates as high as -10.2 feet per year.[9] Some areas have experienced retreat, threatening infrastructure and habitats atop these bluffs, such as loss of the coastal trail in Fort Bragg. Bluff failures are primarily driven by wave undercutting, groundwater seepage, and seismic activity. Sea caves at the base of bluffs can accelerate bluff erosion. Vegetation plays a role in stabilization, but development and human activity can undermine this natural protection. With rising seas, bluff retreat is expected to accelerate, threatening coastal access, infrastructure (such as State Route 1), and historic development such as downtown Mendocino.

Bluff-backed Beaches

Bluff-backed beaches are narrow coastal habitats where sandy or rocky beaches are directly adjacent to coastal bluffs. These areas occur throughout Mendocino County, such as from Westport to Ten Mile River and from the Big River to Manchester State Park, are particularly susceptible to "coastal squeeze," where rising sea levels and fixed landward boundaries (like cliffs or development) prevent the natural landward migration of the beach, leading to habitat loss.[10] With 6.6 ft of sea level rise, bluff-backed beaches in Mendocino County could experience complete or near-complete loss, significantly reducing recreation opportunities and coastal habitat.[11]

Rivers and Estuaries

Mendocino County's rivers and estuaries[12], including the Navarro River Estuary and the Big River Estuary, are vital ecological zones where freshwater mixes with seawater, creating rich habitats for

[7] 2021 Mendocino County Climate Vulnerability Assessment Report

[8] https://www.parks.ca.gov/pages/734/files/GeoGems%20FINAL%20WEB.pdf

[9] 2009 California Coastal Erosion Response to Sea Level Rise – Analysis and Mapping, prepared for Pacific Institute by Philip Williams and Associates, Ltd.

[10] Griggs, G. (2017). Coastal Squeeze: The Land Loss Crisis Along the Shores of California.

[11] 2021 Mendocino County Climate Vulnerability Assessment Report

[12] Here, the term estuary is used to refer to both tidal estuaries and bar-built estuaries or lagoons, that are typically perched above tidal elevations and can become intermittently opened or closed by stream flows, waves, and sediment movement.

diverse flora and fauna. These estuaries are dynamic, influenced by seasonal fluvial flows, tidal and wave actions, and sediment deposition. They serve as nurseries for fish species and support migratory birds. However, they are sensitive to changes in freshwater inflow, sediment supply, and sea level rise, which can alter salinity gradients and habitat structures. With sea level rise, bar-built estuaries are anticipated to transgress upward and landward, which could exacerbate flooding of developed areas, and saltwater intrusion is expected to significantly alter freshwater systems.[13] At Big River Estuary, for example, tidal marshes are projected to migrate inland, but where development or topography constrains movement, ecosystem loss is anticipated.[14]

Armored Shorelines

Armored areas—sections of the shoreline protected by seawalls, revetments, riprap, and other hard structures—are relatively limited in Mendocino County compared to urbanized counties, but they are present near critical infrastructure, such as sections of State Route 1 near Hardy and Juan Creeks north of Westport, at Westport Landing, near Lake Cleone in MacKerricher State Park, certain harbor facilities at Fort Bragg's Noyo Harbor, at Caspar Headlands State Beach, at the Little River, at Arena Cove, and in Gualala .[15] Armoring can temporarily protect specific assets in the short term, but often worsens beach and bluff erosion by reflecting wave energy onto adjacent areas.[16] In Mendocino, armored stretches are already showing evidence of flanking erosion, and future sea level rise is expected to render many existing protections insufficient.

2.3 Existing Studies

- **Mendocino County Community Wildfire Protection Plan, 2025.** Contains information about the fire environment, wildfire hazard assessment and community values, and mitigation strategies, as well as monitoring and evaluation.

- **Mendocino County Drought Resilience Plan, 2025.** Contains information regarding drought and water shortage risk assessment and existing drought response actions, as well as short- and long-term response actions, and implementation considerations.

- **Multi-Jurisdictional Hazard Mitigation Plan (HMP), 2021.** Contains information about assets and hazard exposure in Mendocino County, Fort Bragg, and Point Arena. The SLR strategy will build on the analysis in the HMP, which identifies flooding as a high-priority hazard.

- **Climate Vulnerability Assessment Report, Mendocino County Safety Element Update, 2021.** Information about sea level rise and climate change-driven shoreline flooding and erosion, including a ranking of asset vulnerability.

[13] California Climate Change Center (2009). The Impacts of Sea-Level Rise on the California Coast.

[14] 2021 Mendocino County Climate Vulnerability Assessment Report

[15] Coastal Commission Armor Structure Locations: https://coastal-commission-open-data-site-coastalcomm.hub.arcgis.com/datasets/armor-structure-locations-2/explore, updated February 27, 2025

[16] Griggs, G., Patsch, K., & Savoy, L. (2005). Living with the Changing California Coast. University of California Press.

- **Mendocino County General Plan Coastal Element, 2021.** This is Mendocino County's certified Local Coastal Program, which contains information about land use policies for coastal development.

- **Caltrans District 1 Adaptation Priorities Report, 2021.** Includes information about roadway segments, bridges, small and large culverts that are vulnerable to coastal hazards and identifies which assets are priorities for adaptation in Caltrans District 1, which includes Del Norte, Humboldt and Mendocino Counties.

- **Municipal Service Reviews:** Conducted by the Mendocino County Local Agency Formation Commission (LAFCo) for coastal special districts.

- **Geographic Information Systems (GIS) Mapping Data**: Includes topography, existing infrastructure, and habitat areas.

- **Historical Information**: Includes photographs documenting changes in the Mendocino County coastline over time.

- **Coastal Hazard and Sea-Level Rise Data**: Includes existing coastal hazard information such as from Federal Emergency Management Agency (FEMA), Pacific Institute, United States Geological Survey's (USGS) Coastal Storm Modeling System (CoSMoS), and other relevant sources

3. EXISTING AND FUTURE COASTAL HAZARDS

This section describes coastal hazard zones under existing and future conditions. The sea level rise (SLR) scenarios used as a basis for the vulnerability analysis are 1 foot, 3 feet, and 6 feet. These are discussed in detail in **Appendix A**, *Sea Level Rise Scenarios Memorandum*. Coastal hazard zone mapping for this vulnerability assessment addresses high tide (non-storm) flooding, extreme (100-year) events, and shoreline and cliff erosion.

3.1 Existing Flooding

This section describes the existing conditions for the three main flood sources – tides, extreme high water, waves, and rivers – within Mendocino County. Existing flood conditions form the foundation for projected changes with sea level rise.

3.1.1 Tides and Non-Storm Water Levels

Mendocino County experiences mixed semidiurnal tides, or two daily high tides and two daily low tides of differing elevations. These daily tides also vary with the spring-neap tidal cycles, which occur approximately twice a month. Coastal engineers use vertical datums, or defined reference surfaces, to estimate the relative elevation of the tides and water levels to the land around it. For this study, ESA used the closest NOAA tide gauge, Arena Cove (Station #9416841). Tidal datums for the Arena Cove gauge are shown in **Table 2**.

TABLE 2. TIDAL DATUMS AT ARENA COVE (#9416841), APPLICABLE TO MENDOCINO COUNTY

Tidal Datum	Abbreviation	Feet (ft) NAVD
Maximum Observed Tide (observed on February 6, 1998)	MOT	8.53
Highest Astronomical Tide	HAT	7.48
Mean Higher High Water	MHHW	5.73
Mean High Water	MHW	5.06
Mean Tide Level	MTL	3.04
Mean Sea Level	MSL	3.00
Mean Low Water	MLW	1.01
Mean Lower Low Water	MLLW	-0.14

SOURCE: NOAA Tides and Currents 2020

NOTES: The tidal datums listed above are from the most recent tidal epoch: 1983-2001.

The record for the Arena Cove tide gauge dates back to 1978. The relative sea level trend recorded over this period (**Figure 2**) is 0.86 mm/year, which is equivalent to 0.28 ft over 100 years.

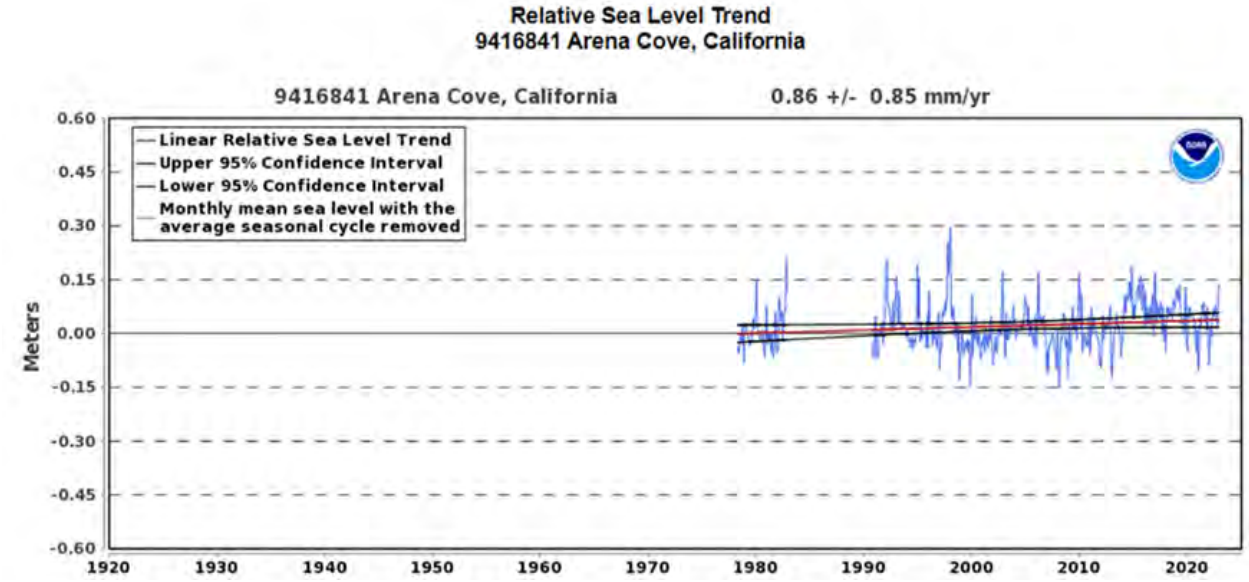

Figure 2. Relative Sea Level Trend at Arena Cove Tide Gauge SOURCE: NOAA 2024.[17]

The City of Point Arena's *Sea Level Rise Analysis and Vulnerability Assessment for Arena Cove* (ESA 2023) analyzed measured water levels and waves to assess the magnitude and frequency of coastal flooding. Some of the findings, such as how water levels fluctuate due to waves (i.e., dynamic wave setup associated with infragravity waves), provide information broadly applicable to the project area. Low laying inland areas and harbors located within Mendocino County are not directly exposed to large wave events but are still exposed to wave-induced oscillations around the still water level, or infragravity waves. The resulting water levels are called dynamic water levels (DWLs). ESA calculated the DWL along the Mendocino coastline for historical annual maximum events with different combinations of still water levels (i.e., tides plus storm surge) and wave conditions.

3.1.2 Waves

The study area is exposed to large swell and large storm seas. Most of the wave exposure comes from waves generated in the north Pacific with predominant swell directions from the west and northwest (ESA 2023). Episodic storms also generate strong winds and seas. Storm-generated waves can vary in direction depending on the season, with spring and summer winds (March through July) typically generating wind swells from the northwest, and winter storms typically generating swell from the southwest. Long-period south swells also reach the study area in summer months from large storms in the Southern hemisphere off the coast of New Zealand, but these typically are not associated with extreme coastal conditions. Based on input from local community members, the most damaging storms are winter storms from the west-southwesterly direction. The Arena Cove Vulnerability Assessment provides additional analysis of water levels and waves based on NOAA water level observations. In typical conditions, the study area is subject to a strong wave climate, with waves of 3 to 5+ feet high and periods of 10-15 seconds. In storms, swells from distant storms can result in very large waves exceeding 20 feet high and periods of 15-20+

[17] https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=9416841

seconds. Local storm waves can also be quite large, on the order of 15- to 20 feet with periods in the range of 10-15 seconds.

3.1.3 Extreme Event Flooding

FEMA develops Flood Insurance Studies (FISs) and Flood Insurance Rate Maps (FIRMs) for the purpose of informing the public of flood risks. FEMA maps typically show the water levels (Base Flood Elevations) and extents of the 1% (100-year) and 0.2% (500-year) annual chance flood events. These events can happen as a result of flooding from coastal flood sources (ocean water levels and waves), precipitation flood sources (high freshwater runoff), or a combination of both. It is important to note that FEMA considers only existing conditions and does not account for long-term coastal erosion or sea level rise in its mapping.

The FEMA special flood hazard areas for a small portion of the project area are shown in **Figure 3**. Along the Mendocino County coast, areas denoted Zone VE indicate that waves are a main contributor to the base flood elevations (BFEs). Within Zone VE, the BFEs are derived from hydraulic analysis. Coastal areas denoted as zone AE, indicate that while waves may be present, the waves are significantly lower in height and fluvial flooding dominates the upstream reaches of the river. Coastal areas denoted as zone A indicate that areas are subject to inundation by the 1% annual chance flood event, but these areas are generally approximate with no BFEs assigned. These zones are present along the coastline of Mendocino County.

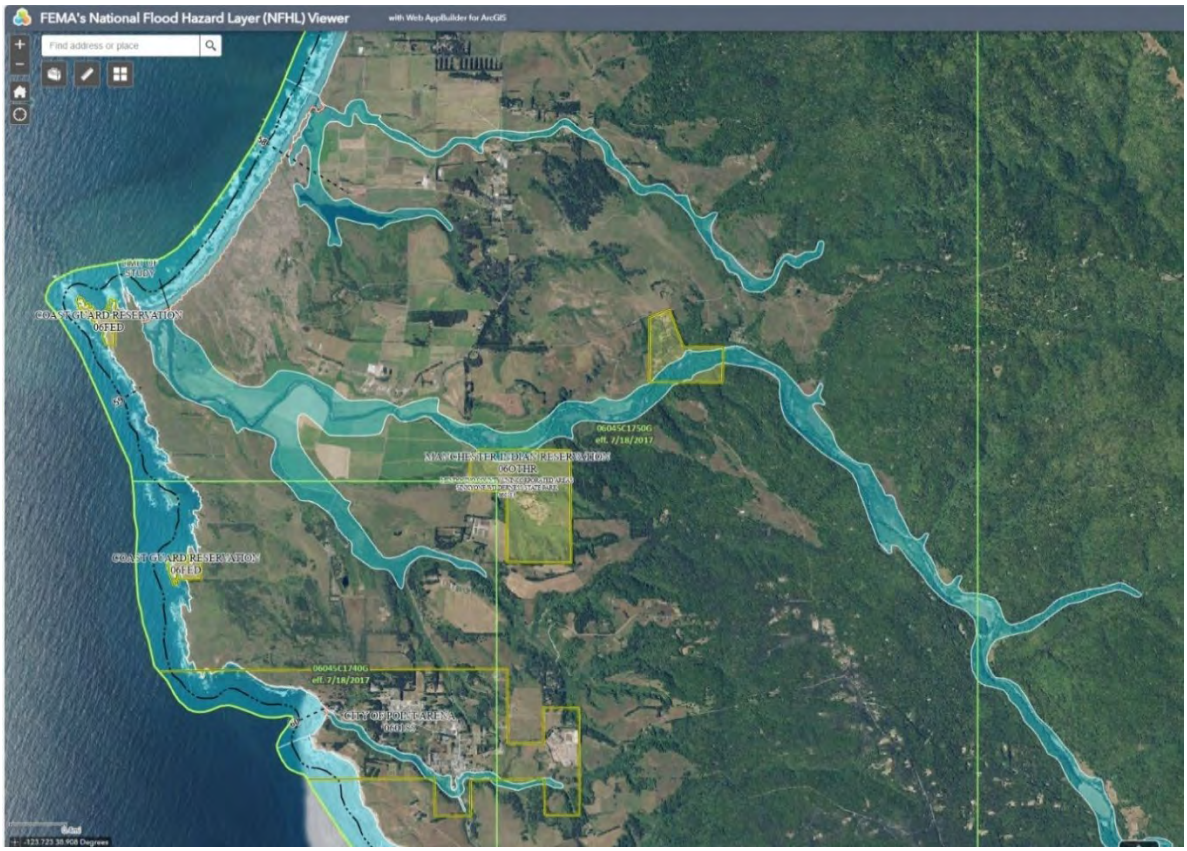

Figure 3. Example of FEMA Special Hazard Areas in vicinity of the Garcia River
SOURCE: FEMA's National Flood Hazard Layer (NFHL) Viewer, 2025, showing Zone VE in Blue, which has a 1% Annual Chance of Flooding

FEMA estimates flood risks based on Total Water Levels (TWLs) which include the effects of high water and wave runup. In 2009, FEMA completed detailed modeling and analyses of coastal hazards along the open coast of California based on data available from 1960 to 2009 (FEMA 2014). The FEMA modeling and analysis is based on a one-dimensional transect-based analysis. For Mendocino County, FEMA computed wave runup at 68 transects that were used to inform wave-induced coastal flooding along each shore segment. The results of FEMA's 2014 analysis were used in mapping of the FEMA Base Flood Elevation (BFE). For this study, ESA calculated updated TWLs using FEMA methods and extended the period of record by 15 years through 2024 (i.e., updated data set from 1960 to 2024). Mapping of the extended period of record compared well with the FEMA mapping, with small differences in limited locations where recent extreme coastal storms (e.g., January 2023) influence the extreme value distribution and increased the 100-year TWL and associated flooding extents. TWLs from the FEMA Open Pacific Coast Flood Study, FEMA BFE map and FEMA extended period of record are provided in **Table 3** along with the TWL selected for use in this study. For some transects, the statistical approach provided results that appeared to be outliers. In these instances, the non-updated values were used.

TABLE 3. EXISTING EXTREME (100-YEAR) TOTAL WATER LEVELS

Transect (North to South)	FEMA IDS3	FEMA BFE	FEMA Extended	TWL Used for this Study
1	44.3	44	44.7	**44.7**
2	21.1	21	23.3	**23.3**
3	36.7	37	35.9	**37.0**
4	36.1	36	35.1	**36.1**
5	34.3	34	19.6	**34.3**
6	18.4	18	19	**19.0**
7	31.5	32	38.9	**32.0**
8	23.6	24	32	**24.0**
9	24.2	24	34.2	**24.2**
10	33.2	36	36.7	**36.7**
11	31.8	32	29.5	**32.0**
12	22.1	22	22.3	**22.3**
13	33.0	33	27.6	**33.0**
14	21.3	21	23.9	**23.9**
15	21.9	22	23.1	**23.1**
16	23.3	23	24.5	**24.5**
17	28.7	29	28	**29.0**
18	29.5	29	28.2	**29.5**
19	22.5	29	29.5	**29.0**
20	19.1	19	21.4	**21.4**
21	20.6	21	21.6	**21.6**
22	25.4	25	26.2	**26.2**
23	30.9	31	30.6	**31.0**
24	47.5	48	51.3	**51.3**
25	29.4	29	31.7	**29.4**
26	35.1	35	35.2	**35.2**

SOURCE: FEMA IDS3 2009, FEMA BFE 2024, ESA analysis.

Table Continued

TABLE 3 CONTINUED. EXISTING EXTREME (100-YEAR) TOTAL WATER LEVELS

Transect (North to South)	FEMA IDS3	FEMA BFE	FEMA Extended	TWL Used for this Study
27	31.4	31	35.2	**35.2**
28	35.4	35	37.4	**37.4**
29	39.8	40	56	**40.0**
30	19.2	19	24.5	**24.5**
31	40.5	40	45.5	**45.5**
32	35.9	36	35.2	**36.0**
33	18.2	18	22.2	**18.2**
34	30.4	30	31.6	**31.6**
35	50.4	50	52.5	**52.5**
36	32.9	33	46.3	**33.0**
37	20.6	34	25.8	**34.0**
38	42.3	42	40.7	**42.3**
39	49.4	49	50.2	**50.2**
40	51.8	52	53.5	**53.5**
41	26.9	27	35	**27.0**
42	27.8	28	28.7	**28.7**
43	55.2	55	57.2	**57.2**
44	31.1	31	72	**31.1**
45	19.2	19	28	**19.2**
46	26.8	27	28.4	**28.4**
47	40.8	41	45.3	**45.3**
48	21.1	21	35	**21.1**
49	49.9	50	51.1	**51.1**
50	24.0	24	40.3	**24.0**
51	18.7	19	22.8	**19.0**
52	26.0	26	25.1	**26.0**
53	40.9	41	41.3	**41.3**
54	32.2	32	31.2	**32.2**
55	19.8	20	23.1	**20.0**
56	30.4	30	30.1	**30.4**
57	18.6	19	22	**22.0**
58	18.2	18	21.5	**21.5**
59	32.1	32	30	**32.1**
60	29.0	32	31.4	**32.0**
61	30.5	31	37.6	**31.0**
62	23.9	24	26.7	**24.0**
63	22.3	22	27.5	**22.3**
64	22.9	23	29.5	**23.0**
65	29.4	29	27	**29.4**
66	35.9	36	40.1	**40.1**
67	29.7	30	29.6	**30.0**
68	32.6	33	31.9	**33.0**

SOURCE: FEMA IDS3 2009, FEMA BFE 2024, ESA analysis.

The USGS's Coastal Storm Modeling System (CoSMoS) (Barnard 2019) provides storm-induced coastal flood and erosion hazard mapping for current conditions, sea level rise scenarios, and a range of storm scenarios (i.e., return periods) for much of the California coast. Currently, however, the flood and beach erosion mapping extends only as far north as Point Arena, so is not available for the majority of Mendocino County. Mapping of bluff erosion is available (see Erosion Hazards below). The USGS released CoSMoS updates for the Mendocino Coast in December 2025.

3.2 Future Coastal Hazards

3.2.1 Sea Level Rise

The State of California Sea Level Rise Guidance document (OPC 2024) provides a synthesis of the best available science on sea level rise in California. The State Guidance gives a range of sea level rise projections by region for low- to high-emissions scenarios (the low being if emissions are greatly reduced in coming years and the high being if emissions continue as they have since the early 21st century). Sea level rise scenarios for Arena Cove are shown in **Table 4**. Scenarios for California are described in Appendix A**.**

To support resilience planning, hazards will be assessed using 1, 3, and 6 feet of sea level rise. These water levels provide for analysis of several OPC 2024 scenarios. One foot of sea level rise generally corresponds with near-term projections (2050) for the intermediate-high and high scenarios. Three feet of sea level rise generally corresponds with projections for the years 2070 (high scenario), 2080 (intermediate-high scenario), and 2100 (intermediate scenario). Six feet of sea level rise generally corresponds with projections for the years 2100 (high scenario), 2120 (intermediate-high scenario), and 2150 (intermediate scenario).

TABLE 4. SEA LEVEL SCENARIOS FOR ARENA COVE (FEET)

YEAR	LOW	INTERMEDIATE-LOW	INTERMEDIATE	INTERMEDIATE-HIGH	HIGH
2020	0.1	0.2	0.2	0.2	0.2
2030	0.2	0.3	0.3	0.4	0.4
2040	0.3	0.4	0.5	0.6	0.7
2050	0.4	0.5	0.7	0.9	1.1
2060	0.5	0.7	0.9	1.4	1.8
2070	0.5	0.8	1.2	2.1	2.8
2080	0.6	1.0	1.7	2.8	3.9
2090	0.7	1.2	2.2	3.6	5.1
2100	**0.8**	**1.4**	**2.9**	**4.5**	**6.4**
2110	0.8	1.6	3.6	5.4	7.6
2120	0.9	1.7	4.1	6.1	8.7
2130	0.9	1.9	4.6	6.7	9.6
2140	1.0	2.1	5.1	7.3	10.5
2150	1.0	2.3	5.6	7.8	11.4

Note: Median values of sea level scenarios with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion.
SOURCE: OPC 2024

3.2.2 Future Extreme Event Flooding

Extreme flood levels will increase as sea levels rise, though not necessarily in a one-to-one correlation with the amount of SLR. As water levels increase with SLR, nearshore depths will increase and thus wave run up can be amplified because of an increase in breaking wave heights closer to shore. This is particularly true for erosion resistant back shores. For erosional shores, such as sandy beaches, wave runup would not be amplified if a beach maintains its shape as it moves upward and landward with SLR.

To assess how extreme flood elevations will be affected by SLR, ESA calculated future 100-year event TWLs following methods described in the Coastal Hazards Technical Methods Manual (Battalio et al. 2016). The methods account for wave runup variation based on the morphology of the future coastline. ESA used transect data from FEMA (2009) to develop the required morphology factors. Future TWLs were then calculated for each SLR scenario. **Table 5** shows the future TWLs for each SLR scenario. It should be noted that future TWLs use a conservatively high morphology factor and thus the water levels are considered a conservatively high estimate of extreme total water levels.

TABLE 5. FUTURE EXTREME TOTAL WATER LEVELS

Transect	TWL with 1ft SLR	TWL with 3ft SLR	TWL with 6ft SLR
1	47.7	53.7	62.7
2	26.3	32.3	41.3
3	41.0	49.0	61.0
4	39.1	45.1	54.1
5	36.3	40.3	46.3
6	22.0	28.0	37.0
7	35.0	41.0	50.0
8	26.0	30.0	36.0
9	27.2	33.2	42.2
10	42.7	54.7	72.7
11	35.0	41.0	50.0
12	24.3	28.3	34.3
13	36.0	42.0	51.0
14	26.9	32.9	41.9
15	27.1	35.1	47.1
16	27.5	33.5	42.5
17	31.0	35.0	41.0
18	32.5	38.5	47.5
19	31.0	35.0	41.0
20	23.4	27.4	33.4
21	23.6	27.6	33.6
22	28.2	32.2	38.2
23	34.0	40.0	49.0
24	54.3	60.3	69.3
25	32.4	38.4	47.4

NOTE: Assumes high morphology factor

Table Continued

TABLE 5 CONTINUED. FUTURE EXTREME TOTAL WATER LEVELS

Transect	TWL with 1ft SLR	TWL with 3ft SLR	TWL with 6ft SLR
26	38.2	44.2	53.2
27	39.2	47.2	59.2
28	40.4	46.4	55.4
29	44.0	52.0	64.0
30	27.5	33.5	42.5
31	49.5	57.5	69.5
32	40.0	48.0	60.0
33	20.2	24.2	30.2
34	36.6	46.6	61.6
35	55.5	61.5	70.5
36	37.0	45.0	57.0
37	36.0	40.0	46.0
38	46.3	54.3	66.3
39	54.2	62.2	74.2
40	57.5	65.5	77.5
41	30.0	36.0	45.0
42	32.7	40.7	52.7
43	61.2	69.2	81.2
44	34.1	40.1	49.1
45	21.2	25.2	31.2
46	32.4	40.4	52.4
47	49.3	57.3	69.3
48	23.1	27.1	33.1
49	55.1	63.1	75.1
50	28.0	36.0	48.0
51	21.0	25.0	31.0
52	29.0	35.0	44.0
53	44.3	50.3	59.3
54	34.2	38.2	44.2
55	22.0	26.0	32.0
56	33.4	39.4	48.4
57	25.0	31.0	40.0
58	23.5	27.5	33.5
59	36.1	44.1	56.1
60	38.0	50.0	68.0
61	34.0	40.0	49.0
62	27.0	33.0	42.0
63	25.3	31.3	40.3

NOTE: Assumes high morphology factor

Table Continued

TABLE 5 CONTINUED. FUTURE EXTREME TOTAL WATER LEVELS

Transect	TWL with 1ft SLR	TWL with 3ft SLR	TWL with 6ft SLR
64	27.0	35.0	47.0
65	31.4	35.4	41.4
66	44.1	52.1	64.1
67	34.0	42.0	54.0
68	37.0	45.0	57.0

NOTE: Assumes high morphology factor

Wave overtopping was investigated for each transect and SLR scenario. Overall, overtopping was found to occur at 21 of transects during existing conditions and at 22, 28, and 36 of the transects with 1ft, 3ft and 6ft of SLR, respectively. When overtopping occurs, the landward extent of overtopping was calculated and used in the mapping. The calculated landward extent for each overtopping occurrence can be seen on each transect line within the coastal hazards maps shown in **Appendix B**.

3.2.3 Erosion Hazards

Erosion is a widespread issue within Mendocino County. Future sea level rise will shift the water's edge landward and upward, resulting in larger waves that break closer to shore and higher wave run up. In general, these processes are expected to increase beach and bluff erosion and result in narrower beaches depending on sand supply. Beaches are likely to shift landward and upward as waves erode the ocean-ward shore and deposit sediments in the surf zone. The extent to which beaches persist will depend on sediment supply and backshore conditions. Increased sediment loads from the rivers (i.e., if rainfall frequency or intensity increases) or localized erosion of bluffs will increase sediment supply. Depending on the rates of sea level rise and erosion of the backshore, sediment delivery may or may not be enough to keep pace with rising seas. Areas with erosion-resistant barriers (like seawalls and the bluffs) will not erode fast enough to provide space for landward migration of fronting beaches.

The county's Climate Vulnerability Assessment Report indicates an average of over 600 feet of dune retreat, and an average of over 100 feet of cliff retreat by end of century, citing a study by the California Climate Change Center (2009).[18] A study by the Pacific Institute (2009) maps bluff erosion hazards for Mendocino County for 4.6 feet of sea level rise by 2100. This map view is based on ESA's (formerly Philip Williams & Associates') modeling and mapping of flood and coastal erosion response to SLR along the coast of California. As noted above, USGS CoSMoS provides bluff and cliff erosion data, including cliff retreat for various sea level rise scenarios (Barnard et al. 2023).

3.2.4 Data Gaps

This assessment did not include the risk of groundwater rise in its analysis. Future updates to the County's sea level rise risk analysis and vulnerability assessment could incorporate the best available science regarding the interaction between groundwater and sea level rise, such as CoSMoS data. In general, sea level rise has a limited effect on groundwater in low-lying areas. Existing assets in these

[18] California Climate Change Center. 2009. *The Impacts of Sea-Level Rise on The California Coast.* CEC-500-2009-024-F

locations are typically exposed to periods of high groundwater with no obvious impacts. Infrastructure, such as sewer lines and other wastewater systems, may require more detailed study to evaluate infiltration and inflow (I&I) and other potential implications of seawater intrusion into the wastewater system. The County is currently studying the impact of withdrawals for water supply on groundwater, and the impacts of sea water intrusion.

3.3 Coastal Hazard Mapping

The hazard zones used in this analysis are:

- Tidal Inundation – Tidal inundation refers to areas that are below the typical high tide elevation under non-storm conditions.
- Storm Flooding and Waves – In this study, "storm flooding" refers to flooding caused by the combination of tides, the high-water levels that come with a storm and the effects of waves, including wave setup (i.e., dynamic water level) and runup. The coastal storm used to define the hazard zone is estimated to have a 1% chance of occurring each year (i.e., a "100-year storm").
- Dune and Bluff Erosion – In this study, "dune erosion" refers to the permanent loss of sandy beaches, dunes, and the low-lying backshore and "bluff erosion" refers to the inland movement of coastal bluffs as material falls or collapses onto the beach (or into the ocean) below.

The coastal hazard maps are in Appendix B.

3.3.1 Comparison of Coastal Hazard Mapping Methods to USGS's CoSMoS

In December 2025, USGS released existing and future coastal hazard maps for Mendocino County using the CoSMoS framework. While both datasets depict coastal hazards, they rely on different modeling approaches and represent different physical processes; therefore, differences in mapped extents are expected. CoSMoS dynamically simulates wave setup and sustained inundation using coupled wave and hydrodynamic models, whereas ESA mapping incorporates hindcast data of coincident water levels, wave setup, and wave runup to define maximum 100-year storm total water levels (TWL) and flood extents. Together, these approaches provide a more complete picture of potential coastal flooding across a range of conditions. In most cases, the coastal hazard mapping methods used in this Assessment depict more extensive coastal flooding (i.e., greater inland extent) under both existing conditions and future scenarios with up to approximately 6 feet of sea level rise. A limited portion of the coastline shows CoSMoS predicting greater inland flooding than ESA; however, these areas are primarily bluff-backed and largely undeveloped. Differences between the datasets are attributed to methodological and data uncertainties and are expected given fundamentally different modeling approaches, input datasets, and representations of coastal processes. Overall, the use of multiple hazard mapping approaches increases confidence in understanding potential coastal hazards and risks over time. Based on this comparison, the coastal hazards mapping used in this Assessment remains appropriate and does not require revision or reanalysis using CoSMoS data.

3.3.2 Extreme Event Flooding and Storm Waves

The extreme event hazard zones for existing and future SLR scenarios were mapped using TWLs (from Section 3.2.2) and are shown in **Figures 1a-n in Appendix B**. The extreme event is defined as the 100-year event for this study. Storm flooding and storm waves are considered a temporary loss hazard.

Wave Hazards (VE zones) were mapped in low-lying areas with direct wave exposure. Wave runup is considered in this vulnerability assessment because it can cause significant damage. Impacts from storm waves are more severe than storm flooding hazards from standing water because wave momentum can, for example, cause structural damage, move vehicles, and knock people over. As noted in Section 3.3.2, the TWLs used here provide a conservatively high estimate of future wave hazards.

3.3.3 Tidal Inundation

The National Oceanic and Atmospheric Administration (NOAA) produces (non-storm) tidal inundation mapping for future sea levels relative to existing mean higher-high water (MHHW) tidal datum; ESA utilized this data for Mendocino County as CoSMoS data (commonly used) was not yet available. NOAA tidal inundation mapping was utilized for sea level rise scenarios of 0 feet, 1 foot, 3 feet and 6 feet. Note that this method may result in overestimating of the flooding in some areas due to the "bathtub" projection of water levels onto the topography, while underestimating flooding in other areas that are exposed to waves and other high tide effects. Note that this may not represent inundation associated with extreme typical high tides, such as the "king tide," high astronomical tides, and spring tides.

Tidal inundation hazards affect assets on the surface by inundation, and buried assets (like sewer lines) could be exposed to saltwater intrusion and corrosion as higher sea levels change groundwater depth and salinity. This hazard does not include changes to stormwater drainage and specific culverts and resulting changes to flooding. In this study, tidal flooding is considered a permanent loss hazard since assets regularly beneath high tide will likely be effectively unusable. **Figures 2a-n in Appendix B** show the areas exposed to the existing and future estimates due to tidal inundation.

3.3.4 Long-Term Shoreline and Bluff Erosion

Over time, sandy beaches and dunes experience temporary erosion, with sand moving seasonally to and away from the beach, and permanent erosion, with sand moving away from the beach without returning. In this study, "dune erosion" refers to the permanent loss of sandy beaches, dunes, and the low-lying backshore that occurs with changing sea level or sand supply. Coastal bluffs are subject to permanent erosion at the leading edge of the bluff as material falls or collapses onto the beach (or into the ocean) below. The term "coastal bluff" refers to the entire slope between a marine terrace or upland area and the sea (CCC n.d.). The terms bluff erosion and cliff erosion are sometimes used interchangeably since a sea cliff is the ocean-facing (and erosive) part of a coastal bluff. Sea cliffs are the lower, near vertical portion of a coastal bluff.

This study draws from two sources to map coastal dune and bluff erosion for Mendocino County: Philip Williams and Associates (PWA) 2009 and Coastal Storm Modeling System (CoSMoS). Each source has relative benefits and limitations. PWA (now ESA) prepared coastal erosion hazard mapping for the California Ocean Protection Commission for much of the California coast. The PWA (2009) dataset maps

coastal bluff and dune erosion for Mendocino County under future conditions with 0.7 ft, 1.3ft, 4.6 ft of SLR. The PWA study provides dune erosion estimates (not yet available through CoSMoS) and a higher level of spatial resolution for Mendocino County relative to CoSMoS. Since the time of the PWA study, however, there have been advances in assessing shoreline erosion hazards.

The CoSMoS dataset for Northern California uses more up-to-date data and methods. CoSMoS provides projections of bluff erosion under future conditions with 1.6 feet, 3.3 feet and 6.6 feet SLR. CoSMoS dune erosion estimates are expected in late 2025. CoSMoS incorporates cliff materials, changing water levels, and wave conditions to provide a line indicating the inland extent of bluff erosion for each SLR scenario. The assets between this line and the tidal inundation hazard zone were deemed exposed to erosion. In this study, bluff erosion is considered a permanent loss hazard since assets in eroded areas will be completely lost. **Figures 3a-n in Appendix B** show the areas exposed to future dune and cliff erosion.

4 ASSET EXPOSURE ANALYSIS

This vulnerability and risk assessment is based on the exposure of identified assets to projected future coastal flooding and erosion hazards. Where an asset intersects a hazard zone, it is identified as exposed. If the flood exposure is expected to impact the asset's function, the asset is identified as vulnerable.

This type of analysis does not precisely assess the cause of failure or an established threshold for each asset type but is an appropriate technique for a planning-level vulnerability analysis. This analysis is meant to inform the order of magnitude of potential impacts if no future interventions are put in place, also known as a "No Action" alternative. This "No Action" baseline can then inform the development of a resilience strategy and related Local Coastal Program policies. This vulnerability analysis should not be used for asset-specific programing or engineering without additional study and possible refinements.

Each asset was assessed for multiple hazard impacts from tidal inundation, storm surge, and coastal erosion at four timelines: present-day, near-, intermediate-, and long-term, which correspond to existing conditions at 0, 1, 3, and 6 feet of sea level rise. As discussed in the SLR Scenarios Memo (Appendix A), these selected levels of SLR encompass multiple future climate projections and timelines: for example, one foot of SLR represents the mid-century (2050) projections for Intermediate-high and High scenarios; three feet of SLR covers late-century projections between 2070 and 2100 for the High and Intermediate scenarios; and six feet of SLR covers next-century projections between 2100 and 2150 for the High and Intermediate scenarios. The Intermediate, Intermediate-High, and High scenarios are defined in the California Ocean Protection Council's 2024 Sea Level Rise Guidance and the selection process of these scenarios for this project is discussed further in Appendix A. Note that for Coastal Erosion (which includes Bluff and Dune Erosion), a prior dataset was available and matched (as best as possible) to the SLR scenarios identified for this study.

The parameters and results of the exposure analysis are summarized in this section, and a more detailed discussion of vulnerability, risk, and consequences is presented in the next section, along with implications for resilience and adaptation strategy building. The exposure tables and maps, including exposure results for all assets exposed to coastal hazards studied herein for existing conditions, and future scenarios with 1, 3, and 6 feet of sea level rise, are provided in **Appendix C**. The maps are organized by the twelve planning areas and by the four asset types (e.g., Built Environment, Critical Infrastructure, Habitat and Agricultural, Public Access and Recreation) and by the eight hazards scenarios: 1) Present Day 100-year Storm and Wave Runup Conditions (0ft); 2) Mid-Century 100-year Storm and Wave Runup Conditions (1ft); 3) Late-Century 100-year Storm and Wave Runup Conditions (3ft); 4) Next Century 100-year Storm and Wave Runup Conditions (6ft); 5) Present Day Bluff Erosion and Tidal Flooding Conditions (0ft); 6) Mid-Century Bluff Erosion and Tidal Flooding Conditions (1ft); 7) Late-Century Bluff Erosion and Tidal Flooding Conditions (3ft); and 8) Next Century Bluff Erosion and Tidal Flooding Conditions (6ft). The tables are also organized by the twelve planning areas and show the asset types' exposure to the wave runup (Wave), 100-year storms (Storm), Tidal Flooding (Tidal), and Coastal Erosion (Coastal) across the four time horizons: Present (P), mid-century (1ft), late-century (3ft), next century (6ft).

4.1 Assets included in this assessment

The exposure analysis draws on a countywide geospatial inventory of assets grouped into four main categories: Critical Infrastructure, Public Access and Recreation, Habitat and Agricultural Resources, and Built Environment. Each category includes multiple sub-categories and asset types, such as roads, wastewater facilities, beaches, or residential buildings, quantified by count, length, or area, as appropriate. The data were compiled from a combination of county datasets, state and federal sources, digitization, and supplemental GIS analysis performed for this study. These tables have their basis in the list of assets described in the Existing Conditions Memorandum (**Appendix D**) and establish the foundation for evaluating which assets intersect with current and projected coastal hazard zones under varying sea-level-rise scenarios. The exposure, vulnerability, and risk information in Sections 4 and 5 is presented according to each of the asset categories listed below.

4.1.1 Critical Infrastructure

TABLE 6. CRITICAL INFRASTRUCTURE ASSETS

Category	Sub-Category	Asset Type	Units
Critical Infrastructure	Power & Communications Infrastructure	Manchester Trans-Pacific Cable Landing Site	Single building
		Power Plants	Number of sites
		Transmission Lines	Length (miles; mi)
		California Substations	Number of sites
		Cell Phone Towers	Number of structures
		Weather Stations	Number of stations
	Environmental Sites	Wastewater Treatment Facilities	Number of facilities
		Hazardous Waste Sites	Number of sites
		Clean Up Sites	Number of sites
	Transportation	Bus Stops	Number of stops

		State Route 1 and State Route 128	Length (mi)
		Bus Lines	Length (mi)
		Local Roads	Length (mi)
	Water Utility for City of Fort Bragg	Water Storage	Number of structures
		Water Station	Number of structures
		Fire Hydrants	Number of structures
		Water Main	Length (mi)
	Stormwater Utility for City of Fort Bragg	Outlet	Length (mi)
		Catch Basin	Number of structures
		Culverts	Number of structures
		Stormwater Line	Length (mi)
		Stormwater Pipes	Length (mi)
	Sewer Utility for City of Fort Bragg	Lift Station	Number of structures
		Sewer Pumps	Number of pumps
		Sewer Mains	Number of mains

4.1.2 Public Access and Recreation

TABLE 7. PUBLIC ACCESS AND RECREATION ASSETS

Category	Sub-Category	Asset Type	Units
Public Access and Recreation	Recreation	California Coastal Trail	Length (mi)
		Recreational Routes	Length (mi)
		Mendocino Railway	Length (mi)
		Private Campgrounds	Number of private campgrounds
	Parks & Govt Lands	Federal Parks & Lands	Area (square mile; sq mi)
		State Parks & Lands	Area (sq mi)
		City Parks & Lands	Area (sq mi)
		Tribal lands	Area (sq mi)
		Land Trust lands	Area (sq mi)

4.1.3 Habitat and Agricultural

TABLE 8. HABITAT AND AGRICULTURAL ASSETS

Category	Sub-Category	Asset Type	Units
	Coastal and Water	Beaches	Length (mi)[19]

[19] Note: Although beach area was available for use in this study, there are limitations of using beach length as a unit for exposure analysis. 'Exposed miles of beach' does not fully capture how beaches will become increasingly vulnerable to higher amounts of SLR. Increasing exposure will impact beach width, i.e., depth from the back beach or bluff toe to the water line, which taken together with length represents the area available for habitat/recreation.

Habitat and Agricultural		Bluffs	Length (mi)
		Streams and Rivers	Length (mi)
		Estuaries	Area (sq mi)
		Wetlands and Environmental Sensitive Habitat Areas (ESHA)	Area (sq mi)
	Habitat	Endangered and Threatened Species Habitats	Area (sq mi)
		Critical Coastal Areas	Area (sq mi)
		Marine Protected Areas	Number of individual designated MPAs
		Areas of Special Biological Significance	Number of individual designated ASBSs
	Agricultural	Agricultural lands	Area (sq mi)

4.1.4 Built Environment

TABLE 9. BUILT ENVIRONMENT ASSETS

Category	**Sub-Category**	**Asset Type**	**Units**
Built Environment	Historical and Cultural Resources	Navarro-by-the-Sea Center	Single building
		Point Cabrillo Lighthouse	Set of buildings
		Point Arena Lighthouse	Set of buildings
		Westport Cemetery	Single plot of land

		Albion River Bridge	Single structure
	Built Environment	Residential Buildings	Number of buildings
		Commercial Buildings	Number of buildings
		Public Facilities	Number of buildings
		Coastal Dependent Use	Number of buildings
	Coastal Armoring	Coastal Armoring	Length (ft)

4.2 Analysis of Hazard Exposure by Zone

Across Mendocino County's coast, asset exposure to coastal hazards increases consistently with sea-level rise, though the dominant hazard type and affected assets vary by location. Transportation and built-environment assets show the most widespread exposure overall, driven primarily by bluff erosion and storm flooding along State Route 1 and local access roads in nearly every planning zone. Residential buildings show increasing exposure driven primarily by coastal bluff erosion near Fort Bragg, Albion, and Gualala, while limited areas of tidal flooding affect low-lying neighborhoods adjacent to Noyo Harbor and the Navarro River. Public access and recreation assets—especially the California Coastal Trail and state parks—experience incremental exposure under all scenarios, which would likely mean both trail washouts and landward migration of beaches. Habitat and agricultural assets remain relatively stable under near-term conditions but could become increasingly constrained at higher sea levels as beaches, estuaries, and wetlands are squeezed between rising frequent tides and developed uplands. Critical infrastructure such as wastewater facilities and coastal armoring assets are exposed primarily in Fort Bragg and Point Arena, with risks concentrated where built features intersect tidal and storm hazard zones. The asset exposure table for each planning zone is shown in the regional profiles below. To see the asset totals by climate scenario and hazard type, refer to the tables in Appendix C**.**

4.2.1 Lost Coast

The Lost Coast zone extends from the Humboldt County Line to north of Rockport and includes the remote northernmost stretch of Mendocino County, characterized by steep bluffs, narrow beaches, and scattered recreational access points with few built assets. Exposure in this zone is low today but expands steadily under future scenarios, driven primarily by coastal bluff erosion and localized stream flooding along small valleys. Transportation and recreation assets—particularly local roads and the California Coastal Trail—show increasing exposure as bluffs retreat and crossings become more frequently inundated. Habitat assets such as beaches, rivers, and critical coastal areas also experience gradual loss of area under higher sea-level conditions, reflecting the absence of natural accommodation space for inland

migration. Built-environment exposure remains minimal across all scenarios, consistent with the zone's sparse development. The totals table is shown below. To see the asset totals by climate scenario and hazard type, refer to the tables to Appendix C.

TABLE 10. LOST COAST ASSET EXPOSURE

Sub-Category	Asset Type	Units	Present Day (0 ft)	Mid-Century (1ft SLR)	Late-Century (3ft SLR)	End-of-Century (6ft SLR)
Transportation	Roads	Length (mi)	1.9	2.8	5	10.5
Recreation	California Coastal Trail	Length (mi)	0.7	2.3	5.7	14.9
Recreation	Recreational Routes	Length (mi)	1.6	3.1	6.6	15.8
Parks & Govt Lands	Federal Parks & Lands	Area (sq mi)	0	0.2	0.2	0.4
Parks & Govt Lands	State Parks & Lands	Area (sq mi)	0.2	1.1	1.5	2.6
Parks & Govt Lands	Land Trust lands	Area (acres)	10	76	96	143
Coastal and Water	Beaches	Length (mi)	1.9	2	2.1	2.1
Coastal and Water	Bluffs	Length (mi)	2.1	2.2	2.2	2.3
Coastal and Water	Streams and Rivers	Length (mi)	2.4	5.3	8	13.6
Coastal and Water	Estuaries	Area (acres)	20	20	20	20
Coastal and Water	Wetlands and ESHA	Area (acres)	106	107	110	111
Habitat	Endangered and Threatened Species Habitats	Area (acres)	79	91	104	125
Habitat	Critical Coastal Areas	Area (sq mi)	0	0.3	0.4	0.8
Habitat	Marine Protected Areas	Number of individually designated MPAs	1	1	1	1
Habitat	Areas of Special Biological Significance	Number of individually designated ASBSs	1	1	1	1

4.2.2 Westport

The Westport zone extends from Rockport to Little Valley Road and encompasses a small coastal community and adjacent rural lands characterized by low bluffs, pocket beaches, and limited

infrastructure. Present-day exposure is moderate, primarily affecting State Route 1, local roads, and nearby recreational assets. Exposure increases notably with sea-level rise as storm flooding and coastal bluff erosion extend inland from the shoreline. Transportation assets show the largest increase in exposure, with both the highway and local access roads increasingly intersecting storm and erosion hazard zones. Residential and commercial buildings also see gradual increases in exposure, largely associated with bluff retreat rather than widespread inundation. Habitat and recreation assets—including beaches, wetlands, and the California Coastal Trail—experience incremental impacts under higher scenarios, particularly where beaches narrow or disappear at the base of eroding cliffs. The totals table is shown below. To see the asset totals by climate scenario and hazard type, refer to the tables in Appendix C.

TABLE 11. WESTPORT ASSET EXPOSURE

Sub-Category	Asset Type	Units	Present Day (0 ft)	Mid-Century (1ft SLR)	Late-Century (3ft SLR)	End-of-Century (6ft SLR)
Transportation	State Route 1	Length (mi)	0.8	3.2	4.3	7.1
Transportation	Roads	Length (mi)	17.4	24.3	31.8	44.3
Recreation	California Coastal Trail	Length (mi)	9.1	10.9	11.9	12.7
Recreation	Recreational Routes	Length (mi)	3.9	5.1	6	6.5
Recreation	Private Campgrounds	Number of private campgrounds	1	1	1	1
Parks & Govt Lands	State Parks & Lands	Area (sq mi)	1	1.2	1.5	1.8
Parks & Govt Lands	Land Trust lands	Area (acres)	11	11	11	11
Coastal and Water	Beaches	Length (mi)	7.2	7.5	7.6	7.7
Coastal and Water	Bluffs	Length (mi)	7.1	7.9	8.3	8.7
Coastal and Water	Streams and Rivers	Length (mi)	20.6	23	26	30.6
Coastal and Water	Estuaries	Area (sq mi)	0.4	0.4	0.4	0.4
Coastal and Water	Wetlands and ESHA	Area (sq mi)	2	2.2	2.4	2.7
Habitat	Endangered and Threatened Species Habitats	Area (sq mi)	2.9	3.1	3.7	4.2
Habitat	Critical Coastal Areas	Area (sq mi)	1	1.1	1.3	1.5
Habitat	Marine Protected Areas	Number of individually designated MPAs	5	5	5	5

Agricultural	Agricultural lands	Area (acres)	72	98	113	138
Historical and Cultural Resources	Westport Cemetery	Single plot of land	0	1	1	1
Built Environment	Residential Buildings	Number of buildings	8	35	51	84
Coastal Armoring	Coastal Armoring	Length (mi)	0.5	0.6	0.6	0.7

4.2.3 North Fort Bragg

The North Fort Bragg zone extends from Little Valley Road to the northern city limits, encompassing low-lying coastal terraces and dunes. Current exposure is limited, with only a few transportation and recreation assets intersecting coastal hazard zones, but exposure increases under all future scenarios. Roads and sewer mains show early impacts from storm flooding along river corridors, while residential buildings show increasing exposure driven primarily by bluff erosion and perched groundwater intrusion. Beaches and bluffs experience progressive narrowing and retreat, reducing recreational access and habitat continuity. Public access routes and trail segments also become more frequently exposed to flooding under mid- and late-century scenarios. The totals table is shown below. To see the asset totals by climate scenario and hazard type, refer to the tables in Appendix C.

TABLE 12. NORTH FORT BRAGG ASSET EXPOSURE

Sub-Category	Asset Type	Units	Present Day (0 ft)	Mid-Century (1ft SLR)	Late-Century (3ft SLR)	End-of-Century (6ft SLR)
Environmental Sites	Clean Up Sites	Number of sites	0	0	0	1
Transportation	State Route 1	Length (mi)	0.2	0.2	0.5	1.3
Transportation	Roads	Length (mi)	1.1	1.4	2.3	5.7
Water Utility for City of Fort Bragg	Fire Hydrants	Number of structures	0	0	1	2
Water Utility for City of Fort Bragg	Water Main	Length (mi)	0	0	0.1	0.3
Stormwater Utility for City of Fort Bragg	Culverts	Number of structures	0	0	0	1
Sewer Utility for City of Fort Bragg	Sewer Mains	Length (ft)	3	5	8	14
Recreation	California Coastal Trail	Length (mi)	1.7	3.1	4.9	5.4
Recreation	Recreational Routes	Length (mi)	3.1	5	7.6	10.1

Parks & Govt Lands	State Parks & Lands	Area (sq mi)	0.2	0.3	0.4	0.5
Coastal and Water	Beaches	Length (mi)	0.6	0.6	0.6	0.6
Coastal and Water	Bluffs	Length (mi)	1.4	1.4	1.4	1.4
Coastal and Water	Streams and Rivers	Length (mi)	1.3	1.5	1.7	2
Coastal and Water	Estuaries	Area (acres)	36	36	36	36
Coastal and Water	Wetlands and ESHA	Area (acres)	69	75	84	93
Habitat	Endangered and Threatened Species Habitats	Area (sq mi)	0.4	0.5	0.7	1
Habitat	Critical Coastal Areas	Area (acres)	62	67	80	111
Habitat	Marine Protected Areas	Number of individually designated MPAs	1	1	1	1
Built Environment	Residential Buildings	Number of buildings	2	3	21	60
Coastal Armoring	Coastal Armoring	Length (ft)	49	50	50	50

4.2.4 South Fort Bragg (Noyo & City)

The South Fort Bragg zone extends from City limits to Hare Creek includes the developed waterfront around Noyo Harbor and the southern portion of the city, containing the county's highest concentration of coastal-dependent uses and municipal utilities. Present-day exposure is already evident within the harbor due to its low elevation and proximity to the Noyo River mouth. Exposure increases across nearly all asset types under future sea-level rise scenarios, driven primarily by tidal flooding and storm surge. Wastewater and sewer facilities, water stations, and lift stations are among the most consistently exposed assets, reflecting their location at or near current high-tide elevations. Coastal-dependent buildings and commercial structures within the harbor basin also experience growing exposure, while residential buildings near the bluff tops are increasingly affected by coastal erosion. Transportation assets, including short sections of State Route 1 and connecting local roads, show minor but notable increases in exposure to storm flooding by mid-century. The totals table is shown below. To see the asset totals by climate scenario and hazard type, refer to the tables in Appendix C.

TABLE 13. SOUTH FORT BRAGG (NOYO AND CITY) ASSET EXPOSURE

Sub-Category	Asset Type	Units	Present Day (0 ft)	Mid-Century	Late-Century (3ft SLR)	End-of-Century (6ft SLR)

				(1ft SLR)		
Power & Comms	Transmission Lines	Length (mi)	0.3	0.4	0.4	0.4
Environmental Sites	Wastewater Treatment Facilities	Number of facilities	0	1	1	1
Environmental Sites	Clean Up Sites	Number of sites	1	1	1	1
Transportation	State Route 1	Length (mi)	0.3	0.4	0.6	0.6
Transportation	Bus Lines	Length (mi)	1.2	1.2	1.2	1.6
Transportation	Roads	Length (mi)	4	4.6	5.8	8
Water Utility for City of Fort Bragg	Water Station	Number of structures	1	1	1	1
Water Utility for City of Fort Bragg	Fire Hydrants	Number of structures	6	6	6	8
Water Utility for City of Fort Bragg	Water Main	Length (mi)	1.6	1.6	1.8	1.9
Stormwater Utility for City of Fort Bragg	Catch Basin	Number of structures	8	8	9	13
Stormwater Utility for City of Fort Bragg	Culverts	Number of structures	0	0	0	1
Stormwater Utility for City of Fort Bragg	Stormwater Pipes	Length (ft)	0	0	0	1
Sewer Utility for City of Fort Bragg	Lift Station	Number of structures	3	3	3	3
Sewer Utility for City of Fort Bragg	Sewer Pumps	Number of pumps	3	3	3	3
Sewer Utility for City of Fort Bragg	Sewer Mains	Length (ft)	43	44	46	50
Recreation	California Coastal Trail	Length (mi)	1	1.9	3	5.2
Recreation	Recreational Routes	Length (mi)	0.3	0.3	0.4	0.7
Parks & Govt Lands	State Parks & Lands	Area (acres)	21	25	32	45
Parks & Govt Lands	City Parks & Lands	Area (acres)	25	48	62	87
Parks & Govt Lands	Land Trust lands	Area (acres)	5	5	5	5
Coastal and Water	Beaches	Length (mi)	1.2	1.2	1.2	1.2
Coastal and Water	Bluffs	Length (mi)	3.3	3.4	3.4	3.4
Coastal and Water	Streams and Rivers	Length (mi)	6.3	6.4	6.6	6.8
Coastal and Water	Estuaries	Area (acres)	120	120	121	121

Coastal and Water	Wetlands and ESHA	Area (acres)	153	154	163	166
Habitat	Endangered and Threatened Species Habitats	Area (sq mi)	0.4	0.4	0.4	0.5
Habitat	Critical Coastal Areas	Area (sq mi)	0.3	0.4	0.4	0.5
Habitat	Marine Protected Areas	Number of individually designated MPAs	1	1	1	1
Agricultural	Agricultural lands	Area (acres)	58	59	61	65
Built Environment	Residential Buildings	Number of buildings	0	13	17	23
Built Environment	Commercial Buildings	Number of buildings	0	0	0	4
Built Environment	Coastal Dependent Use	Number of buildings	58	58	58	59
Coastal Armoring	Coastal Armoring	Length (ft)	608	853	903	903

4.2.5 South Fort Bragg (Hare Creek to Jug Handle)

The South Fort Bragg (Hare Creek to Jug Handle) zone is characterized by headlands, residential parcels on marine terraces, and scenic recreational areas including portions of the California Coastal Trail. Present-day exposure is low, reflecting the limited extent of low-lying land, but increases moderately under future sea-level rise scenarios. Exposure in this zone is driven primarily by bluff erosion, which gradually threatens residential buildings and trail segments located near cliff edges. Roads and recreational routes show localized impacts from storm flooding at creek crossings but remain largely passable under near-term conditions. Beaches and bluffs experience steady erosion, leading to long-term loss of access and natural buffer width. Because this zone contains relatively few public facilities or utilities, exposure is concentrated in the built environment and recreation categories rather than in critical infrastructure. The totals table is shown below. To see the asset totals by climate scenario and hazard type, refer to the tables in Appendix C.

TABLE 14. SOUTH FORT BRAGG (HARE CREEK TO JUG HANDLE) ASSET EXPOSURE

Sub-Category	Asset Type	Units	Present Day (0 ft)	Mid-Century (1ft SLR)	Late-Century (3ft SLR)	End-of-Century (6ft SLR)
Power & Comms	Transmission Lines	Length (ft)	0	74	81	92
Transportation	State Route 1	Length (ft)	246	253	267	292
Transportation	Bus Lines	Length (mi)	0.4	0.4	0.4	0.4
Transportation	Roads	Length (mi)	0.1	0.2	0.4	1

Recreation	California Coastal Trail	Length (mi)	0.8	1.1	1.4	1.6
Recreation	Recreational Routes	Length (mi)	0.4	0.6	0.8	1.1
Parks & Govt Lands	State Parks & Lands	Area (acres)	35	43	55	79
Coastal and Water	Beaches	Length (mi)	0.6	0.6	0.7	0.7
Coastal and Water	Bluffs	Length (mi)	3.4	3.5	3.6	3.6
Coastal and Water	Streams and Rivers	Length (mi)	0.9	1.1	1.5	1.9
Coastal and Water	Estuaries	Area (acres)	3	3	3	3
Coastal and Water	Wetlands and ESHA	Area (acres)	26	26	27	30
Habitat	Endangered and Threatened Species Habitats	Area (acres)	58	69	84	112
Habitat	Critical Coastal Areas	Area (acres)	25	30	38	50
Habitat	Areas of Special Biological Significance	Number of individually designated ASBSs	1	1	1	1
Built Environment	Residential Buildings	Number of buildings	21	27	35	55
Coastal Armoring	Coastal Armoring	Length (ft)	41	41	41	41

4.2.6 Caspar

Casparis a small coastal community with surrounding rural bluffs situated between Jug Handle Creek and Russian Gulch. The area contains residential buildings, coastal trails, and the Point Cabrillo Lighthouse complex, which is an important historical and recreational resource. Present-day exposure is limited but increases steadily under all sea-level rise scenarios, driven primarily by bluff erosion and storm flooding along the coastal terrace. Residential buildings show increasing exposure driven primarily by bluff erosion, particularly in areas near the Caspar Headlands and Point Cabrillo. Transportation and recreation assets, including local roads, bus lines, and the California Coastal Trail, experience moderate increases in exposure as rising seas and wave energy undermine bluff stability and erode trail corridors. Beaches and nearshore habitats continue to narrow, resulting in reduced shoreline access and habitat area. The totals table is shown below. To see the asset totals by climate scenario and hazard type, refer to the tables in Appendix C.

TABLE 15. CASPAR ASSET EXPOSURE

Sub-Category	Asset Type	Units	Present Day (0 ft)	Mid-Century (1ft SLR)	Late-Century (3ft SLR)	End-of-Century (6ft SLR)
Power & Comms	Transmission Lines	Length (ft)	614	683	754	865
Environmental Sites	Clean Up Sites	Number of sites	0	0	0	1
Transportation	Bus Stops	Number of stops	2	2	2	2
Transportation	State Route 1	Length (ft)	400	410	432	483
Transportation	Bus Lines	Length (mi)	2.8	3	3.7	4.5
Transportation	Roads	Length (mi)	1.9	2.2	2.5	3.2
Recreation	California Coastal Trail	Length (mi)	0.5	1	1.5	2.2
Recreation	Recreational Routes	Length (mi)	1.2	2.1	2.7	3.6
Recreation	Private Campgrounds	Number of campgrounds	1	1	1	1
Parks & Govt Lands	State Parks & Lands	Area (acres)	73	94	113	145
Coastal and Water	Beaches	Length (ft)	920	967	987	992
Coastal and Water	Bluffs	Length (mi)	3.4	3.7	3.8	4
Coastal and Water	Streams and Rivers	Length (mi)	2.7	2.8	3	3.3
Coastal and Water	Estuaries	Area (acres)	17	17	17	17
Coastal and Water	Wetlands and ESHA	Area (acres)	61	63	66	70
Habitat	Endangered and Threatened Species Habitats	Area (acres)	91	102	114	133
Habitat	Critical Coastal Areas	Area (acres)	7	11	14	20
Habitat	Marine Protected Areas	Number of individually designated MPAs	2	2	2	2
Habitat	Areas of Special Biological Significance	Number of individually designated ASBSs	1	1	1	1
Historical and Cultural Resources	Point Cabrillo Lighthouse	Set of buildings	0	1	2	4

Built Environment	Residential Buildings	Number of buildings	10	33	46	70
Built Environment	Public Facilities	Number of buildings	1	1	1	1
Coastal Armoring	Coastal Armoring	Length (ft)	470	541	541	541

4.2.7 Mendocino Town

The Mendocino Town zone encompasses the historic Mendocino Headlands and adjacent residential and commercial areas perched atop high coastal bluffs. The zone includes State Route 1, the California Coastal Trail, several recreational routes, and parklands that form part of Mendocino Headlands State Park. Present-day exposure is limited due to the elevation of the town center, but exposure increases under future scenarios as bluff erosion gradually encroaches on bluff-top buildings and public access routes. Residential and commercial buildings show increasing exposure driven primarily by bluff erosion along the town's western edge, where historic structures are located close to retreating cliff margins. Transportation and recreation assets, including roads, trails, and park access routes, are affected by both erosion and localized storm flooding, particularly near Big River and the headlands. Habitat areas, including wetlands and critical coastal areas near the river mouth, experience incremental tidal inundation, which could incur habitat loss under higher sea levels. The totals table is shown below. To see the asset totals by climate scenario and hazard type, refer to the tables in Appendix C.

TABLE 16. MENDOCINO TOWN ASSET EXPOSURE

Sub-Category	Asset Type	Units	Present Day (0 ft)	Mid-Century (1ft SLR)	Late-Century (3ft SLR)	End-of-Century (6ft SLR)
Power & Comms	Transmission Lines	Length (mi)	0.2	0.2	0.2	0.2
Transportation	State Route 1	Length (mi)	0.1	0.3	0.7	1.4
Transportation	Bus Lines	Length (mi)	1	3.2	6.5	10.5
Transportation	Roads	Length (mi)	3.6	5.4	7.1	9.5
Recreation	California Coastal Trail	Length (mi)	0.4	2	2.6	3
Recreation	Recreational Routes	Length (mi)	3.5	6.1	7.5	8.6
Parks & Govt Lands	State Parks & Lands	Area (sq mi)	0.7	0.8	0.9	1
Coastal and Water	Beaches	Length (mi)	0.7	0.7	0.7	0.7
Coastal and Water	Bluffs	Length (mi)	3.9	4	4.1	4.2
Coastal and Water	Streams and Rivers	Length (mi)	8.5	8.6	8.8	9.3
Coastal and Water	Estuaries	Area (sq mi)	0.5	0.5	0.5	0.5

Coastal and Water	Wetlands and ESHA	Area (sq mi)	0.6	0.6	0.6	0.6
Habitat	Endangered and Threatened Species Habitats	Area (sq mi)	0.8	0.9	1	1.1
Habitat	Critical Coastal Areas	Area (sq mi)	0.8	0.8	0.9	0.9
Habitat	Marine Protected Areas	Number of individually designated MPAs	2	2	2	2
Built Environment	Residential Buildings	Number of buildings	0	15	31	48
Built Environment	Commercial Buildings	Number of buildings	0	0	0	1
Coastal Armoring	Coastal Armoring	Length (ft)	0	95	95	95

4.2.8 Little River

The Little River zone extends from Van Damme State Park to Dark Gulch and includes coastal bluffs, small residential clusters, and critical recreational features such as Van Damme Beach and the California Coastal Trail. Present-day exposure is low but increases notably under future scenarios due to the combined effects of tidal flooding near the river mouth and progressive bluff erosion along the headlands. Residential buildings show increasing exposure driven primarily by bluff erosion, with several structures located near cliff edges becoming susceptible to future retreat. Transportation assets, including State Route 1, bus lines, and local roads, are exposed primarily to storm flooding at low-lying crossings near the river. Recreational and natural assets, including beaches and trail segments, experience gradual loss of area as rising seas compress the beach profile and limit landward migration. The totals table is shown below. To see the asset totals by climate scenario and hazard type, refer to the tables in Appendix C.

TABLE 17. LITTLE RIVER ASSET EXPOSURE

Sub-Category	Asset Type	Units	Present Day	Mid-Century (1ft SLR)	Late-Century (3ft SLR)	End-of-Century (6ft SLR)
Power & Comms	Transmission Lines	Length (ft)	329	449	505	694
Transportation	Bus Stops	Number of stops	0	0	0	1
Transportation	State Route 1	Length (mi)	0.1	0.2	0.4	0.6
Transportation	Bus Lines	Length (mi)	0.9	1.6	2.2	3.3
Transportation	Roads	Length (mi)	1.2	1.4	1.9	3
Recreation	California Coastal Trail	Length (mi)	0.3	0.5	0.8	1.2

Recreation	Recreational Routes	Length (mi)	1.4	1.9	2.5	3.2
Parks & Govt Lands	State Parks & Lands	Area (acres)	46	58	72	96
Coastal and Water	Beaches	Length (mi)	0.4	0.4	0.4	0.4
Coastal and Water	Bluffs	Length (mi)	2.9	3.3	3.3	3.4
Coastal and Water	Streams and Rivers	Length (mi)	1.2	1.4	1.6	2.3
Coastal and Water	Estuaries	Area (acres)	16	16	16	16
Coastal and Water	Wetlands and ESHA	Area (acres)	22	23	23	25
Habitat	Endangered and Threatened Species Habitats	Area (acres)	33	40	46	57
Habitat	Marine Protected Areas	Number of individually designated MPAs	1	1	1	1
Built Environment	Residential Buildings	Number of buildings	4	25	34	57
Built Environment	Commercial Buildings	Number of buildings	0	0	0	2
Coastal Armoring	Coastal Armoring	Length (ft)	287	287	287	287

4.2.9 Albion

Albion extends from Dark Gulch to Navarro River and covers the coastal community surrounding the Albion River and bridge, characterized by a mix of residential, commercial, and coastal-dependent uses, along with recreational resources and natural habitat areas. Present-day exposure is moderate, concentrated around the river mouth and lower bluff areas, and increases under all future sea-level rise scenarios. Residential buildings show increasing exposure driven primarily by bluff erosion and tidal flooding along the river corridor, while coastal-dependent uses near the harbor area experience additional storm flooding under mid- and late-century conditions. Transportation assets, including State Route 1, State Route 128 and local roads, face recurring exposure where the highway crosses low-lying terrain near the bridge approaches. Habitat and recreation assets such as bluffs, rivers, and campgrounds experience gradual increases in exposure as rising seas and wave energy accelerate erosion and narrow beach areas. The totals table is shown below. To see the asset totals by climate scenario and hazard type, refer to the tables in Appendix C.

TABLE 18. ALBION ASSET EXPOSURE

Sub-Category	Asset Type	Units	Present Day (0 ft)	Mid-Century (1ft SLR)	Late-Century (3ft SLR)	End-of-Century (6ft SLR)
Power & Comms	Transmission Lines	Length (mi)	0.2	0.2	0.2	0.2
Environmental Sites	Clean Up Sites	Number of sites	2	2	2	2
Transportation	State Route 1	Length (mi)	2.4	2.9	3.3	3.7
Transportation	State Route 128	Length (mi)	1.8	2.1	2.5	2.6
Transportation	Bus Lines	Length (mi)	5.5	6.5	7.5	8.4
Transportation	Roads	Length (mi)	4.9	5.5	6.3	7.5
Recreation	California Coastal Trail	Length (mi)	0.1	0.3	0.6	0.9
Recreation	Private Campgrounds	Number of private campgrounds	1	1	1	1
Parks & Govt Lands	State Parks & Lands	Area (acres)	49	51	54	58
Parks & Govt Lands	Land Trust lands	Area (acres)	5	18	23	33
Coastal and Water	Beaches	Length (mi)	0.3	0.3	0.3	0.3
Coastal and Water	Bluffs	Length (mi)	4.6	4.8	4.8	4.9
Coastal and Water	Streams and Rivers	Length (mi)	10.6	11.1	11.6	12.3
Coastal and Water	Estuaries	Area (sq mi)	0.4	0.4	0.4	0.4
Coastal and Water	Wetlands and ESHA	Area (sq mi)	0.4	0.4	0.4	0.4
Habitat	Endangered and Threatened Species Habitats	Area (sq mi)	0.8	0.8	0.9	1
Habitat	Critical Coastal Areas	Area (sq mi)	0.6	0.7	0.7	0.7
Habitat	Marine Protected Areas	Number of individually designated MPAs	1	1	1	1
Historical and Cultural Resources	Albion River Bridge	Area of bridge (sq ft)	16538	20189	20313	20469
Built Environment	Residential Buildings	Number of buildings	1	8	20	42
Built Environment	Coastal Dependent Use	Number of buildings	14	15	16	17

4.2.10 Elk

Elk extends from the Navarro River to Mallo Pass Creek and encompasses the coastal bluff community surrounding Greenwood Creek and nearby rural headlands. It includes residential buildings, State Route 1, local roads, beaches, and recreational resources within Greenwood State Beach. Present-day exposure is moderate and increases steadily with sea-level rise, driven primarily by bluff erosion and storm flooding at creek crossings. Residential buildings show increasing exposure driven primarily by bluff erosion, with many homes situated near retreating cliff edges or within active erosion zones. Transportation assets, including State Route 1 and local access roads, are affected by both storm flooding and progressive cliff retreat, resulting in potential long-term access constraints. Recreational and natural assets, including beaches, bluffs, and streams, experience continued erosion and narrowing under future conditions, leading to habitat loss and reduced shoreline access. The totals table is shown below. To see the asset totals by climate scenario and hazard type, refer to the tables in Appendix C.

TABLE 19. ELK ASSET EXPOSURE

Sub-Category	Asset Type	Units	Present Day (0 ft)	Mid-Century (1ft SLR)	Late-Century (3ft SLR)	End-of-Century (6ft SLR)
Power & Comms	Transmission Lines	Length (mi)	0.3	0.4	0.4	0.5
Transportation	Bus Stops	Number of stops	1	2	2	2
Transportation	State Route 1	Length (mi)	0.3	1.4	2.3	4.5
Transportation	Bus Lines	Length (mi)	0.9	3.2	5	9.4
Transportation	Roads	Length (mi)	4.5	7.3	8.7	11.5
Recreation	California Coastal Trail	Length (mi)	0.7	1.1	1.2	1.3
Recreation	Recreational Routes	Length (mi)	0.7	1.2	1.2	1.3
Parks & Govt Lands	State Parks & Lands	Area (acres)	70	92	95	101
Coastal and Water	Beaches	Length (mi)	1.7	2	2.1	2.2
Coastal and Water	Bluffs	Length (mi)	10.2	11.2	11.5	11.9
Coastal and Water	Streams and Rivers	Length (mi)	3.9	5.7	6.7	8.2
Coastal and Water	Estuaries	Area (acres)	143	144	145	146
Coastal and Water	Wetlands and ESHA	Area (sq mi)	0.5	0.5	0.5	0.5
Habitat	Endangered and Threatened Species Habitats	Area (sq mi)	0.3	0.3	0.4	0.4

Habitat	Critical Coastal Areas	Area (sq mi)	0.3	0.3	0.3	0.3
Habitat	Marine Protected Areas	Number of individually designated MPAs	1	1	1	1
Agricultural	Agricultural lands	Area (sq mi)	0.1	0.2	0.3	0.3
Historical and Cultural Resources	Navarro-by-the-Sea Center	Single building	1	1	1	1
Built Environment	Residential Buildings	Number of buildings	9	67	81	111
Coastal Armoring	Coastal Armoring	Length (ft)	27	138	372	736

4.2.11 Manchester & Point Arena

The Manchester and Point Arena zone extends from Mallo Pass Creek to Iverson Road and includes the low-lying coastal plain extending from Irish Beach through the Point Arena headlands, encompassing residential and agricultural lands, the Point Arena Lighthouse, and several state park areas. Present-day exposure is moderate, affecting beaches, roads, and isolated structures, and increases substantially under future sea-level rise scenarios. Residential buildings show increasing exposure driven primarily by storm flooding and tidal inundation in the low-lying Manchester area, while bluff erosion is the dominant hazard near Point Arena and the lighthouse complex. Transportation assets, including State Route 1, local roads, and recreational routes, experience early exposure to storm flooding, particularly in depressions and near river crossings. Habitat and agricultural lands also show moderate increases in exposure as floodplains and wetlands expand inland, resulting in reduced agricultural productivity and habitat fragmentation. The totals table is shown below. To see the asset totals by climate scenario and hazard type, refer to the tables in Appendix C.

TABLE 20. MANCHESTER AND POINT ARENA ASSET EXPOSURE

Sub-Category	Asset Type	Units	Present Day (0 ft)	Mid-Century (1ft SLR)	Late-Century (3ft SLR)	End-of-Century (6ft SLR)
Power & Comms	Manchester Trans-Pacific Cable Landing Site	Single building	0	0	1	1
Power & Comms	Transmission Lines	Length (mi)	0.1	0.1	0.2	0.2
Transportation	State Route 1	Length (mi)	0.9	1	1.3	1.7
Transportation	Bus Lines	Length (mi)	1.8	2.1	2.5	3.5

Transportation	Roads	Length (mi)	6.2	7.5	9.9	14.7
Recreation	California Coastal Trail	Length (mi)	4.4	6.2	7.7	9.4
Recreation	Recreational Routes	Length (mi)	1.3	2.1	2.3	2.5
Parks & Govt Lands	Federal Parks & Lands	Area (acres)	99	115	129	150
Parks & Govt Lands	State Parks & Lands	Area (sq mi)	0.7	0.9	1	1.1
Parks & Govt Lands	City Parks & Lands	Area (acres)	7	7	7	7
Parks & Govt Lands	Tribal lands	Area (acres)	31	43	53	85
Coastal and Water	Beaches	Length (mi)	1.5	1.6	1.6	1.6
Coastal and Water	Bluffs	Length (mi)	3.8	4.1	4.2	4.2
Coastal and Water	Streams and Rivers	Length (mi)	17.8	19.4	21.7	24.4
Coastal and Water	Estuaries	Area (sq mi)	0.5	0.5	0.5	0.5
Coastal and Water	Wetlands and ESHA	Area (sq mi)	1.4	1.5	1.7	1.8
Habitat	Endangered and Threatened Species Habitats	Area (sq mi)	1.7	2	2.4	2.9
Habitat	Critical Coastal Areas	Area (sq mi)	1.8	1.9	2.1	2.3
Habitat	Marine Protected Areas	Number of individually designated MPAs	2	2	2	2
Agricultural	Agricultural lands	Area (sq mi)	2	2.1	2.3	2.6
Historical and Cultural Resources	Point Arena Lighthouse	Set of buildings	0	1	3	4
Built Environment	Residential Buildings	Number of buildings	0	14	24	48
Coastal Armoring	Coastal Armoring	Length (ft)	31	98	98	98

4.2.12 Anchor Bay & Gualala

The Anchor Bay and Gualala zone extends from Iverson Road to Sonoma County Line and encompasses the southernmost portion of the Mendocino County coastline, where residential neighborhoods, commercial corridors, and small beaches occupy narrow terraces between steep hillsides and the Pacific Ocean. Present-day exposure is relatively limited but increases sharply with future sea-level rise, driven primarily by bluff erosion along the headlands and tidal flooding in the Gualala River estuary. Residential buildings show increasing exposure driven primarily by bluff erosion, especially in neighborhoods along the seaward edge of Gualala where retreat rates accelerate under higher water levels. Commercial buildings experience moderate increases in exposure as storm flooding expands along the downtown corridor and low-lying parcels near the river mouth. Transportation assets, including State Route 1 and local connector roads, become increasingly exposed to both storm flooding and erosion where the highway runs adjacent to steep coastal slopes. Recreation and natural assets such as beaches, bluffs, and estuarine habitats face incremental but widespread impacts as rising tides reduce beach width and encroach on riparian habitat. The totals table is shown below. To see the asset totals by climate scenario and hazard type, refer to the tables in Appendix C.

TABLE 21. ANCHOR BAY AND GUALALA ASSET EXPOSURE

Sub-Category	Asset Type	Units	Present Day (0 ft)	Mid-Century (1ft SLR)	Late-Century (3ft SLR)	End-of-Century (6ft SLR)
Power & Comms	Transmission Lines	Length (ft)	83	90	97	111
Transportation	State Route 1	Length (mi)	0.2	1.1	1.7	2.5
Transportation	Bus Lines	Length (mi)	0.8	5.1	7.8	13.3
Transportation	Roads	Length (mi)	1	2.3	3.3	5.1
Recreation	California Coastal Trail	Length (mi)	0.9	2.3	2.8	3.5
Recreation	Recreational Routes	Length (mi)	0.1	0.2	0.3	0.4
Recreation	Private Campgrounds	Number of private campgrounds	1	1	1	1
Parks & Govt Lands	State Parks & Lands	Area (acres)	19	25	30	36
Parks & Govt Lands	Land Trust lands	Area (acres)	1	8	10	17
Coastal and Water	Beaches	Length (mi)	1.2	1.4	1.5	1.5
Coastal and Water	Bluffs	Length (mi)	6.7	7.6	7.7	7.9
Coastal and Water	Streams and Rivers	Length (mi)	3.7	4.3	5.1	6.4
Coastal and Water	Estuaries	Area (acres)	62	62	63	63
Coastal and Water	Wetlands and ESHA	Area (acres)	122	125	127	131

Habitat	Endangered and Threatened Species Habitats	Area (acres)	95	134	151	184
Habitat	Critical Coastal Areas	Area (acres)	5	21	27	36
Habitat	Marine Protected Areas	Number of individually designated MPAs	1	1	1	1
Habitat	Areas of Special Biological Significance	Number of individually designated ASBSs	1	1	1	1
Built Environment	Residential Buildings	Number of buildings	0	46	78	112
Built Environment	Commercial Buildings	Number of buildings	1	20	24	40
Coastal Armoring	Coastal Armoring	Length (ft)	206	854	958	988

4.2.13 Countywide results

Sub-Category	Asset Type	Units	Present Day (0 ft)	Mid-Century (1ft SLR)	Late-Century (3ft SLR)	End-of-Century (6ft SLR)
Power & Comms	Transmission Lines	Length (mi)	1027.1	1297.3	1438.4	1763.5
Environmental Sites	Clean Up Sites	Number of sites	2	2	3	5
Transportation	State Route 1	Length (mi)	5.42	10.82	15.22	23.52
Transportation	Roads	Length (mi)	47.8	64.9	85	124
Transportation	Bus Lines	Length (mi)	15.3	26.3	36.8	54.9
Transportation	Bus Stops	Number of stops	3	4	4	5
Recreation	California Coastal Trail	Length (mi)	20.6	32.7	44.1	61.3
Recreation	Recreational Routes	Length (mi)	17.5	27.7	37.9	53.8
Recreation	Private Campgrounds	Number of private campgrounds	3	3	3	3
Parks & Govt Lands	Federal Parks & Lands	Area (sqmi)	99	115.2	129.2	150.4
Parks & Govt Lands	State Parks & Lands	Area (sqmi)	315.8	392.3	456.3	567
Parks & Govt Lands	City Parks & Lands	Area (acres)	25	48	62	87

Parks & Govt Lands	Land Trust lands	Area (acres)	32	118	145	209
Coastal and Water	Beaches	Length (mi)	937.3	985.3	1005.8	1011
Coastal and Water	Bluffs	Length (mi)	52.8	57.1	58.3	59.9
Coastal and Water	Streams and Rivers	Length (mi)	79.9	90.6	102.3	121.1
Coastal and Water	Estuaries	Area (acres)	418.8	419.8	422.8	423.8
Coastal and Water	Wetlands and ESHA	Area (acres)	564.1	578.5	606	632.5
Habitat	Endangered and Threatened Species Habitats	Area (acres)	363.3	444	508.5	622.1
Habitat	Critical Coastal Areas	Area (sqmi)	103.8	134.5	165.1	224
Habitat	Marine Protected Areas	Number of individually designated MPAs	18	18	18	18
Habitat	Areas of Special Biological Significance	Number of individually designated ASBSs	4	4	4	4
Agricultural	Agricultural lands	Area (acres)	132.1	159.3	176.6	205.9
Built Environment	Residential Buildings	Number of buildings	55	286	438	710
Built Environment	Commercial Buildings	Number of buildings	1	20	24	47
Built Environment	Coastal Dependent Use	Number of buildings	72	73	74	76
Built Environment	Public Facilities	Number of buildings	1	1	1	1
Coastal Armoring	Coastal Armoring	Length (mi)	1719.5	2957.6	3345.6	3739.7

5 ASSET VULNERABILITY AND RISK ASSESSMENT

This VRA applies a consistent framework to describe flood-related Sensitivity/Vulnerability (SV), Impact/Consequence (IC), and Adaptive Capacity (AC) for each asset type. SV explains how asset components are susceptible to inundation, including critical components that could fail if exposed to water or ecosystem issues that could arise if subject to repeat tidal or permanent inundation in the future. IC then summarizes the impact to function (or consequence) that would follow damage (e.g., service interruption, closures, detours), while AC reflects the practicality and effectiveness of measures such as elevation/retrofit, redundancy, and temporary operations. Each narrative is paired with a 1–3 score (SV/IC: Low=1, Moderate=2, High=3; AC inverted: High=1, Moderate=2, Low=3) that is them summed up to give an overall risk rating score.

5.1 Critical Infrastructure

The Critical Infrastructure category includes essential systems that support power, communications, wastewater, water, transportation, and other lifeline services across Mendocino County's coastal communities. These assets demonstrate high overall sensitivity and consequence of failure due to their direct role in sustaining daily operations, emergency response, and community safety. Facilities such as wastewater treatment plants, substations, and lift stations exhibit the highest vulnerability scores because they are located in low-lying coastal areas and are directly exposed to tidal and storm flooding. Power and communications infrastructure—including substations, transmission lines, and the Manchester trans-Pacific cable landing site—show increasing vulnerability driven primarily by storm flooding, wave runup, and corrosion hazards. Collectively, the critical infrastructure network faces substantial functional risk from both flooding and erosion, underscoring the need for targeted protection of low-lying facilities and redundant service routes.

The former Georgia Pacific Mill Site in the City of Fort Bragg closed operations in 2002, but the required cleanup of contaminants is ongoing. Specifically, Site 5812 is confirmed to have contaminates (TPH-diesel, Polynuclear aromatic hydrocarbons (PAHs), Polychlorinated biphenyls (PCBs), TPH-gas, Lead, Dioxin (as 2,3,7,8-TCDD TEQ).[20] As described in the City's resolution, sea level rise poses risks to the mill pond site, and "the mill pond is vulnerable to earthquake, tsunami and sea level rise and [...] the need for climate change adaptation in every coastal community is real and urgent." The Resolution goes on to reflect the Council's commitment that "Plans for a more natural wetlands system restoration become the priority, and include planning for lowland tidal marshes, possibly upland marshes, and the daylighting of Maple and Alder Creeks." Exposure to sea level rise could allow for contaminants to be mobilized into the adjoining Marine Protected Area, Areas of Special Biological Significance, Critical Coastal Areas, fisheries, beaches, and habitats if the revetment fails.[21]

[20] For more information, see City of Fort Bragg's adopted in 2017 Resolution 4052-2017, accessible at https://savenoyoheadlands.org/dtsc/pond8/FB_Council_Res_Mill_Pond_Clean_Up_11-27-2017.pdf.

[21] A characterization of the Mill Pond site and its exposure to SLR is contained within this 2022 report, "When the Berm Blows: History and Prospectus of Contaminants Entering the Marine Environment from the Former Fort Bragg Mill Site. https://savenoyoheadlands.org/dtsc/when_the_berm_blows.pdf".

TABLE 22. CRITICAL INFRASTRUCTURE VULNERABILITY

Category	Sub-Category	Asset Type	Units	Sensitivity / Vulnerability	SV Score	Impact / Consequence	IC Score	Adaptive Capacity	AC Score	Risk Score (1 - 9)	Risk Rating
Critical Infrastructure	Power & Comms	Manchester Trans-Pacific Cable Landing Site	Single building	High; Water will damage power-feed and termination equipment; contaminated racks will require component replacement.	3	High; loss would disrupt international connectivity and regional telecom resiliency; restoration requires specialized marine/terrestrial works.	3	Moderate; deeper burial/HDD, hardened beach manholes and inland power-feed siting can reduce risk but options are corridor- and permit-limited.	2	8	High-Very High
		Power Plants	Number of sites	High; Water will short-circuit switchgear/control cabinets and will degrade auxiliaries at grade.	3	High; outages affect regional reliability (though in-county generation is limited).	3	Moderate; elevation/protection of critical equipment and reliance on grid imports.	2	8	High-Very High
		Transmission Lines	Length (mi)	Moderate; Water can reduce bearing at tower/pole foundations and can foul insulators/fittings with sediment.	2	High; outages can isolate coastal communities.	3	Moderate; rerouting and structure hardening feasible but constrained by terrain/permitting.	2	7	High
		California Substations	Number of sites	High; Water will short-circuit transformers/buswork/breakers and will corrode contacts/insulation when submerged.	3	High; substation failure can cause extended outages over large areas.	3	Moderate; elevate equipment, floodwalls, portable transformers.	2	8	High-Very High
		Cell Phone Towers	Number of structures	Moderate; Water can short-circuit at-grade cabinets, rectifiers, and batteries; connectors can corrode.	2	High; cellular service critical for 911 and alerts along remote coast.	3	Moderate; backup power and rapid-deploy Cells-on-Wheels mitigate gaps.	2	7	High
		Weather Stations	Number of stations	Moderate; Water can damage sensor heads, data loggers, and power/telemetry enclosures.	2	Moderate; data loss degrades forecasting and emergency awareness.	2	High; sensors are replaceable and relocatable.	3	7	High
	Environmental Sites	Wastewater Treatment Facilities	Number of facilities	High; Water will damage MCCs, motors, blowers, controls, and instruments; submerged components will foul.	3	High; Failure disables sewage treatment for entire service areas; severe public health/environmental impacts.	3	High; relocation nearly impossible; adaptation requires major protective works.	3	9	Very High
		Hazardous Waste Sites	Number of sites	High; Water can damage low-mounted electrical/mechanical components; saturation can weaken materials and joints.	3	High; Severe public health, ecological, and liability consequences if containment is compromised.	3	High; remediation or relocation is possible but costly and often legally complex.	3	9	Very High
		Clean Up Sites	Number of sites	High; Water can damage low-mounted electrical/mechanical components; saturation can weaken materials and joints.	3	High; Consequences include localized contamination and cleanup cost escalation.	3	High; cleanup designs can incorporate floodproofing, but sites are fixed until remediation is complete.	3	9	Very High
	Transportation	Bus Stops	Number of stops	Moderate; Water can saturate pads and can damage shelters, lighting, and sign foundations.	2	Moderate; Loss of stops reduces accessibility for vulnerable populations, especially elderly or low-income riders.	2	Low; stops can often be relocated a short distance inland or uphill with modest effort.	1	5	Med
		State Route 1	Length (mi)	High; Water will saturate pavement layers and can overload inlets/culverts; joints/edges can lose support.	3	High; Loss of highway connectivity isolates communities, disrupts goods movement, and undermines regional mobility and evacuation routes.	3	Moderate; detours are limited along the coast. Realignment or protective works are feasible but costly.	2	8	High-Very High
		Bus Lines	Length (mi)	Moderate; Water can wet depot electricals and can intrude into vehicle interiors and wiring.	2	Moderate; Interruptions disproportionately affect populations without access to cars, impacting mobility and equity.	2	Moderate; to high; routes can be adjusted, though access gaps remain if key roads are impassable.	2	6	Med-High
		Roads	Length (mi)	Moderate; Water can weaken base/subbase and can ravel edges and surface at drainage points.	2	Moderate; Flooded roadways disrupt daily mobility, emergency access, and goods delivery within towns and neighborhoods.	2	Moderate; alternate local routes sometimes exist, but redundancy is low in small coastal towns.	2	6	Med-High

5.2 Critical Infrastructure (City Utility for City of Fort Bragg)

Sewer and stormwater utilities in Fort Bragg have low adaptive capacity given their fixed locations and the high cost of retrofits or relocation, resulting in elevated composite risk scores. In contrast, smaller components such as weather stations and cell towers show moderate risk due to their relative ease of replacement and relocation.

TABLE 23. CRITICAL INFRASTRUCTURE VULNERABILITY (FORT BRAGG)

Category	Sub-Category	Asset Type	Units	Sensitivity / Vulnerability	SV Score	Impact / Consequence	IC Score	Adaptive Capacity	AC Score	Risk Score (1 - 9)	Risk Rating
Critical Infrastructure (City Utility for Fort Bragg)	Water Utility for City of Fort Bragg	Water Storage	Number of structures	Moderate; Water can damage pad-mounted pumps/SCADA/electrical; unanchored tanks can uplift.	2	Moderate; Loss reduces emergency water supply and firefighting reserve.	2	Moderate; tanks can sometimes be elevated or hardened, but relocation is costly.	2	6	Med-High
		Water Station	Number of structures	High; Water will damage pump motors, VFDs, MCCs, and controls at grade.	3	High; Disruption halts water supply and distribution; cascading community impacts.	3	High; stations are fixed, with limited redundancy; adaptation requires significant retrofits.	3	9	Very High
		Fire Hydrants	Number of structures	Moderate; Water ingress at pits/valves can introduce	2	High; firefighting and potable supply reliability	3	High; High; replacements/valving feasible; looped	3	8	High-Very
		Water Main	Length (mi)	Moderate; Water can infiltrate joints and can degrade gaskets/bolts; saturated bedding can soften near shallow cover.	2	High; Failure disrupts potable water delivery and firefighting supply, with high countywide consequences.	3	Moderate; redundancy in grid can reroute supply, but repairs are costly and slow.	2	7	High
	Stormwater Utility for City of Fort Bragg	Outlet	Length (mi)	Moderate; Water can damage at-grade pumps, controls, and electrical gear; surcharge can open joints and foul appurtenances.	2	Moderate; Backflow leads to inland flooding and system-wide failure.	2	Moderate; to moderate; flap gates and pumps are possible but costly.	2	6	Med-High
		Catch Basin	Number of structures	Moderate; Water can damage at-grade pumps, controls, and electrical gear; surcharge can open joints and foul appurtenances.	2	Moderate; Localized street flooding, ponding, and property damage.	2	Low; basins can be raised or relocated relatively easily.	1	5	Med
		Culverts	Number of structures	High; Water can deform barrels/joints under surcharge and can force uplift at inlets.	3	Moderate; Failure disrupts road crossings and drainage, with local flooding impacts.	2	Moderate; culverts can be upsized or retrofitted but require capital investment.	2	7	High
		Stormwater Line	Length (mi)	Moderate; Water can open joints via surcharge/I&I and can create sags that trap solids; metallic pipes can corrode faster.	2	Moderate; Localized service loss for homes/businesses; less severe than trunk main failure.	2	Moderate; lines can be repaired/replaced relatively quickly.	2	6	Med-High
		Stormwater Pipes	Length (mi)	Moderate; Water can damage at-grade pumps, controls, and electrical gear; surcharge can open joints and foul appurtenances.	2	Moderate; Failure causes ponding, localized flooding, and property damage.	2	Moderate; Medium; tide gates and pumps can mitigate, but upgrades are costly.	2	6	Med-High
	Sewer Utility for City of Fort Bragg	Lift Station	Number of structures	Moderate; Water can damage low-mounted electrical/mechanical components; saturation can weaken materials and joints.	2	High; Failure leads to sewage backups and contamination events.	3	Moderate; adaptation requires costly retrofits or new siting.	2	7	High
		Sewer Pumps	Number of pumps	Moderate; Water can damage low-mounted electrical/mechanical components; saturation can weaken materials and joints.	2	High; Loss of pumping causes backups, overflows, and environmental contamination.	3	Moderate; pumps can be elevated or floodproofed, but sites are fixed.	2	7	High
		Sewer Mains	Number of mains	Moderate; Water can damage low-mounted electrical/mechanical components; saturation can weaken materials and joints.	2	High; Overflows cause contamination, public health hazards, and regulatory violations.	3	Moderate; networks are fixed underground, costly to relocate or retrofit.	2	7	High

5.3 Public Access and Recreation

The Public Access and Recreation category includes parks, public lands, trails, and other recreational resources that provide shoreline access and support the coastal tourism economy. These assets show moderate to high sensitivity overall, reflecting their physical proximity to the shoreline and limited adaptive capacity once erosion or flooding occurs. The California Coastal Trail and other recreational routes show increasing vulnerability driven primarily by bluff erosion and storm flooding, which fragment trail continuity and reduce public access to beaches. Beaches, parklands, and campgrounds experience progressive inundation and loss of usable area as rising seas narrow beach widths and erode dune systems. City and state park facilities have moderate adaptive capacity where relocation or inland rerouting is possible, while federal and tribal lands are more constrained by habitat protection and cultural site preservation priorities. Public access points and land trust holdings demonstrate relatively higher resilience, as management flexibility allows for phased adaptation such as access realignment or managed retreat. Overall, exposure of recreation and access assets translates directly to reduced coastal connectivity and community recreation opportunities, emphasizing the importance of planning for access continuity under future sea-level rise.

TABLE 24. PUBLIC ACCESS AND RECREATION VULNERABILITY

Category	Sub-Category	Asset Type	Units	Sensitivity / Vulnerability	SV Score	Impact / Consequence	IC Score	Adaptive Capacity	AC Score	Risk Score (1 - 9)	Risk Rating
Public Access and Recreation	Recreation	California Coastal Trail	Length (mi)	Moderate; Water can wet and soften trail surfaces and can degrade small site fixtures; base saturation can loosen posts and pads.	2	Moderate; Disruption limits recreational access, active transport, and tourism, while reducing coastal connectivity. Loss of segments undermines the statewide vision for a continuous trail.	2	Low; to high; alignments can often be rerouted inland, though easements and land availability can constrain options.	1	5	Med
		Recreational Routes	Length (mi)	Moderate; Water can wet and soften trail surfaces and can degrade small site fixtures; base saturation can loosen posts and pads.	2	Low; Loss of recreational routes affects tourism, local recreation, and coastal access, but not life-safety.	1	Low; trails can be rerouted inland with relative ease compared to major infrastructure.	1	4	Low-Med
		Private Campgrounds	Number of private campgrounds	Moderate; Water will saturate pad bases and can damage pedestal power/water hookups; enclosure materials can swell or delaminate.	2	Moderate; economic and access impacts to visitors/local business.	2	Moderate; seasonal closures and relocating facilities inland may be possible.	2	6	Med-High
	Parks & Govt Lands	Federal Parks & Lands	Area (sqmi)	Moderate; Water can wet and soften trail surfaces and can degrade small site fixtures; base saturation can loosen posts and pads.	2	Moderate; Impacts tourism, local economies, and cultural/natural resources.	2	Moderate; trails and facilities can often be relocated inland, but habitat loss may be irreversible.	2	6	Med-High
		State Parks & Lands	Area (sqmi)	Moderate; Water can wet and soften trail surfaces and can degrade small site fixtures; base saturation can loosen posts and pads.	2	Moderate; Impacts tourism, local economies, and cultural/natural resources.	2	Moderate; trails and facilities can often be relocated inland, but habitat loss may be irreversible.	2	6	Med-High
		City Parks & Lands	Area (sqmi)	Moderate; Water can wet and soften trail surfaces and can degrade small site fixtures; base saturation can loosen posts and pads.	2	Moderate; Impacts tourism, local economies, and cultural/natural resources.	2	Moderate; trails and facilities can often be relocated inland, but habitat loss may be irreversible.	2	6	Med-High
		Tribal lands	Area (sqmi)	Moderate; Water can wet and soften trail surfaces and can degrade small site fixtures; base saturation can loosen posts and pads.	2	High; cultural, spiritual, and subsistence values at stake.	3	Moderate; adaptation depends on resources, land tenure, and coordination.	2	7	High
		Land Trust lands	Area (sqmi)	Moderate; Water can wet and soften trail surfaces and can degrade small site fixtures; base saturation can loosen posts and pads.	2	Moderate; public access and habitat services affected.	2	High; conservation ownership enables setbacks, managed retreat, and restoration.	3	7	High

5.4 Habitat and Agricultural

Habitat and Agricultural Resources encompasses the county's coastal and water features, sensitive habitats, and working agricultural lands. These assets are generally less sensitive to short-term flooding than built infrastructure but remain highly vulnerable to long-term habitat loss driven primarily by coastal erosion, tidal inundation, and saltwater intrusion. Beaches, bluffs, and estuaries show increasing vulnerability driven primarily by erosion and the gradual inland migration of tidal influence, which diminishes the extent of sandy shorelines and estuarine habitat, a phenomenon which is sometimes referred to as coastal squeeze.[22] Wetlands, though naturally flood-adapted, have low adaptive capacity where surrounding development or steep terrain limits their ability to migrate inland. Endangered species habitats and critical coastal areas are sensitive to both erosion and changing hydrology, resulting in moderate to high consequence scores given their ecological and regulatory significance. Agricultural lands demonstrate moderate sensitivity, with exposure driven primarily by waterlogging and salinization that reduce soil productivity under higher sea levels. While habitat-focused lands under conservation or land trust ownership offer opportunities for managed realignment and restoration, most natural systems lack the space or sediment supply needed to keep pace with rising sea levels. Overall, these assets represent some of the county's natural defenses against coastal hazards, but (especially when it comes to habitats and nature-based features), some of the most difficult to replace once lost.

[22] Several areas on the Mendocino Coast that are vulnerable to coastal squeeze areas are also adjacent to development like roadways, trails, or parks that can accommodate inland migration or improve fish passage barriers, including Chadbourne Gulch (fish passage barrier), Seaside Creek Beach (fish passage barrier, coastal armoring), Lake Cleone / MacKerricher State Park Beach (fish passage barrier, coastal armoring), Pudding Creek beach (fish passage barrier), Soldier's Bay / Mill Bay Beach / Mill Pond Site (coastal armoring), Noyo Harbor Beach Containment Cell, Van Damm State Park / Little River beach (coastal armoring), Albion River (coastal armoring, fish passage barrier). Most of these locations already have adaptation planning underway.

TABLE 25. HABITAT AND AGRICULTURAL VULNERABILITY

Category	Sub-Category	Asset Type	Units	Sensitivity / Vulnerability	SV Score	Impact / Consequence	IC Score	Adaptive Capacity	AC Score	Risk Score (1 - 9)	Risk Rating
Habitat and Agricultural	Coastal and Water	Beaches	Length (mi)	Low; Water can damage access structures (stairs/ramps) and can abrade hardscape; the beach feature itself tolerates temporary inundation, but sea level rise would eventually lead to permanent inundation in the absence of inland migration space.	1	High; recreation, access, and habitat services decline with beach loss.	3	Moderate; sediment management, i.e., beach noursihment and access relocation possible; armoring reduces beach width and leads to coastal squeeze.	2	6	Med-High
		Bluffs	Length (mi)	Low; Water concentration at bluff-top drainage and outfalls can weaken near-surface soils and can affect adjacent structures; broad bluff-tops see limited flood damage.	1	High; threatens homes, roads, and cultural sites on marine terraces.	3	Low; stabilization is localized and costly; setbacks most effective; armoring the toe reduces beach width and leads to coastal squeeze.	1	5	Med
		Streams and Rivers	Length (mi)	Moderate; flows can scour substrates and can reshape channel bed forms; increased turbidity can reduce light and feeding opportunity for aquatic species; and rapid riverine stage changes can disrupt migration cues.	2	High; access and water quality impacts region-wide.	3	Moderate; culvert/bridge upgrades and floodplain reconnection feasible.	2	7	High
		Estuaries	Area (sqmi)	Moderate; Flood-borne freshwater or marine overwash can shift salinity regimes, depress dissolved oxygen, and increase turbidity; the shifts can stress eelgrass, marsh vegetation, and nursery fish communities.	2	High; nursery habitat, water quality, and access affected.	3	Moderate; nature-based measures; limited bar management in some contexts; vulnerable to habitat type conversion, i.e., tidal marsh to mudflats to open water over time.	2	7	High
		Wetlands and ESHA	Area (sqmi)	Moderate; Prolonged inundation can drive hypoxia/anoxia in wetland species and can impose salinity stress in freshwater/brackish wetlands.	2	High; Loss diminishes flood buffering, carbon sequestration, and biodiversity.	3	Moderate; wetlands can migrate landward if inland migration space exists, otherwise vulnerable to coastal squeeze and adaptive capacity is low.	2	7	High
	Habitat	Endangered and Threatened Species Habitats	Area (sqmi)	High; Floodwaters will inundate ground nests and burrows in floodplain habitats; increased saltwater flooding can disrupt sensitive species with low tolerance to water-quality swings.	3	High; Sensitive species to water quality / salinity swings may become further threatened and/or endangered	3	Moderate; depends on the species and their habitat needs	2	8	High-Very High
		Critical Coastal Areas	Area (sqmi)	Moderate; Flood-borne nutrients and contaminants can degrade water quality; salinity/turbidity shifts can stress sensitive species living in CCAs.	2	High; Loss reduces ecosystem services, biodiversity, and resilience of adjacent human communities.	3	Moderate; some capacity to adapt through migration or restoration, but often constrained by development.	2	7	High
		Marine Protected Areas	Number of indiv designated MPAs	Moderate; Stormwater flooding can change the makeup of nutrients/contaminants in MPAs; reduced water clarity can limit light for kelp/eelgrass; MPA's with nearshore intertidal habitats are sensitive to SLR.	2	High; loss of habitat function affects fisheries and biodiversity.	3	High; protected status supports adaptive management and restoration; coastal squeeze could limit an MPA's adaptive capacity.	3	8	High-Very High
		Areas of Special Biological Significance	Number of indiv designated ASBSs	Moderate; Stormwater flooding can change the makeup of nutrients/contaminants in ASBS; short-term water-quality stressors can affect intertidal/subtidal species with low tolerance to rapid changes in their environment.	2	High; regulatory and ecological significance.	3	High; regulatory tools and watershed BMPs can reduce impacts.	3	8	High-Very High
	Agricultural	Agricultural lands	Area (sqmi)	Moderate; Water can saturate soils and can damage pumps/irrigation equipment; salinity near the coast can affect materials.	2	High; Impacts to local food systems and agricultural livelihoods.	3	Moderate; crop switches, drainage, and protective works feasible but may be costly.	2	7	High

5.5 Built Environment

This category includes residential, commercial, public, and coastal-dependent buildings, as well as historical and cultural resources and coastal armoring structures.[23] These assets collectively show some of the highest overall risk scores in the assessment, reflecting their exposure to both coastal flooding and erosion, as well as their limited capacity for relocation. Residential buildings show increasing vulnerability driven primarily by bluff erosion, particularly in Fort Bragg, Mendocino Town, Albion, and Gualala, where homes are located near retreating cliff edges or low-lying floodplains. Commercial buildings demonstrate moderate sensitivity to flooding and storm damage, with higher consequence scores in town centers where even short-term disruption can affect local economies. Public facilities, such as schools, hospitals, and government buildings, have high consequence and low adaptive capacity because their services are critical and difficult to relocate. Cultural and historic sites, including lighthouses and cemeteries, are among the most sensitive to coastal hazards due to their fixed locations and preservation requirements, resulting in very high composite risk scores. Coastal armoring structures display moderate risk, serving as both a line of defense and a potential vulnerability when overtopped or undermined. Across the built environment, the combination of high consequence, limited adaptive capacity, and exposure to multiple hazard types underscores the urgency of proactive adaptation planning and investment.

[23] Note: This assessment only includes assets that are currently physically present and is not inclusive of planned or proposed development.

TABLE 26. BUILT ENVIRONMENT VULNERABILITY

Category	Sub-Category	Asset Type	Units	Sensitivity / Vulnerability	SV Score	Impact / Consequence	IC Score	Adaptive Capacity	AC Score	Risk Score (1 - 9)	Risk Rating
Built Environment	Historical and Cultural Resources	Navarro-by-the-Sea Center	Single building	High; Water can damage low-mounted electrical/HVAC, interiors, and contents; saturation will damage floors, walls, and connections.	3	High; unique historic/cultural resource; damage difficult to reverse.	3	Moderate; Moderate; elevation/retrofit limited by historic fabric and river mouth processes.	2	8	High-Very High
		Point Cabrillo Lighthouse	Set of buildings	High; Water can damage low-mounted electrical/HVAC, interiors, and contents; saturation will damage floors, walls, and connections.	3	High; iconic cultural resource and State Historic Park asset.	3	Moderate; shoreline setbacks, access rerouting, and building-level adaptations; armoring limited by policy.	2	8	High-Very High
		Point Arena Lighthouse	Set of buildings	High; Water can damage low-mounted electrical/HVAC, interiors, and contents; saturation will damage floors, walls, and connections.	3	High; regionally significant landmark, museum, and visitor economy driver.	3	Moderate; Moderate; narrow headland limits retreat; targeted stabilization/site adaptations may be feasible.	2	8	High-Very High
		Westport Cemetery	Single plot of land	Moderate; Water can loosen soils beneath headstones/walls and can uplift unanchored vaults; metal fixtures can corrode.	2	High; loss of burial sites carries significant cultural/community consequence.	3	Moderate; Moderate; relocation of graves possible but sensitive; armoring limited and costly.	2	7	High
		Albion River Bridge	Single structure	High; Water can foul bearings/joints and can inundate approach slabs and ITS housings; debris-borne flow can strike vulnerable appurtenances.	3	High; SR 1 lifeline over Albion River; failure or long closure would isolate coastal segments.	3	Moderate; Caltrans planning replacement; detour options limited by topography; staged construction possible.	2	8	High-Very High
	Built Environment	Residential Buildings	Number of buildings	High; Water can damage low-mounted electrical/HVAC, interiors, and contents; saturation will damage floors, walls, and connections.	3	High; Flooding displaces residents, creates health hazards from mold and contaminated water, and reduces available housing stock. Significant community disruption results.	3	High; Individual homes have limited adaptive capacity; elevating or retrofitting is costly. Community relocation options are limited in rural Mendocino.	3	9	Very High
		Commercial Buildings	Number of buildings	High; Water can damage low-mounted electrical/HVAC, especially ground-floor MEP/switchgear, interiors, and contents; saturation will damage floors, walls, and connections.	3	Moderate; Loss of commercial buildings disrupts local economies, jobs, and essential services. Downtime causes ripple effects across the county.	2	Moderate; adaptive capacity; businesses can relocate more easily than homes or critical facilities, but at significant economic cost.	2	7	High
		Public Facilities	Number of buildings	High; Water can damage low-mounted electrical/HVAC, especially ground-floor MEP/switchgear and/or IT systems, interiors, and contents; saturation will damage floors, walls, and connections.	3	High; Loss of public facilities affects essential services, emergency operations, and community trust. Hospital or school closures have countywide effects.	3	High; adaptive capacity; large, fixed facilities with high retrofit costs and few alternatives nearby.	3	9	Very High
		Coastal Dependent Use	Number of buildings	High; Water can damage low-mounted electrical/HVAC, interiors, and contents; saturation will damage floors, walls, and connections.	3	High; Flooding of industrial assets can cause environmental contamination, disrupt supply chains, and/or interrupt critical operations.	3	Moderate; Adaptive capacity is limited; relocating industrial sites is expensive and constrained by zoning. Some mitigation is possible with floodproofing.	2	8	High-Very High
	Coastal Armoring	Coastal Armoring	Length (ft)	Moderate; Overtopping loads can force water through joints and can stress caps/drains/backland surfaces; high velocities can displace poorly keyed units.	2	Moderate; Failure exposes inland areas to erosion and flooding; may also worsen beach loss.	2	Moderate; reinforcement possible, but costly and with ecological tradeoffs.	2	6	Med-High

6 DRAFT SLR BASELINE POLICIES

The following policies are gathered from existing sources, including the Coastal Commission's Critical Infrastructure Guidance (2021) and Sonoma County's recently updated Local Coastal Program coastal hazards policies.

6.1 California Coastal Commission's Baseline SLR LCP Policies and Phased LCP Updates (2025)

Since its formation in July 2019, the Coastal Commission Local Government Working Group (LGWG) has worked to develop shared goals, information, resources, and other materials to support sea level rise (SLR) and LCP planning that CCC staff and local governments should be aware of when coordinating on these efforts. This memo describes one such work product, the 2021 *Framework for a Phased Approach to Updating LCPs to Address SLR* and related baseline sea level rise policies. It also provides example policy language for the four baseline SLR policies topic areas.

In 2020, the Local Government Working Group developed a Joint Statement (adopted by the Commission) that, among other details, acknowledged the challenges associated with the LCP update process. These include challenges related to LCP planning horizons, uncertainty regarding the timing and severity of sea level rise impacts, the range of possible adaptation options and their various benefits and costs, and the need to balance statewide consistency with local flexibility. To address these challenges, the working group stated a shared commitment to an approach that supports more regular, incremental LCP updates and, in 2021, developed a framework describing such an approach.

Specifically, the *Framework for a Phased Approach to Updating LCPs for Sea Level Rise* describes how local communities could approach LCP updates one phase at a time, representing a progressive path forward as more detailed information is developed, rather than a single update that attempts to solve or answer all long-term SLR-related adaptation needs at once. The LGWG believes this approach will help to address challenges related to uncertainty, information gaps, and funding and capacity issues, as well as to help improve efficiency. This phased approach applies to both the LCP update *process* and the *substance* of the policies themselves. In other words, in addition to an approach that encourages more routine, incremental LCP updates, LCP policy language itself should recognize the need for future updates to account for changing conditions and updates to best available science, and, most critically, to recognize that adaptation options will change over time.

In support of this approach, the Framework includes a set of baseline policy topics that are recommended for inclusion in a first round LCP update. These basic policies can be considered a minimum foundation for addressing SLR in the context of the Coastal Act, which can be added to and refined as more information on sea level rise impacts and appropriate adaptation options are developed. They are meant to provide a baseline level of statewide consistency addressing key topics while recognizing that additional or more detailed policies and adaptation 2

approaches will often be required to address local contexts. The baseline policies topic areas identified by the LGWG include:

1. Best available science
2. Risk disclosures/assumption of risk
3. Vulnerability assessments and adaptation plan development/updates
4. Phased updates

The following section describes each of the four baseline policies topic areas and provides example language that can be a starting point for local governments to work from when incorporating SLR issues and policies into their LCPs. Each topic area includes multiple examples that are meant to show how different approaches have been and could be used to address the topic. This example language can and should be modified as necessary to reflect local contexts. Note that numerous LCPs have been updated to address sea level rise, and they contain additional examples of policies that fall into the four baseline policies topic areas. Example certified language is available upon request.

1. Best Available Science. Requiring the use of best available science (science that is up to date, based on expert, peer-reviewed analyses, and locally-relevant) is foundational to an effective sea level rise LCP update. The Coastal Act requires new development to minimize hazards and protect coastal resources and calls for the use of sound science to guide decision making. SB 272 also requires the use of best available science. A policy requiring the use of the best available science guides local decisionmakers on what science to look to when developing vulnerability assessments and adaptation plans and when analyzing hazards, including as exacerbated by SLR, for permitting projects in the coastal zone. LCP updates should provide direction on how new projects in vulnerable areas should be sited and designed to factor in sea level rise either programmatically or through project-specific technical studies. A best available science policy could be a standalone policy and/or be woven as a reference throughout several policies, such as in policies requiring technical studies or policies related to siting and design requirements. Importantly, because best available science will change over time, LCP policies should call for the use of the best available science reflected in "the most current iteration" of statewide guidance (or similar language) rather than referencing a specific guidance document or scientific paper with a specific publication date to ensure the LCP policies do not become outdated over time.

> **EXAMPLE 1: Policy X –** The best available scientific information regarding sea level rise and its effects shall be considered in the preparation of findings and recommendations for all geologic, geotechnical, hydrologic, coastal hazards, and engineering investigations including for both project-specific analyses as well as for [*City/County*]-wide vulnerability assessments, adaptation plans, or other similar planning documents. Current best available scientific information shall be reflective of the most current statewide guidance, including from the Ocean Protection Council and the Coastal Commission. Other peer reviewed studies may also be used, provided that they are widely accepted within the scientific community and locally relevant.
>
> **EXAMPLE 2: Policy X** – Development proposed in areas vulnerable to coastal hazards, including those that are mapped in [Figure(s) x], shall be evaluated for potential coastal hazards at

the site based on all readily available information and the best available science on sea level rise, including the Coastal Commission's adopted Sea Level Rise Policy Guidance. If the initial evaluation determines that the proposed development may be subject to coastal hazards over its lifetime, a site-specific coastal hazards report prepared by a qualified geologist/engineer is required to ensure that such development can be built in a manner consistent with applicable Local Coastal Program policies.

EXAMPLE 3: Policy X – Development shall be sited and designed to avoid impacts from coastal hazards, including but not limited to, erosion, episodic and long-term shoreline retreat, flooding, inundation, storm waves, high seas, tidal scour, and tsunamis, including as exacerbated by sea level rise, over the life of the development. Coastal hazards evaluations shall use the current best available science on sea level rise, including any updated guidance as published by the California Ocean Protection Council or California Coastal Commission. As of the certification of this LUP, best available science is considered the 2024 OPC and CCC SLR guidance documents. If complete avoidance of coastal hazards is infeasible, development shall be sited and designed to assure stability and structural integrity, and to minimize risks to life and property to the greatest extent feasible. As a condition of approval for all coastal development that may be subject to coastal hazards at some point during its lifetime, the Applicant shall record a deed restriction against the properties involved in the application acknowledging that the development site may be subject to coastal hazards.

2. Risk Disclosure/Assumption of Risk. Risk disclosures are an important tool to describe not only the current hazards at a site but also the hazards that are anticipated to arise over the life of a development, the potential need to adapt to such hazards, and any limits on such adaptation options. Disclosing this information to property owners helps ensure that they understand these hazards and will plan (and make property investments) with them in mind. Similarly, requiring property owners and developers to assume the risks of developing in hazardous locations will help avoid the need to spend public funds on disaster recovery for private development and will ensure that they (and any future owners) are aware of the limits on the use of shoreline armoring that could harm coastal resources. LCPs should include policies defining what information should be within a risk disclosure and the areas or projects/development types for which risk disclosures are required. In some cases it may be appropriate for an LUP to include a more general disclosure policy provided additional detail is included in an IP.

EXAMPLE 1: Policy X – As a condition of coastal permit approval for new development in an area subject to current or future shoreline, geologic, flood, or fire hazards, applicants shall be required to acknowledge and agree, and private applicants must also record a deed restriction on the property to acknowledge and agree:

1) that the development is located in an area that may be subject to hazards including but not limited to [*modify following list as necessary*] waves, storms, flooding, landslide, bluff retreat, erosion, and earth movement, many of which will worsen with future climate change and sea level rise;

2) that the permittee assumes the risks of injury and damage from such hazards in connection with the permitted development;

3) that the permittee unconditionally waives any claim of damage or liability against the permitting agency, its officers, agents, and employees for injury or damage from such hazards in connection with the permitted development;

4) that the permittee indemnifies and holds harmless the permitting agency, its officers, agents, and employees with respect to approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees

incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards;

5) that, except for coastal-dependent structures, the permittee waives any rights that may exist under applicable law to shoreline armoring in the future;

6) [*for shorefront development*] that the boundary between public land (tidelands) and private land may shift with rising seas and other coastal processes, the structure may eventually be located on lands impressed with a public trust interest, the approval does not permit development to be located on such lands, any development that comes to be located on lands impressed with a public trust interest must be removed unless the Coastal Commission authorizes it to remain pursuant to the Coastal Act, and any structures located on such lands would also be subject to the State Lands Commission's (or other trustee agency's) leasing approval; and

7) that in addition to possible removal as described by part (6), all or a portion of the structure may be required to be removed or relocated and the site restored, at the property owner's expense if the [City/County] or any other government agency with legal jurisdiction has issued a final order, not overturned through any appeal or writ proceedings, determining that: a) removal is required pursuant to LCP policies for sea level rise adaptation planning; b) essential services to the site (e.g., utilities, roads, sewage or water systems) can no longer feasibly be maintained due to coastal hazards thereby constraining allowed uses of the site or rendering it inoperable or uninhabitable; or c) the structures are currently and permanently unsafe for occupancy or use due to damage or destruction from waves, flooding, erosion, bluff retreat, landslides, or other hazards related to coastal processes, and that there are no feasible measures that could make the structures suitable for habitation or use without the use of bluff or shoreline protective devices.

EXAMPLE 2: Policy X – As a condition of approval for development in an area subject to coastal hazards, the property owner shall be required to execute and record a deed restriction which acknowledges 1) the development is located in an area that may be subject to hazards including but not limited to [*modify following list as necessary*] waves, storms, flooding, landslide, bluff retreat, erosion, and earth movement, many of which will worsen with future climate change and sea level rise; 2) that the boundary between public tidelands and private land may shift with rising seas and the approval does not permit development to be located on lands impressed with a public trust interest; 3) that, except for coastal-dependent structures, the applicant has no rights under Coastal Act Section 30235 and related LCP policies to shoreline armoring in the future; 4) that sea level rise could render it difficult or impossible to provide services to the site (e.g., maintenance of roadways, utilities, sewage or water systems), thereby constraining allowed uses of the site or rendering it inoperable or uninhabitable; 5) that additional

adaptation strategies may be required in the future to address sea level rise consistent with the Coastal Act and certified LCP. Additionally, the permittee shall acknowledge said risks and waive any future claims of damage or liability against the permitting agency and agree to indemnify the permitting agency against any liability, claims, damages or expenses arising from any injury or damage due to such hazards in connection with the permitted development.

3. Vulnerability Assessment and Adaptation Plan Development/Updates. Vulnerability Assessments and Adaptation Plans are critical reports that provide information on current and future hazards in a jurisdiction as well as a roadmap for how such hazards should be addressed in a way that ensures safe development and protection of coastal resources as sea levels rise. These planning stages are often completed prior to an LCP update, and, in turn, that information is incorporated into LCP policies and zoning to ensure that development and adaptation actions are implemented in ways that are consistent with the Coastal Act. This approach is envisioned in, and consistent with, SB 272.

However, it may not be necessary to complete these reports prior to a first phase LCP update, such as one that incorporates these baseline SLR policies. For instances in which a jurisdiction has not completed either a vulnerability assessment or adaptation plan, an LCP should include a policy (or policies) calling for the development of such documents, and a commitment to completing an additional LCP update (or updates) after their completion to incorporate that new information.

For instances in which a vulnerability assessment and/or adaptation plan has been completed, it is important to recognize that those documents will likely need to be updated over time as conditions change or more information becomes available. Vulnerability assessments may need to be updated to reflect new best available science, to provide more detailed, site-specific information, or to fill data gaps. Adaptation planning often occurs on an iterative basis with progressively increasing levels of detail, and adaptation plans may be updated over time to first reflect, for example, an initial general set of preferred adaptation approaches and later to reflect more detailed identification of adaptation projects to implement in the near term. LCP policies in these cases could call for routine updates (e.g., every 10 years) to these documents or could call for the completion of more detailed vulnerability assessment and/or adaptation planning (e.g., developing shoreline management plans for defined subareas). Such policies should also recognize the potential need to subsequently update the LCP with new information.

EXAMPLE 1: Policy X – The [*City/County*] shall continue to gather information on the effects of sea level rise and coastal hazards on the [*City/County's*] shoreline, based on best available science, including identifying vulnerable areas, structures, facilities, habitats, public access and recreation, and other coastal resources. Continue to update the [*City/County's*] vulnerability assessment every 10 years, or as necessary, to reflect new information, including but not limited to major updates to best available science and statewide sea level rise guidance. Update the LCP if warranted by such updates to the vulnerability assessment.

EXAMPLE 2: Policy X – Within five years, the [*City/County*] shall research and prepare a Sea Level Rise Vulnerability Study and Adaptation Plan. The results of this planning work shall be used to inform future LCP updates.

At a minimum the sea level rise vulnerability assessment shall use the best available science to identify hazard zones and analyze potential impacts to coastal resources and development under a

range of sea level rise scenarios, including a high sea level rise scenario. For each scenario, examine inundation, erosion, storm flooding, groundwater change, and other coastal hazards influenced by sea level rise, as well as the associated impacts to coastal resources including but not limited to public access, recreational resources (including the California Coastal Trail), beach width, sensitive habitats, agricultural areas, residential development, infrastructure, public facilities, and cultural resources. Consider how such impacts may result in environmental justice concerns. The best available science used to inform this study shall be reflective of the most current guidance from the Coastal Commission and Ocean Protection Council.

Based on the vulnerability assessment described above, develop an adaptation plan that considers a range of adaptation approaches and identifies a preferred set of adaptation strategies that will help the [*City/County*] minimize hazards and protect coastal resources over time. Examine the pros and cons of various strategies, their consistency with the Coastal Act, and how various strategies will aid in resilience of different coastal resources. Identify appropriate SLR adaptation measures, policies, and any near-term priority actions for incorporation into the LCP via a future LCP update. As applicable, include considerations such as:

- Changes to LCP land uses, zoning, and/or siting and design standards for new development to avoid and minimize identified risks
- Relocation of existing or planned development to safer locations
- Evaluation of the extent to which existing shoreline armoring can continue to provide protection for development, as well as any alternatives that could better ensure beach, habitat, and other coastal resource protection
- Implementation of nature-based adaptation strategies such as dune restoration, beach replenishment, and living shorelines
- The need for a variety of strategies to be implemented across the [*City/County*] to reflect different contexts, vulnerabilities, and goals, as well as the need for such strategies to shift over time as conditions change
- Identification of asset managers, departments, agencies, or others that will be responsible for carrying out identified adaptation strategies and statewide sea level rise guidance. Update the LCP if warranted by such updates to the vulnerability assessment.

The vulnerability assessment and adaptation plan shall be updated periodically as new science, modeling results, best practices, and/or state guidance become available. This update shall occur approximately every 10 years, or more frequently as necessary, and shall be reflected in an LCP amendment as applicable.

EXAMPLE 3: Policy X – Within 10 years, the [*City/County*] shall develop a Shoreline Management Plan (or Plans for smaller sub-areas that share similar characteristics) for the [*City/County's*] shoreline and obtain Coastal Commission certification of an LCP amendment informed by the Plan(s). The Plan(s) shall build on past adaptation planning work and identify adaptation approaches

that will be implemented to address vulnerabilities and protect coastal resources throughout the [*City/County*]. The Plan(s) shall address the following topics:

- Existing and Future Conditions: Based on best available science, describe current coastal hazards; baseline conditions in terms of existing public and private development, public access and recreational areas, and environmental resources; and how conditions are expected to change as coastal hazards are exacerbated by sea level rise.

- Goals and Adaptation Options. Describe the overall vision for the [*City/County's*] coastline (and each sub-area) over the short-, medium-, and long-term horizon. Include specific goals and actions for protection of public access and coastal resources and minimization of coastal hazard risks. Consider a range of adaptation strategies, including but not limited to sediment management, beach nourishment, green infrastructure, shoreline protection structures, elevation of development, structural modifications, and relocation of development, and evaluate the extent to which the options meet specific goals in line with the overall vision of the [*City/County's*] shoreline (and each sub-area). Identify the timeline over which different options may be applied, including how different strategies could be phased over time. Consider also the following priority topics:

  Beach Areas. Identify beach areas that provide for associated recreational opportunities. For areas where public beach access has already been or is likely to be limited and eventually lost due to the presence of development that prevents natural beach formation/migration, identify strategies that will result in the removal of development and/or other alternatives such as sediment management and beach replenishment to allow for beach preservation and natural beach migration processes. Include discussion of the minimum beach widths that are necessary to maintain optimum public recreational access and habitat function.

  Shoreline Armoring. Consider the extent to which existing shoreline armoring may continue to be a preferred adaptation approach or whether alternatives may better achieve [*City/County*] goals and result in preferred coastal resource outcomes. Analyze the ability of the shoreline protection structures to withstand coastal hazard conditions over time as sea levels rise, the feasibility and costs of anticipated maintenance activities, any anticipated augmentations or replacement that may be necessary over time as sea levels rise, and any threshold hazard conditions beyond which the shoreline protection structures may not be able to function and the associated adaptation measures that would be necessitated for the development that relies on the shoreline protection structures.

  Alternative Access. Where geologic conditions or land use patterns and shoreline armoring approaches will limit the ability of beaches to persist (even without the presence of development and shoreline protection structures), identify options to allow for alternative types of shoreline access. Such options may include, but are not limited to, vertical access to rocky shorelines or to the ocean, lateral access along blufftops or as part of shared vertical seawalls, viewing platforms, and parks. Identify preferred locations for such features and tools for ensuring such features are constructed and maintained (e.g., conditions of approval, shoreline protection structure design requirements, acquisition of easements or other areas, voluntary removal of development).

- Preferred Approaches. Identify a preferred set of adaptation options to be implemented that are consistent with and carry out the [City/County's] vision and goals. Identify how different adaptation options could be phased over time as conditions change. Include identification of triggers to be used to inform the need for different adaptation actions and a monitoring program that can be used to track changing conditions and adaptation triggers. Describe the policy options (e.g., land use and zoning requirements, development approval conditions, deed restrictions, design guidelines), specific projects, and funding mechanisms necessary to ensure adaptation actions are carried out.

- Funding Opportunities. Identify potential funding options to support short-, medium-, and long-term adaptation options. This shall include funding for implementation of specific adaptation projects; construction of public access features; purchase of easements or similar interests; and structural buyouts and related opportunities for acquisition and removal of structures encroaching within beach or other significant open space or habitat areas. Potential funding opportunities may include in-lieu fees (including those generated from mitigation for shoreline protection structures), grants, state/federal funds, and GHADs/CSAs. Opportunities to integrate adaptation strategies with other planning processes (e.g., Local Hazard Mitigation Plans, Capital Improvement Plans, Climate Action Plans), including in order to leverage funding options, shall also be explored.

4. Phased Updates. As described above, a phased approach to LCP updates can help local governments and the Coastal Commission transition from outdated LCPs to LCPs that are reevaluated and updated progressively to respond to dynamic sea level rise science and conditions and to incorporate more detailed adaptation planning as it occurs. By committing to a phased approach to LCP updates for sea level rise, local governments and the Coastal Commission are acknowledging that each LCP update is just one part of a phased update process. LCP policies can define a timeline for updates – as required by SB 272 – in a variety of ways. An LCP policy could identify an overarching expected planning horizon (e.g., 30 years) for the entirety of the LCP, beyond which it is expected that the LCP (or at least the SLR/hazards-related portion of it) would be comprehensively updated. A timeline for routine or nearer-term LCP updates might also be defined in the LCP policies described above that call for the development or update of vulnerability assessments and adaptation plans and incorporation of that information into the LCP. In other cases, LCP updates could be encouraged or required by policies that expire at specific dates or in response to identified triggers. For example, policies that implement specific adaptation strategies or other requirements could "sunset" at a future date or based on certain conditions (e.g., SLR amount, beach width, monetary damages) with the intent that a future LCP update prior to that time would either implement new approaches or extend the time horizon as appropriate (based on development of additional SLR adaptation information).

> **EXAMPLE 1:** *The example policies in the section above related to developing/updating vulnerability assessments and adaptation plans include language that both discusses the potential need for future LCP updates and identifies a specific associated timeline for updates. In such cases, it may not be necessary to include a separate standalone policy committing to future updates or identifying a planning horizon.*
>
> **EXAMPLE 2: Policy X** – Shoreline and blufftop areas are inherently dynamic and hazardous places, particularly with respect to climate change and sea level rise, and the [*City/County*] commits to continued study and adaptation planning to ensure that shoreline areas remain

resilient as conditions change. The [coastal hazards/shoreline resilience/sea level rise] policies of this LCP shall be considered to be in effect until the year 2050, by which time the expectation is that detailed shoreline management plans and an updated set of policies within this LCP will have been adopted. The [*City/County*] may also carry out 5-year reviews and amend policies as warranted during this planning horizon.

EXAMPLE 3: **Policy X** – As of January 1, 2045, [*Policy/Policies XX that implement/allow X specific approach*] shall expire and be of no further force and effect unless the Coastal Commission has certified an LCP amendment extending that deadline. As of January 1, 2045 (or such later date as specified in an LCP amendment), development approved based on [*Policy/Policies XX that implement/allow X specific approach*] shall become legal nonconforming and, moving forward, redevelopment of such development shall be required to be consistent with all LCP provisions.

6.2 California Coastal Commission's *Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California's Coastal Zone* (2021)

California Coastal Commission's *Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California's Coastal Zone* (2021) includes information to help inform sea level rise adaptation decisions for critical infrastructure that are consistent with the California Coastal Act. The Guidance addresses specific assets that fall within two main types of critical infrastructure: transportation and water. The Guidance also includes an appendix containing model language for policies related to transportation infrastructure and water infrastructure. Given the critically important functions of critical infrastructure, it is imperative that Local Coastal Programs (LCPs) include policies that address the vulnerabilities of such infrastructure to sea level rise. Long-term, phased planning approaches that consider how transportation networks fit into wider land use contexts will be critical tools for successfully implementing sea level rise adaptation over time. The following policies could be applicable for Mendocino County:

1. **Long-Term Transportation Planning**. [Insert name of local government] shall coordinate with [Caltrans and/or relevant transportation agencies/asset managers] and other relevant state, regional, and local transportation planning entities on long-term, corridor-wide planning for adaptation to sea level rise and coastal hazards, including, but not limited to, through the development of new or updated District System Management Plans, Corridor Plans, the State Highway System Management Plan, Transportation Concept Reports, Regional Transportation Plans, Sustainable Communities Strategies, the California State Rail Plan, Regional Rail Plans, Local Coastal Programs, and Circulation Elements/General Plans. Such planning should do all of the following: » Account for the relationship between transportation infrastructure and land use and development patterns (such as utility infrastructure), particularly from a whole-corridor perspective, and the need for both land uses and transportation infrastructure to jointly adapt to sea level rise impacts. 143 Appendix B. Model Policies Final Adopted Guidance | November 17, 2021 » Consider a full suite of potential adaptation strategies, including nature-based adaptation strategies, adaptive management strategies, realignment, elevation, and short-term use of shoreline protective devices. Plans should consider these strategies to the level of detail appropriate for the document and should

be developed further as subsequent plans and projects are developed. » Account for multimodal transportation and other relevant transportation goals including Active Transportation (e.g., Complete Streets), GHG emission reduction targets and efforts, and Sustainable Communities initiatives.

2. **Advance Planning for Transportation Infrastructure**. Segments of transportation infrastructure that are vulnerable or that are expected to become vulnerable to coastal hazards, including those associated with sea level rise, shall be identified in time to plan, fund, and implement adaptation projects before significant impacts to coastal resources and public safety occur. [Insert name of local government] shall work with Caltrans and other transportation asset owners and managers to conduct such advance planning in order to avoid the need for emergency shoreline protective devices, to protect coastal resources, and to provide enough time to complete comprehensive planning and implementation processes.

3. **Adaptation Strategy Alternatives**. When developing sea level rise adaptation plans and specific projects, a full suite of potential adaptation strategy alternatives shall be considered, including nature-based adaptation strategies, active management strategies, relocation, elevation, and short- or potentially longer-term use of armoring (and/or combinations of such strategies). In general, strategies that avoid hazards related to sea level rise, such as relocation or elevation, shall be prioritized, and nature-based adaptation strategies that minimize impacts to coastal resources and provide measurable environmental benefits shall be employed as feasible to protect existing infrastructure and allow phased long-term adaptation. In all cases, the selected strategy shall: » Maximize protection of coastal resources, including public access, recreation, marine and terrestrial resources, and visual resources; » Ensure safety and stability of infrastructure; » Minimize vehicle miles traveled to the extent feasible; » Avoid or mitigate project burdens to the maximum extent feasible in environmental justice communities; and » Adapt transportation service to meet shifting community needs over time. 144 Final Adopted Guidance | November 17, 2021 Appendix B. Model Policies Adaptation strategies shall, to the extent feasible, address the potential impacts of sea level rise on transportation infrastructure before they begin to occur and shall incorporate appropriate periods of lead time that allow for planning, funding, and implementation. Potential shifts of some portion of existing highway traffic to other modes of travel (including safely sited rail systems) should also be included in alternatives analyses. Any fiscal analysis performed as part of an alternatives analysis, including an analysis of the “no project” alternative, shall estimate the anticipated future costs caused by increased coastal hazards, if applicable, including from damage to facilities, need for upgrades, and loss of recreational areas, habitats, and natural protective features.

4. **Phased Adaptation**. Phased and trigger-based adaptation measures will be considered when planning for the adaptation of transportation infrastructure to sea level rise impacts over time. Phased measures may include hard shoreline protective devices for limited periods of time, elevation, and/or relocation, if otherwise consistent with relevant LCP and, if applicable, Coastal Act policies. Phases shall be designed to address expected amounts of sea level rise and associated impacts while avoiding or minimizing impacts to coastal resources, and specific triggers shall be identified after which each subsequent phase shall be implemented. The entire phased approach

should be designed to minimize impacts to access and mobility as well as to environmental, recreational, and public access resources over the planning horizon.

5. **Intergovernmental Coordination**. For transportation infrastructure that crosses jurisdictional boundaries, coordination shall occur between local governments, regional transportation entities, rail managers, Native American Tribes, and state and federal agencies with jurisdiction over or interests in that transportation corridor. Such coordination shall ensure that adaptation strategies are identified and implemented on appropriate scales to protect both coastal resources and transportation infrastructure.

6. **Align Local Planning Documents**. [Insert name of local government] shall ensure that LCPs and other relevant planning documents, including Capital Improvement Plans, Local Hazard Mitigation Plans, Climate Action Plans, and other relevant plans provide a coordinated, cohesive, and mutually supportive approach to transportation infrastructure adaptation.

7. **Prioritize Vulnerable Infrastructure Segments**. The [Insert name of local government] has identified that [insert description of transportation infrastructure] is vulnerable to coastal hazards and sea level rise and requires adaptation planning. The [Insert name of local government] shall work with [Caltrans and/or relevant transportation agency/asset manager] and other relevant stakeholders on adaptation planning and implementation of measures that address the long-term vulnerability of the segment through identification and evaluation of alternative adaptation strategies in concert with related land use adaptation plans. [Insert date by which planning milestones will be met, if desired]

8. **Advance Planning for Nature-Based Adaptation Strategies**. [Insert name of local government] shall work with relevant partners to identify locations where nature-based adaptation strategies may be feasible and appropriate. Such strategies, which may include both soft strategies and hybrid armoring, should use an ecosystem planning approach that identifies opportunities to improve impaired ecological systems, ecological functions, and their values in concert with climate change adaptation measures.

9. **Tribal Consultation**. [Insert name of local government] shall partner with tribal governments to identify vulnerable tribal communities that rely upon transportation infrastructure and/or live near existing highways, railways, or proposed sites for highway, railway, and/or transportation development. Meaningful and early engagement with tribal governments shall be prioritized and incorporated into all stages of the adaptation planning process. [Insert name of local government] shall consider the direct and indirect impacts of proposed projects by evaluating cumulative environmental impacts to tribes from proposed infrastructure adaptation plans and projects and incorporating measures to address all impacts.

10. **Scenic Highway 1**. In rural areas of the coastal zone, adaptation measures for Coastal Highway 1 shall be designed to safely maintain the highway as a scenic two-lane highway and shall incorporate measures that protect, provide, and, where feasible, enhance, public scenic views.

11. **California Coastal Trail**. Consideration shall be provided for the maximum connectivity and continued functionality and utility of the California Coastal Trail in transportation adaptation

projects. Planning for trail alignments should anticipate the effects of sea level rise to ensure continued public access and connectivity near the shoreline, including potential inland relocation over time. Opportunities for partnering with public agencies and other stakeholders shall be fully explored in the development of Coastal Trail plans.

12. **Emergency Evacuation Routes**. Where transportation infrastructure functions as part of emergency evacuation routes, the [insert name of local government] should coordinate with [Insert name of transportation asset manager] to develop contingency plans and alternative routes to utilize when that infrastructure is inoperable due to coastal flooding and/or erosion, in coordination with relevant emergency response planners.

13. **Planning Horizons for Transportation Infrastructure**. Sea level rise impacts shall be evaluated over a time period appropriate to the planning or project type. Adaptation planning and transportation system planning documents should consider the short-term transportation needs and priorities within a long-term context of potential SLR impacts (minimum 100 years). For example, system plans, which often have a 20- to 30-year horizon, should identify the necessary short-term projects such as repair and maintenance, temporary protection, or other phased adaptation measures that support possible long-term adaptation approaches. Planning horizons for individual projects should reflect the anticipated lifetime of the project, or the time period over which the project is expected to be usable for the purpose for which it is designed. The anticipated lifetime of major infrastructure projects such as new or realigned roads or rail lines, road expansion, new bridges or tunnels, culverts, or other major structures, is often 100 or more years. Minor projects such as safety barriers, rumble strips, re-paving, lighting, or projects designed as phased adaptation measures often have anticipated lifetimes of 20-50 years.

14. **Hazard Assessments**. Site- or region-specific sea level rise vulnerability assessments conducted by the [insert name of local government] to analyze the vulnerability of transportation infrastructure, and similar studies required by [insert name of local government] as part of permit applications, shall address the following topics at a level of detail appropriate for the project type (e.g., major versus minor projects) and for the stage of the planning or project development process:

    - Analyze the expected impacts of sea level rise upon the subject transportation infrastructure over the appropriate planning horizon and risk aversion scenario [See Example Policy 22];

    - Be based upon the current best available science, including as it guides the use of appropriate sea level rise projections [See Example Policy 21];

    - Analyze all relevant hazards including but not limited to wave run-up, tidal inundation, storm flooding, groundwater change, and short- and long-term erosion, all as influenced by sea level rise;

    - Examine hazard conditions with and without the effects of existing shoreline protective devices;

- Evaluate the foreseeable effects that the transportation infrastructure will have on communities, vulnerable populations, and coastal resources over time (including in terms of impacts on public access for all types of coastal users, shoreline dynamics, natural landforms, natural shoreline processes, beach widths, wetlands, other shoreline habitats seaward and inland of the transportation infrastructure, public views, and cultural and historical resources) as project impacts continue and/or change over time, including in response to sea level rise;

- Be conducted by a licensed engineer with expertise in coastal engineering and geomorphology or other suitably qualified professional; and

- Be coordinated with relevant stakeholders and partners to the extent feasible.

In cases where a specific adaptation strategy is being proposed, the assessment shall include an analysis of the strategy's potential impacts to coastal resources, capacity to abate hazards over the applicable planning horizon, as well as an analysis of applicable alternatives, such as nature-based adaptation strategies, all evaluated at a similar level of detail.

Large-scale projects require more detailed analysis than minor projects. Minor projects may include those that are small in scale and have limited potential consequences to development or coastal resources; projects with short anticipated lifetimes; and/or projects with a high adaptive capacity. Major projects include those with converse characteristics, such as capacity-increasing construction, realignment projects, proposals for shoreline protective devices, and bridge and/or causeway designs or replacements. Generally, analyses for minor projects may utilize information from existing sea level rise models and/or vulnerability assessments. Site-specific sea level rise studies for major projects may also pull information from existing resources, but shall include all necessary additional, detailed analyses of relevant coastal hazards and potential impacts of project alternatives to communities, environmental justice communities, and coastal resources, as well as implications for vehicle miles traveled.

15. **Assumption of Risk, Waiver of Liability, and Indemnity Agreement**. As a condition of coastal permit approval for transportation-related development in potentially vulnerable areas, applicants shall be required to acknowledge and agree: 1) that the development is located in an area with current or potential future coastal-related hazards and may be subject to erosion, landslides, bluff retreat, flooding, wave run-up, tsunamis, and sea level rise; 2) to assume the risks of injury and damage from such coastal hazards in connection with the permitted development; 3) to unconditionally waive any claim of damage or liability against the [insert local government name, and Coastal Commission, if permit is appealed], its officers, agents, and employees for injury or damage from such hazards; 4) to indemnify and hold harmless the [insert local government name, and Coastal Commission, if permit is appealed], its officers, agents, and employees with respect to approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards; 5) that the boundary between public trust land (tidelands) and uplands may shift with rising seas, the structure may eventually be located on public trust lands, and the development approval may not permit encroachment onto public trust land; and 6) any future encroachment must be removed unless the Coastal Commission determines

that the encroachment is legally permissible pursuant to the Coastal Act and authorizes it to remain, and any future encroachment would also be subject to the State Lands Commission's (or other trustee agency's) leasing approval.

16. **Coastal Hazards Monitoring Plan**. When approving transportation infrastructure development in an area subject to current or expected future coastal hazards, require a Coastal Hazards Monitoring Plan to establish the framework and parameters for (1) regularly monitoring flood and other coastal hazards at the site, and managing responses to those hazards both on and off-site; (2) identifying how those hazards are affecting or will soon affect the operations of the transportation infrastructure; (3) identifying changes necessary to allow continued safe functioning of the transportation infrastructure; and (4) identifying hazard 'triggers' to establish when actions (such as retrofits, upgrades, and including infrastructure relocation) need to be pursued. At a minimum, the Monitoring Plan shall include metrics for assessing site conditions and potential responses related to flooding, groundwater rise, and erosion as these may be influenced by coastal flooding and sea level rise during both typical and extreme storm events. Monitoring Plans shall account for increased frequency of inspection as coastal hazards threaten the integrity of the infrastructure.

17. **Nature-Based Adaptation Strategies**. Nature-based adaptation strategies with measurable environmental benefits shall be prioritized over strategies with additional coastal resource impacts, such as those associated with hard shoreline protective devices. Soft strategies (e.g., dune and wetland restoration, sand replenishment, and other options that do not fix the shoreline) shall be prioritized over hybrid armoring (e.g., strategies that fix the shoreline 152 Final Adopted Guidance | November 17, 2021 Appendix B. Model Policies combined with natural features), and hybrid armoring shall be prioritized over hard shoreline protection. Hybrid armoring shall only be allowed if it complies with all of the requirements of Policy 28, except for the near-term danger requirement as specified in Policy 28.a. Instead of the near-term danger requirement, hybrid armoring may be allowed to protect infrastructure that is expected to be threatened by hazards in [insert appropriate planning horizon, consistent with relevant planning and funding cycles; e.g., 20-30 years], and shall be constructed with enough lead time for vegetation cover to establish or for other steps to be completed so the project can provide the benefits for which it was designed. In all cases, the least environmentally damaging feasibly alternative shall be selected.

18. **Hard or Hybrid Shoreline Protective Devices and Long-Term Planning**. Permits for new hard or hybrid shoreline protection to protect transportation infrastructure shall include conditions requiring long-term sea level rise adaptation planning that protects public safety and coastal resources, and ensures structural stability of that infrastructure, in a manner that, if feasible, does not require the long-term retention of the protective device. Subject to specific criteria, and notwithstanding any other policy in the LCP, hard or hybrid shoreline protective devices may be permitted to protect existing, critical transportation infrastructure at near-term risk from erosion or flooding when there is no less environmentally damaging feasible alternative, when designed to eliminate or mitigate adverse impacts on local shoreline sand supply, and provided that: (a) special conditions state that the permit will expire in [insert appropriate timeframe considering long-term planning needs], and that (b) a sea level rise adaptation plan must be submitted for review and approval by [list agency] prior to the end of the permit term. Prior to the end of the permit term, the applicant shall also submit a permit amendment application to implement the measures

identified in the approved sea level rise adaptation plan. If a sea level rise adaptation plan is not approved, the permitted shoreline protective device may be required to be removed. Hard or hybrid shoreline protective devices shall be sited and designed to avoid or minimize coastal resource impacts to the maximum extent feasible and shall adhere to all of the following standards:

- **Mitigation required**. Mitigation for impacts on all coastal resources shall be required. For shoreline protective devices on or adjacent to beaches, mitigation shall be required for all impacts, including impacts to public access and recreation, environmentally sensitive habitats, and shoreline sand supply that result from the footprint of the proposed shoreline protective device as well as from halted erosion that would have occurred over the life of the shoreline protective device. Mitigation shall minimize impacts to the extent feasible and fully compensate for impacts that remain; mitigation shall address impacts that will occur over the full life of the structure, but may be assessed in appropriate increments, rather than being required entirely up front. For shoreline protective devices on or adjacent to other coastal habitats (e.g., wetlands), appropriate mitigation shall be required. In-kind mitigation shall be prioritized, although in-lieu fee mitigation may be appropriate, such as when used for programs developed to advance communitywide public access goals and environmentally protective adaptation strategies. Mitigation shall be designed such that the benefits derived from mitigation are equitably distributed and/or increase benefits to communities that have traditionally lacked public access opportunities and the benefits associated with other coastal resources.

- **Maintenance and monitoring**. Shoreline protective devices constructed to protect transportation infrastructure shall be monitored and maintained in their permitted configuration to prevent increased impacts to public access, recreation, environmentally sensitive habitats, and other coastal resources. c. Long-term planning. Approvals of shoreline protective devices shall include a special condition requiring planning for a long-term solution. This condition shall require the Permittee to acknowledge that the Coastal Development Permit only authorizes the development for an initial, temporary period, during which time the Permittee must develop and submit for review and approval a longer-term Sea Level Rise Adaptation Plan that, if feasible and consistent with other applicable LCP policies, does not rely on armoring. Permit applications shall include a plan and timeline for the development of the Sea Level Rise Adaptation Plan. The Plan shall be based on best available science and include, at minimum, possible options to explore as long-term solutions, including phased adaptation strategies as appropriate, a mechanism and process to choose the preferred long-term adaptation approach, and a reporting cycle with deadlines for action. The Sea Level Rise Adaptation Plan shall consider and prioritize retreat/avoidance strategies, followed by feasible nature-based adaptation strategies. The Plan shall also consider measures to minimize greenhouse gas emissions and to ensure the benefits and impacts to environmental justice communities, disadvantaged communities, and economically depressed areas are equitable. The date by which Sea Level Rise Adaptation Plans shall be completed shall depend on the vulnerability of the transportation segment and its potential to cause coastal resource impacts. If the segment is expected to be vulnerable in the near-term, adaptation planning shall be required in the near-term, and the permit shall specify a completion date that allows an appropriate amount of lead time for review and approval of a permit amendment, and implementation of adaptation measures, before impacts are expected to become significant. d.

- **Removal Provisions**. Prior to the end of the permit term, the applicant shall submit a permit amendment application (or new permit application, as applicable) to implement the measures identified in the Sea Level Rise Adaptation Plan. If the measures of the Sea Level Rise Adaptation Plan are not approved, the permitted shoreline protective device may be required to be removed.

- **Assumption of risk**. As a condition of coastal permit approval for shoreline protective devices, applicants shall be required to acknowledge and agree to assume risks as required in Policy 25 (Assumption of Risk, Waiver of Liability, and Indemnity Agreement).

- **Maximize environmental benefits**. Any permitted shoreline protective device shall be designed and constructed in a manner that maximizes environmental benefits. Such benefits should not preclude eventual removal of the protective device where removal is required or appropriate.

19. **Causeway and bridge elevation**. Incorporate sea level rise projections into the elevation of causeways and bridges as adaptive strategies.

- **Require elevation to account for full sea level rise projection**: Determine minimum bridge soffit elevation by adding the sea level rise scenario [See example policy 21] and anticipated hydrological changes such as increases in storm and flooding intensities and occurrences for the appropriate planning horizon [See example policy 22] to the existing storm flow elevation predictions typically used by Caltrans and relevant transportation authorities. The analysis shall also include wave setup and crest heights if the project may be subject to wave action. Any additional freeboard necessary to allow for recreational boating passage during high tides, or any additional freeboard required by FEMA, should also be added; or

- **Allowances for elevation to less than the full sea level rise projection, plus other adaptation measures**: Elevation of bridges/causeways to less than the recommended highest sea level rise scenario [See example policy 21] for the appropriate planning horizon [See example policy 22] may be allowed, but in such instances shall incorporate additional adaptation measures in order to ensure that the structure will minimize risks to life and property and assure stability and structural integrity over its lifetime. Additional adaptation measures may include designs that allow for incremental increases in elevation in the future, planned reconstruction when impacts occur, or temporary closures/ detours during extreme events. This strategy may be appropriate when further elevation is not feasible or impacts to coastal resources (e.g., visual resources, habitats, agricultural lands) from further elevation outweigh the benefit derived by designing to the full sea level rise scenario. Extreme event monitoring shall be required as part of the operation and maintenance of the facilities.

6.3 Sonoma County Local Coastal Program Coastal Hazards Update (2025)

On February 4, 2025, the Sonoma County Board of Supervisors voted unanimously to adopt its Local Coastal Program as certified by the Coastal Commission that included policy refinements related to

coastal hazards, sensitive habitats, environmental justice, cultural and tribal cultural resources, agricultural operations, and lower-cost overnight accommodations. Because Sonoma County shares many similar shoreline types with Mendocino County, including bluffs, beaches, and bluff-backed beaches, the County's recently updated policies will be informative for Mendocino County's LCP update. The following policies could be applicable for Mendocino County:

1. **Policy C-OSRC-8e**: Establish buffers around ESHA to protect it from development impacts. ESHA buffers shall be developed in accordance with Appendix E-3. All buffers around ESHA shall be no less than 100 feet in width; under specified circumstances, buffer reductions may be approved by the County as addressed in Subsection 8, Policy C-OSRC-8g. "Environmentally Sensitive Habitat Areas" and Appendix E-3. A 600-foot buffer is required for heron rookeries; a 500-foot buffer for occupied raptor nests, which includes owls and burrowing owl burrows; a 300-foot buffer for passerines. However, these buffers may be reduced, , in consultation with resource agencies and with the recommended mitigation and monitoring for impacts. Only developments consistent with Subsection 8, Policies C-OSRC8a through 8l. "Environmentally Sensitive Habitat Areas" shall be allowed in ESHA buffers. Buffers shall take into account reasonably foreseeable effects of sea level rise and climate change.

2. **Policy C-PA-2b**: Study, identify, and develop future alignments of the California Coastal Trail that would be sufficiently protected from the highest projection of erosion and sea level rise scenarios and would preserve or establish native vegetation between the trail and the bluff edge.

3. **Policy C-PA-2c**: Provide a safe, continuous walking and hiking trail consistent with the principles of proximity, connectivity, integrity, respect and feasibility established by California Coastal Conservancy 2003 plan, "Completing the California Trail". Wherever feasible, the Coastal Trail should be within sight, sound, or at least the scent of the sea. The traveler should have a persisting awareness of the Pacific Ocean. It is the presence of the ocean that distinguishes the seaside trail from other visitor destinations. Consistent with these principles, trail segments to the sight, smell and sound of the ocean as possible, or using the following standards: (1) Where it is not feasible to locate the trail along the shoreline due to natural landforms or legally authorized development that prevents passage at all times, inland bypass trail segments located as close to the shoreline as possible should be used. (2) Shoreline trail segments that may not be passable at all times, or that are not passable by bicycles, should be augmented by inland alternative routes that are passable and safe for pedestrians and bicycles. (3) New lateral trails along the bluff edge shall be set back a sufficient distance from the bluff edge to avoid impacts from erosion and sea level rise, generally 50 feet, and native vegetation shall be established and maintained between the trail and the edge to stabilize the blufftop if practical. (4) Outlooks and other trail amenities shall be incorporated to discourage damage from informal trails.

4. **Policy C-PA-2g**: Access and recreational facilities associated with the California Coastal Trail, as well as the Trail itself shall be sited, designed and maintained to avoid or mitigate erosion, as well as accommodate long term impacts of sea level rise, and climate change.

5. **Policy C-PA-3b**: Require new development adjacent to public access and recreation areas vulnerable to coastal bluff erosion or sea level rise to be sited and designed to anticipate eventual loss and necessary replacement of such public access and recreation areas.

6. **Policy C-PS-1a**: As a condition of coastal permit approval for new development in an area subject to current or future hazards, applicants shall be required to acknowledge and agree, and private applicants must also record a deed restriction on the property to acknowledge and agree that: (1) The development is located in a hazardous area, or an area that may become hazardous in the future; (2) The permittee assumes the risks of injury and damage from such hazards in connection with the permitted development; (3) The permittee unconditionally waives any claim of damage or liability against the County of Sonoma and Coastal Commission if the permit is appealed, and their officers, agents, and employees for injury or damage from such hazards; (4) The permittee indemnifies and holds harmless the County of Sonoma, and Coastal Commission if the permit is appealed, and their officers, agents, and employees with respect to approval of the project against any and all liability, claims, demands, damages, costs (including costs and fees incurred in defense of such claims), expenses, and amounts paid in settlement arising from any injury or damage due to such hazards; (5) Except for coastal-dependent development or uses, the permittee has no rights under Coastal Act Section 30235 and related LCP policies to shoreline armoring in the future; (6) Sea level rise could render it difficult or impossible to provide services to the site (e.g., maintenance of roadways, utilities, sewage, wastewater disposal, or water service), thereby constraining allowed uses of the site or rendering it uninhabitable; (7) For structures not already located on public trust lands, the boundary between public trust land (tidelands) and private land may shift with rising seas, causing the structure or portion of the structure to eventually be located on lands impressed with a public trust interest, and the approval does not permit development on land impressed with a public trust interest; (8) Any development that comes to be located on lands impressed with a public trust interest due to the movement of the mean high tide line must be removed unless the Coastal Commission authorizes the development to remain pursuant to a permit or permit amendment. Such development would also be subject to the State Lands Commission's (or other trustee agency's) discretionary leasing approval; and (9) The structure may be required to be removed or relocated and the site restored if it becomes unsafe for occupancy or use due to coastal hazards.

7. **Policy C-PS-1f**: Where new hazard data or information, analyses, or maps become available as a result of agency research, database updates, or more detailed site specific analyses, the best available science shall be used and considered consistent with the Local Coastal Plan even if it departs from the hazard maps and policies adopted with the Local Coastal Plan, provided such information is peer reviewed, widely accepted within the scientific community, and locally relevant to the satisfaction of the approving entity (County, or Coastal Commission on appeal). A Local Coastal Program (LCP) update or amendment shall be initiated if warranted. All updates to the LCP shall be reflective of the most current best available science and state guidance applicable at the time of the update, including any updated guidance as published by the California Ocean Protection Council or California Coastal Commission. As used in this element, best available science is defined as: Recently published scientific information about coastal hazards and sea level rise that can be used in vulnerability assessments, evaluation of coastal development permit applications that present hazard risks, and preparation of technical reports and related findings. Sources of information may include, but shall not be limited to, state and federal agencies, research and academic institutions, peer-reviewed

scientific journals, and research published by organizations that focus on climate change and sea level rise, such as the California Coastal Commission, Ocean Protection Council, and the Intergovernmental Panel on Climate Change.

8. **Policy C-PS-1j**: As a condition of Coastal Development Permit approval for development subject to hazard risks in the Geologic Hazard Areas (Figures C-PS-1a through -1c and C-PS-2a through -2c), Flood Hazard Areas (Figures C-PS-3f-ii through 3j-ii), and areas subject to inundation from sea level rise within the anticipated economic lifespan of the structure, require the applicant to record a document approved by Permit Sonoma indemnifying the County from liability for any personal or property damage caused by natural geologic or other hazards on such properties and acknowledging that future shoreline protective devices to protect structures is prohibited, except for coastal dependent development or uses.

9. **Policy C-PS-1m**: Evaluate policies and standards for wetland, ESHA, and stream buffers to ensure protection of sensitive habitat into the future and to maximize the role natural habitats can play in reducing the impacts of sea level rise.

10. **Program C-PS-1-P1**: Develop a comprehensive adaptation plan and incentives for planned retreat or relocation from hazard areas; (1) Establish mandatory rolling setbacks for future development or significant redevelopment in areas that are likely to be affected by the impacts from sea level rise within the anticipated lifetime of the structures. (2) Identify funding or other incentives for purchase or relocation of existing structures out of vulnerable areas or areas exposed to significant hazards risks. (3) Limit rebuilding of structures in vulnerable areas that have been damaged by storms or the impacts from sea level rise, including increased rates of erosion.

11. **Policy C-PS-2f**: Applications for new development or redevelopment on coastal bluff property shall be required to include a site-specific coastal bluff erosion hazards report from a licensed Geotechnical Engineer, Engineering Geologist, or Geophysicist that establishes a geologic setback line for proposed new development. This setback shall be no less than 100 feet and shall establish where on the bluff top stability can reasonably be assured for the economic life of the development (no less than 100 years). All new structures located on a coastal bluff top shall be setback to ensure that it will not be endangered by coastal bluff erosion, retreat, and collapse; and thereby avoid the need for shoreline protection devices during the economic life of the development. Shoreline protection devices are prohibited for new development and redevelopment and shall not be considered when evaluating setbacks from coastal hazards. The coastal bluff erosion hazards report shall take the following factors into account in establishment of the geologic setback line: (1) Proposed extent of grading and site preparation. (2) Proposed plans for construction of roads, driveways, foundations, water lines, drainage improvements, and septic systems and leach fields. (3) Increase in erosion and bluff retreat created by sea level rise. (3) Maximum coastal bluff retreat, taking into account sea level rise, projected to occur within the economic life of the development (no less than 100 years for residential and commercial structures and critical infrastructure). The projected coastal bluff retreat shall be calculated considering the specific geologic and hydrologic conditions on the site; historic coastal bluff retreat data; projections for future sea level rise according to the best available science; and projections for changes in storm frequency, magnitude, and duration due to climate change.

12. **Policy C-PS-3e**: Where additional data and information is necessary to adequately assess the on-site and off-site flood and inundation hazards from a proposed development, to develop mitigation measures, or to determine compliance of an existing or proposed development with the Coastal Zoning Ordinance, a supplemental site-specific flood and inundation hazards analysis shall be required. The site-specific analysis may include but is not limited to: (1) Topographic mapping. (2) Analysis of the influence of sea level rise on flood elevations and flood and inundation hazards and zones. (3) Delineation of flood and inundation hazard zones. (4) Calculation of expected flood elevations. (5) Calculation of expected flood velocity. (6) Analysis of the impacts on on-site and off-site flooding, drainage, and stormwater runoff. (7) Using construction details and specifications, analysis of compliance with the Coastal Zoning Ordinance. (8) Using cost and appraisal data, analysis of when reconstruction, rehabilitation, additions, or other improvements to structures would constitute a substantial improvement under the Sonoma County Code. (9) Development of mitigation measures to reduce or eliminate the potential for human injury and property loss from flood and inundation hazards, particularly in areas subject to repetitive property loss.

13. **Policy C-PS-3h**: Assess potential hazards from proposed development on a case-by-case basis to ensure that siting, mitigation measures, or design changes are sufficient to minimize hazards consistent with other LCP policies. Such assessments shall consider hazards from river and creek flooding, dam failure, storm surge and high waves during storms, sea level rise, and undersized or blocked stormwater facilities.

14. **Policy C-PS-3k**: Evaluate potential flood and inundation hazards for development projects relative to potential repetitive property loss and incorporate mitigation measures to reduce the potential for human injury and property damage to a level of less than significant. Evaluate impacts from sea level rise and storm inundation events. Consider unique coastal characteristics, infrastructure, and adaptive capacity in project design.

15. **Policy C-PS-4c**: For the purposes of vulnerability and risk assessments, mapping, land use planning, and adaptation planning, take a precautionary approach by identifying the areas projected to be vulnerable to seven feet of sea level rise, including under projected high tides, high water conditions in combination with high tides, storm wave run up and storm surge, and erosion resulting from sea level rise.

16. **Policy C-PS-4e**: Use the best available science and technical analyses available in combination with site-specific information when evaluating land use or development proposals in areas subject to sea level rise and other coastal hazards.

17. **Policy C-PS-4f**: Applications for Coastal Development Permits for development potentially subject to hazards from projected sea level rise shall include a geologic/flood hazards report prepared by a licensed Geotechnical Engineer that evaluates the potential risk from inundation and/or coastal erosion over the economic life of the development. At a minimum, the report shall evaluate hazards in the context of a 7-foot sea level rise and include recommendations on development location, design, and construction to minimize risk from coastal hazards and avoid impacts to coastal natural resources. Applications for critical infrastructure shall also evaluate the High Scenario from the OPC State Sea Level Rise Guidance (or a similarly precautionary scenario from future updates). Hazards reports may

evaluate additional sea level rise scenarios as necessary to provide sufficient information for determinations.

18. **Policy C-PS-4g**: Restrict rebuilding or redevelopment of structures in vulnerable areas that have experienced repetitive damage from storms, flooding, landslides, or the impacts from sea level rise.

19. **Policy C-PS-4h**: New development shall be set back a sufficient distance landward or otherwise sited and designed to avoid or minimize, to the maximum extent feasible, inundation and/or coastal erosion resulting from the extent of projected sea level rise, storm events, and other coastal hazards based on the best available science over the expected economic life of the development. In all cases, new development shall assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area. Other than for coastal dependent development, shoreline protection devices are prohibited for new development and shall not be considered when evaluating setback from coastal hazards.

20. **Policy C-PS-4i**: For development proposed where potential inundation, flooding, and/or coastal erosion resulting from projected sea level rise cannot be completely avoided, sea level rise adaptation measures, including a requirement for future removal of development, shall be evaluated and incorporated into the development siting, design, construction, and operation. These measures shall not have an adverse impact on coastal resources, and risk disclosures and deed restrictions shall be required.

21. **Policy C-PS-4j**: New development shall be avoided on undeveloped land immediately adjacent to wetlands or other sensitive habitats that are at risk of inundation or flooding resulting from projected sea level rise so that these lands are available for wetland or other habitat restoration projects.

22. **Policy C-PS-4k**: Buffers to protect wetlands and riparian habitat shall be measured from the extent of a projected 7-foot sea level rise in tidally influenced areas. Consultation with California Department of Fish & Game, U.S. Fish & Wildlife Service, and U.S. Army Corps of Engineers is required to establish buffers in these areas.

23. **Policy C-PS-4m**: The conditions of approval for any Coastal Development Permit on public or private property that is subject to hazards from projected sea level rise shall include the requirement that the Sonoma County Local Coastal Plan | Public Safety Element Page PS-41 owner shall record a deed with the following notice included: “The subject property is located in an area subject to inundation, flooding, or coastal erosion hazards as a result of projected sea level rise.”

24. **Policy C-CT-4i**: Using a projected 7-foot rise in sea level relative to identify road segments at risk from sea level rise and coastal erosion and routes for realignment or alternative routes in the event that maintaining the roadway is not feasible.

25. **Policy C-CH-1j**: Ensure that cultural resources are protected from the impacts of environmental hazards, including sea level rise and climate change, especially risk from wildfire. Work with the State Historic Preservation Officer to identify actions such as mitigation and monitoring programs to protect archaeological and paleontological resources including Native American artifacts at risk from

hazards such as erosion, inundation, and sea level rise in a manner consistent with the policies of the LCP and other applicable provisions of the Coastal Act.

26. **Program C-CH-P2**: Create an inventory of historic resources that are at risk from neglect and/or the effects of sea level rise and climate change. This inventory would identify preservation priorities based on historic significance, current condition, level of risk, and funding needs as well as strategies for preservation, consistent with protection of coastal natural resources.

6.4 City of Point Arena Local Coastal Program Coastal Hazards Update (Forthcoming)

On February 17, 2026, the Point Arena City Council adopted an LCP amendment to incorporate policies related to coastal hazards, which could be informative for Mendocino County. Although the draft policies have not yet been approved by the California Coastal Commission and may be subject to change, there are included below for reference:

The City's primary sea-level rise vulnerabilities for development are in Arena Cove and on Port Road. Arena Cove serves many Coastal Act priority uses including: 1) Preservation and protection of natural resources, including environmentally sensitive habitats, 2) Commercial fishing; 3) Coastal and water dependent public recreation; and 4) Visitor serving facilities. These Coastal Act priority uses cannot be easily relocated. Point Arena offers the only pier over a significant stretch of the Mendocino Coast, and Arena Cove offers the only beach and ocean access in Point Arena. However, these priority Coastal Act uses may be impacted by sea level rise as follows:

- Sea-level rise will exacerbate existing ocean related hazards in Arena Cove which include coastal erosion, wave runup and overtopping, and temporary inundation during large storm events from fluvial, coastal, and/or combined flooding.
- Additionally, permanent inundation, groundwater rise are also anticipated to increase over the long term.
- To a lesser extent sea level rise will increase the rate of erosion on the coastal bluffs in the City.

The following policies shall apply to development subject to coastal hazards impacts:

1. Siting to Protect Coastal Resources and Minimize Hazards: New development shall be sited to avoid hazards, taking into account predicted sea level rise, including groundwater changes, over the anticipated life of the development. If hazards cannot be completely avoided, then development shall be sited and designed to protect coastal resources and minimize risks to life and property to the maximum extent feasible for the anticipated life of the development. New development proposals shall include an analysis that demonstrates: 1) the stability and structural integrity of the development without using shoreline protective devices that substantially alter natural landforms along bluffs and cliffs or otherwise harm coastal resources in a manner inconsistent with LCP policies or Coastal Act public access policies; and 2) the project shall not contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area.

2. Best Available Science: Planning and development reviews for projects proposed in areas susceptible to sea level rise as illustrated in Existing and Future Coastal Flood Extent (6.7ft SLR) Map shall use, as applicable, the best available, up-to-date scientific information about projected sea-level rise and other climate change related coastal hazards, including, but not limited to, the City of Point Arena Sea-Level Rise Assessment, CCC's 2024 Sea Level Rise Policy Guidance, and the State's 2024 Sea Level Rise Guidance.

3. Hazard Identification and Mapping: The City's coastal hazard zones have been mapped using the best available science about projected sea-level rise, erosion, flooding, and other coastal hazards in the City of Point Arena Sea-Level Rise Assessment. Using the coastal hazard maps, site-specific hazard mapping and assessment shall be required for proposed development in the area mapped as "Existing and Future Coastal Flood Extent (6ft SLR)" and any parcels that contain blufftops as part of the individual development review process. Applications for Coastal Development Permits for development potentially subject to hazards from projected sea level rise, shall include a geologic/flood hazards report prepared by a licensed Geotechnical Engineer that evaluates the potential risk from inundation and/or coastal erosion over the economic life of the development. The report shall evaluate hazards in the context of a 6.7-foot sea level rise (or similarly precautionary sea level rise scenario based on best available science at the time of application) and include recommendations on development location, design, and construction to reduce risk from coastal hazards and avoid impacts to coastal natural resources.



Map: Existing and Future Coastal Flood Extent (6ft SLR) (Source: ESA 2025, Sea Level Rise Analysis and Vulnerability Assessment for Point Arena Cove)

4. Assumption of Risk: As a condition of coastal permit approval for new development in an area subject to current or future hazards, included those exacerbated by sea level rise, applicants shall be required to acknowledge and agree, and private applicants must also record a deed restriction on the property to acknowledge and agree that the development is located in a hazardous area or an area that may become hazardous in the future. The applicant shall also acknowledge that sea level rise could render it difficult or impossible to provide services to the site; that, except for coastal-dependent structures, the applicant waives any right that may exist under applicable law to construct shoreline protective devices; that the boundary between public tidelands and private land may shift with rising seas and the development approval does not permit encroachment onto public trust land; that removal or additional adaptation strategies may be required in the future to address sea level rise consistent with the Coastal Act and the certified LCP; and that the applicant waives any future claims of damage or liability against the permitting agency and agrees to indemnify the permitting agency against any liability, claims, damages or expenses arising from any injury or damage due to such hazards.

The City shall implement the following programs:

5. Critical Infrastructure: The City will work to preserve, protect and/or adapt critical local infrastructure, as feasible, to protect public safety and mitigate against economic loss and reductions in coastal resources, which include coastal access, coastal dependent recreation, commercial fishing, visitor serving facilities, and environmentally sensitive habitat areas.

6. Best Available Science. Coastal hazard mapping, vulnerability assessment, and LCP hazard policies shall be updated as the best available science and guidance (and relevant updates to such documents) becomes available, or as necessary to address significant changes in sea-level rise estimates.

7. Sea-Level Rise Adaptation Plan: The City shall develop and implement a Sea-level Rise Adaptation Plan that builds on the City of Point Arena's Sea-Level Rise Assessment, as funding allows. The Adaptation Plan will use the best available science to analyze and identify adaptation strategies, timelines, implementation projects, and potential funding sources. The Adaptation Plan shall include community outreach to identify community goals and priorities, consider development of a shoreline and sea-level rise monitoring program, and update emergency response and evacuation procedures, as consistent with other sections of the General Plan. The findings of the Adaptation Plan will be incorporated into the City's LCP as appropriate.

The City shall revise its Sea-level Rise Adaptation Plan (and any related LCP amendments) every ten years at minimum or as feasible given funding constraints. The revision shall consider the following:

a. Review of efficacy of implemented projects and development of a new schedule for new and un-implemented projects of the Adaptation Plan

b. Updated sea-level rise projections and risks, using best available science

c. Potential need to revise adaptation measures or implement new measures, including review of emerging engineering, science, and technologies

d. Funding needs, potential funding sources, and benefit cost analysis

e. Meaningful involvement of the public and environmental justice communities, including community-based organizations, in future adaptation planning

f. Minimization of barriers to public coastal access and commercial fishing

g. Consideration of the public access needs of environmental justice communities.

7 CONCLUSIONS

Across all asset categories, the vulnerability and risk assessment highlights that Mendocino County's exposure to coastal hazards is widespread and diverse, yet the degree and nature of exposure as well as risk vary significantly by asset type and setting. Infrastructure and built-environment assets show the highest overall risk because they are both difficult to relocate and essential to daily function. Public access, recreation, habitat, and agricultural assets show slightly lower risk as they face slower but persistent degradation as erosion and rising tides reduce usable land and habitat extent. Adaptive capacity is often limited in areas where steep terrain or existing development restricts inland migration or relocation options. Overall, these findings demonstrate that while some assets can be adapted through targeted protection or rerouting, others—particularly those located near wetlands or beaches or on coastal bluffs —may require more novel approaches to flood resilience. The results presented herein provide the technical foundation for developing the County's sea-level-rise baseline policies and long-term resilience strategies that will be developed in later tasks.

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Appendix A. Sea Level Rise Scenarios Memorandum

775 Baywood Drive
Suite 100
Petaluma, CA 94954
707.795.0900 phone
707.795.0902 fax

esassoc.com

memorandum

date	March 14, 2025
to	Julia Krog and Nash Gonzalez (County of Mendocino)
from	Louis White, PE, and Shannon Fiala
subject	FINAL Sea Level Rise Scenarios for Mendocino County Sea Level Rise Resilience Strategy (ESA Ref. 202300556.00)

1 Introduction

This memo presents a preliminary assessment of sea level rise (SLR) scenarios to be used by the ESA team for the County of Mendocino (county) SLR Resilience Strategy. The SLR scenarios presented below will be used as part of the technical analyses and risk assessments of vulnerable coastal assets and resources in the county over a range of time horizons.

These SLR scenarios presented in this memo are based on the latest State of California guidance documents, including the State of California's *Sea Level Rise Guidance* (OPC 2024) and the California Coastal Commission's (CCC) *Sea Level Rise Policy Guidance* (CCC 2024).

ESA recommends using three future conditions timescales for the County of Mendocino SLR Resilience Strategy to examine the SLR impacts by incremental amounts: 1 foot of SLR occurring by 2050 (near term), 3 feet of SLR by 2070-2100 (intermediate term), and 6 feet of SLR by 2100+ (long term). The method involves identifying specific amounts of SLR, or thresholds, at which assets become vulnerable. The SLR guidance, projections, and threshold approach are summarized in the following sections.

2 California State Sea Level Rise Policy Guidance

The OPC recently finalized the State of California Sea Level Rise Guidance: 2024 Science and Policy Update (2024 Update), which provides projections for SLR at various locations along the coast of California through 2150 (OPC 2024). OPC produced the 2024 Update in partnership with the California Ocean Science Trust (OST) and a scientific Task Force. The 2024 Update is based on the National Oceanic and Atmospheric Administration (NOAA) 2022 Global and Regional Sea Level Rise Scenarios for the United States (Sweet et al. 2022), which provides updated SLR scenarios for the United States based on global projections from the Intergovernmental Panel on Climate Change (IPCC) 6th Assessment Report. The 2024 Update presents five SLR scenarios and values that incorporate: (1) SLR observations, estimated and modeled projections, and uncertainties, and (2) a

range of global greenhouse gas emissions scenarios, which rely on shared socioeconomic pathways (SSPs).[1] **Table 1** presents the SLR projections for Arena Cove for all scenarios.

TABLE 1. 2024 OPC STATE GUIDANCE: PROJECTED SEA LEVEL RISE FOR ARENA COVE IN FEET

Year	Low	Int-Low	Intermediate (Low Risk Aversion)	Int-High (Medium-High Risk Aversion)	High (Extreme Risk Aversion)
2020	0.1	0.2	0.2	0.2	0.2
2030	0.2	0.3	0.3	0.4	0.4
2040	0.3	0.4	0.5	0.6	0.7
2050	0.4	0.5	0.7	0.9	1.1
2060	0.5	0.7	0.9	1.4	1.8
2070	0.5	0.8	1.2	2.1	2.8
2080	0.6	1.0	1.7	2.8	3.9
2090	0.7	1.2	2.2	3.6	5.1
2100	0.8	1.4	2.9	4.5	6.4
2110	0.8	1.6	3.6	5.4	7.6
2120	0.9	1.7	4.1	6.1	8.7
2130	0.9	1.9	4.6	6.7	9.6
2140	1.0	2.1	5.1	7.3	10.5
2150	1.0	2.3	5.6	7.8	11.4

NOTE:

Median values of Sea Level Scenarios, in feet, for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion.

SOURCE: 2024 OPC Guidance

The 2024 Update provides a summary of each scenario, as follows:

Low Scenario: Aggressive emissions reductions leading to very low future emissions; the scenario is on the lower bounding edge of plausibility given current warming and sea level trajectories, and current societal and policy momentum.

Intermediate-Low Scenario: A range of future emissions pathways; a reasonable estimate of the lower bound of most likely SLR in 2100 based on support from sea level observations and current estimates of future warming.

[1] SSP background from OPC 2024 guidance: *Developed more recently, the SSPs are a collection of narrative descriptions of alternative futures of socio-economic development in the absence of climate policy intervention. Five SSPs describe five different pathways that the world could take, drawing on data including population, economic growth, education, urbanization, and the rate of technological development. The SSPs are important inputs into the IPCC sixth assessment and are used to explore how societal choices will affect greenhouse gas emissions. Pathways 5-85 (SSP 585) assumes heavy fossil-fueled development with high percentage of coal and energy-intensive lifestyles worldwide and assumes a radiative forcing of 8.5 W/ m^2.*

Intermediate Scenario: A range of future emissions pathways; could include contribution from low confidence processes. Based on sea level observations and current estimates of future warming, a reasonable estimate of the upper bound of most likely SLR in 2100.

Intermediate-High Scenario: Intermediate-to-high future emissions and high warming; this scenario is heavily reflective of a world where rapid ice sheet loss processes are contributing to SLR.

High Scenario: High future emissions and high warming with large potential contributions from rapid ice-sheet loss processes; given the reliance on sea level contributions for processes in which there is currently low confidence in their understanding, a statement on the likelihood of reaching this scenario is not possible.

Note that the OPC's 2024 Update recommends using a range of SLR amounts between the Intermediate and High Scenarios to inform appropriate SLR planning and project decisions.

The 2024 Update included several changes made from the previous State of California Sea Level Rise Guidance (OPC 2018). The 2024 Update removes the extreme risk aversion SLR scenario (i.e., H++) that was included in the previous guidance. The H++ scenario assumed rapid ice sheet loss on Antarctica, which authors alleged could drive rates of SLR 30-40 times faster than the SLR experienced over the last century. This scenario is not included in the 2024 Update, as the rates and amounts of SLR are no longer supported by the best available science. Additionally, the 2024 Update provides a greater certainty of SLR through 2050, with a California statewide average of 0.8 to 1.2 feet for intermediate to high scenarios, respectively. By 2100, the expected range of the statewide average SLR is between 3.1 and 6.6 feet for intermediate to high scenarios, respectively. Beyond 2100, SLR uncertainty increases, with the potential for statewide average sea levels to rise up to 11.9 feet by 2150.

The 2024 Update recommends evaluation of the Intermediate, Intermediate-High, and High Scenarios in SLR planning and projects. The High Scenario is sufficiently precautionary for even the most risk averse applications. The High Scenario assumes high future greenhouse gas emissions. Note that future emissions are inherently uncertain because emissions depend on societal choices; therefore, it is not possible to estimate the probability that future emissions will be high. Assuming high emissions and considering the range of model projections for a high emissions scenario, the High Scenario's SLR estimates have less than a 1% chance of exceedance in 2100.[2] Each of the three recommended scenarios corresponds with low, medium-high, and extreme risk aversion applications:

- *Low risk aversion* is appropriate for adaptive, lower consequence projects (e.g., unpaved coastal trails). The *Intermediate Scenario* is recommended for consideration in low risk aversion applications.
- *Medium-high risk aversion* is appropriate as a precautionary projection that can be used for less adaptive, more vulnerable projects or populations that will experience medium to high consequences as a result of underestimating SLR (e.g., coastal housing development). The *Intermediate-High Scenario* is recommended for consideration in medium-high risk aversion applications.
- *Extreme risk aversion* is appropriate for high consequence projects with little to no adaptive capacity and which could have considerable public health, public safety, or environmental impacts (e.g., coastal airport, power plant, wastewater treatment plant, etc.). The *High Scenario* is recommended for consideration in extreme risk aversion applications.

[2] As stated in OPC (2024): "It is important to note that probabilistic projections do not provide actual probabilities of occurrence of sea level rise but provide probabilities that the ensemble of climate models used to estimate contributions of sea-level rise (from processes such as thermal expansion, glacier and ice sheet mass balance, and oceanographic conditions, among others) will predict a certain amount of sea-level rise." Also, note that the High Scenario has an 8% chance of exceedance when accounting for low confidence processes associated with Antarctica and Greenland ice-sheet loss.

The 2024 Update recommends utilizing data from one of twelve NOAA tide gauges that are located along the coast of California. Using the data from the tide gauge closest to the project site can capture local variations due to tectonic activity, including uplift or subsidence. The nearest NOAA tide gauge to the Mendocino County coast is the Arena Cove tide gauge located in Point Arena (see **Table 1**).

Figure 1 compares the SLR projections of the 2024 Update (solid lines) to the projections from the prior 2018 Update for Arena Cove. Note that the new High Scenario tracks closely to the prior medium-high risk aversion projection and the new Intermediate Scenario tracks closely to the prior low risk aversion projection. The new Intermediate Scenario is between the new Intermediate and High Scenarios, and the older extreme risk aversion projection has been excluded.

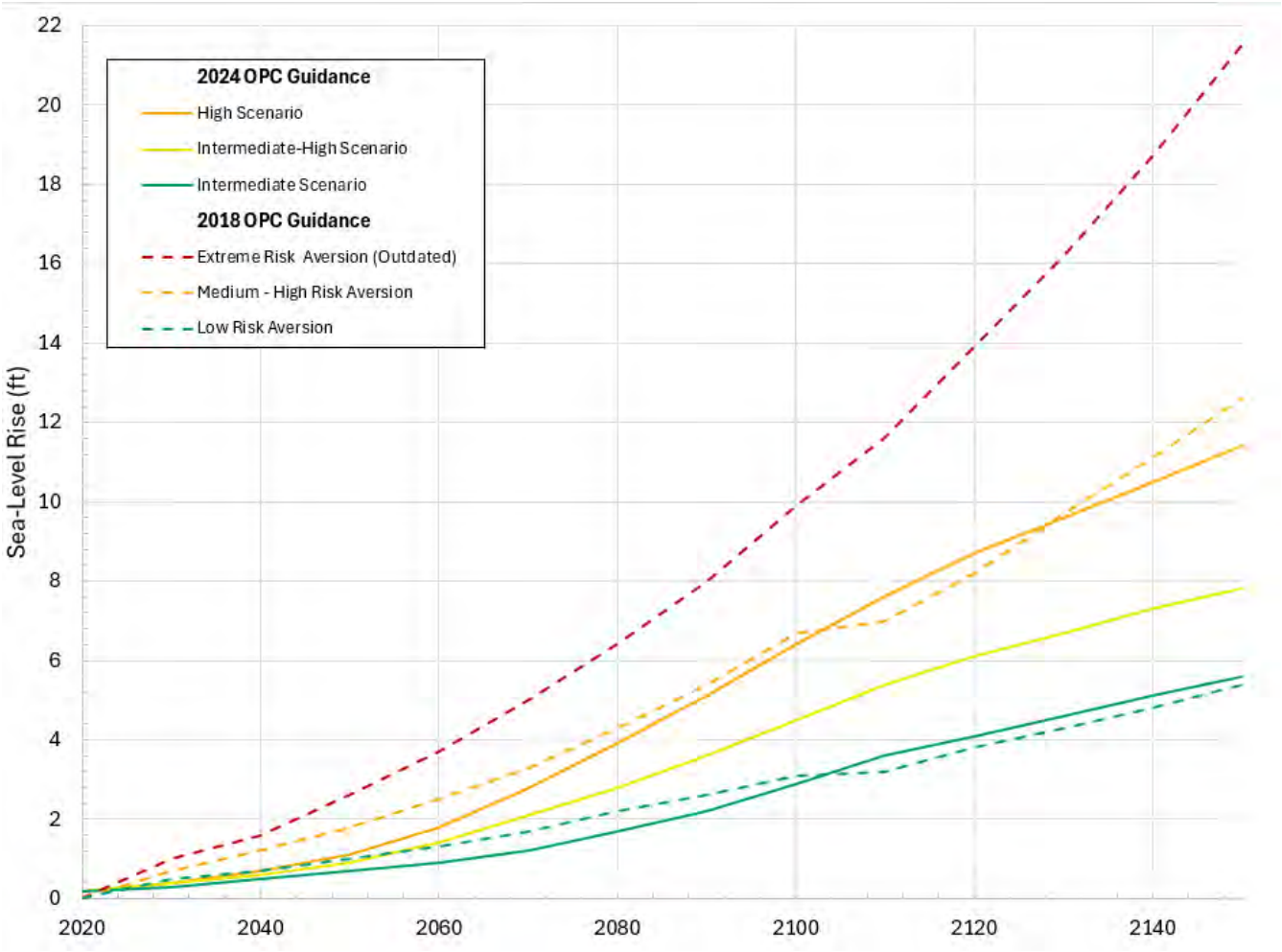

Figure 1

Sea level rise projections for Arena Cove from 2020 to 2150 from 2024 and 2018 CA OPC Sea Level Rise Guidance

While the OPC Guidance provides projections through 2150, it is important to note that SLR is expected to continue for centuries, because the earth's climate, cryosphere,[3] and ocean systems will require time to respond to the emissions that have already been released to the atmosphere. Although SLR is typically presented as a range in the amount of SLR that will occur by a certain date (e.g., 0.8-1.2 feet of SLR by 2050), it can also be presented

[3] The cryosphere is the portions of the Earth's surface where water is in solid form, like glaciers and ice caps.

as a range of time during which a certain amount of SLR is projected to occur (e.g., 3 feet of SLR between 2070 and 2100 under the high and intermediate scenarios, respectively). Even if emissions are reduced to levels consistent with the low-emissions-based projections, sea level will continue to rise to higher levels, just at a later date.

2.1 Critical Infrastructure Guidance for Sea Level Rise Adaptation Planning

In 2021, the California Coastal Commission (CCC) adopted the Critical Infrastructure Guidance for Sea Level Rise Adaptation Planning with specific guidance for SLR adaptation of at-risk critical infrastructure (CCC 2021). The CCC Critical Infrastructure Guidance is based on the previous 2018 OPC California Sea Level Rise Guidance (OPC 2018), which is superseded by the 2024 OPC guidance. The CCC Critical Infrastructure Guidance is summarized below for reference.

The CCC (2021) guidance document is focused on transportation and water/wastewater infrastructure and builds upon the 2018 science update to the CCC Sea Level Rise Policy Guidance (CCC 2018). The purpose of the critical infrastructure guidance is to provide policy and planning information to inform SLR planning and adaptation decisions that are consistent with the California Coastal Act. The guidance presents key considerations for successful infrastructure adaptation planning with specific recommendations for each infrastructure category, describes the regulatory framework for infrastructure adaptation planning and provides model policies.

Consistent with direction from OPC (2018) guidance on the potential for extreme SLR, CCC recommended evaluating the extreme risk aversion (i.e., H++) scenario for critical infrastructure due to the long lifespans and significant consequences associated with extreme SLR and related hazard impacts. CCC guidance was to:

> *"understand and plan for the H++ scenario, not necessarily to site and design for the H++ scenario. In other words, in some cases it may not be appropriate or feasible to site or design a project today such that it will avoid the impacts associated with, for example, ~10 feet of sea level rise (the approximate H++ scenario in 2100 for much of the California coast). However, it is important to analyze this scenario to understand what the associated impacts could be and to begin planning options to adapt to this scenario if and when it occurs, and to ensure that the risks and benefits of economic investments in critical infrastructure are fully understood."*

Given that the 2024 Update is the best available science and does not include the H++ scenario, the superseded OPC 2018 guidance's extreme risk aversion (H++) scenario is not recommended for this study and the 2024 Update's high SLR scenario is used instead.

3 Suggested Approach for the County of Mendocino Sea Level Rise Resilience Strategy

SLR scenarios are recommended by considering the 2024 Update discussed above (which is based on the latest SLR science) and the availability of existing SLR hazard data for this study.

ESA recommends assessing SLR impacts for the County of Mendocino SLR Resilience Strategy using three SLR amounts that correspond to three different time ranges that are defined by the intermediate and high SLR scenarios. ESA recommends looking at three timescales that will cover the near future and projected future impacts of SLR (e.g., 2050, 2100 and 2150).

Table 2 presents a summary of the recommended SLR scenarios to use for the project in addition to the existing condition with no SLR. These selected levels of SLR will allow for multiple projections to be analyzed. One foot of SLR will allow for the near-term (2050) projections for intermediate-high and high scenarios to be analyzed. Three feet of SLR covers projections between 2070 and 2100 for the High and Intermediate Scenarios,

respectively, to be analyzed. Six feet of SLR covers projections between 2100 and 2150 for the High and Intermediate Scenarios, respectively, to be analyzed. Since SLR projections after 2100 have increasing uncertainty due to limited climate models extending past 2100, ESA is recommending that a maximum of six feet of SLR is analyzed.

TABLE 2. RECOMMENDED SLR SCENARIOS TO APPLY TO MENDOCINO COUNTY SLR RESILIENCE STRATEGY

Scenario	SLR Amount (feet)[a]	Time (High Scenario)[b]	Time (Intermediate Scenario)[c]
Near Term	1	2040	2050
Intermediate Term	3	2070	2100
Long Term	6	2100	2150

Notes:

a. ESA selected an SLR amount to the nearest foot to simplify analysis and reporting.
b. This time corresponds to the approximate earliest time that a given amount of SLR is projected under the high scenario.
c. This time corresponds to the approximate latest time that a given amount of SLR is projected under the intermediate scenario.

Note that future global greenhouse gas emissions scenarios drive the SLR projections reported by the OPC. These emissions scenarios are influenced by societal choices and therefore their likelihood of occurrence is inherently uncertain. SLR scenarios are determined by modeling a range of global emissions projections and considering a range of uncertainties in SLR processes. Due to the inherent uncertainty of future emissions scenarios, the probability of sea levels rising a specific amount by a specific date cannot be determined. Instead, the probability of exceedance of a particular SLR scenario provided by the 2024 OPC guidance is contingent or conditional on the assumption of a particular future emissions and warming scenario.

We understand that the County will review these recommendations and confirm them with ESA prior to completing further technical analysis and mapping of hazards.

4 References

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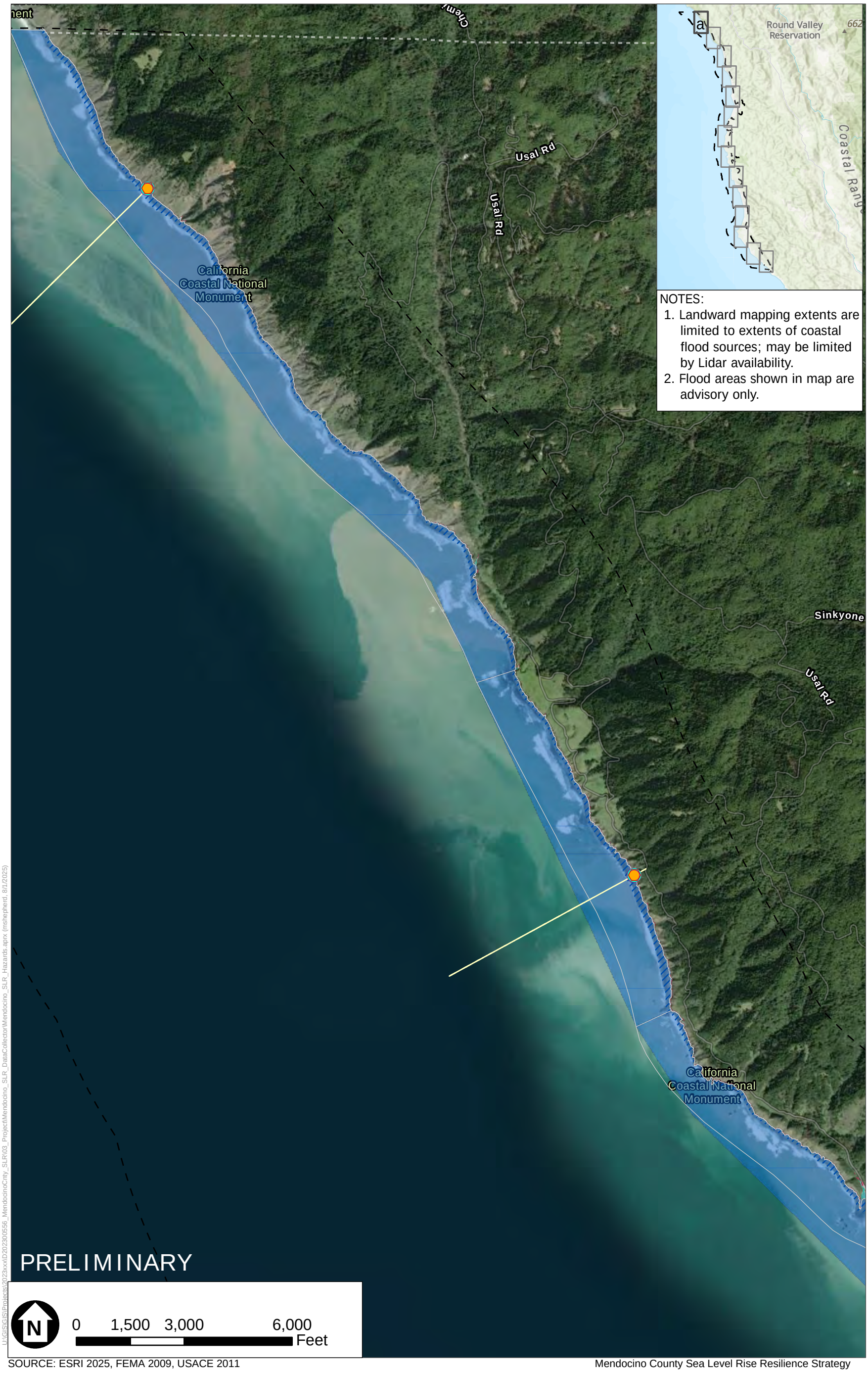
Sweet, W., Hamlington, B., Kopp, R., Weaver, C., Barnard, P., Bekaert, D., Brooks, W., Craghan, M., Dusek, G., Frederikse, T., Garner, G., Genz, A.S., Krasting, J.P., Larour, E., Marcy, D., Marra, J.J., Obeysekera, J., Osler, M., Pendleton, M., Roman, D., Schmied, L., Veatch, W., White, K.D., Zuzak, C., 2022. *Global and Regional Sea Level Rise Scenarios for the United States: Updated Mean Projections and Extreme Water Level Probabilities Along U.S. Coastlines*. NOAA Technical Report NOS 01. Silver Spring, MD: National Oceanic and Atmospheric Administration, National Ocean Service, 111 pp. Accessed online: https://oceanservice.noaa.gov/hazards/sealevelrise/noaa-nos-techrpt01-global-regional-SLR-scenarios-US.pdf.

Appendix B. Coastal Hazards Maps



SOURCE: ESRI 2025, FEMA 2009, USACE 2011

Mendocino County Sea Level Rise Resilience Strategy

ESA

Mendocino County- Coastal Area
FEMA BFE Flood Line and Zones
Wave Hazard
Storm Flooding- Existing
Storm Flooding-1ft SLR
Storm Flooding-3ft SLR
Storm Flooding-6ft SLR
Analysis Transects
Computed Extent of Wave Runup (0 ft SLR)
Computed Extent of Wave Runup (1 ft SLR)
Computed Extent of Wave Runup (3 ft SLR)
Computed Extent of Wave Runup (6 ft SLR)

Figure 1a
100-Year Storm Flooding Hazard

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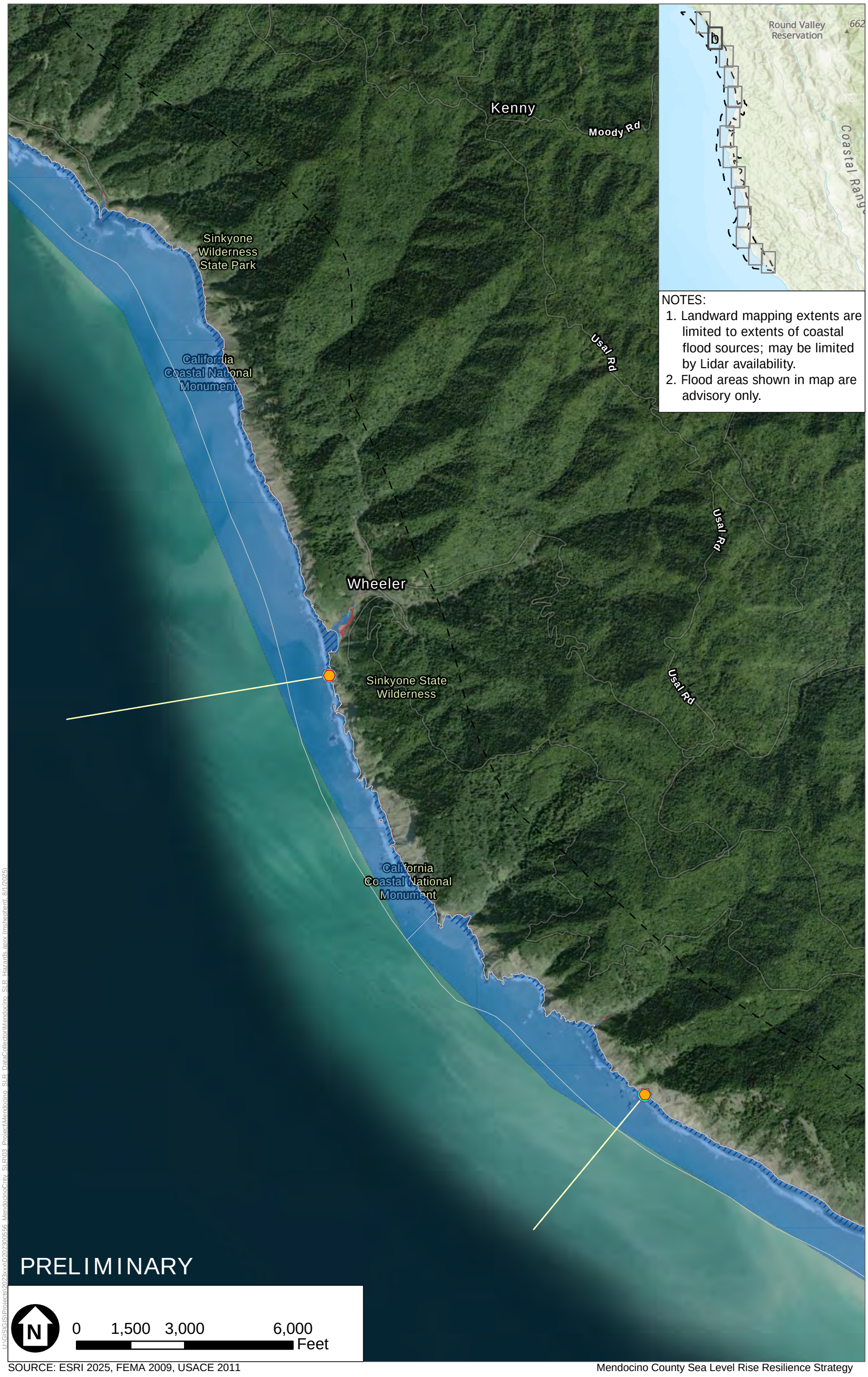

SOURCE: ESRI 2025, FEMA 2009, USACE 2011

Mendocino County Sea Level Rise Resilience Strategy

Mendocino County- Coastal Area
FEMA BFE Flood Line and Zones
Wave Hazard
Storm Flooding- Existing
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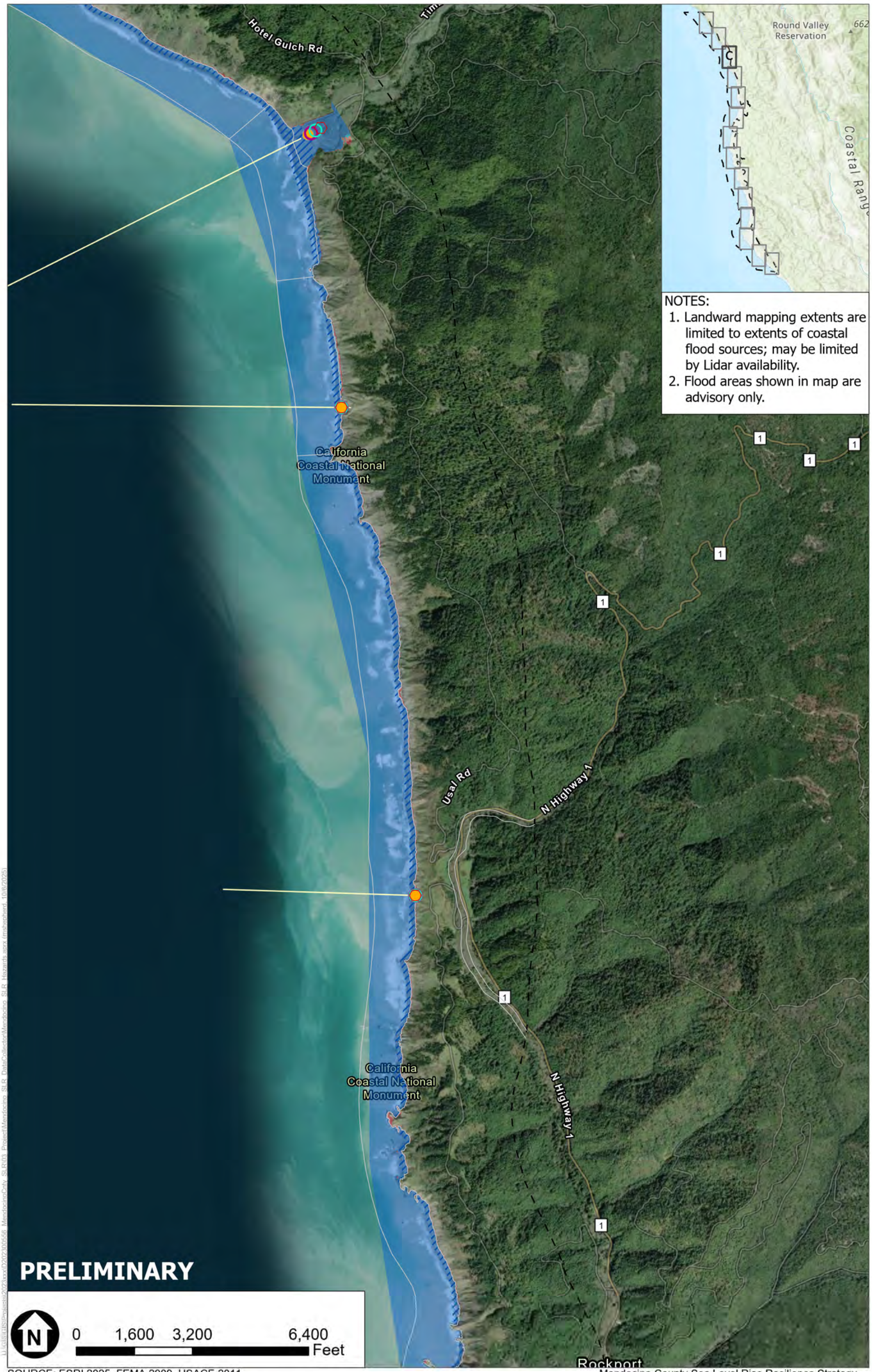
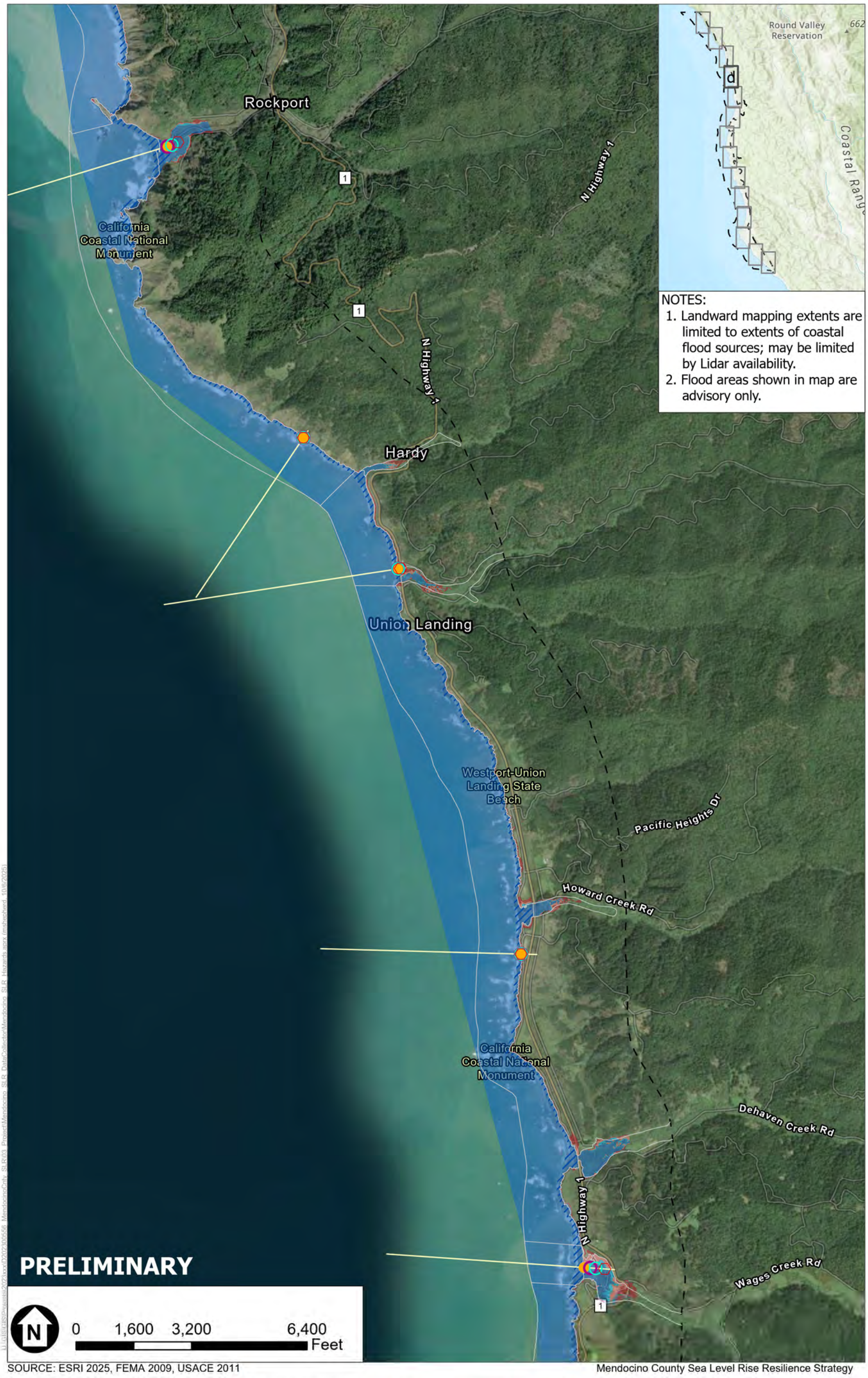
Storm Flooding-3ft SLR
Storm Flooding-6ft SLR
Analysis Transects
Computed Extent of Wave Runup (0 ft SLR)
Computed Extent of Wave Runup (1 ft SLR)
Computed Extent of Wave Runup (3 ft SLR)
Computed Extent of Wave Runup (6 ft SLR)

Figure 1b
100-Year Storm Flooding Hazard



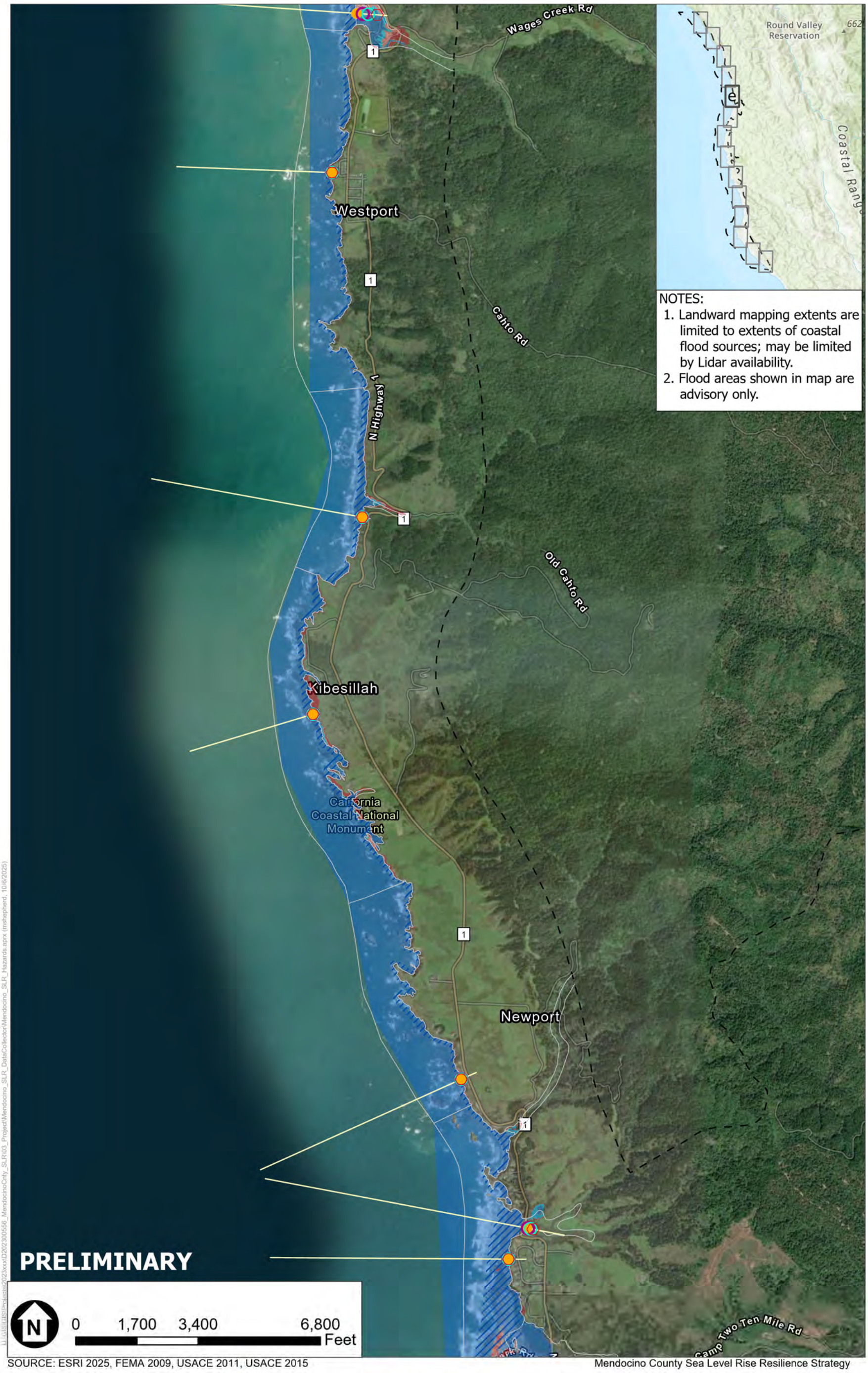
ESA

Figure 1c
100-Year Storm Flooding Hazard



ESA

Figure 1d
100-Year Storm Flooding Hazard



ESA

Figure 1e
100-Year Storm Flooding Hazard

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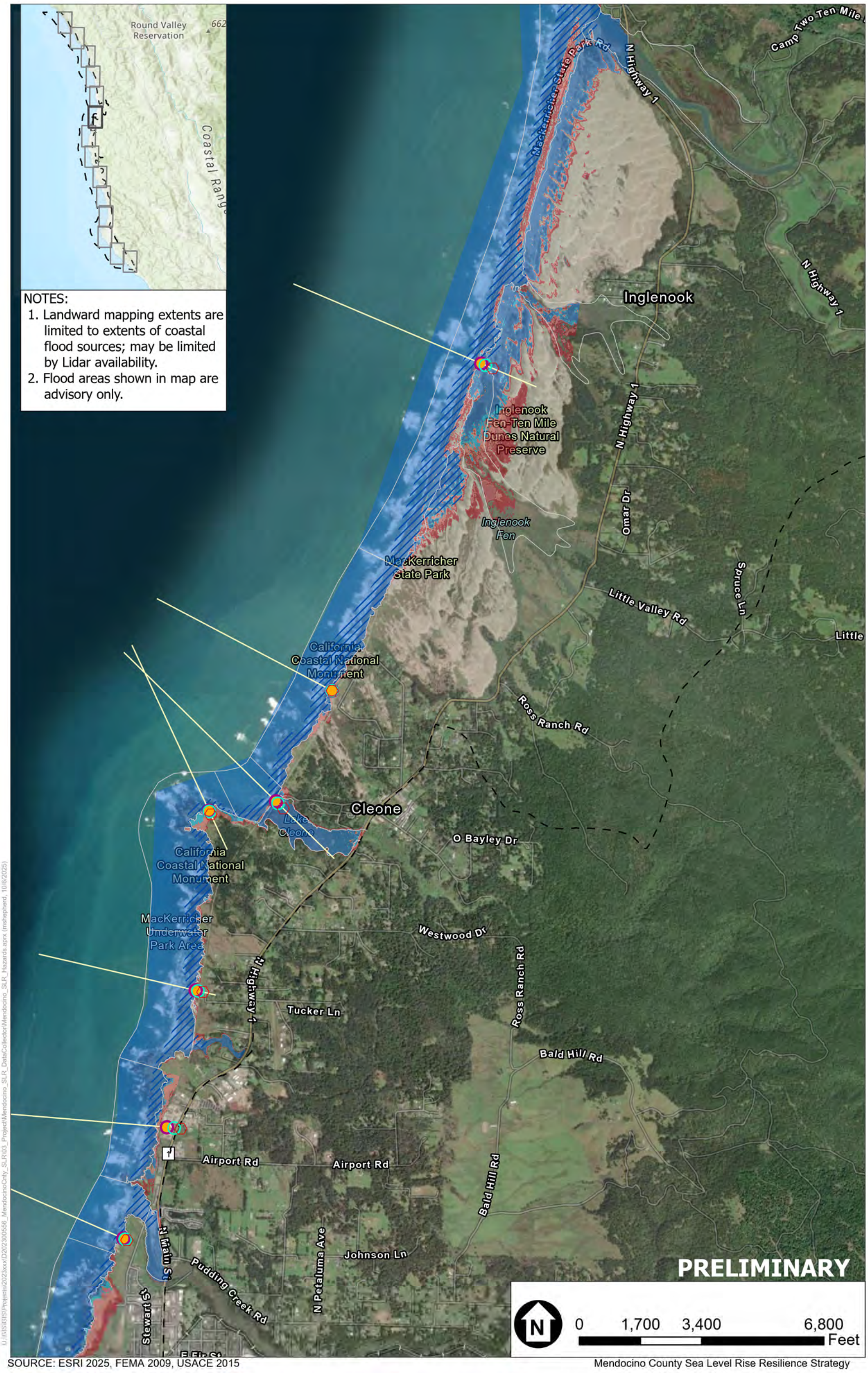

ESA

Figure 1f
100-Year Storm Flooding Hazard

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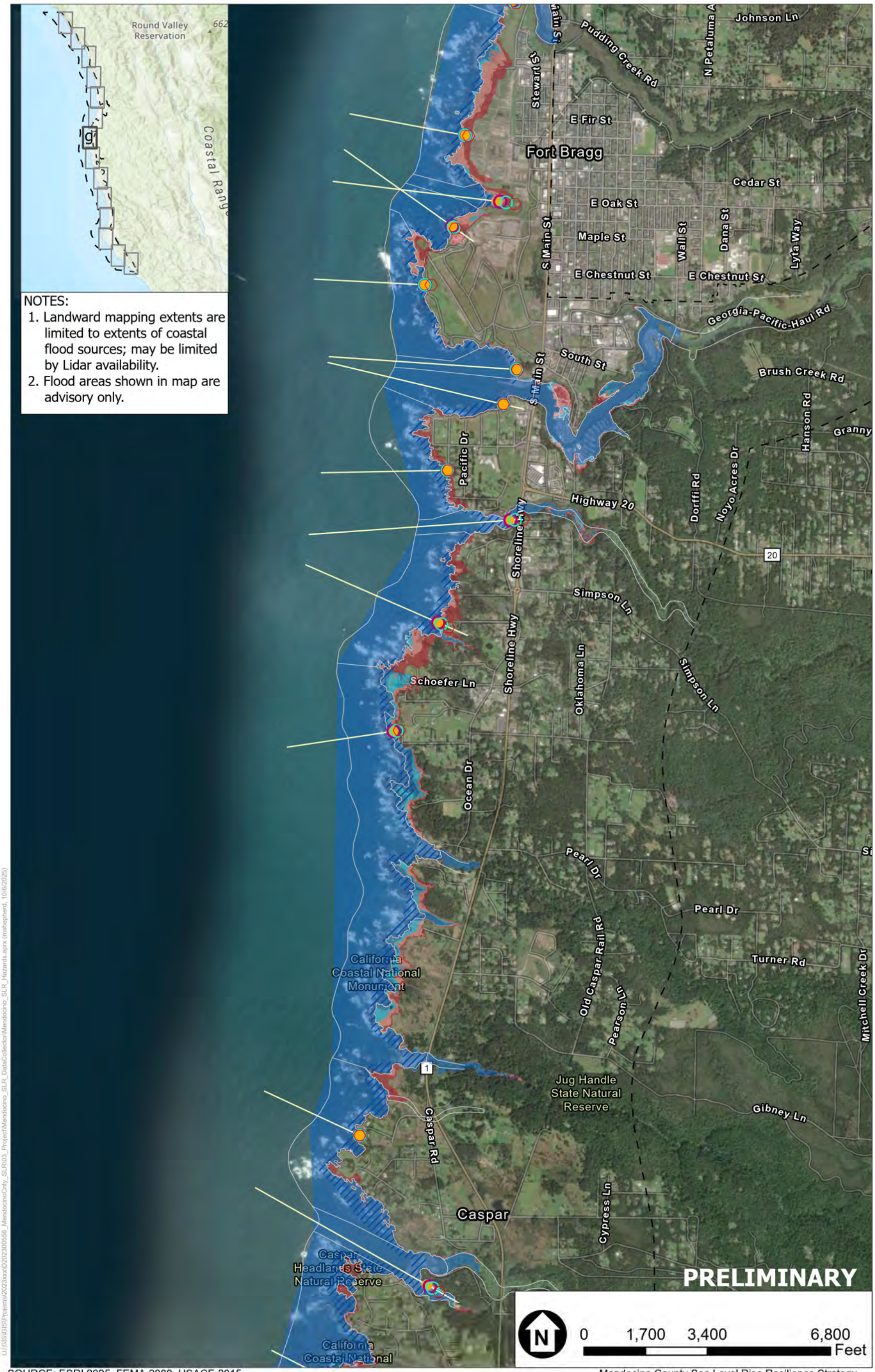

Figure 1g
100-Year Storm Flooding Hazard

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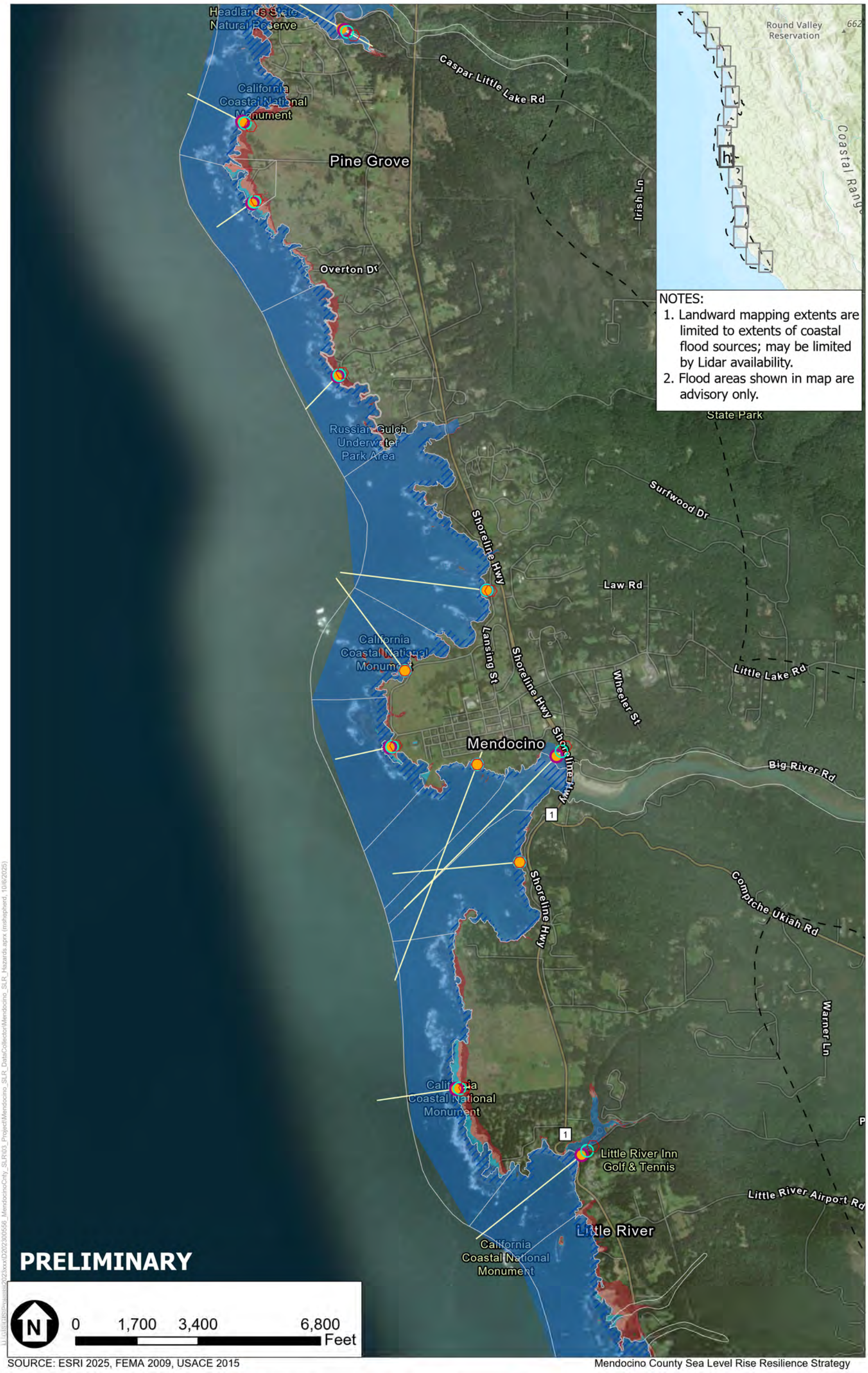

Figure 1h
100-Year Storm Flooding Hazard

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ESA

Figure 1i
100-Year Storm Flooding Hazard

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SOURCE: ESRI 2025, FEMA 2009, USACE 2015

Mendocino County Sea Level Rise Resilience Strategy

ESA

- Mendocino County- Coastal Area
- FEMA BFE Flood Line and Zones
- Wave Hazard
- Storm Flooding- Existing
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- Storm Flooding-3ft SLR
- Storm Flooding-6ft SLR
- Analysis Transects
- Computed Extent of Wave Runup (0 ft SLR)
- Computed Extent of Wave Runup (1 ft SLR)
- Computed Extent of Wave Runup (3 ft SLR)
- Computed Extent of Wave Runup (6 ft SLR)

Figure 1j
100-Year Storm Flooding Hazard

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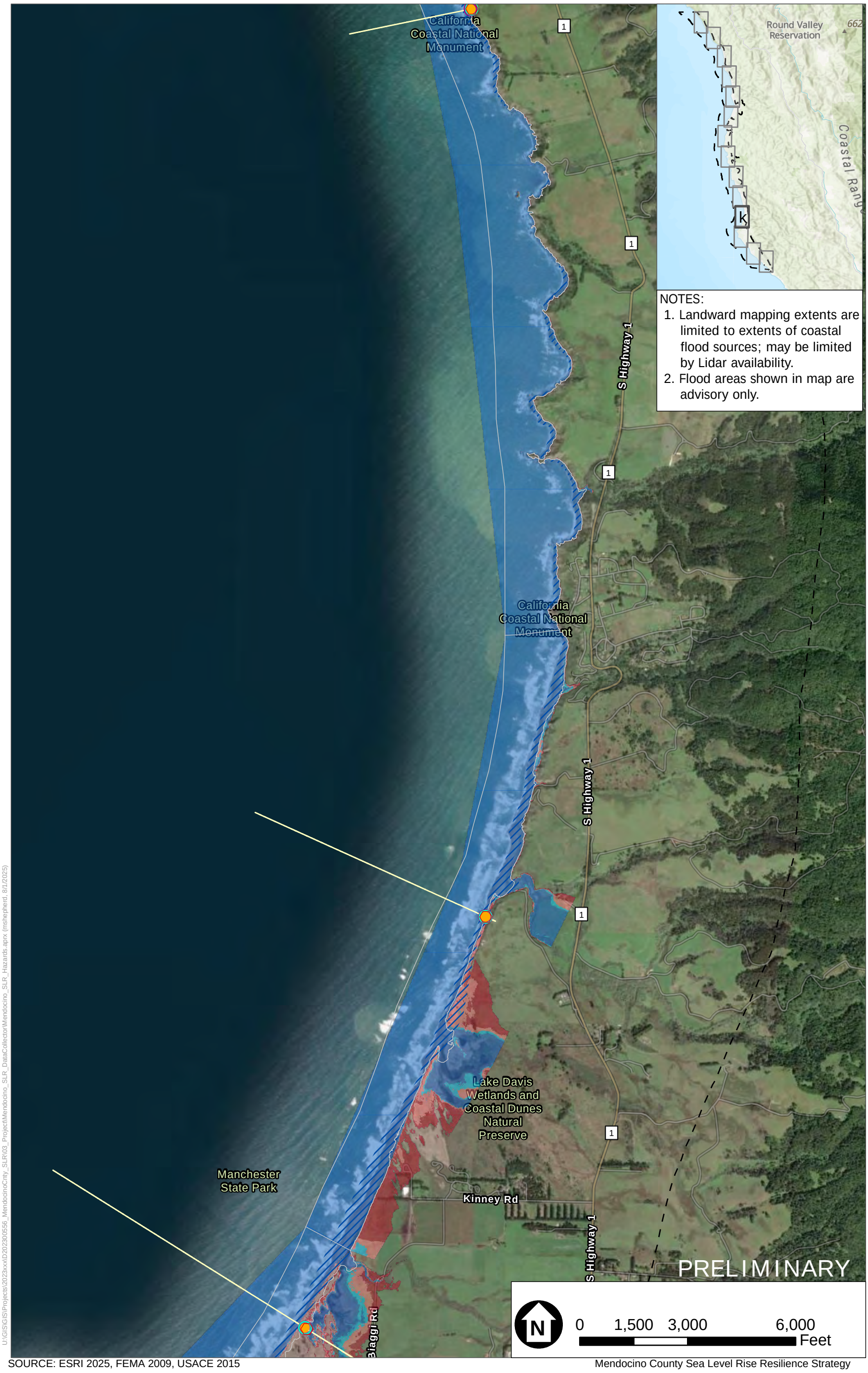

SOURCE: ESRI 2025, FEMA 2009, USACE 2015

Mendocino County Sea Level Rise Resilience Strategy

- Mendocino County- Coastal Area
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- Storm Flooding- Existing
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- Storm Flooding-6ft SLR
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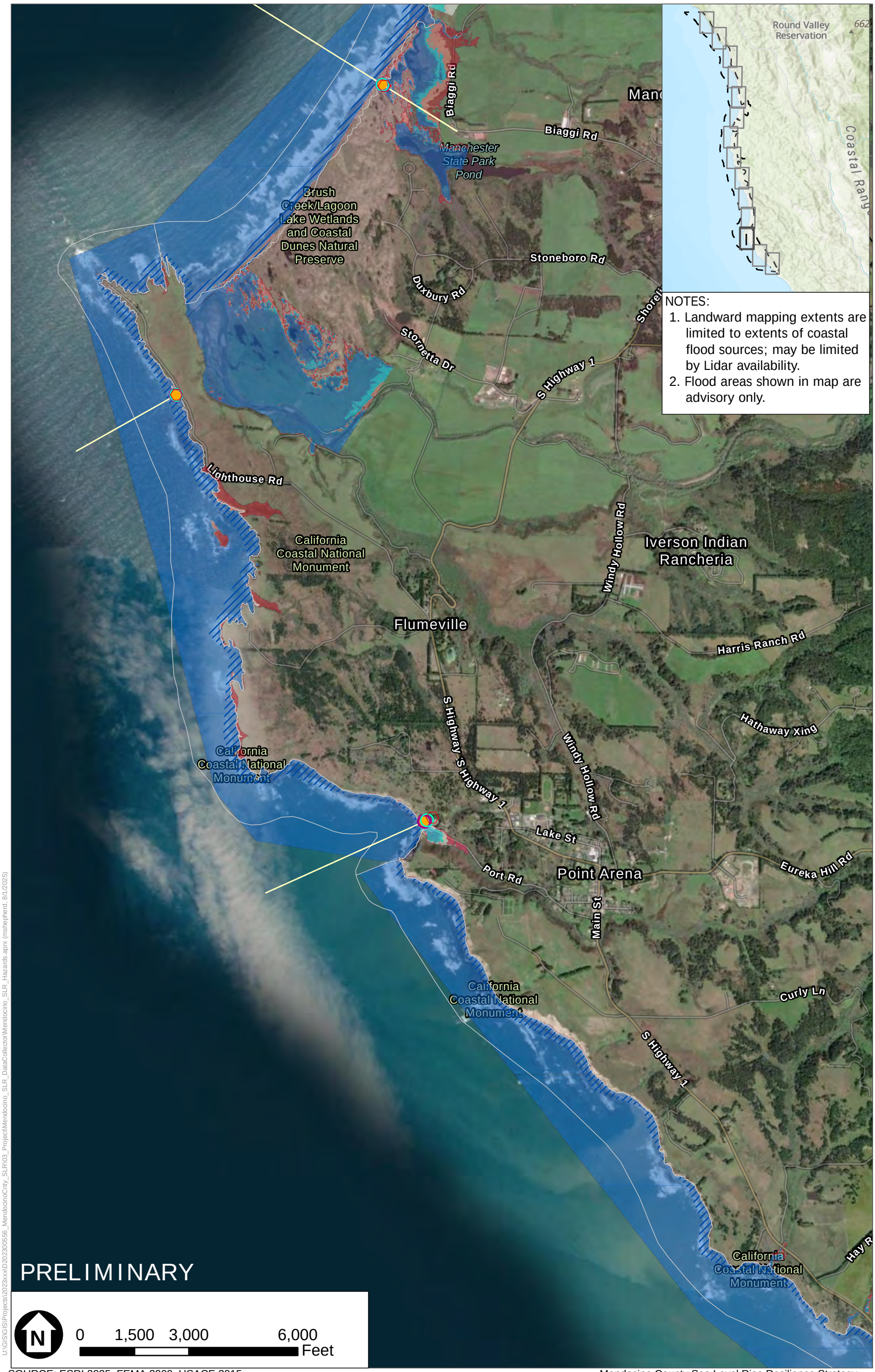
- Computed Extent of Wave Runup (1 ft SLR)
- Computed Extent of Wave Runup (3 ft SLR)
- Computed Extent of Wave Runup (6 ft SLR)

ESA

Figure 1k
100-Year Storm Flooding Hazard



SOURCE: ESRI 2025, FEMA 2009, USACE 2015

Mendocino County Sea Level Rise Resilience Strategy

ESA

- Mendocino County- Coastal Area
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- Wave Hazard
- Storm Flooding- Existing
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- Storm Flooding-3ft SLR
- Storm Flooding-6ft SLR
- Analysis Transects
- Computed Extent of Wave Runup (0 ft SLR)
- Computed Extent of Wave Runup (1 ft SLR)
- Computed Extent of Wave Runup (3 ft SLR)
- Computed Extent of Wave Runup (6 ft SLR)

Figure 1l
100-Year Storm Flooding Hazard



SOURCE: ESRI 2025, FEMA 2009, USACE 2015

Mendocino County Sea Level Rise Resilience Strategy

ESA

- Mendocino County- Coastal Area
- FEMA BFE Flood Line and Zones
- Wave Hazard
- Storm Flooding- Existing
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- Storm Flooding-3ft SLR
- Storm Flooding-6ft SLR
- Analysis Transects
- Computed Extent of Wave Runup (0 ft SLR)
- Computed Extent of Wave Runup (1 ft SLR)
- Computed Extent of Wave Runup (3 ft SLR)
- Computed Extent of Wave Runup (6 ft SLR)

Figure 1m
100-Year Storm Flooding Hazard



SOURCE: ESRI 2025, FEMA 2009, USACE 2015

Mendocino County Sea Level Rise Resilience Strategy

ESA

- Mendocino County- Coastal Area
- FEMA BFE Flood Line and Zones
- Wave Hazard
- Storm Flooding- Existing
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- Storm Flooding-3ft SLR
- Storm Flooding-6ft SLR
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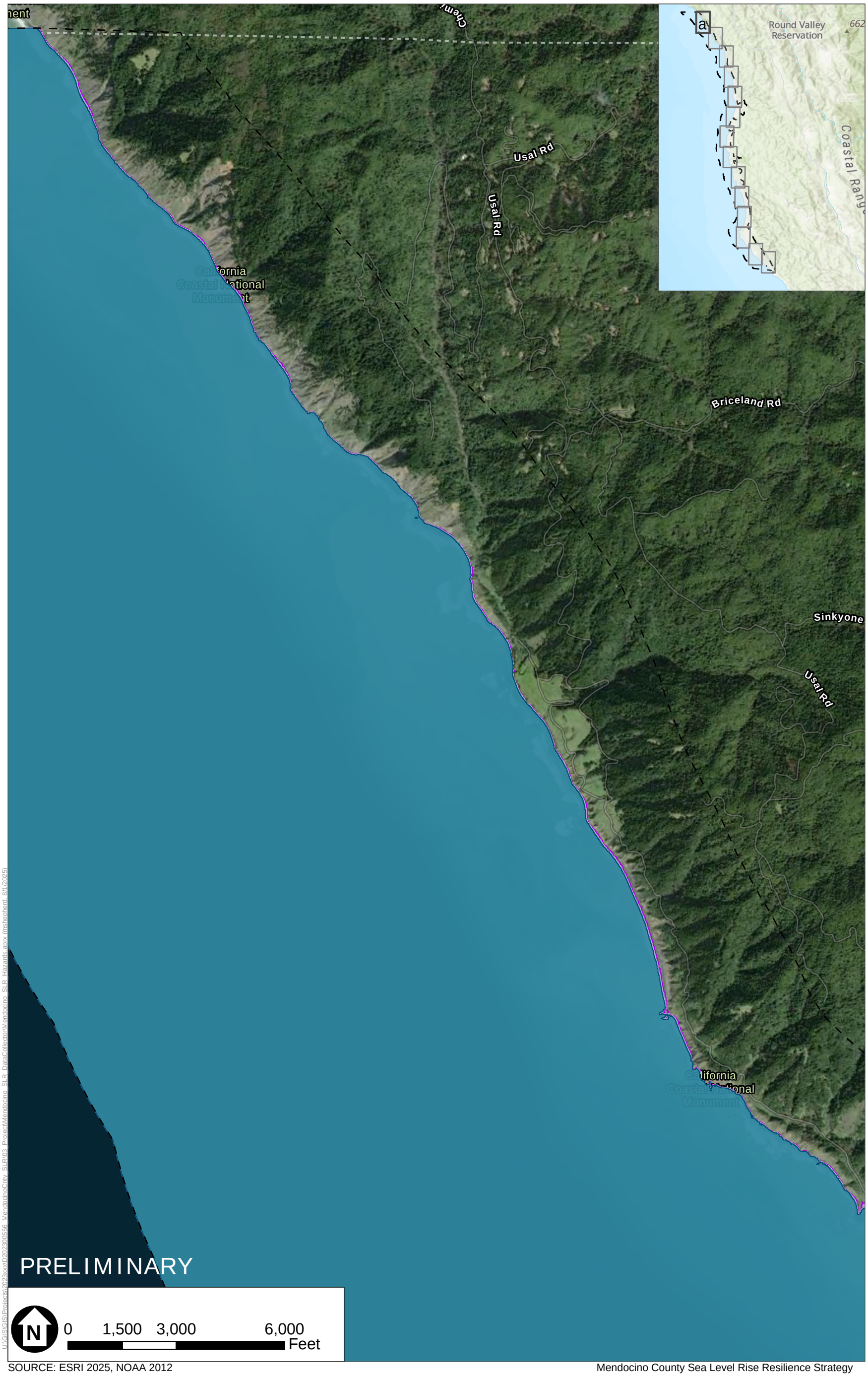
- Computed Extent of Wave Runup (1 ft SLR)
- Computed Extent of Wave Runup (3 ft SLR)
- Computed Extent of Wave Runup (6 ft SLR)

Figure 1n
100-Year Storm Flooding Hazard

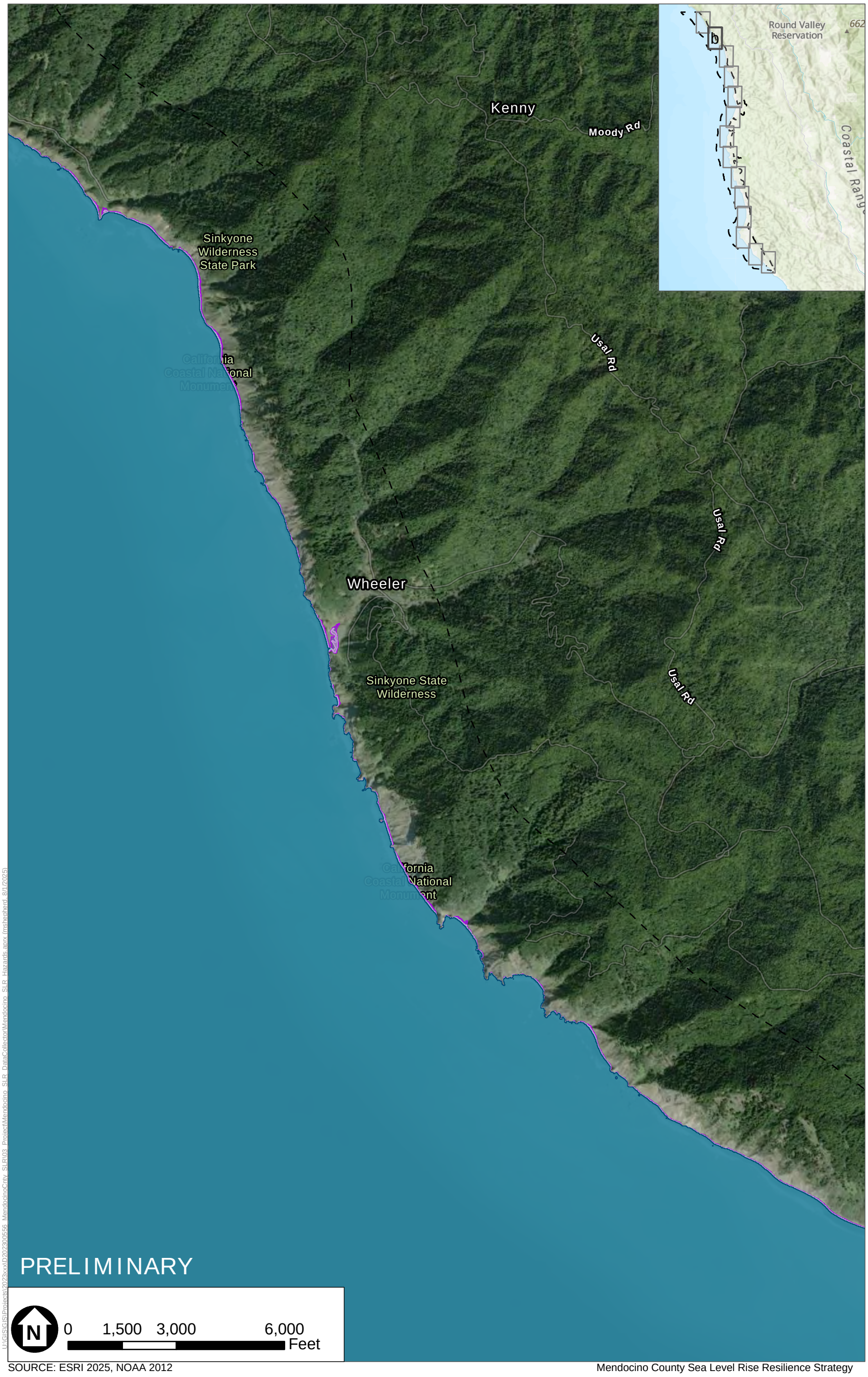


SOURCE: ESRI 2025, NOAA 2012

Mendocino County Sea Level Rise Resilience Strategy

ESA

Figure 2a
Tidal Inundation Flooding Hazard



SOURCE: ESRI 2025, NOAA 2012

Mendocino County Sea Level Rise Resilience Strategy

Tidal Inundation- Existing

Tidal Inundation- 1ft SLR

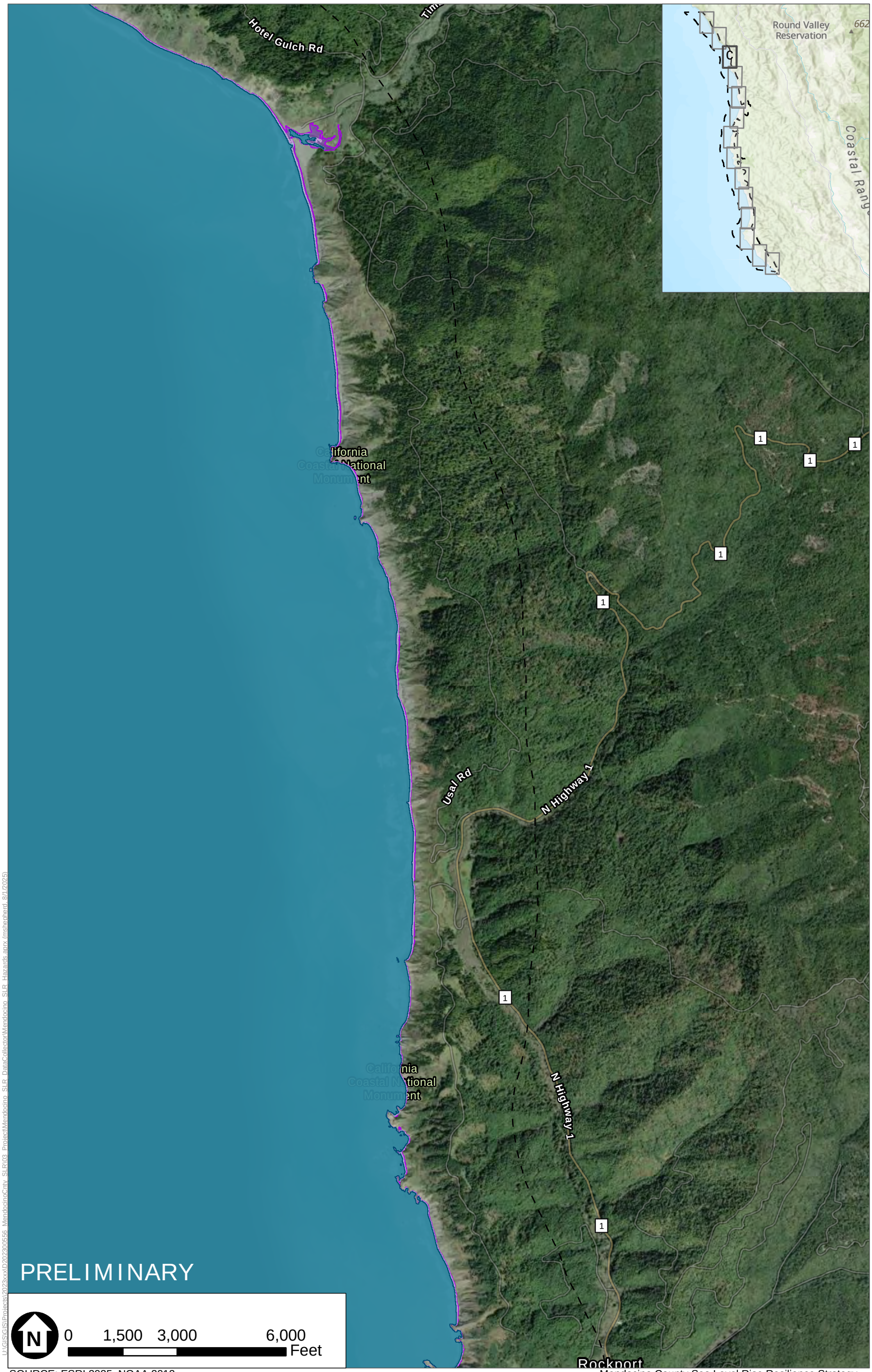
Tidal Inundation- 3ft SLR

Tidal Inundation- 6ft SLR

Mendocino County- Coastal Area

ESA

Figure 2b
Tidal Inundation Flooding Hazard



SOURCE: ESRI 2025, NOAA 2012

Mendocino County Sea Level Rise Resilience Strategy

Tidal Inundation- Existing

Tidal Inundation- 1ft SLR

Tidal Inundation- 3ft SLR

Tidal Inundation- 6ft SLR

Mendocino County- Coastal Area

ESA

Figure 2c
Tidal Inundation Flooding Hazard

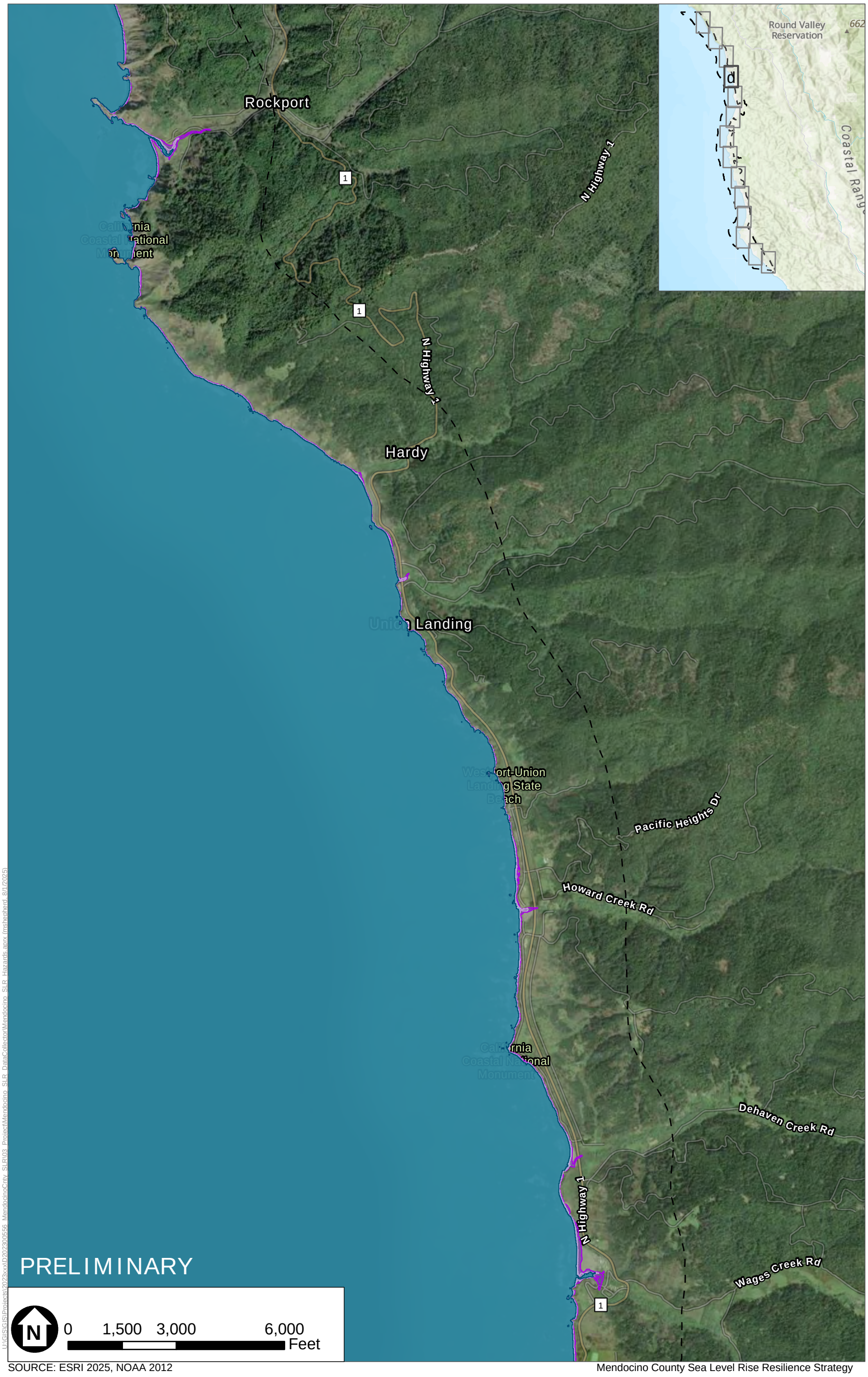


Figure 2d
Tidal Inundation Flooding Hazard

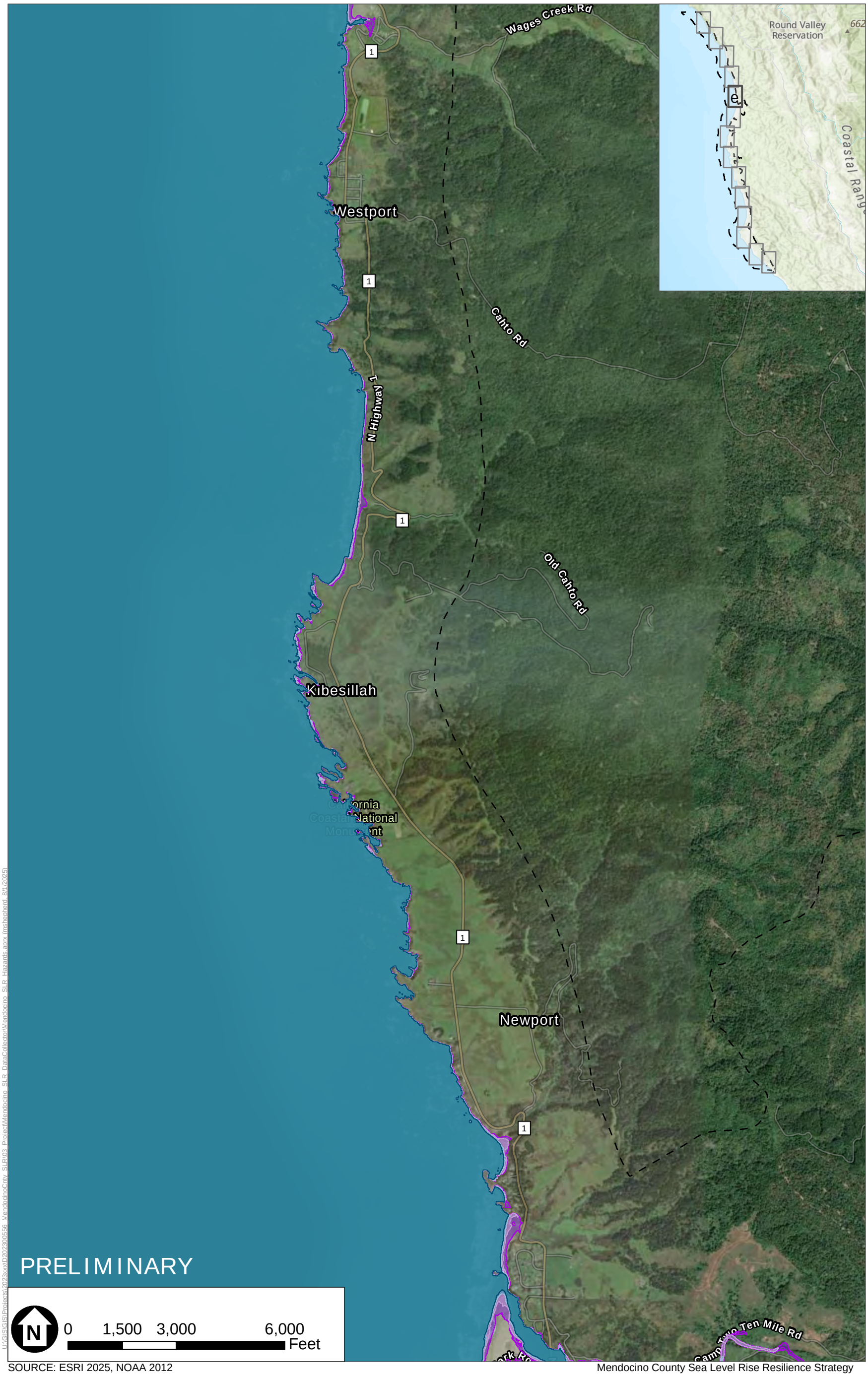
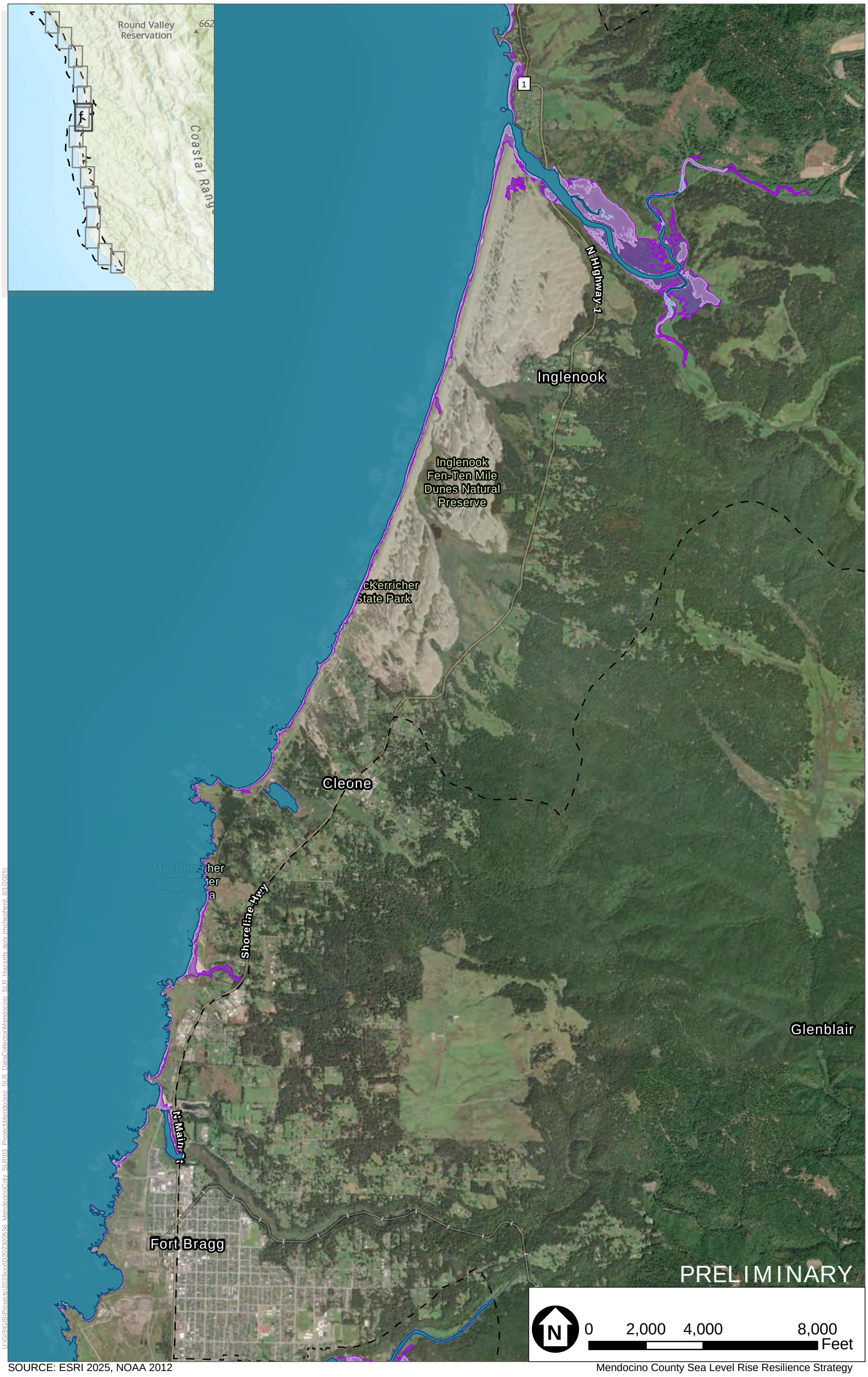


Figure 2e
Tidal Inundation Flooding Hazard



SOURCE: ESRI 2025, NOAA 2012

Mendocino County Sea Level Rise Resilience Strategy

Tidal Inundation- Existing

Tidal Inundation- 1ft SLR

Tidal Inundation- 3ft SLR

Tidal Inundation- 6ft SLR

Mendocino County- Coastal Area

ESA

Figure 2f
Tidal Inundation Flooding Hazard

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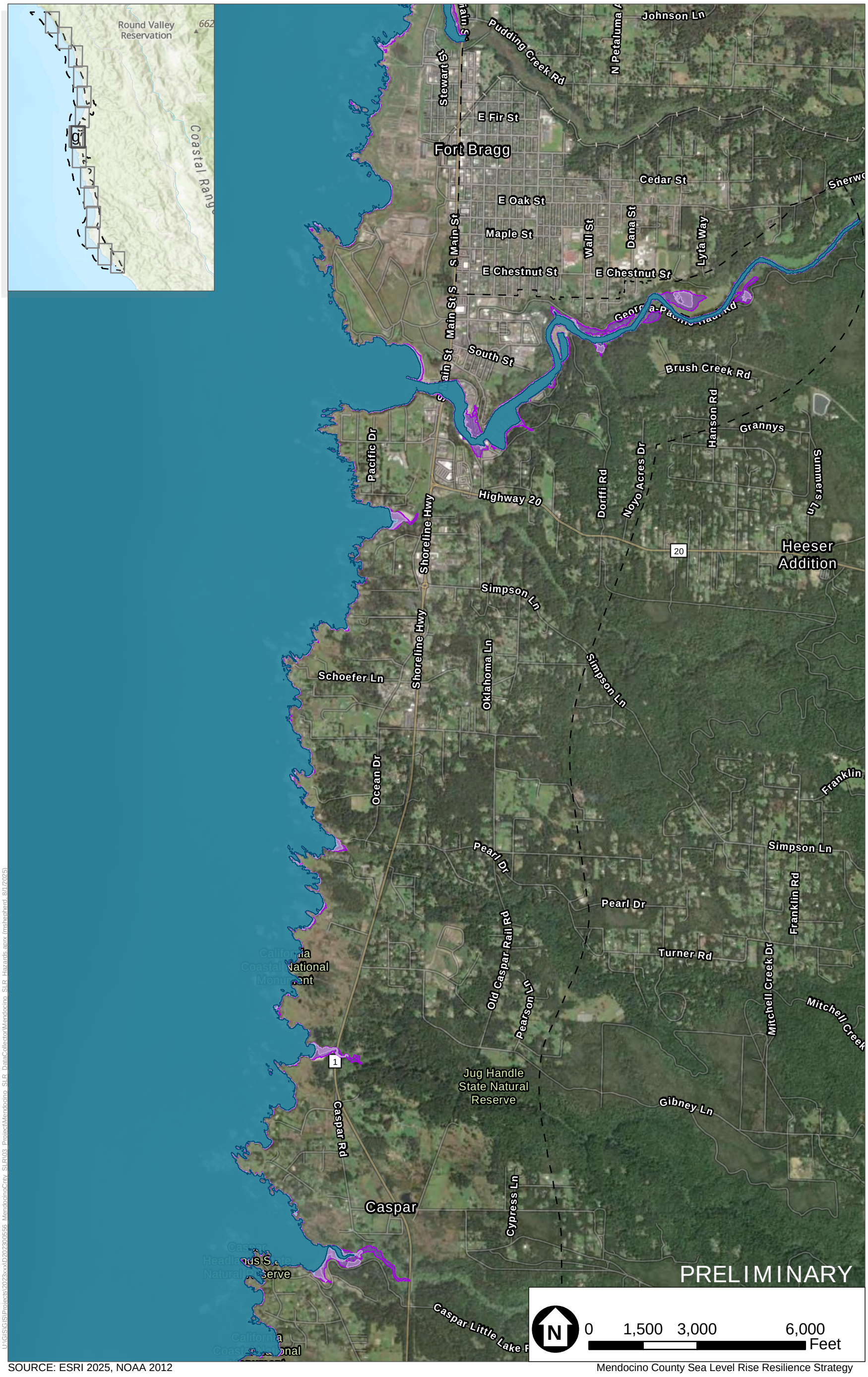

SOURCE: ESRI 2025, NOAA 2012

Mendocino County Sea Level Rise Resilience Strategy

Tidal Inundation- Existing

Tidal Inundation- 1ft SLR

Tidal Inundation- 3ft SLR

Tidal Inundation- 6ft SLR

Mendocino County- Coastal Area

ESA

Figure 2g
Tidal Inundation Flooding Hazard

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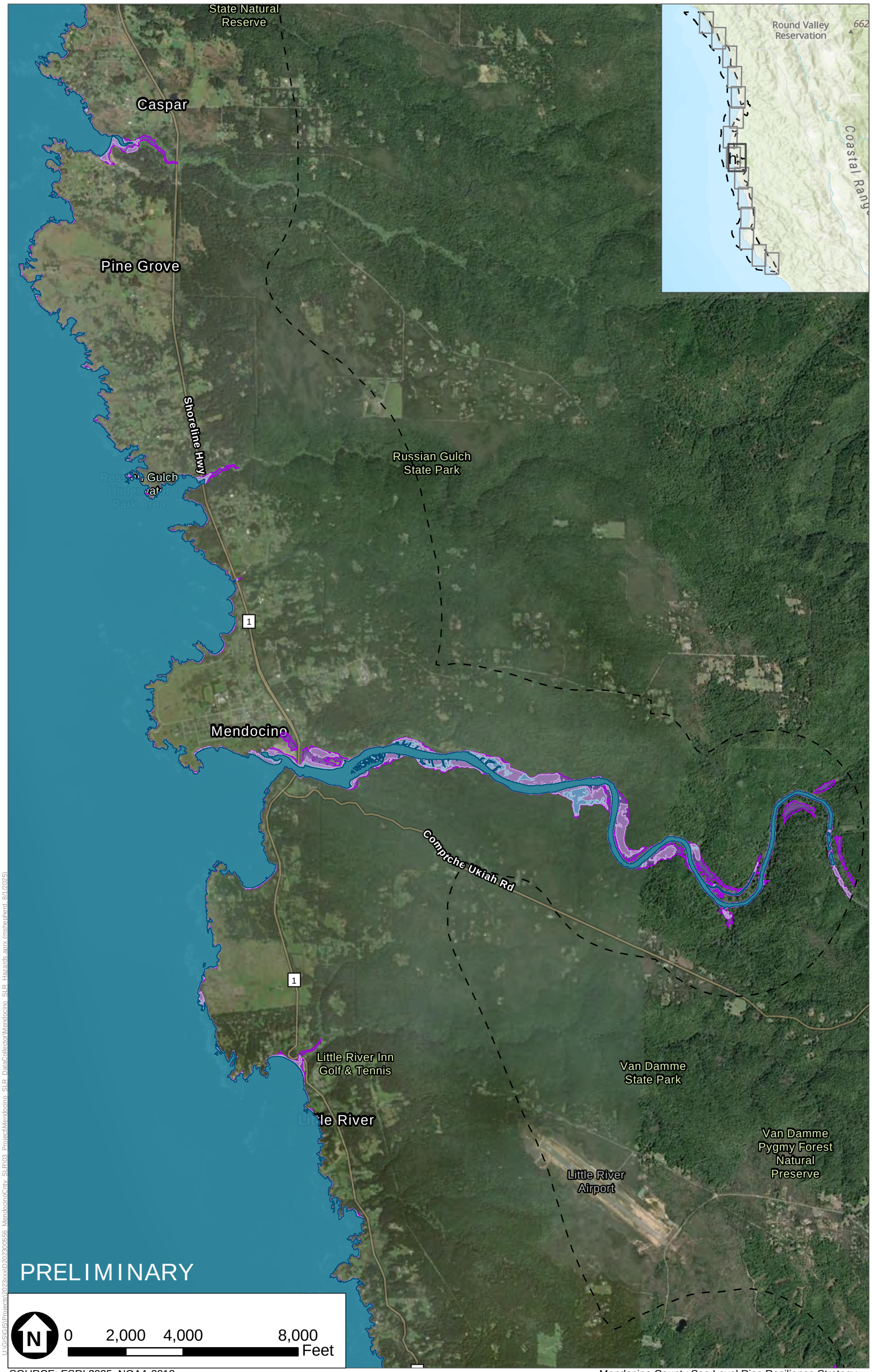

SOURCE: ESRI 2025, NOAA 2012

Mendocino County Sea Level Rise Resilience Strategy

Tidal Inundation- Existing
Tidal Inundation- 1ft SLR
Tidal Inundation- 3ft SLR
Tidal Inundation- 6ft SLR
Mendocino County- Coastal Area

ESA

Figure 2h
Tidal Inundation Flooding Hazard

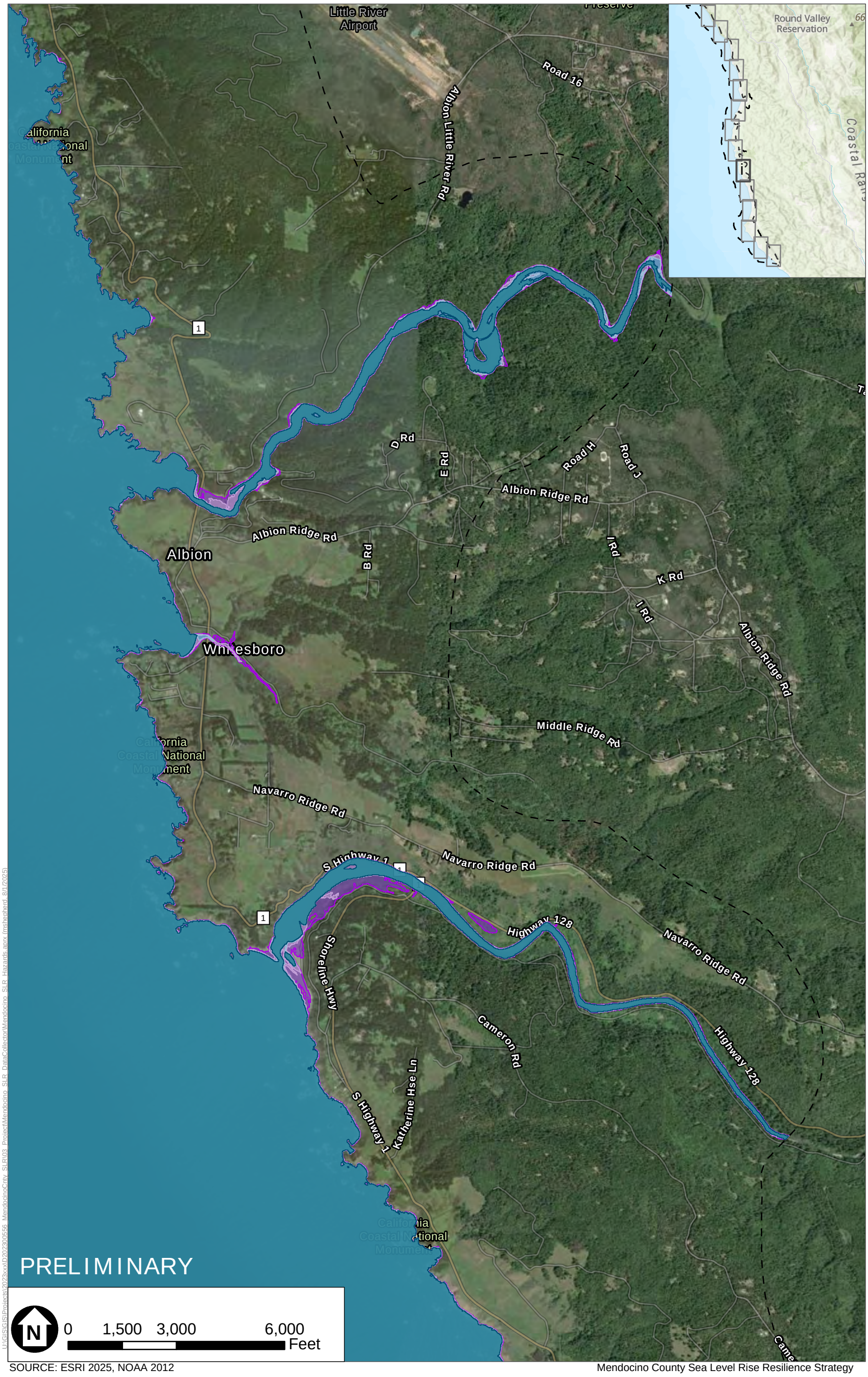

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Figure 2i
Tidal Inundation Flooding Hazard

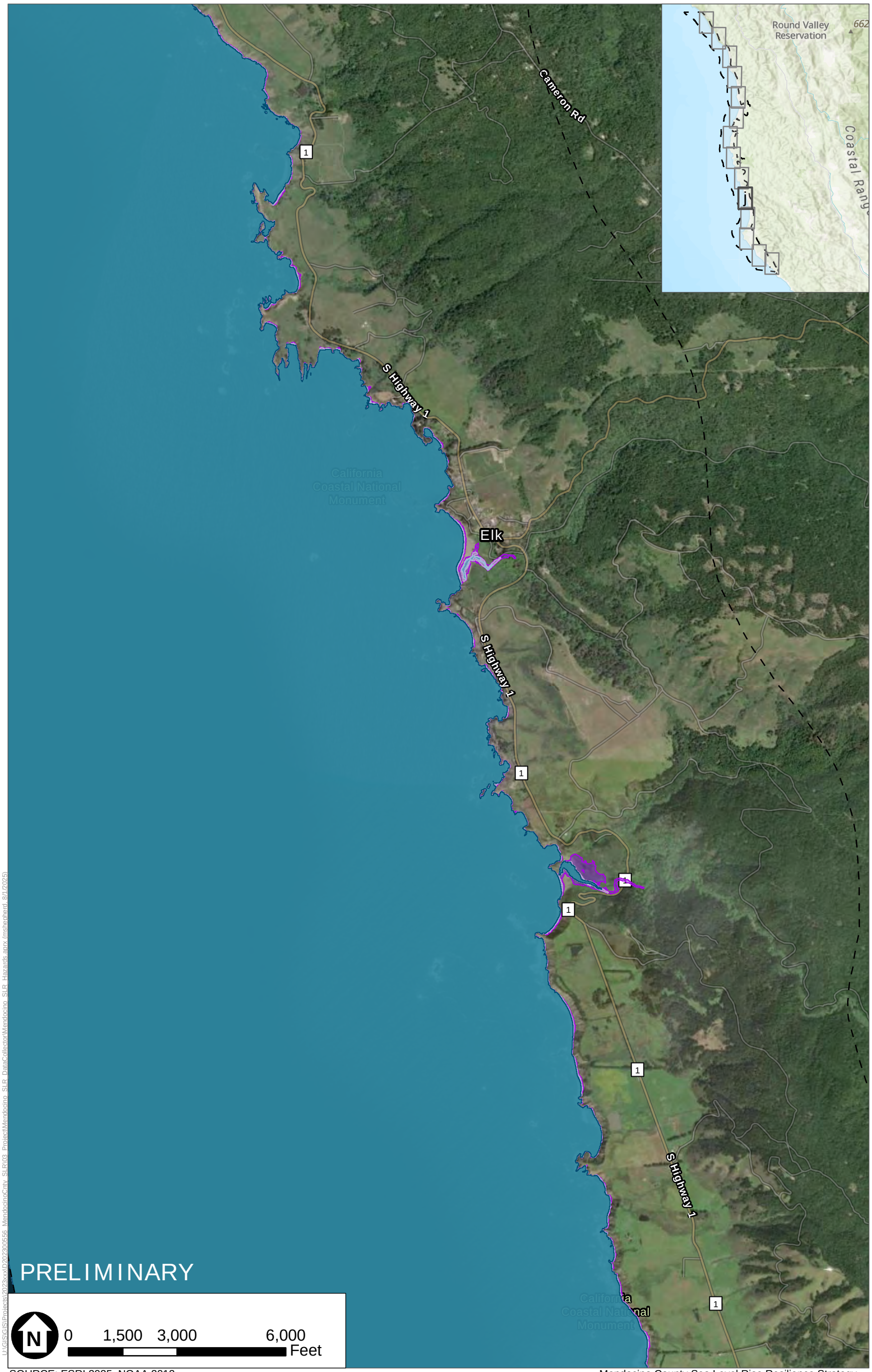
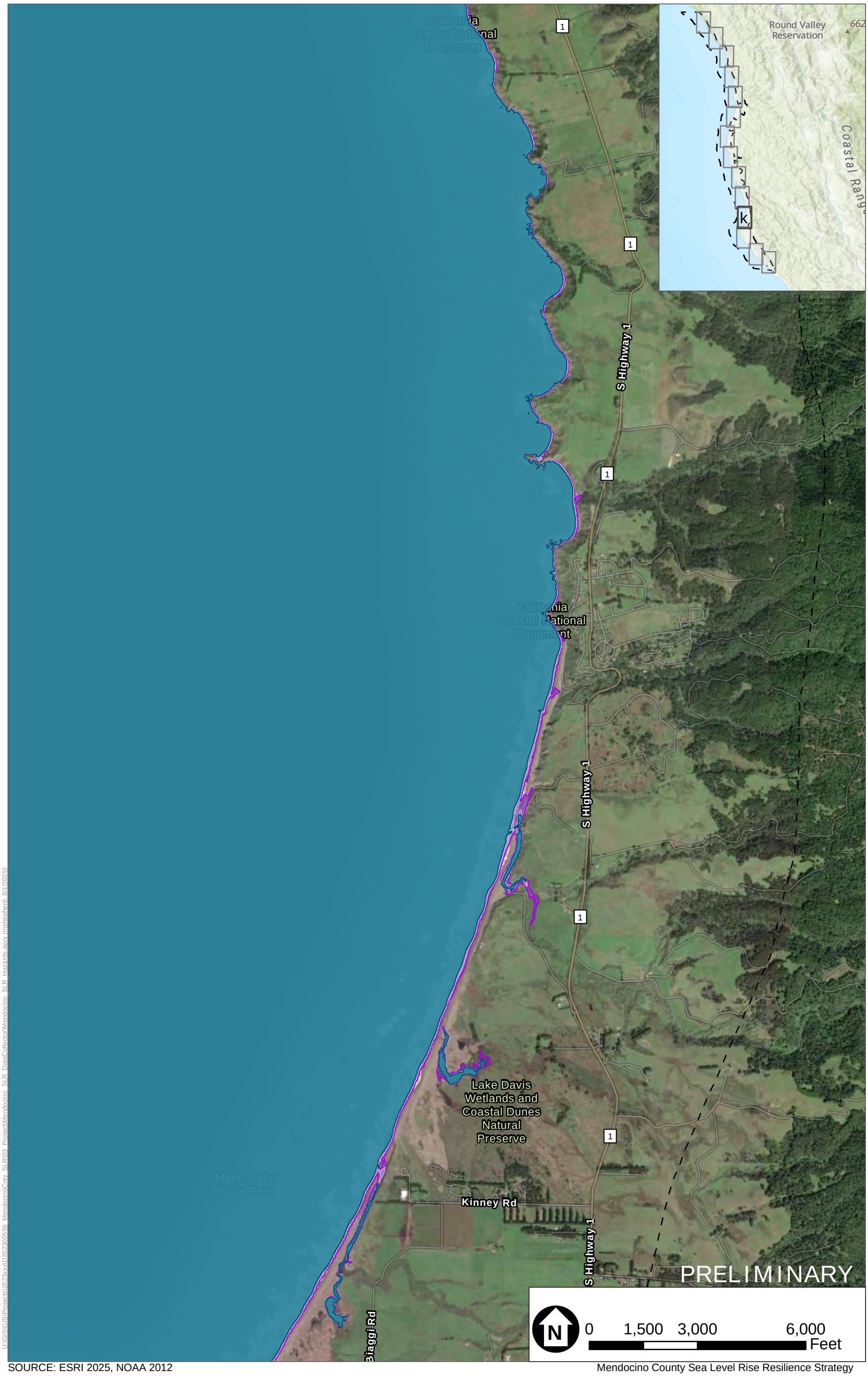


Figure 2j
Tidal Inundation Flooding Hazard



SOURCE: ESRI 2025, NOAA 2012

Mendocino County Sea Level Rise Resilience Strategy

Tidal Inundation- Existing

Tidal Inundation- 1ft SLR

Tidal Inundation- 3ft SLR

Tidal Inundation- 6ft SLR

Mendocino County- Coastal Area

ESA

Figure 2k
Tidal Inundation Flooding Hazard

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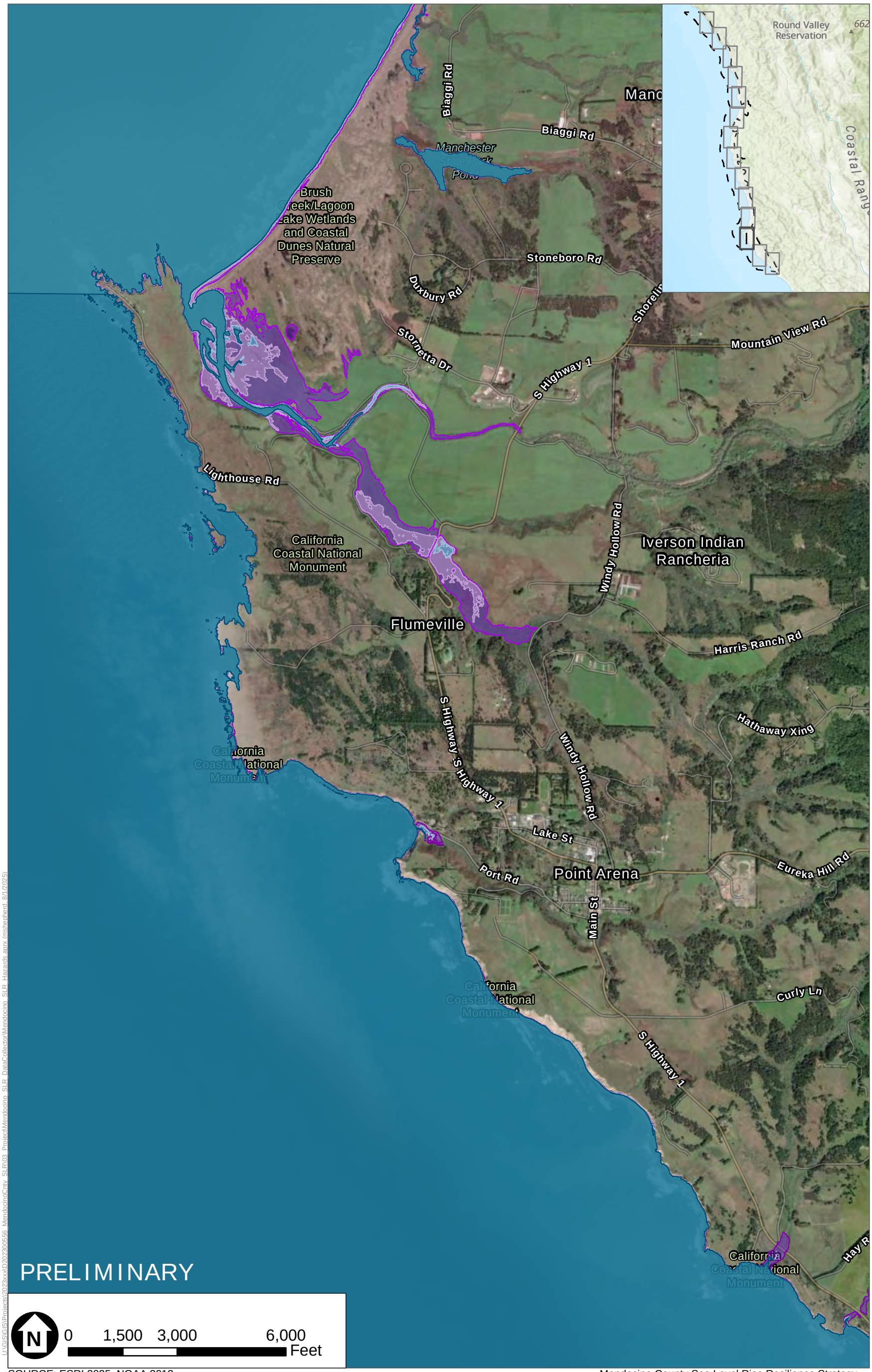


SOURCE: ESRI 2025, NOAA 2012

Mendocino County Sea Level Rise Resilience Strategy

Tidal Inundation- Existing

Tidal Inundation- 1ft SLR

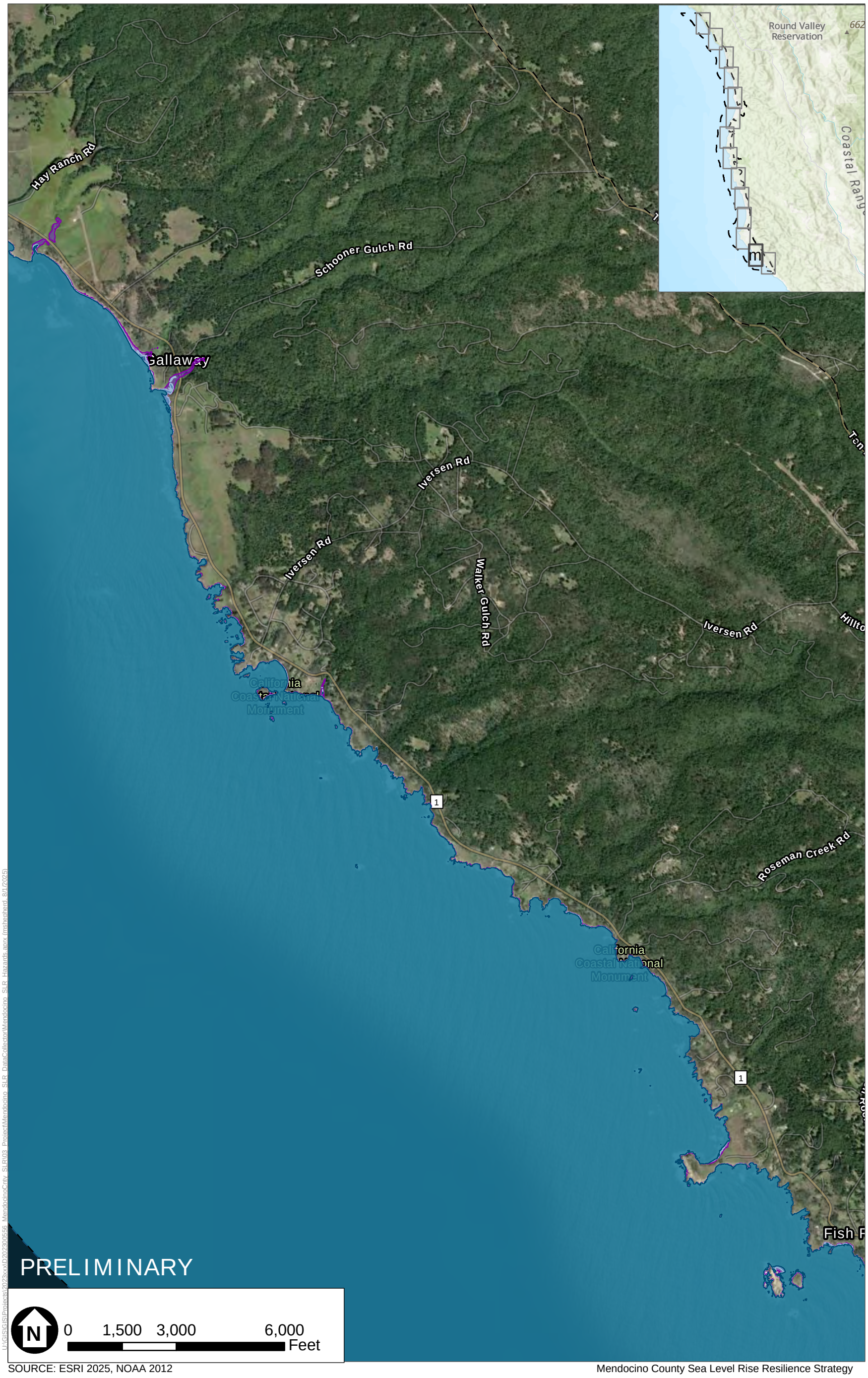
Tidal Inundation- 3ft SLR

Tidal Inundation- 6ft SLR

Mendocino County- Coastal Area

ESA

Figure 2I
Tidal Inundation Flooding Hazard



SOURCE: ESRI 2025, NOAA 2012

Mendocino County Sea Level Rise Resilience Strategy

Tidal Inundation- Existing

Tidal Inundation- 1ft SLR

Tidal Inundation- 3ft SLR

Tidal Inundation- 6ft SLR

Mendocino County- Coastal Area

ESA

Figure 2m
Tidal Inundation Flooding Hazard

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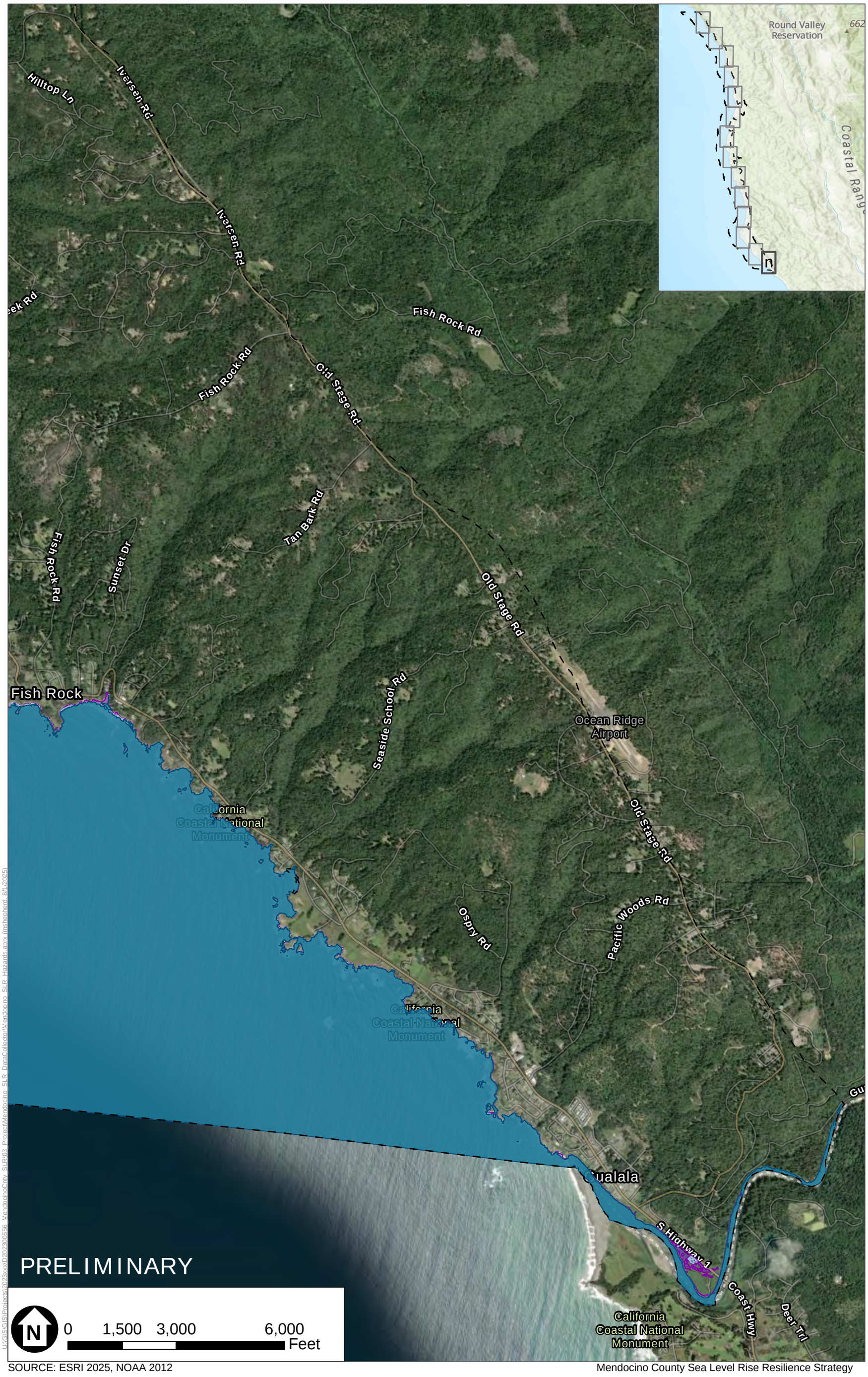

Figure 2n
Tidal Inundation Flooding Hazard



SOURCE: ESRI 2025, CoSMoS 2022, Pacific Institute 2009

Mendocino County Sea Level Rise Resilience Strategy

ESA

Figure 3a
Erosion Hazards

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SOURCE: ESRI 2025, CoSMoS 2022, Pacific Institute 2009

Mendocino County Sea Level Rise Resilience Strategy

Figure 3b
Erosion Hazards



SOURCE: ESRI 2025, CoSMoS 2022, Pacific Institute 2009

Mendocino County Sea Level Rise Resilience Strategy

Bluff Erosion- 1.6ft SLR, CoSMoS

Bluff Erosion- 3.3ft SLR, CoSMoS

Bluff Erosion- 6.6ft SLR, CoSMoS

Bluff and Dune Erosion- 0.7ft SLR, Pacific Institute

Bluff and Dune Erosion- 1.3ft SLR, Pacific Institute

Bluff and Dune Erosion- 4.6ft SLR, Pacific Institute

Mendocino County- Coastal Area

ESA

Figure 3c
Erosion Hazards

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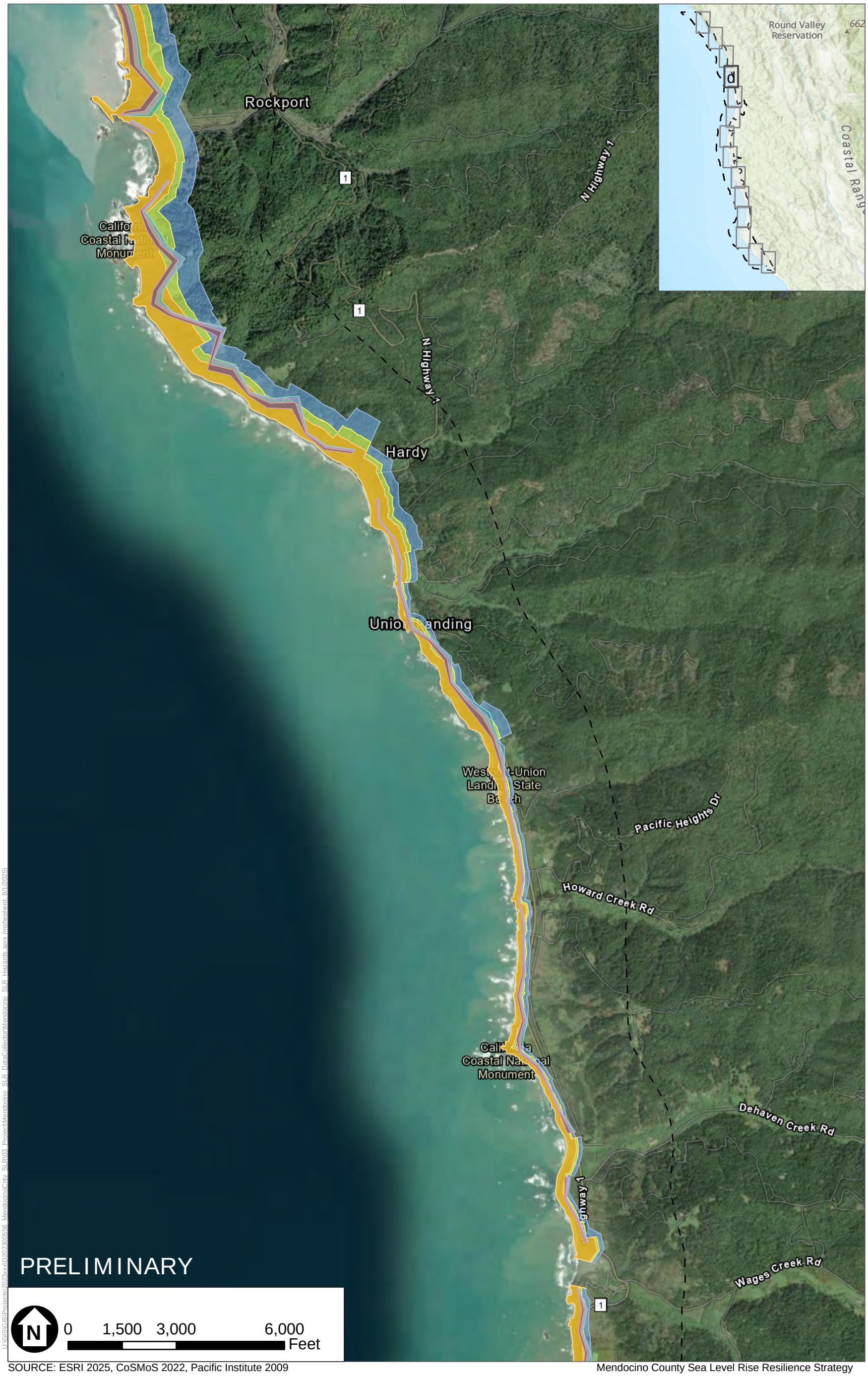

SOURCE: ESRI 2025, CoSMoS 2022, Pacific Institute 2009

Mendocino County Sea Level Rise Resilience Strategy

- Bluff Erosion- 1.6ft SLR, CoSMoS
- Bluff Erosion- 3.3ft SLR, CoSMoS
- Bluff Erosion- 6.6ft SLR, CoSMoS
- Bluff and Dune Erosion- 0.7ft SLR, Pacific Institute
- Bluff and Dune Erosion- 1.3ft SLR, Pacific Institute
- Bluff and Dune Erosion- 4.6ft SLR, Pacific Institute
- Mendocino County- Coastal Area

ESA

Figure 3d
Erosion Hazards

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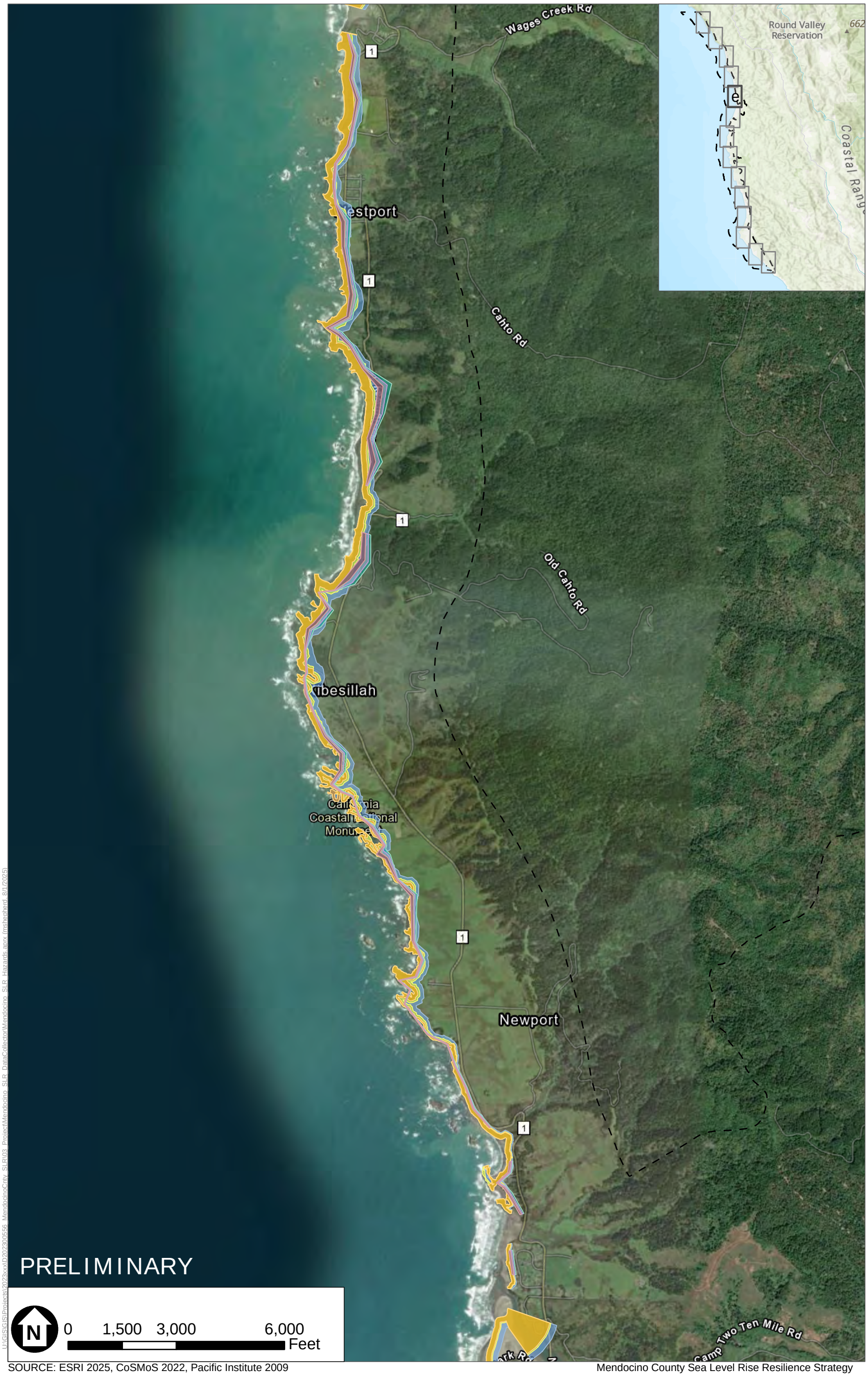

SOURCE: ESRI 2025, CoSMoS 2022, Pacific Institute 2009

Mendocino County Sea Level Rise Resilience Strategy

Bluff Erosion- 1.6ft SLR, CoSMoS

Bluff Erosion- 3.3ft SLR, CoSMoS

Bluff Erosion- 6.6ft SLR, CoSMoS

Bluff and Dune Erosion- 0.7ft SLR, Pacific Institute

Bluff and Dune Erosion- 1.3ft SLR, Pacific Institute

Bluff and Dune Erosion- 4.6ft SLR, Pacific Institute

Mendocino County- Coastal Area

ESA

Figure 3e
Erosion Hazards

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SOURCE: ESRI 2025, CoSMoS 2022, Pacific Institute 2009

Mendocino County Sea Level Rise Resilience Strategy

- Bluff Erosion- 1.6ft SLR, CoSMoS
- Bluff Erosion- 3.3ft SLR, CoSMoS
- Bluff Erosion- 6.6ft SLR, CoSMoS
- Bluff and Dune Erosion- 0.7ft SLR, Pacific Institute
- Bluff and Dune Erosion- 1.3ft SLR, Pacific Institute
- Bluff and Dune Erosion- 4.6ft SLR, Pacific Institute
- Mendocino County- Coastal Area

ESA

Figure 3f
Erosion Hazards

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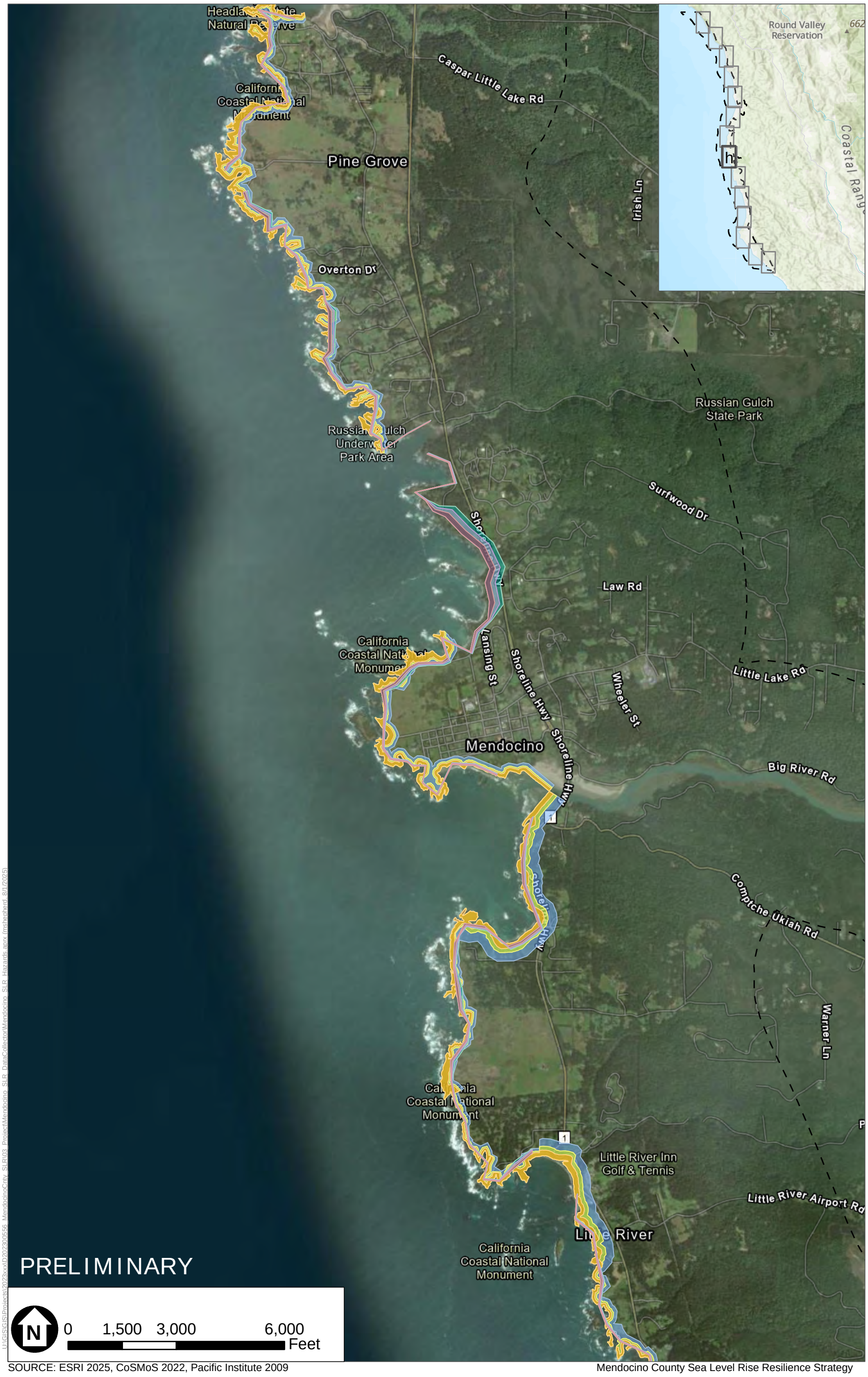
SOURCE: ESRI 2025, CoSMoS 2022, Pacific Institute 2009

Mendocino County Sea Level Rise Resilience Strategy

- Bluff Erosion- 1.6ft SLR, CoSMoS
- Bluff Erosion- 3.3ft SLR, CoSMoS
- Bluff Erosion- 6.6ft SLR, CoSMoS
- Bluff and Dune Erosion- 0.7ft SLR, Pacific Institute
- Bluff and Dune Erosion- 1.3ft SLR, Pacific Institute
- Bluff and Dune Erosion- 4.6ft SLR, Pacific Institute
- Mendocino County- Coastal Area

ESA

Figure 3g
Erosion Hazards



SOURCE: ESRI 2025, CoSMoS 2022, Pacific Institute 2009

Mendocino County Sea Level Rise Resilience Strategy

- Bluff Erosion- 1.6ft SLR, CoSMoS
- Bluff Erosion- 3.3ft SLR, CoSMoS
- Bluff Erosion- 6.6ft SLR, CoSMoS
- Bluff and Dune Erosion- 0.7ft SLR, Pacific Institute
- Bluff and Dune Erosion- 1.3ft SLR, Pacific Institute
- Bluff and Dune Erosion- 4.6ft SLR, Pacific Institute
- Mendocino County- Coastal Area

ESA

Figure 3h
Erosion Hazards



Figure 3i
Erosion Hazards



SOURCE: ESRI 2025, CoSMoS 2022, Pacific Institute 2009

Mendocino County Sea Level Rise Resilience Strategy

- Bluff Erosion- 1.6ft SLR, CoSMoS
- Bluff Erosion- 3.3ft SLR, CoSMoS
- Bluff Erosion- 6.6ft SLR, CoSMoS
- Bluff and Dune Erosion- 0.7ft SLR, Pacific Institute
- Bluff and Dune Erosion- 1.3ft SLR, Pacific Institute
- Bluff and Dune Erosion- 4.6ft SLR, Pacific Institute
- Mendocino County- Coastal Area

ESA

Figure 3j
Erosion Hazards



SOURCE: ESRI 2025, CoSMoS 2022, Pacific Institute 2009

Mendocino County Sea Level Rise Resilience Strategy

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- Bluff Erosion- 1.6ft SLR, CoSMoS
- Bluff Erosion- 3.3ft SLR, CoSMoS
- Bluff Erosion- 6.6ft SLR, CoSMoS
- Bluff and Dune Erosion- 0.7ft SLR, Pacific Institute
- Bluff and Dune Erosion- 1.3ft SLR, Pacific Institute
- Bluff and Dune Erosion- 4.6ft SLR, Pacific Institute
- Mendocino County- Coastal Area

ESA

Figure 3k
Erosion Hazards



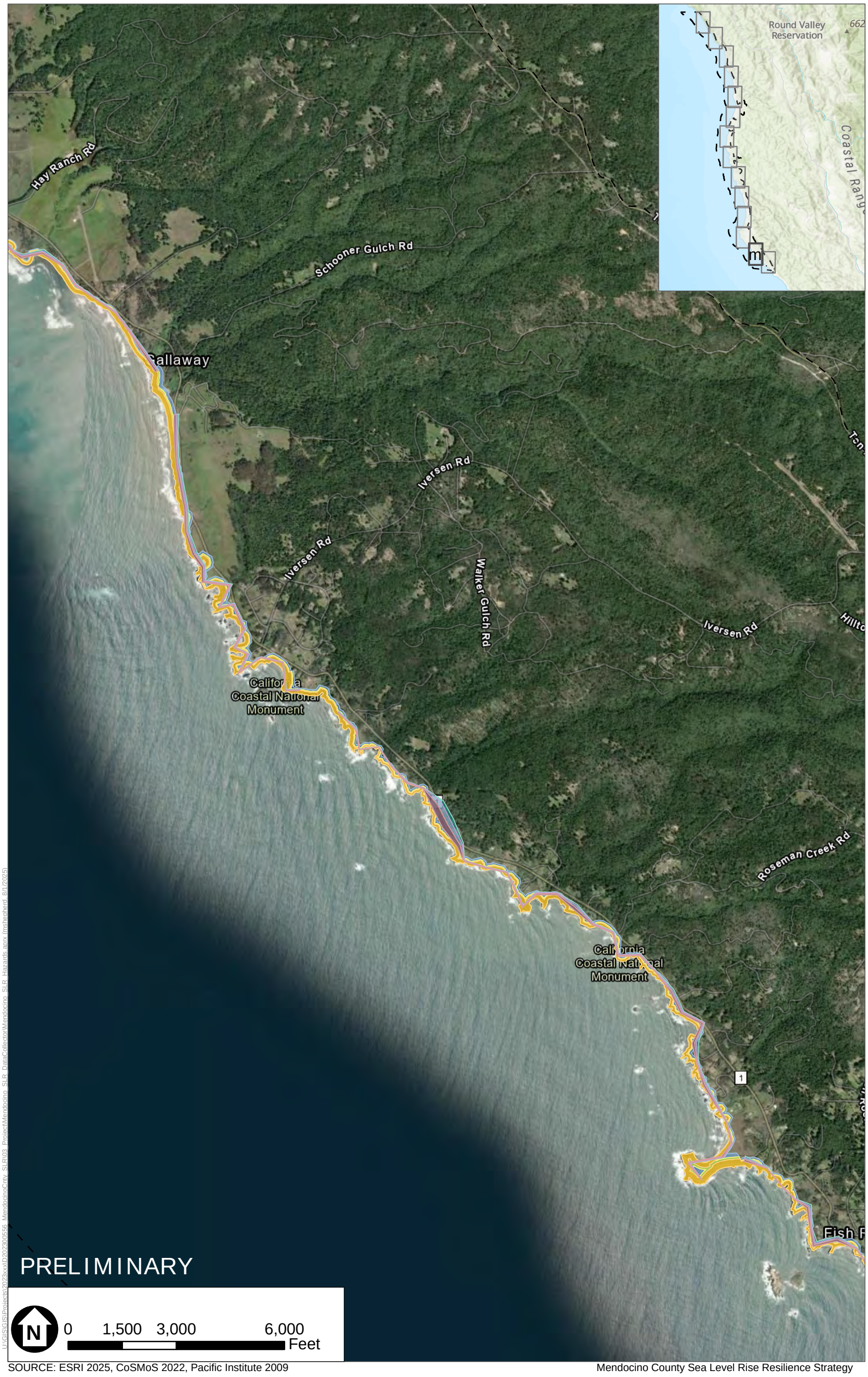
SOURCE: ESRI 2025, CoSMoS 2022, Pacific Institute 2009

Mendocino County Sea Level Rise Resilience Strategy

- Bluff Erosion- 1.6ft SLR, CoSMoS
- Bluff Erosion- 3.3ft SLR, CoSMoS
- Bluff Erosion- 6.6ft SLR, CoSMoS
- Bluff and Dune Erosion- 0.7ft SLR, Pacific Institute
- Bluff and Dune Erosion- 1.3ft SLR, Pacific Institute
- Bluff and Dune Erosion- 4.6ft SLR, Pacific Institute
- Mendocino County- Coastal Area

ESA

Figure 3I
Erosion Hazards



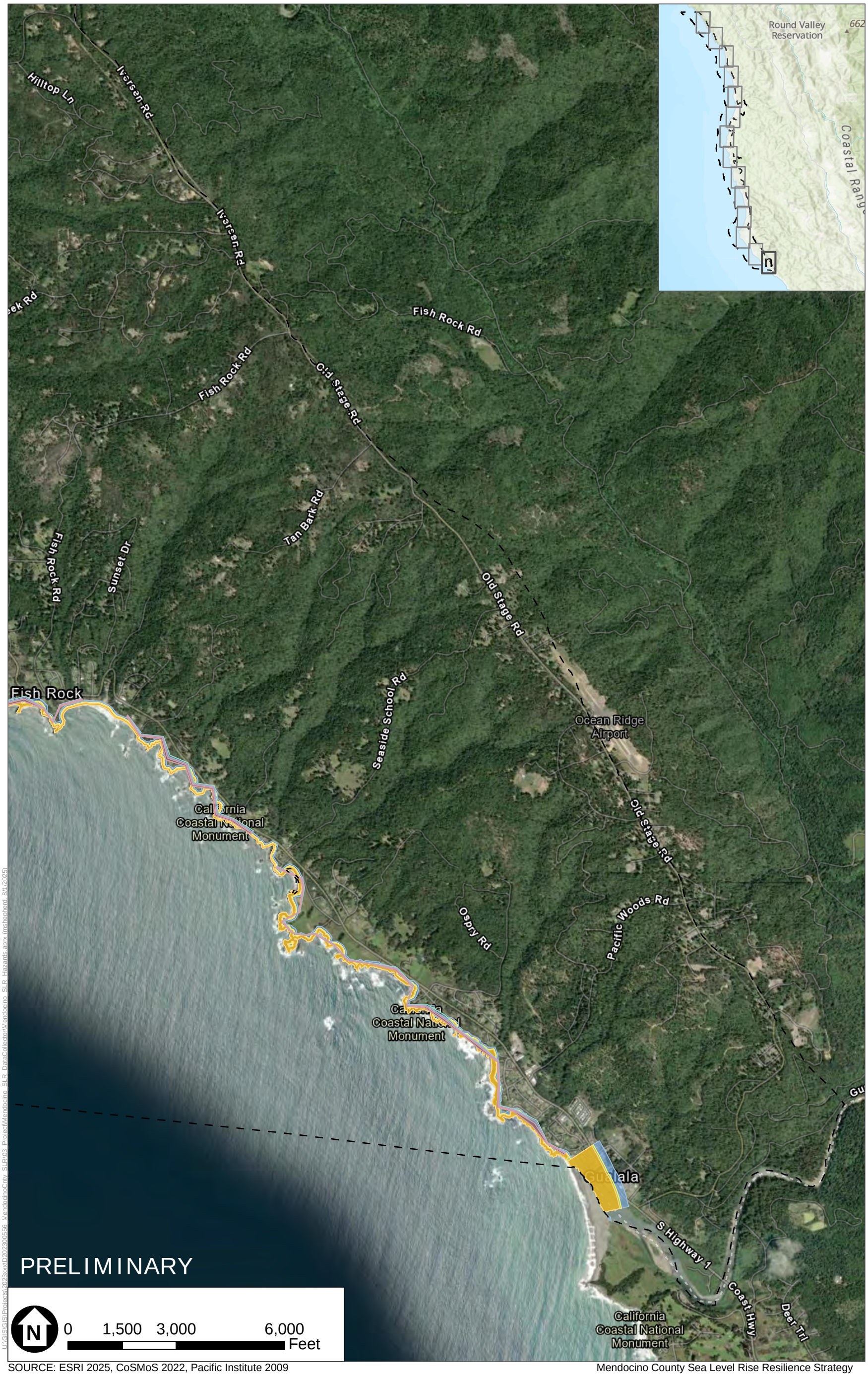
SOURCE: ESRI 2025, CoSMoS 2022, Pacific Institute 2009

Mendocino County Sea Level Rise Resilience Strategy

- Bluff Erosion- 1.6ft SLR, CoSMoS
- Bluff Erosion- 3.3ft SLR, CoSMoS
- Bluff Erosion- 6.6ft SLR, CoSMoS
- Bluff and Dune Erosion- 0.7ft SLR, Pacific Institute
- Bluff and Dune Erosion- 1.3ft SLR, Pacific Institute
- Bluff and Dune Erosion- 4.6ft SLR, Pacific Institute
- Mendocino County- Coastal Area

ESA

Figure 3m
Erosion Hazards



SOURCE: ESRI 2025, CoSMoS 2022, Pacific Institute 2009

Mendocino County Sea Level Rise Resilience Strategy

- Bluff Erosion- 1.6ft SLR, CoSMoS
- Bluff Erosion- 3.3ft SLR, CoSMoS
- Bluff Erosion- 6.6ft SLR, CoSMoS
- Bluff and Dune Erosion- 0.7ft SLR, Pacific Institute
- Bluff and Dune Erosion- 1.3ft SLR, Pacific Institute
- Bluff and Dune Erosion- 4.6ft SLR, Pacific Institute
- Mendocino County- Coastal Area

ESA

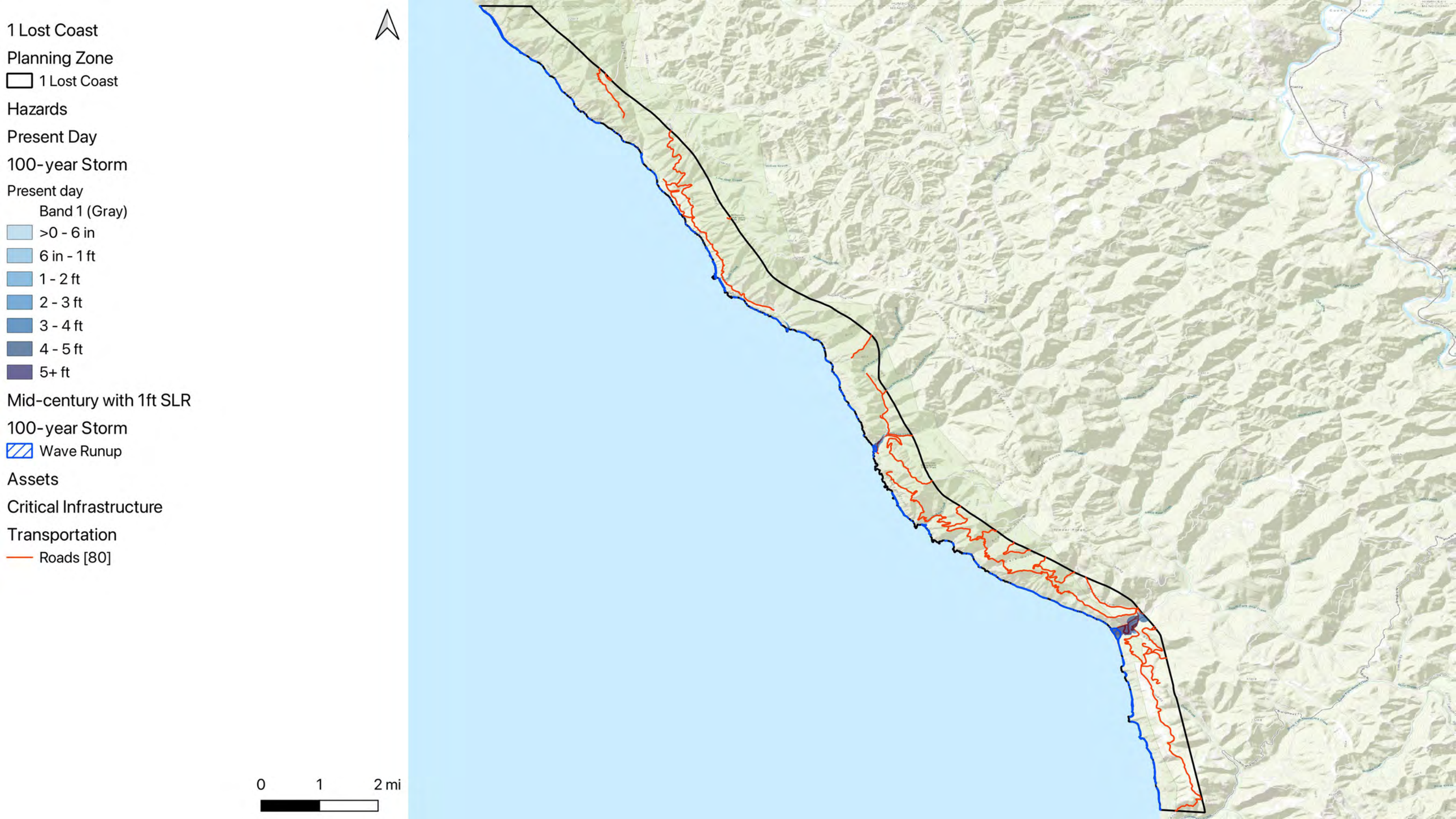
Figure 3n
Erosion Hazards

Appendix C. Asset Exposure Tables and Maps

Table 1. Lost Coast

Sub-Category	Asset Type	Units	Wave P	Storm P	Tidal P	Totals P	Storm 1ft	Tidal 1ft	BluffE 1ft	CoastE 1ft	Totals 1ft	Storm 3ft	Tidal 3ft	BluffE 3ft	CoastE 3ft	Totals 3ft	Storm 6ft	Tidal 6ft	BluffE 6ft	CoastE 6ft	Totals 6ft
Transportation	Roads	Length (mi)	0	1.9	1.2	1.9	2.2	1.7	0.2	0.5	2.8	2.5	1.9	0.7	2.3	5	3.1	2.4	1.6	7.6	10.5
Recreation	California Coastal Trail	Length (mi)	0	0.7	0	0.7	0.9	0.2	1	0.7	2.3	1	0.6	2.2	4	5.7	1.3	1	3.4	14.1	14.9
Recreation	Recreational Routes	Length (mi)	0	1.6	0.7	1.6	1.8	1	1	0.6	3.1	2.2	1.4	2.2	3.8	6.6	2.7	2.1	3.4	13.8	15.8
Parks & Govt Lands	Federal Parks & Lands	Area (sqmi)	0	0	0	0	0	0	0	0.1	0.2	0	0	0	0.2	0.2	0	0	0	0.4	0.4
Parks & Govt Lands	State Parks & Lands	Area (sqmi)	0	0.2	0.1	0.2	0.2	0.2	0.3	0.8	1.1	0.3	0.2	0.5	1.3	1.5	0.3	0.2	0.6	2.4	2.6
Parks & Govt Lands	Land Trust lands	Area (acres)	2	10	5	10	11	8	10	71	76	12	10	17	91	96	16	12	21	135	143
Coastal and Water	Beaches	Length (mi)	1.2	1.9	1.7	1.9	1.9	1.7	0	0.6	2	2	1.8	0	0.6	2.1	2	1.9	0	0.6	2.1
Coastal and Water	Bluffs	Length (mi)	1	2.1	1.9	2.1	2.1	1.9	0	0.4	2.2	2.2	2	0	0.4	2.2	2.2	2.1	0	0.4	2.3
Coastal and Water	Streams and Rivers	Length (mi)	0.4	2.4	1.5	2.4	2.7	1.8	0.9	3.1	5.3	3.2	2.2	1.9	5.8	8	4	2.9	2.5	11.3	13.6
Coastal and Water	Estuaries	Area (acres)	7	20	20	20	20	20	0	4	20	20	20	0	5	20	20	20	0	6	20
Coastal and Water	Wetlands and ESHA	Area (acres)	41	106	91	106	107	101	1	47	107	108	105	1	49	110	109	107	1	51	111
Habitat	Endangered and Threatened Species Habitats	Area (acres)	14	79	53	79	85	65	2	14	91	94	76	3	22	104	107	90	4	35	125
Habitat	Critical Coastal Areas	Area (sqmi)	0	0	0	0	0	0	0	0.3	0.3	0	0	0.1	0.4	0.4	0	0	0.1	0.7	0.8
Habitat	Marine Protected Areas	Number of individually designated MPAs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Habitat	Areas of Special Biological Significance	Number of individually designated ASBSs	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	0	1	1


1 Lost Coast
Planning Zone
1 Lost Coast
Hazards
Present Day
100-year Storm
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Mid-century with 1ft SLR
100-year Storm
Wave Runup
0
1
2 mi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Planning Zone
1 Lost Coast
Hazards
Present Day
100-year Storm
Present day
Band 1 (Gray)
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6 in - 1 ft
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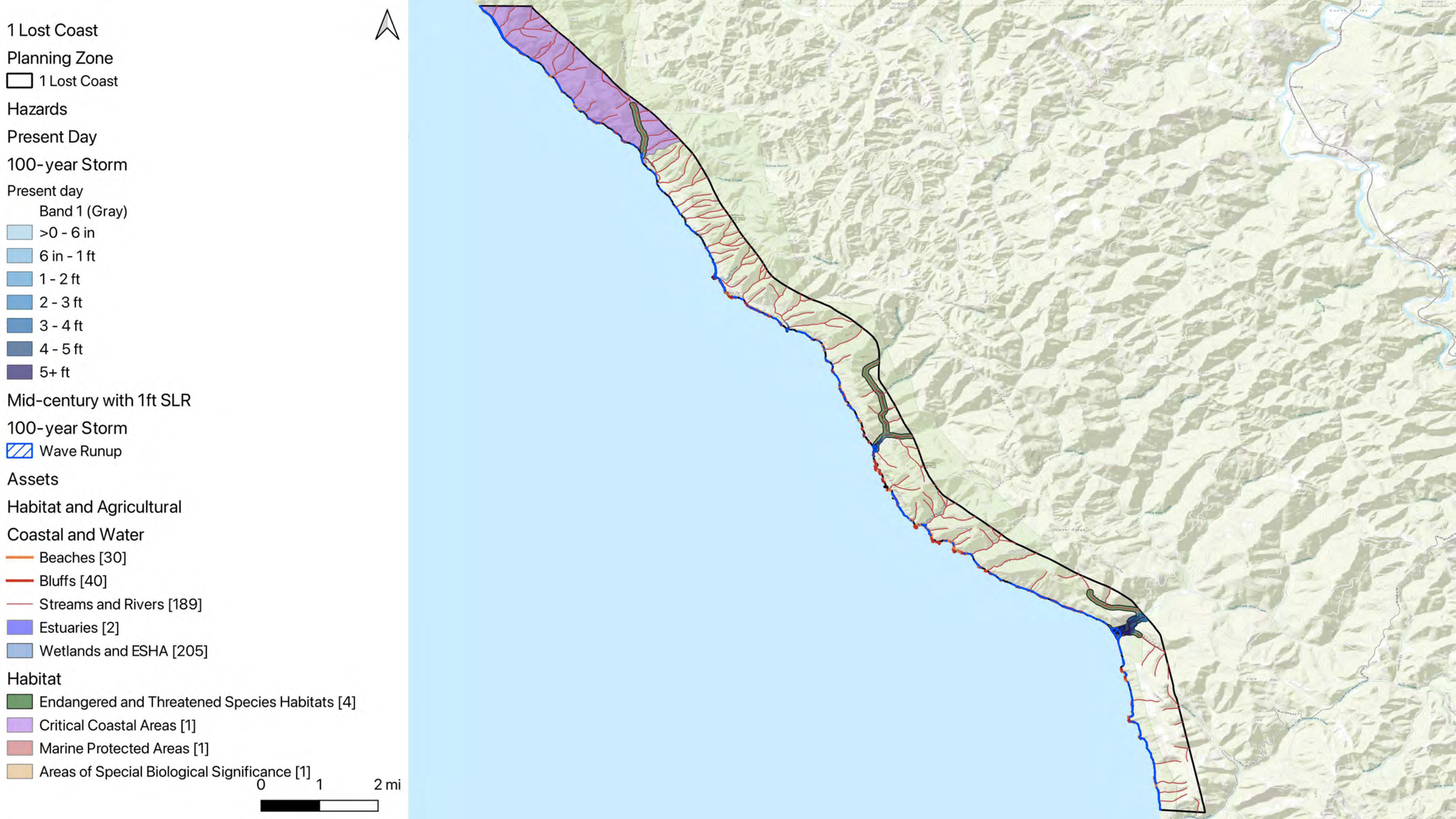
3 - 4 ft
4 - 5 ft
5+ ft
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Assets
Critical Infrastructure
Transportation
Roads [80]
0
1
2 mi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Planning Zone
1 Lost Coast
Hazards
Present Day
100-year Storm
Present day
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Mid-century with 1ft SLR
100-year Storm
Wave Runup
Assets
Habitat and Agricultural
Coastal and Water
Beaches [30]
Bluffs [40]
Streams and Rivers [189]
Estuaries [2]
Wetlands and ESHA [205]
Habitat
Endangered and Threatened Species Habitats [4]
Critical Coastal Areas [1]
Marine Protected Areas [1]
Areas of Special Biological Significance [1]
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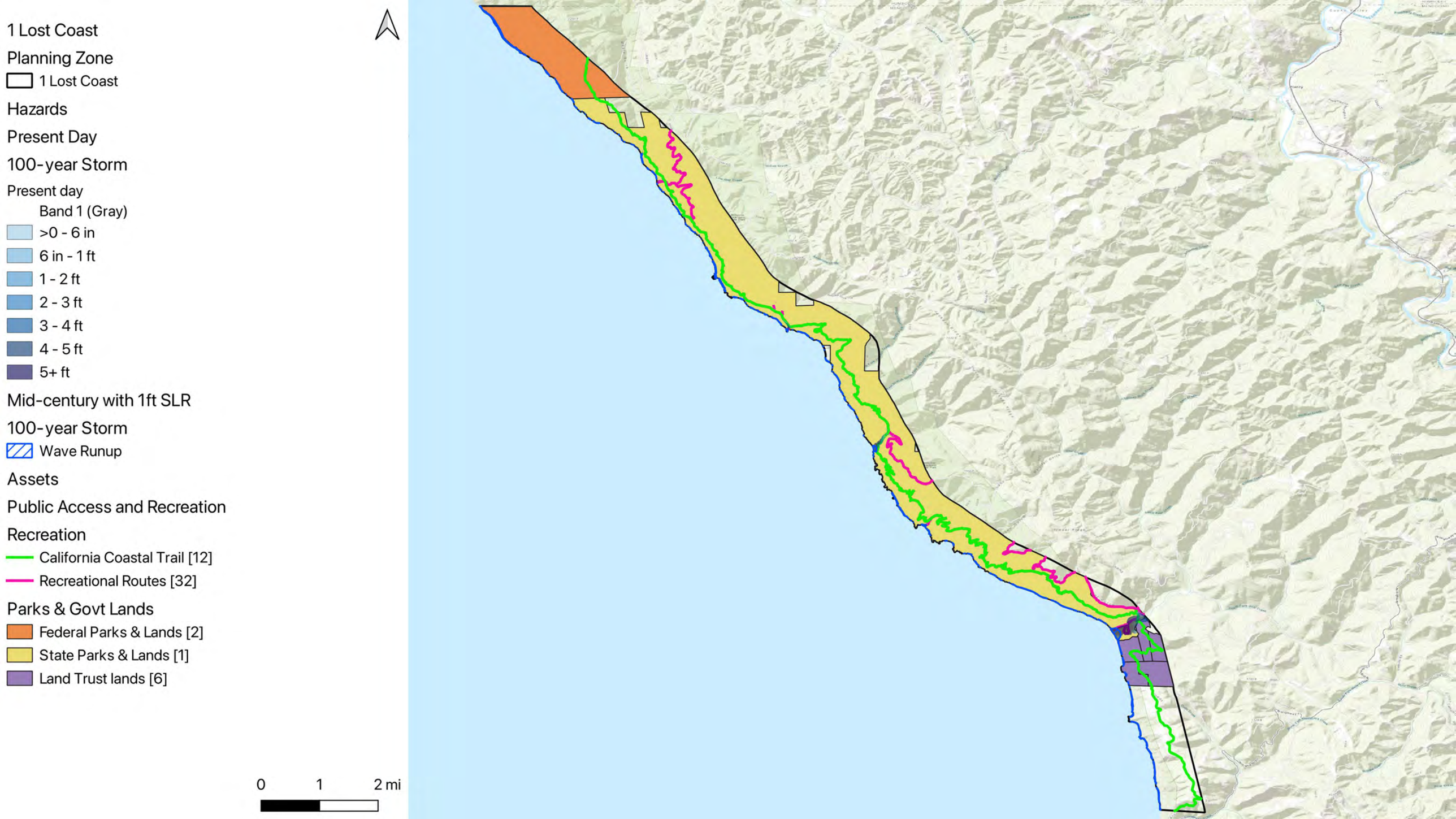
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Planning Zone
1 Lost Coast
Hazards
Present Day
100-year Storm
Present day
Band 1 (Gray)
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3 - 4 ft
4 - 5 ft
5+ ft
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Assets
Public Access and Recreation
Recreation
California Coastal Trail [12]
Recreational Routes [32]
Parks & Govt Lands
Federal Parks & Lands [2]
State Parks & Lands [1]
Land Trust lands [6]
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2 mi


1 Lost Coast
Planning Zone
1 Lost Coast
Hazards
Present Day
Coastal Erosion
Bluff Dune Erosion
Early century with 0.7ft SLR
Tidal Flooding
Present day
Band 1 (Gray)
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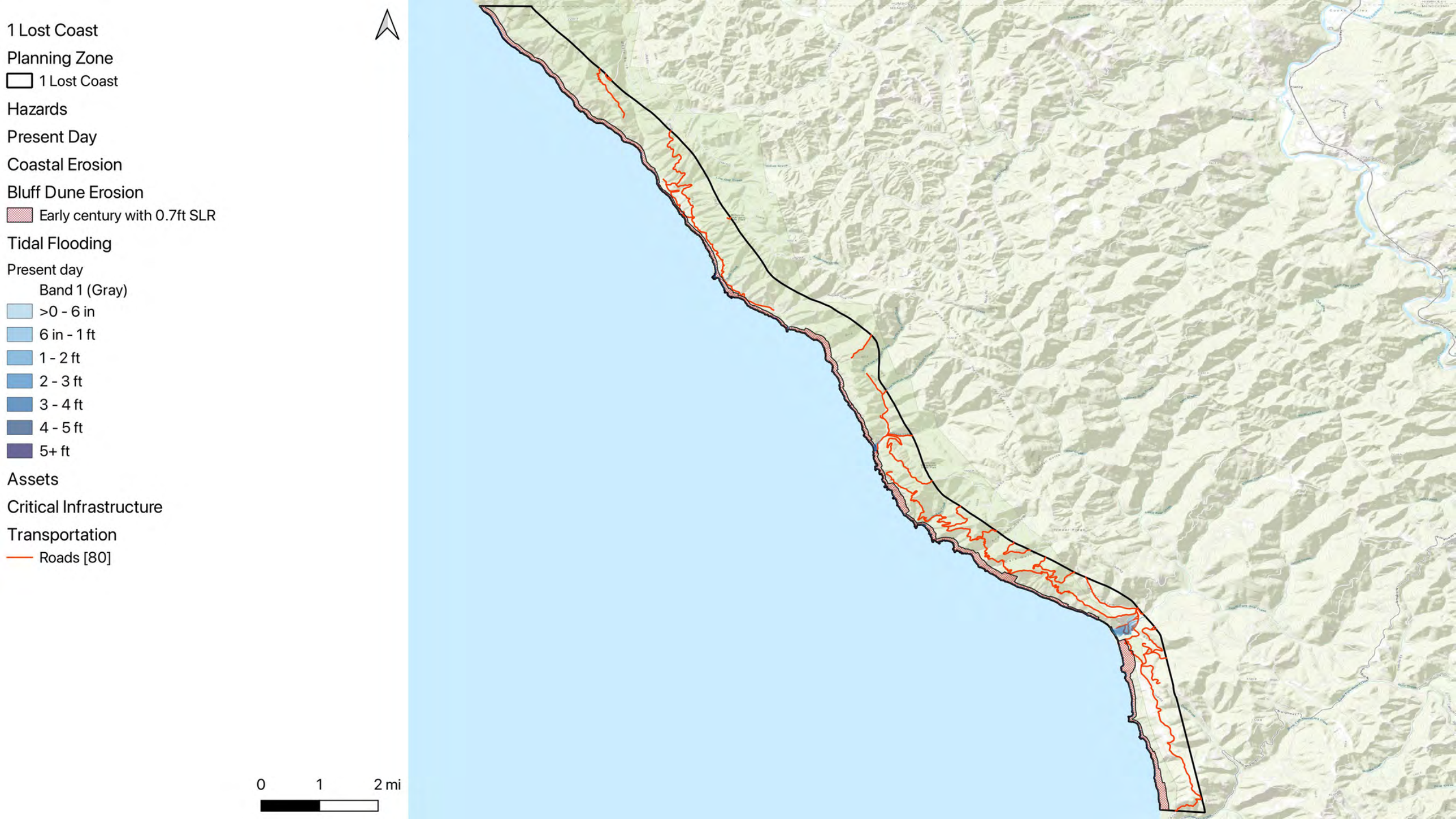
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Hazards
Present Day
Coastal Erosion
Bluff Dune Erosion
Early century with 0.7ft SLR
Tidal Flooding
Present day
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6 in - 1 ft
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3 - 4 ft
4 - 5 ft
5+ ft
Assets
Critical Infrastructure
Transportation
Roads [80]
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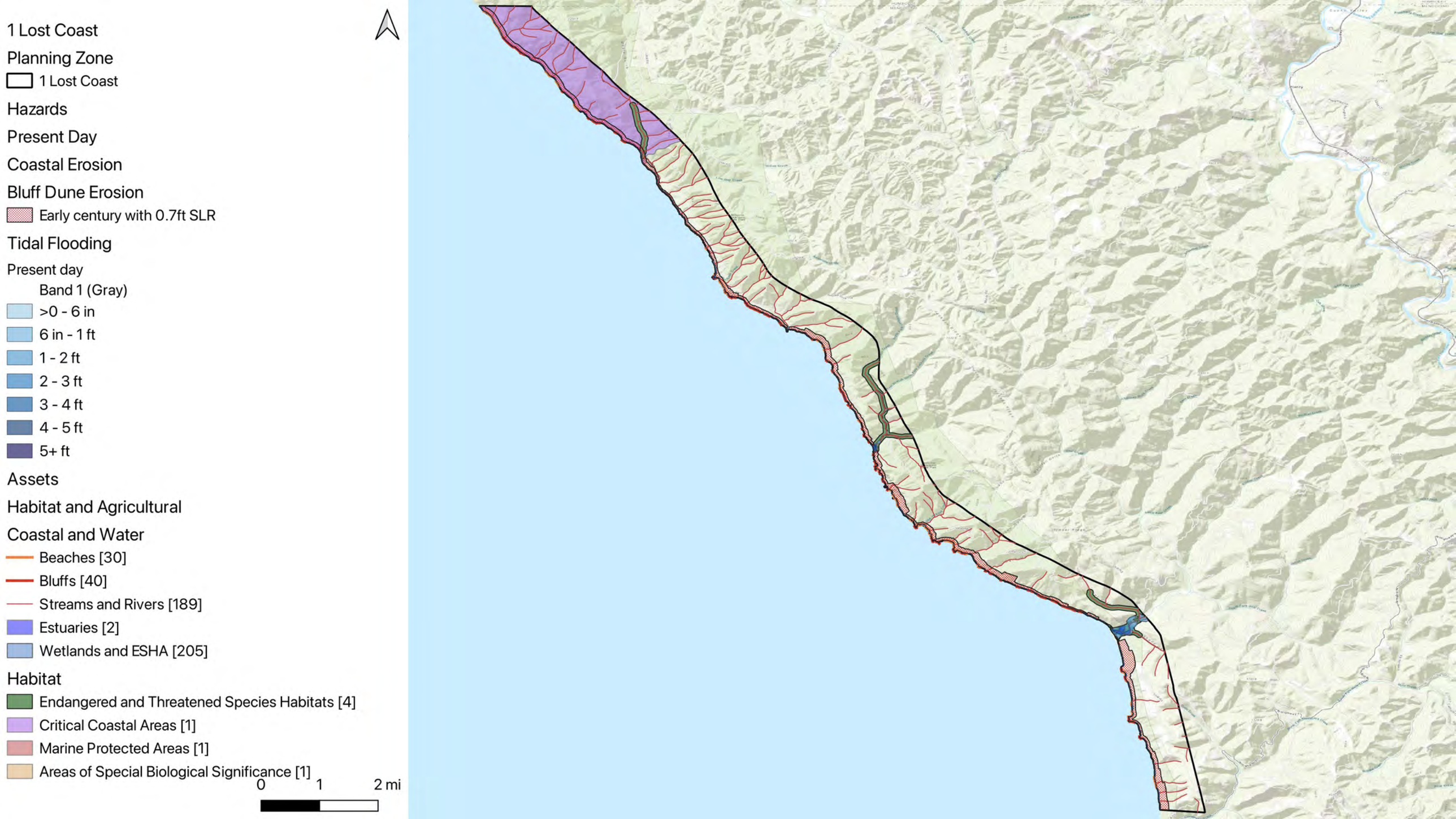
2 mi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Planning Zone
1 Lost Coast
Hazards
Present Day
Coastal Erosion
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Early century with 0.7ft SLR
Tidal Flooding
Present day
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6 in - 1 ft
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4 - 5 ft
5+ ft
Assets
Habitat and Agricultural
Coastal and Water
Beaches [30]
Bluffs [40]
Streams and Rivers [189]
Estuaries [2]
Wetlands and ESHA [205]
Habitat
Endangered and Threatened Species Habitats [4]
Critical Coastal Areas [1]
Marine Protected Areas [1]
Areas of Special Biological Significance [1]
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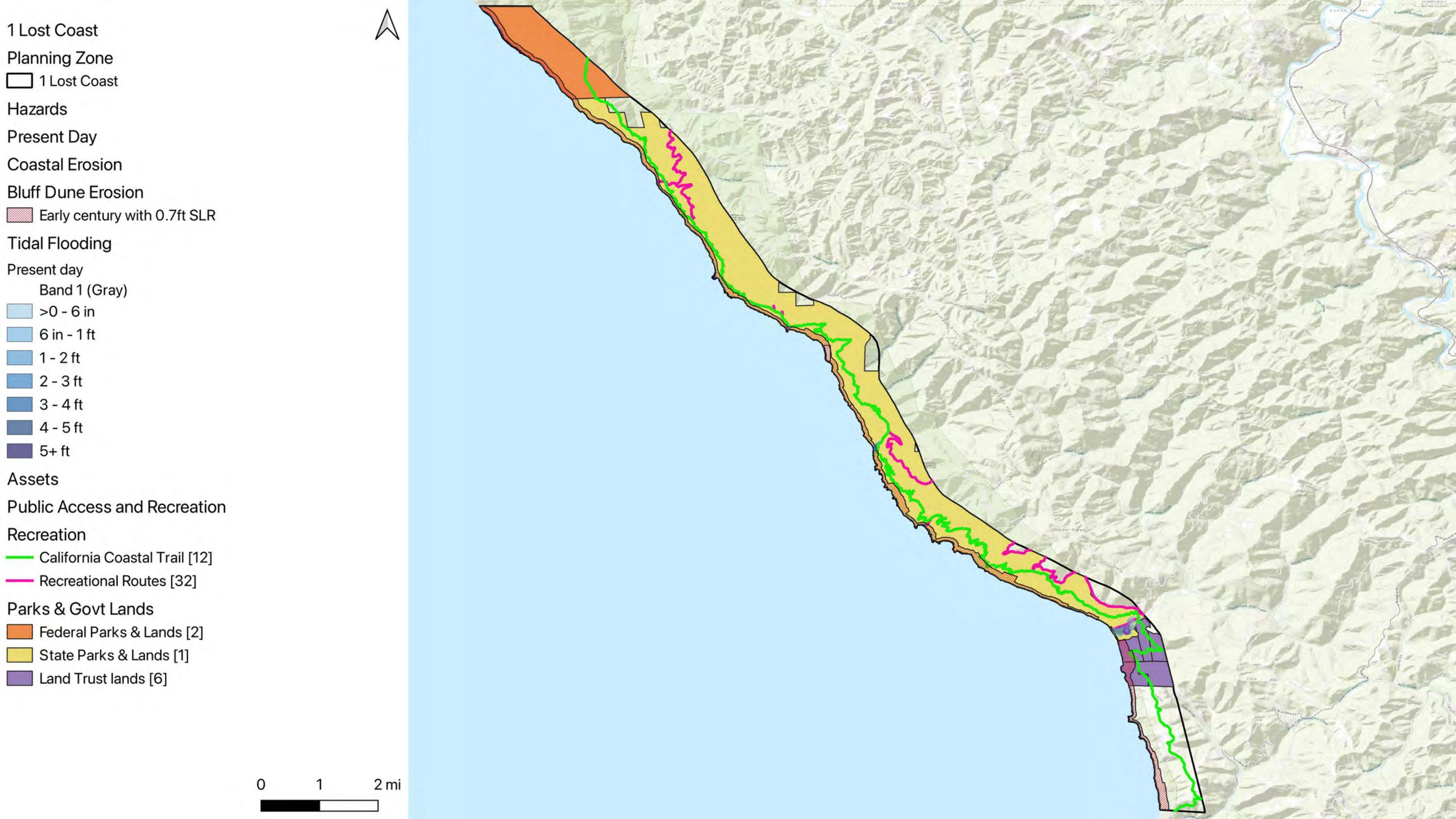
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Planning Zone
1 Lost Coast
Hazards
Present Day
Coastal Erosion
Bluff Dune Erosion
Early century with 0.7ft SLR
Tidal Flooding
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
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5+ ft
Assets
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Recreational Routes [32]
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Federal Parks & Lands [2]
State Parks & Lands [1]
Land Trust lands [6]
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1 Lost Coast
Planning Zone
1 Lost Coast
Hazards
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
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2 - 3 ft
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4 - 5 ft
5+ ft
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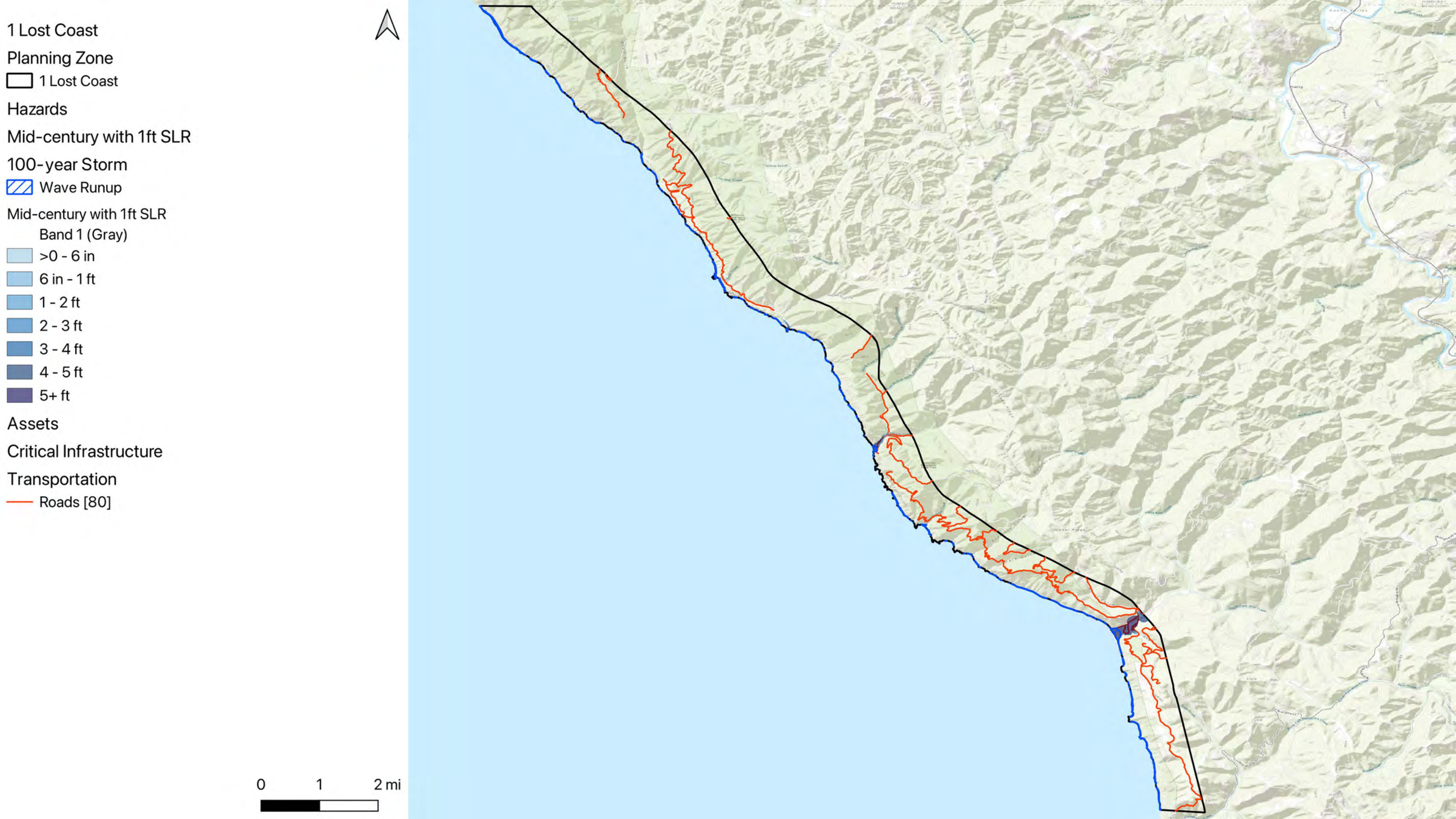
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Planning Zone
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Hazards
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Mid-century with 1ft SLR
Band 1 (Gray)
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6 in - 1 ft
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3 - 4 ft
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5+ ft
Assets
Critical Infrastructure
Transportation
Roads [80]
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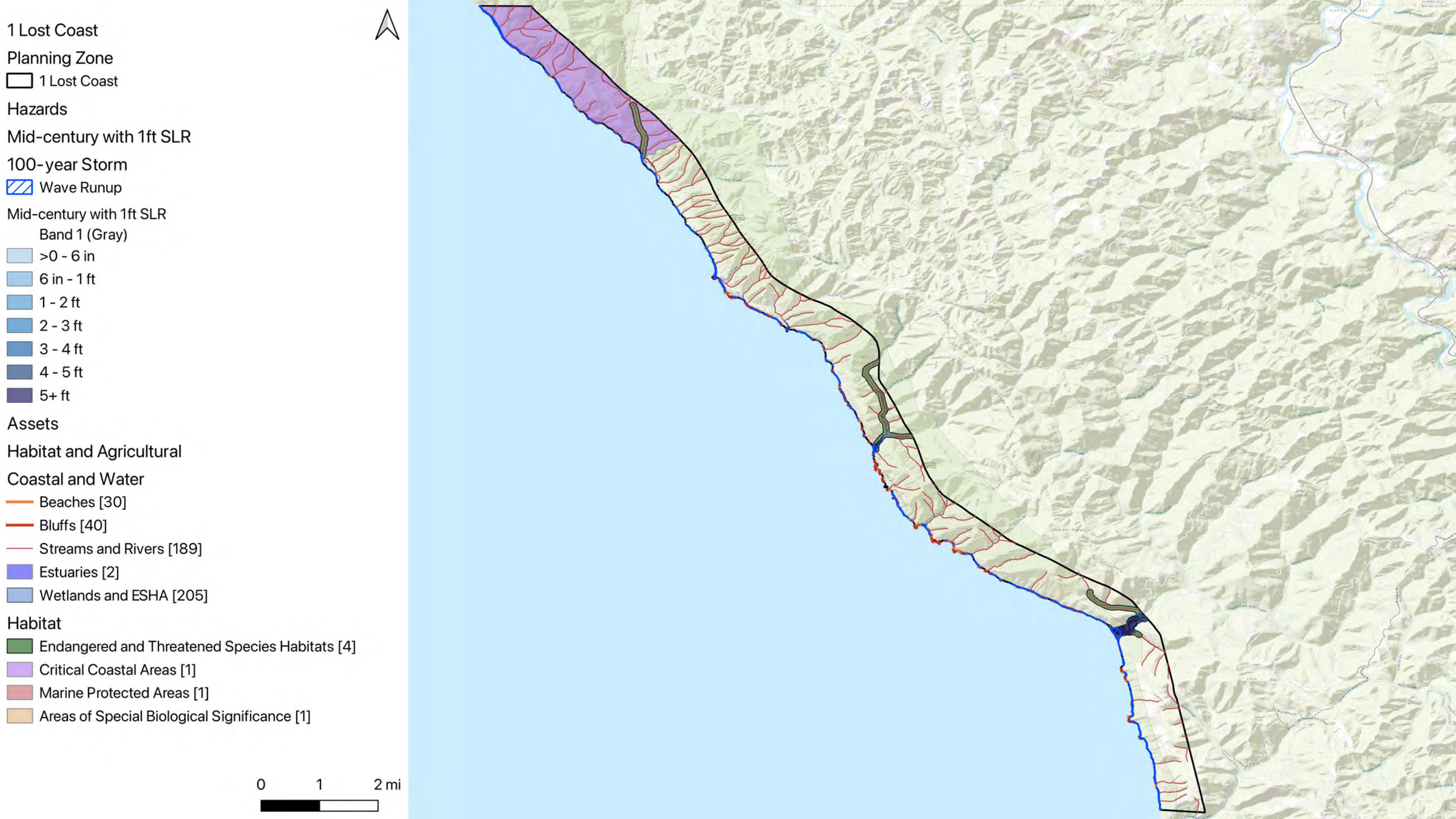
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100-year Storm
Wave Runup
Mid-century with 1ft SLR
Band 1 (Gray)
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Critical Coastal Areas [1]
Marine Protected Areas [1]
Areas of Special Biological Significance [1]
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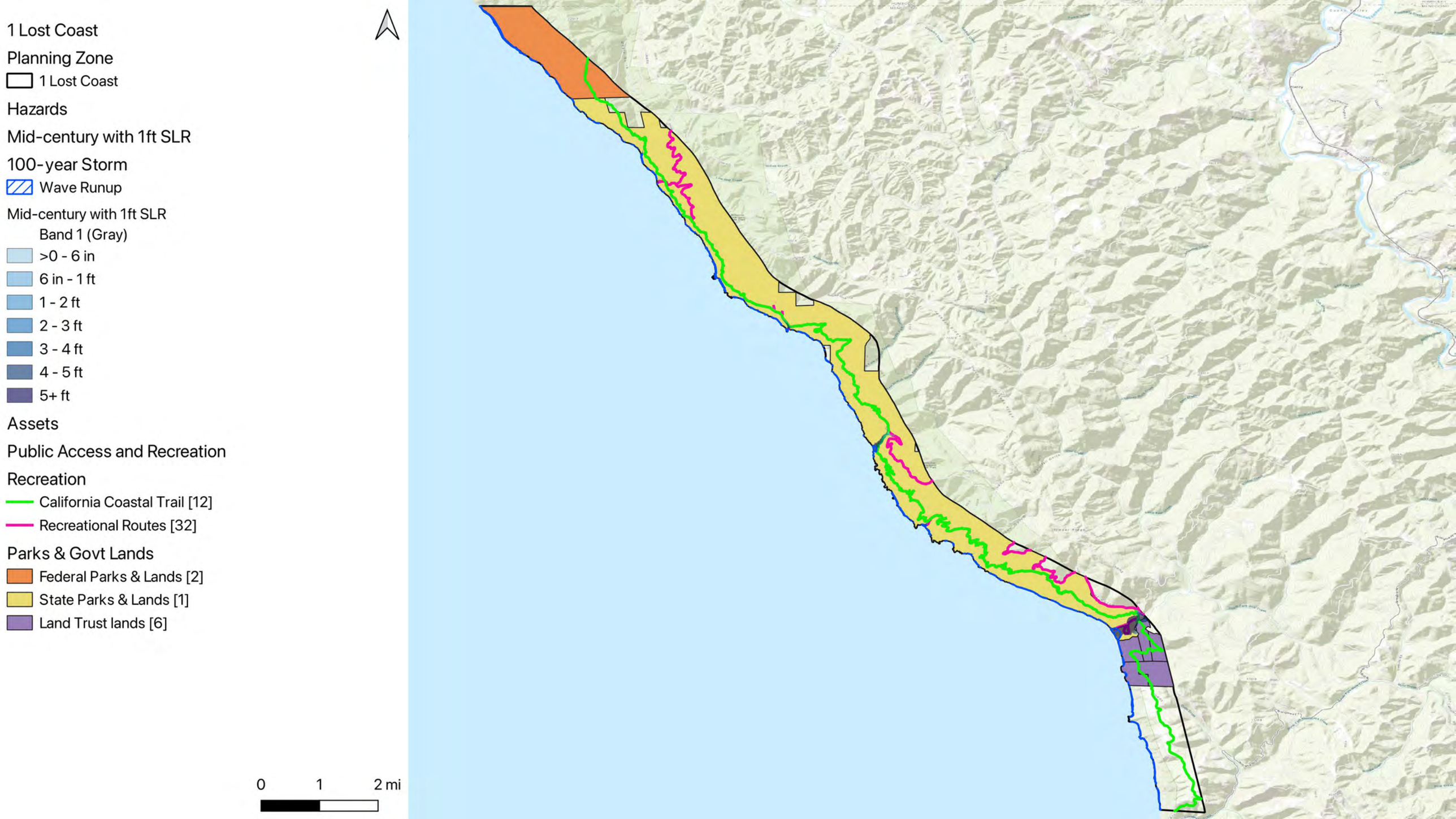
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100-year Storm
Wave Runup
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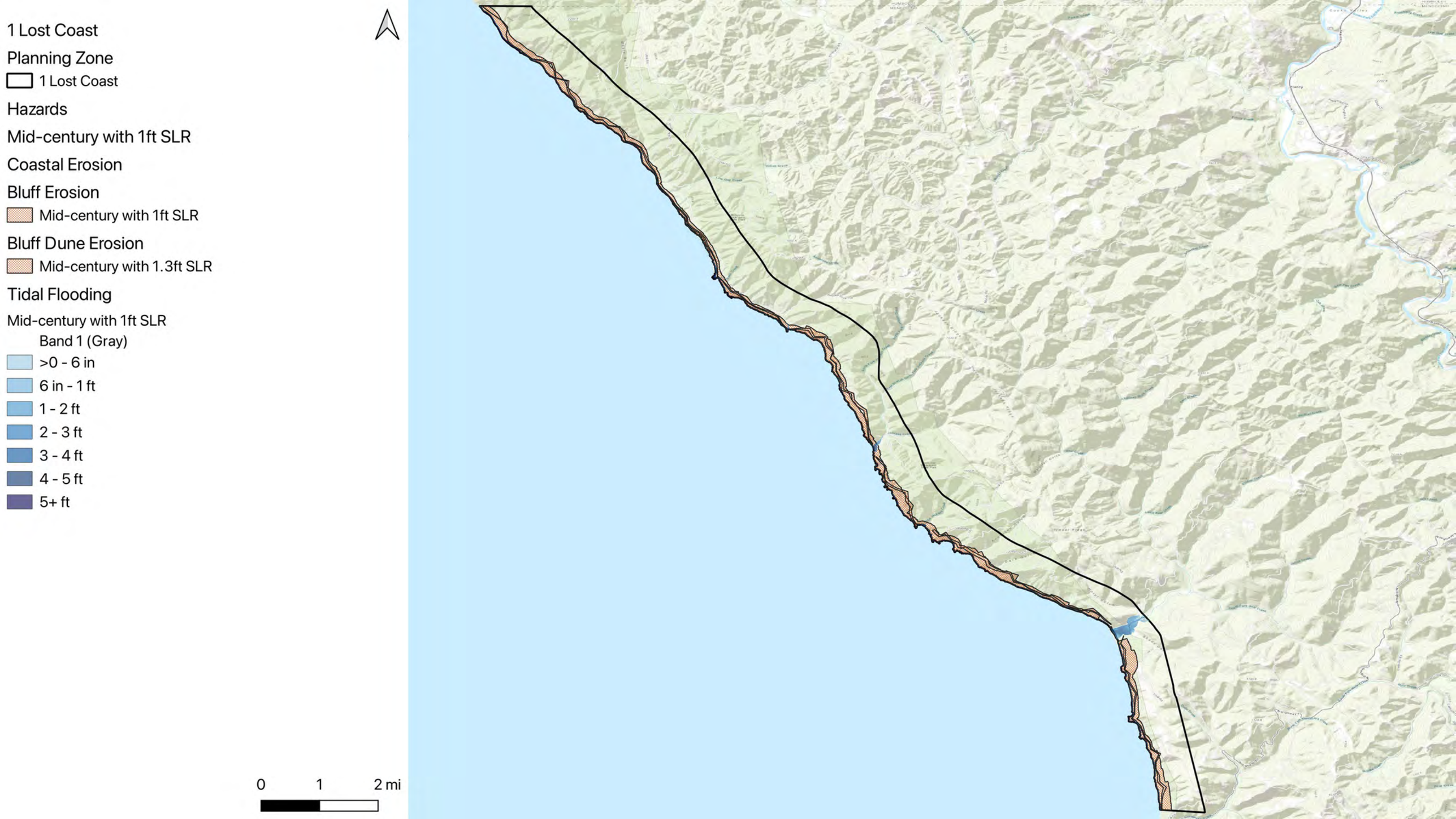
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1 Lost Coast
Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
Band 1 (Gray)
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2 - 3 ft
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4 - 5 ft
5+ ft
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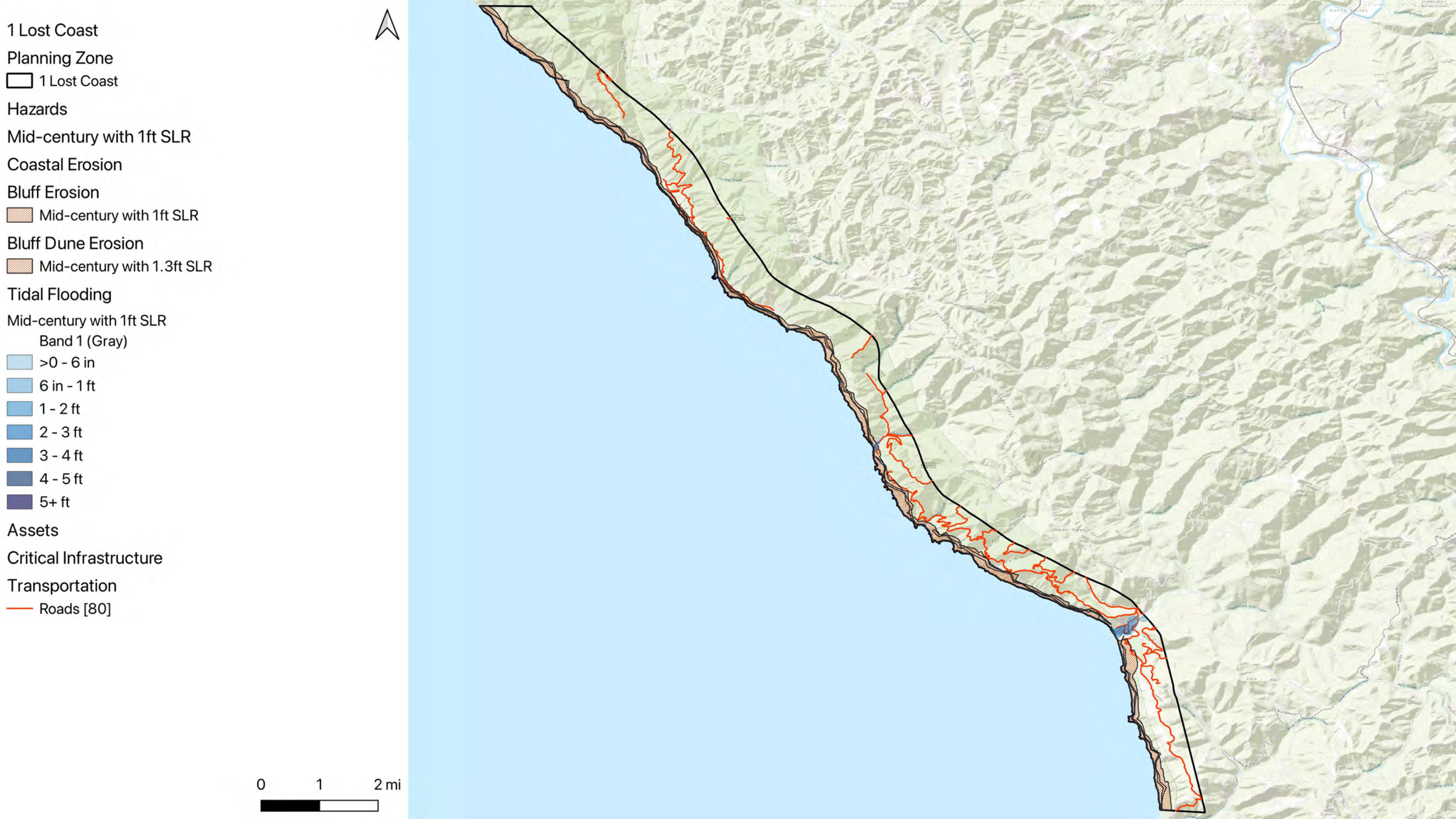
2 mi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1 Lost Coast
Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
Band 1 (Gray)
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Critical Infrastructure
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Roads [80]
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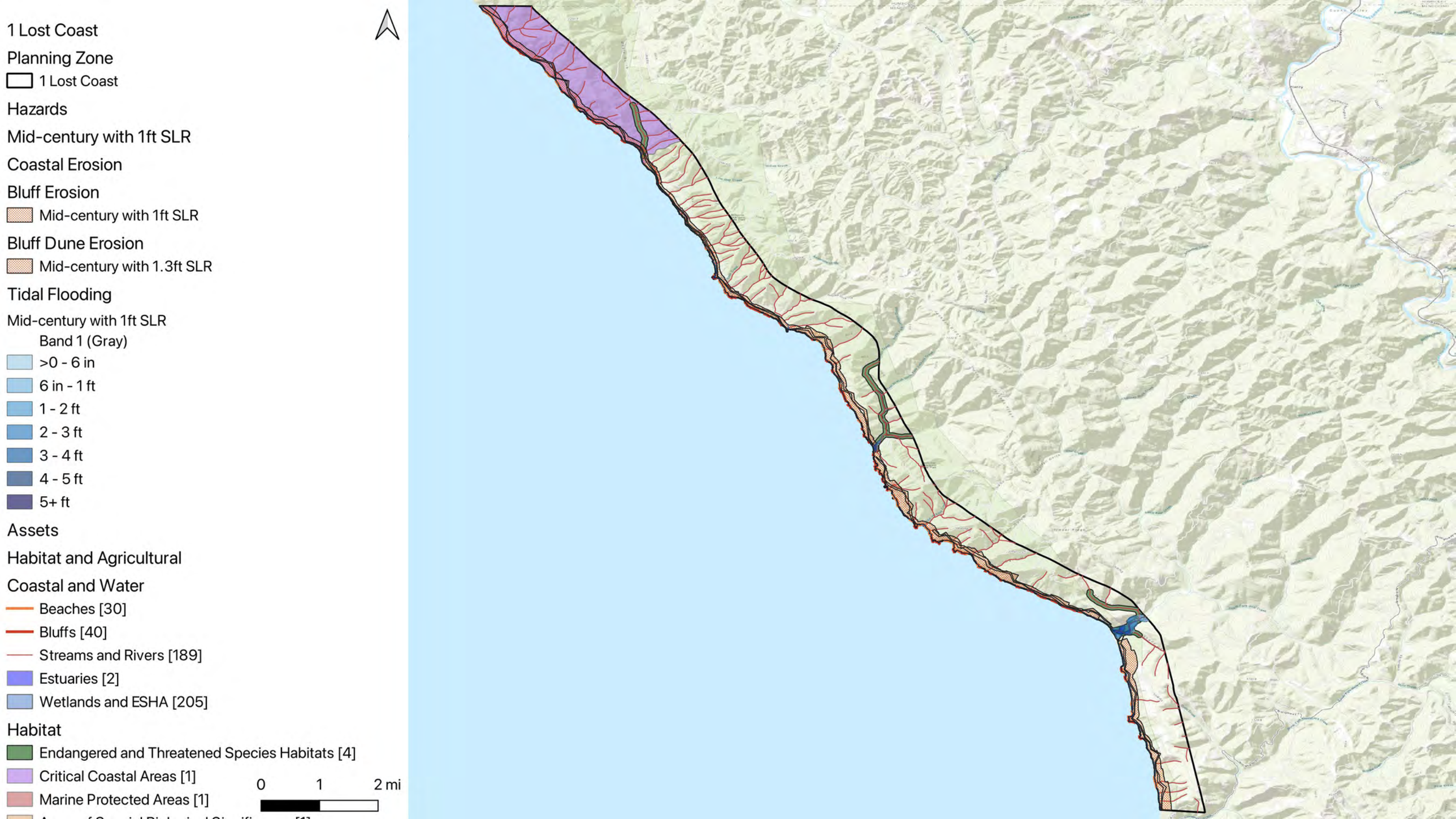
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Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
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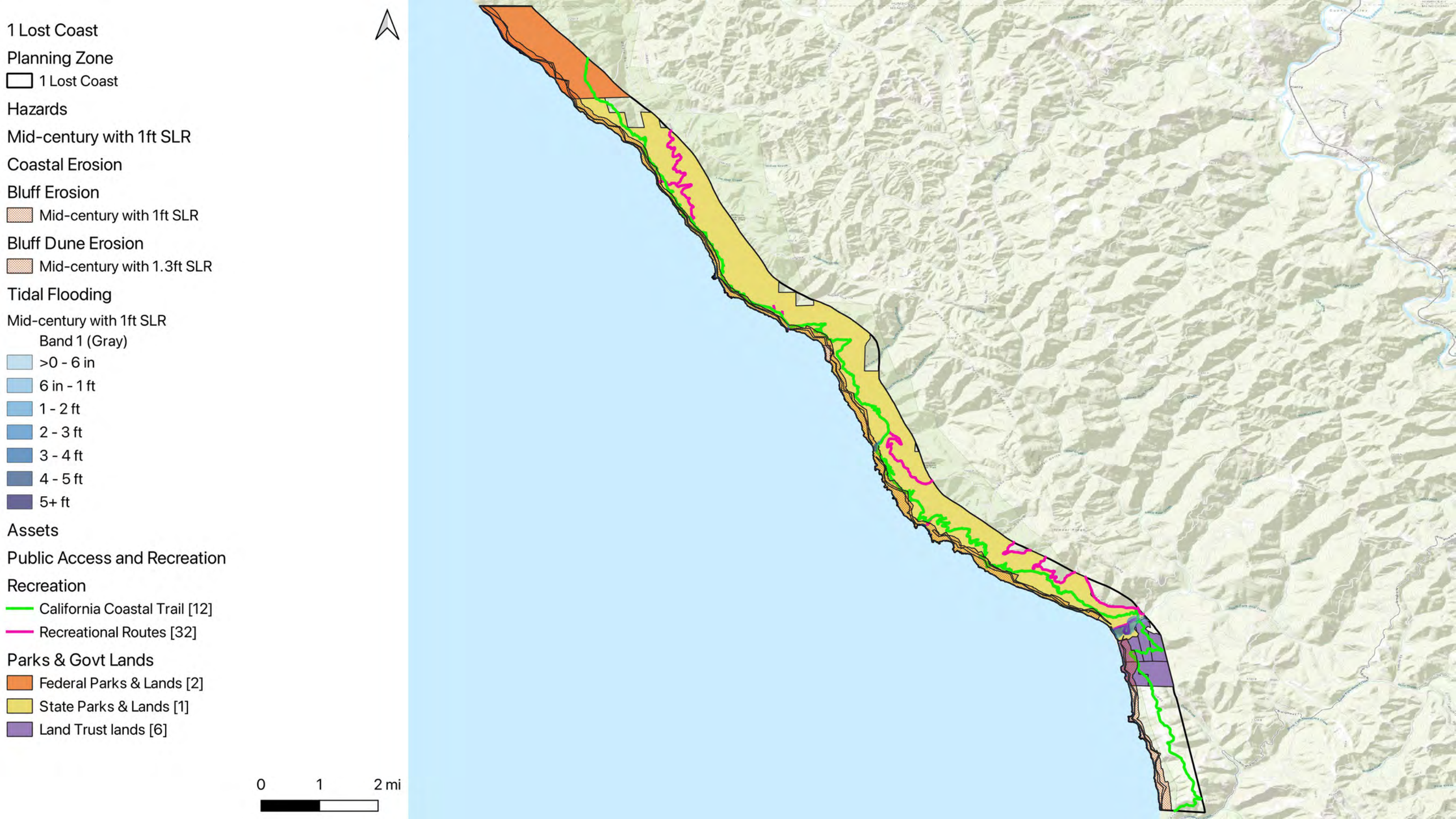
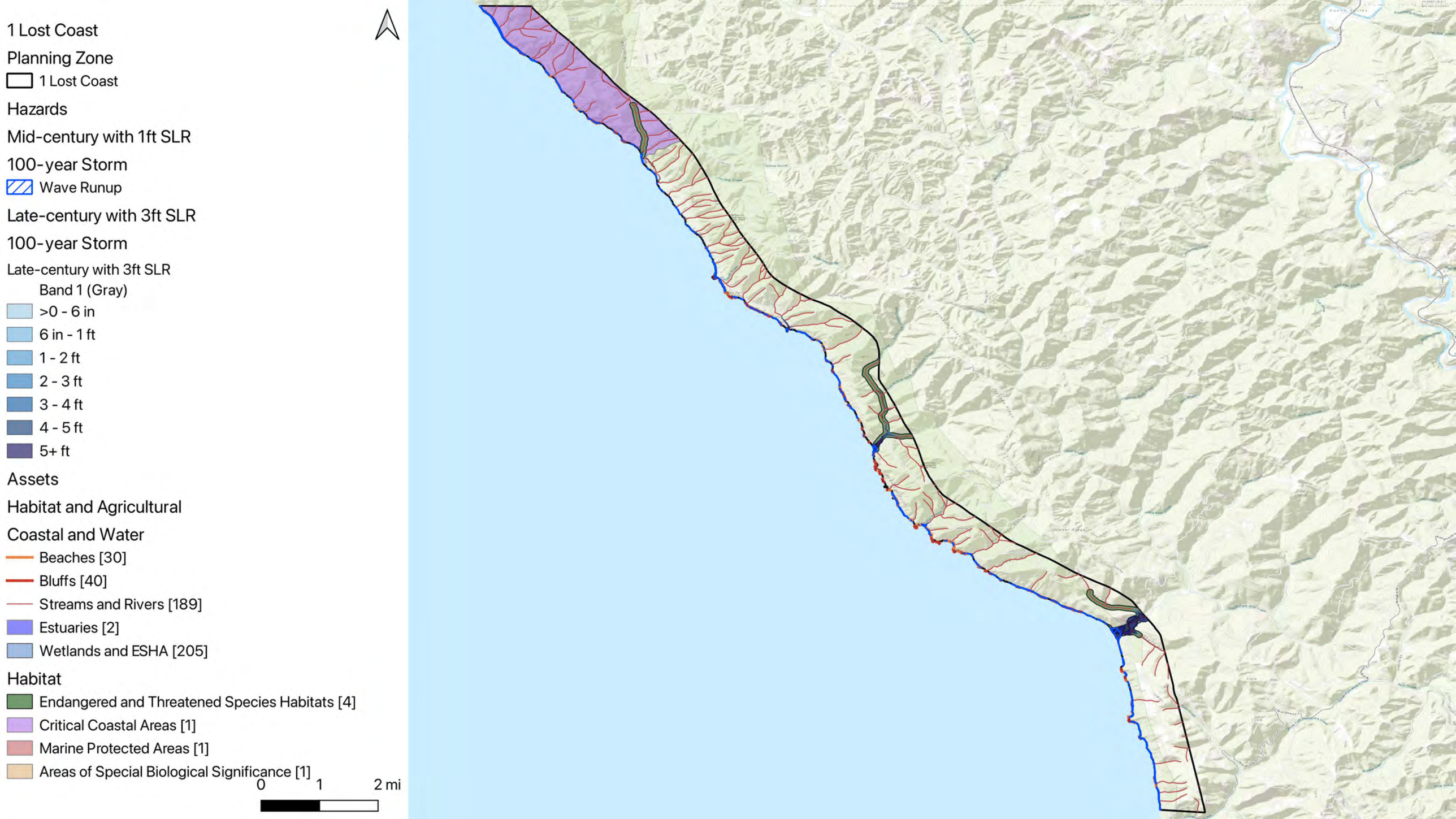
0
1
2 mi


1 Lost Coast
Planning Zone
1 Lost Coast
Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Public Access and Recreation
Recreation
California Coastal Trail [12]
Recreational Routes [32]
Parks & Govt Lands
Federal Parks & Lands [2]
State Parks & Lands [1]
Land Trust lands [6]
0
1
2 mi


1 Lost Coast
Planning Zone
1 Lost Coast
Hazards
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
0
1
2 mi


1 Lost Coast
Planning Zone
1 Lost Coast
Hazards
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Critical Infrastructure
Transportation
Roads [80]
0
1
2 mi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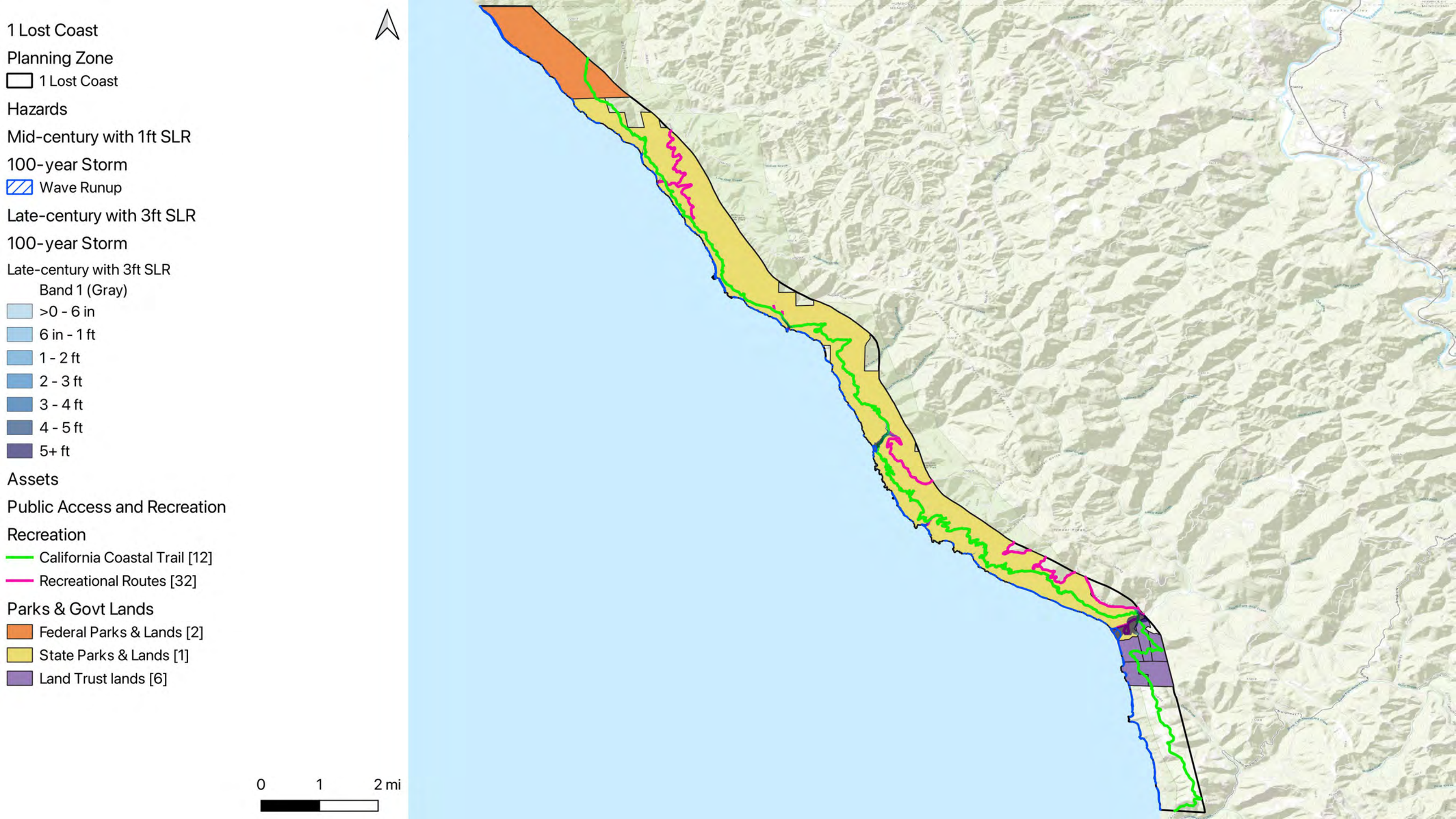
Planning Zone
1 Lost Coast
Hazards
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Habitat and Agricultural
Coastal and Water
Beaches [30]
Bluffs [40]
Streams and Rivers [189]
Estuaries [2]
Wetlands and ESHA [205]
Habitat
Endangered and Threatened Species Habitats [4]
Critical Coastal Areas [1]
Marine Protected Areas [1]
Areas of Special Biological Significance [1]
0
1
2 mi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Planning Zone
1 Lost Coast
Hazards
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
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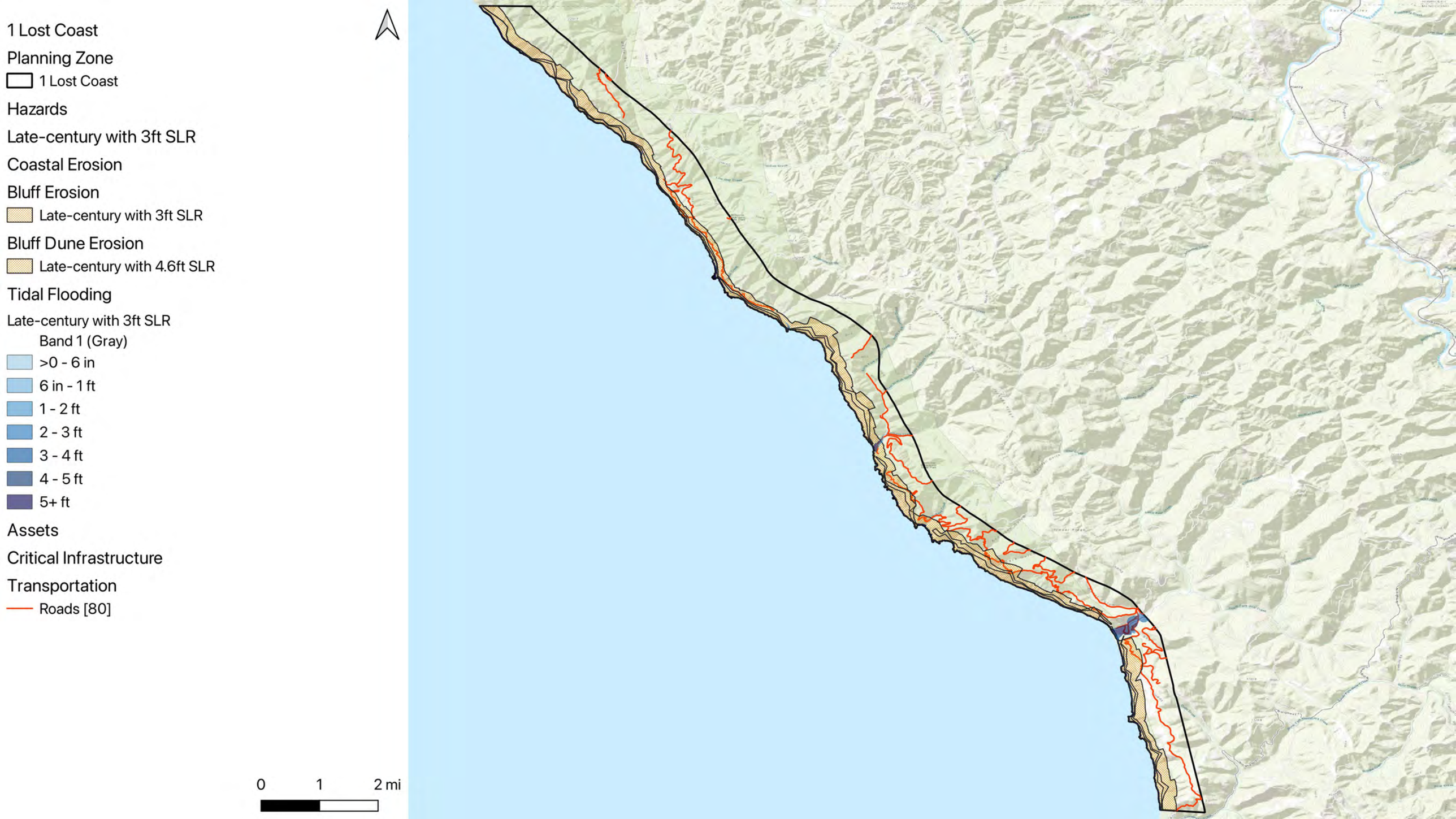
4 - 5 ft
5+ ft
Assets
Public Access and Recreation
Recreation
California Coastal Trail [12]
Recreational Routes [32]
Parks & Govt Lands
Federal Parks & Lands [2]
State Parks & Lands [1]
Land Trust lands [6]
0
1
2 mi


1 Lost Coast
Planning Zone
1 Lost Coast
Hazards
Late-century with 3ft SLR
Coastal Erosion
Bluff Erosion
Late-century with 3ft SLR
Bluff Dune Erosion
Late-century with 4.6ft SLR
Tidal Flooding
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
0
1
2 mi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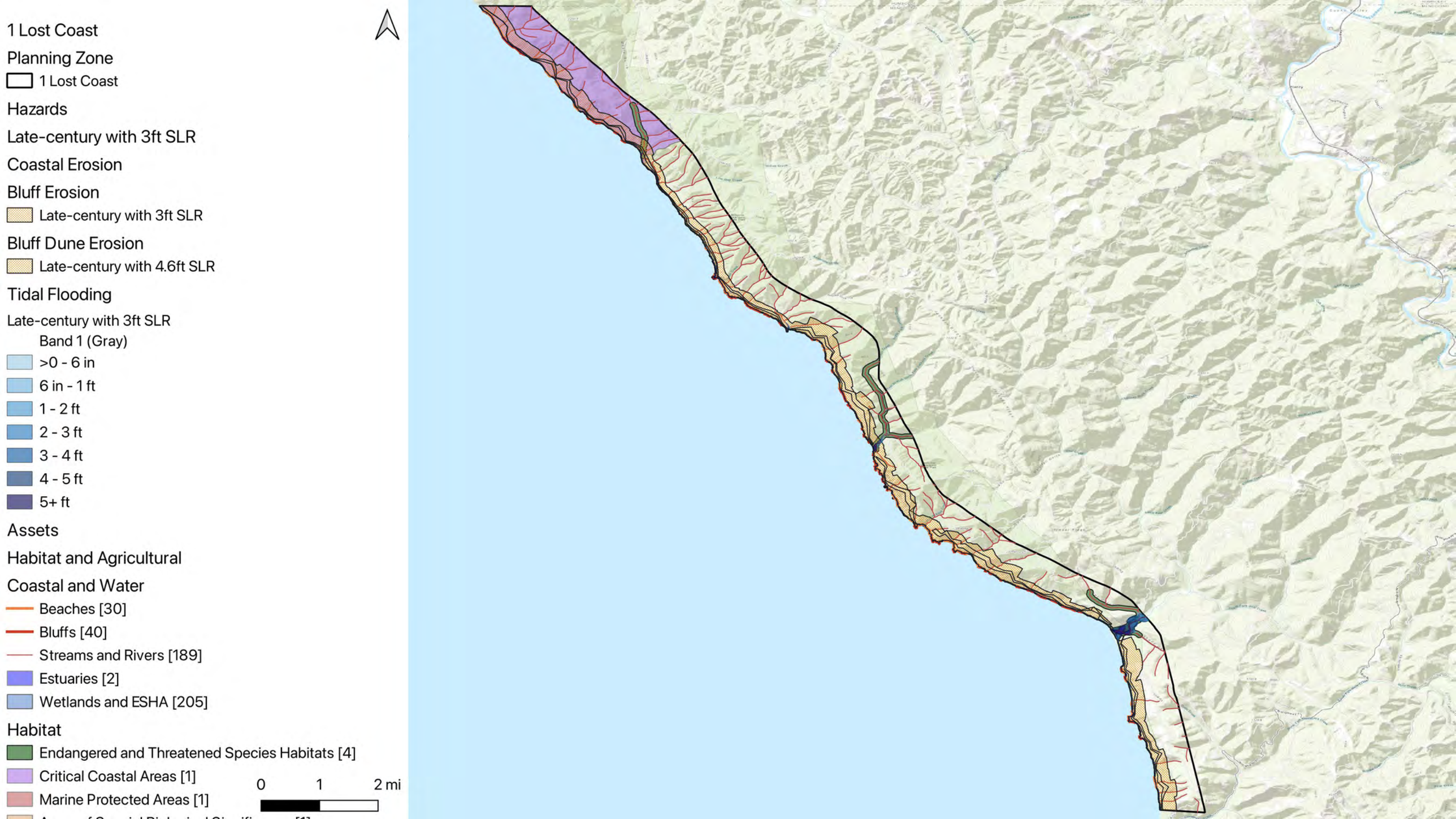
Planning Zone
1 Lost Coast
Hazards
Late-century with 3ft SLR
Coastal Erosion
Bluff Erosion
Late-century with 3ft SLR
Bluff Dune Erosion
Late-century with 4.6ft SLR
Tidal Flooding
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Critical Infrastructure
Transportation
Roads [80]
0
1
2 mi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Planning Zone
1 Lost Coast
Hazards
Late-century with 3ft SLR
Coastal Erosion
Bluff Erosion
Late-century with 3ft SLR
Bluff Dune Erosion
Late-century with 4.6ft SLR
Tidal Flooding
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
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3 - 4 ft
4 - 5 ft
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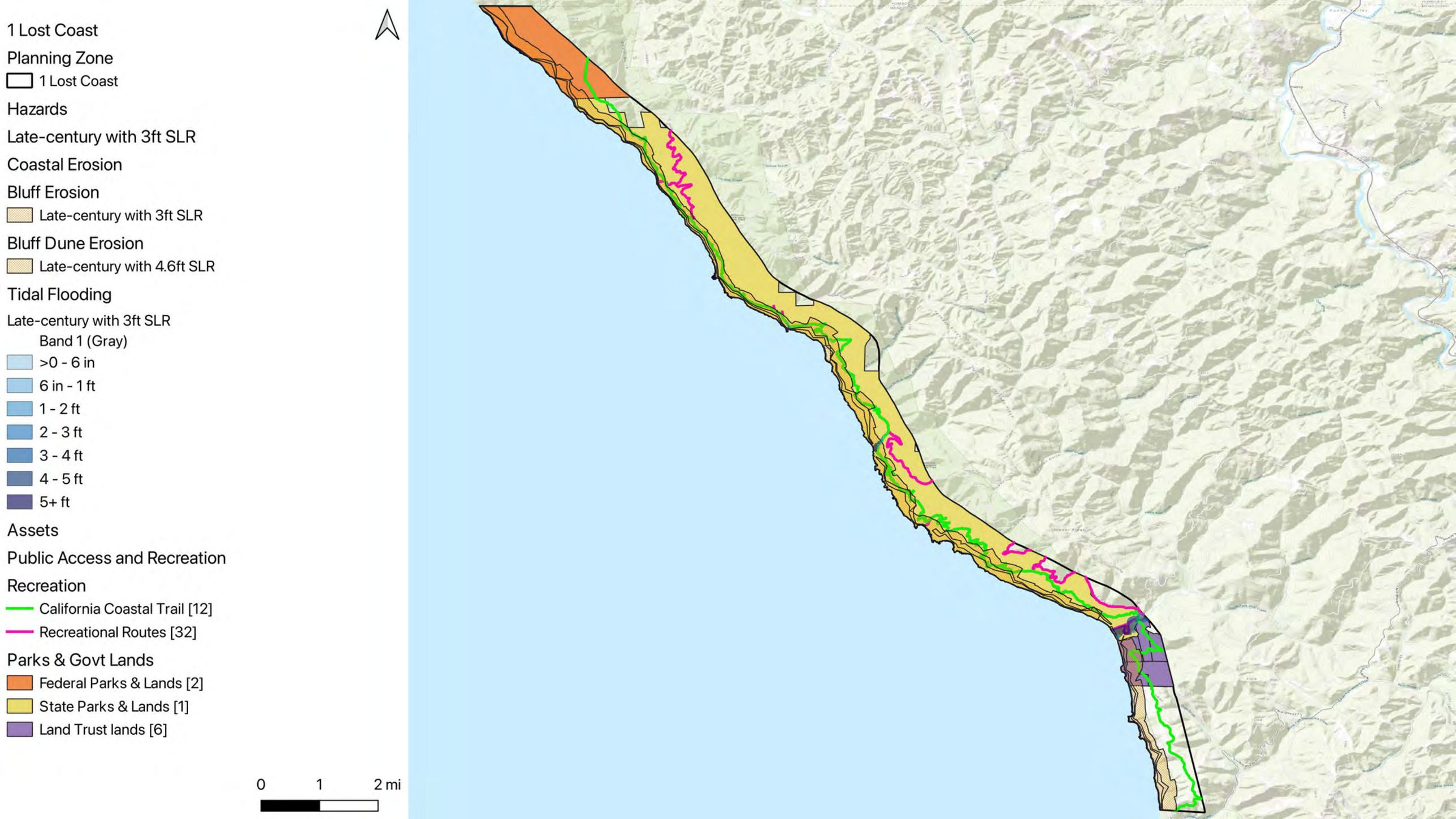
Endangered and Threatened Species Habitats [4]
Critical Coastal Areas [1]
Marine Protected Areas [1]
0
1
2 mi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Planning Zone
1 Lost Coast
Hazards
Late-century with 3ft SLR
Coastal Erosion
Bluff Erosion
Late-century with 3ft SLR
Bluff Dune Erosion
Late-century with 4.6ft SLR
Tidal Flooding
Late-century with 3ft SLR
Band 1 (Gray)
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6 in - 1 ft
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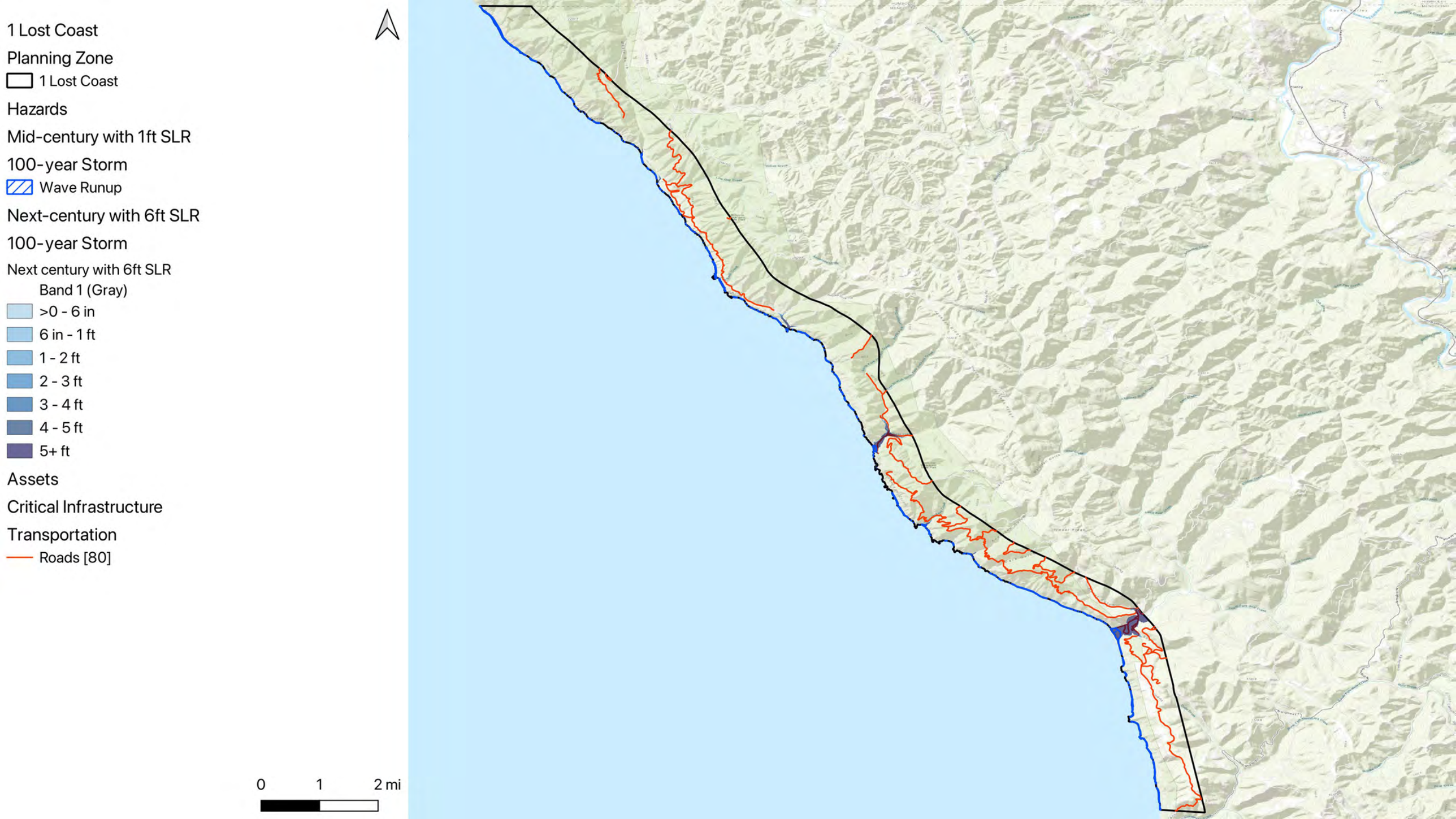
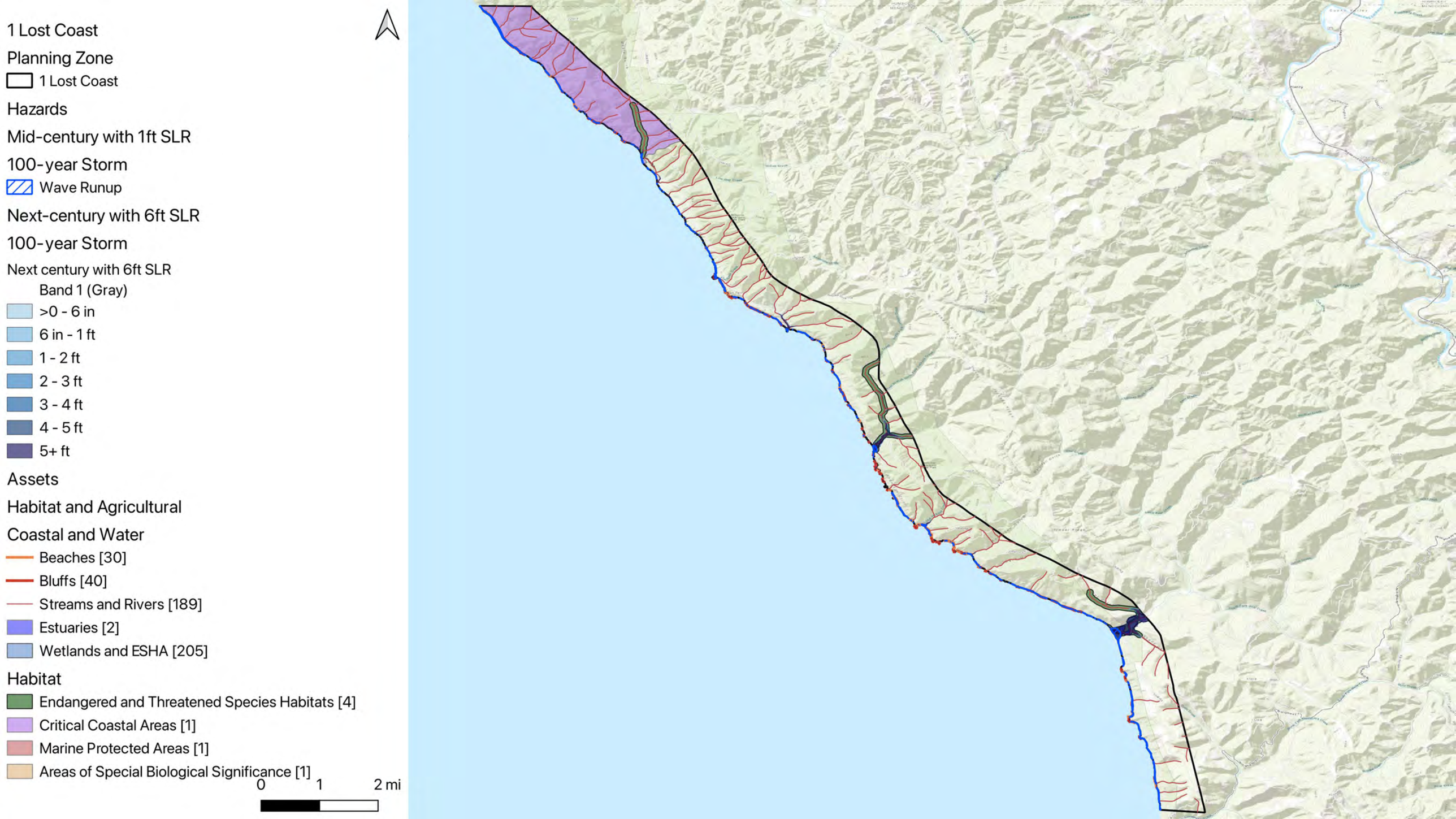
State Parks & Lands [1]
Land Trust lands [6]
0
1
2 mi


1 Lost Coast
Planning Zone
1 Lost Coast
Hazards
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Next-century with 6ft SLR
100-year Storm
Next century with 6ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
0
1
2 mi


1 Lost Coast
Planning Zone
1 Lost Coast
Hazards
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Next-century with 6ft SLR
100-year Storm
Next century with 6ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Critical Infrastructure
Transportation
Roads [80]
0
1
2 mi


1 Lost Coast
Planning Zone
1 Lost Coast
Hazards
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Next-century with 6ft SLR
100-year Storm
Next century with 6ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Habitat and Agricultural
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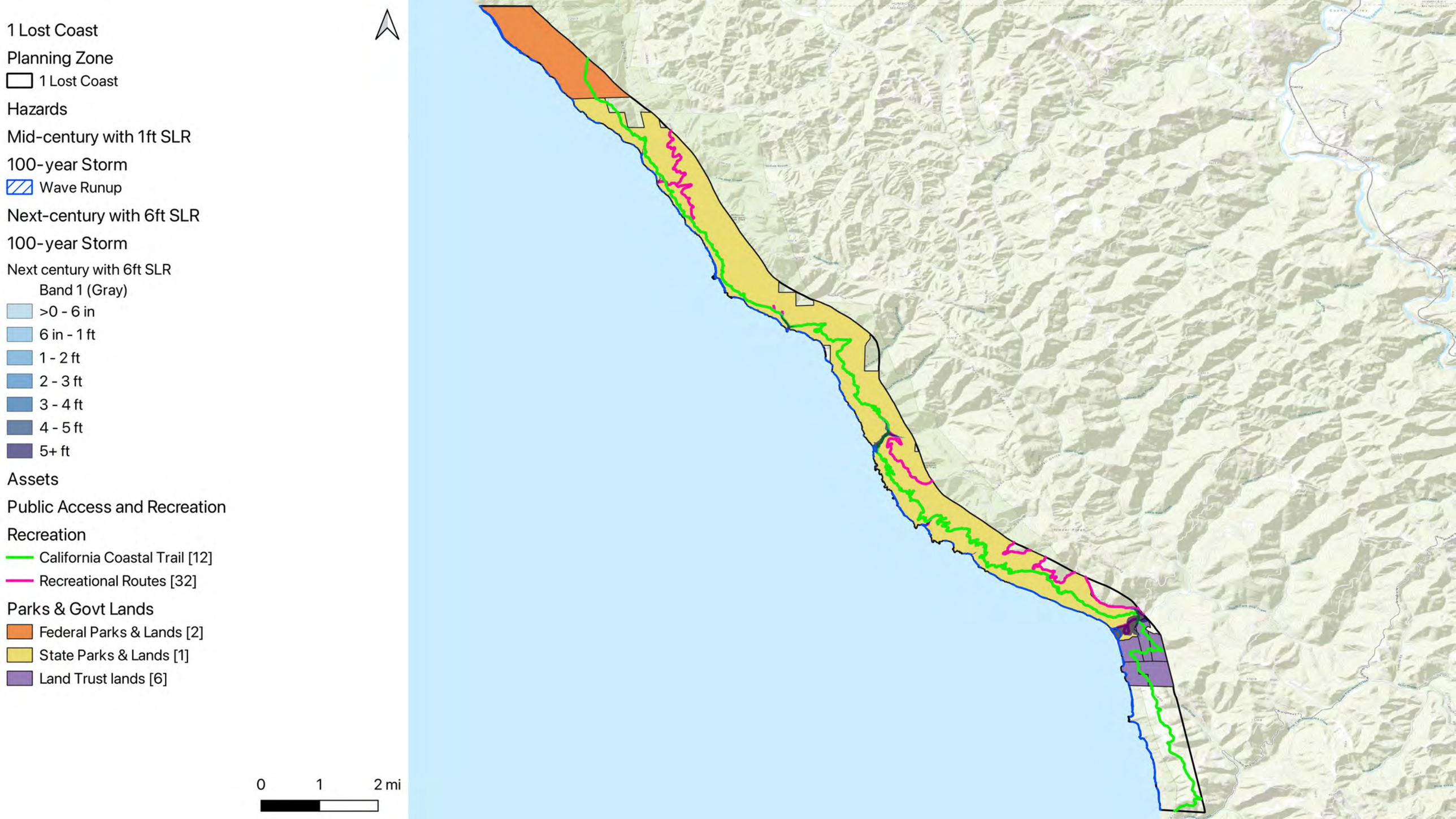
Endangered and Threatened Species Habitats [4]
Critical Coastal Areas [1]
Marine Protected Areas [1]
Areas of Special Biological Significance [1]
0
1
2 mi


1 Lost Coast
Planning Zone
1 Lost Coast
Hazards
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Next-century with 6ft SLR
100-year Storm
Next century with 6ft SLR
Band 1 (Gray)
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Assets
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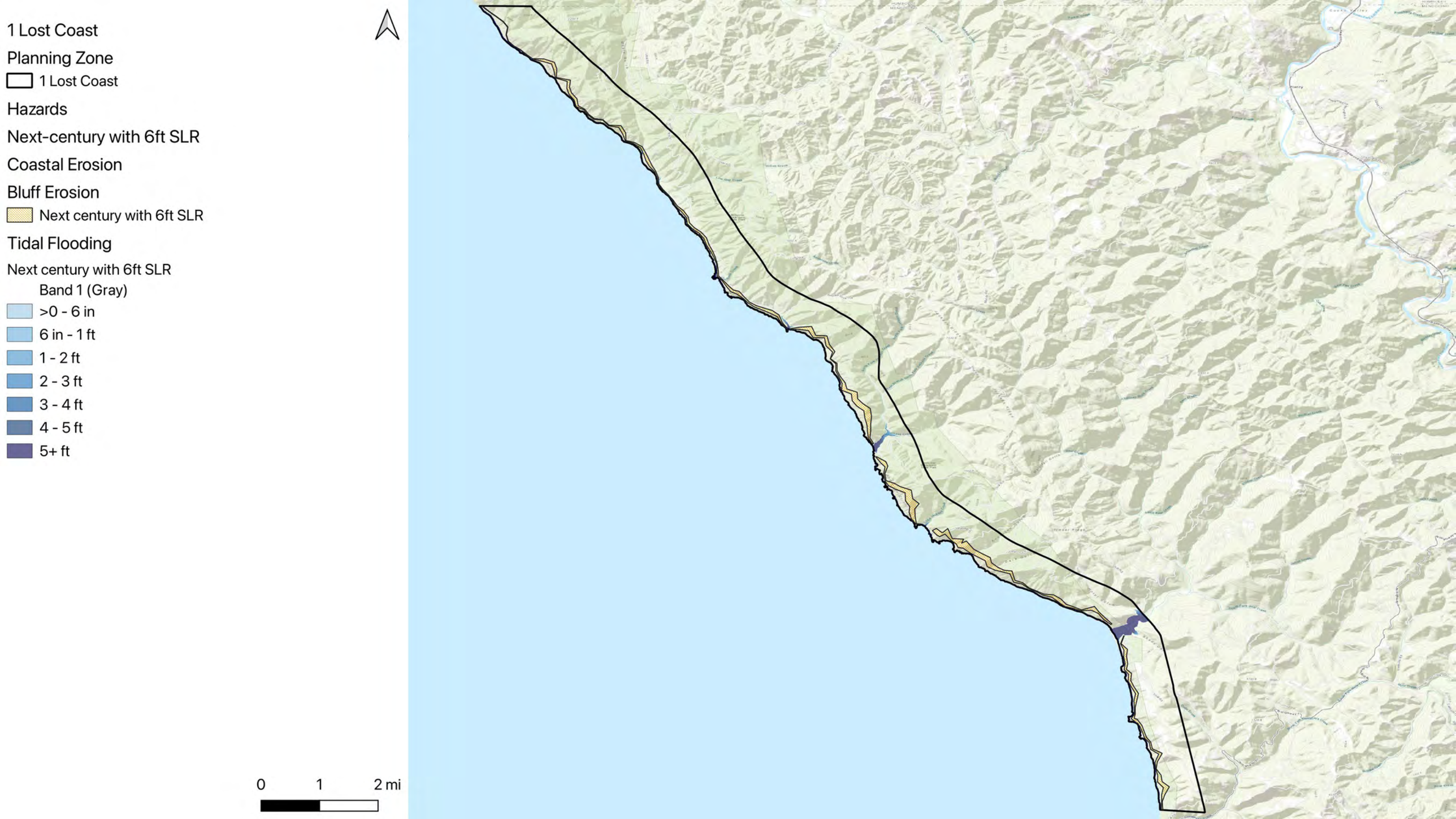
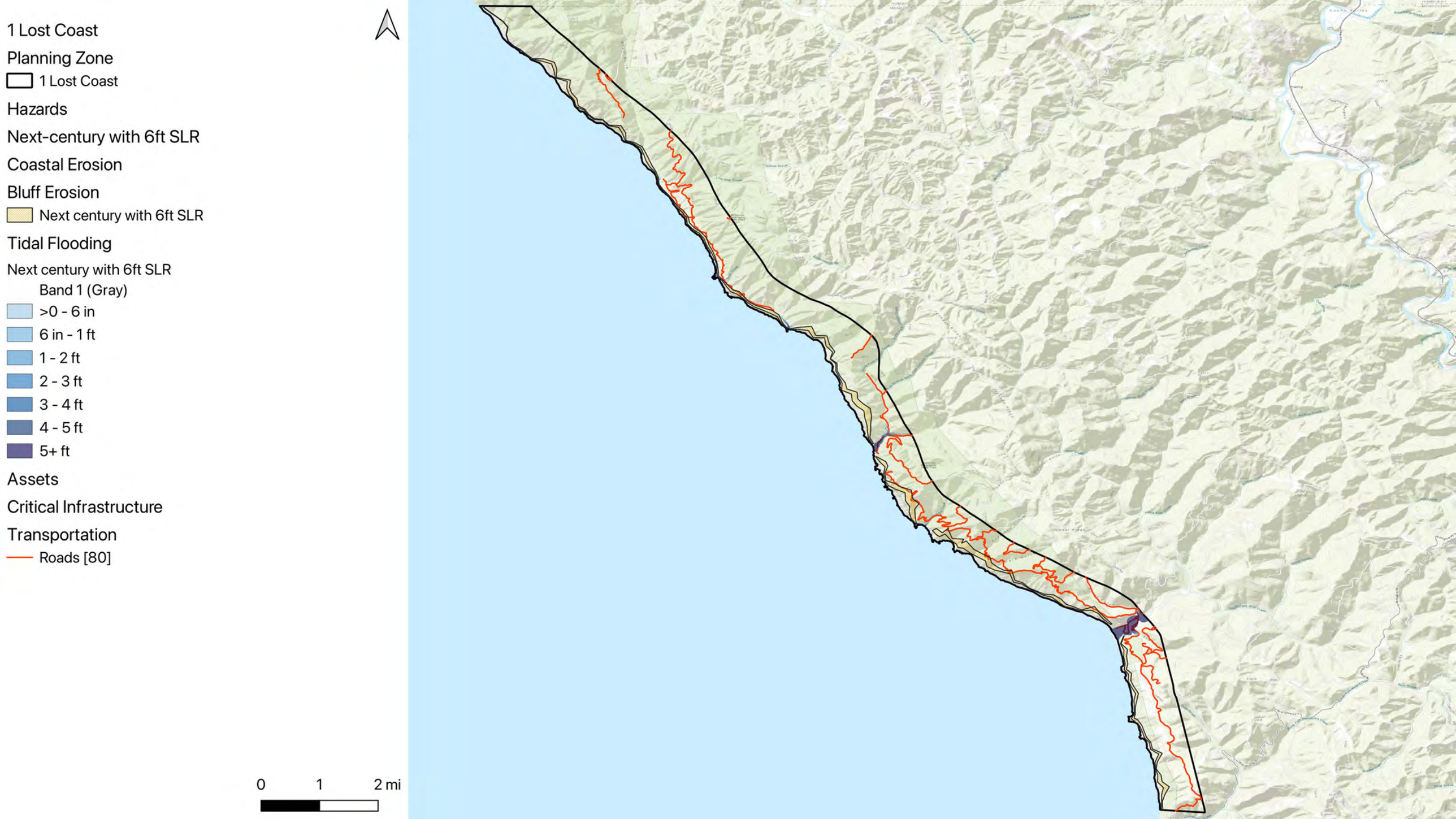
Recreation
California Coastal Trail [12]
Recreational Routes [32]
Parks & Govt Lands
Federal Parks & Lands [2]
State Parks & Lands [1]
Land Trust lands [6]
0
1
2 mi


1 Lost Coast
Planning Zone
1 Lost Coast
Hazards
Next-century with 6ft SLR
Coastal Erosion
Bluff Erosion
Next century with 6ft SLR
Tidal Flooding
Next century with 6ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
0
1
2 mi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Planning Zone
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Hazards
Next-century with 6ft SLR
Coastal Erosion
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Tidal Flooding
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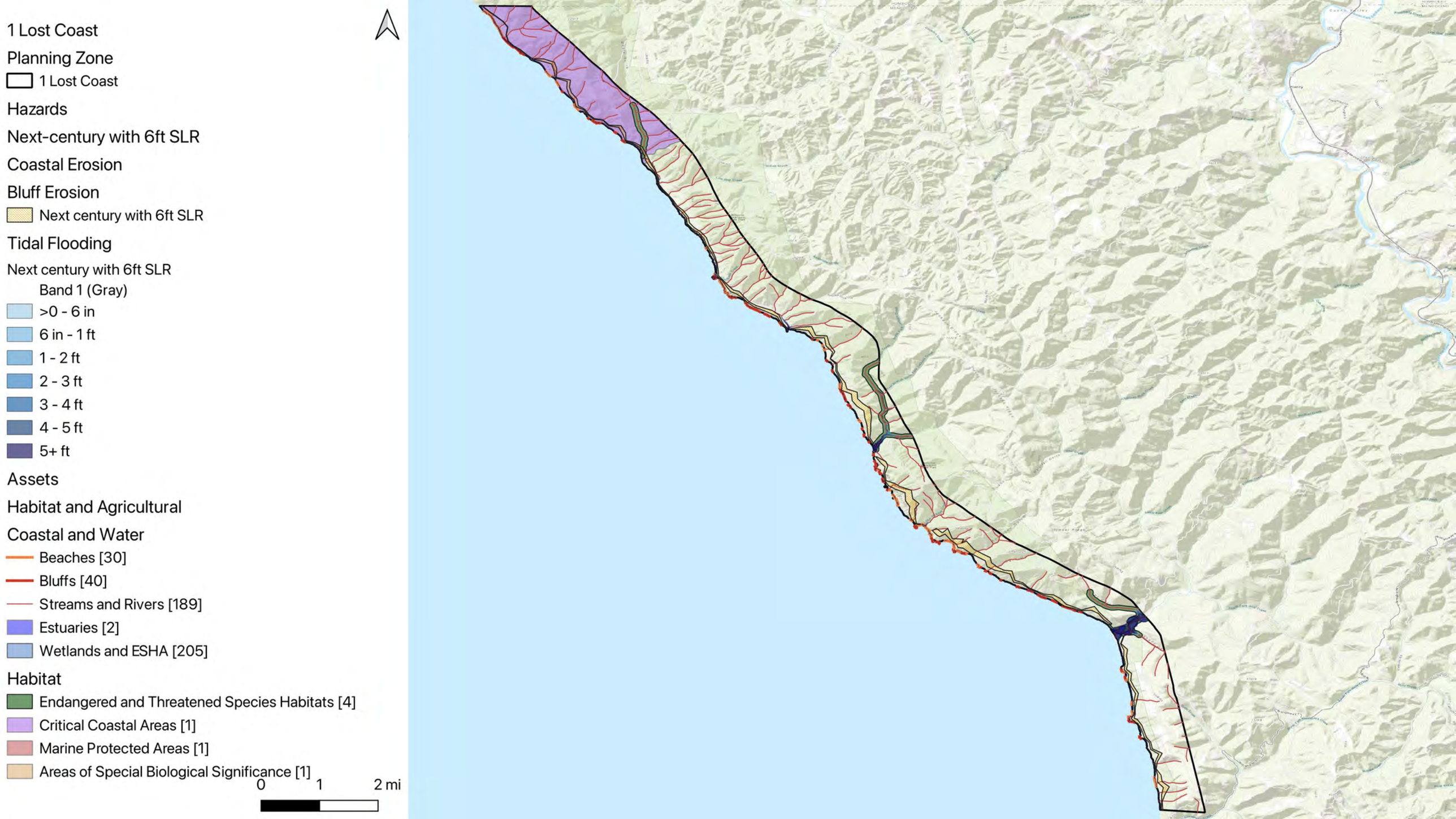
4 - 5 ft
5+ ft
Assets
Critical Infrastructure
Transportation
Roads [80]
0
1
2 mi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Planning Zone
1 Lost Coast
Hazards
Next-century with 6ft SLR
Coastal Erosion
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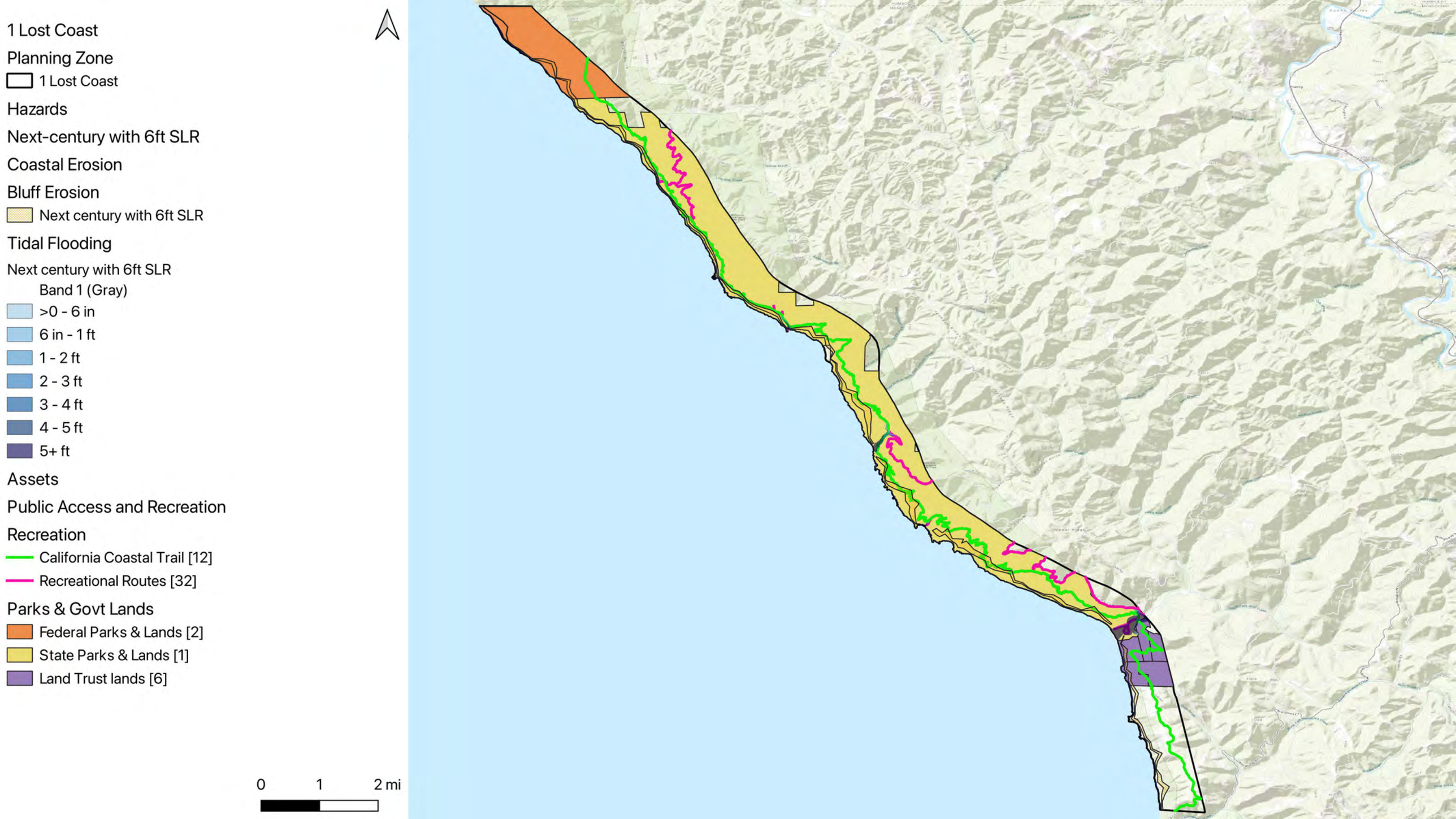
Areas of Special Biological Significance [1]
0
1
2 mi


1 Lost Coast
Planning Zone
1 Lost Coast
Hazards
Next-century with 6ft SLR
Coastal Erosion
Bluff Erosion
Next century with 6ft SLR
Tidal Flooding
Next century with 6ft SLR
Band 1 (Gray)
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6 in - 1 ft
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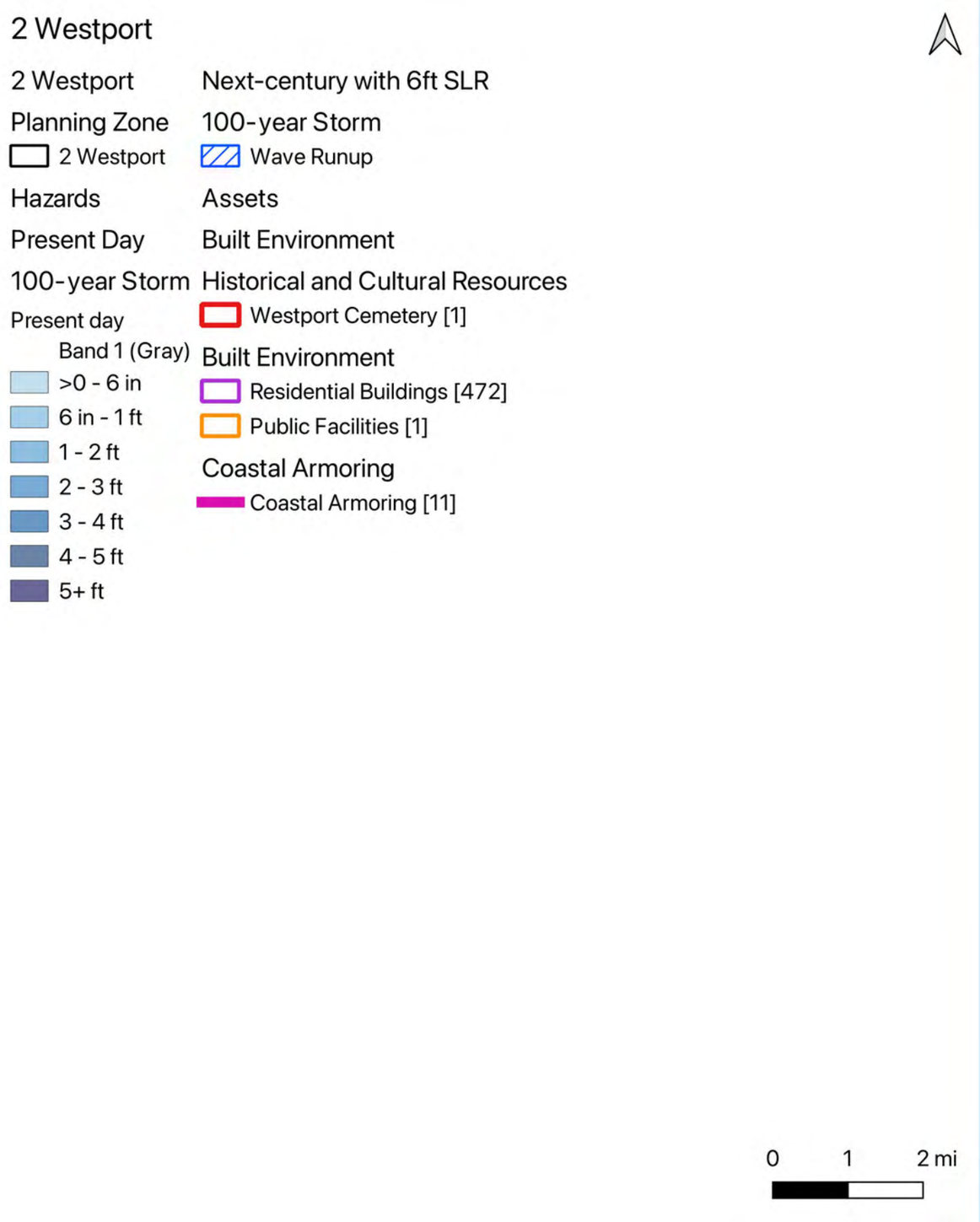
Assets
Public Access and Recreation
Recreation
California Coastal Trail [12]
Recreational Routes [32]
Parks & Govt Lands
Federal Parks & Lands [2]
State Parks & Lands [1]
Land Trust lands [6]
0
1
2 mi

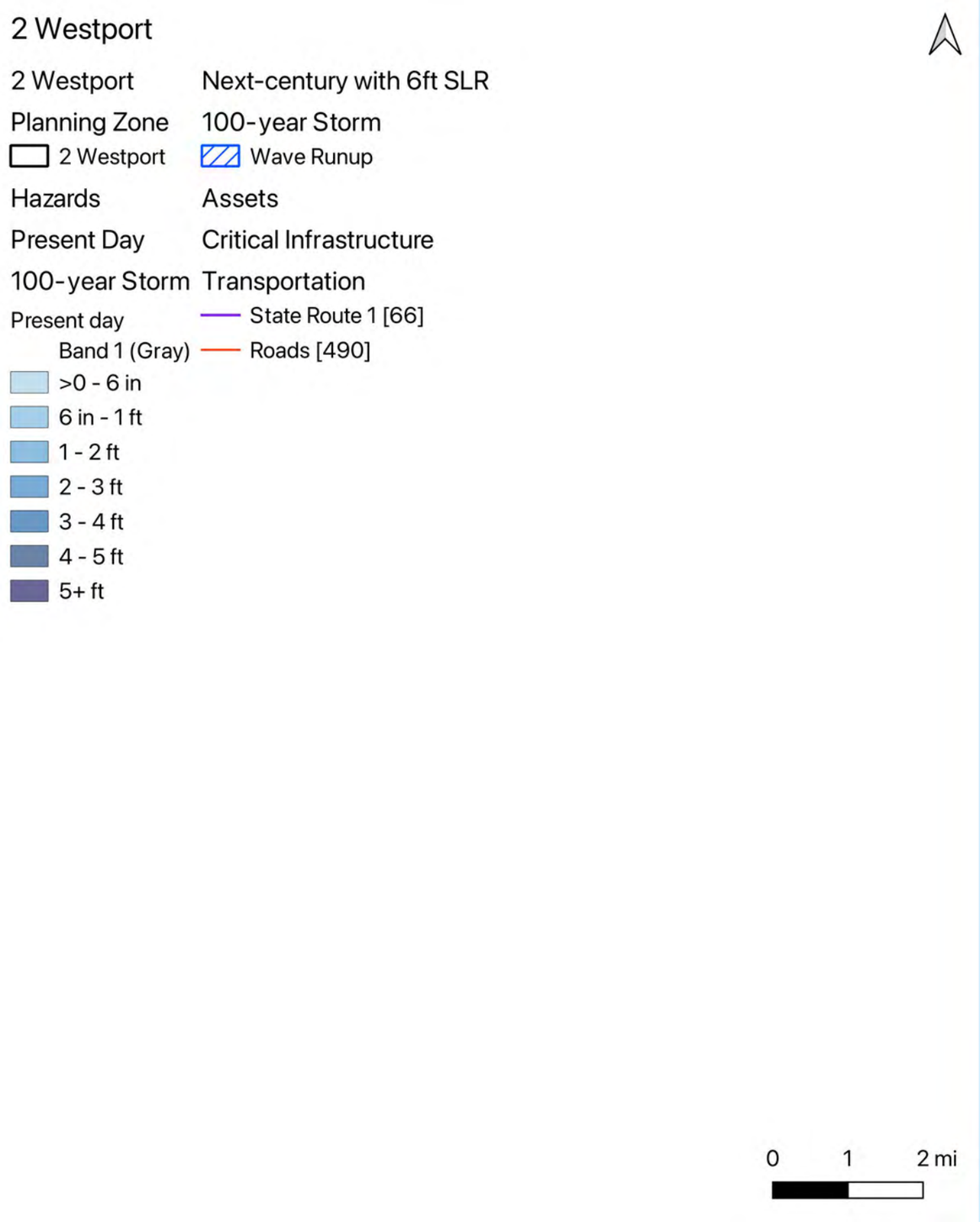
Table 2. Westport

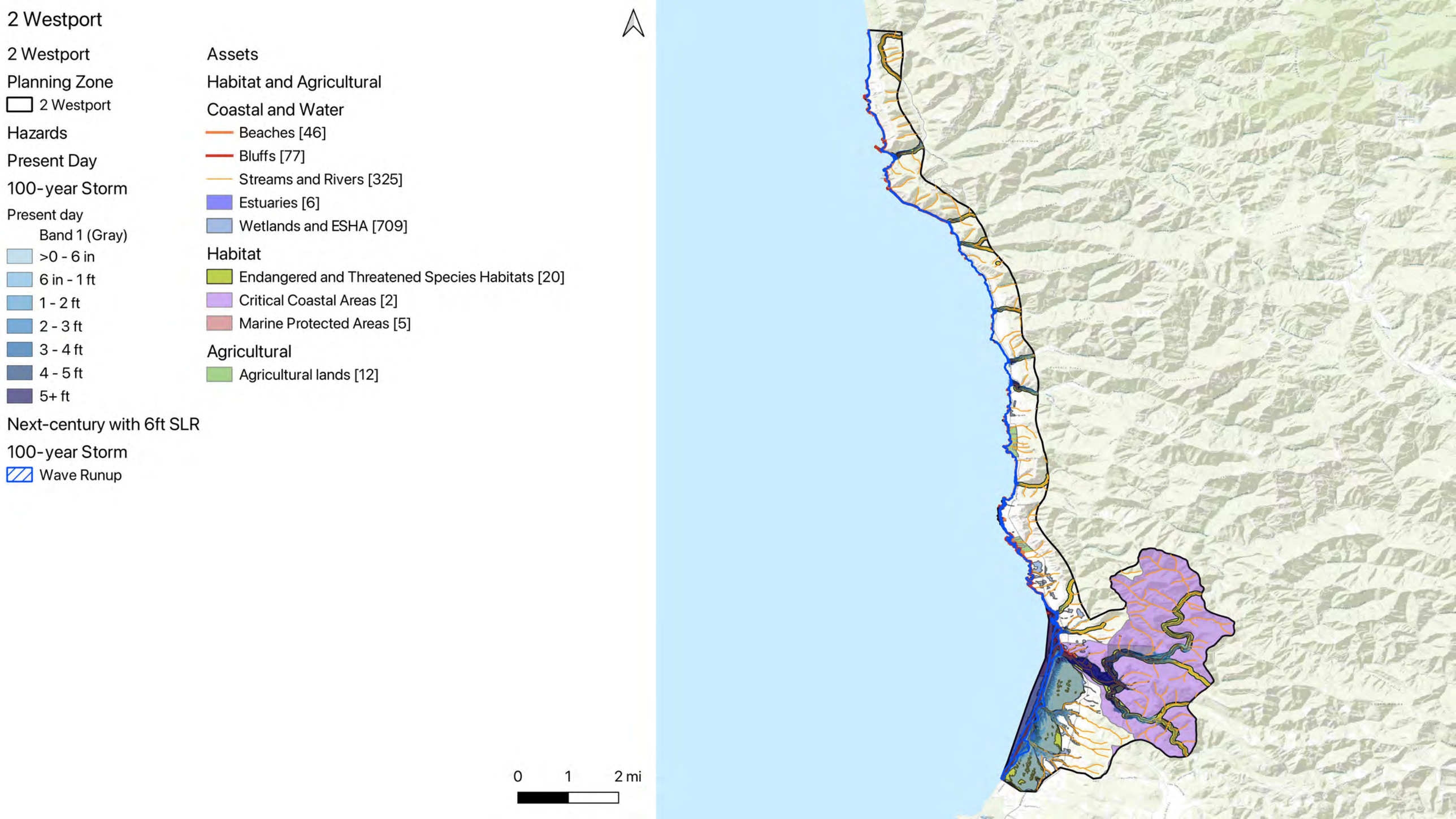
Sub-Category	Asset Type	Units	Wave P	Storm P	Tidal P	Totals P	Storm 1ft	Tidal 1ft	BluffE 1ft	CoastE 1ft	Totals 1ft	Storm 3ft	Tidal 3ft	BluffE 3ft	CoastE 3ft	Totals 3ft	Storm 6ft	Tidal 6ft	BluffE 6ft	CoastE 6ft	Totals 6ft
Transportation	State Route 1	Length (mi)	0	0.8	0.3	0.8	0.9	0.4	1.5	1.3	3.2	1.2	0.7	2	2.3	4.3	1.6	1.1	2.6	5.3	7.1
Transportation	Roads	Length (mi)	0	17.4	6.4	17.4	19.6	9.5	2.1	3.6	24.3	23.7	15.2	3.3	7.6	31.8	30.5	22.1	4.3	14.8	44.3
Recreation	California Coastal Trail	Length (mi)	6.5	9.1	6.5	9.1	9.1	7.4	0.7	6.4	10.9	9.3	8.9	1.2	7.7	11.9	9.9	9.2	1.5	9.1	12.7
Recreation	Recreational Routes	Length (mi)	3.6	3.9	3.8	3.9	4	3.9	0.6	2.9	5.1	4.1	3.9	1.2	3.9	6	4.4	4	1.5	4.5	6.5
Recreation	Private Campgrounds	Number of private campgrounds	0	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	0	1	1
Parks & Govt Lands	State Parks & Lands	Area (sqmi)	0.3	1	0.3	1	1.1	0.5	0	0.3	1.2	1.3	0.9	0.1	0.4	1.5	1.6	1.2	0.1	0.5	1.8
Parks & Govt Lands	Land Trust lands	Area (acres)	5	11	6	11	11	9	0	0	11	11	11	0	0	11	11	11	0	0	11
Coastal and Water	Beaches	Length (mi)	5.8	7.2	6.1	7.2	7.3	6.4	0.1	5.5	7.5	7.4	7.1	0.1	5.8	7.6	7.6	7.3	0.1	5.6	7.7
Coastal and Water	Bluffs	Length (mi)	4.5	6.9	5.7	7.1	7.2	6.1	0.2	2.6	7.9	7.6	6.7	0.3	2.9	8.3	8.3	7.4	0.4	2.7	8.7
Coastal and Water	Streams and Rivers	Length (mi)	0.6	20.6	11.7	20.6	22.2	14.2	0.3	1.5	23	24.6	19.2	0.5	2.5	26	27.2	23.8	0.6	5	30.6
Coastal and Water	Estuaries	Area (sqmi)	0	0.4	0.4	0.4	0.4	0.4	0	0	0.4	0.4	0.4	0	0	0.4	0.4	0.4	0	0	0.4
Coastal and Water	Wetlands and ESHA	Area (sqmi)	0.5	2	1.2	2	2.2	1.4	0	0.3	2.2	2.4	1.9	0	0.3	2.4	2.7	2.3	0	0.4	2.7
Habitat	Endangered and Threatened Species Habitats	Area (sqmi)	0.3	2.9	1.6	2.9	3.1	1.9	0	0.3	3.1	3.6	2.6	0	0.4	3.7	4.1	3.4	0	0.6	4.2
Habitat	Critical Coastal Areas	Area (sqmi)	0	1	0.6	1	1.1	0.7	0	0	1.1	1.3	0.9	0	0	1.3	1.5	1.2	0	0	1.5
Habitat	Marine Protected Areas	Number of individually designated MPAs	4	5	5	5	5	5	1	5	5	5	5	1	5	5	5	5	1	5	5
Agricultural	Agricultural lands	Area (acres)	5	72	39	72	74	55	8	27	98	78	70	15	39	113	88	77	21	60	138
Historical and Cultural Resources	Westport Cemetery	Single plot of land	0	0	0	0	0	0	1	1	1	0	0	1	1	1	0	0	1	1	1
Built Environment	Residential Buildings	Number of buildings	0	8	3	8	14	5	14	15	35	21	8	19	26	51	36	17	24	49	84
Coastal Armoring	Coastal Armoring	Length (mi)	0.5	0.5	0.5	0.5	0.5	0.5	0	0.4	0.6	0.5	0.5	0	0.4	0.6	0.5	0.5	0	0.5	0.7

2 Westport


2 Westport
Planning Zone
2 Westport
Hazards
Present Day
100-year Storm
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Built Environment
Historical and Cultural Resources
Westport Cemetery [1]
Built Environment
Residential Buildings [472]
Public Facilities [1]
Coastal Armoring
Coastal Armoring [11]
0
1
2 mi

2 Westport


2 Westport
Next-century with 6ft SLR
Planning Zone
100-year Storm
2 Westport
Wave Runup
Hazards
Assets
Present Day
Critical Infrastructure
100-year Storm
Transportation
Present day
State Route 1 [66]
Band 1 (Gray)
Roads [490]
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
0
1
2 mi


2 Westport
2 Westport
Planning Zone
2 Westport
Hazards
Present Day
100-year Storm
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Habitat and Agricultural
Coastal and Water
Beaches [46]
Bluffs [77]
Streams and Rivers [325]
Estuaries [6]
Wetlands and ESHA [709]
Habitat
Endangered and Threatened Species Habitats [20]
Critical Coastal Areas [2]
Marine Protected Areas [5]
Agricultural
Agricultural lands [12]
0
1
2 mi

2 Westport

2 Westport

Planning Zone

2 Westport

Hazards

Present Day

100-year Storm

Present day

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Next-century with 6ft SLR

100-year Storm

Wave Runup

Assets

Public Access and Recreation

Recreation

California Coastal Trail [37]

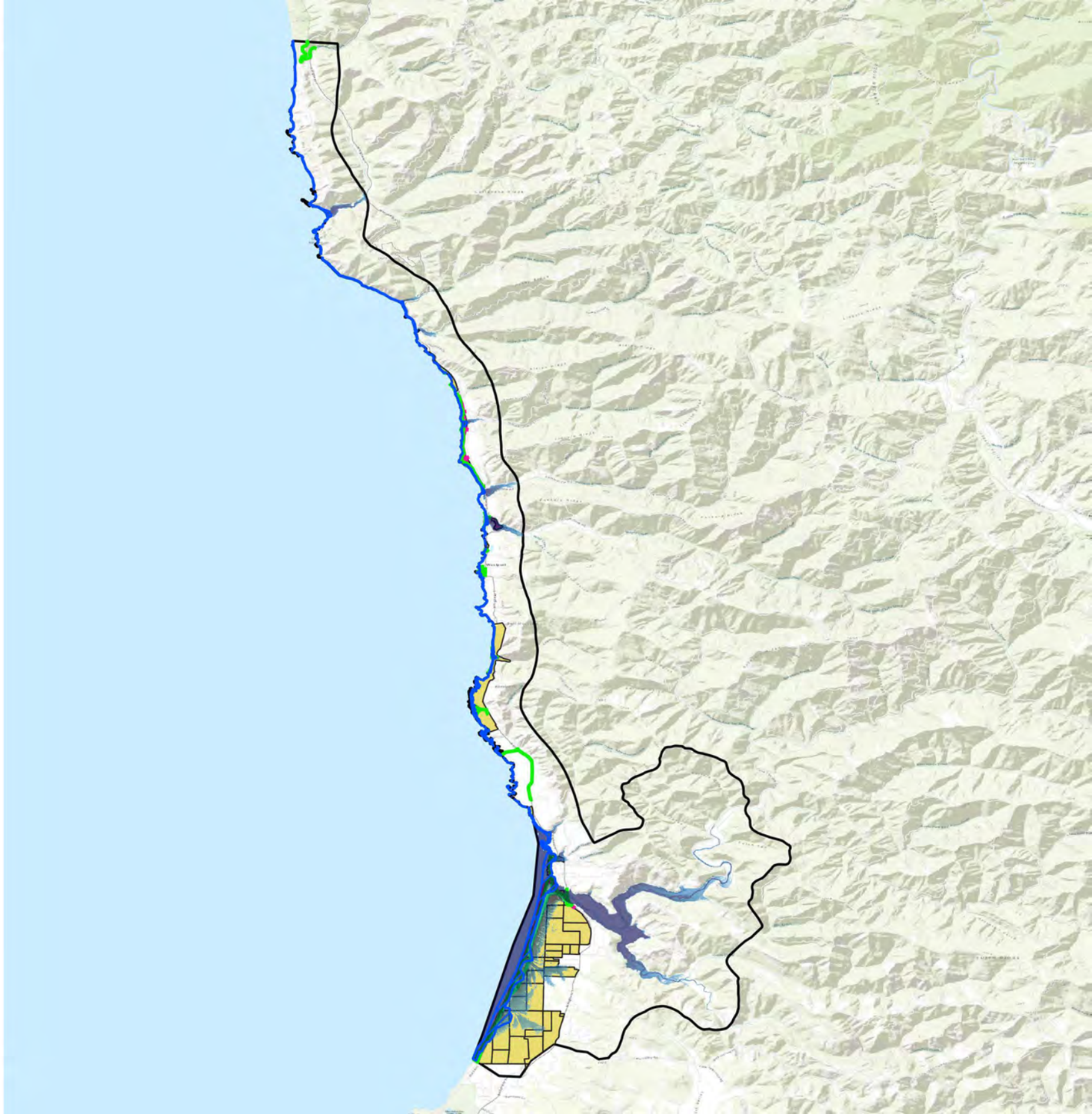
Recreational Routes [28]

Private Campgrounds [1]

Parks & Govt Lands

State Parks & Lands [46]

Land Trust lands [2]



2 Westport

2 Westport

Planning Zone

2 Westport

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Built Environment

Historical and Cultural Resources

Westport Cemetery [1]

Built Environment

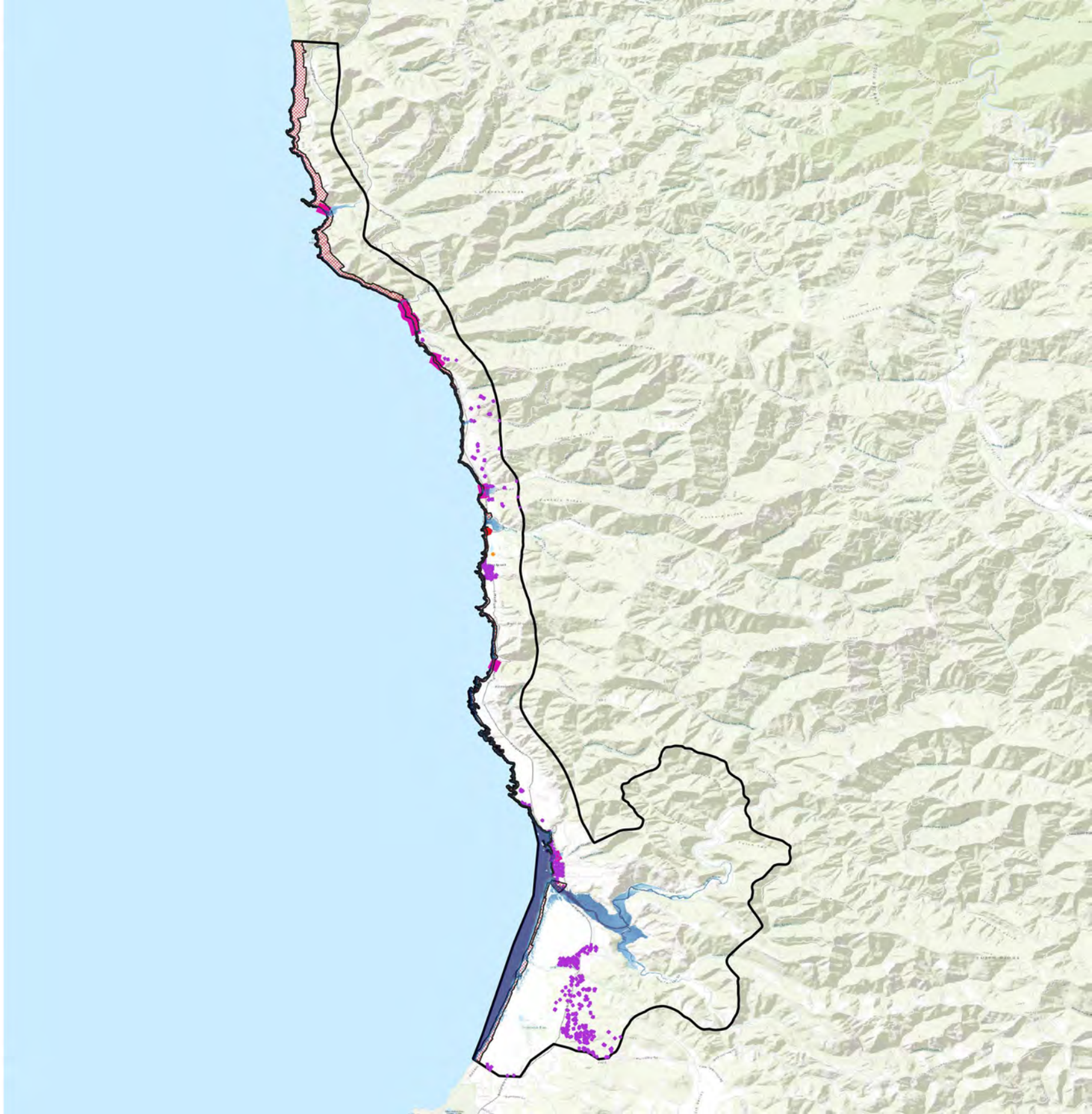
Residential Buildings [472]

Public Facilities [1]

Coastal Armoring

Coastal Armoring [11]

0 1 2 mi



2 Westport

2 Westport

Planning Zone

2 Westport

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

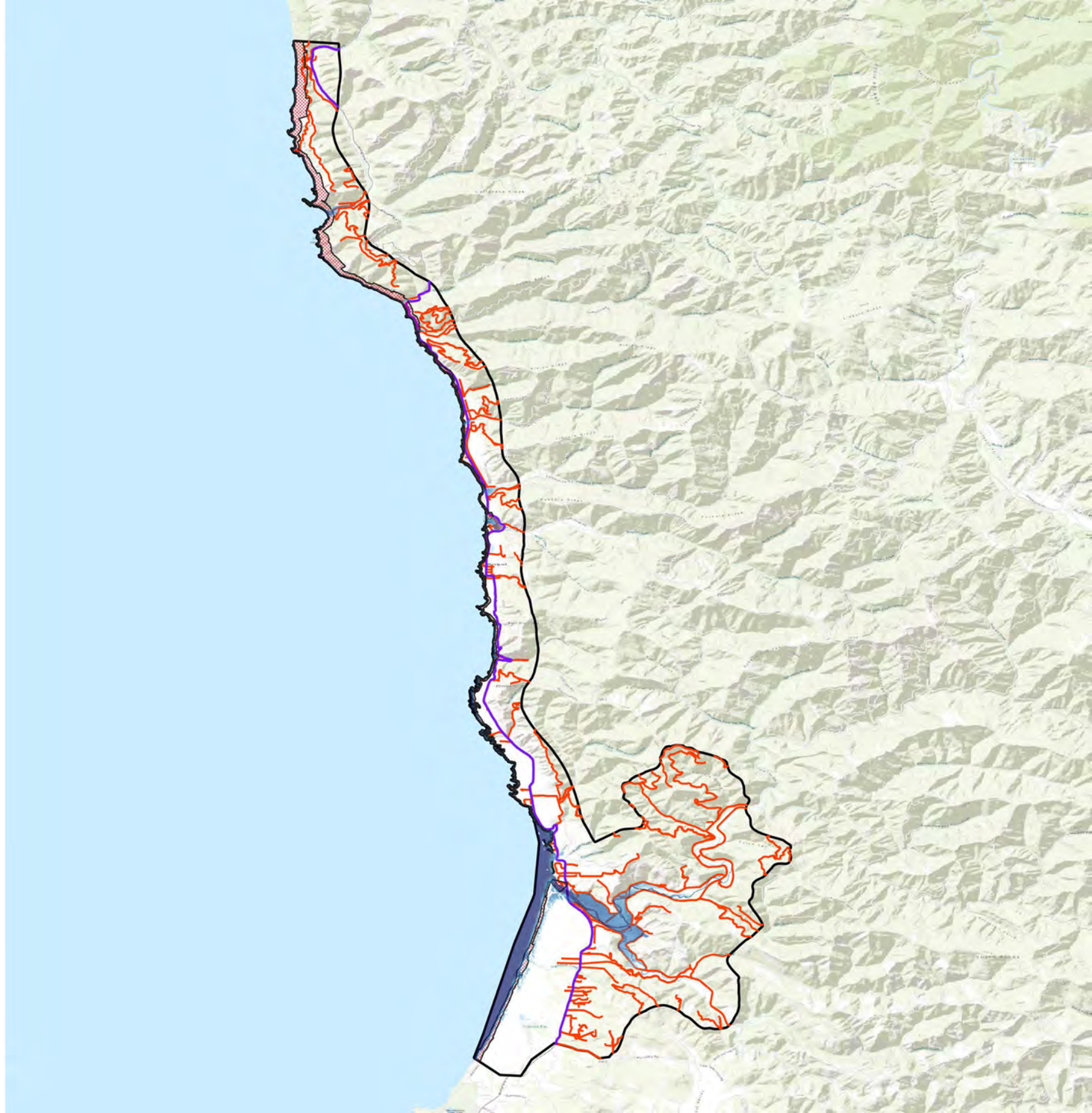
Assets

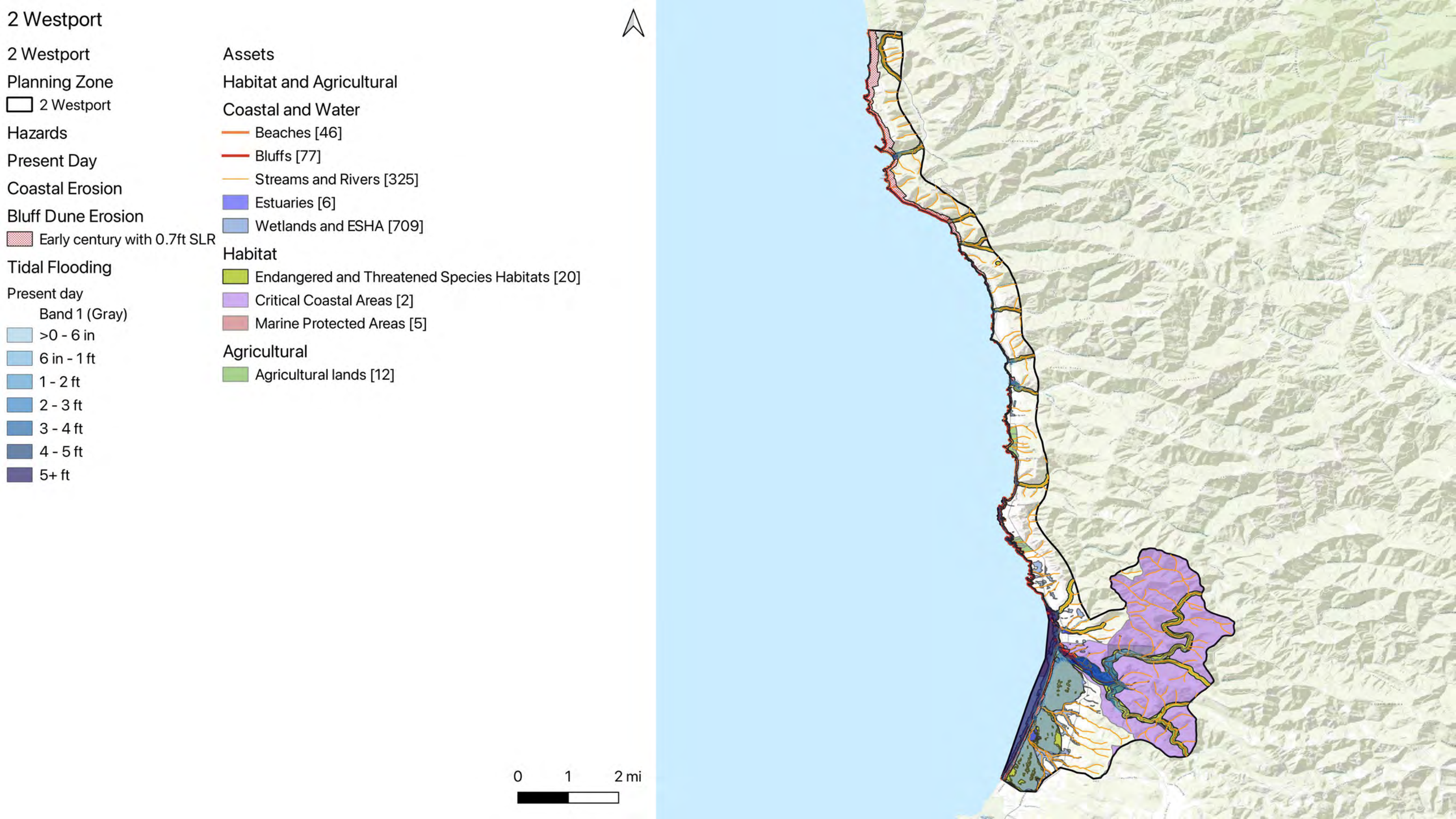
Critical Infrastructure

Transportation

State Route 1 [66]

Roads [490]




2 Westport
2 Westport
Planning Zone
2 Westport
Hazards
Present Day
Coastal Erosion
Bluff Dune Erosion
Early century with 0.7ft SLR
Tidal Flooding
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Habitat and Agricultural
Coastal and Water
Beaches [46]
Bluffs [77]
Streams and Rivers [325]
Estuaries [6]
Wetlands and ESHA [709]
Habitat
Endangered and Threatened Species Habitats [20]
Critical Coastal Areas [2]
Marine Protected Areas [5]
Agricultural
Agricultural lands [12]
0
1
2 mi

2 Westport

2 Westport

Planning Zone

- 2 Westport

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

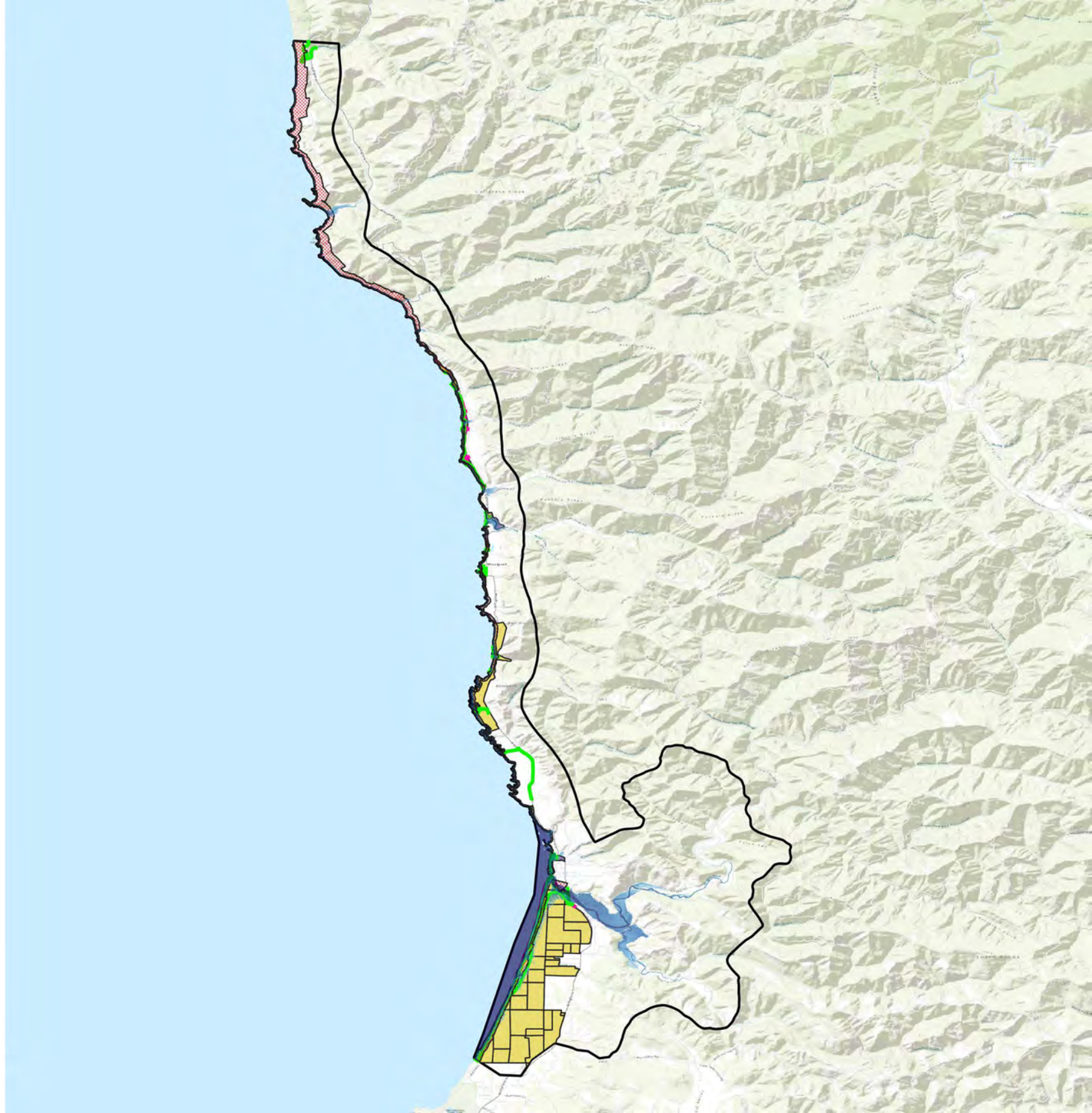
Public Access and Recreation

Recreation

- California Coastal Trail [37]
- Recreational Routes [28]
- Private Campgrounds [1]

Parks & Govt Lands

- State Parks & Lands [46]
- Land Trust lands [2]



2 Westport

2 Westport

Planning Zone

- 2 Westport

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Built Environment

Historical and Cultural Resources

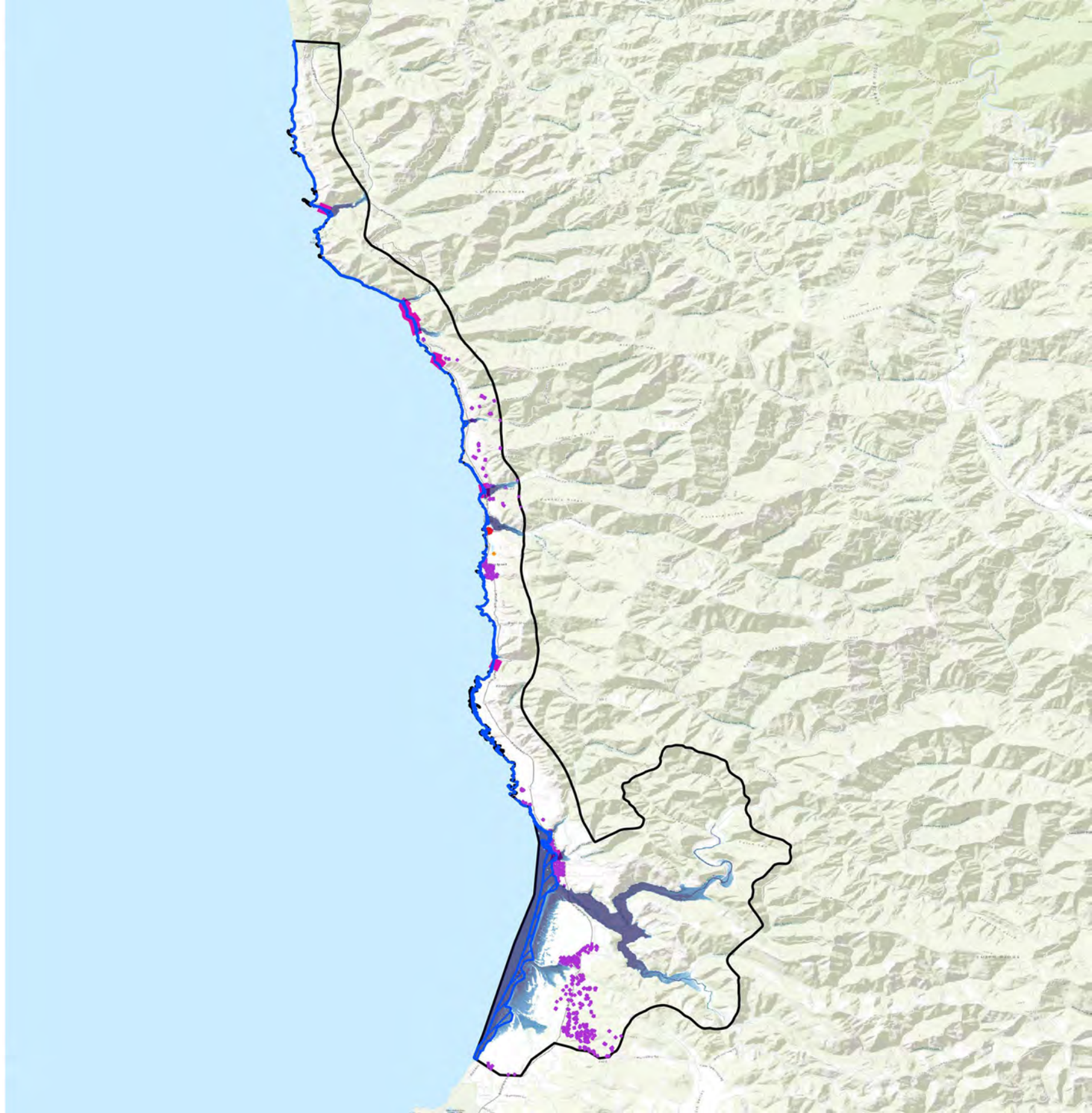
- Westport Cemetery [1]

Built Environment

- Residential Buildings [472]
- Public Facilities [1]

Coastal Armoring

- Coastal Armoring [11]



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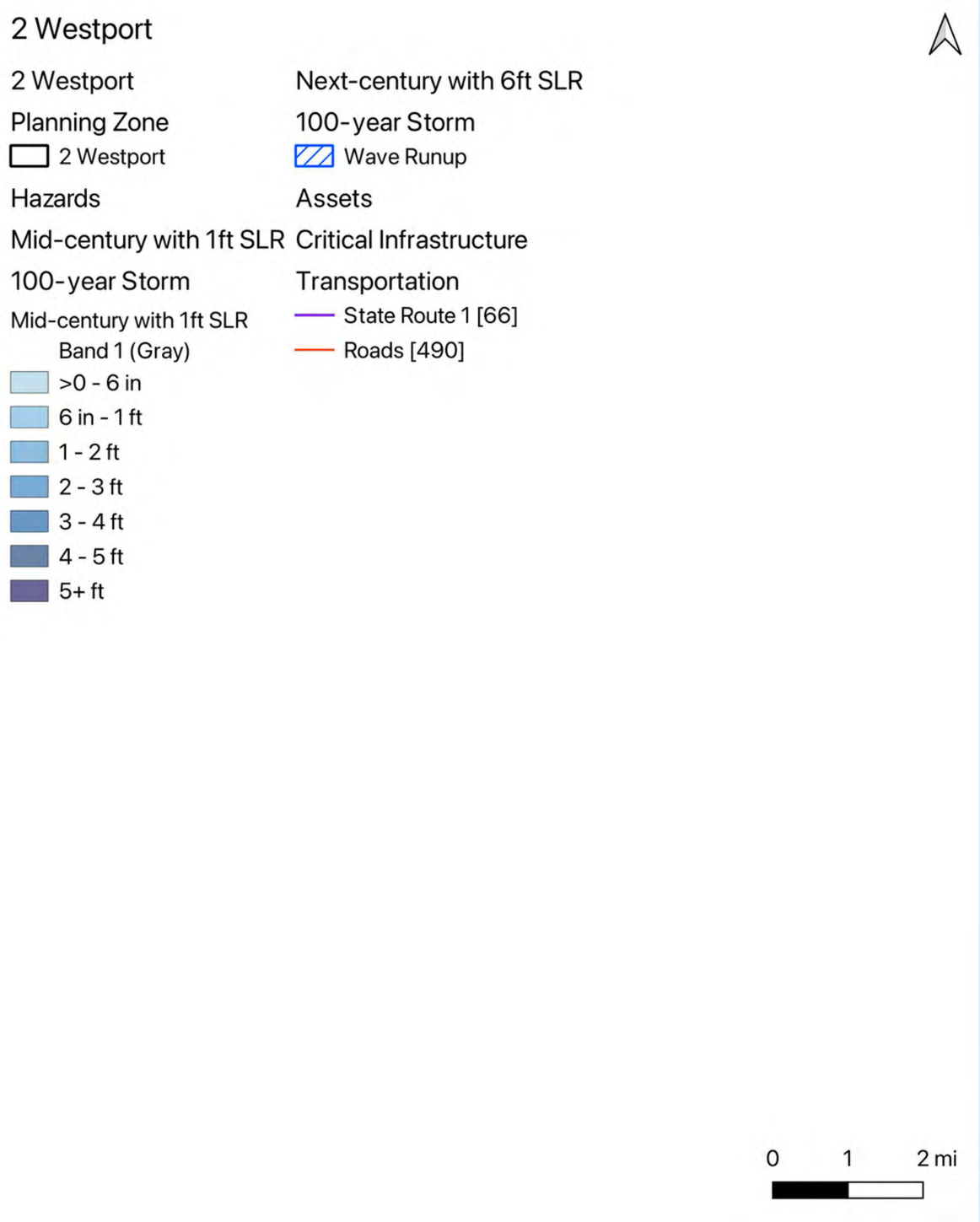
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Planning Zone
2 Westport
Hazards
Mid-century with 1ft SLR
100-year Storm
Mid-century with 1ft SLR
Band 1 (Gray)
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6 in - 1 ft
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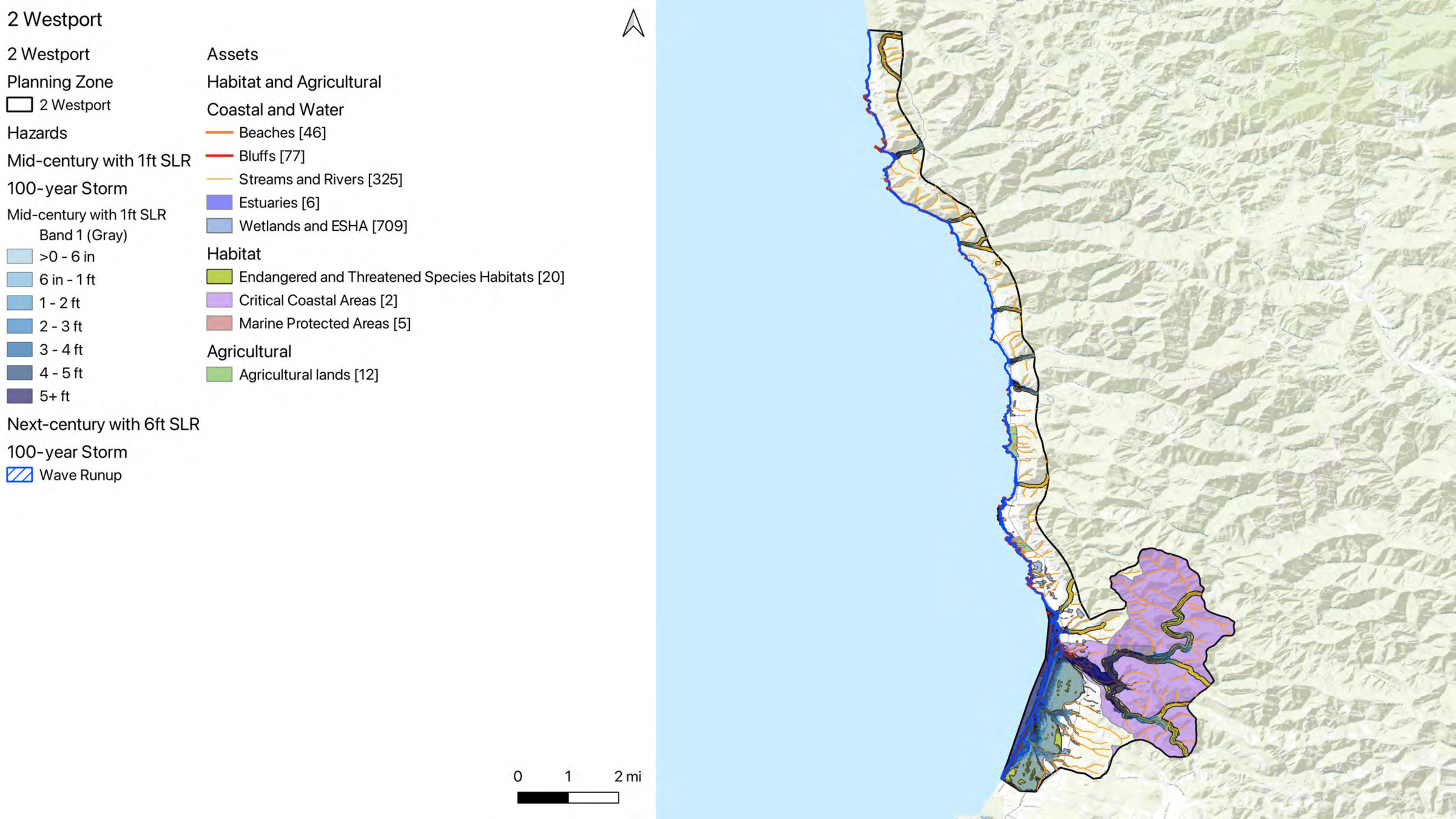
4 - 5 ft
5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Critical Infrastructure
Transportation
State Route 1 [66]
Roads [490]
0
1
2 mi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Planning Zone
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Mid-century with 1ft SLR
100-year Storm
Mid-century with 1ft SLR
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Marine Protected Areas [5]
Agricultural
Agricultural lands [12]
0
1
2 mi

2 Westport

2 Westport

Planning Zone

- 2 Westport

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR
Band 1 (Gray)

- >0 - 6 in
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- 2 - 3 ft
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- 4 - 5 ft
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100-year Storm

- Wave Runup

Assets

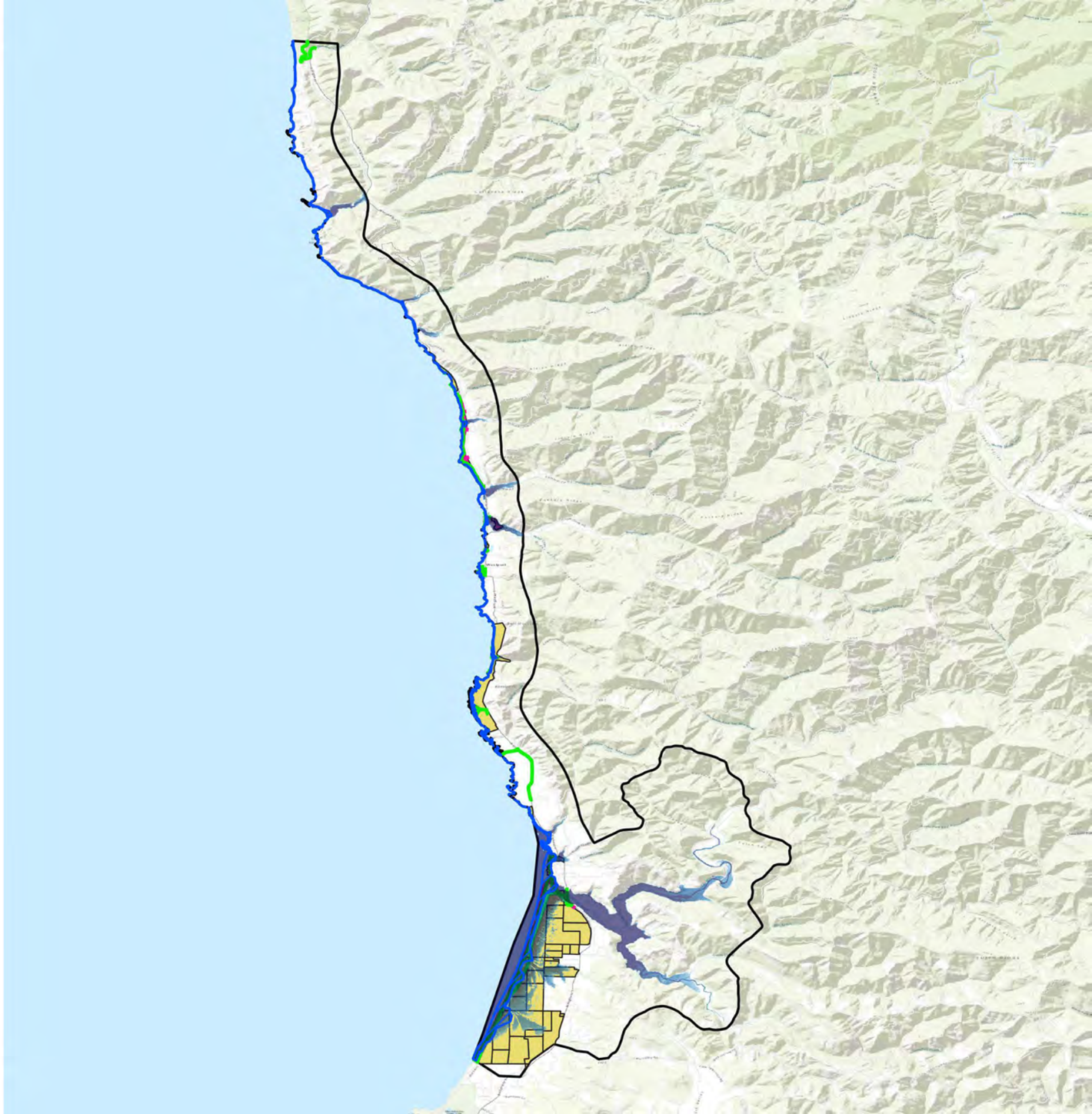
Public Access and Recreation

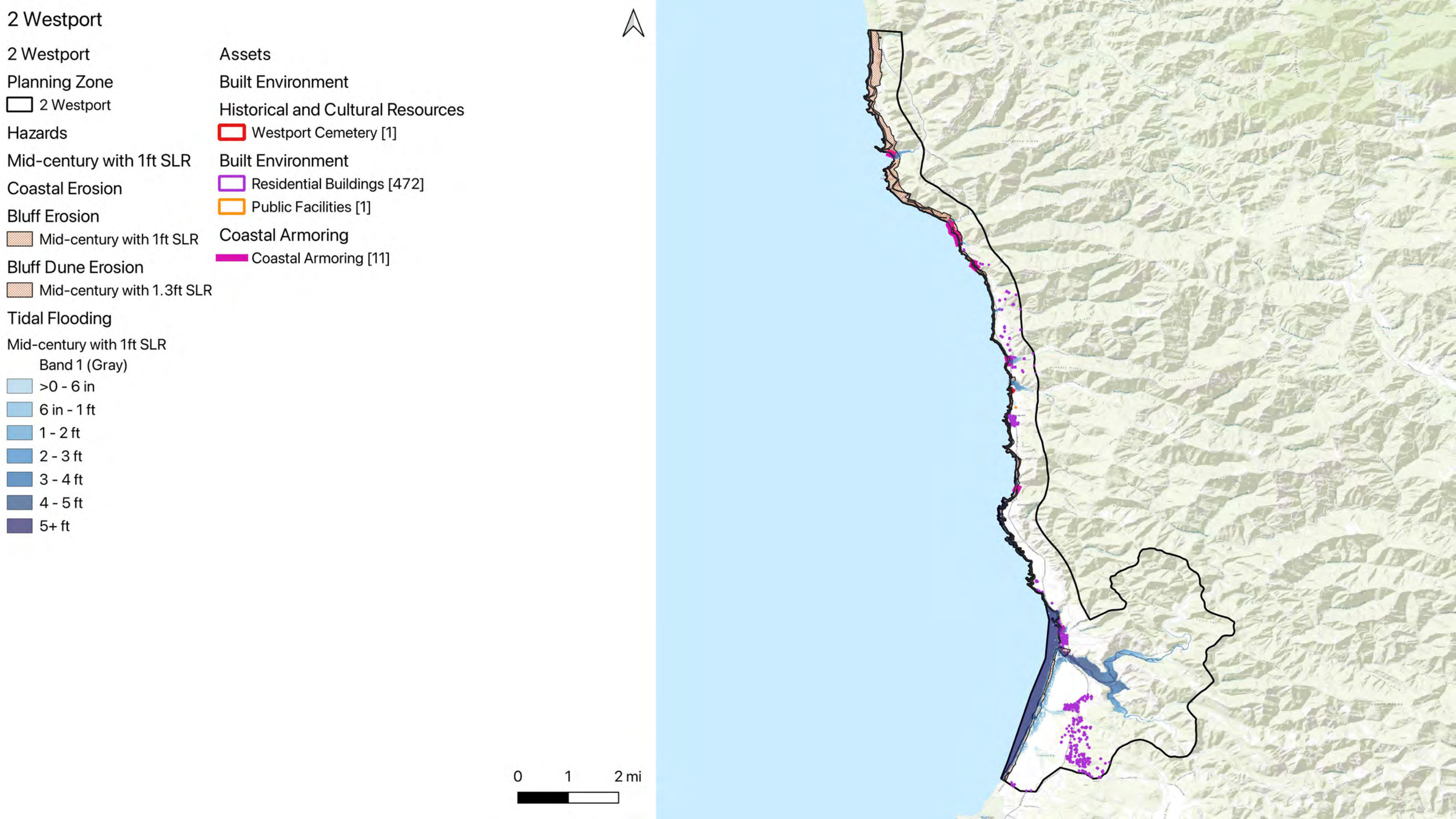
Recreation

- California Coastal Trail [37]
- Recreational Routes [28]
- Private Campgrounds [1]

Parks & Govt Lands

- State Parks & Lands [46]
- Land Trust lands [2]




2 Westport
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Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
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Assets
Built Environment
Historical and Cultural Resources
Westport Cemetery [1]
Built Environment
Residential Buildings [472]
Public Facilities [1]
Coastal Armoring
Coastal Armoring [11]
0
1
2 mi

2 Westport

2 Westport

Planning Zone

2 Westport

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

Mid-century with 1ft SLR

Bluff Dune Erosion

Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

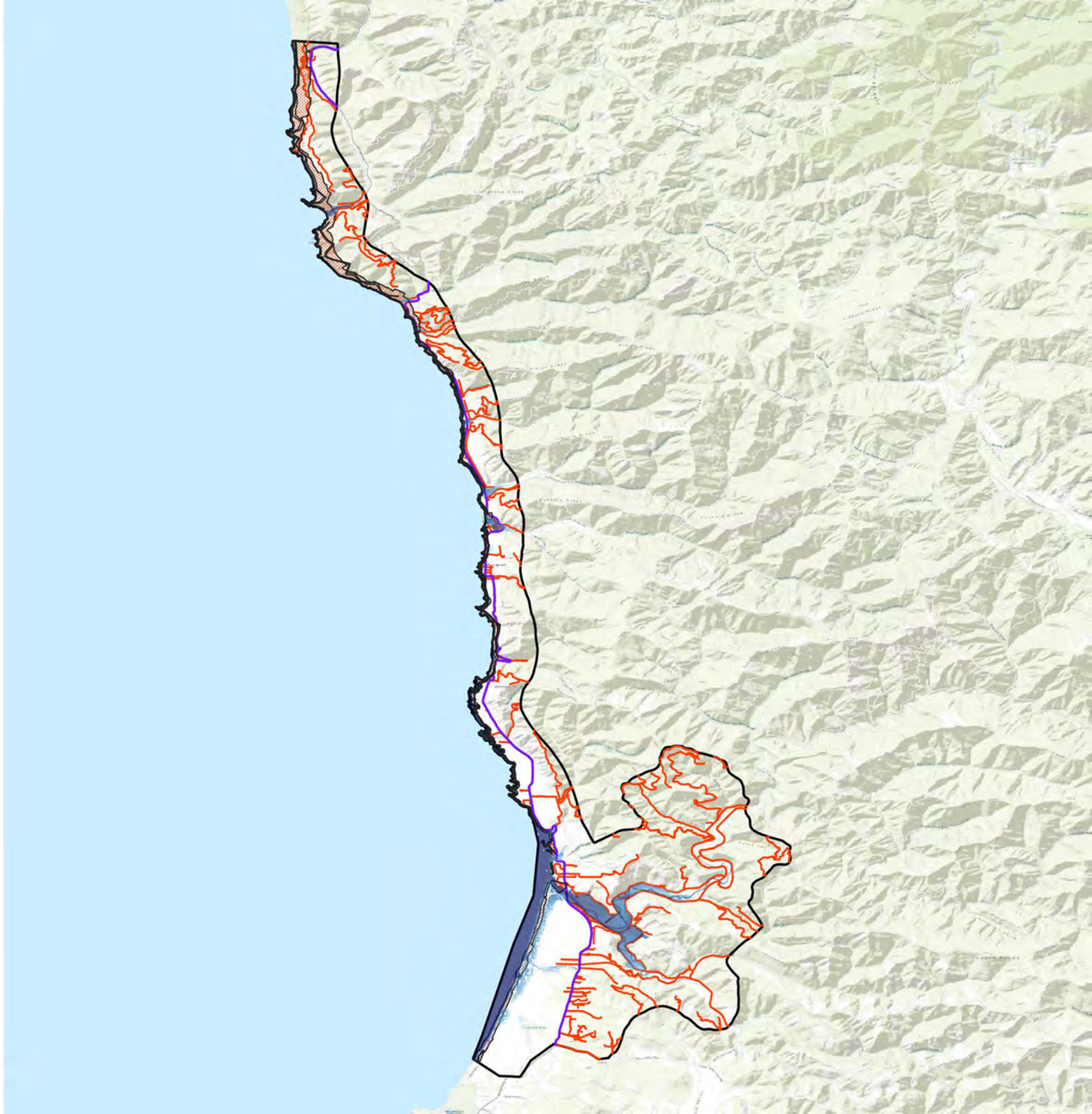
Assets

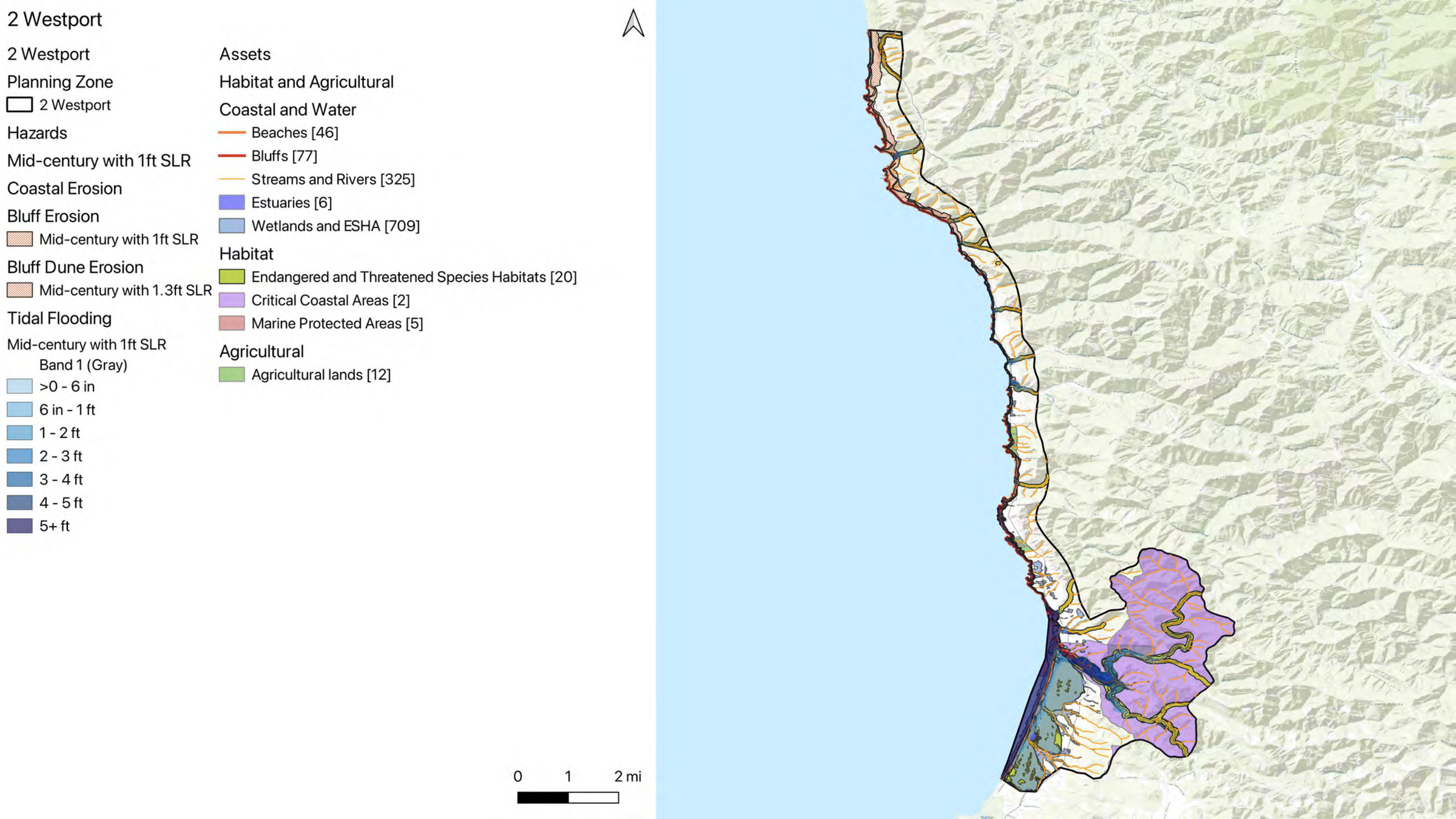
Critical Infrastructure

Transportation

State Route 1 [66]

Roads [490]




2 Westport
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Planning Zone
2 Westport
Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
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Marine Protected Areas [5]
Agricultural
Agricultural lands [12]
0
1
2 mi

2 Westport

2 Westport

Planning Zone

- 2 Westport

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

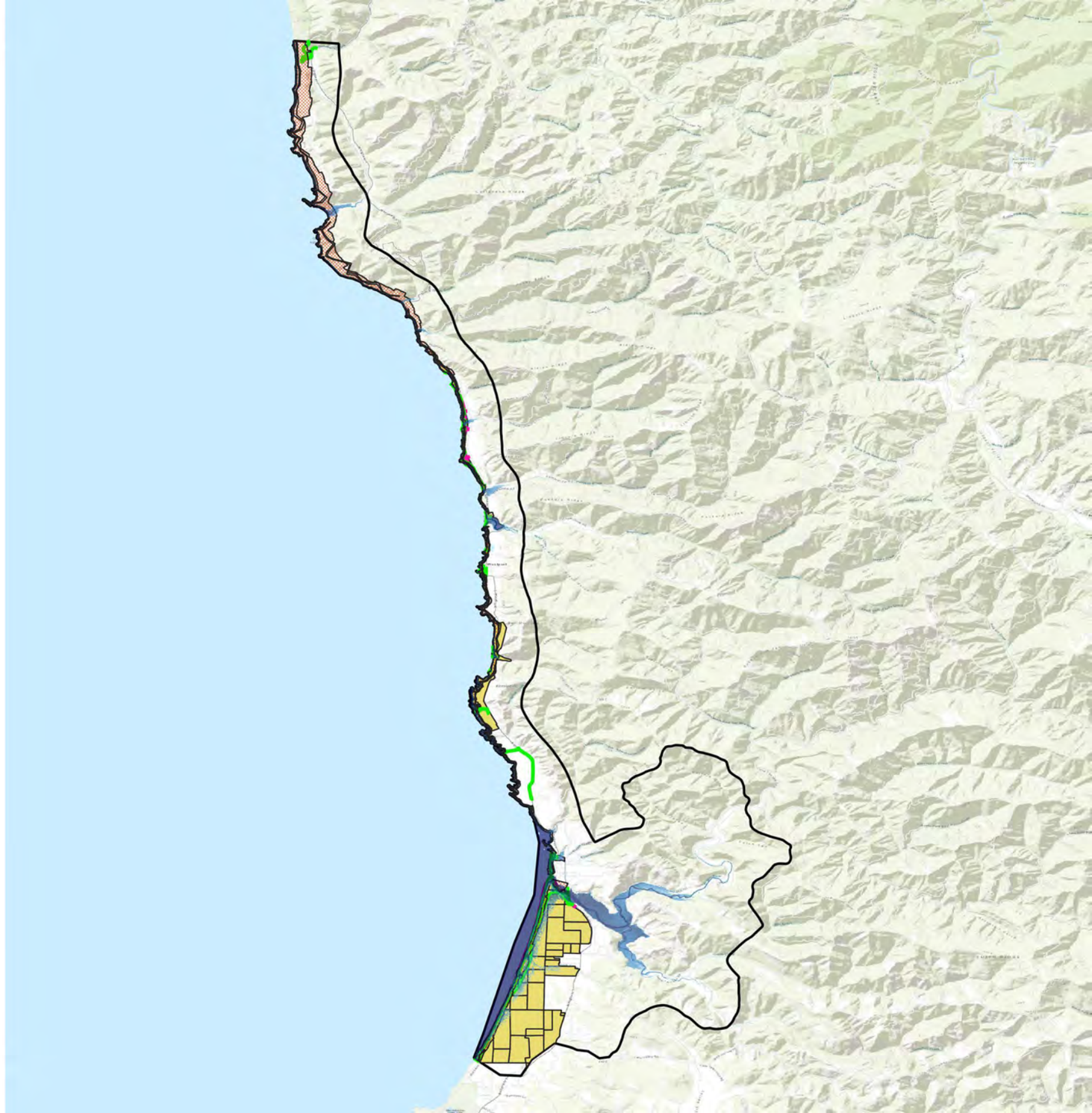
Public Access and Recreation

Recreation

- California Coastal Trail [37]
- Recreational Routes [28]
- Private Campgrounds [1]

Parks & Govt Lands

- State Parks & Lands [46]
- Land Trust lands [2]



2 Westport

2 Westport

Planning Zone

- 2 Westport

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Built Environment

Historical and Cultural Resources

- Westport Cemetery [1]

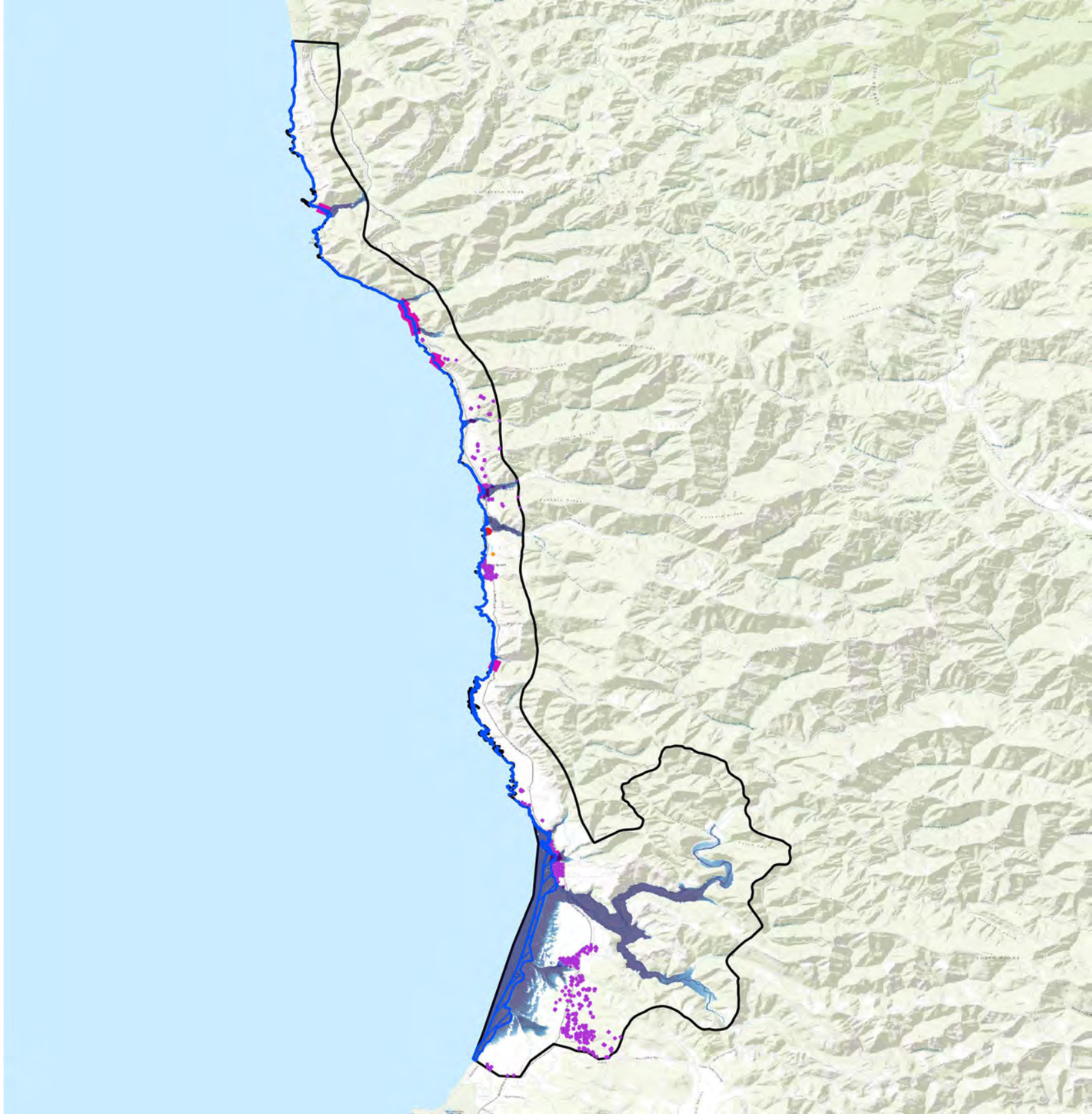
Built Environment

- Residential Buildings [472]
- Public Facilities [1]

Coastal Armoring

- Coastal Armoring [11]

0 1 2 mi



2 Westport

2 Westport

Planning Zone

2 Westport

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Next-century with 6ft SLR

100-year Storm

Wave Runup

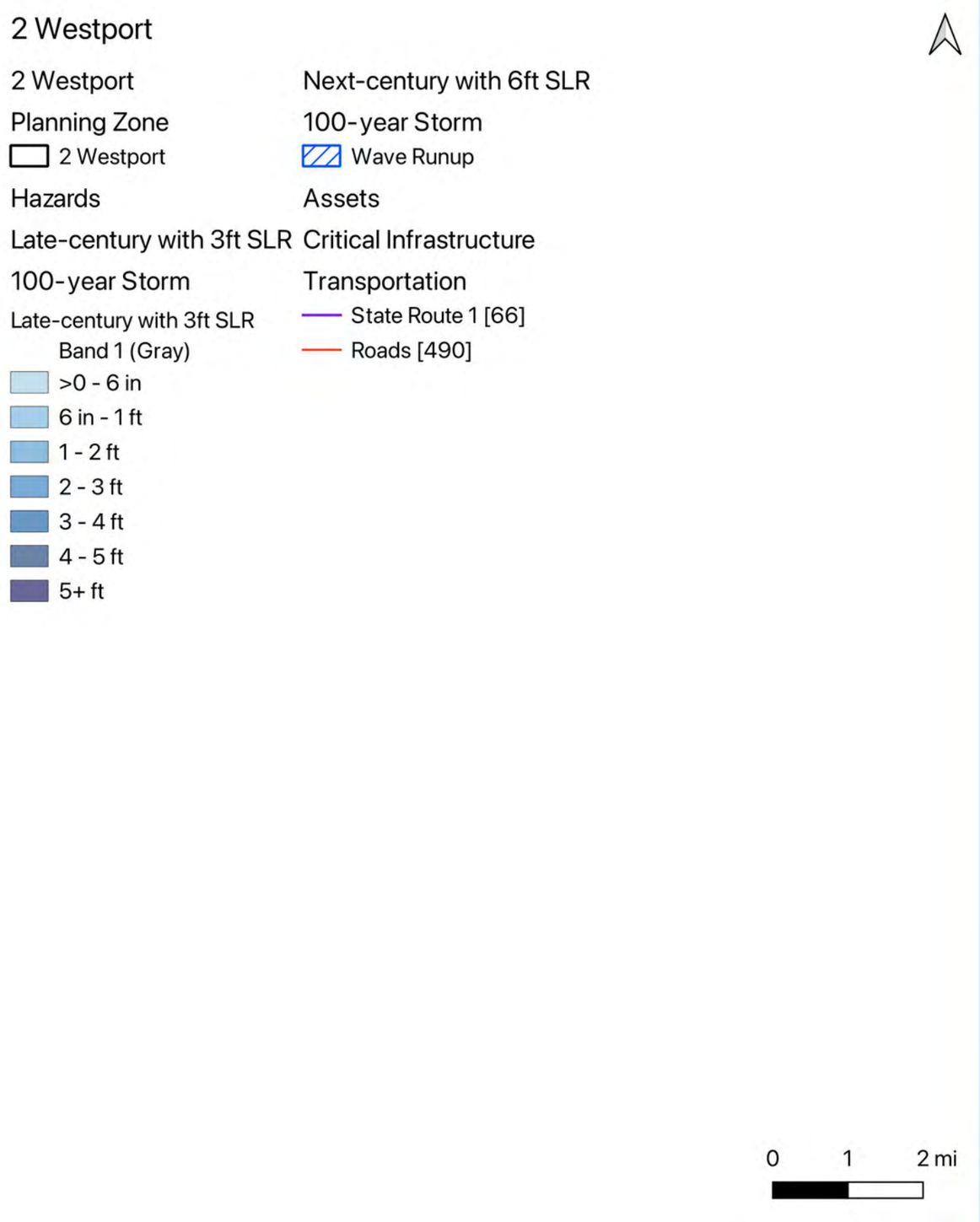
Assets

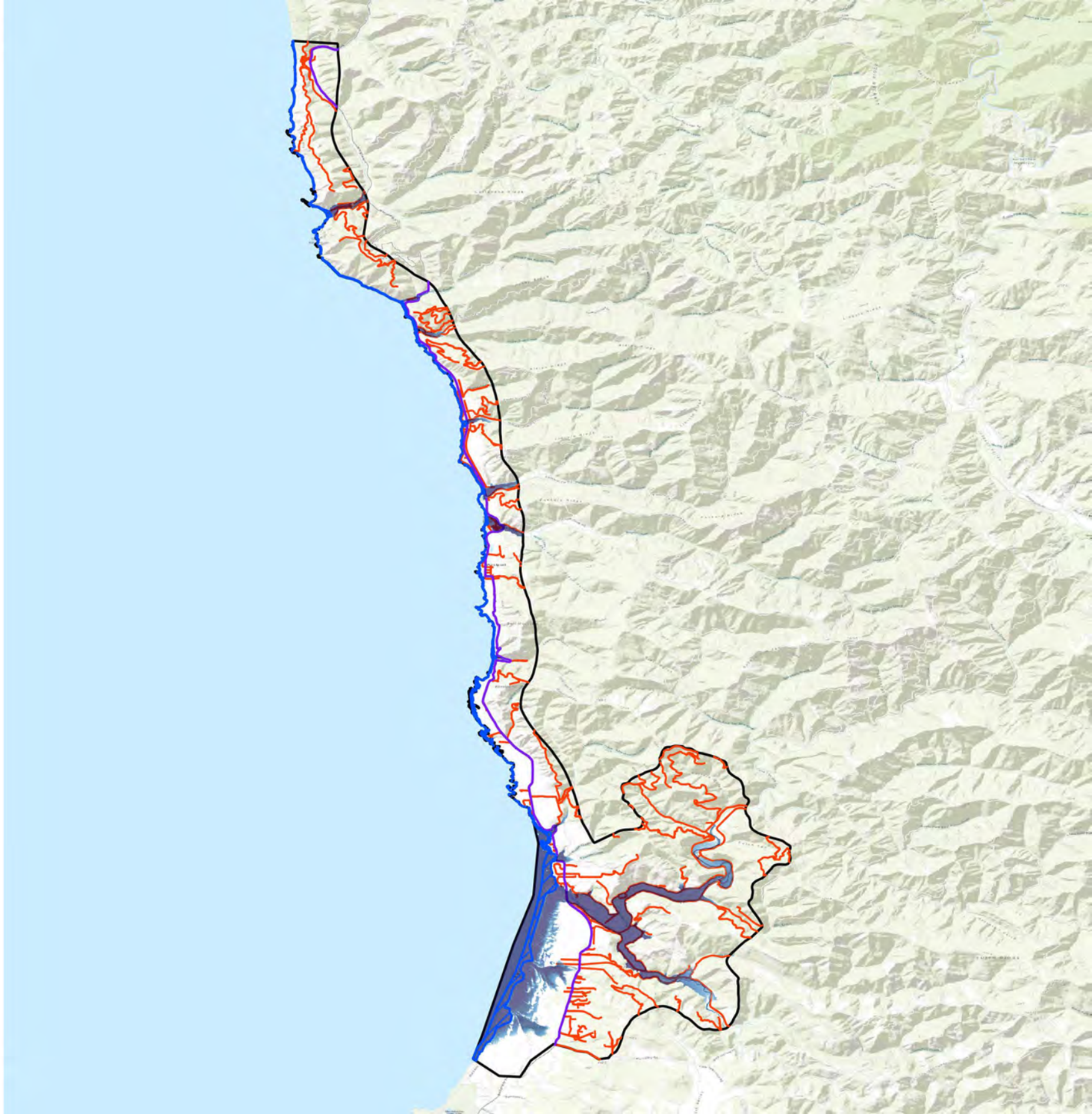
Critical Infrastructure

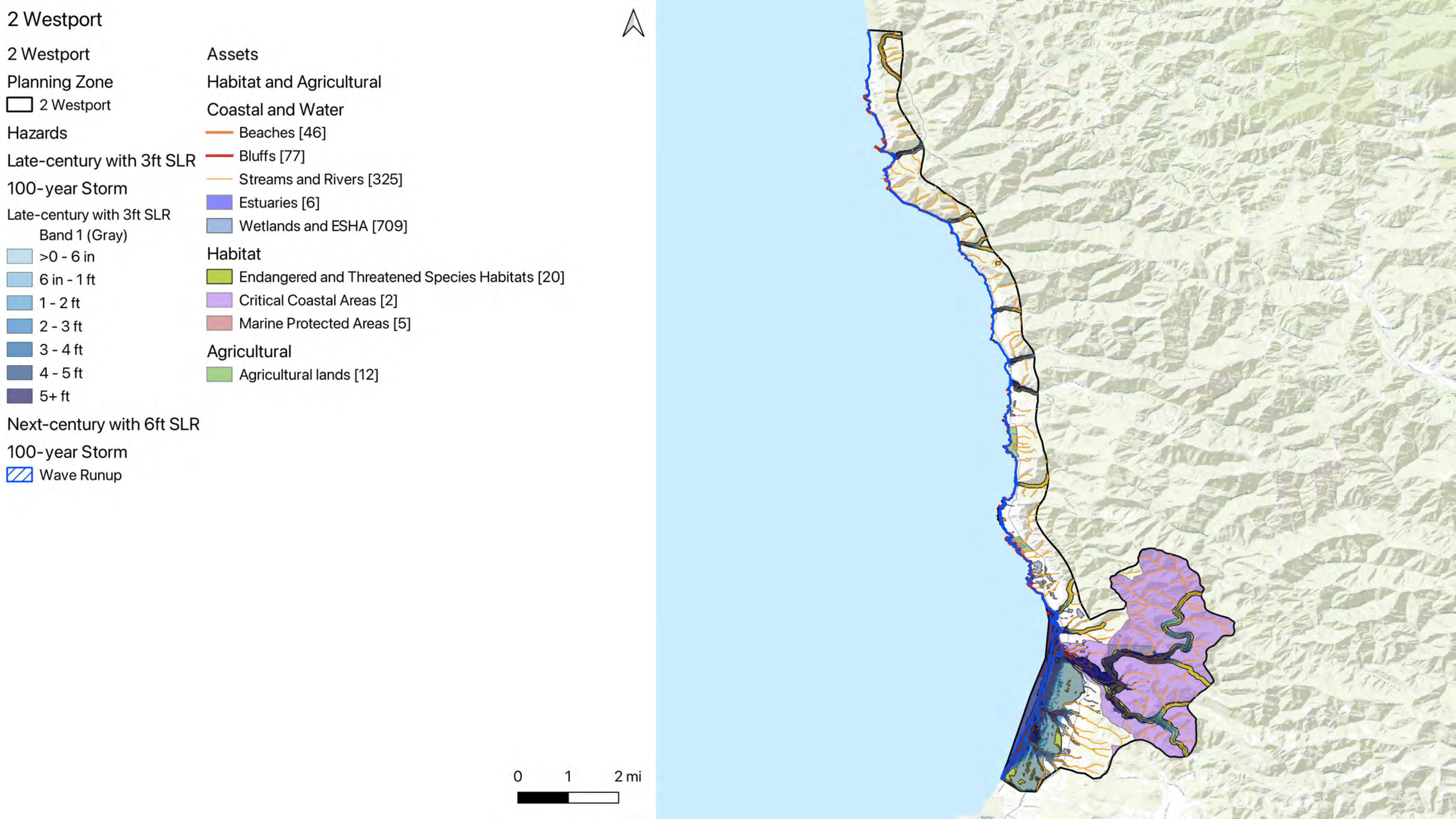
Transportation

State Route 1 [66]

Roads [490]



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100-year Storm
Late-century with 3ft SLR
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Agricultural
Agricultural lands [12]
0
1
2 mi

2 Westport

2 Westport

Planning Zone

- 2 Westport

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR
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Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Public Access and Recreation

Recreation

- California Coastal Trail [37]
- Recreational Routes [28]
- Private Campgrounds [1]

Parks & Govt Lands

- State Parks & Lands [46]
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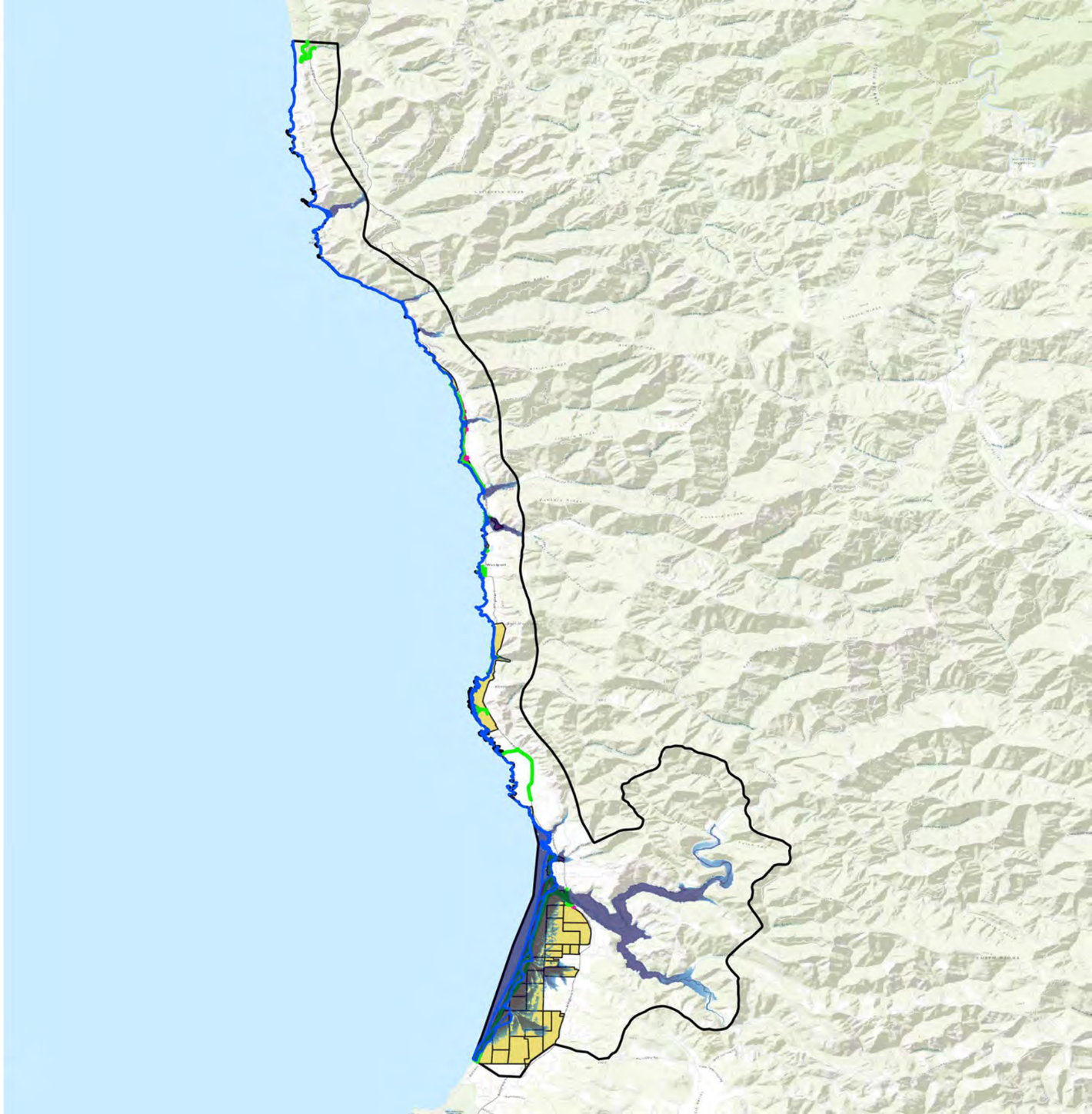


2 Westport

2 Westport

Planning Zone

2 Westport

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

Late-century with 3ft SLR

Bluff Dune Erosion

Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Built Environment

Historical and Cultural Resources

Westport Cemetery [1]

Built Environment

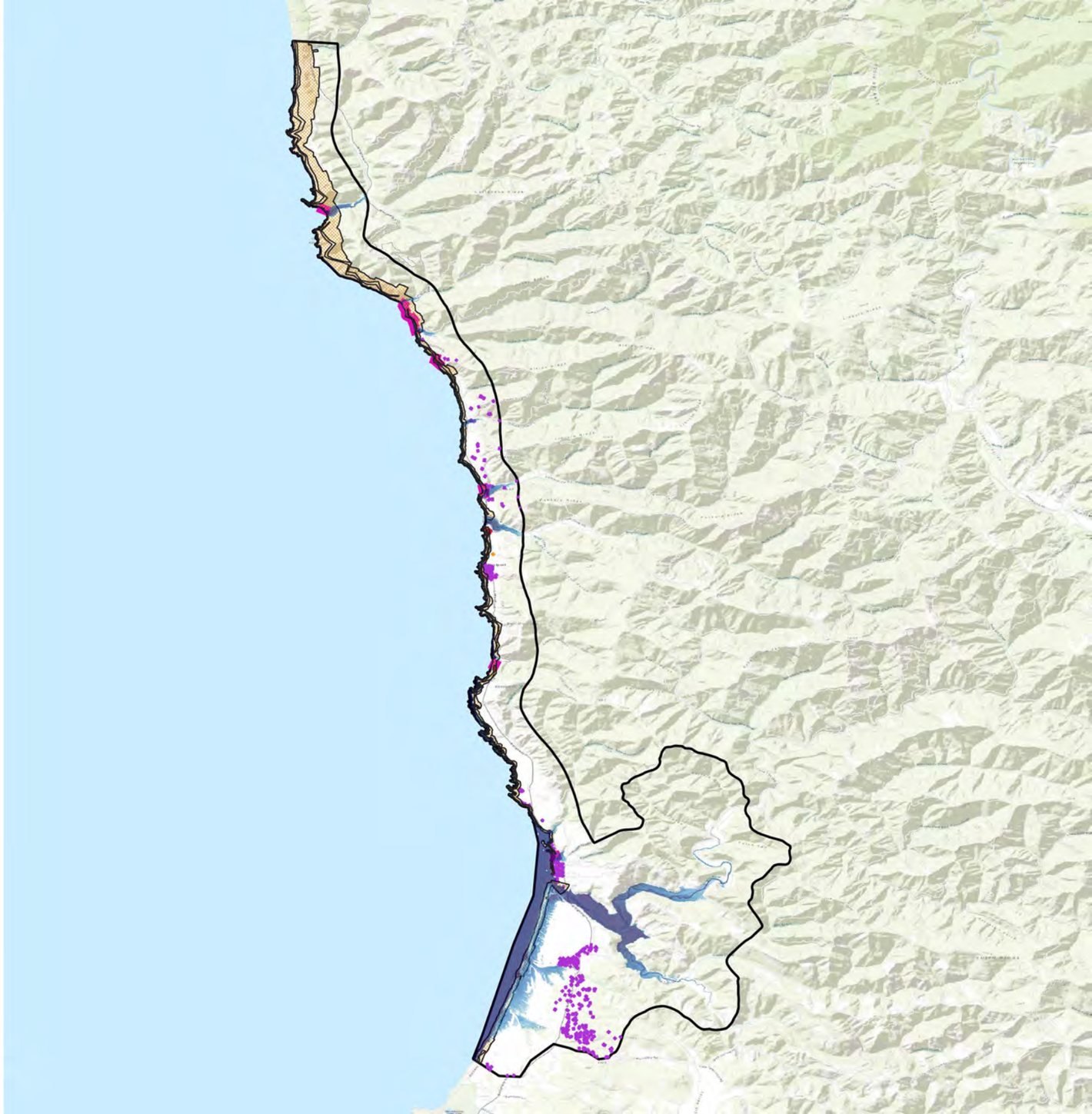
Residential Buildings [472]

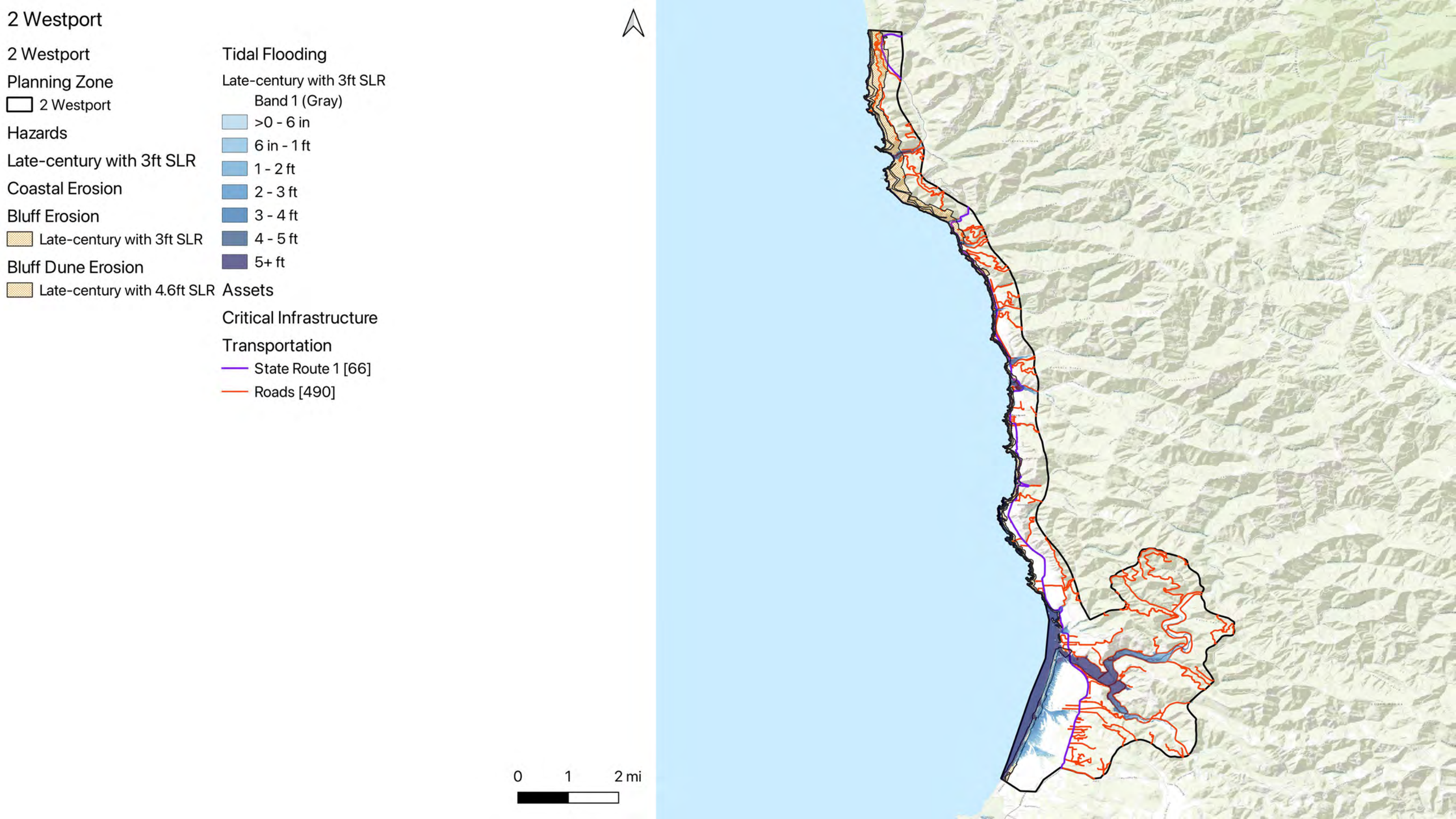
Public Facilities [1]

Coastal Armoring

Coastal Armoring [11]

0 1 2 mi

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Hazards
Late-century with 3ft SLR
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Bluff Erosion
Late-century with 3ft SLR
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Tidal Flooding
Late-century with 3ft SLR
Band 1 (Gray)
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4 - 5 ft
5+ ft
Assets
Critical Infrastructure
Transportation
State Route 1 [66]
Roads [490]
0
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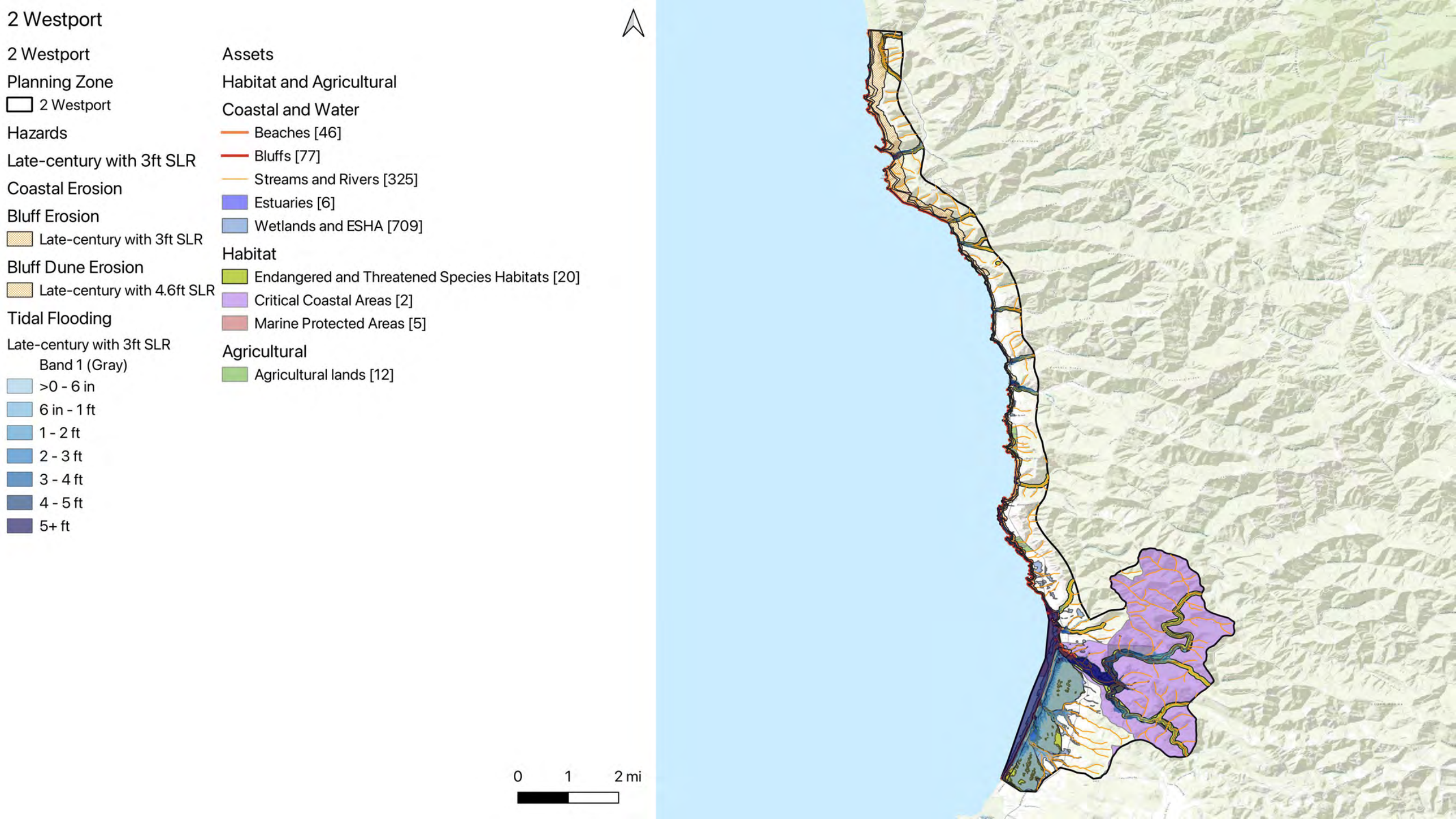
2 mi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Marine Protected Areas [5]
Agricultural
Agricultural lands [12]
0
1
2 mi

2 Westport

2 Westport

Planning Zone

- 2 Westport

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

- Late-century with 3ft SLR

Bluff Dune Erosion

- Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
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Assets

Public Access and Recreation

Recreation

- California Coastal Trail [37]
- Recreational Routes [28]
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Parks & Govt Lands

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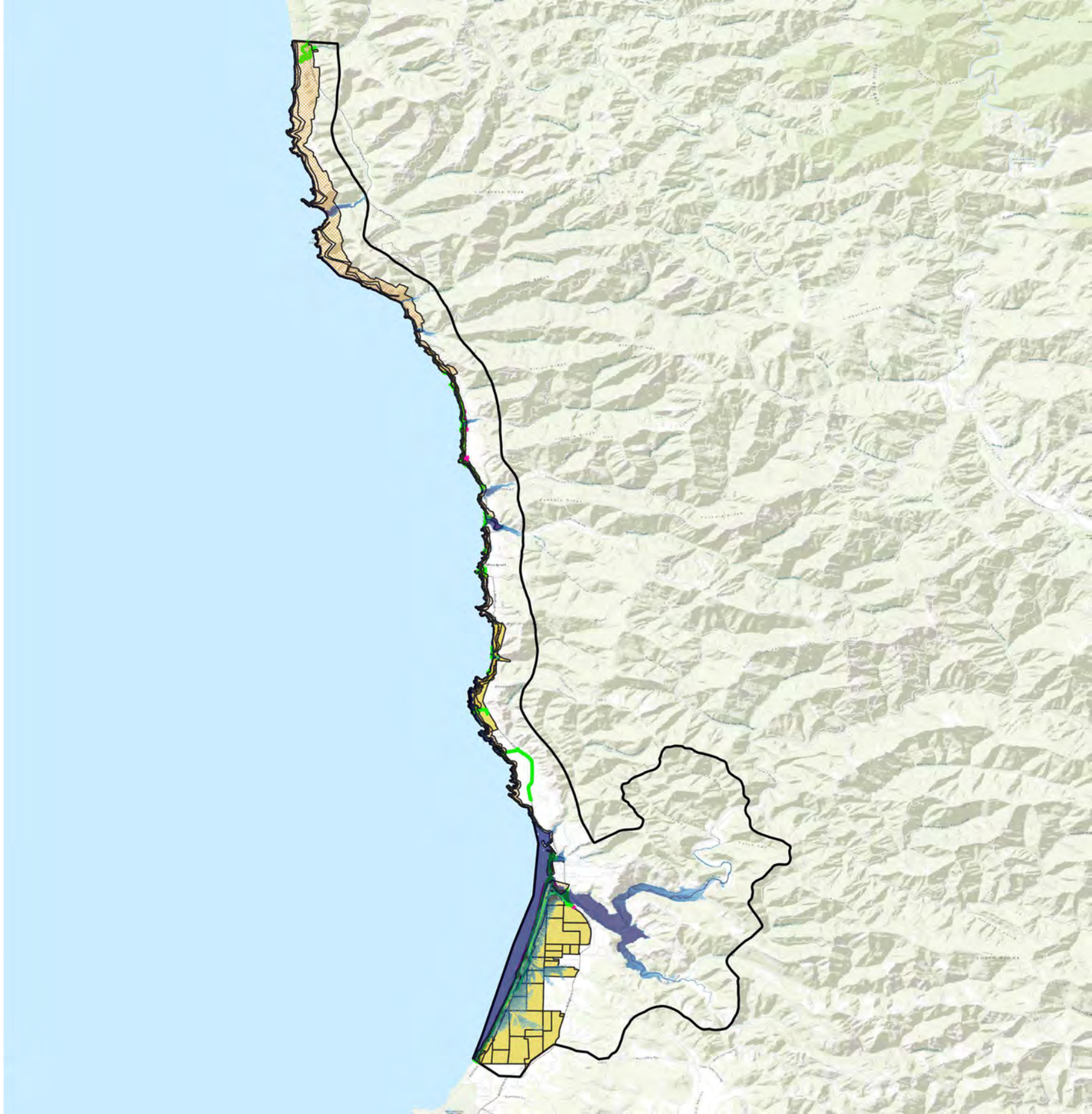
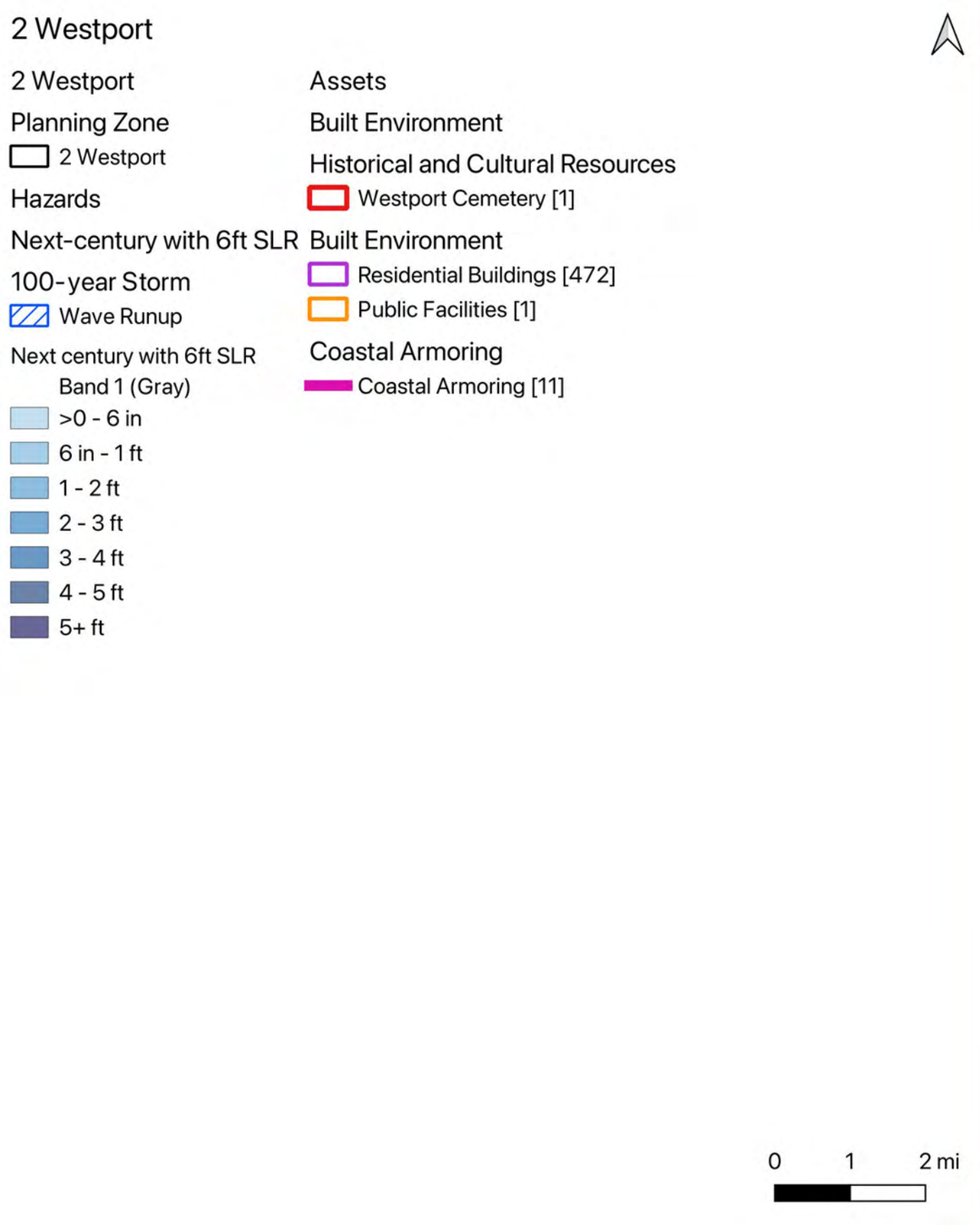
- Land Trust lands [2]

0 1 2 mi



2 Westport


2 Westport
Planning Zone
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Hazards
Next-century with 6ft SLR
100-year Storm
Wave Runup
Next century with 6ft SLR
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2 Westport

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2 Westport

Hazards

Next-century with 6ft SLR

100-year Storm

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Next century with 6ft SLR

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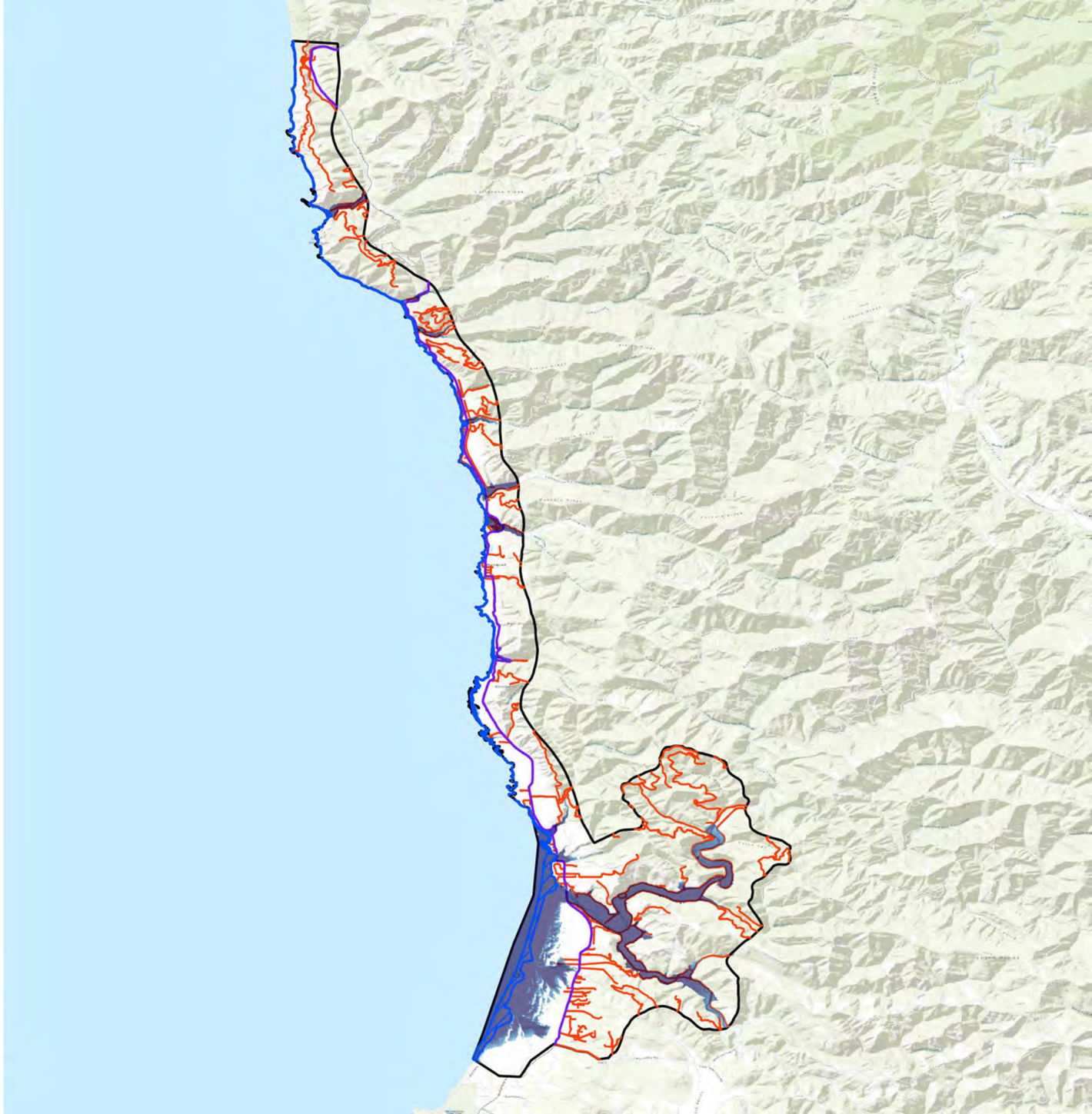

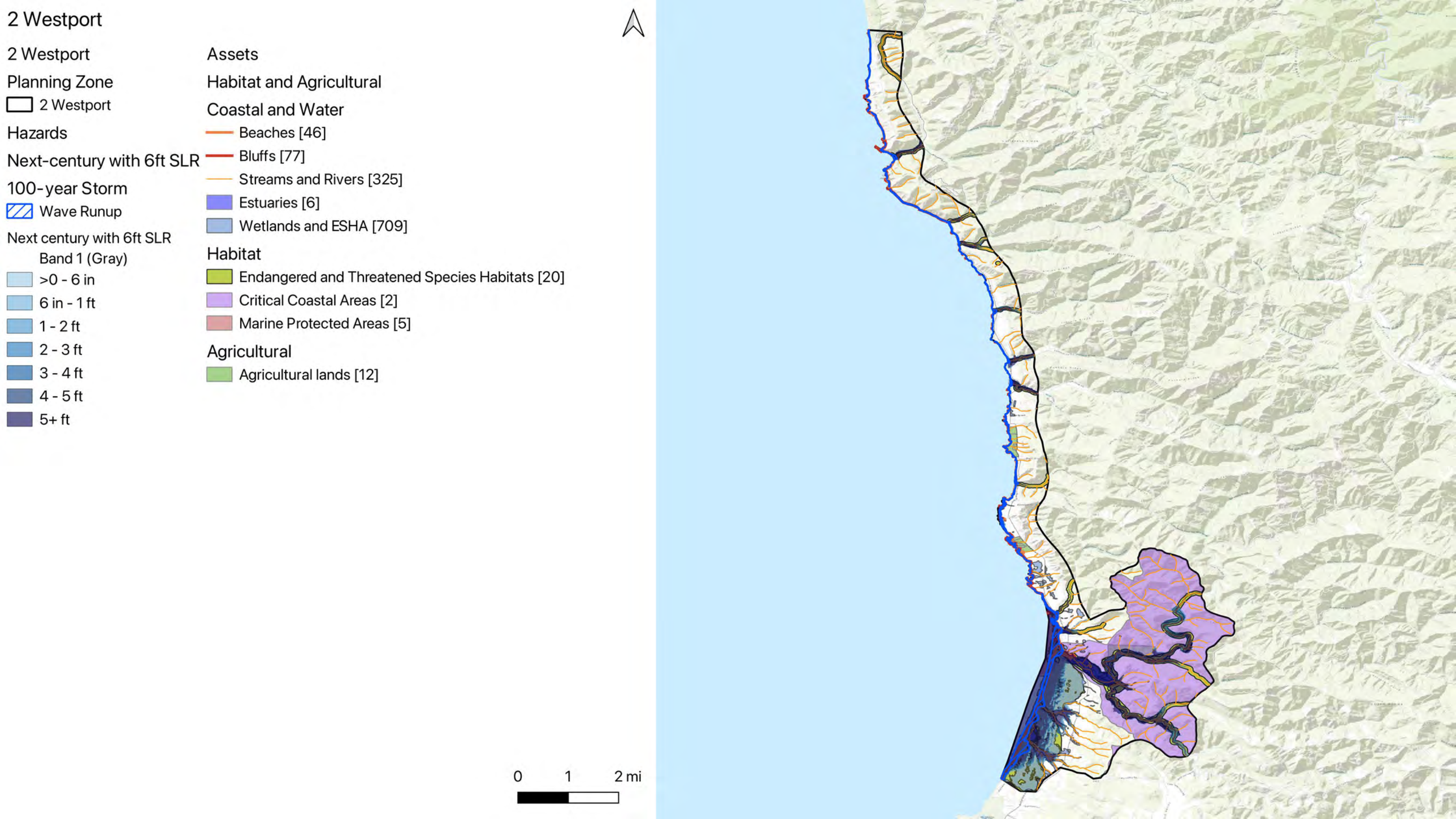
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1
2 mi

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Recreation

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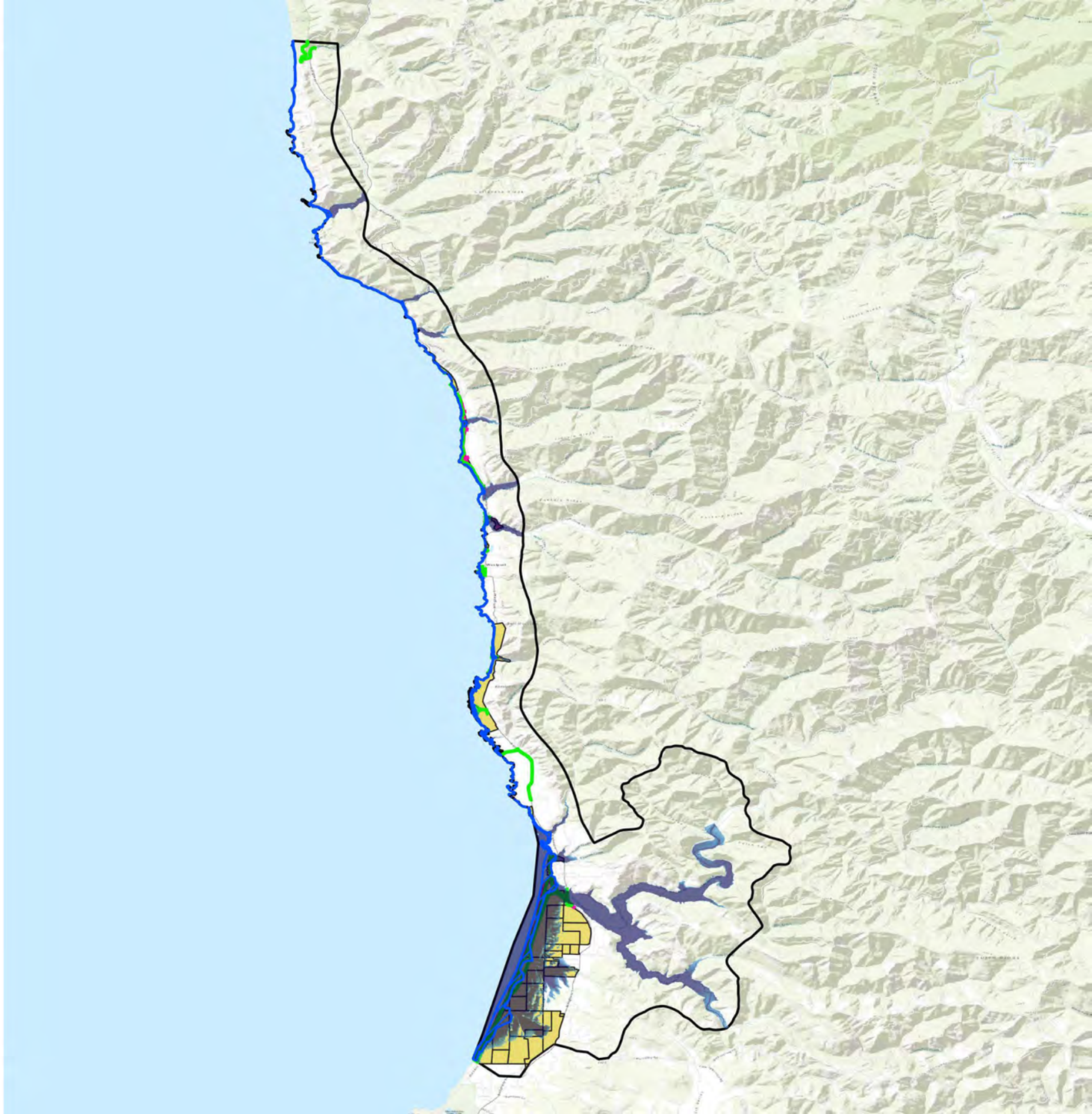
Land Trust lands [2]

0 1 2 mi



2 Westport

2 Westport

Planning Zone

2 Westport

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

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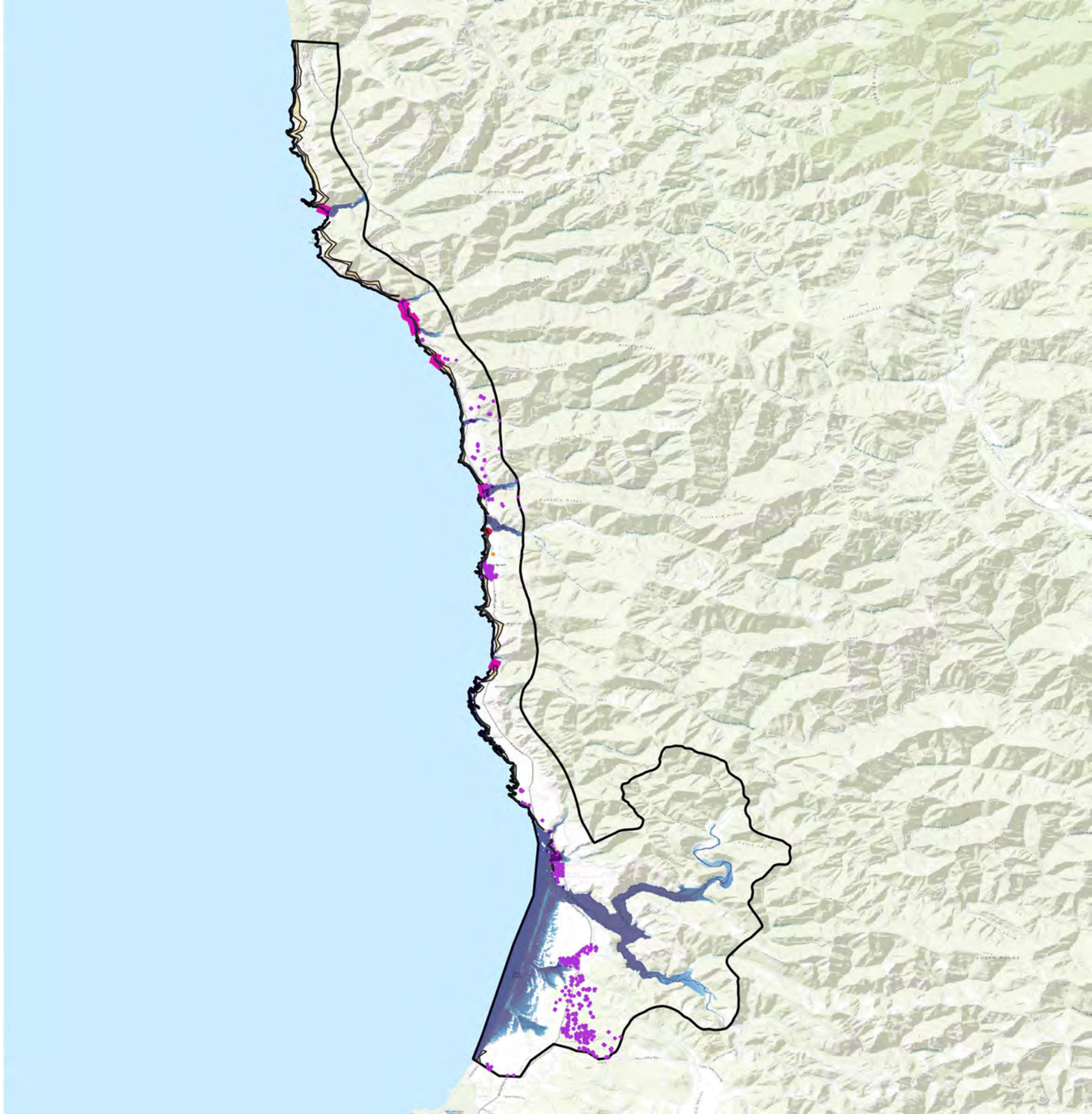
Coastal Armoring [11]



2 Westport

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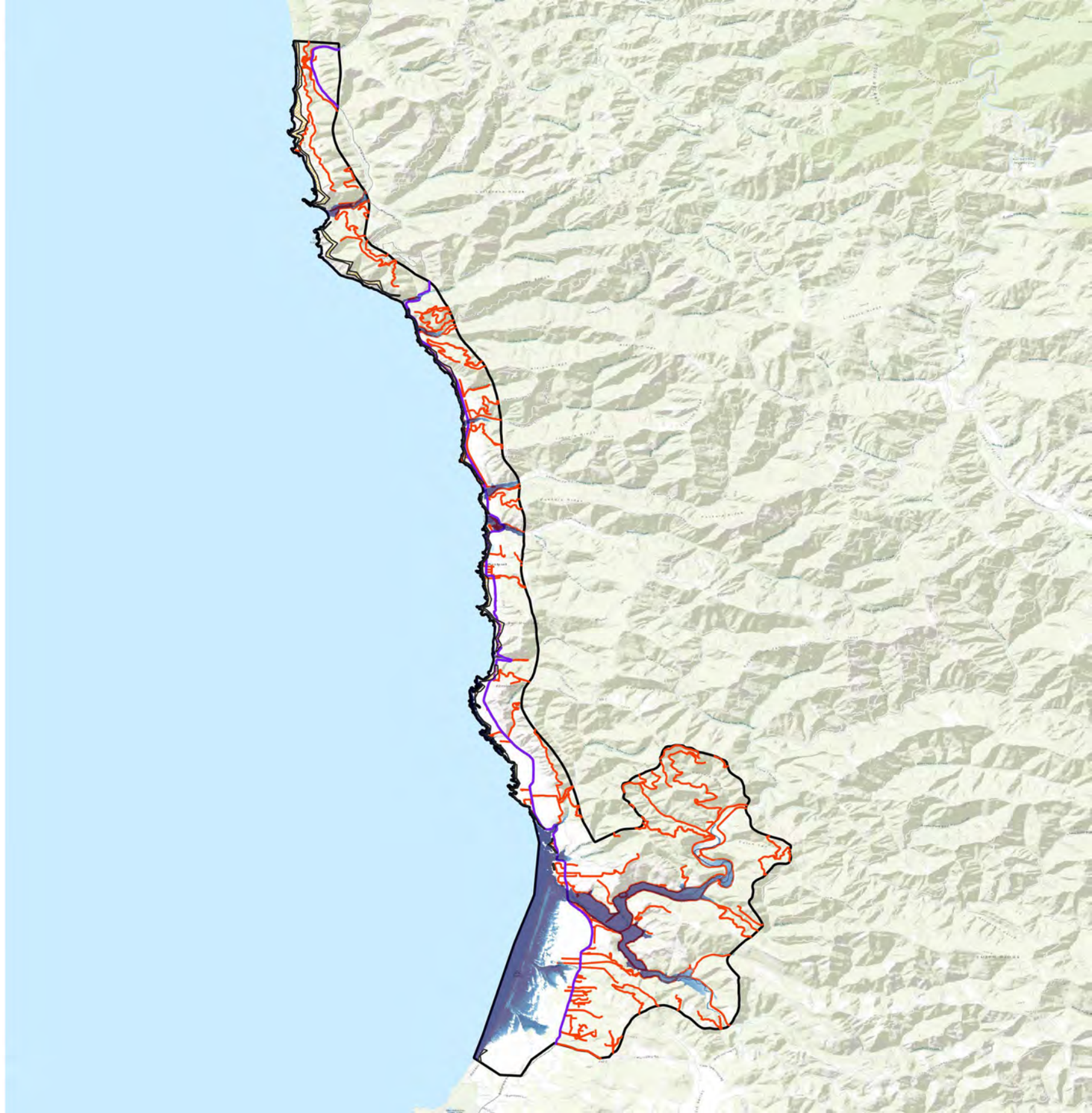
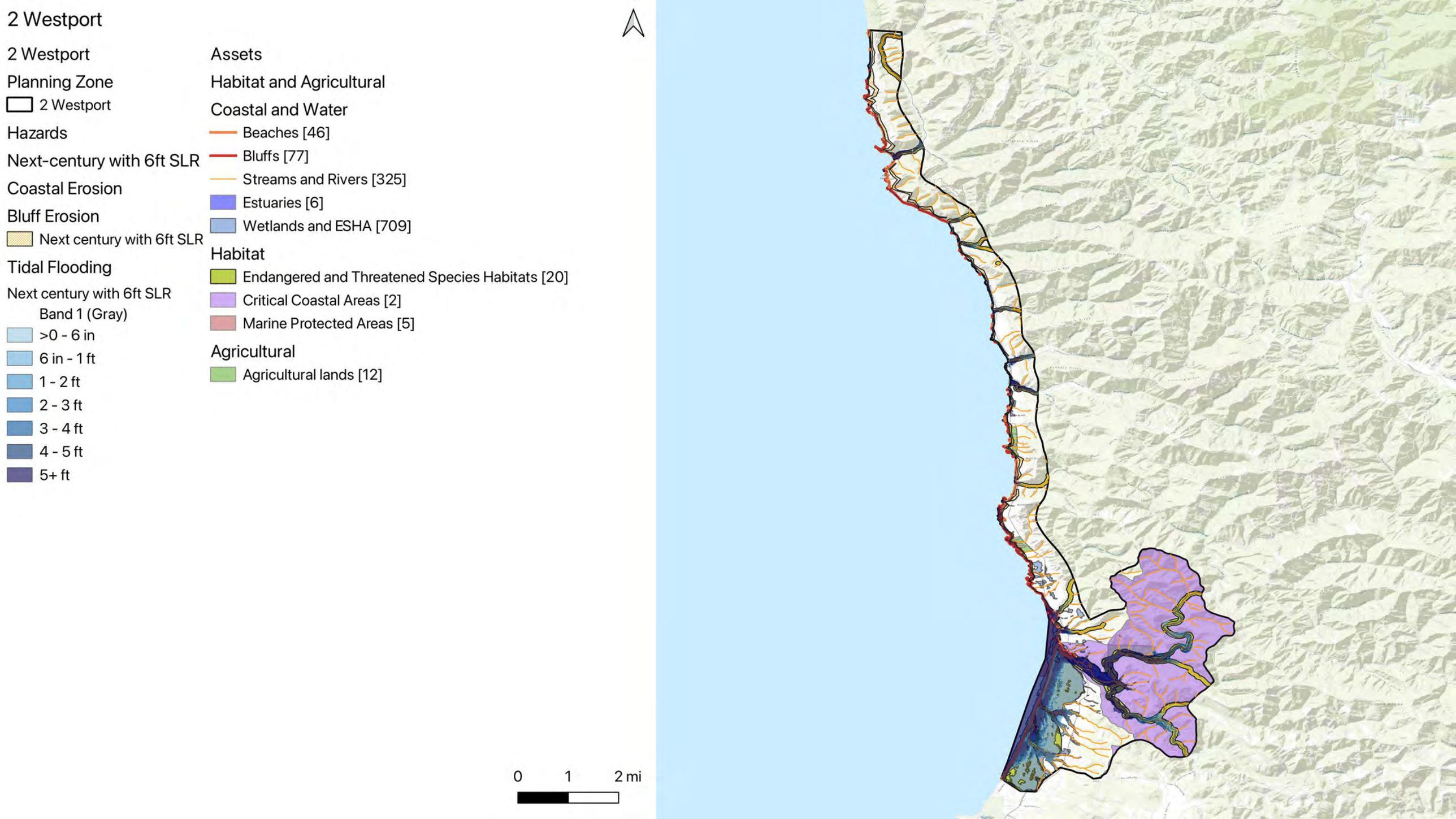
Transportation

State Route 1 [66]

Roads [490]




2 Westport
2 Westport
Planning Zone
2 Westport
Hazards
Next-century with 6ft SLR
Coastal Erosion
Bluff Erosion
Next century with 6ft SLR
Tidal Flooding
Next century with 6ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Habitat and Agricultural
Coastal and Water
Beaches [46]
Bluffs [77]
Streams and Rivers [325]
Estuaries [6]
Wetlands and ESHA [709]
Habitat
Endangered and Threatened Species Habitats [20]
Critical Coastal Areas [2]
Marine Protected Areas [5]
Agricultural
Agricultural lands [12]
0
1
2 mi

2 Westport

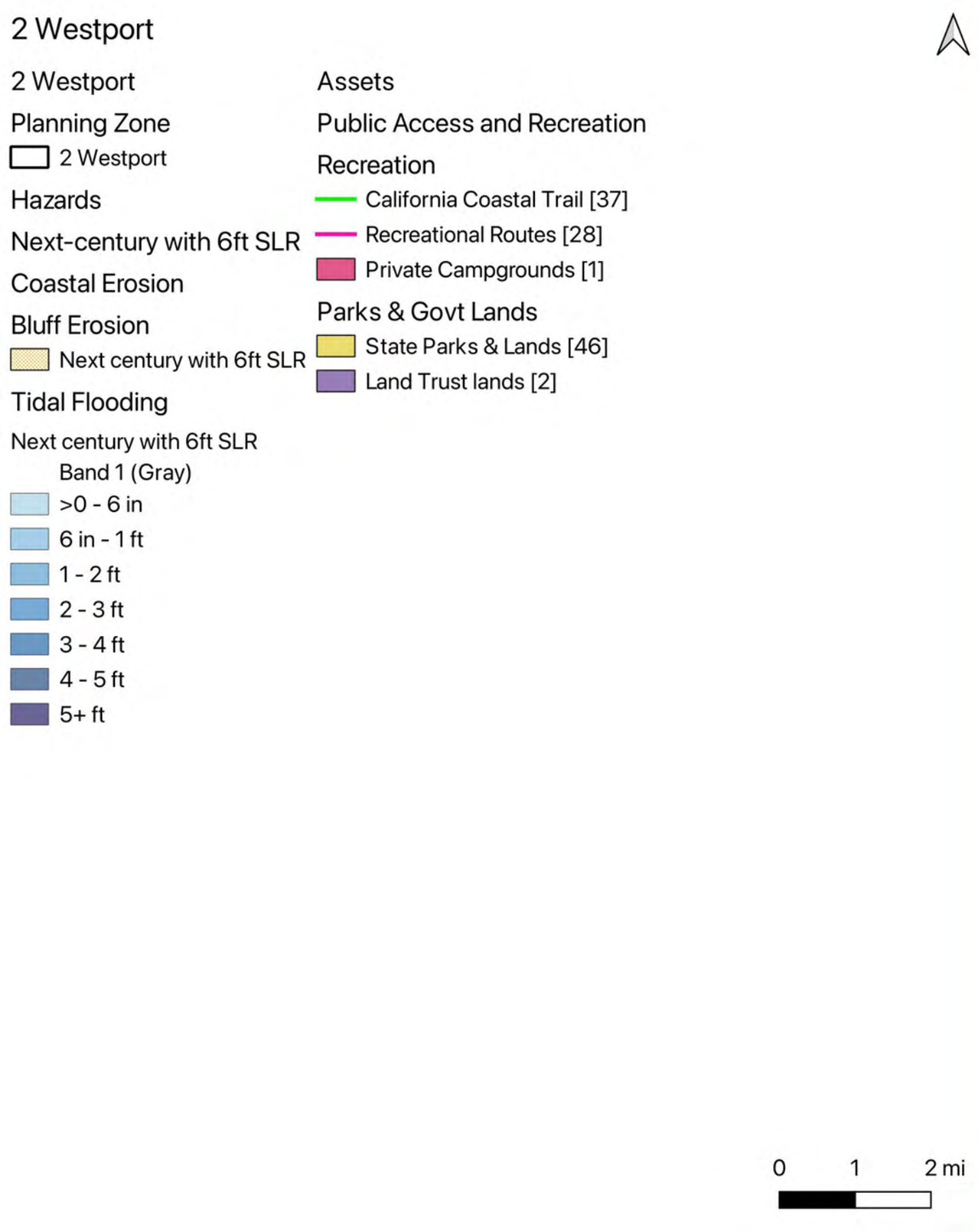
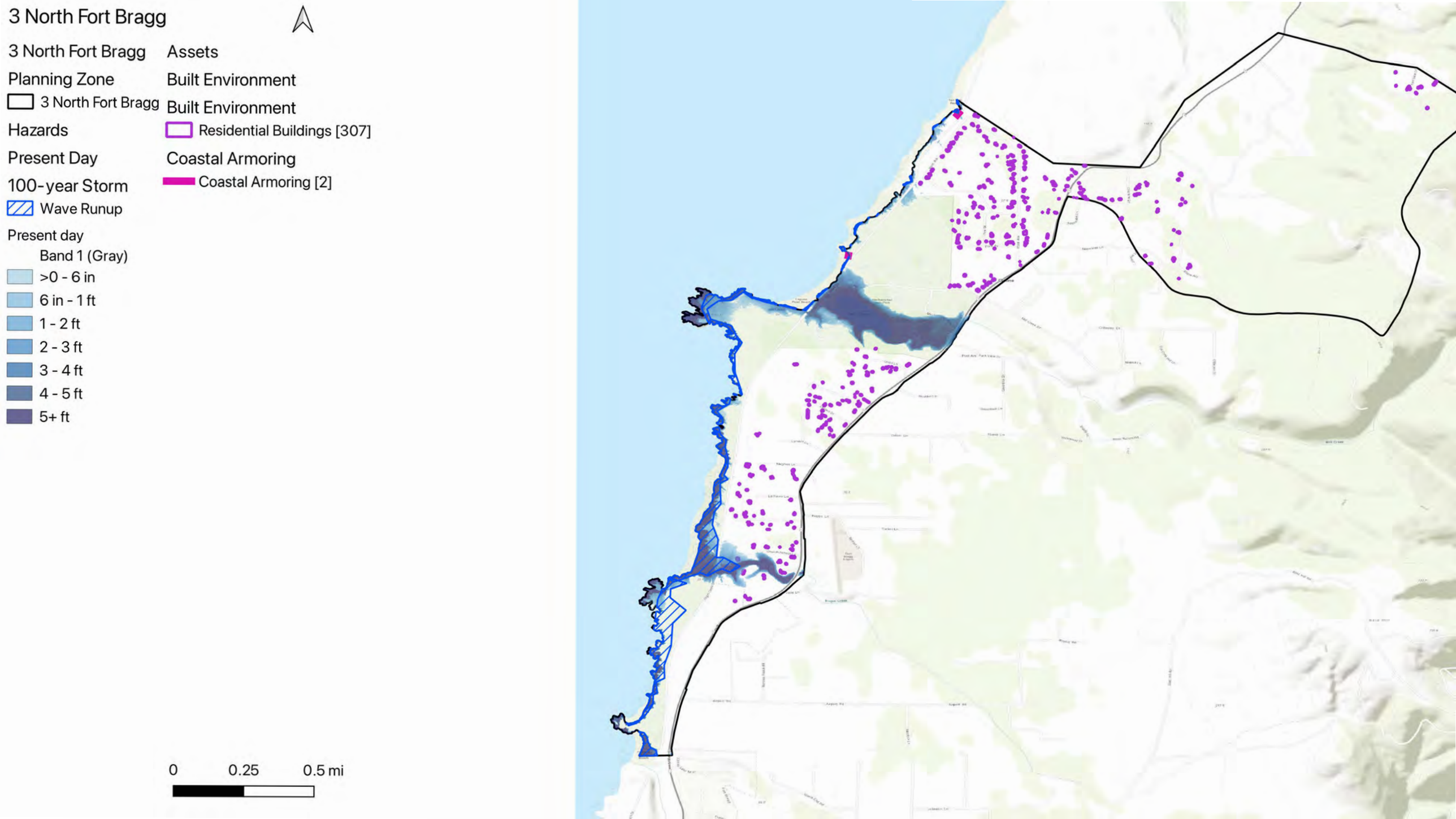

2 Westport
Planning Zone
2 Westport
Hazards
Next-century with 6ft SLR
Coastal Erosion
Bluff Erosion
Next century with 6ft SLR
Tidal Flooding
Next century with 6ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Public Access and Recreation
Recreation
California Coastal Trail [37]
Recreational Routes [28]
Private Campgrounds [1]
Parks & Govt Lands
State Parks & Lands [46]
Land Trust lands [2]
0
1
2 mi

Table 3. North Fort Bragg

Sub-Category	Asset Type	Units	WaveP	StormP	TidalP	TotalsP	Storm1ft	Tidal1ft	BluffE1ft	CoastE1ft	Totals1ft	Storm3ft	Tidal3ft	BluffE3ft	CoastE3ft	Totals3ft	Storm6ft	Tidal6ft	BluffE6ft	CoastE6ft	Totals6ft
Environmental Sites	Clean Up Sites	Number of sites	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Transportation	State Route 1	Length (mi)	0	0.2	0	0.2	0.2	0	0	0	0.2	0.5	0.1	0	0	0.5	1.3	0.4	0	0	1.3
Transportation	Roads	Length (mi)	0	1.1	0.4	1.1	1.4	0.5	0	0.1	1.4	2.2	0.9	0.1	0.1	2.3	5.7	1.8	0.1	0.8	5.7
Water Utility for City of Fort Bragg	Fire Hydrants	Number of structures	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	0	0	2
Water Utility for City of Fort Bragg	Water Main	Length (mi)	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0.1	0.3	0	0	0	0.3
Stormwater Utility for City of Fort Bragg	Culverts	Number of structures	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Sewer Utility for City of Fort Bragg	Sewer Mains	Length (ft)	0	3	0	3	5	0	0	0	5	8	1	0	1	8	14	6	1	1	14
Recreation	California Coastal Trail	Length (mi)	0.8	1.7	0.9	1.7	2.6	1	0.2	1.6	3.1	4.8	1.5	0.4	2	4.9	5.4	3.7	0.6	3	5.4
Recreation	Recreational Routes	Length (mi)	0.4	3.1	1.1	3.1	4.6	1.5	0.1	1.4	5	7.4	2.6	0.3	2	7.6	10.1	6.1	0.5	3.4	10.1
Parks & Govt Lands	State Parks & Lands	Area (sqmi)	0.1	0.2	0.1	0.2	0.3	0.1	0	0.1	0.3	0.4	0.2	0	0.1	0.4	0.5	0.3	0	0.2	0.5
Coastal and Water	Beaches	Length (mi)	0.6	0.6	0.6	0.6	0.6	0.6	0	0.6	0.6	0.6	0.6	0	0.6	0.6	0.6	0.6	0	0.6	0.6
Coastal and Water	Bluffs	Length (mi)	0.8	1.4	1.1	1.4	1.4	1.1	0.1	1	1.4	1.4	1.3	0.1	1	1.4	1.4	1.4	0.1	1	1.4
Coastal and Water	Streams and Rivers	Length (mi)	0.1	1.3	1.2	1.3	1.5	1.2	0	0.1	1.5	1.7	1.3	0	0.1	1.7	2	1.6	0	0.2	2
Coastal and Water	Estuaries	Area (acres)	8	36	33	36	36	34	0	3	36	36	35	0	4	36	36	36	0	5	36
Coastal and Water	Wetlands and ESHA	Area (acres)	20	69	61	69	73	64	1	21	75	83	68	2	23	84	93	79	2	28	93
Habitat	Endangered and Threatened Species Habitats	Area (sqmi)	0.1	0.4	0.2	0.4	0.4	0.2	0	0.1	0.5	0.6	0.3	0	0.1	0.7	1	0.6	0	0.2	1
Habitat	Critical Coastal Areas	Area (acres)	0	62	41	62	67	47	1	1	67	80	57	2	2	80	111	74	2	6	111
Habitat	Marine Protected Areas	Number of individually designated MPAs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Built Environment	Residential Buildings	Number of buildings	0	2	0	2	3	0	0	0	3	21	1	0	0	21	60	10	1	7	60
Coastal Armoring	Coastal Armoring	Length (ft)	0	49	4	49	50	13	0	50	50	50	44	0	50	50	50	50	0	50	50


3 North Fort Bragg
3 North Fort Bragg
Planning Zone
3 North Fort Bragg
Hazards
Present Day
100-year Storm
Wave Runup
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Built Environment
Built Environment
Residential Buildings [307]
Coastal Armoring
Coastal Armoring [2]
0
0.25
0.5 mi

3 North Fort Bragg

3 North Fort Bragg

Planning Zone

- 3 North Fort Bragg

Hazards

Present Day

100-year Storm

- Wave Runup

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Critical Infrastructure

Environmental Sites

- Clean Up Sites [1]

Transportation

- State Route 1 [41]
- Roads [197]

Water Utility for City of Fort Bragg

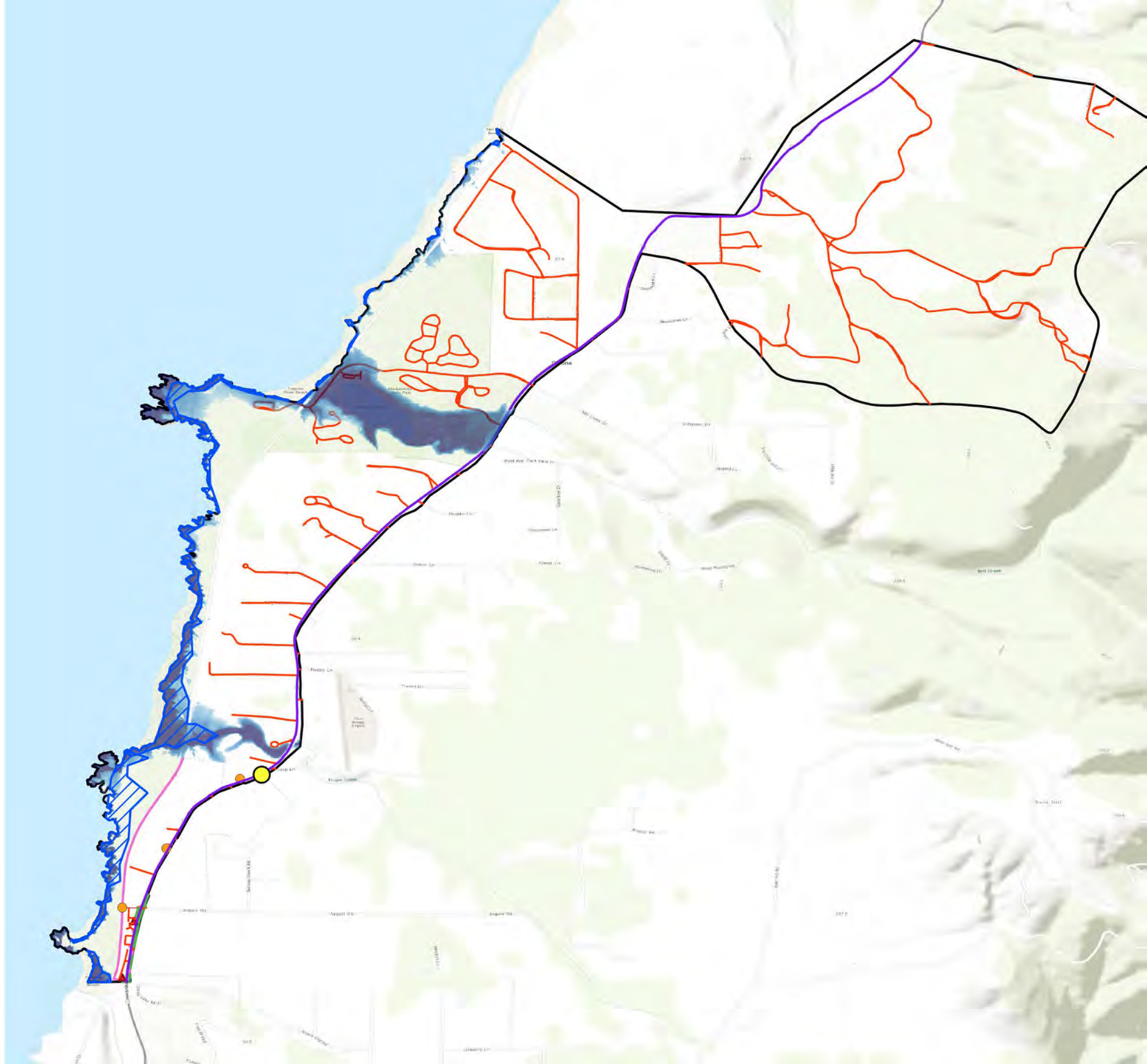
- Fire Hydrants [2]
- Water Main [23]

Stormwater Utility for City of Fort Bragg

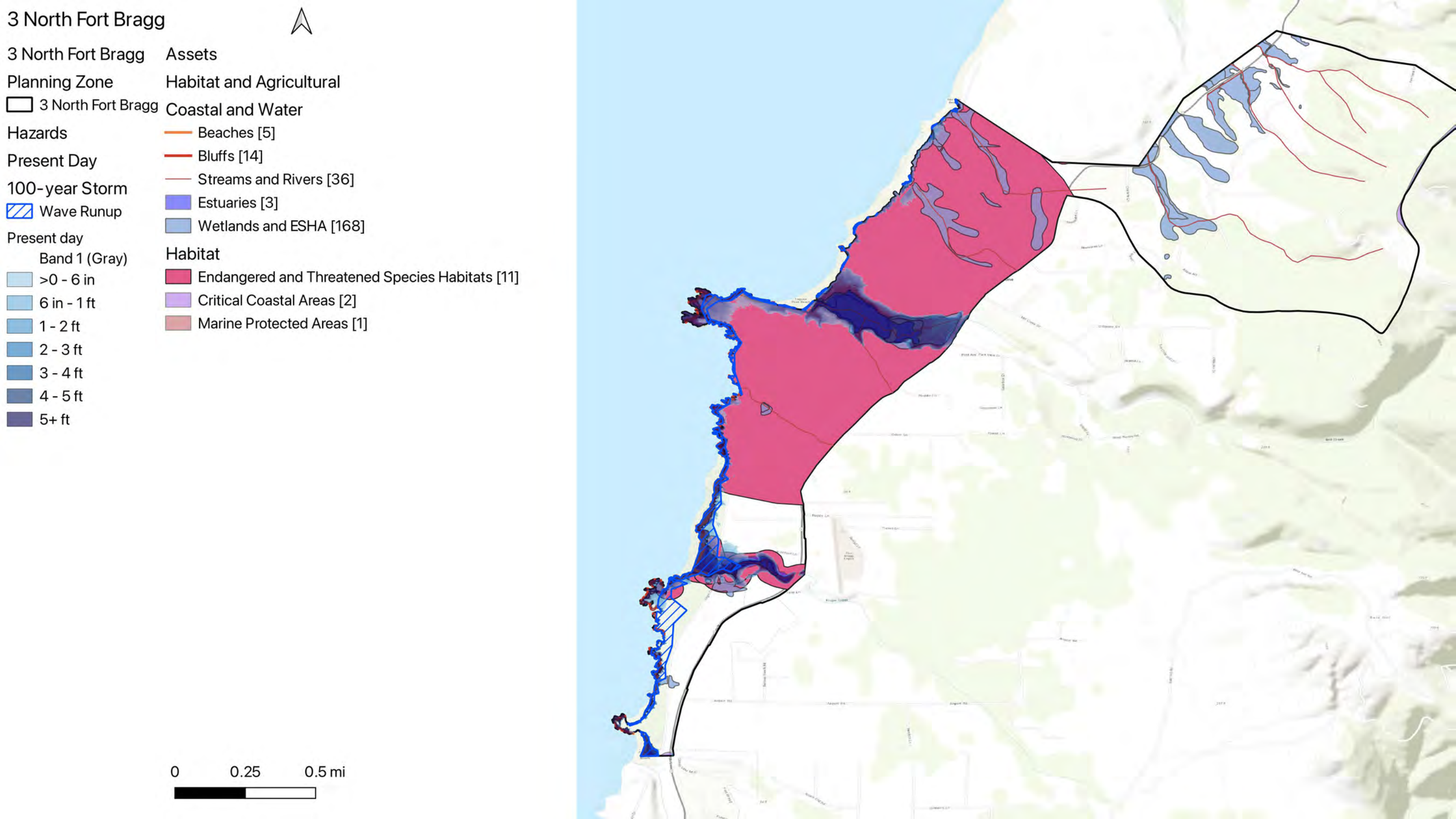
- Outlet [3]
- Culverts [1]
- Stormwater Pipes [4]

Sewer Utility for City of Fort Bragg

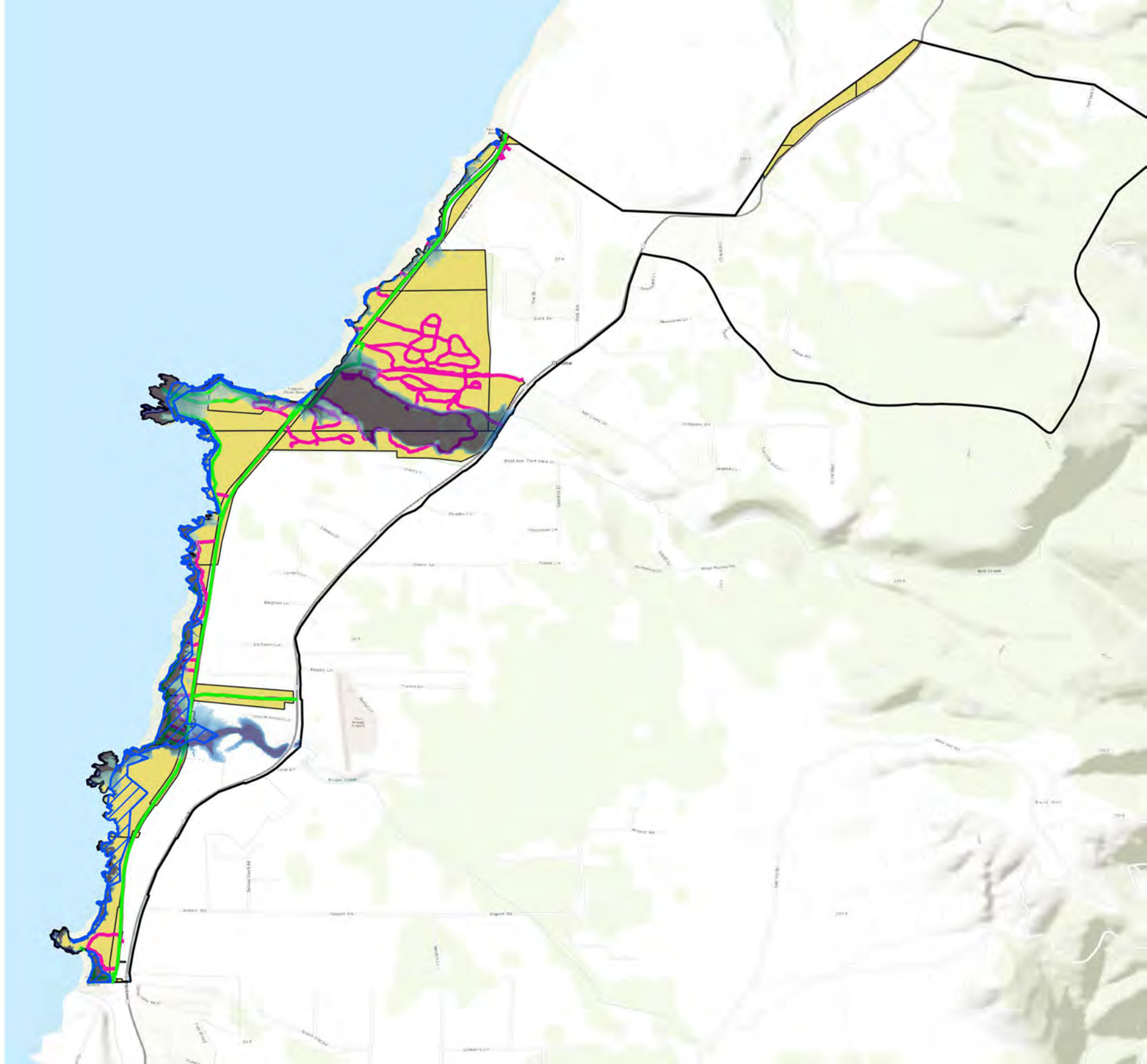
- Sewer Mains [14]



0 0.25 0.5 mi


3 North Fort Bragg
3 North Fort Bragg
Planning Zone
3 North Fort Bragg
Hazards
Present Day
100-year Storm
Wave Runup
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Habitat and Agricultural
Coastal and Water
Beaches [5]
Bluffs [14]
Streams and Rivers [36]
Estuaries [3]
Wetlands and ESHA [168]
Habitat
Endangered and Threatened Species Habitats [11]
Critical Coastal Areas [2]
Marine Protected Areas [1]
0
0.25
0.5 mi

3 North Fort Bragg



3 North Fort Bragg

Planning Zone

- 3 North Fort Bragg

Hazards

Present Day

100-year Storm

- Wave Runup

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Public Access and Recreation

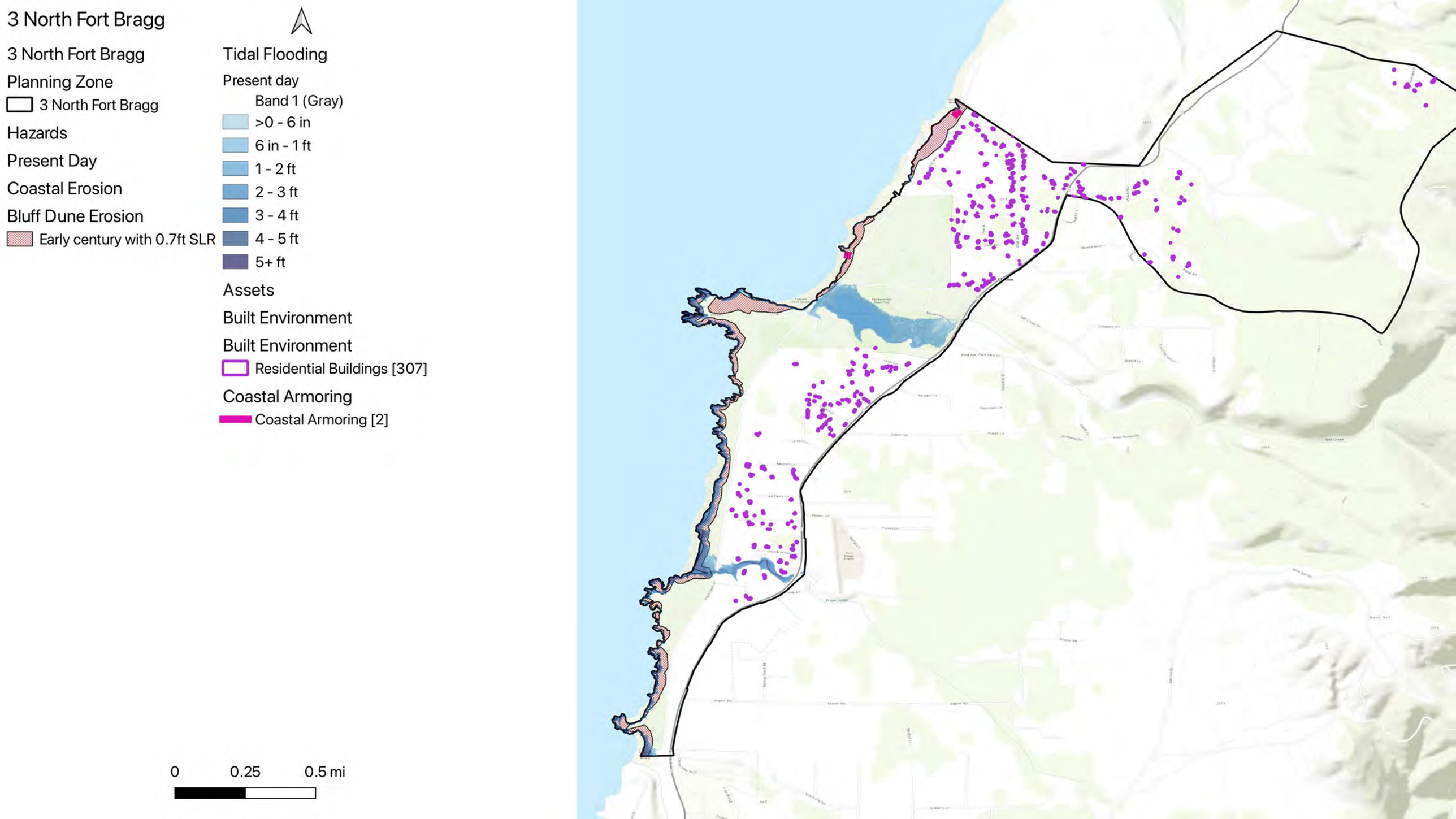
Recreation

- California Coastal Trail [16]
- Recreational Routes [156]

Parks & Govt Lands

- State Parks & Lands [29]

0 0.25 0.5 mi


3 North Fort Bragg
3 North Fort Bragg
Planning Zone
3 North Fort Bragg
Hazards
Present Day
Coastal Erosion
Bluff Dune Erosion
Early century with 0.7ft SLR
Tidal Flooding
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Built Environment
Built Environment
Residential Buildings [307]
Coastal Armoring
Coastal Armoring [2]
0
0.25
0.5 mi

3 North Fort Bragg

3 North Fort Bragg

Planning Zone

- 3 North Fort Bragg

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Critical Infrastructure

Environmental Sites

- Clean Up Sites [1]

Transportation

- State Route 1 [41]
- Roads [197]

Water Utility for City of Fort Bragg

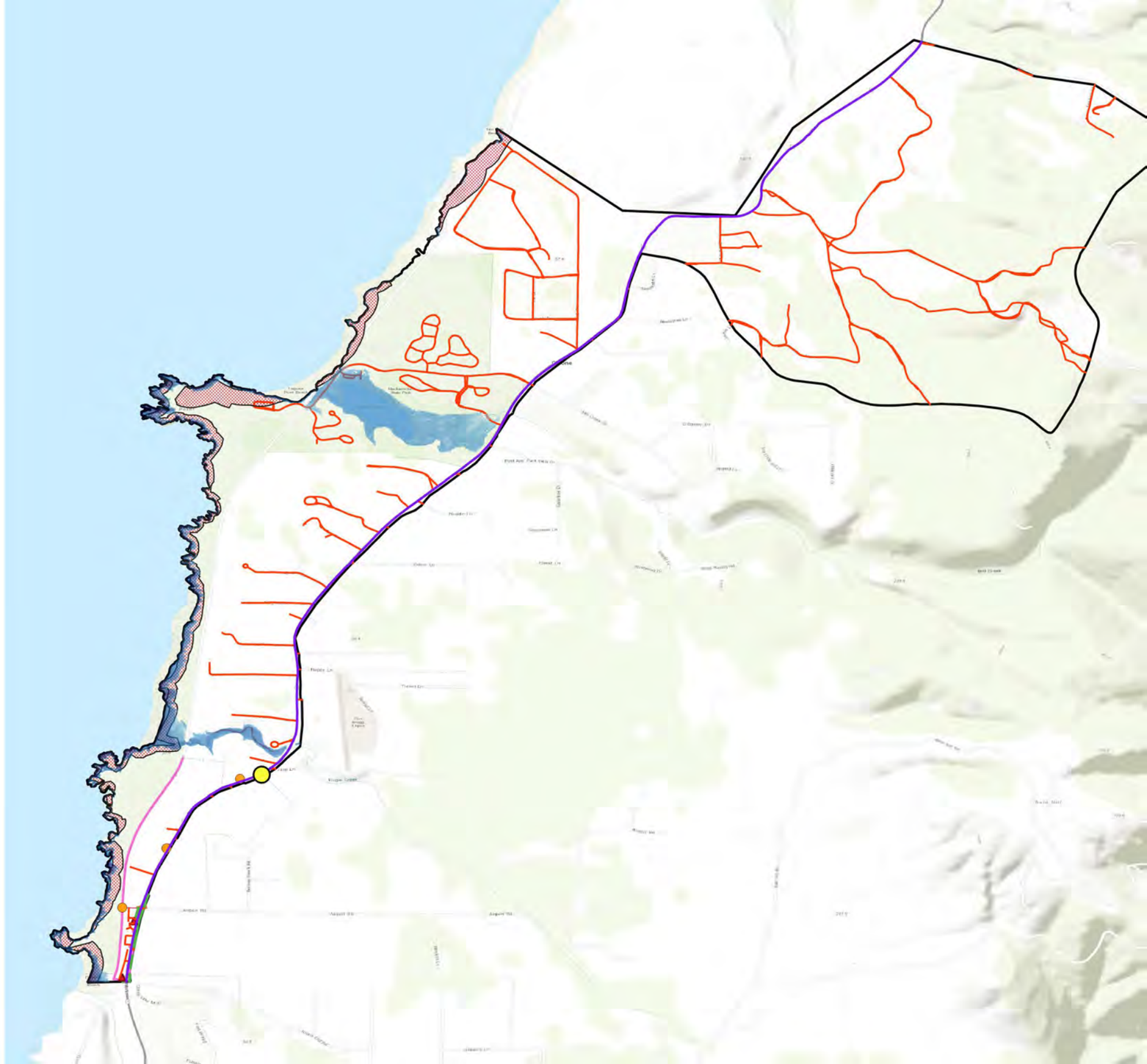
- Fire Hydrants [2]
- Water Main [23]

Stormwater Utility for City of Fort Bragg

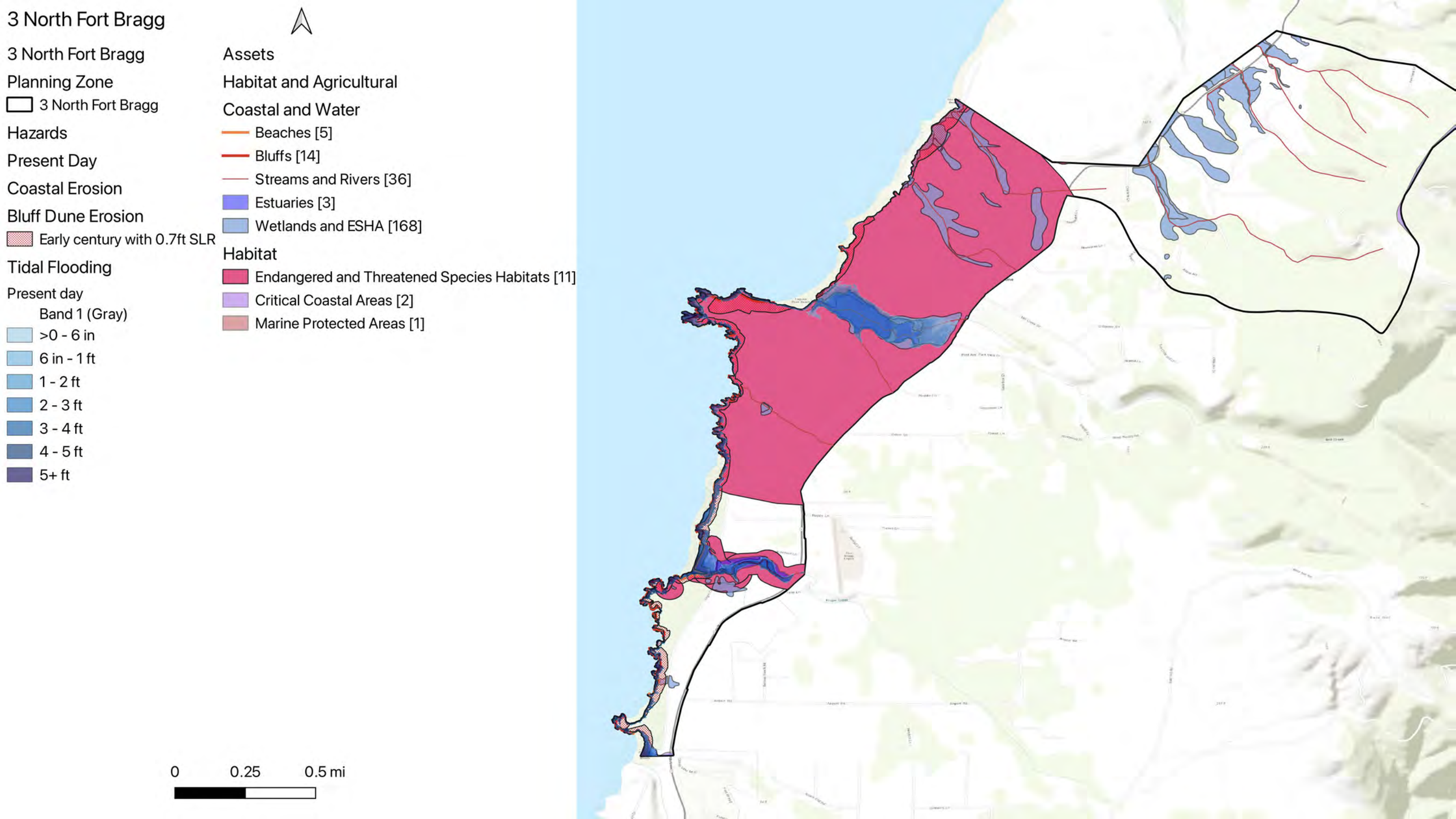
- Outlet [3]
- Culverts [1]
- Stormwater Pipes [4]

Sewer Utility for City of Fort Bragg

- Sewer Mains [14]



0 0.25 0.5 mi


3 North Fort Bragg
3 North Fort Bragg
Planning Zone
3 North Fort Bragg
Hazards
Present Day
Coastal Erosion
Bluff Dune Erosion
Early century with 0.7ft SLR
Tidal Flooding
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
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5+ ft
Assets
Habitat and Agricultural
Coastal and Water
Beaches [5]
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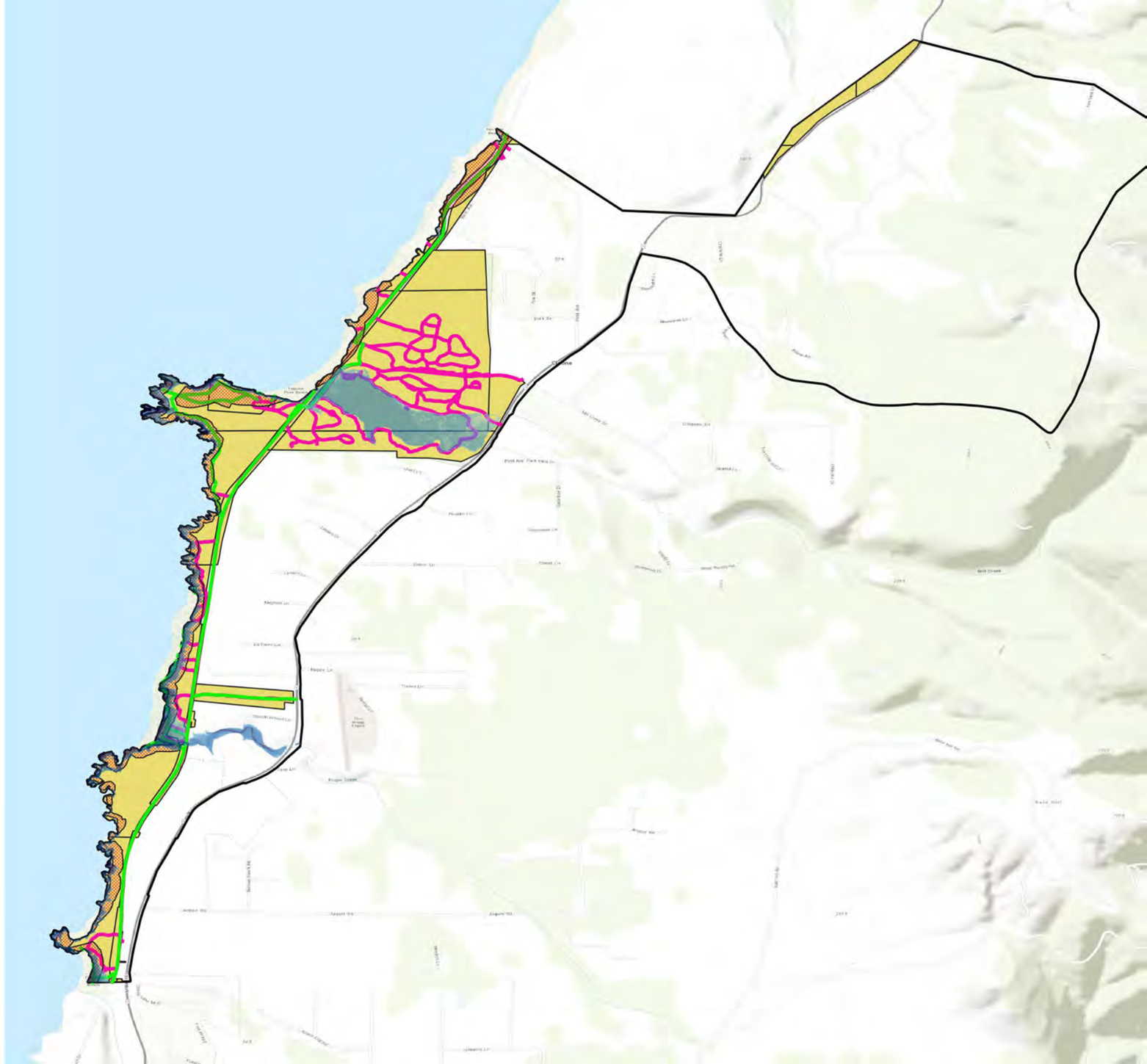
Streams and Rivers [36]
Estuaries [3]
Wetlands and ESHA [168]
Habitat
Endangered and Threatened Species Habitats [11]
Critical Coastal Areas [2]
Marine Protected Areas [1]
0
0.25
0.5 mi

3 North Fort Bragg



3 North Fort Bragg

Planning Zone

- 3 North Fort Bragg

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Public Access and Recreation

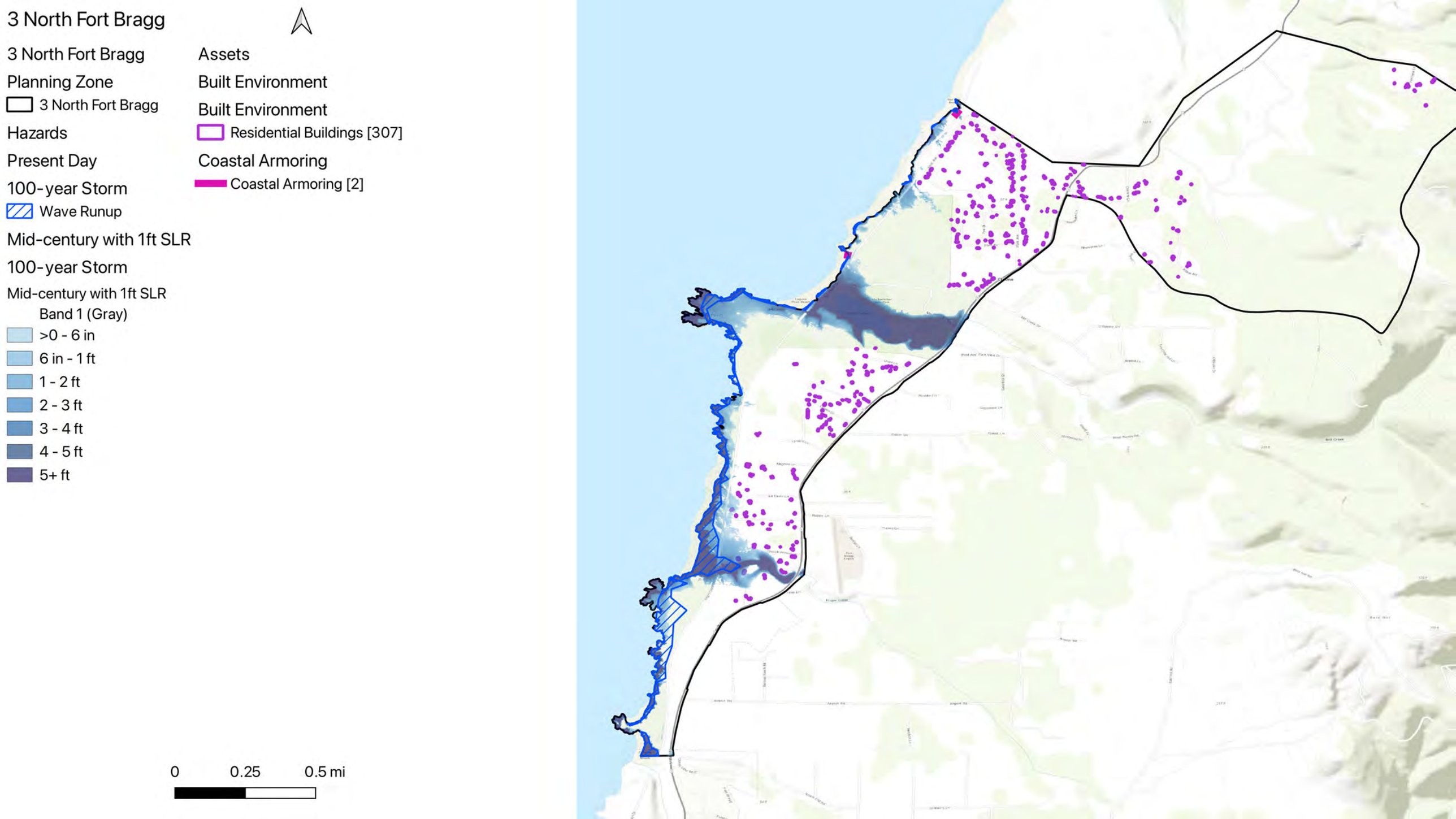
Recreation

- California Coastal Trail [16]
- Recreational Routes [156]

Parks & Govt Lands

- State Parks & Lands [29]

0 0.25 0.5 mi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Planning Zone
3 North Fort Bragg
Hazards
Present Day
100-year Storm
Wave Runup
Mid-century with 1ft SLR
100-year Storm
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Built Environment
Built Environment
Residential Buildings [307]
Coastal Armoring
Coastal Armoring [2]
0
0.25
0.5 mi


3 North Fort Bragg
3 North Fort Bragg
Planning Zone
3 North Fort Bragg
Hazards
Present Day
100-year Storm
Wave Runup
Mid-century with 1ft SLR
100-year Storm
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
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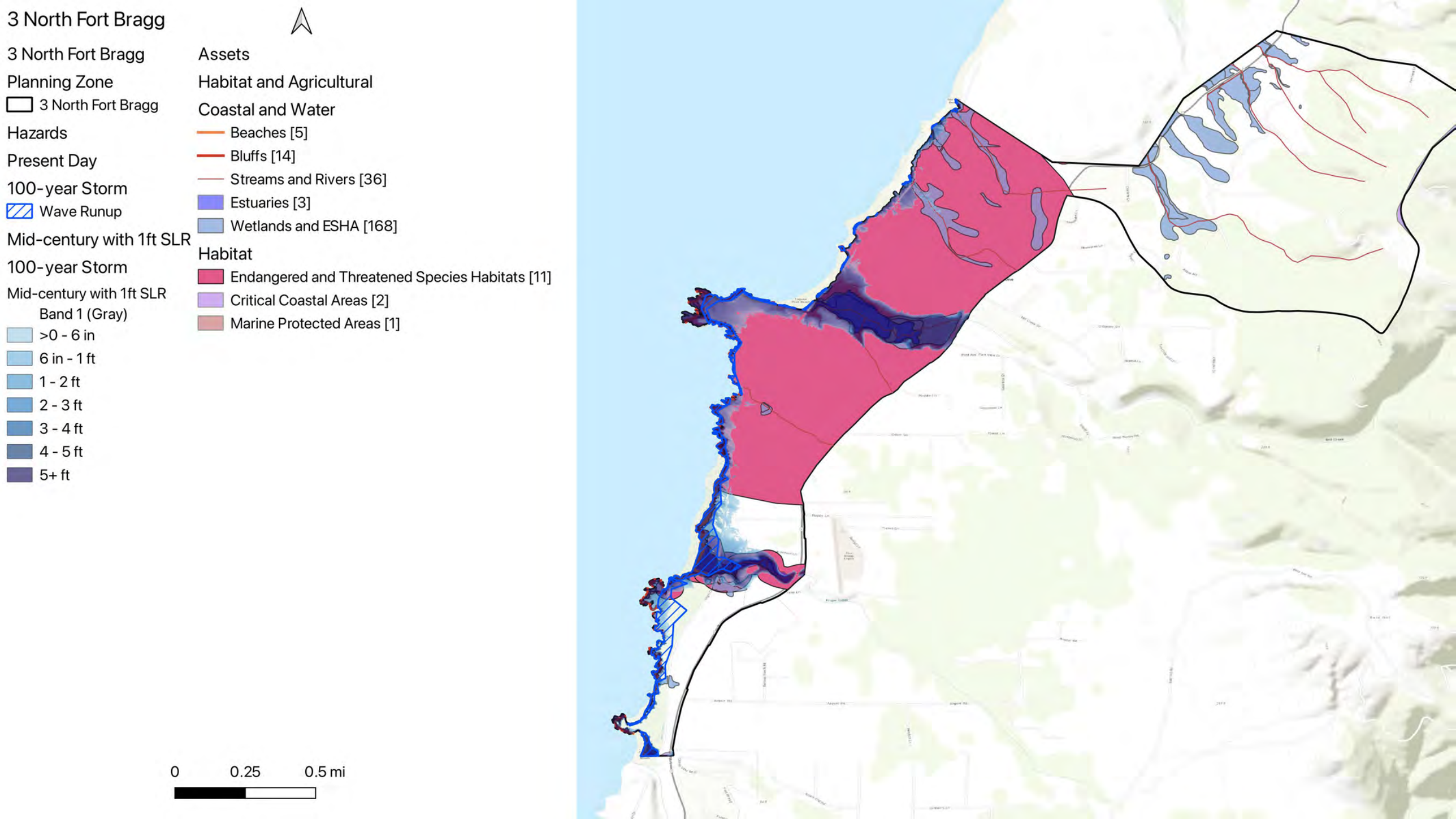
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Critical Infrastructure
Environmental Sites
Clean Up Sites [1]
Transportation
State Route 1 [41]
Roads [197]
Water Utility for City of Fort Bragg
Fire Hydrants [2]
Water Main [23]
Stormwater Utility for City of Fort Bragg
Outlet [3]
Culverts [1]
Stormwater Pipes [4]
Sewer Utility for City of Fort Bragg
Sewer Mains [14]
0
0.25
0.5 mi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3 North Fort Bragg
Planning Zone
3 North Fort Bragg
Hazards
Present Day
100-year Storm
Wave Runup
Mid-century with 1ft SLR
100-year Storm
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
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Assets
Habitat and Agricultural
Coastal and Water
Beaches [5]
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Streams and Rivers [36]
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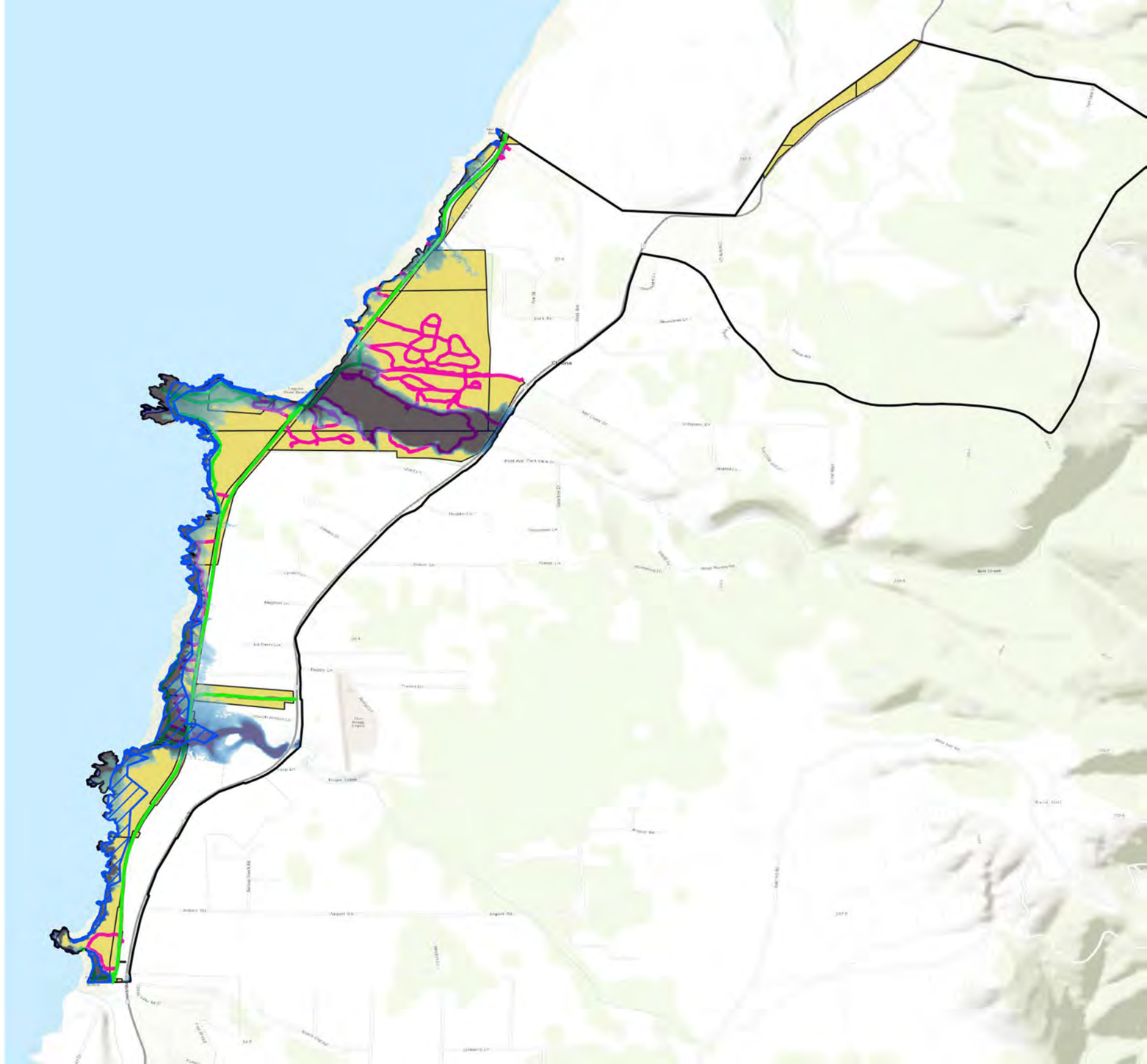
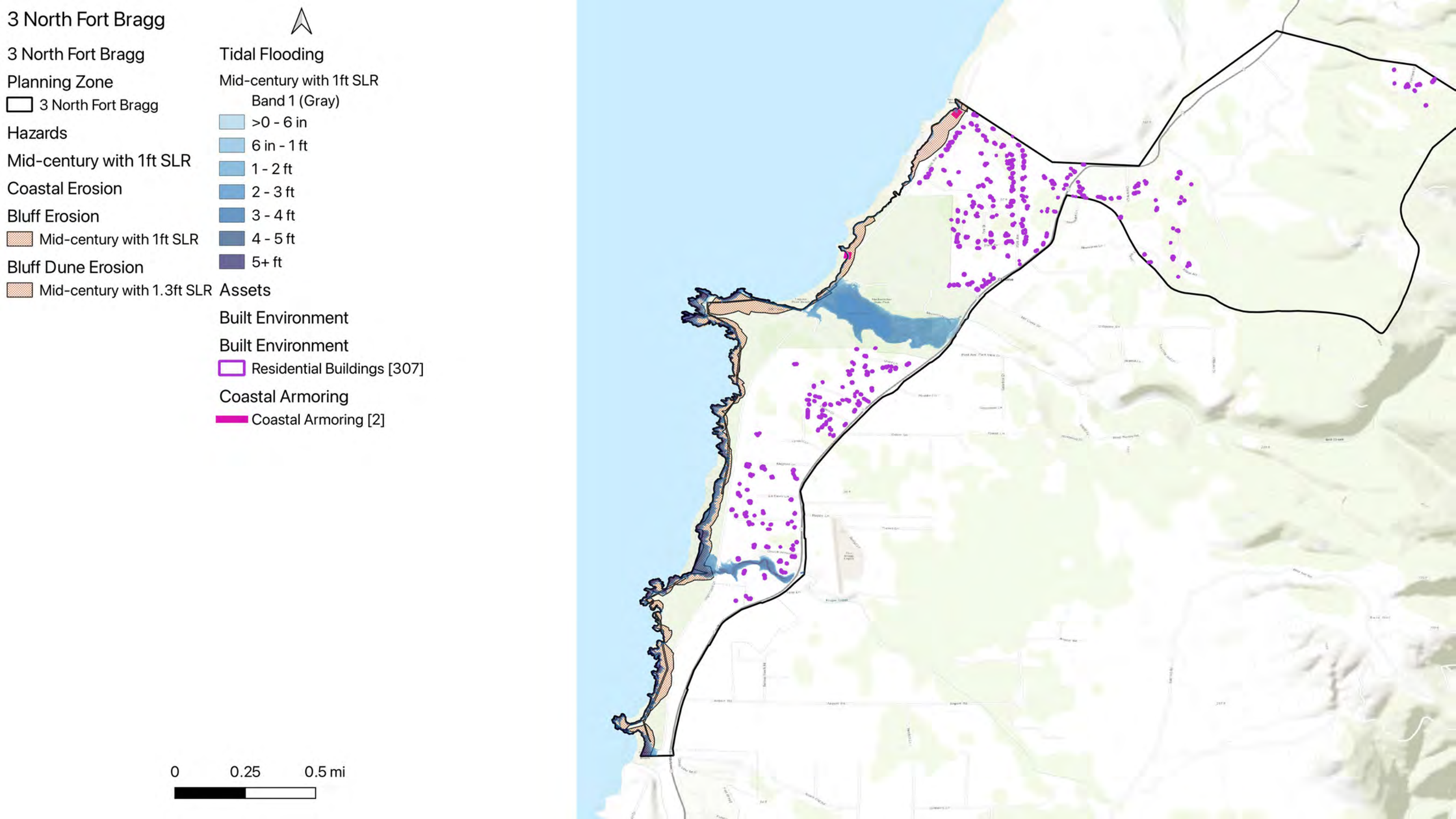
Habitat
Endangered and Threatened Species Habitats [11]
Critical Coastal Areas [2]
Marine Protected Areas [1]
0
0.25
0.5 mi

3 North Fort Bragg

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3 North Fort Bragg
Planning Zone
3 North Fort Bragg
Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Built Environment
Built Environment
Residential Buildings [307]
Coastal Armoring
Coastal Armoring [2]
0
0.25
0.5 mi


3 North Fort Bragg
3 North Fort Bragg
Planning Zone
3 North Fort Bragg
Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
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4 - 5 ft
5+ ft
Assets
Critical Infrastructure
Environmental Sites
Clean Up Sites [1]
Transportation
State Route 1 [41]
Roads [197]
Water Utility for City of Fort Bragg
Fire Hydrants [2]
Water Main [23]
Stormwater Utility for City of Fort Bragg
Outlet [3]
Culverts [1]
Stormwater Pipes [4]
Sewer Utility for City of Fort Bragg
Sewer Mains [14]
0
0.25
0.5 mi

3 North Fort Bragg

3 North Fort Bragg

Planning Zone

- 3 North Fort Bragg

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Habitat and Agricultural

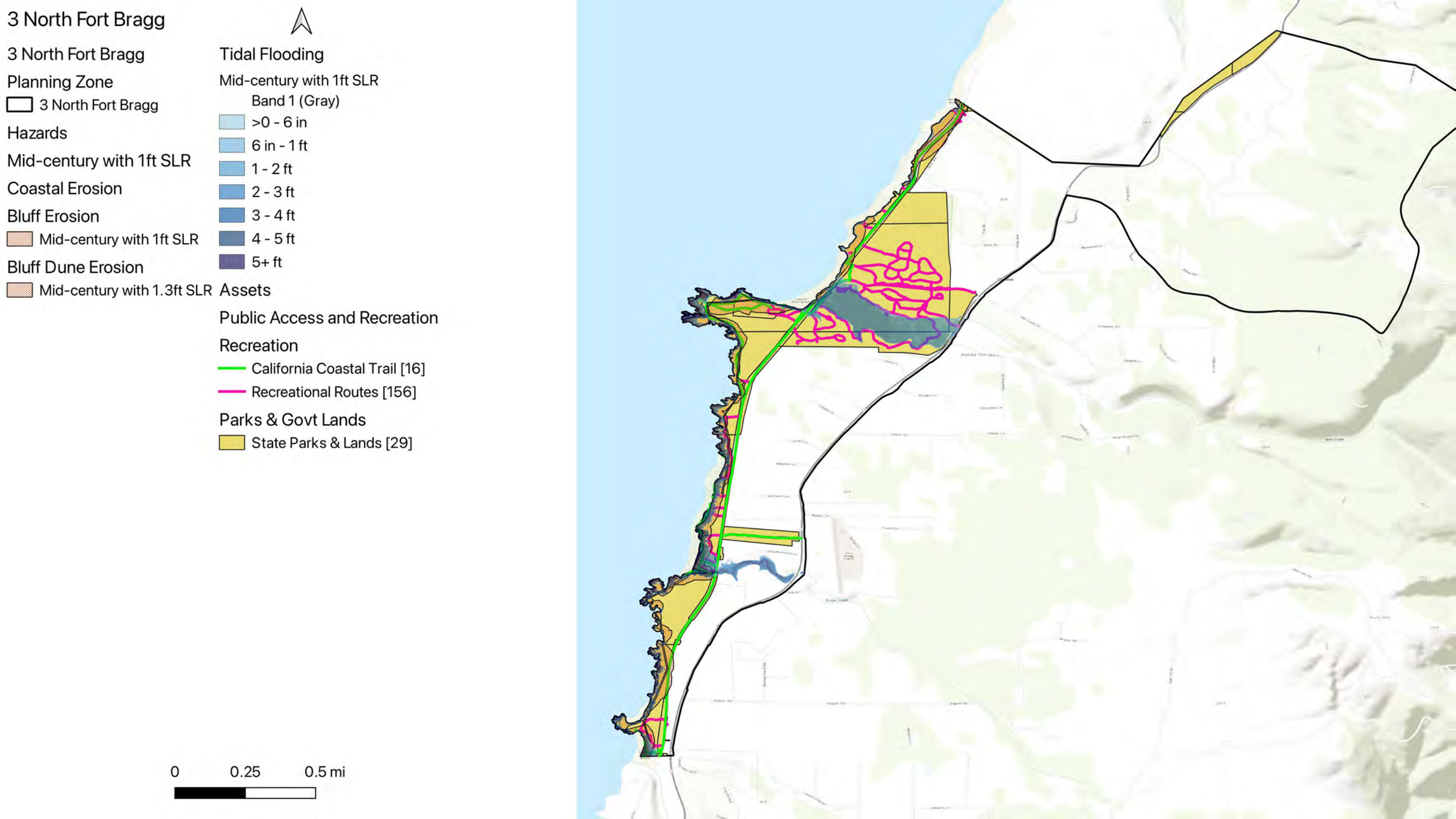
Coastal and Water

- Beaches [5]
- Bluffs [14]
- Streams and Rivers [36]
- Estuaries [3]
- Wetlands and ESHA [168]

Habitat

- Endangered and Threatened Species Habitats [11]
- Critical Coastal Areas [2]
- Marine Protected Areas [1]

0 0.25 0.5 mi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3 North Fort Bragg
Planning Zone
3 North Fort Bragg
Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
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5+ ft
Assets
Public Access and Recreation
Recreation
California Coastal Trail [16]
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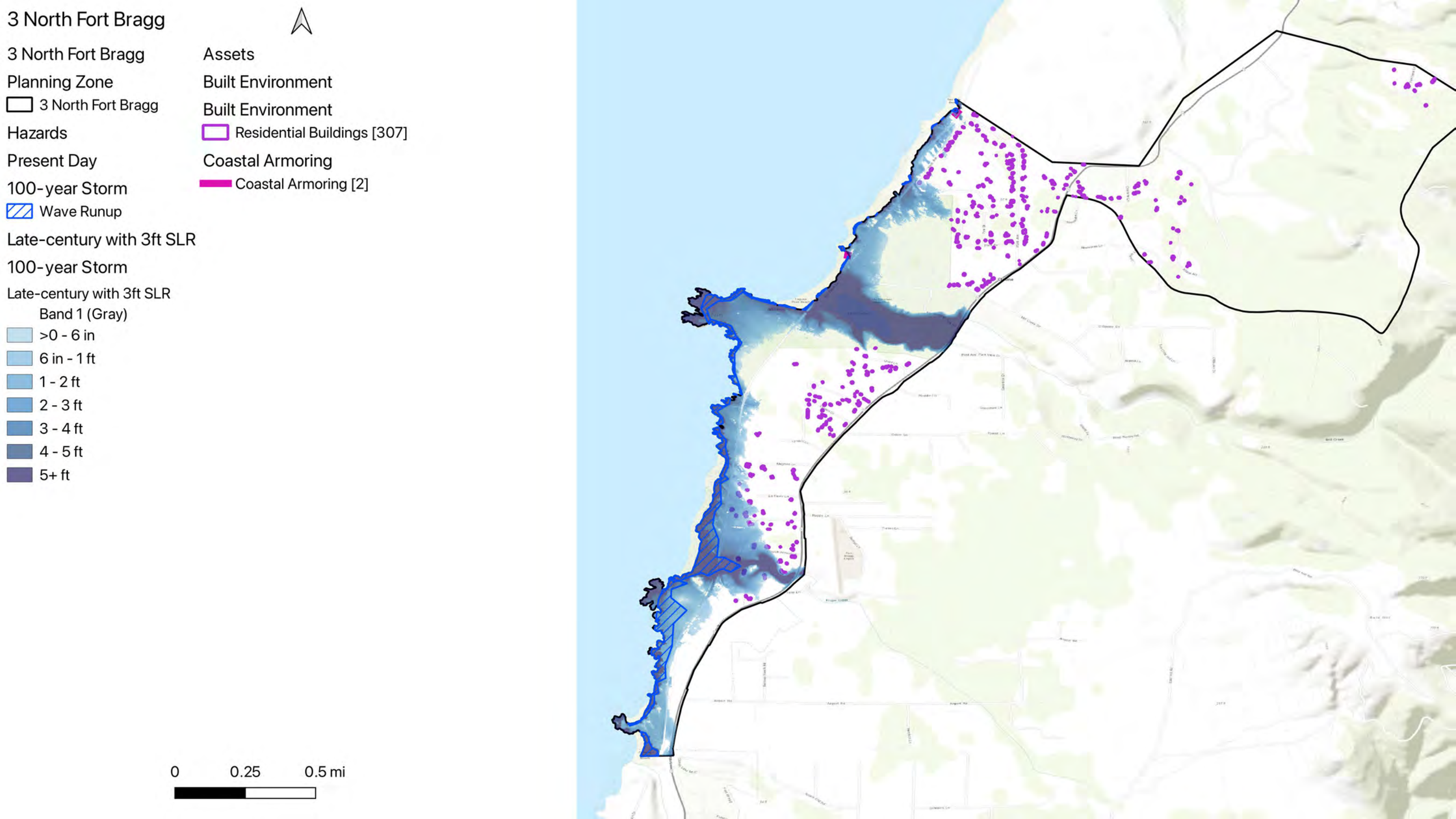
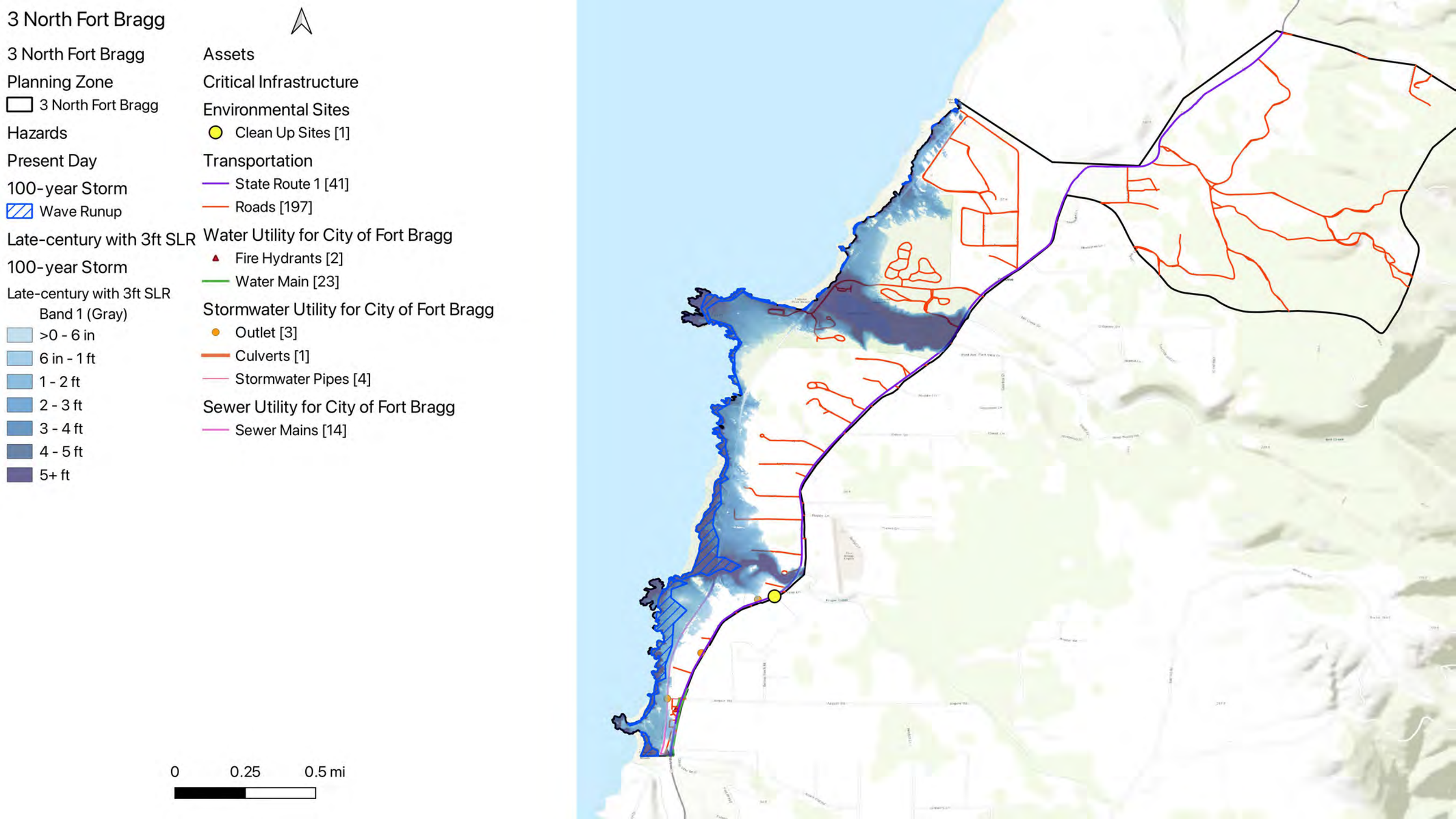
Parks & Govt Lands
State Parks & Lands [29]
0
0.25
0.5 mi


3 North Fort Bragg
3 North Fort Bragg
Planning Zone
3 North Fort Bragg
Hazards
Present Day
100-year Storm
Wave Runup
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Built Environment
Built Environment
Residential Buildings [307]
Coastal Armoring
Coastal Armoring [2]
0
0.25
0.5 mi


3 North Fort Bragg
3 North Fort Bragg
Planning Zone
3 North Fort Bragg
Hazards
Present Day
100-year Storm
Wave Runup
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Critical Infrastructure
Environmental Sites
Clean Up Sites [1]
Transportation
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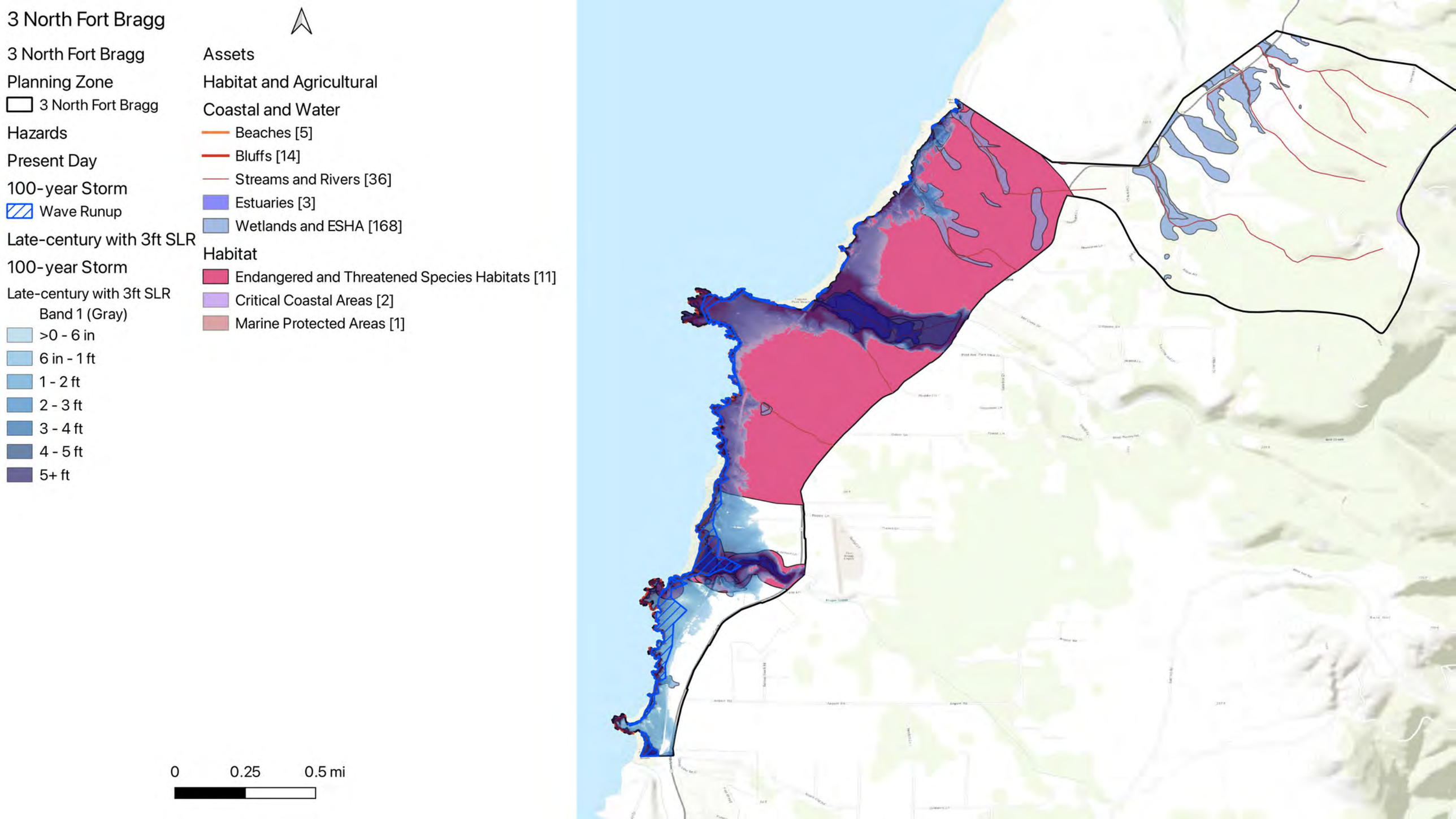
Roads [197]
Water Utility for City of Fort Bragg
Fire Hydrants [2]
Water Main [23]
Stormwater Utility for City of Fort Bragg
Outlet [3]
Culverts [1]
Stormwater Pipes [4]
Sewer Utility for City of Fort Bragg
Sewer Mains [14]
0
0.25
0.5 mi


3 North Fort Bragg
3 North Fort Bragg
Planning Zone
3 North Fort Bragg
Hazards
Present Day
100-year Storm
Wave Runup
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
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5+ ft
Assets
Habitat and Agricultural
Coastal and Water
Beaches [5]
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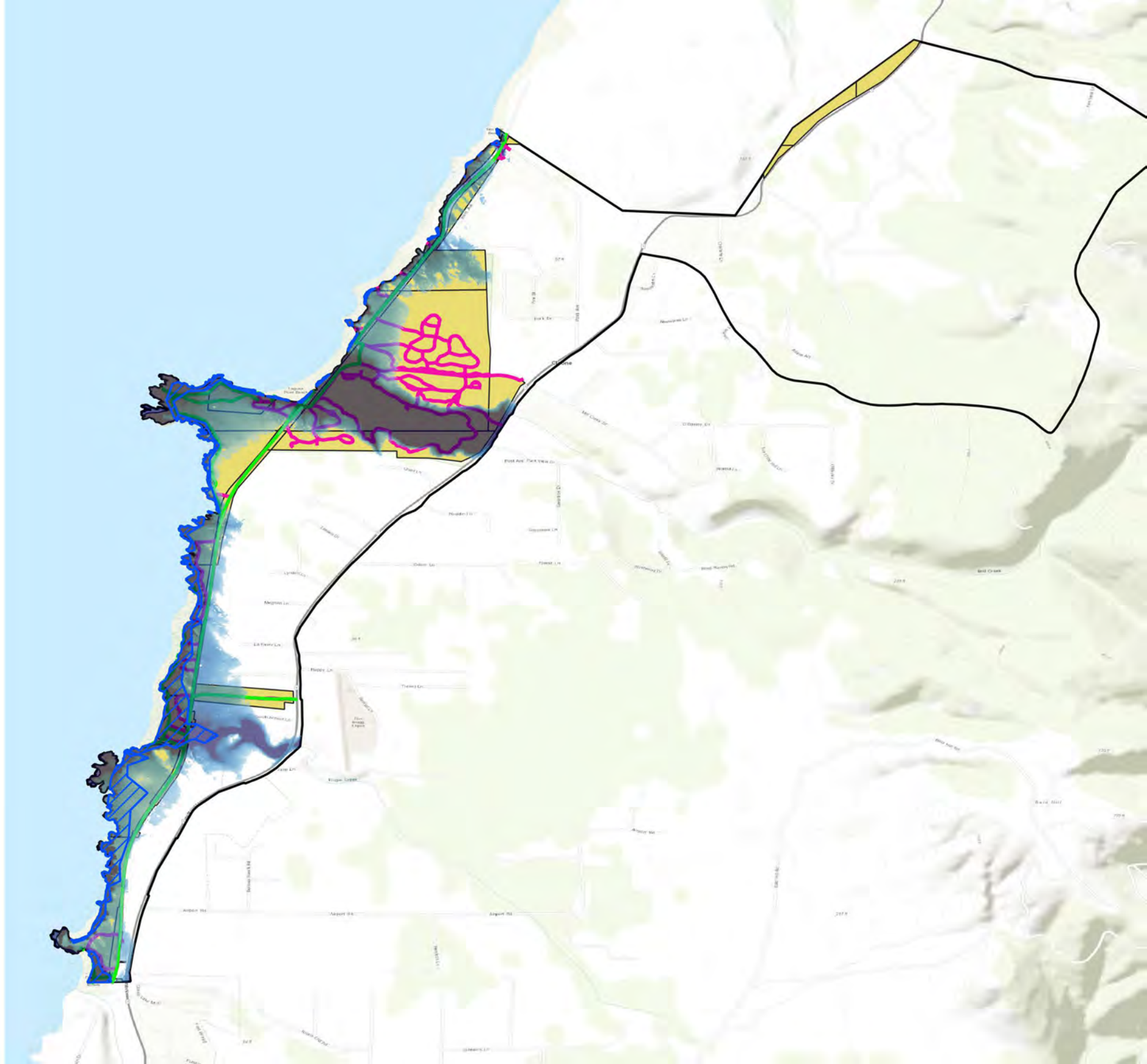
Streams and Rivers [36]
Estuaries [3]
Wetlands and ESHA [168]
Habitat
Endangered and Threatened Species Habitats [11]
Critical Coastal Areas [2]
Marine Protected Areas [1]
0
0.25
0.5 mi

3 North Fort Bragg



3 North Fort Bragg

Planning Zone

- 3 North Fort Bragg

Hazards

Present Day

100-year Storm

- Wave Runup

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
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Assets

Public Access and Recreation

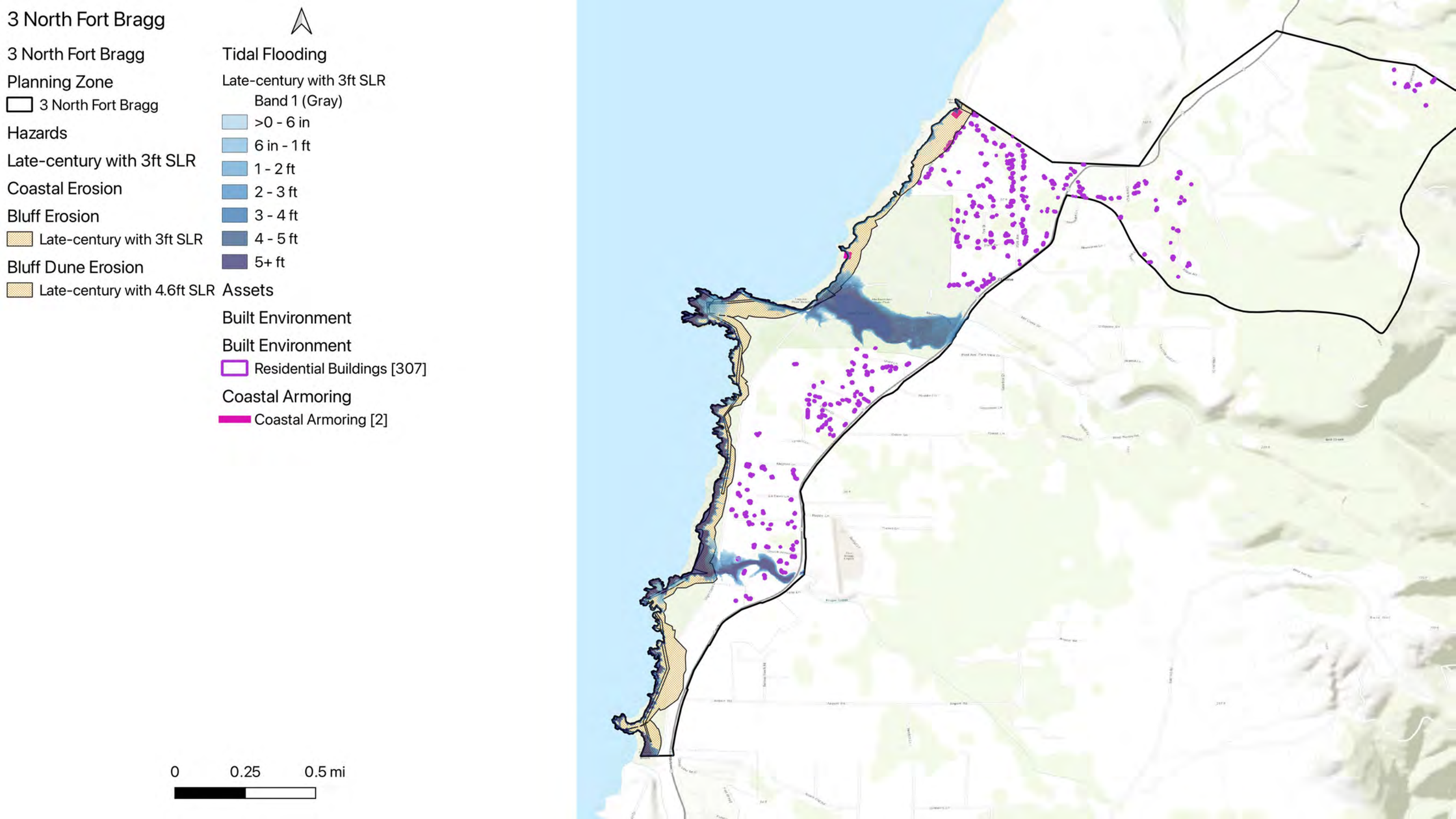
Recreation

- California Coastal Trail [16]
- Recreational Routes [156]

Parks & Govt Lands

- State Parks & Lands [29]

0 0.25 0.5 mi


3 North Fort Bragg
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Planning Zone
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Hazards
Late-century with 3ft SLR
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Bluff Erosion
Late-century with 3ft SLR
Bluff Dune Erosion
Late-century with 4.6ft SLR
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Late-century with 3ft SLR
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Built Environment
Built Environment
Residential Buildings [307]
Coastal Armoring
Coastal Armoring [2]
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0.25
0.5 mi

3 North Fort Bragg

3 North Fort Bragg

Planning Zone

- 3 North Fort Bragg

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

- Late-century with 3ft SLR

Bluff Dune Erosion

- Late-century with 4.6ft SLR

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Assets

Critical Infrastructure

Environmental Sites

- Clean Up Sites [1]

Transportation

- State Route 1 [41]
- Roads [197]

Water Utility for City of Fort Bragg

- Fire Hydrants [2]
- Water Main [23]

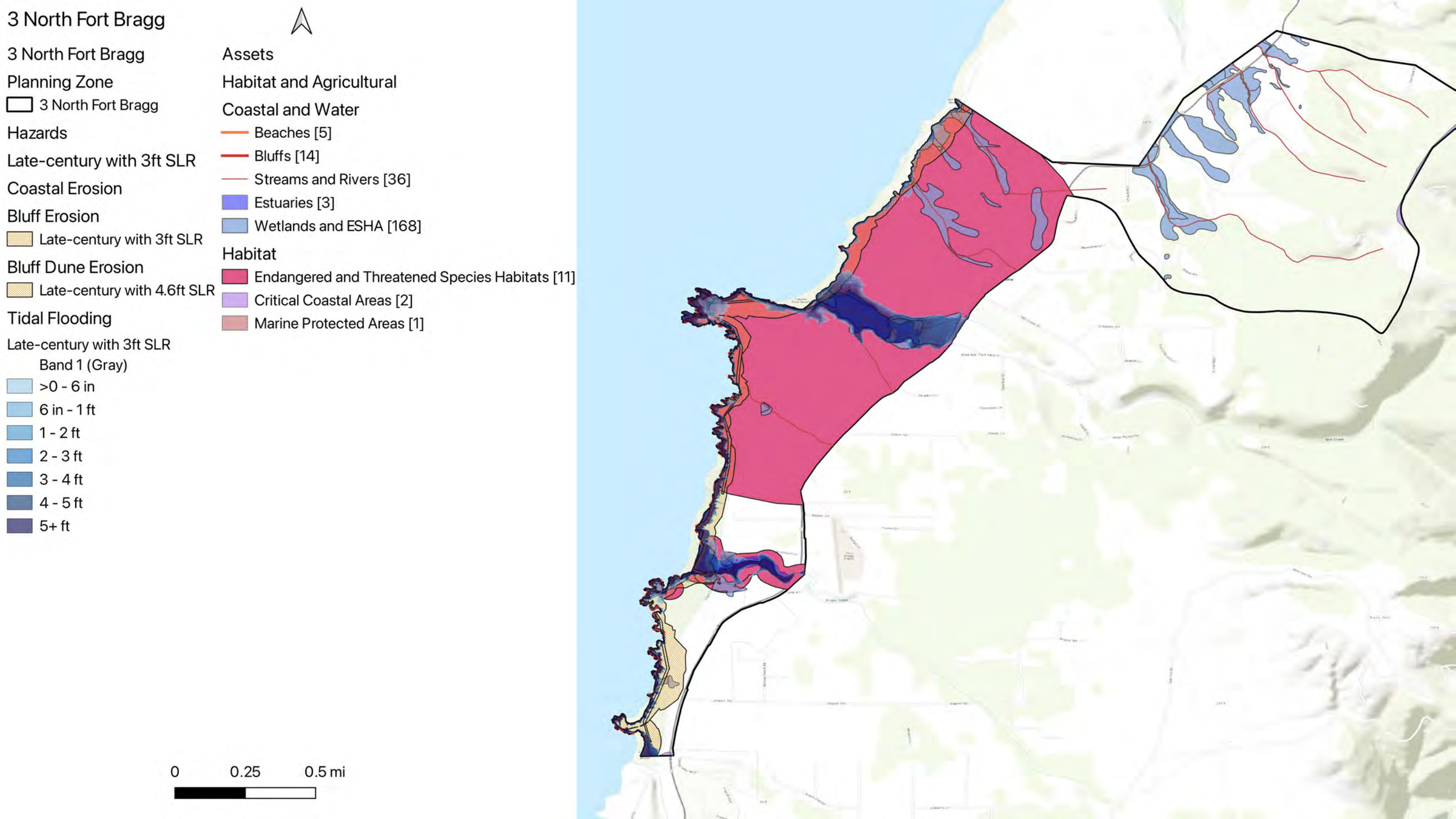
Stormwater Utility for City of Fort Bragg

- Outlet [3]
- Culverts [1]
- Stormwater Pipes [4]

Sewer Utility for City of Fort Bragg

- Sewer Mains [14]

0 0.25 0.5 mi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3 North Fort Bragg

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Planning Zone

- 3 North Fort Bragg

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

- Late-century with 3ft SLR

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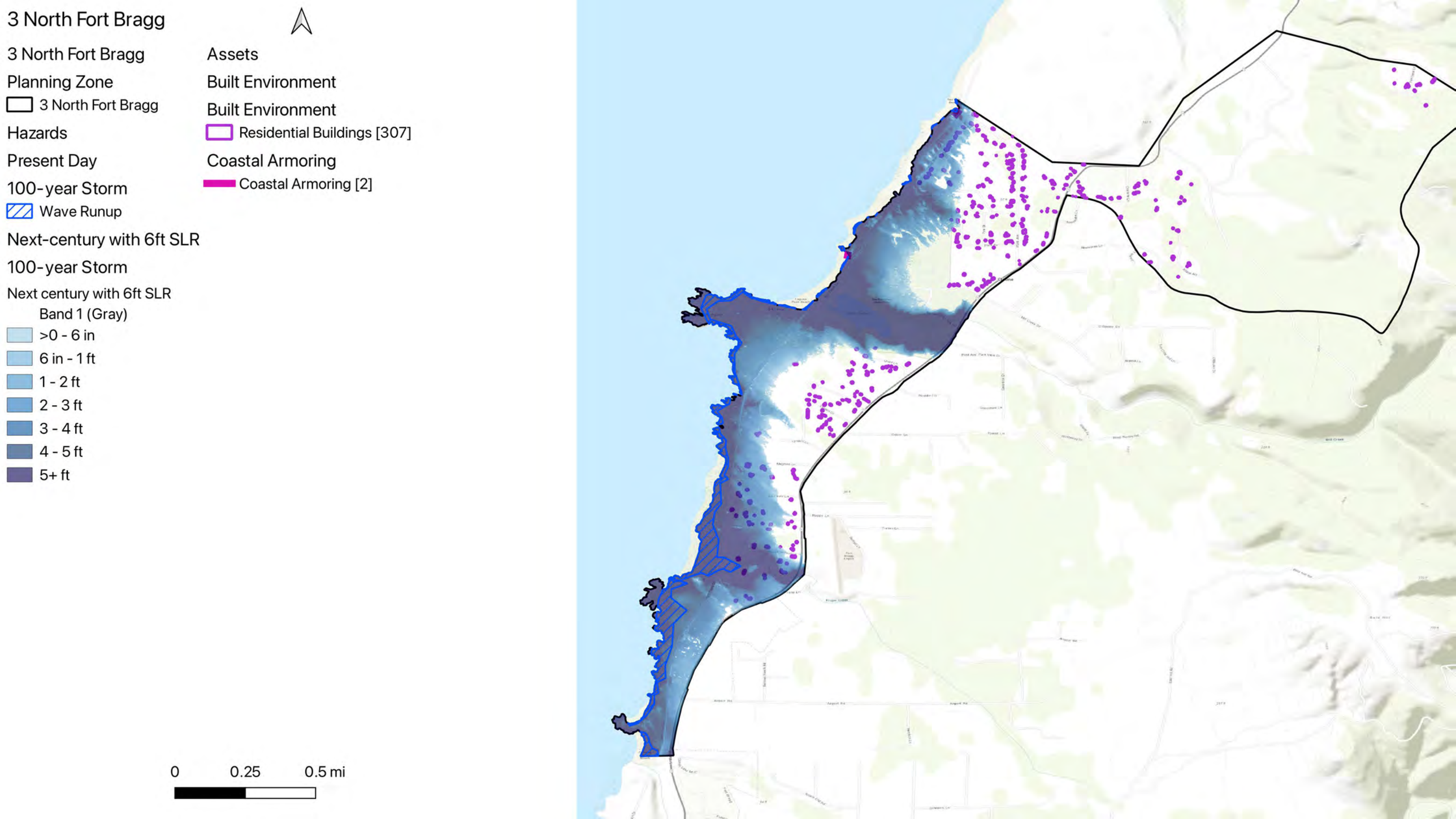
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Hazards
Present Day
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Next-century with 6ft SLR
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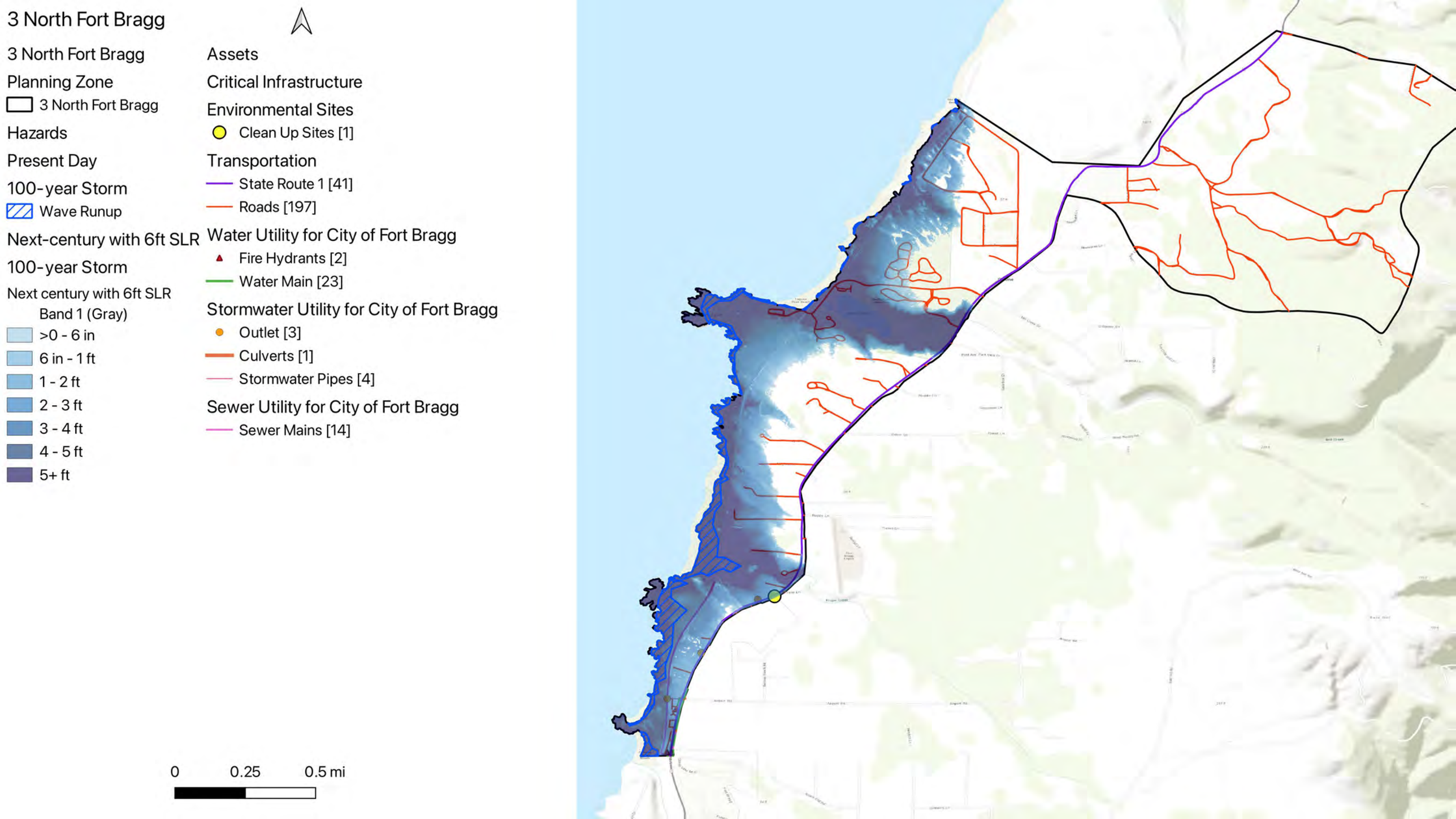
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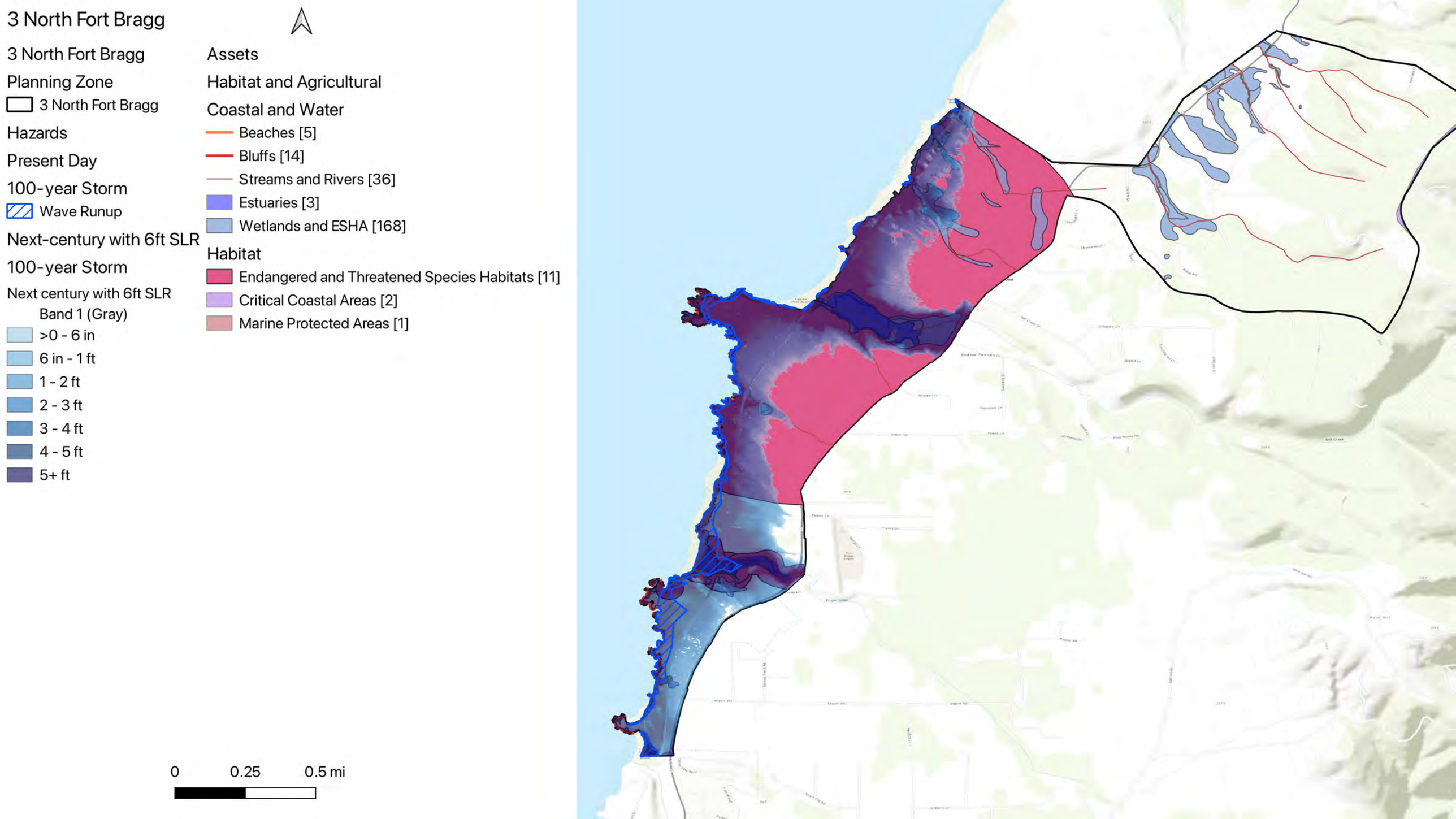
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3 North Fort Bragg

3 North Fort Bragg

Planning Zone

- 3 North Fort Bragg

Hazards

Present Day

100-year Storm

- Wave Runup

Next-century with 6ft SLR

100-year Storm

Next century with 6ft SLR

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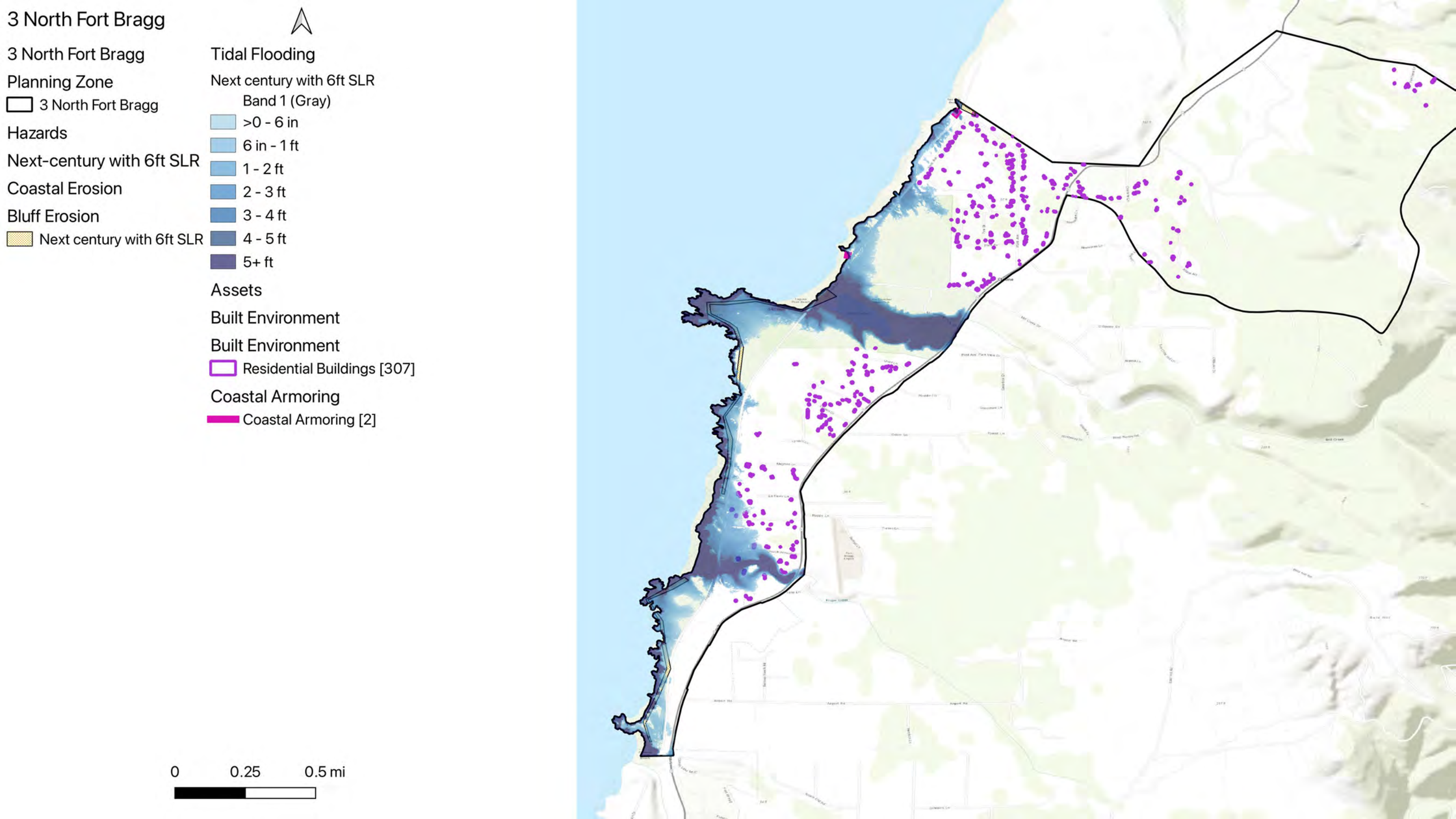
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3 North Fort Bragg

3 North Fort Bragg

Planning Zone

- 3 North Fort Bragg

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

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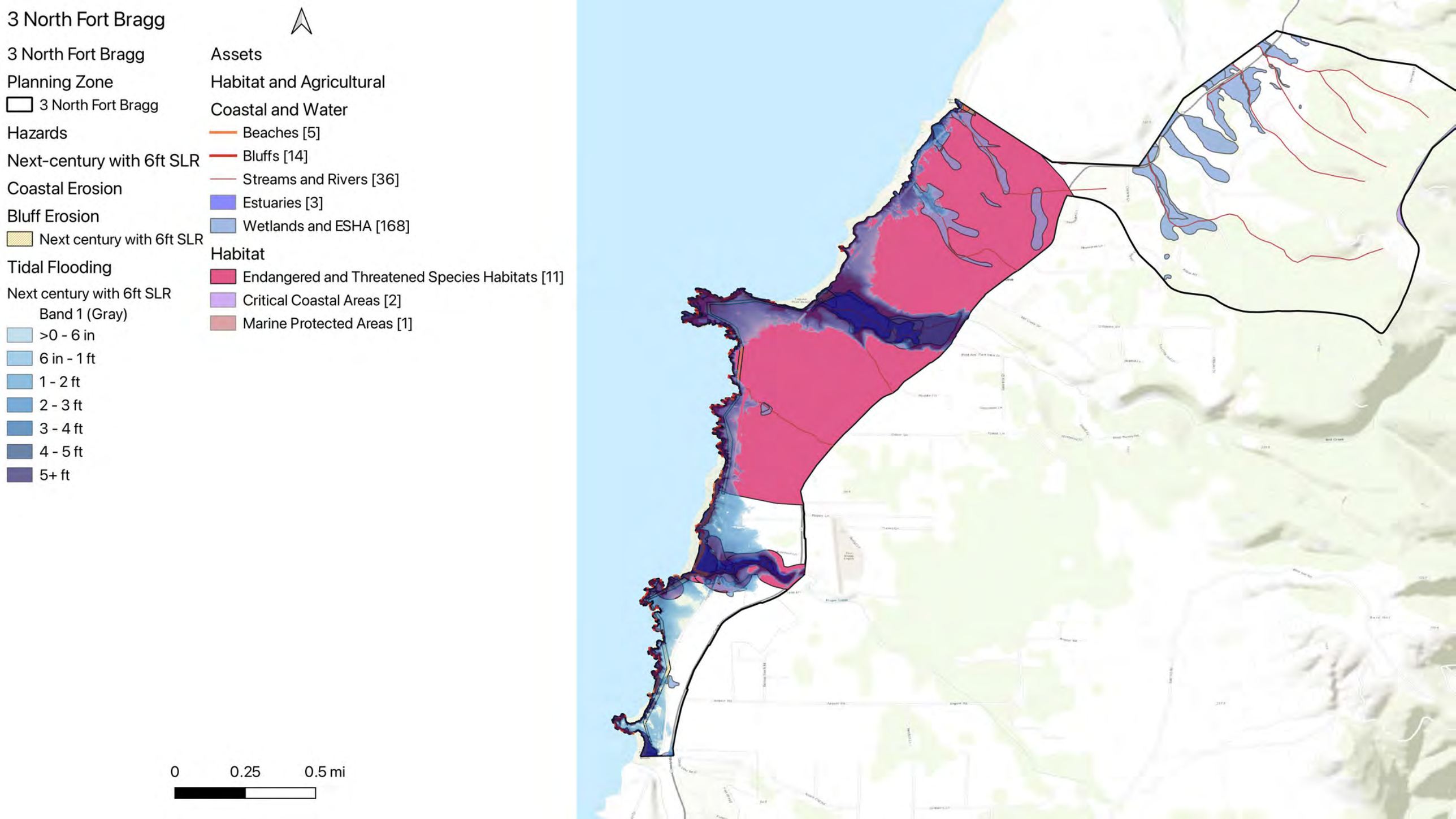
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3 North Fort Bragg

3 North Fort Bragg

Planning Zone

- 3 North Fort Bragg

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

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Public Access and Recreation

Recreation

- California Coastal Trail [16]
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Parks & Govt Lands

- State Parks & Lands [29]

0 0.25 0.5 mi

Table 4. South Fort Bragg – Noyo and City

Sub-Category	Asset Type	Units	WaveP	StormP	TidalP	TotalsP	Storm 1ft	Tidal 1ft	BluffE 1ft	CoastE 1ft	Totals 1ft	Storm 3ft	Tidal 3ft	BluffE 3ft	CoastE 3ft	Totals 3ft	Storm 6ft	Tidal 6ft	BluffE 6ft	CoastE 6ft	Totals 6ft
Power & Comms	Transmission Lines	Length (mi)	0	0.3	0.2	0.3	0.4	0.3	0	0	0.4	0.4	0.3	0	0	0.4	0.4	0.4	0	0	0.4
Environmental Sites	Wastewater Treatment Facilities	Number of facilities	0	0	0	0	0	0	1	1	1	1	0	1	1	1	1	1	1	1	1
Environmental Sites	Clean Up Sites	Number of sites	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1
Transportation	State Route 1	Length (mi)	0	0.3	0.2	0.3	0.4	0.2	0	0	0.4	0.6	0.3	0	0	0.6	0.6	0.5	0	0	0.6
Transportation	Bus Lines	Length (mi)	0	1.2	1	1.2	1.2	1.1	0	0	1.2	1.2	1.1	0	0	1.2	1.3	1.2	0	0.3	1.6
Transportation	Roads	Length (mi)	0	4	2.5	4	4.4	2.9	0.1	0.1	4.6	5.4	3.7	0.2	0.2	5.8	7.3	5.1	0.3	0.9	8
Water Utility for City of Fort Bragg	Water Station	Number of structures	0	1	1	1	1	1	0	0	1	1	1	0	0	1	1	1	0	0	1
Water Utility for City of Fort Bragg	Fire Hydrants	Number of structures	0	6	5	6	6	5	0	0	6	6	6	0	0	6	8	6	0	0	8
Water Utility for City of Fort Bragg	Water Main	Length (mi)	0	1.6	1.4	1.6	1.6	1.4	0	0	1.6	1.8	1.5	0	0	1.8	1.9	1.7	0	0	1.9
Stormwater Utility for City of Fort Bragg	Catch Basin	Number of structures	0	8	7	8	8	7	0	0	8	9	8	0	0	9	13	9	0	0	13
Stormwater Utility for City of Fort Bragg	Culverts	Number of structures	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1
Stormwater Utility for City of Fort Bragg	Stormwater Pipes	Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Sewer Utility for City of Fort Bragg	Lift Station	Number of structures	1	3	2	3	3	3	0	0	3	3	3	0	0	3	3	3	0	0	3
Sewer Utility for City of Fort Bragg	Sewer Pumps	Number of pumps	1	3	2	3	3	3	0	0	3	3	3	0	0	3	3	3	0	0	3
Sewer Utility for City of Fort Bragg	Sewer Mains	Length (ft)	9	43	36	43	44	39	0	0	44	46	42	0	0	46	50	46	0	0	50

4 S Ft Bragg (Noyo & City)

4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Present Day

100-year Storm

4 Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

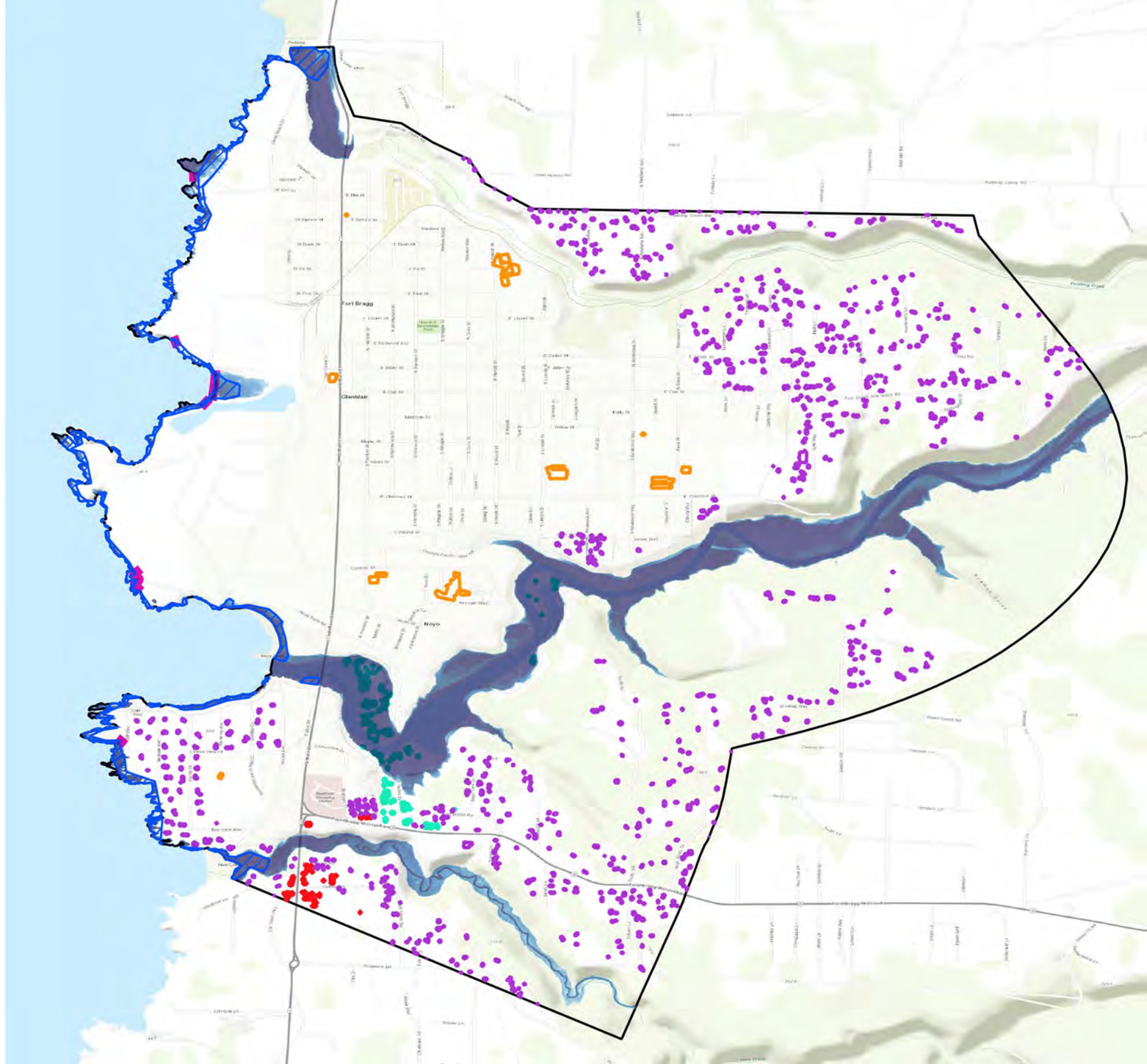
Built Environment

Built Environment

- Residential Buildings [845]
- Commercial Buildings [31]
- Public Facilities [11]
- Coastal Dependent Use [79]

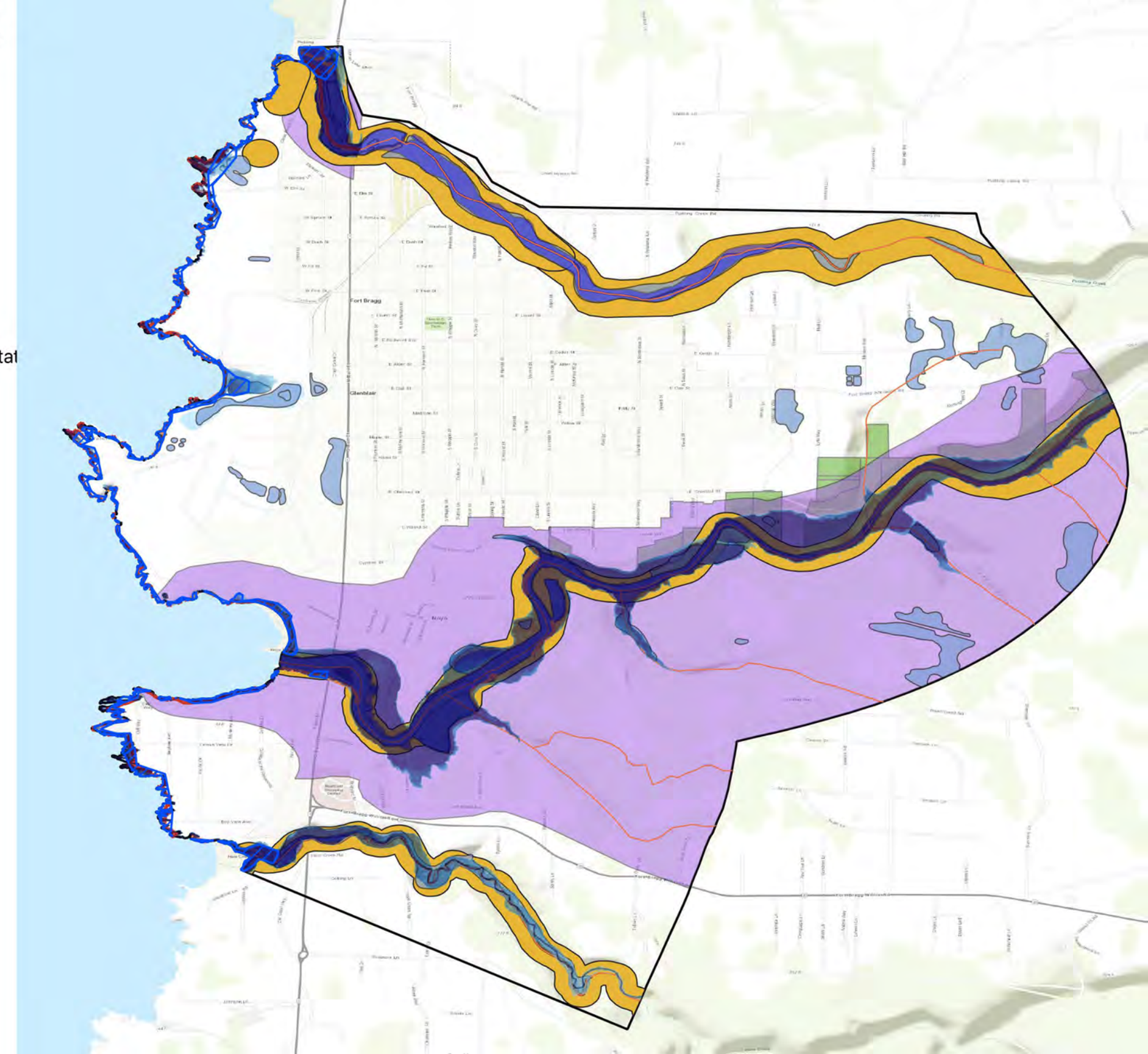
Coastal Armoring

- Coastal Armoring [6]



0 0.25 0.5 mi

4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

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Hazards

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Next-century with 6ft SLR

100-year Storm

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Assets

Habitat and Agricultural

Coastal and Water

- Beaches [14]
- Bluffs [31]
- Streams and Rivers [27]
- Estuaries [3]
- Wetlands and ESHA [760]

Habitat

- Endangered and Threatened Species Habitat
- Critical Coastal Areas [3]
- Marine Protected Areas [1]

Agricultural

- Agricultural lands [23]

0 0.25 0.5 mi

4 S Ft Bragg (Noyo & City)

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Hazards

Present Day

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Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Public Access and Recreation

Recreation

- California Coastal Trail [35]
- Recreational Routes [12]
- Mendocino Railway [2]

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- Land Trust lands [1]

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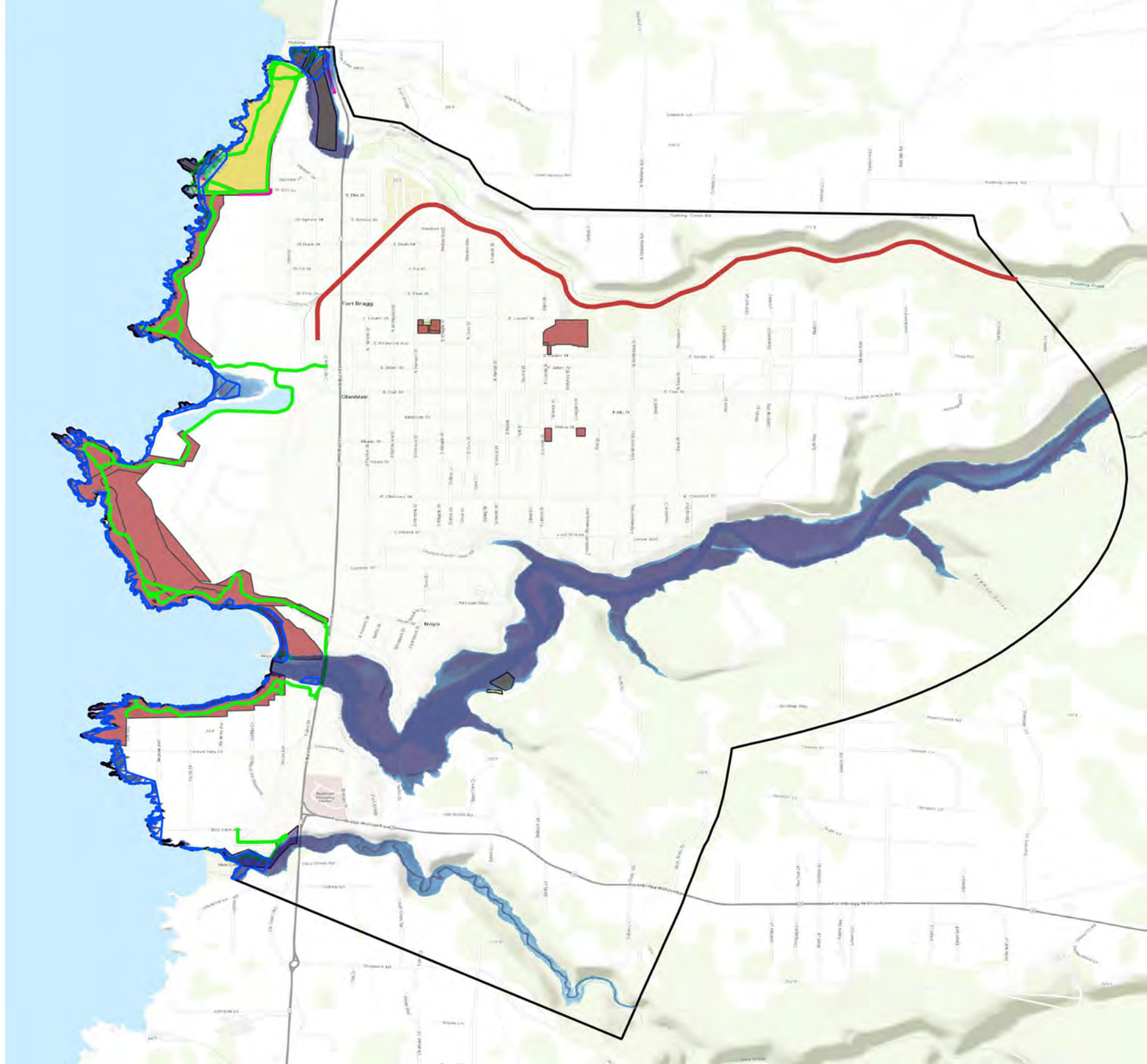

4 S Ft Bragg (Noyo & City)

4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- 4 Early century with 0.7ft SLR

Tidal Flooding

4 Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
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Assets

Built Environment

Built Environment

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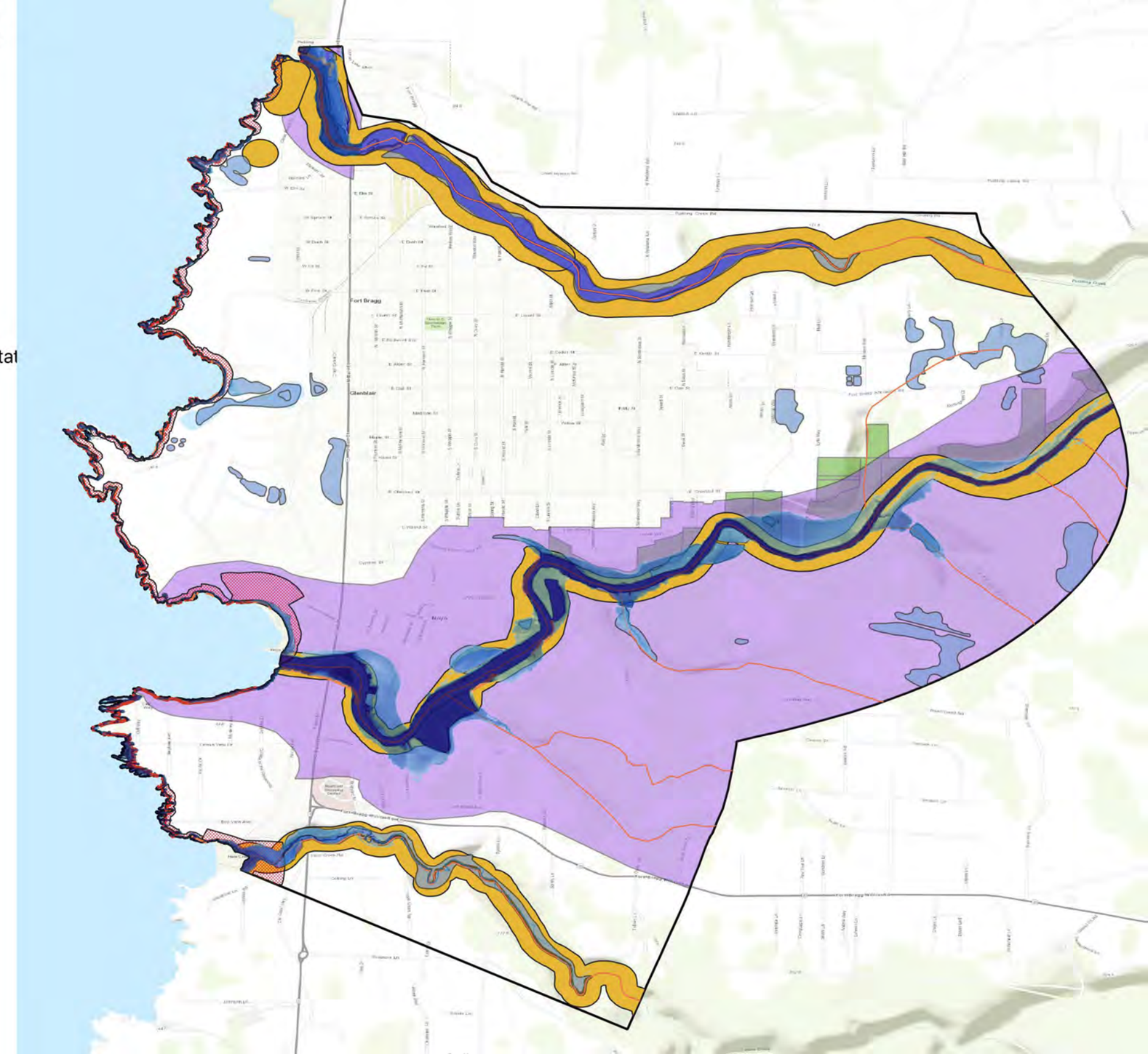

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Planning Zone

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Present Day

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Assets

Habitat and Agricultural

Coastal and Water

- Beaches [14]
- Bluffs [31]
- Streams and Rivers [27]
- Estuaries [3]
- Wetlands and ESHA [760]

Habitat

- Endangered and Threatened Species Habitat
- Critical Coastal Areas [3]
- Marine Protected Areas [1]

Agricultural

- Agricultural lands [23]

0 0.25 0.5 mi

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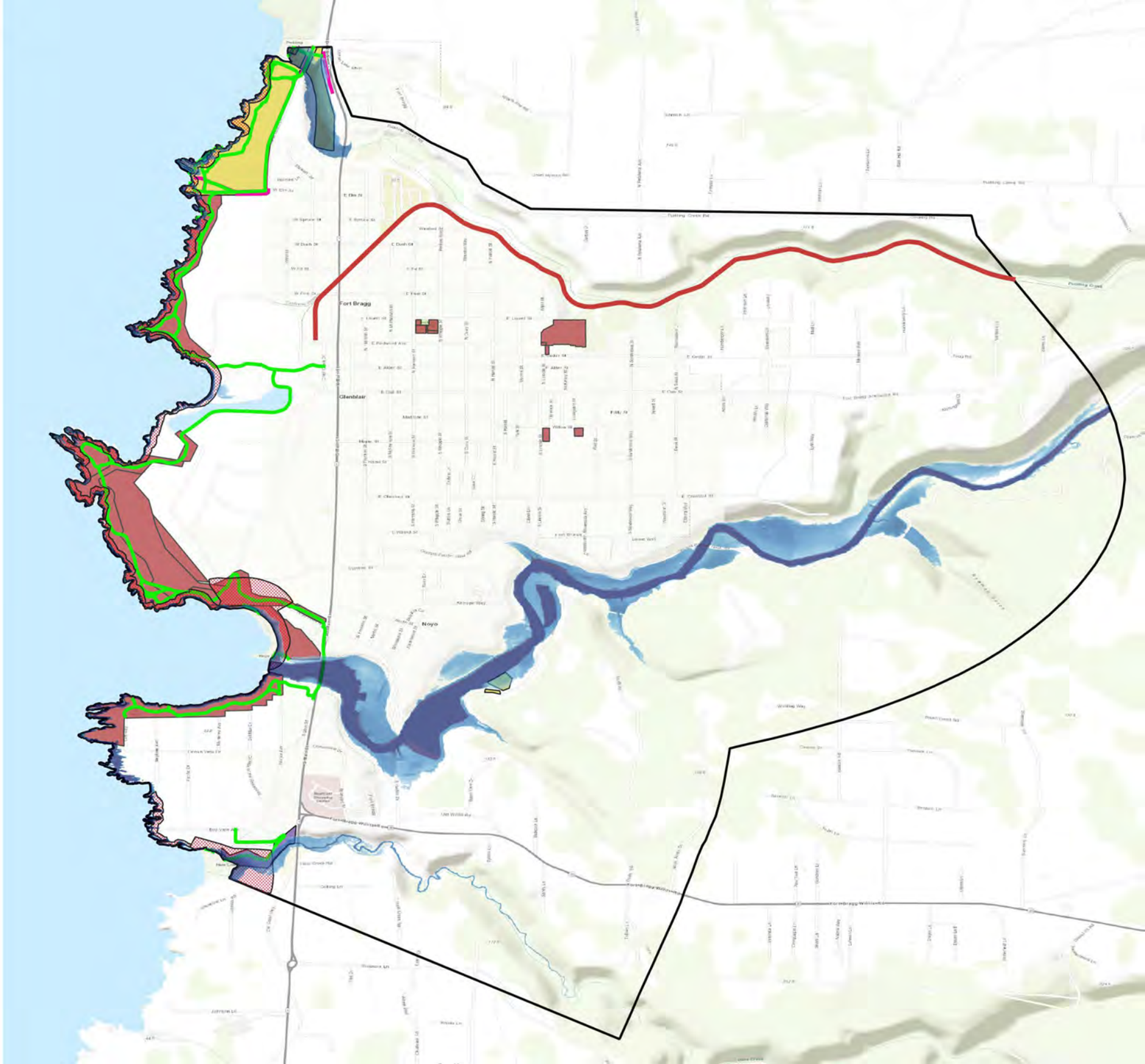

4 S Ft Bragg (Noyo & City)

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Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR
Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

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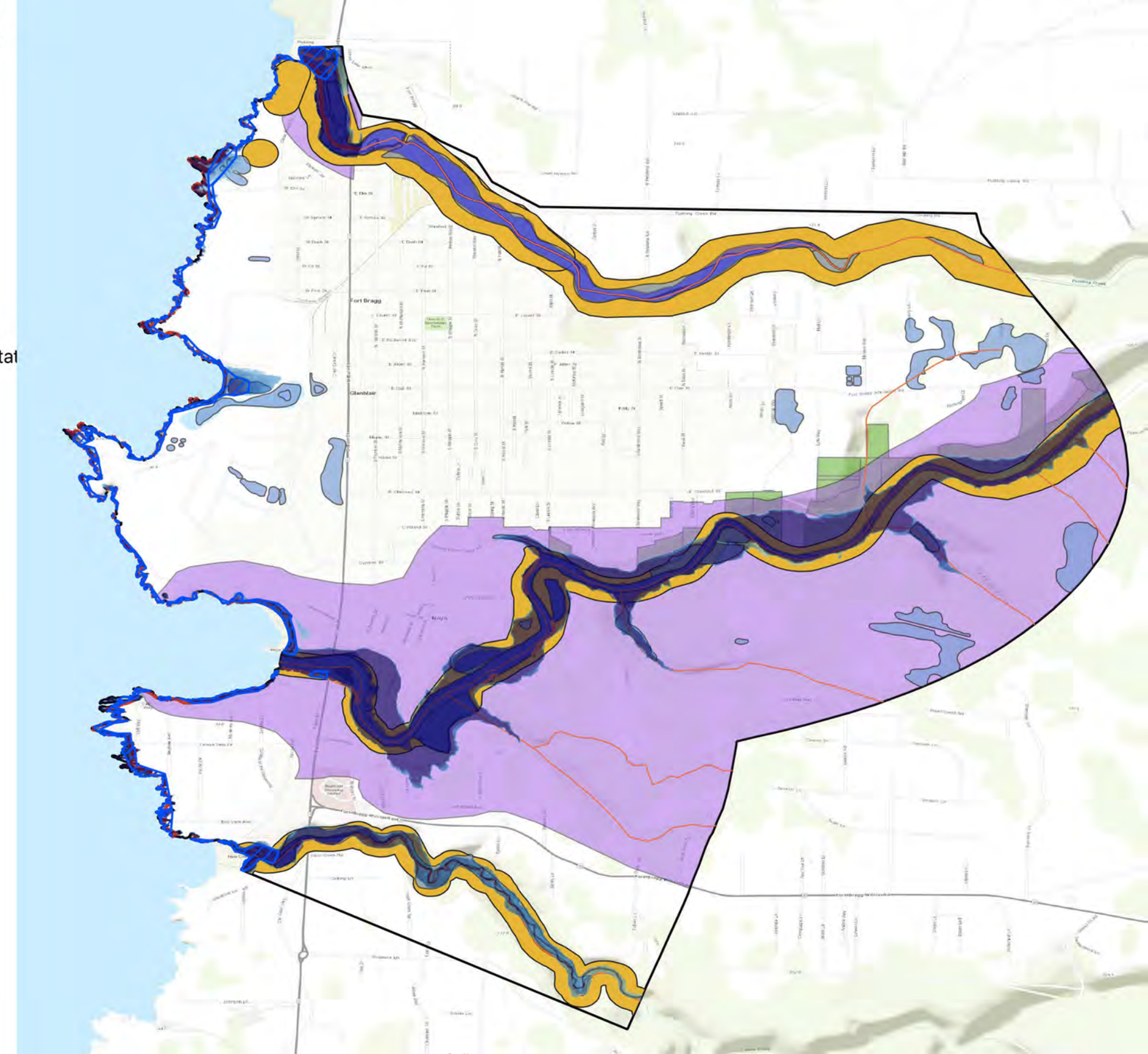

4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR

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Next-century with 6ft SLR

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- Wave Runup

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Coastal and Water

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Habitat

- Endangered and Threatened Species Habitat
- Critical Coastal Areas [3]
- Marine Protected Areas [1]

Agricultural

- Agricultural lands [23]

0 0.25 0.5 mi

4 S Ft Bragg (Noyo & City)

4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Public Access and Recreation

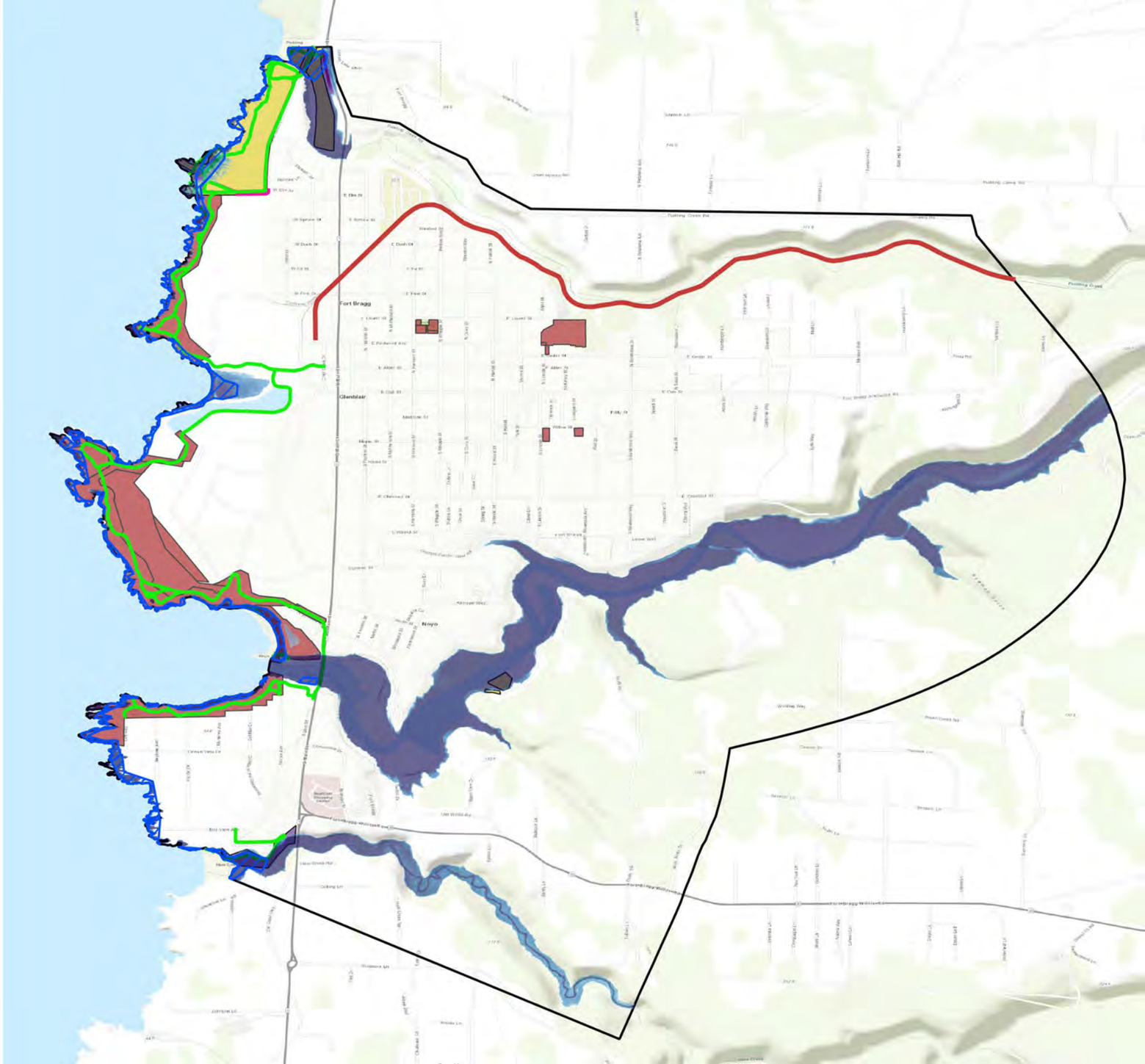
Recreation

- California Coastal Trail [35]
- Recreational Routes [12]
- Mendocino Railway [2]

Parks & Govt Lands

- State Parks & Lands [5]
- City Parks & Lands [20]
- Land Trust lands [1]

0 0.25 0.5 mi



4 S Ft Bragg (Noyo & City)

4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Built Environment

Built Environment

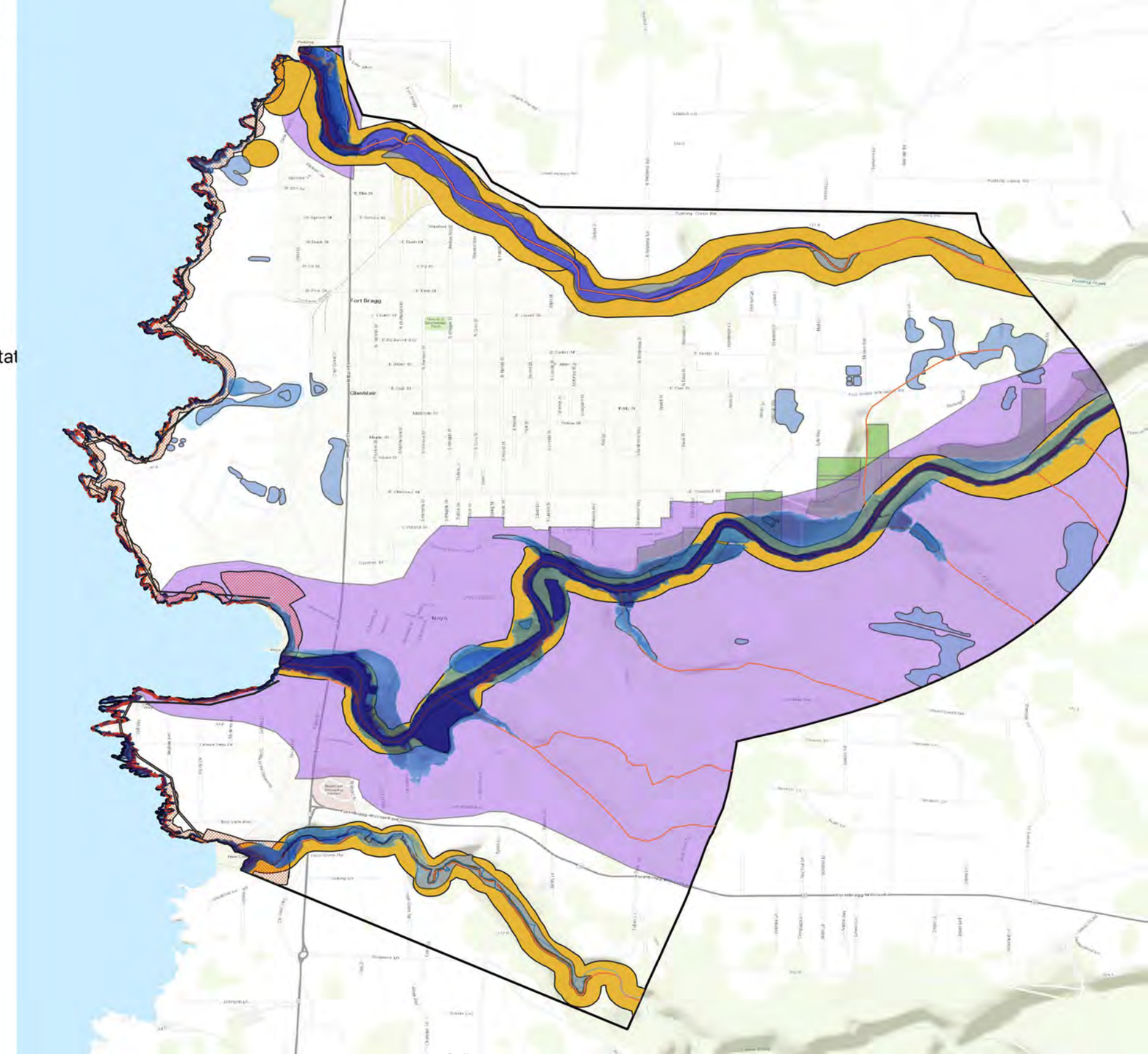
- Residential Buildings [845]
- Commercial Buildings [31]
- Public Facilities [11]
- Coastal Dependent Use [79]

Coastal Armoring

- Coastal Armoring [6]

0 0.25 0.5 mi

4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Habitat and Agricultural

Coastal and Water

- Beaches [14]
- Bluffs [31]
- Streams and Rivers [27]
- Estuaries [3]
- Wetlands and ESHA [760]

Habitat

- Endangered and Threatened Species Habitat
- Critical Coastal Areas [3]
- Marine Protected Areas [1]

Agricultural

- Agricultural lands [23]

0 0.25 0.5 mi

4 S Ft Bragg (Noyo & City)

4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

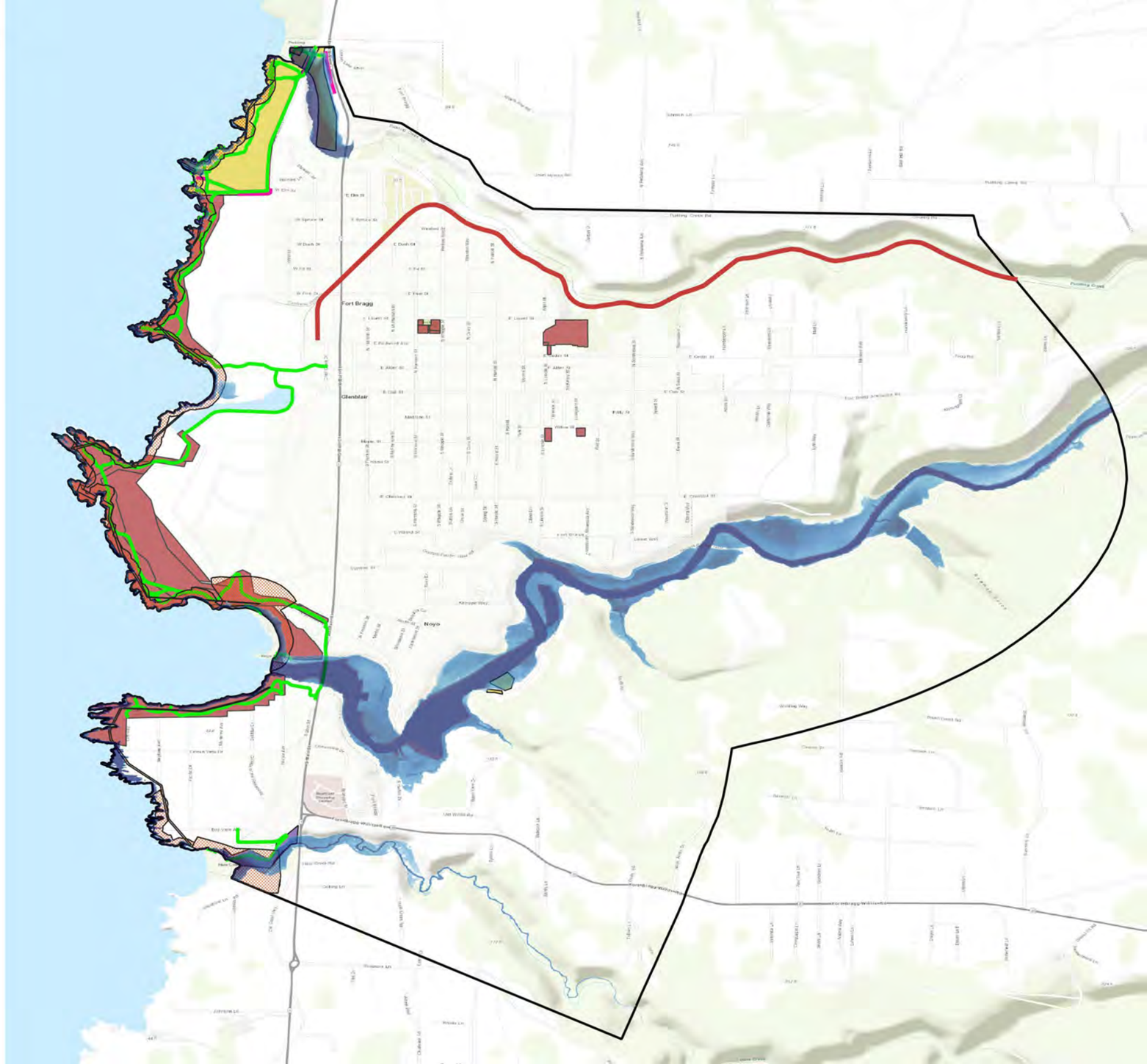
Public Access and Recreation

Recreation

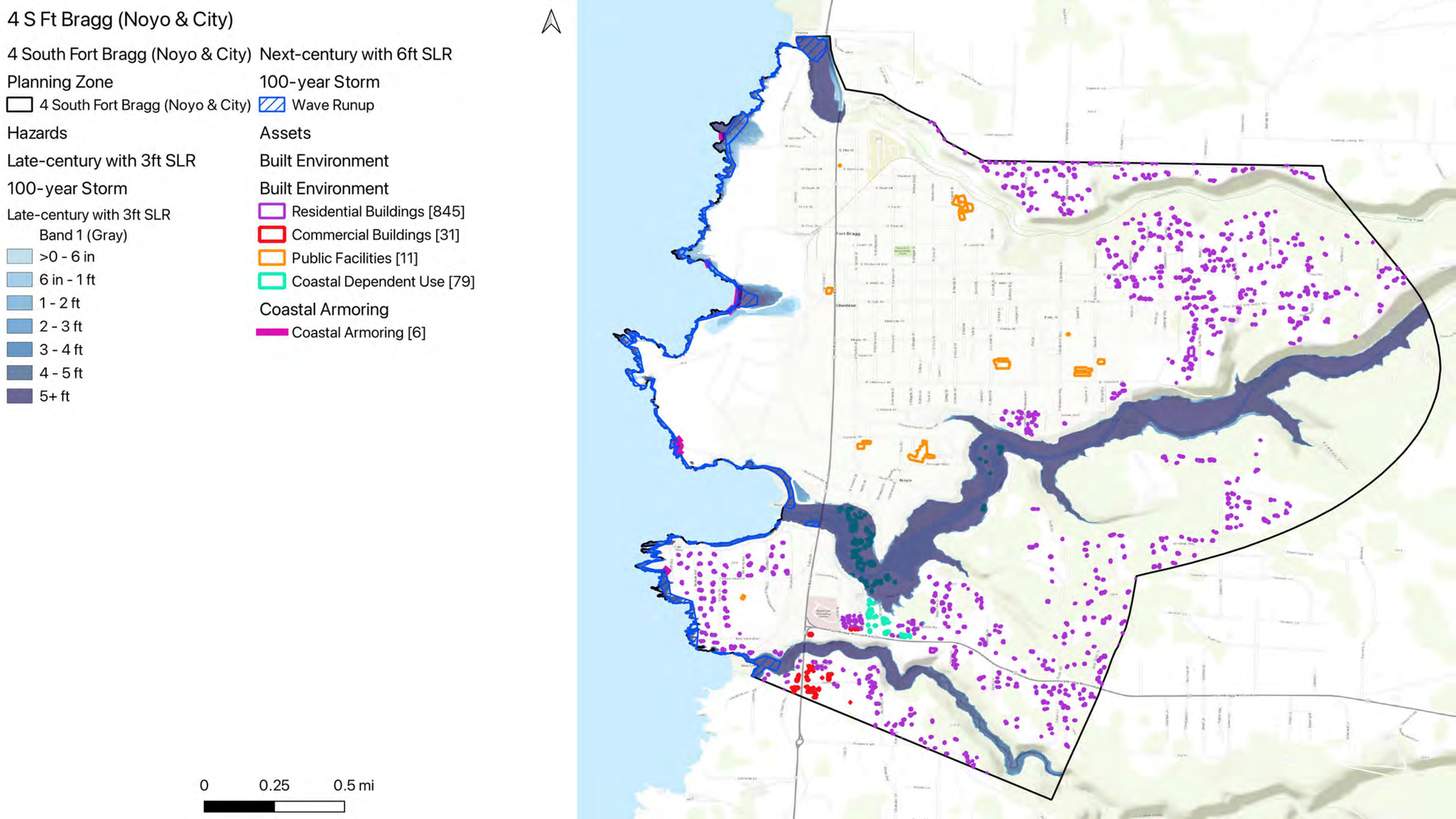
- California Coastal Trail [35]
- Recreational Routes [12]
- Mendocino Railway [2]

Parks & Govt Lands

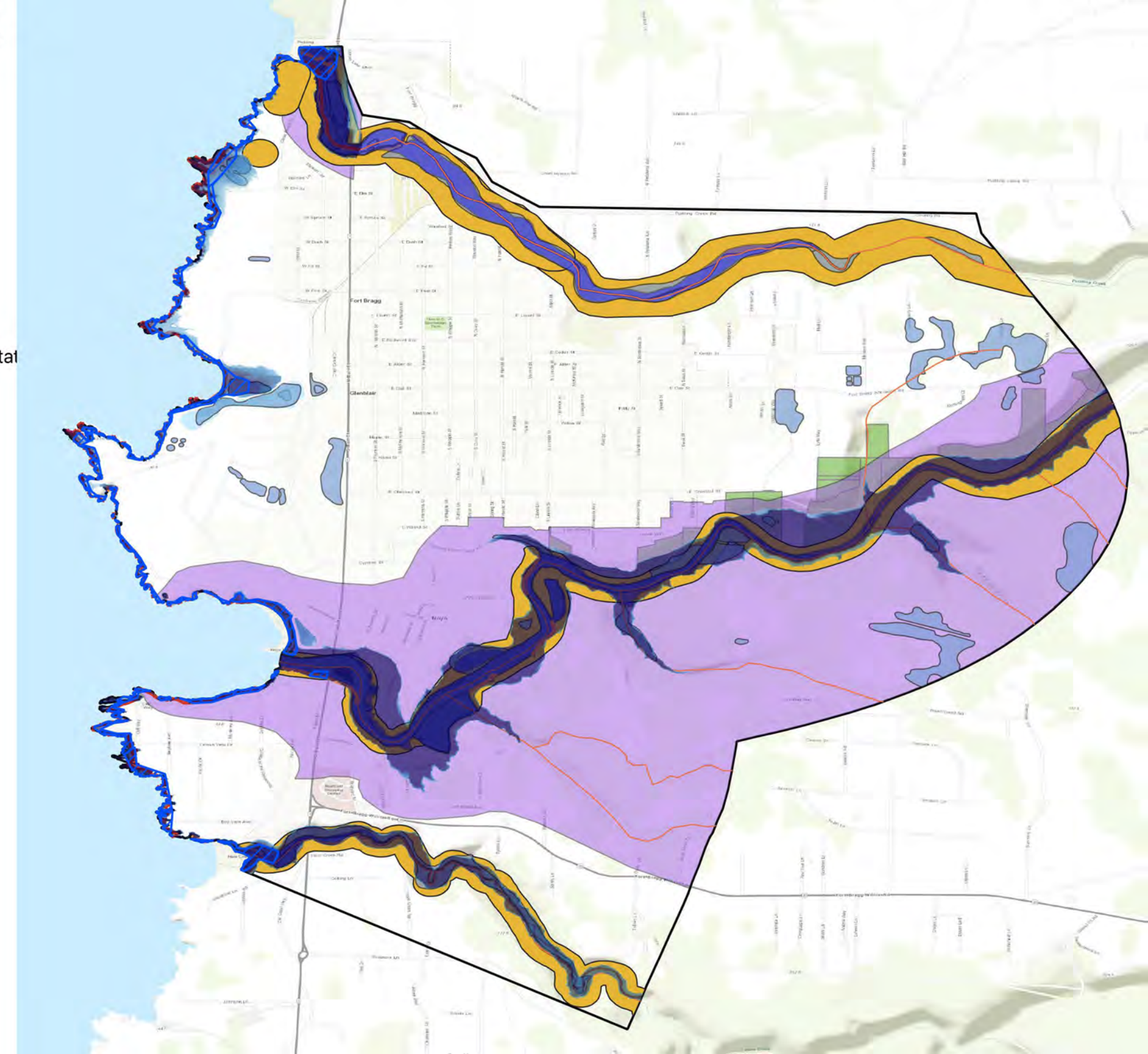
- State Parks & Lands [5]
- City Parks & Lands [20]
- Land Trust lands [1]



0 0.25 0.5 mi


4 S Ft Bragg (Noyo & City)
4 South Fort Bragg (Noyo & City)
Planning Zone
4 South Fort Bragg (Noyo & City)
Hazards
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Built Environment
Built Environment
Residential Buildings [845]
Commercial Buildings [31]
Public Facilities [11]
Coastal Dependent Use [79]
Coastal Armoring
Coastal Armoring [6]
0
0.25
0.5 mi

4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR
Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Habitat and Agricultural

Coastal and Water

- Beaches [14]
- Bluffs [31]
- Streams and Rivers [27]
- Estuaries [3]
- Wetlands and ESHA [760]

Habitat

- Endangered and Threatened Species Habitat
- Critical Coastal Areas [3]
- Marine Protected Areas [1]

Agricultural

- Agricultural lands [23]

0 0.25 0.5 mi

4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR
Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

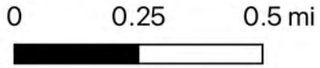
Public Access and Recreation

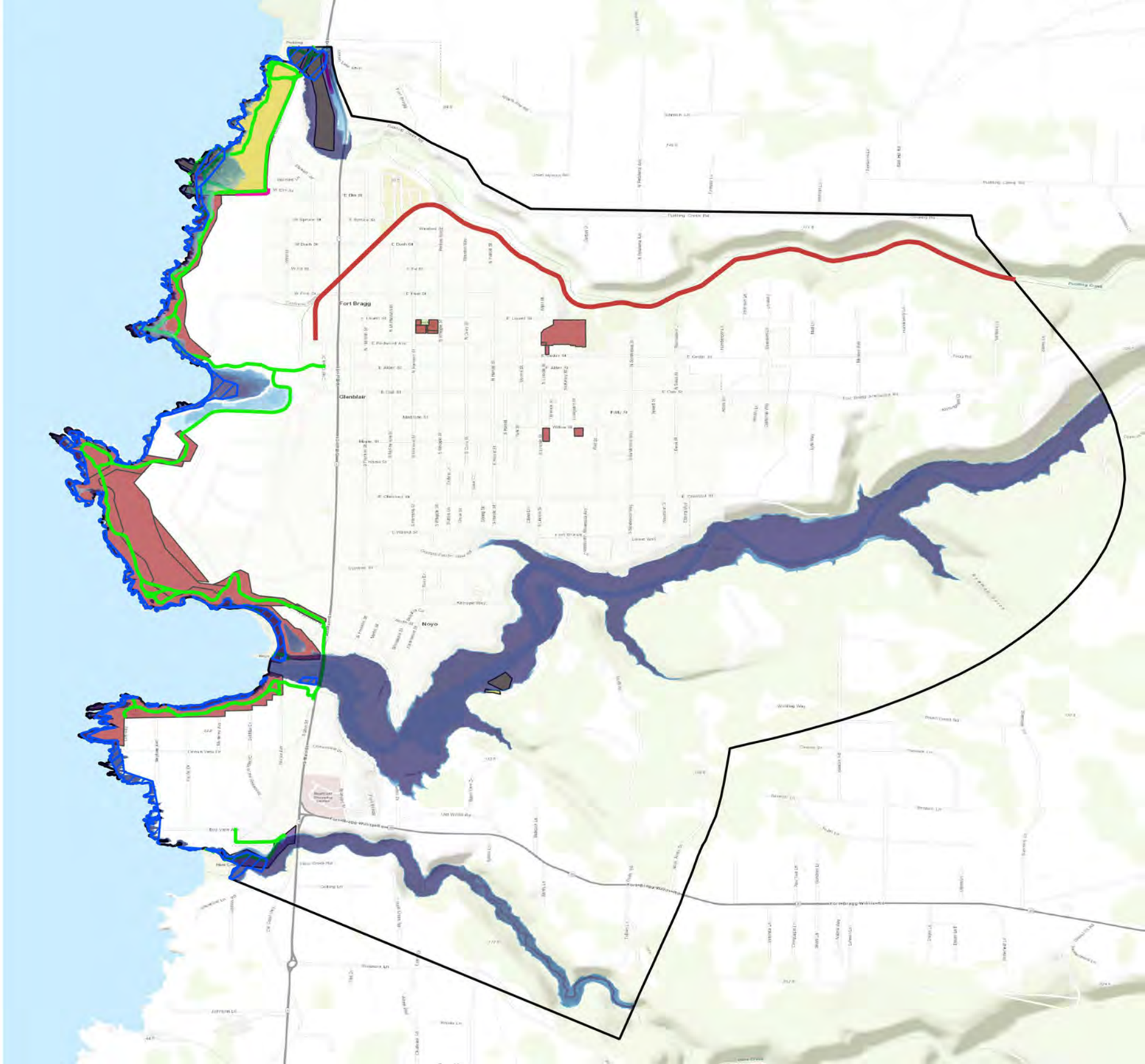
Recreation

- California Coastal Trail [35]
- Recreational Routes [12]
- Mendocino Railway [2]

Parks & Govt Lands

- State Parks & Lands [5]
- City Parks & Lands [20]
- Land Trust lands [1]





4 S Ft Bragg (Noyo & City)

4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

- Late-century with 3ft SLR

Bluff Dune Erosion

- Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Built Environment

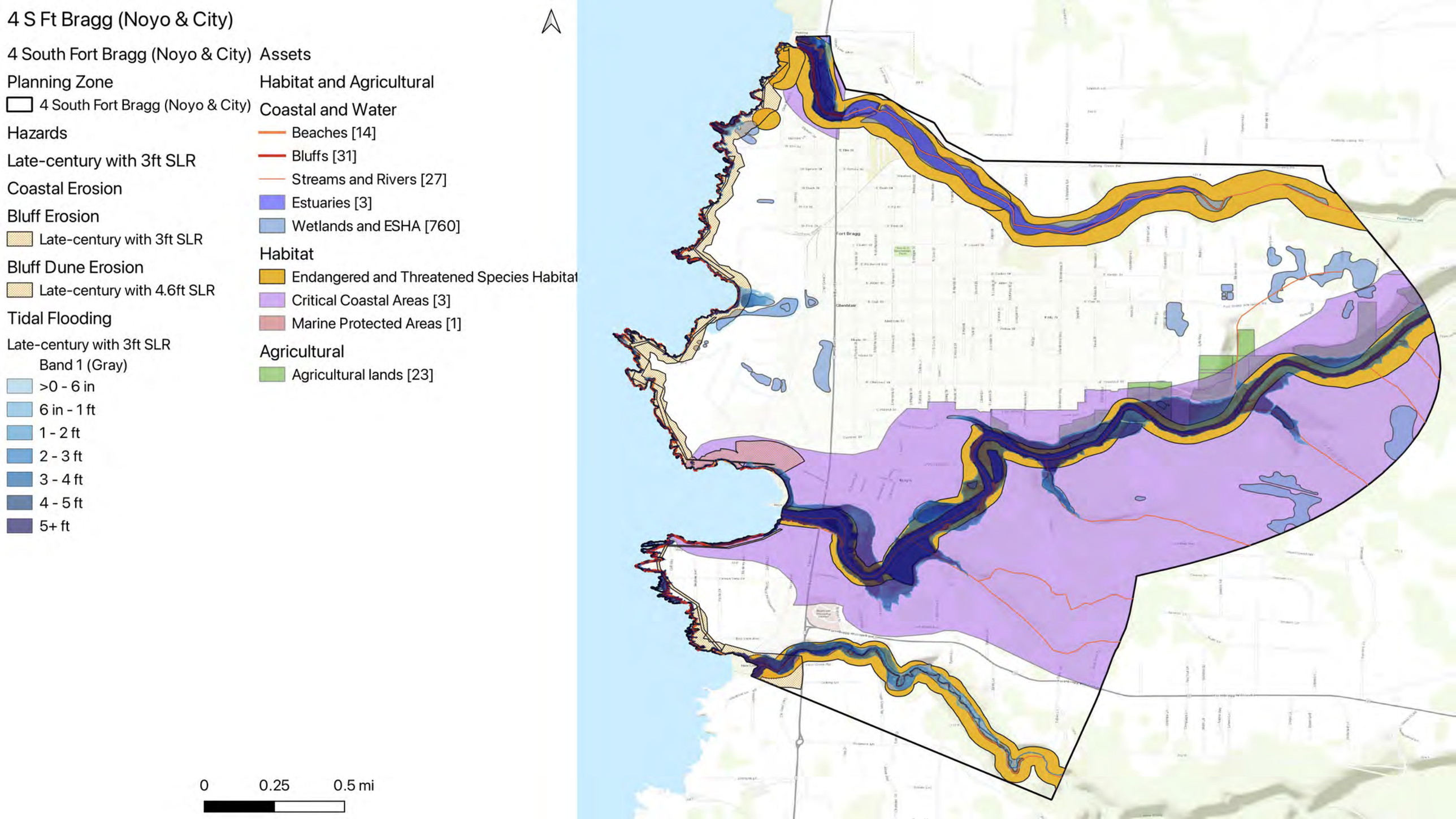
Built Environment

- Residential Buildings [845]
- Commercial Buildings [31]
- Public Facilities [11]
- Coastal Dependent Use [79]

Coastal Armoring

- Coastal Armoring [6]

0 0.25 0.5 mi


4 S Ft Bragg (Noyo & City)
4 South Fort Bragg (Noyo & City)
Planning Zone
4 South Fort Bragg (Noyo & City)
Hazards
Late-century with 3ft SLR
Coastal Erosion
Bluff Erosion
Late-century with 3ft SLR
Bluff Dune Erosion
Late-century with 4.6ft SLR
Tidal Flooding
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Habitat and Agricultural
Coastal and Water
Beaches [14]
Bluffs [31]
Streams and Rivers [27]
Estuaries [3]
Wetlands and ESHA [760]
Habitat
Endangered and Threatened Species Habitat
Critical Coastal Areas [3]
Marine Protected Areas [1]
Agricultural
Agricultural lands [23]
0
0.25
0.5 mi

4 S Ft Bragg (Noyo & City)

4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

- Late-century with 3ft SLR

Bluff Dune Erosion

- Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Public Access and Recreation

Recreation

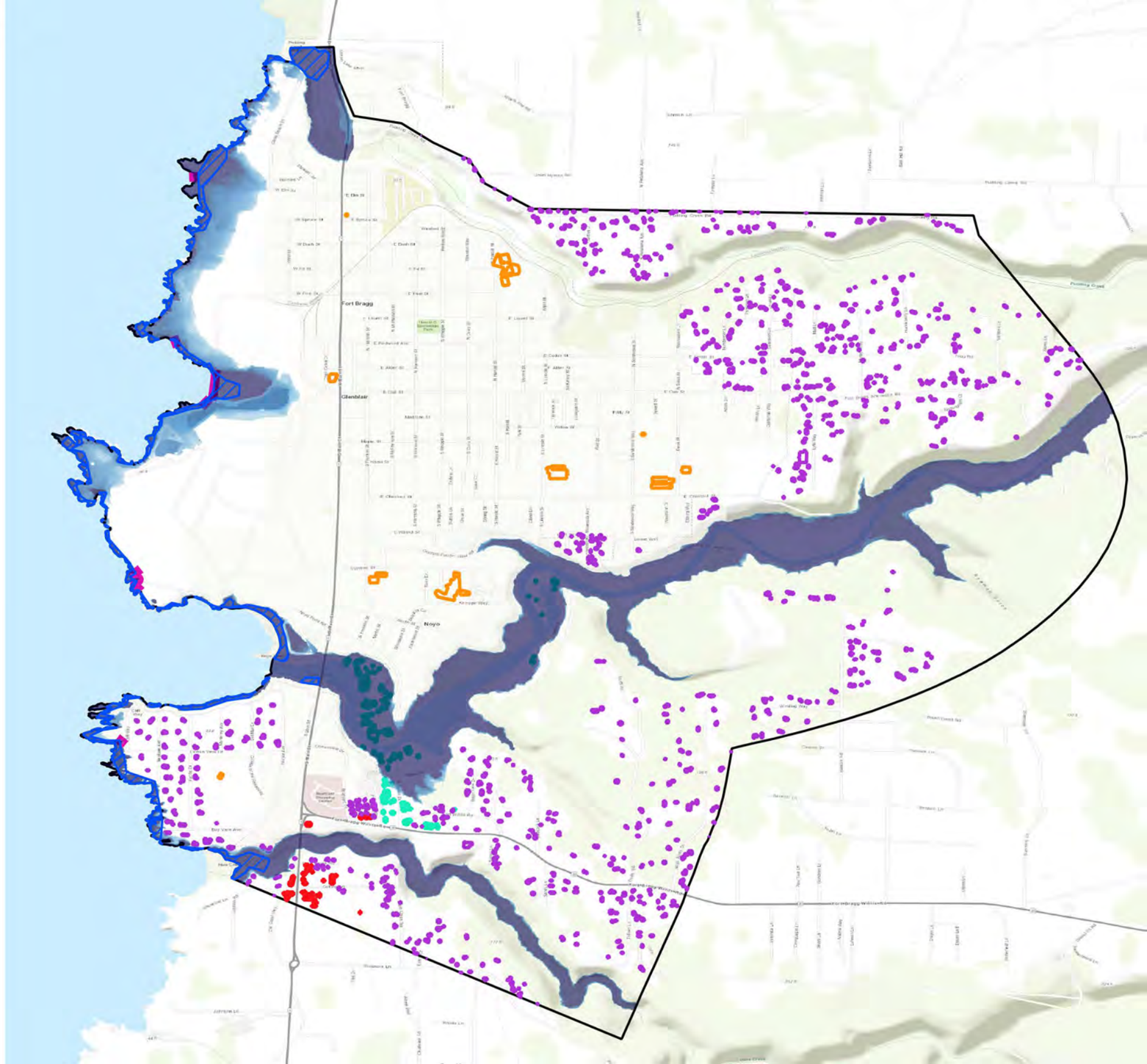
- California Coastal Trail [35]
- Recreational Routes [12]
- Mendocino Railway [2]

Parks & Govt Lands

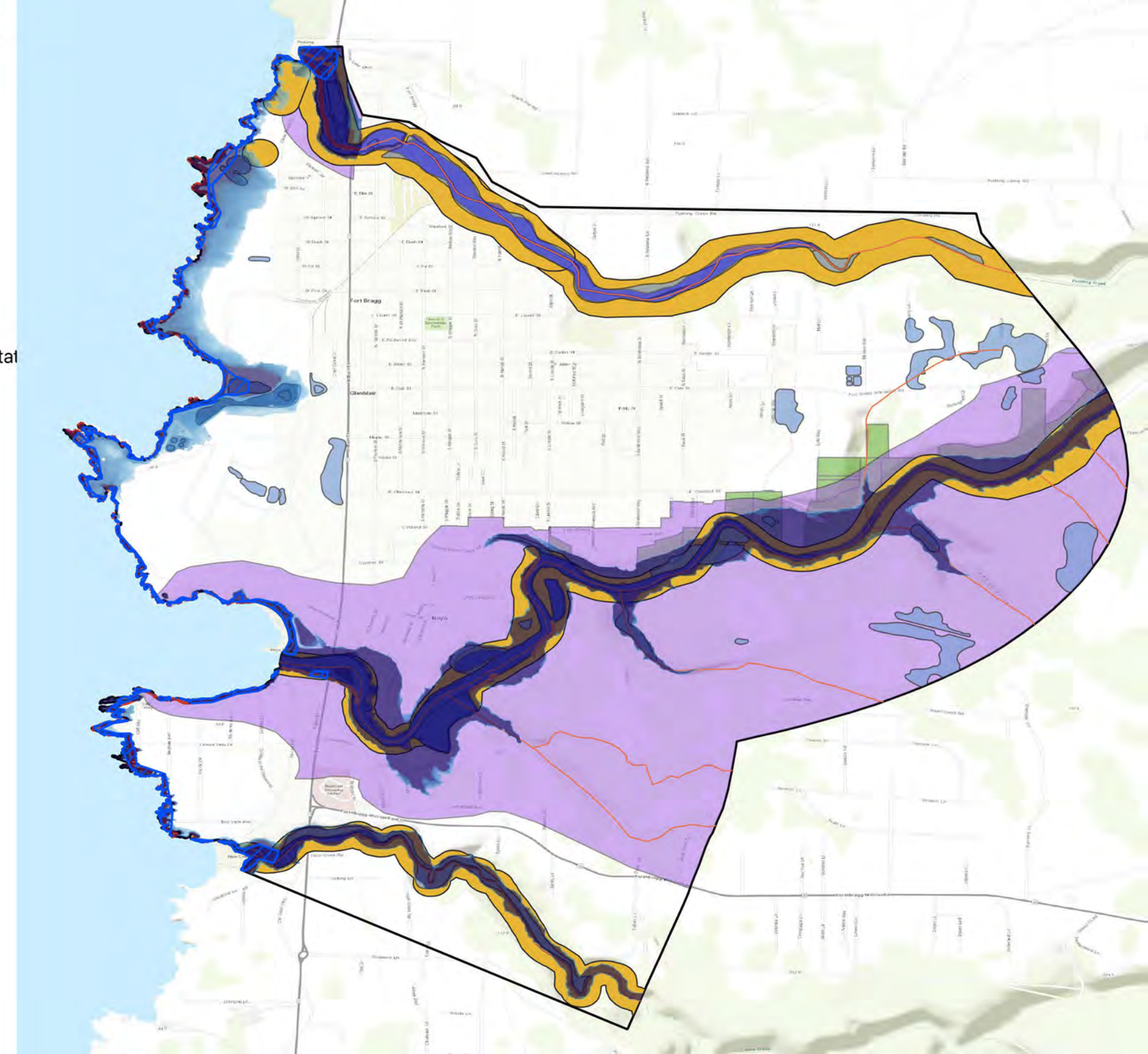
- State Parks & Lands [5]
- City Parks & Lands [20]
- Land Trust lands [1]

0 0.25 0.5 mi

4 S Ft Bragg (Noyo & City)



4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Habitat and Agricultural

Coastal and Water

- Beaches [14]
- Bluffs [31]
- Streams and Rivers [27]
- Estuaries [3]
- Wetlands and ESHA [760]

Habitat

- Endangered and Threatened Species Habitat
- Critical Coastal Areas [3]
- Marine Protected Areas [1]

Agricultural

- Agricultural lands [23]

0 0.25 0.5 mi

4 S Ft Bragg (Noyo & City)

4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

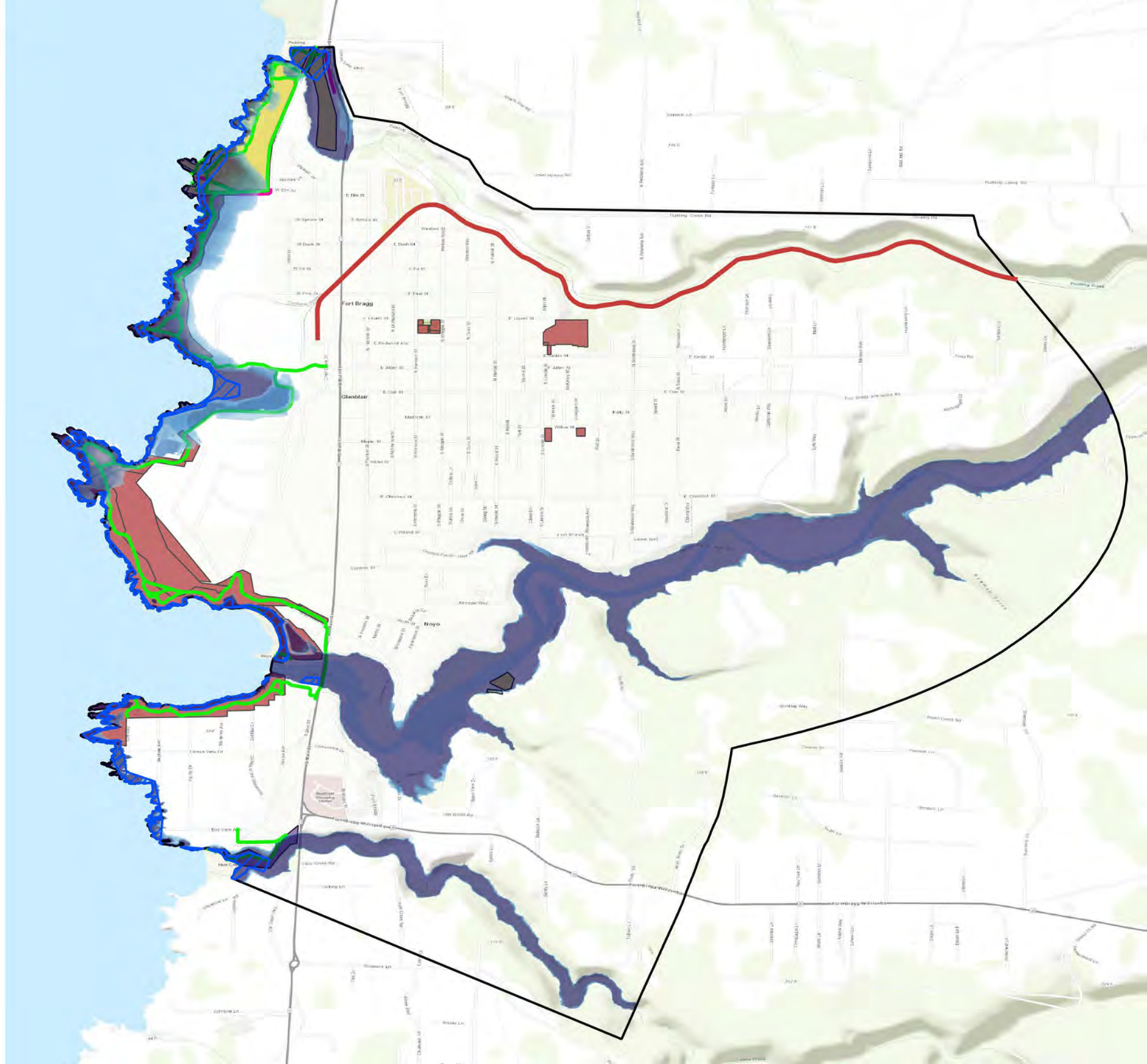
Public Access and Recreation

Recreation

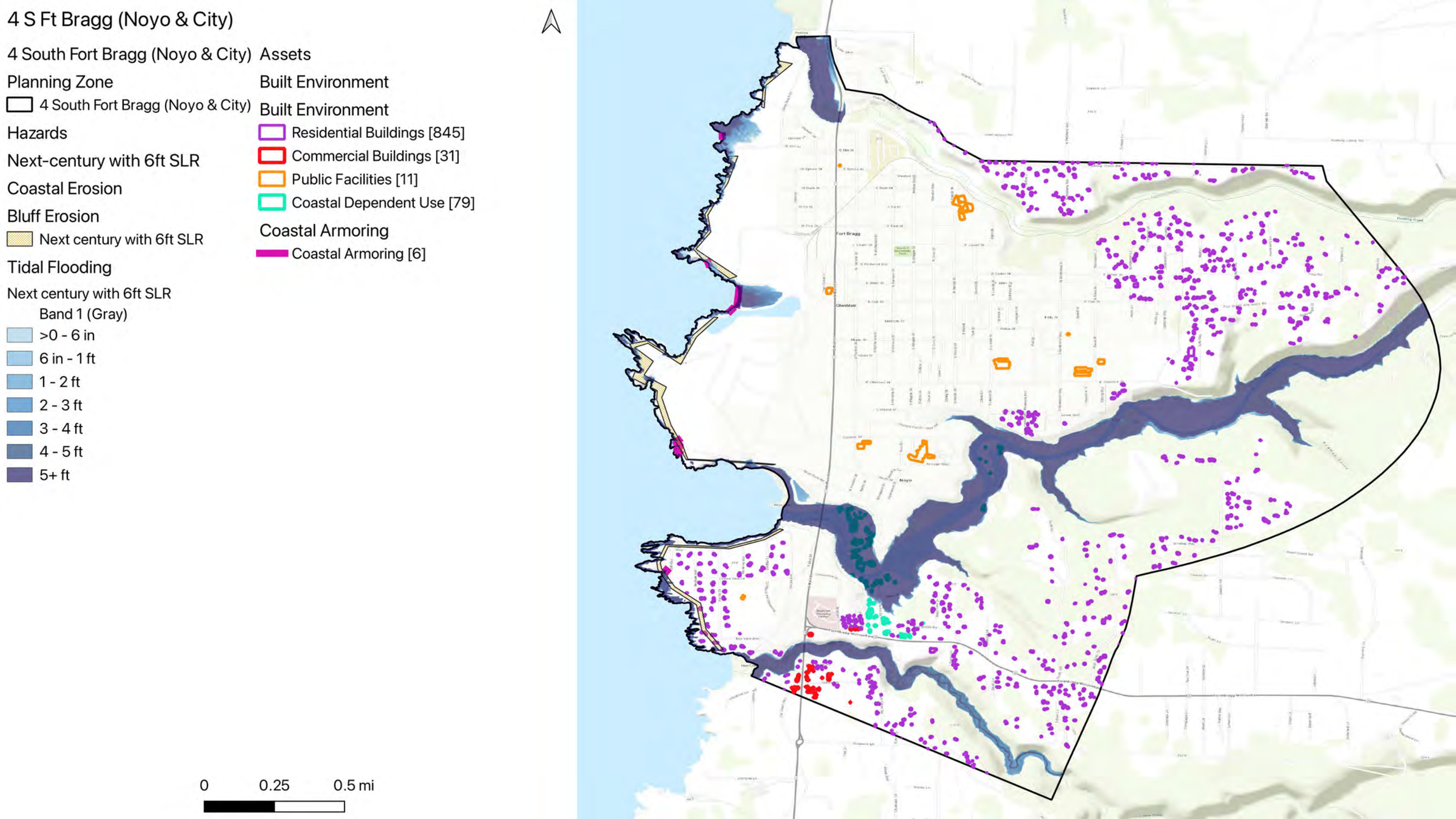
- California Coastal Trail [35]
- Recreational Routes [12]
- Mendocino Railway [2]

Parks & Govt Lands

- State Parks & Lands [5]
- City Parks & Lands [20]
- Land Trust lands [1]



0 0.25 0.5 mi


4 S Ft Bragg (Noyo & City)
4 South Fort Bragg (Noyo & City)
Planning Zone
4 South Fort Bragg (Noyo & City)
Hazards
Next-century with 6ft SLR
Coastal Erosion
Bluff Erosion
Next century with 6ft SLR
Tidal Flooding
Next century with 6ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Built Environment
Built Environment
Residential Buildings [845]
Commercial Buildings [31]
Public Facilities [11]
Coastal Dependent Use [79]
Coastal Armoring
Coastal Armoring [6]
0
0.25
0.5 mi
Fort Bragg
Glenblair
Noyo

4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Habitat and Agricultural

Coastal and Water

- Beaches [14]
- Bluffs [31]
- Streams and Rivers [27]
- Estuaries [3]
- Wetlands and ESHA [760]

Habitat

- Endangered and Threatened Species Habitat
- Critical Coastal Areas [3]
- Marine Protected Areas [1]

Agricultural

- Agricultural lands [23]

0 0.25 0.5 mi

4 S Ft Bragg (Noyo & City)

4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Public Access and Recreation

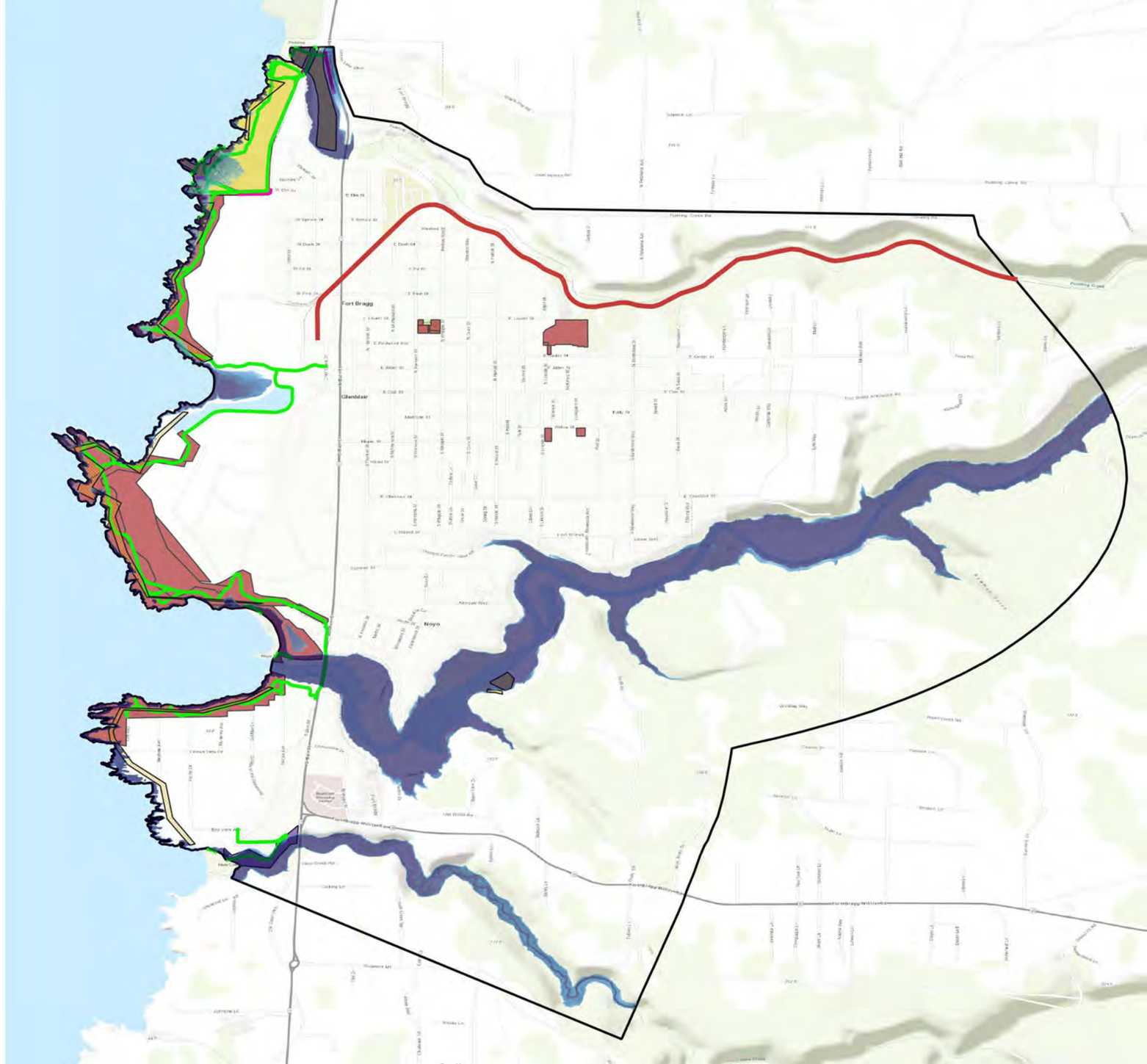
Recreation

- California Coastal Trail [35]
- Recreational Routes [12]
- Mendocino Railway [2]

Parks & Govt Lands

- State Parks & Lands [5]
- City Parks & Lands [20]
- Land Trust lands [1]

0 0.25 0.5 mi



4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Present Day

100-year Storm

4 Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

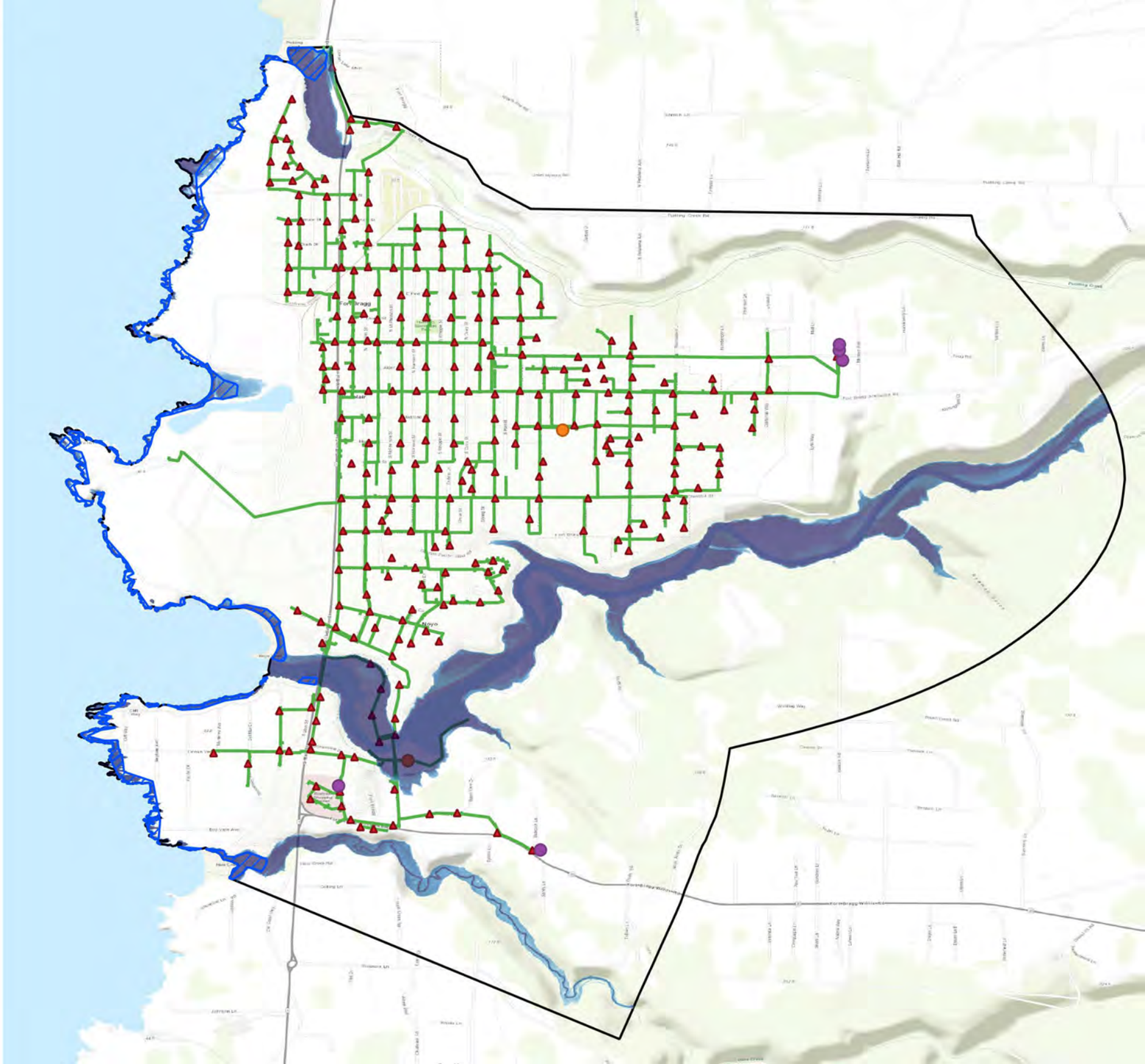
Assets

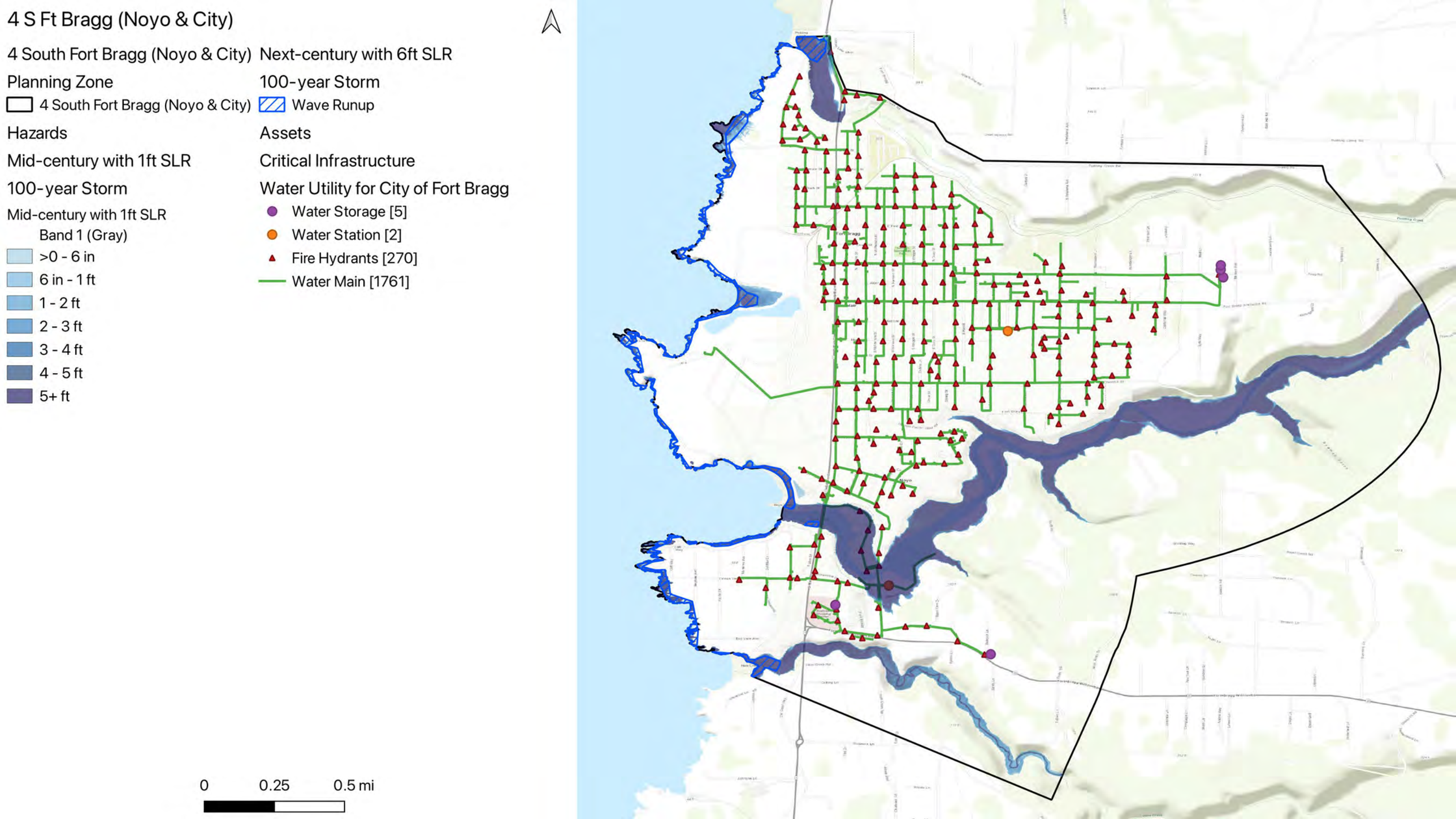
Critical Infrastructure

Water Utility for City of Fort Bragg

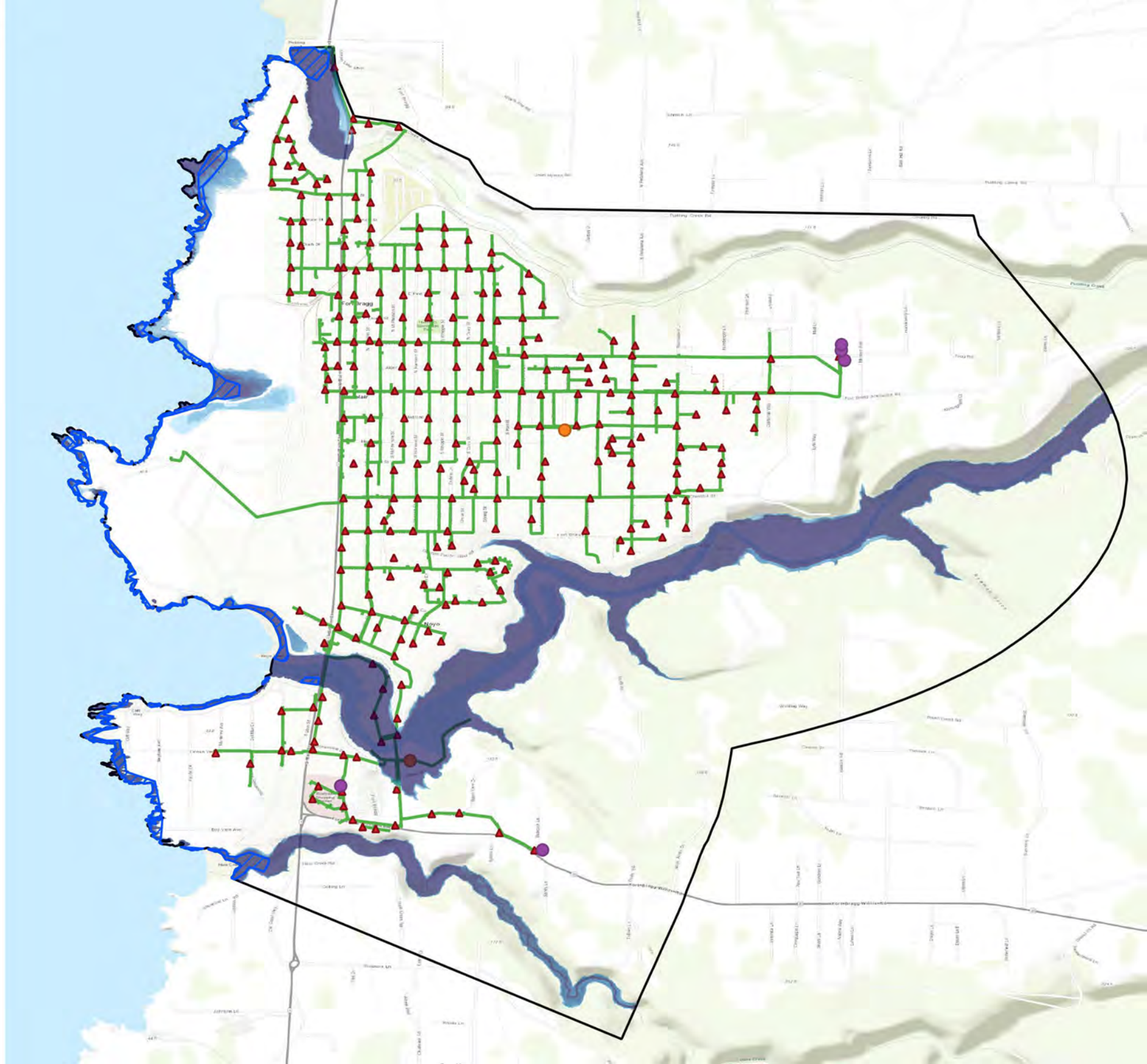
- Water Storage [5]
- Water Station [2]
- Fire Hydrants [270]
- Water Main [1761]

0 0.25 0.5 mi

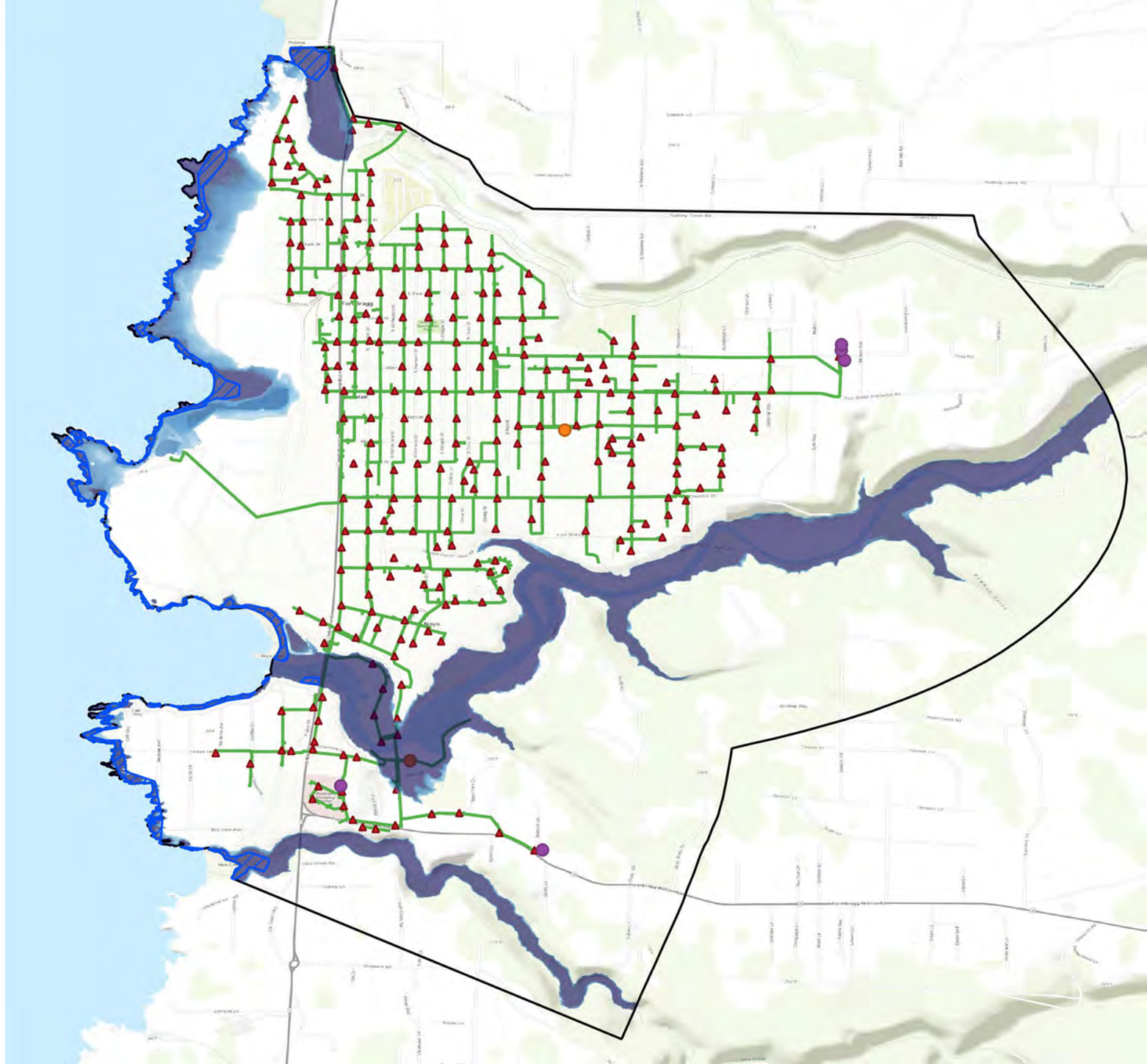


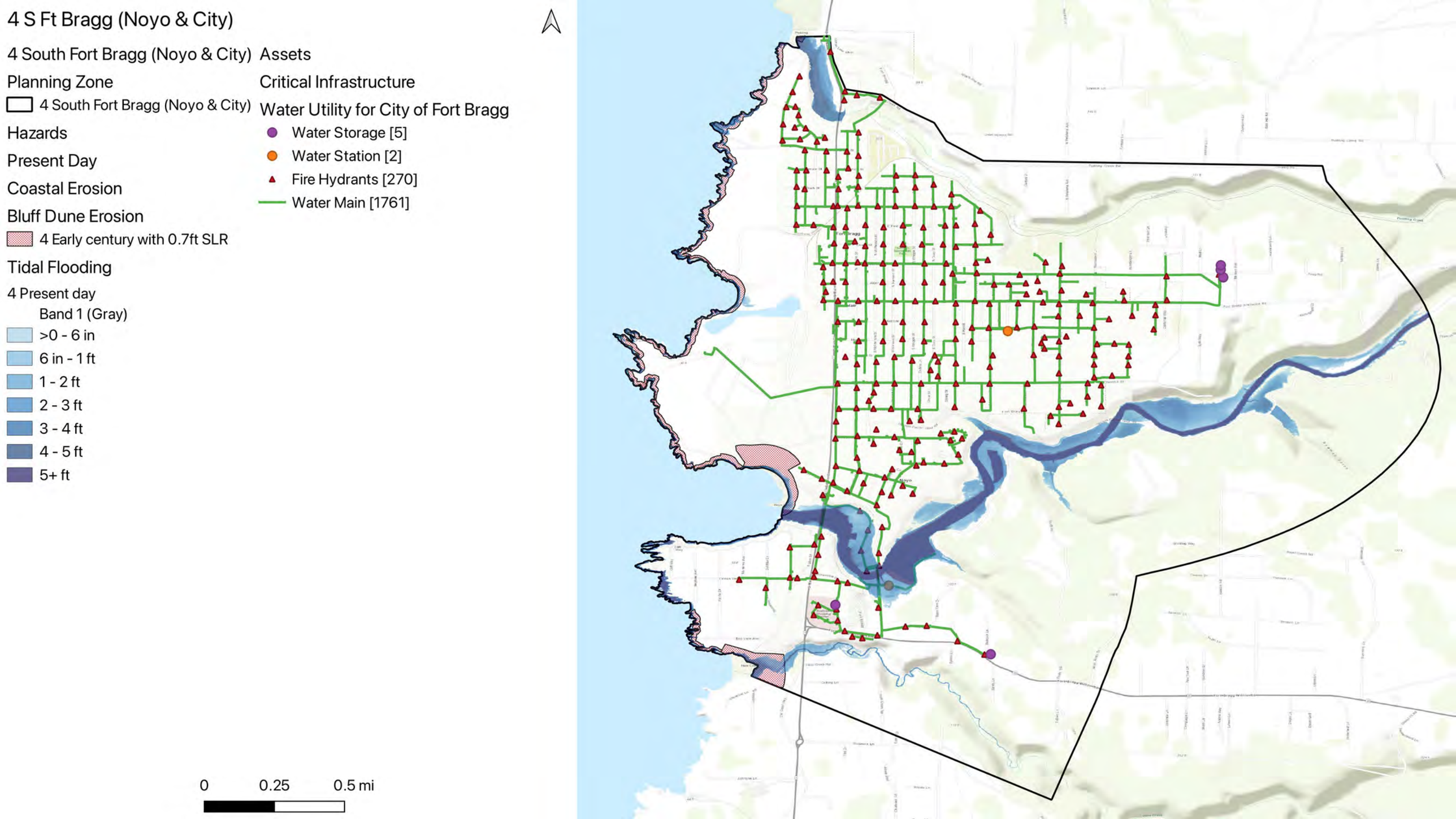

4 S Ft Bragg (Noyo & City)
4 South Fort Bragg (Noyo & City)
Planning Zone
4 South Fort Bragg (Noyo & City)
Hazards
Mid-century with 1ft SLR
100-year Storm
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Critical Infrastructure
Water Utility for City of Fort Bragg
Water Storage [5]
Water Station [2]
Fire Hydrants [270]
Water Main [1761]
0
0.25
0.5 mi

4 S Ft Bragg (Noyo & City)



4 S Ft Bragg (Noyo & City)




4 S Ft Bragg (Noyo & City)
4 South Fort Bragg (Noyo & City)
Planning Zone
4 South Fort Bragg (Noyo & City)
Hazards
Present Day
Coastal Erosion
Bluff Dune Erosion
4 Early century with 0.7ft SLR
Tidal Flooding
4 Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Critical Infrastructure
Water Utility for City of Fort Bragg
Water Storage [5]
Water Station [2]
Fire Hydrants [270]
Water Main [1761]
0
0.25
0.5 mi

4 S Ft Bragg (Noyo & City)

4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

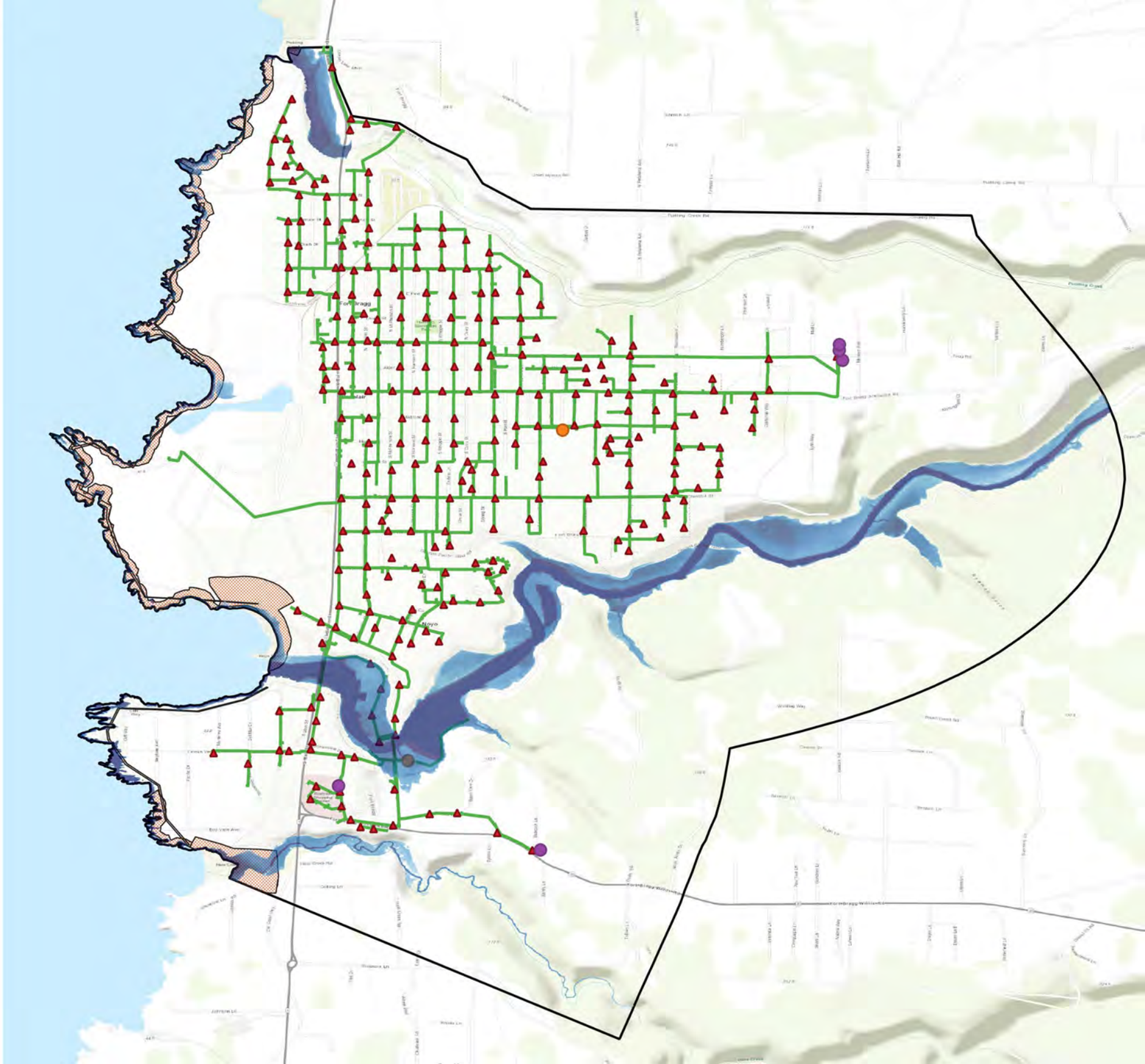
Assets

Critical Infrastructure

Water Utility for City of Fort Bragg

- Water Storage [5]
- Water Station [2]
- Fire Hydrants [270]
- Water Main [1761]

0 0.25 0.5 mi



4 S Ft Bragg (Noyo & City)

4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

- Late-century with 3ft SLR

Bluff Dune Erosion

- Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

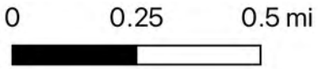
- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

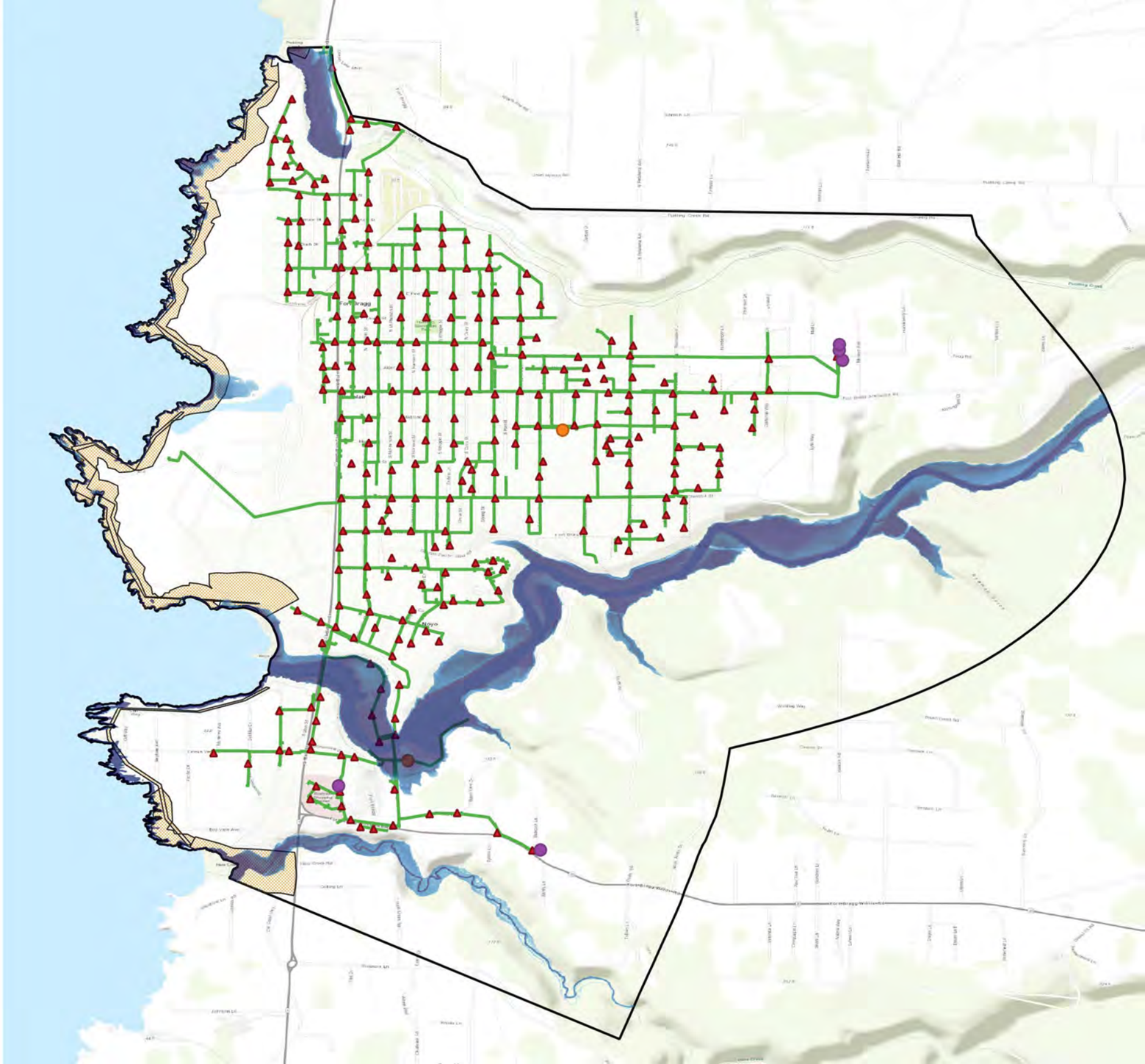
Assets

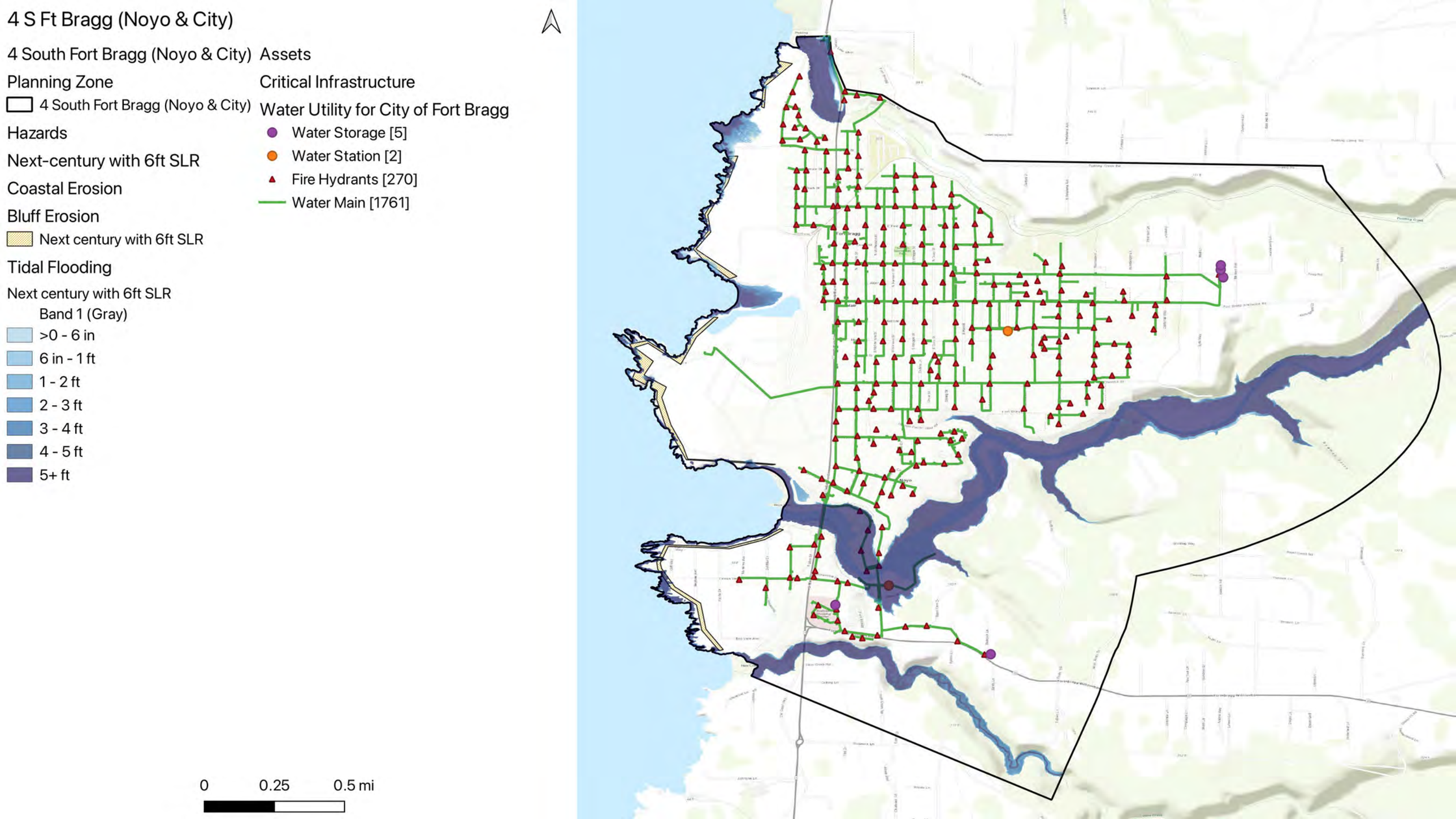
Critical Infrastructure

Water Utility for City of Fort Bragg

- Water Storage [5]
- Water Station [2]
- Fire Hydrants [270]
- Water Main [1761]






4 S Ft Bragg (Noyo & City)
4 South Fort Bragg (Noyo & City)
Planning Zone
4 South Fort Bragg (Noyo & City)
Hazards
Next-century with 6ft SLR
Coastal Erosion
Bluff Erosion
Next century with 6ft SLR
Tidal Flooding
Next century with 6ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Critical Infrastructure
Water Utility for City of Fort Bragg
Water Storage [5]
Water Station [2]
Fire Hydrants [270]
Water Main [1761]
0
0.25
0.5 mi

4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Present Day

100-year Storm

4 Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

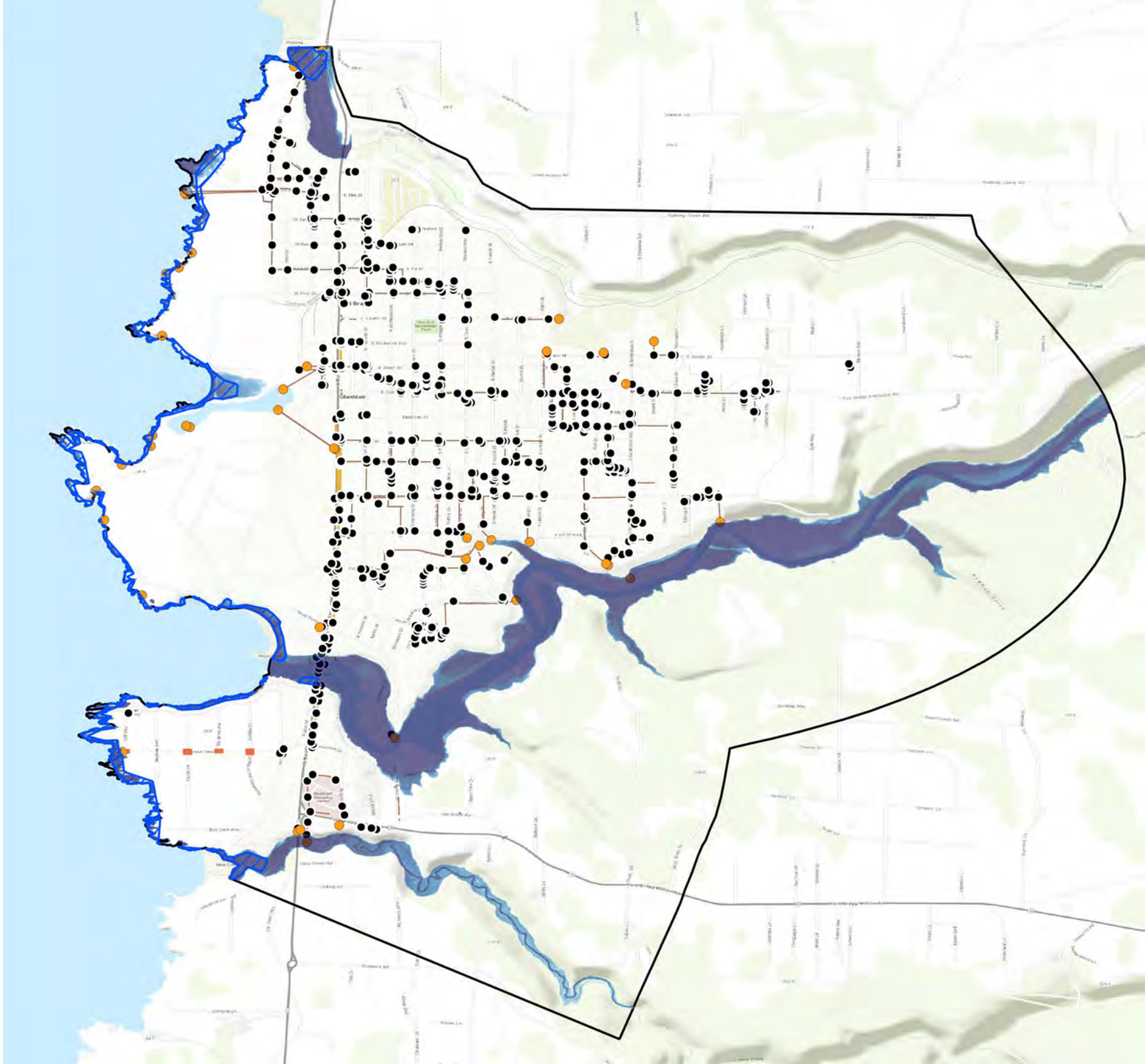
Assets

Critical Infrastructure

Stormwater Utility for City of Fort Bragg

- Outlet [43]
- Catch Basin [643]
- Culverts [6]
- Stormwater Line [145]
- Stormwater Pipes [801]

0 0.25 0.5 mi



4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Critical Infrastructure

Stormwater Utility for City of Fort Bragg

- Outlet [43]
- Catch Basin [643]
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- Stormwater Line [145]
- Stormwater Pipes [801]

0 0.25 0.5 mi

4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Critical Infrastructure

Stormwater Utility for City of Fort Bragg

- Outlet [43]
- Catch Basin [643]
- Culverts [6]
- Stormwater Line [145]
- Stormwater Pipes [801]

0 0.25 0.5 mi

4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Next century with 6ft SLR

Band 1 (Gray)

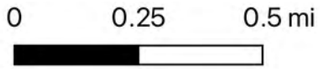
- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Critical Infrastructure

Stormwater Utility for City of Fort Bragg

- Outlet [43]
- Catch Basin [643]
- Culverts [6]
- Stormwater Line [145]
- Stormwater Pipes [801]



4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- 4 Early century with 0.7ft SLR

Tidal Flooding

4 Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

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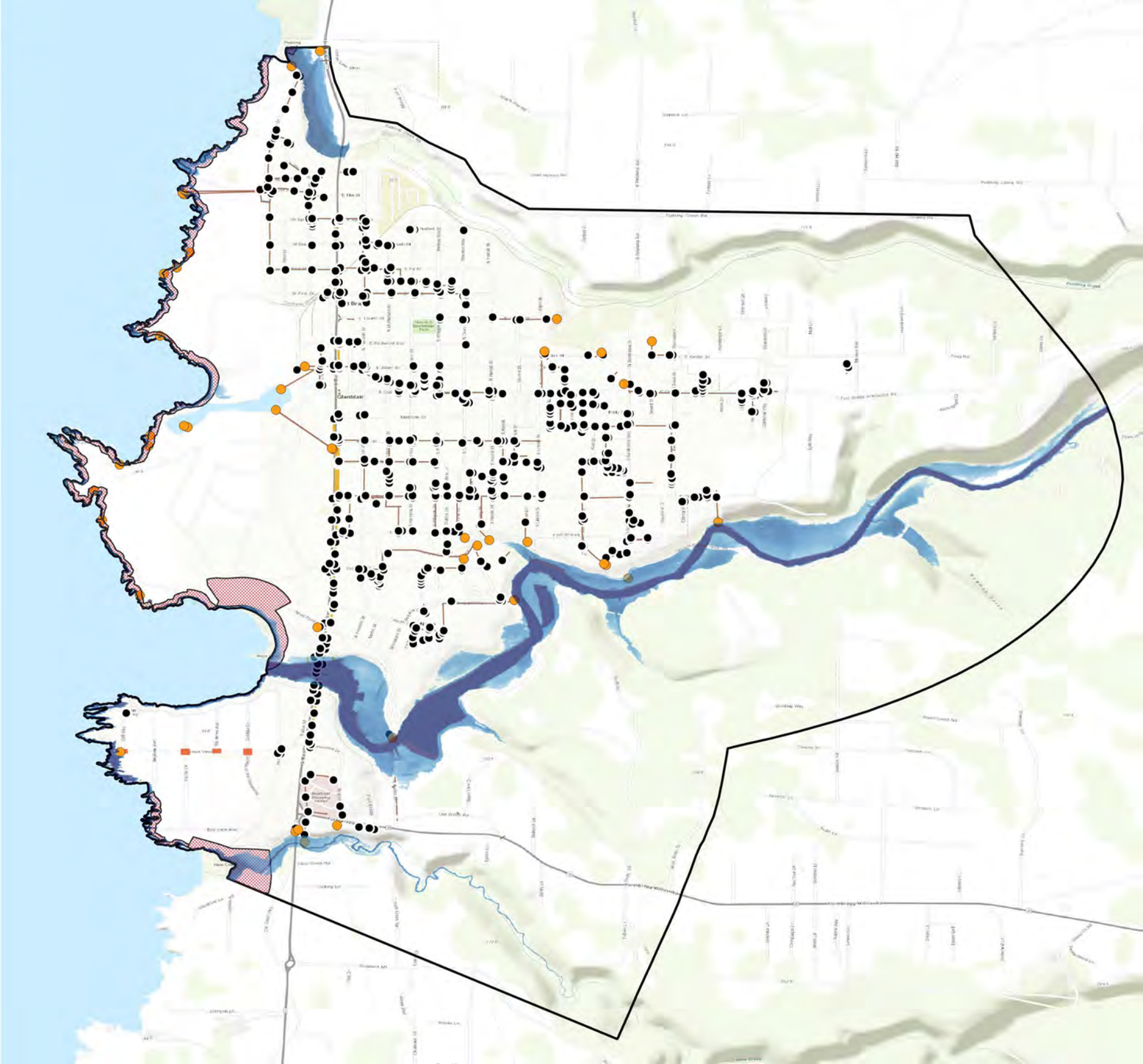
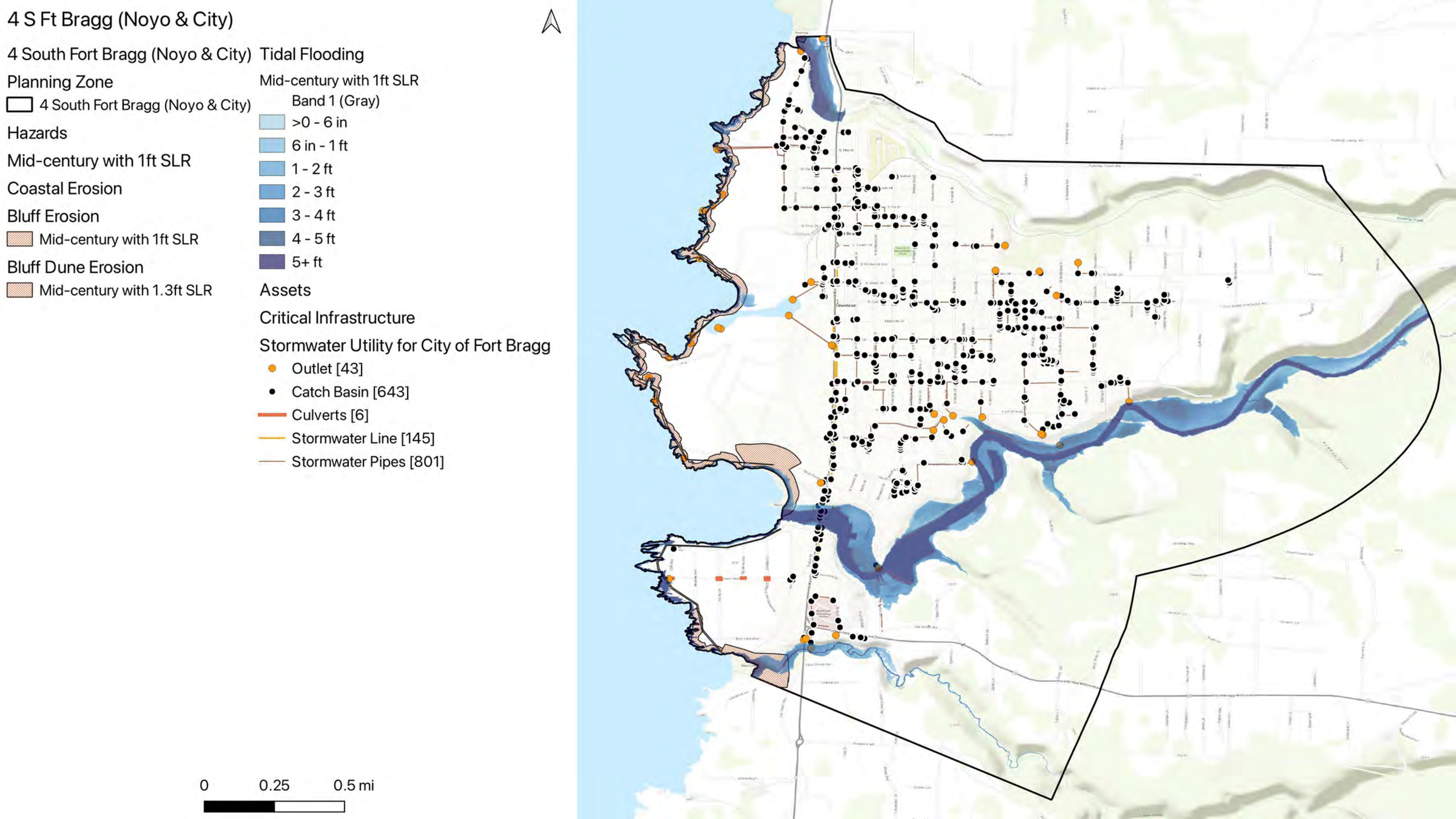
Stormwater Utility for City of Fort Bragg

- Outlet [43]
- Catch Basin [643]
- Culverts [6]
- Stormwater Line [145]
- Stormwater Pipes [801]

0 0.25 0.5 mi




4 S Ft Bragg (Noyo & City)
4 South Fort Bragg (Noyo & City)
Planning Zone
4 South Fort Bragg (Noyo & City)
Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
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Critical Infrastructure
Stormwater Utility for City of Fort Bragg
Outlet [43]
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0.25
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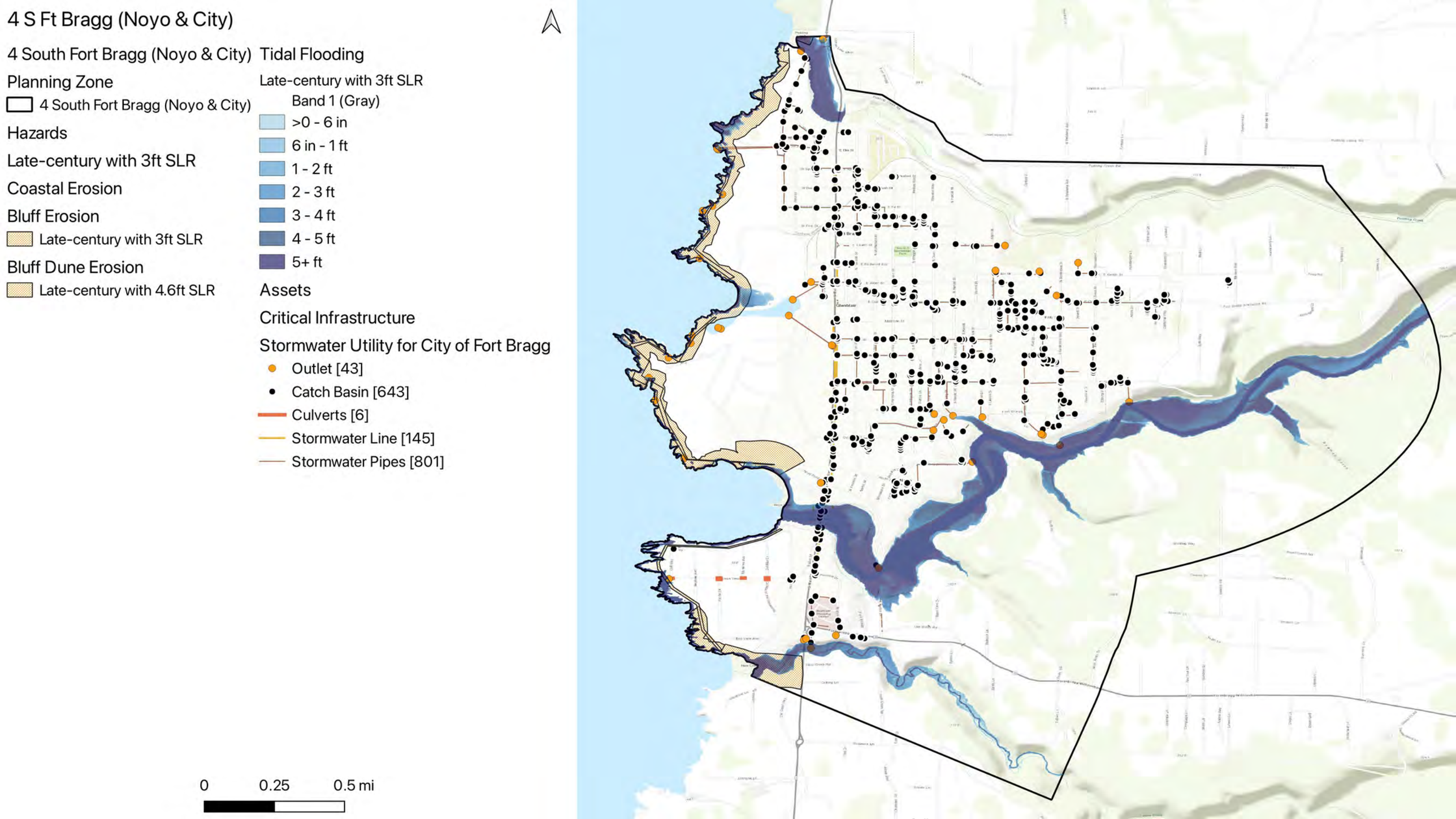
4 S Ft Bragg (Noyo & City)
4 South Fort Bragg (Noyo & City)
Planning Zone
4 South Fort Bragg (Noyo & City)
Hazards
Late-century with 3ft SLR
Coastal Erosion
Bluff Erosion
Late-century with 3ft SLR
Bluff Dune Erosion
Late-century with 4.6ft SLR
Tidal Flooding
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
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Assets
Critical Infrastructure
Stormwater Utility for City of Fort Bragg
Outlet [43]
Catch Basin [643]
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0
0.25
0.5 mi

4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
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Assets

Critical Infrastructure

Stormwater Utility for City of Fort Bragg

- Outlet [43]
- Catch Basin [643]
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- Stormwater Line [145]
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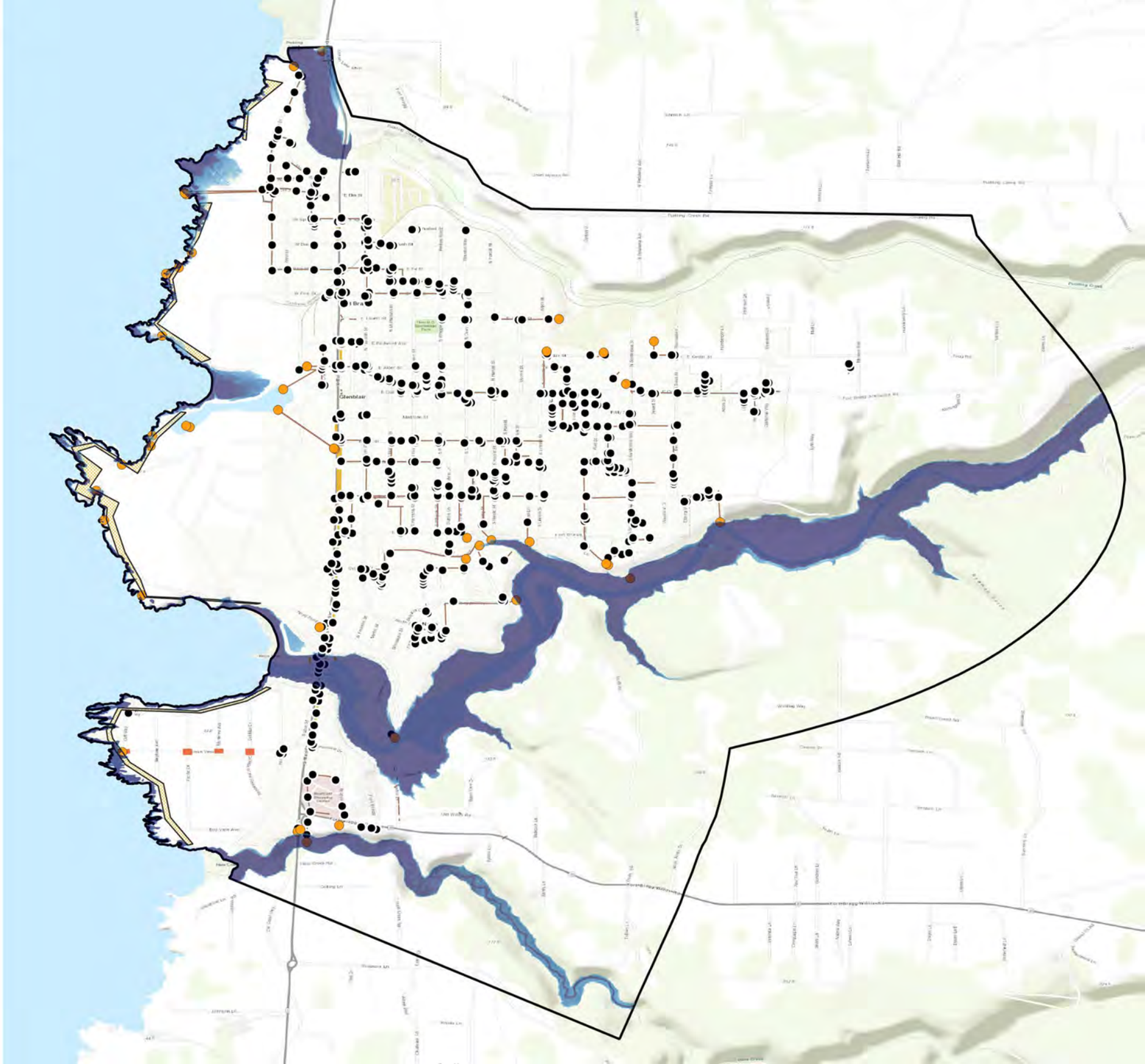
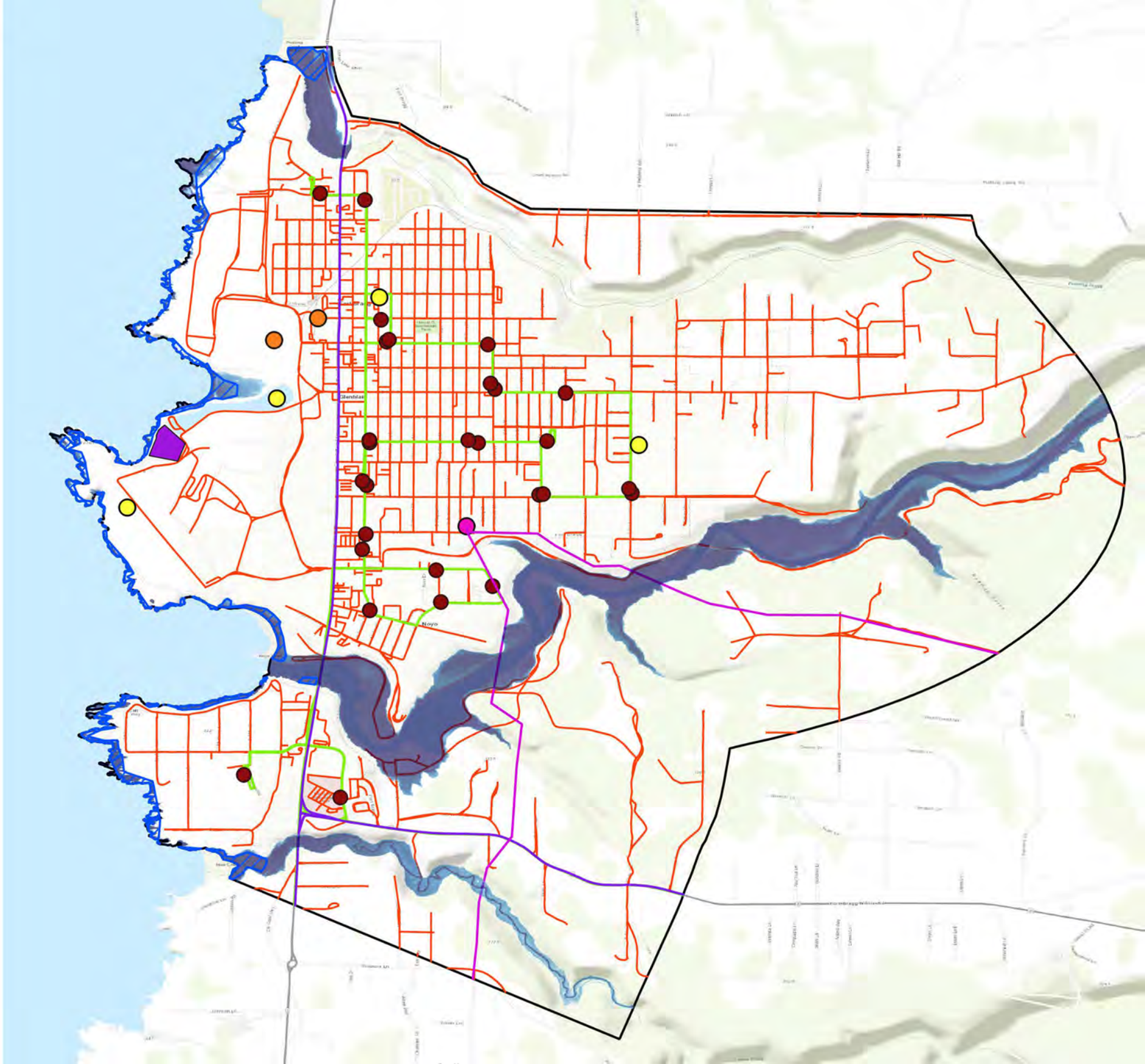
0 0.25 0.5 mi



4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Present Day

100-year Storm

4 Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Critical Infrastructure

Power & Comms

- Transmission Lines [2]
- California Substations [1]

Environmental Sites

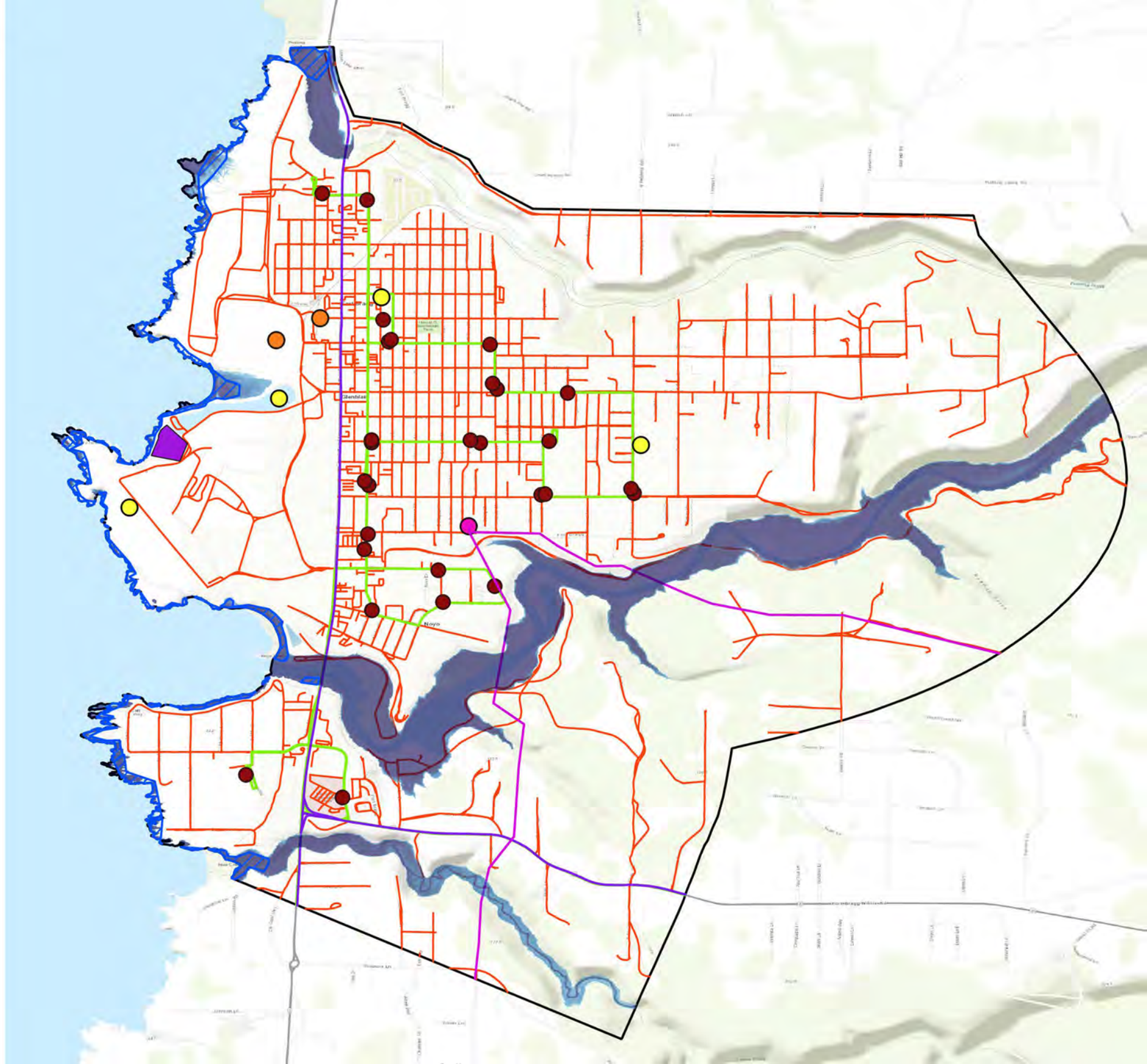
- Wastewater Treatment Facilities [1]
- Hazardous Waste Sites [2]
- Clean Up Sites [6]

Transportation

- Bus Stops [28]
- State Route 1 [58]
- Bus Lines [15]
- Roads [1026]

0 0.25 0.5 mi

4 S Ft Bragg (Noyo & City)



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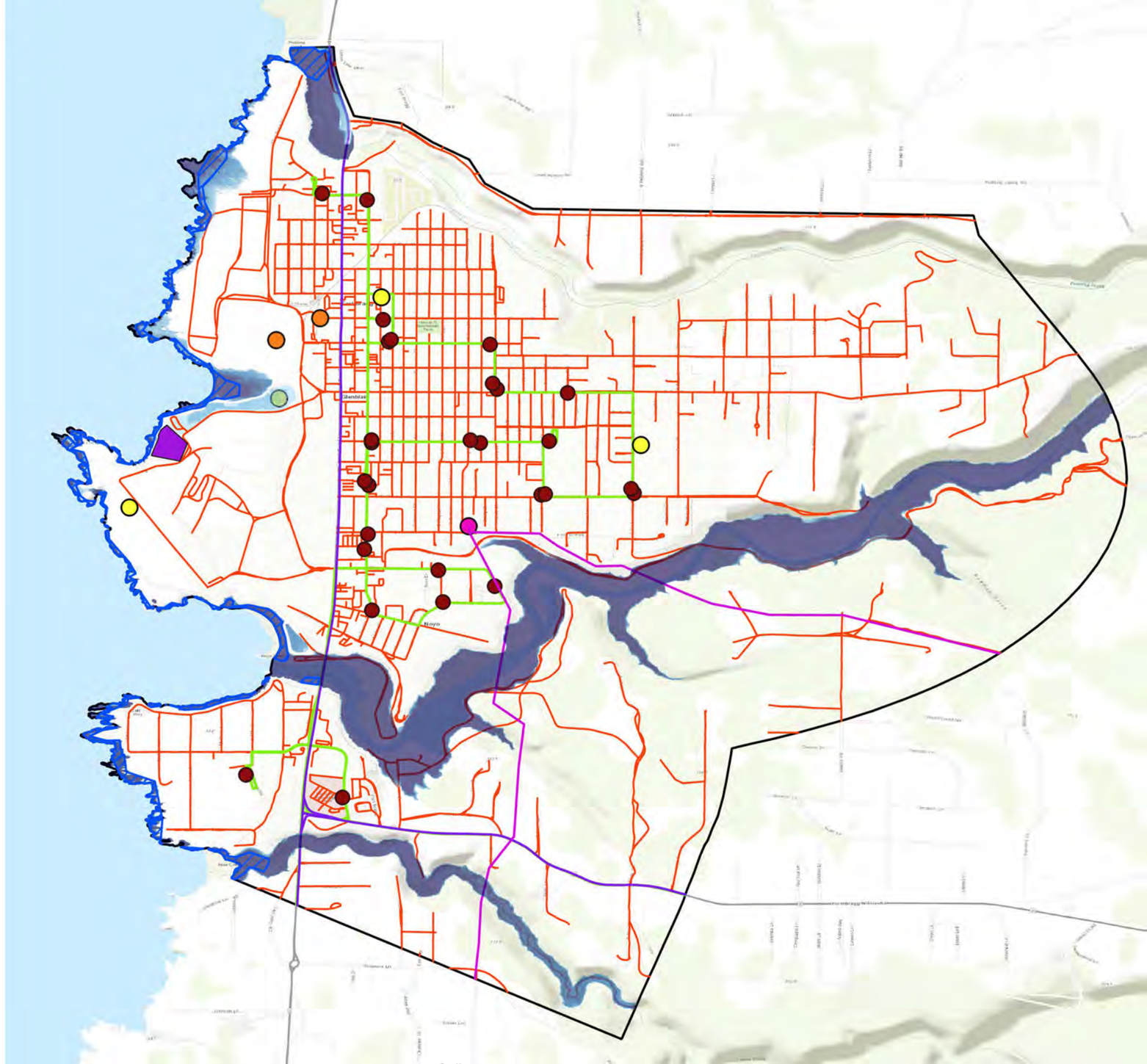

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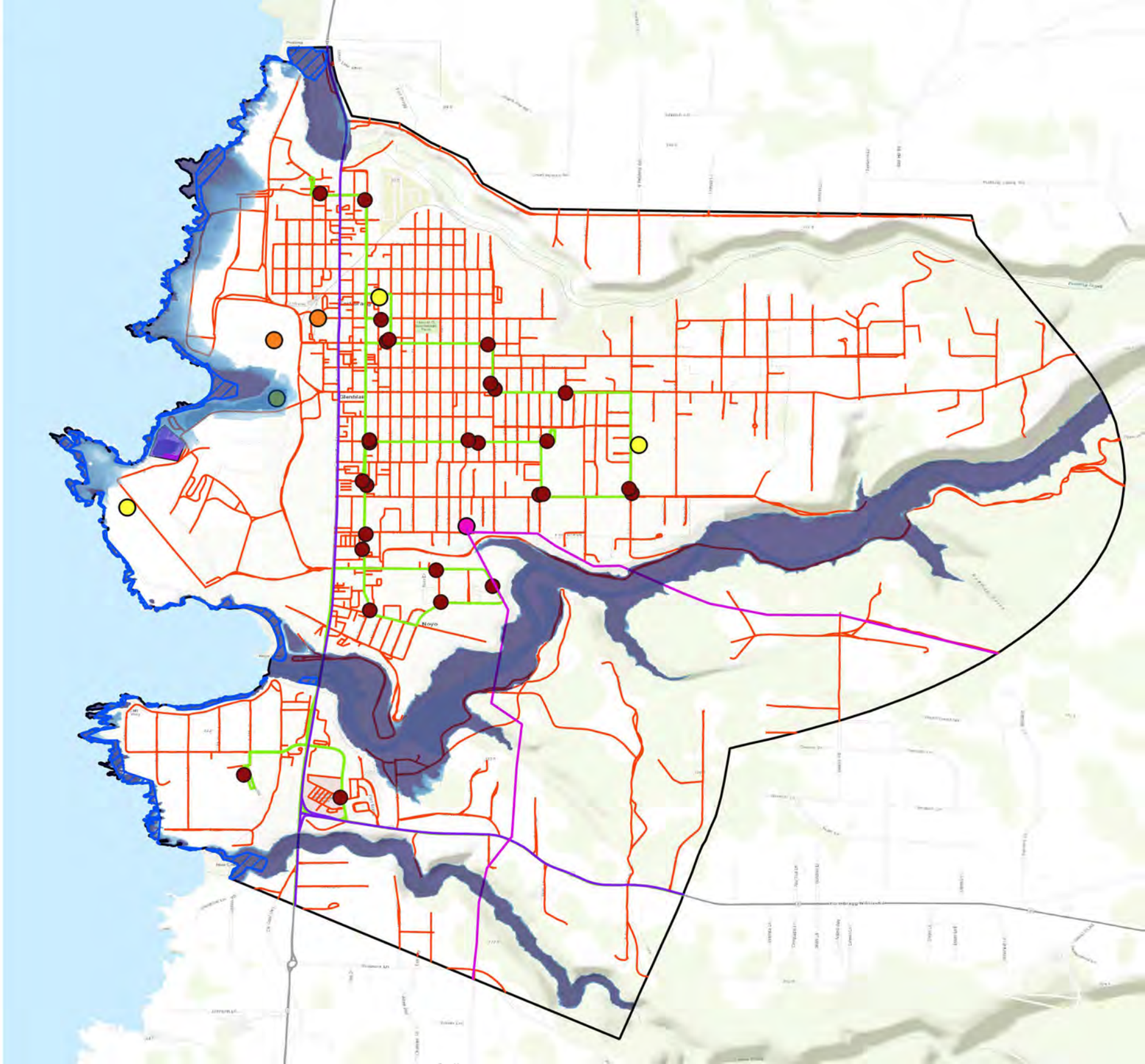

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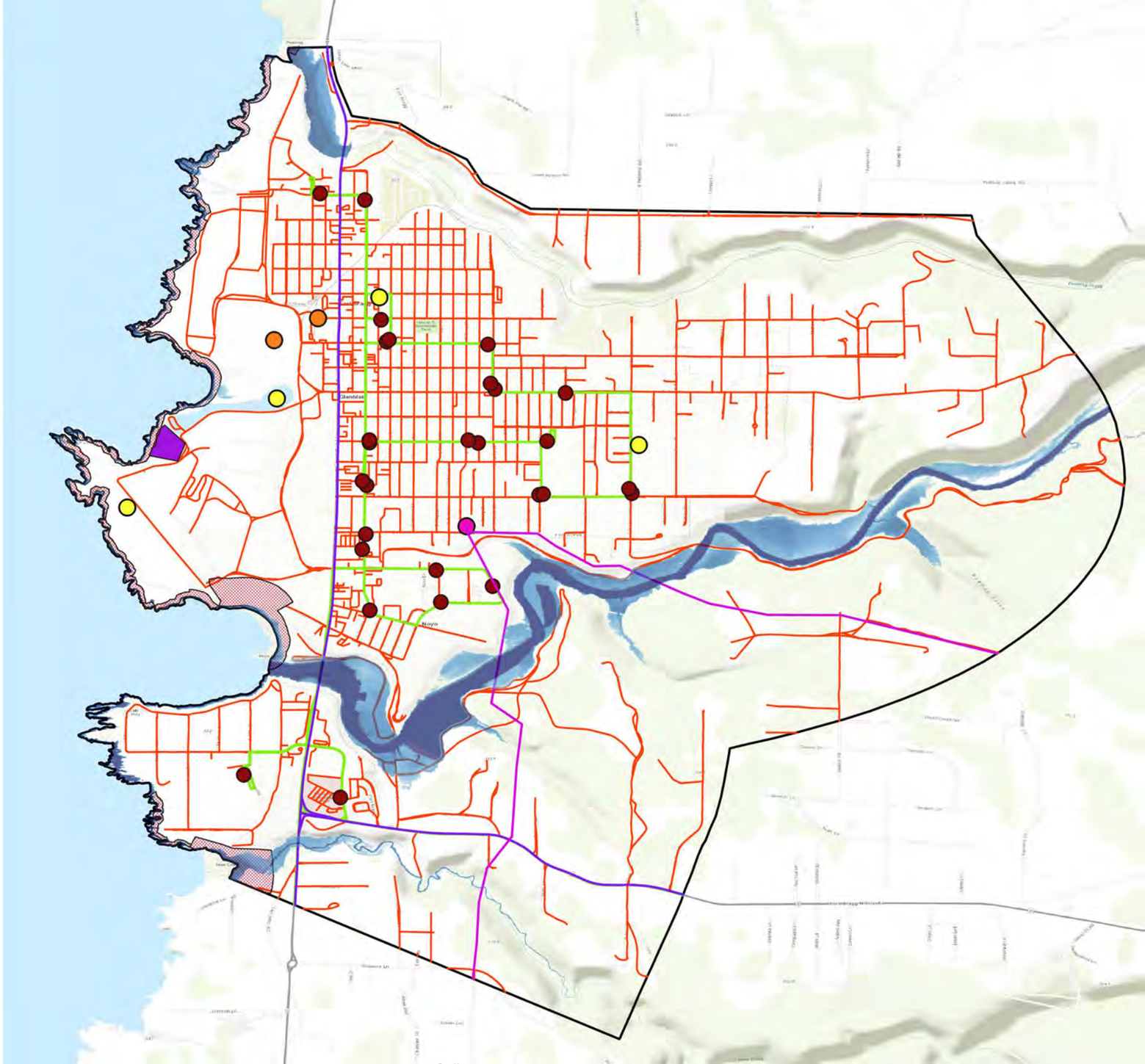

4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- 4 Early century with 0.7ft SLR

Tidal Flooding

4 Present day

Band 1 (Gray)

- >0 - 6 in
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- 5+ ft

Assets

Critical Infrastructure

Power & Comms

- Transmission Lines [2]
- California Substations [1]

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- Hazardous Waste Sites [2]
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Transportation

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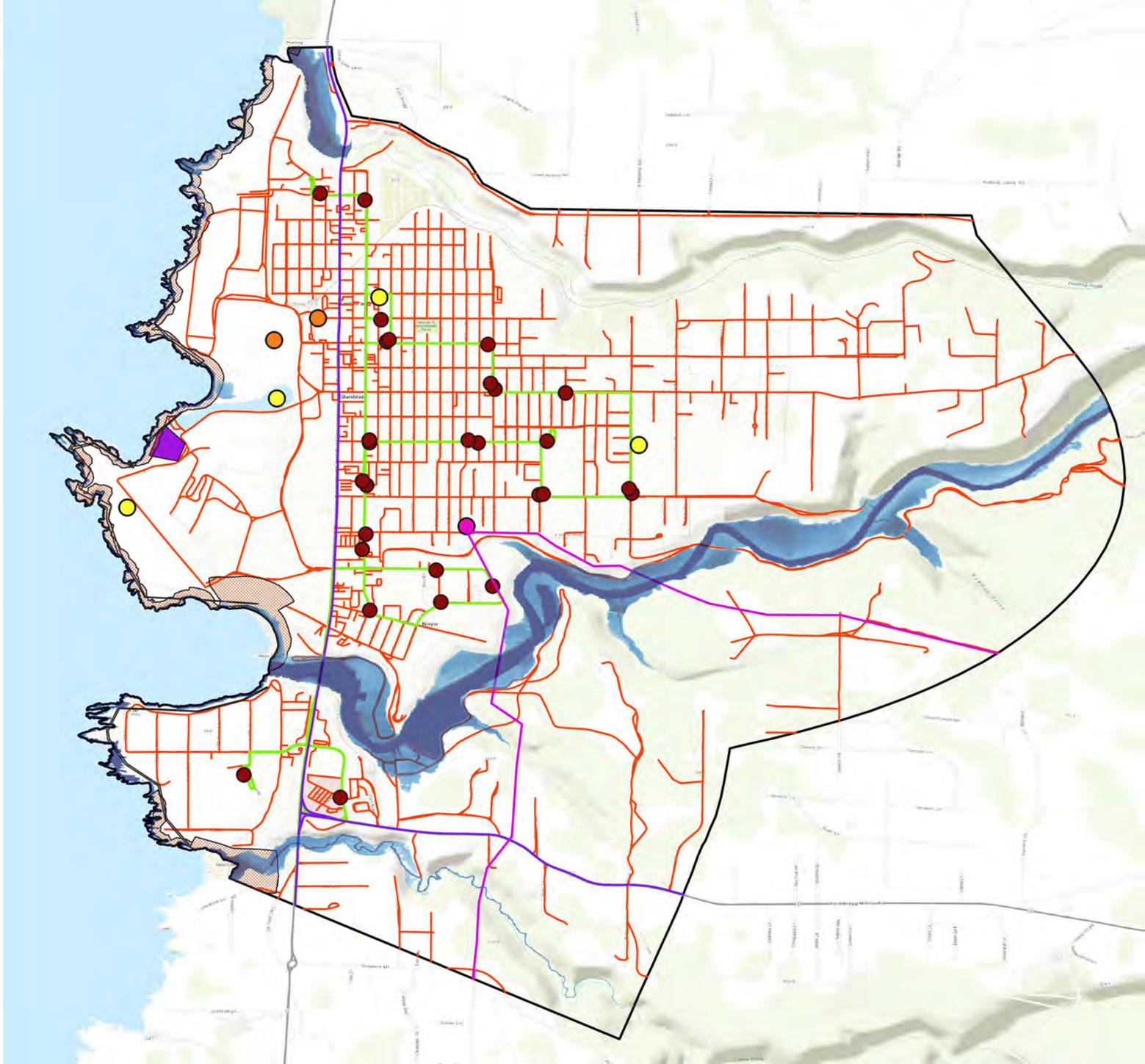
- State Route 1 [58]
- Bus Lines [15]
- Roads [1026]

0 0.25 0.5 mi

4 S Ft Bragg (Noyo & City)



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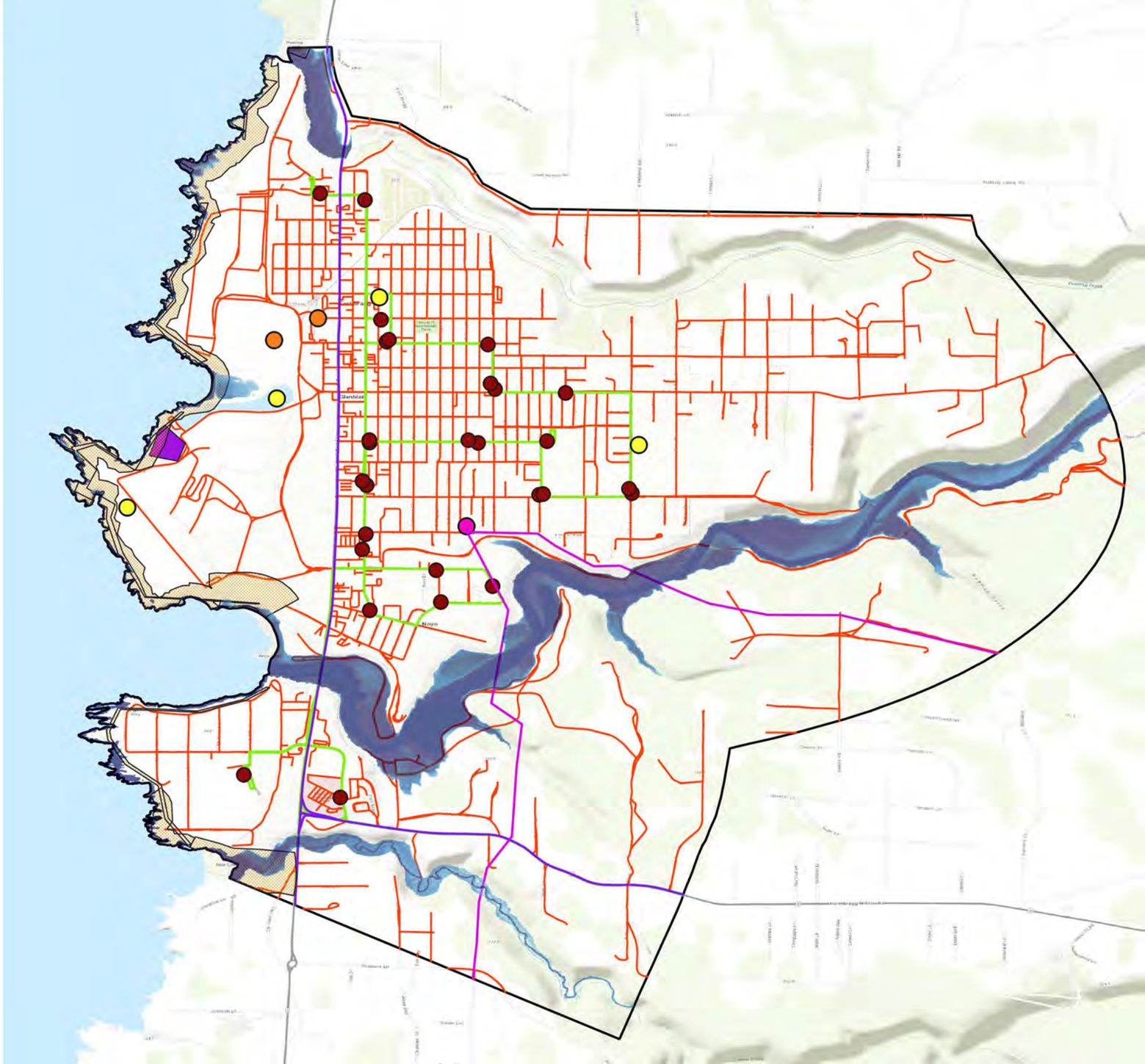

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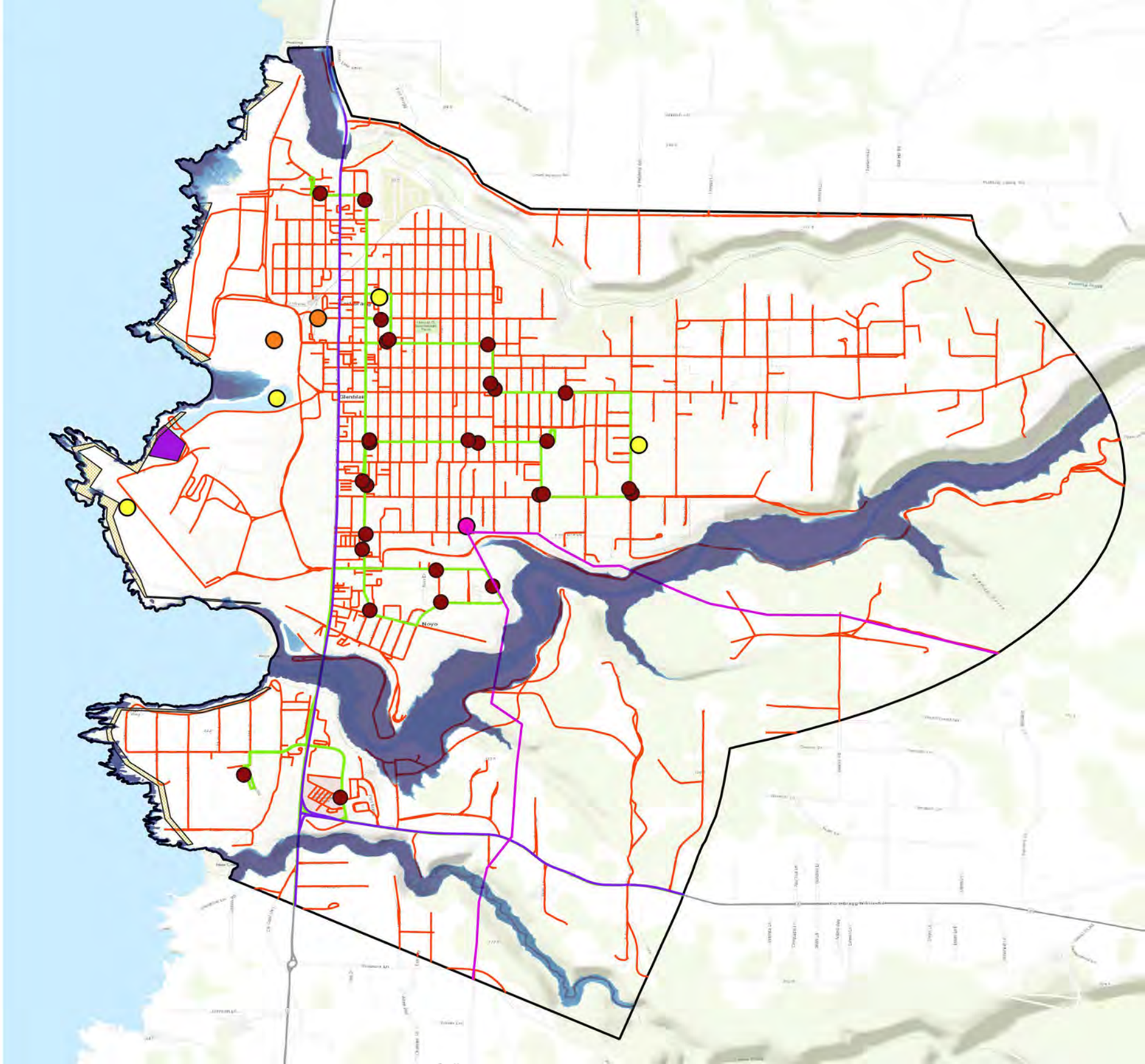


4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

4 South Fort Bragg (Noyo & City)

Hazards

Present Day

100-year Storm

4 Present day

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Next-century with 6ft SLR

100-year Storm

Wave Runup

Assets

Critical Infrastructure

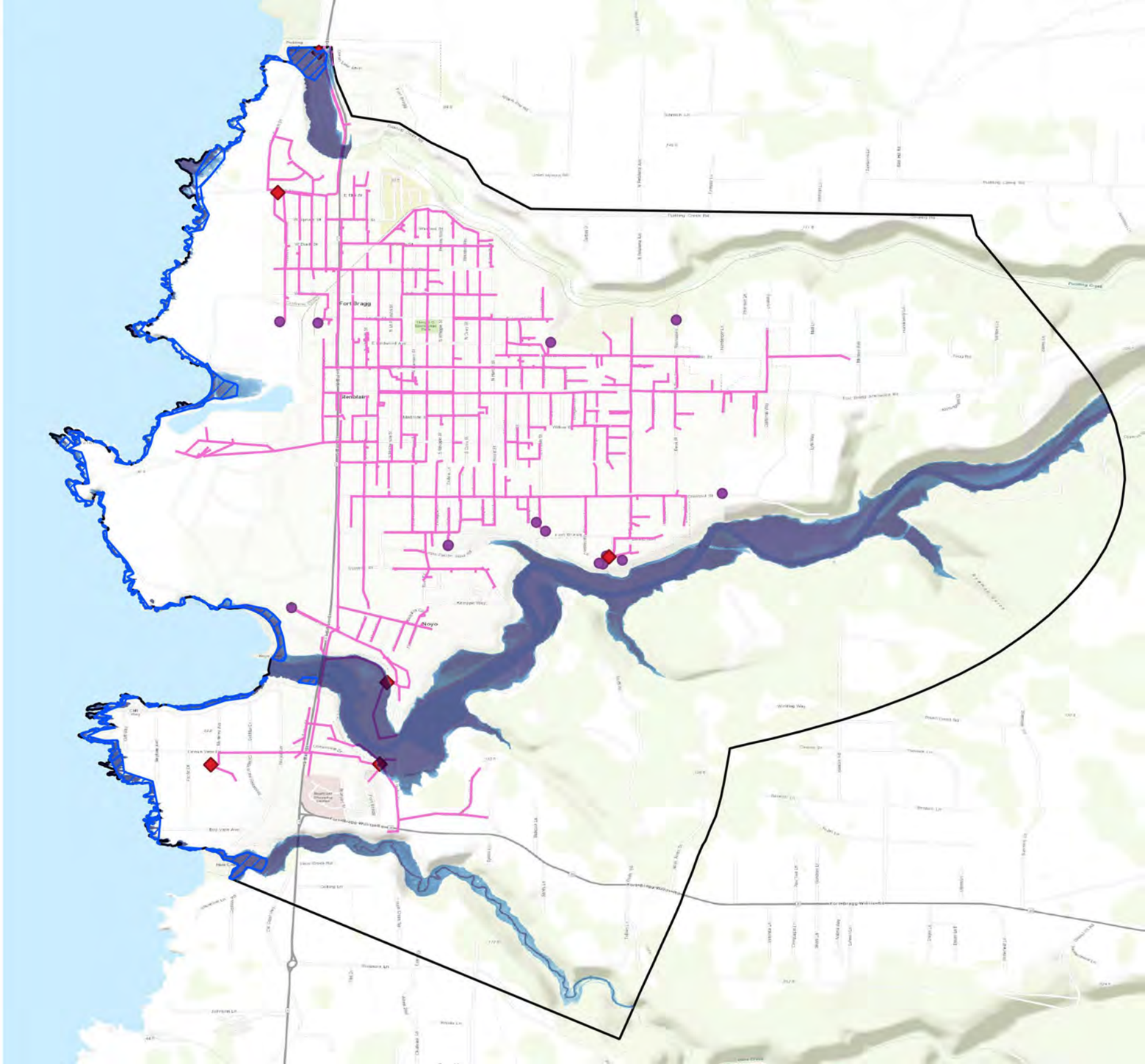
Sewer Utility for City of Fort Bragg

Lift Station [6]

Sewer Pumps [20]

Sewer Mains [848]

0 0.25 0.5 mi



4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Critical Infrastructure

Sewer Utility for City of Fort Bragg

- Lift Station [6]
- Sewer Pumps [20]
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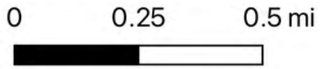

4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Critical Infrastructure

Sewer Utility for City of Fort Bragg

- Lift Station [6]
- Sewer Pumps [20]
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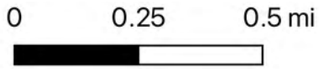

4 S Ft Bragg (Noyo & City)



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Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Next century with 6ft SLR

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Critical Infrastructure

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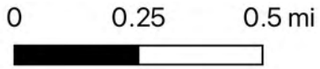

4 S Ft Bragg (Noyo & City)

4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- 4 Early century with 0.7ft SLR

Tidal Flooding

4 Present day

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- >0 - 6 in
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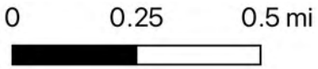

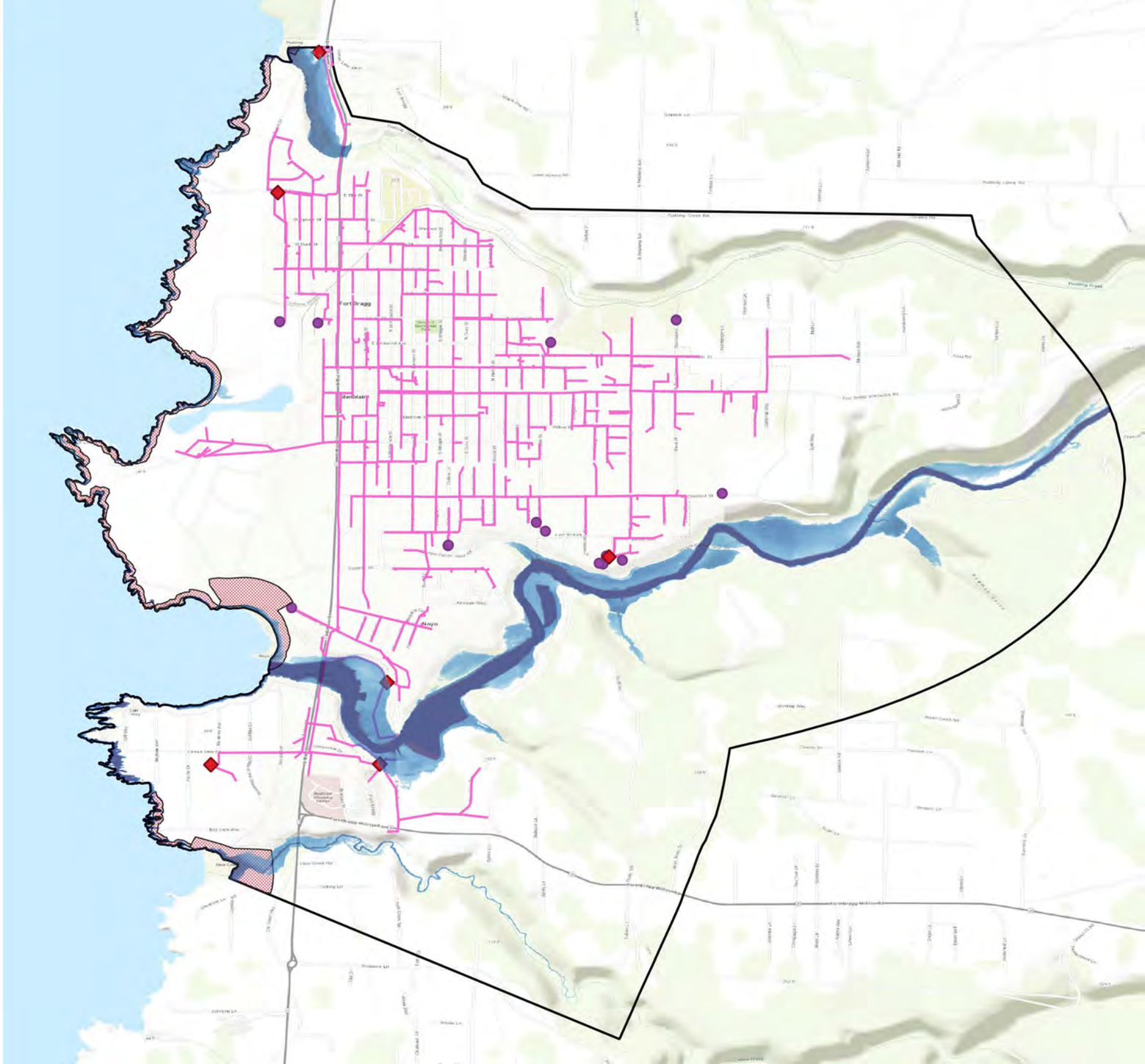

4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

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- 5+ ft

Assets

Critical Infrastructure

Sewer Utility for City of Fort Bragg

- Lift Station [6]
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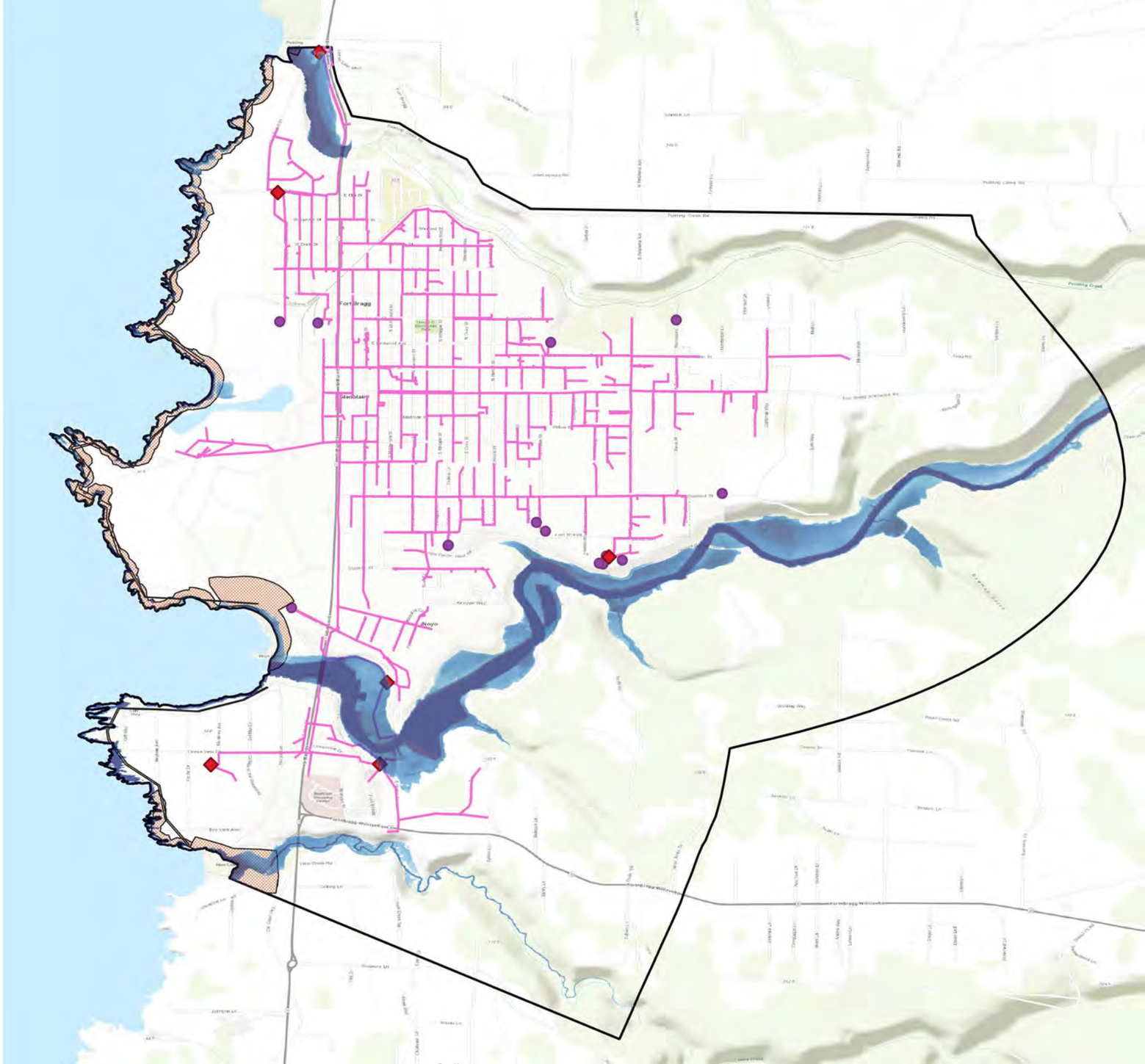
0 0.25 0.5 mi



4 S Ft Bragg (Noyo & City)



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Hazards

Late-century with 3ft SLR

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Bluff Erosion

- Late-century with 3ft SLR

Bluff Dune Erosion

- Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

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Sewer Utility for City of Fort Bragg

- Lift Station [6]
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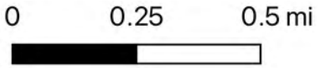

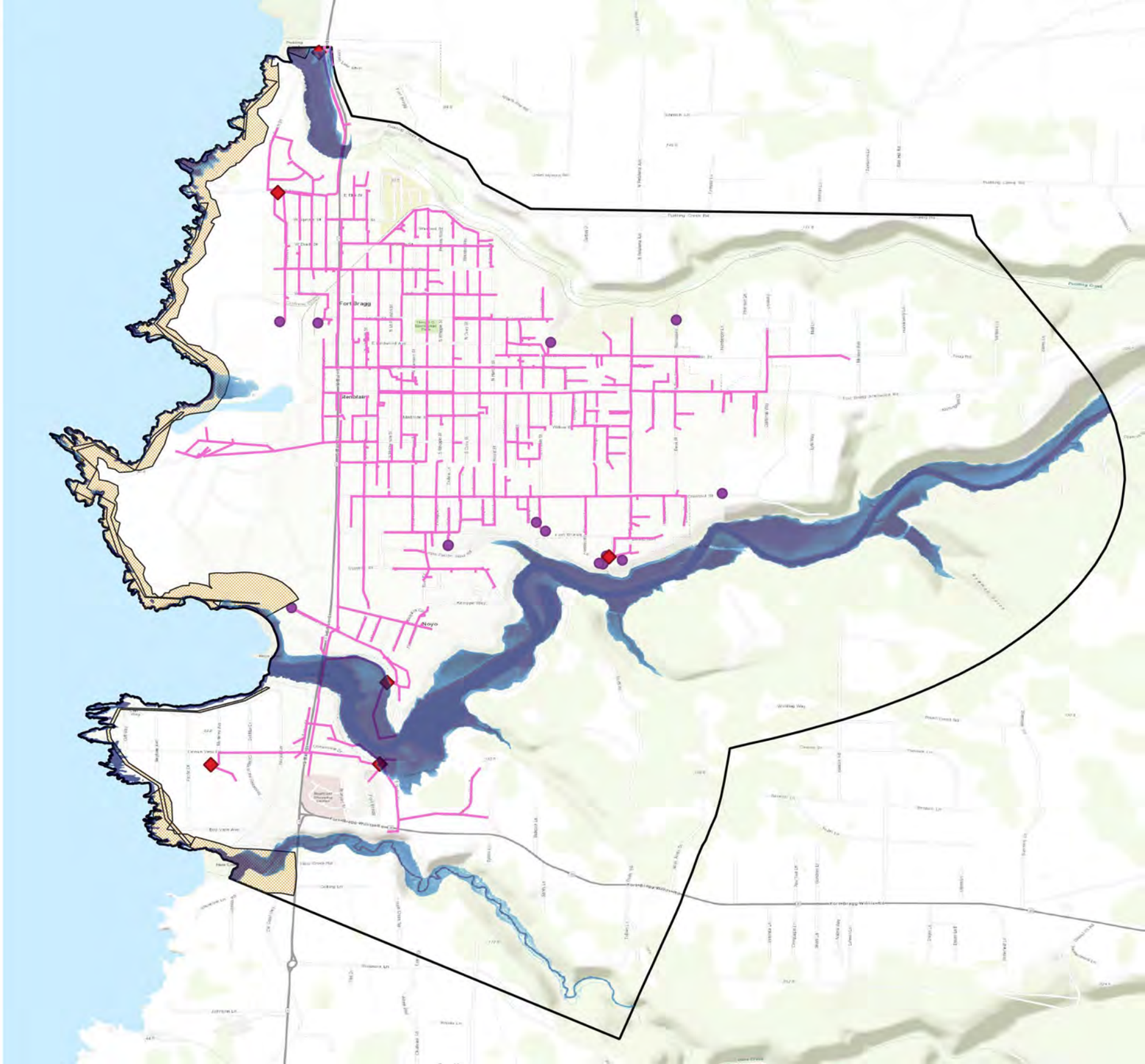

4 S Ft Bragg (Noyo & City)



4 South Fort Bragg (Noyo & City)

Planning Zone

- 4 South Fort Bragg (Noyo & City)

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
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Assets

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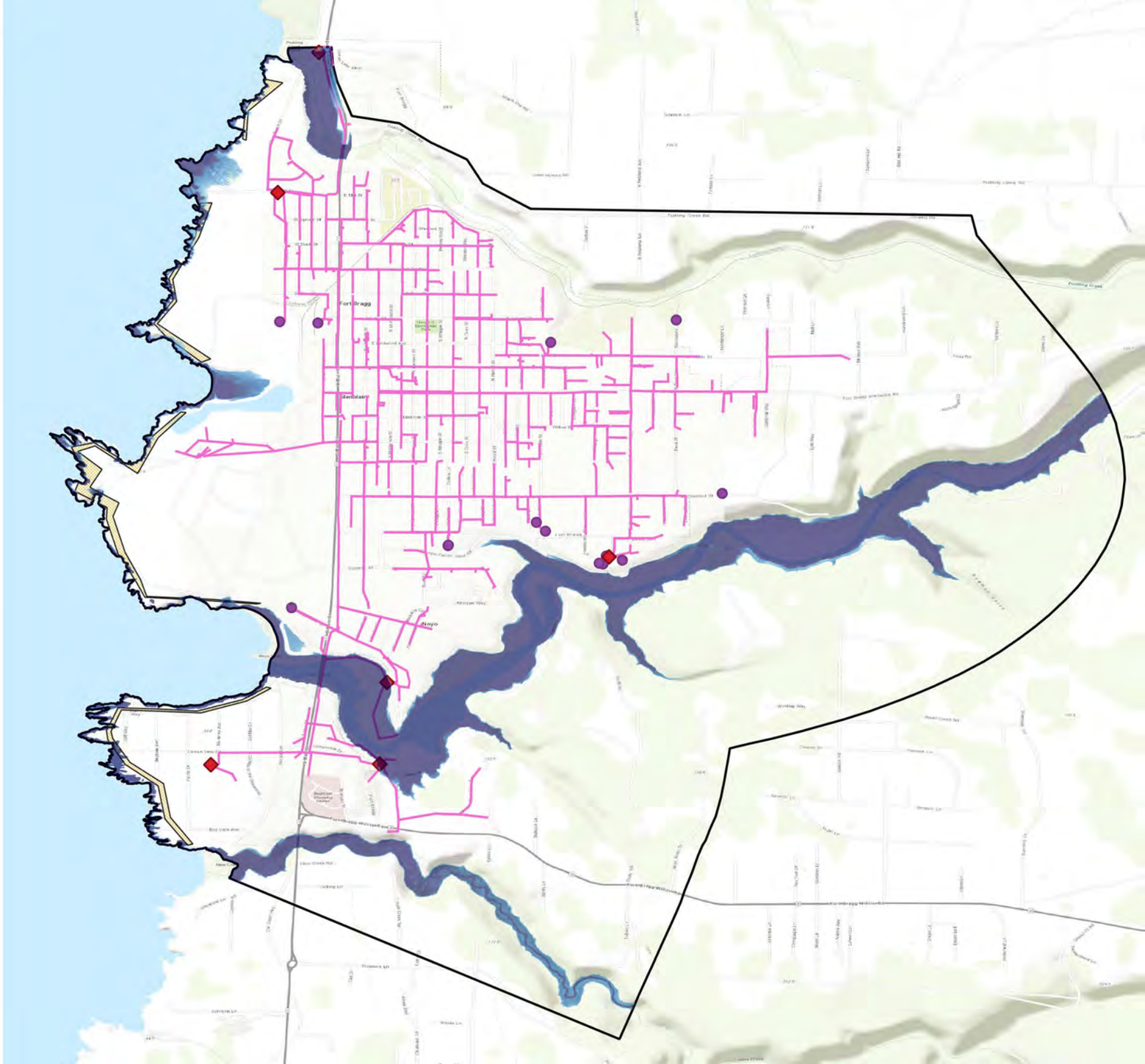


0 0.25 0.5 mi

Table 5. South Fort Bragg – Hare Creek to Jughandle

Sub-Category	Asset Type	Units	WaveP	StormP	TidalP	TotalsP	Storm 1ft	Tidal 1ft	BluffE 1ft	CoastE1ft	Totals 1ft	Storm 3ft	Tidal 3ft	BluffE 3ft	CoastE3ft	Totals 3ft	Storm 6ft	Tidal 6ft	BluffE 6ft	CoastE6ft	Totals 6ft
Power & Comms	Transmission Lines	Length (ft)	0	0	0	0	74	0	0	0	74	81	0	0	0	81	92	78	0	0	92
Transportation	State Route 1	Length (ft)	0	246	197	246	253	215	0	0	253	267	230	0	0	267	292	260	0	0	292
Transportation	Bus Lines	Length (mi)	0	0.4	0.3	0.4	0.4	0.3	0	0	0.4	0.4	0.3	0	0	0.4	0.4	0.4	0	0	0.4
Transportation	Roads	Length (mi)	0	0.1	0	0.1	0.1	0	0	0	0.2	0.2	0	0.1	0.1	0.4	0.7	0.2	0.1	0.3	1
Recreation	California Coastal Trail	Length (mi)	0.7	0.3	0.3	0.8	0.4	0.3	0.1	0.6	1.1	0.6	0.3	0.1	0.9	1.4	1.4	0.5	0.2	1.3	1.6
Recreation	Recreational Routes	Length (mi)	0.3	0.1	0.1	0.4	0.1	0.1	0	0.3	0.6	0.2	0.1	0.1	0.7	0.8	0.9	0.1	0.2	1	1.1
Parks & Govt Lands	State Parks & Lands	Area (acres)	17	28	18	35	31	20	2	16	43	38	26	4	26	55	64	35	6	45	79
Coastal and Water	Beaches	Length (mi)	0.5	0.6	0.5	0.6	0.6	0.5	0	0.3	0.6	0.6	0.6	0	0.3	0.7	0.6	0.6	0.1	0.3	0.7
Coastal and Water	Bluffs	Length (mi)	2.1	3	2.6	3.4	3.1	2.7	0.2	1.8	3.5	3.4	2.9	0.3	1.8	3.6	3.6	3.3	0.3	2	3.6
Coastal and Water	Streams and Rivers	Length (mi)	0.1	0.9	0.5	0.9	1.1	0.6	0	0.1	1.1	1.5	0.8	0	0.1	1.5	1.9	1.3	0	0.2	1.9
Coastal and Water	Estuaries	Area (acres)	1	3	2	3	3	3	0	0	3	3	3	0	0	3	3	3	0	1	3
Coastal and Water	Wetlands and ESHA	Area (acres)	15	26	23	26	26	25	1	9	26	27	26	2	9	27	30	26	3	13	30
Habitat	Endangered and Threatened Species Habitats	Area (acres)	18	54	32	58	60	38	1	16	69	73	50	2	21	84	99	68	3	37	112
Habitat	Critical Coastal Areas	Area (acres)	7	23	14	25	25	16	1	8	30	31	21	1	12	38	40	29	1	20	50
Habitat	Areas of Special Biological Significance	Number of individually designated ASBSs	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	0	1	1
Built Environment	Residential Buildings	Number of buildings	21	0	0	21	1	0	15	5	27	7	0	25	9	35	39	3	30	30	55
Coastal Armoring	Coastal Armoring	Length (ft)	41	41	41	41	41	41	0	41	41	41	41	0	41	41	41	41	0	41	41

5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Present Day

100-year Storm

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Built Environment

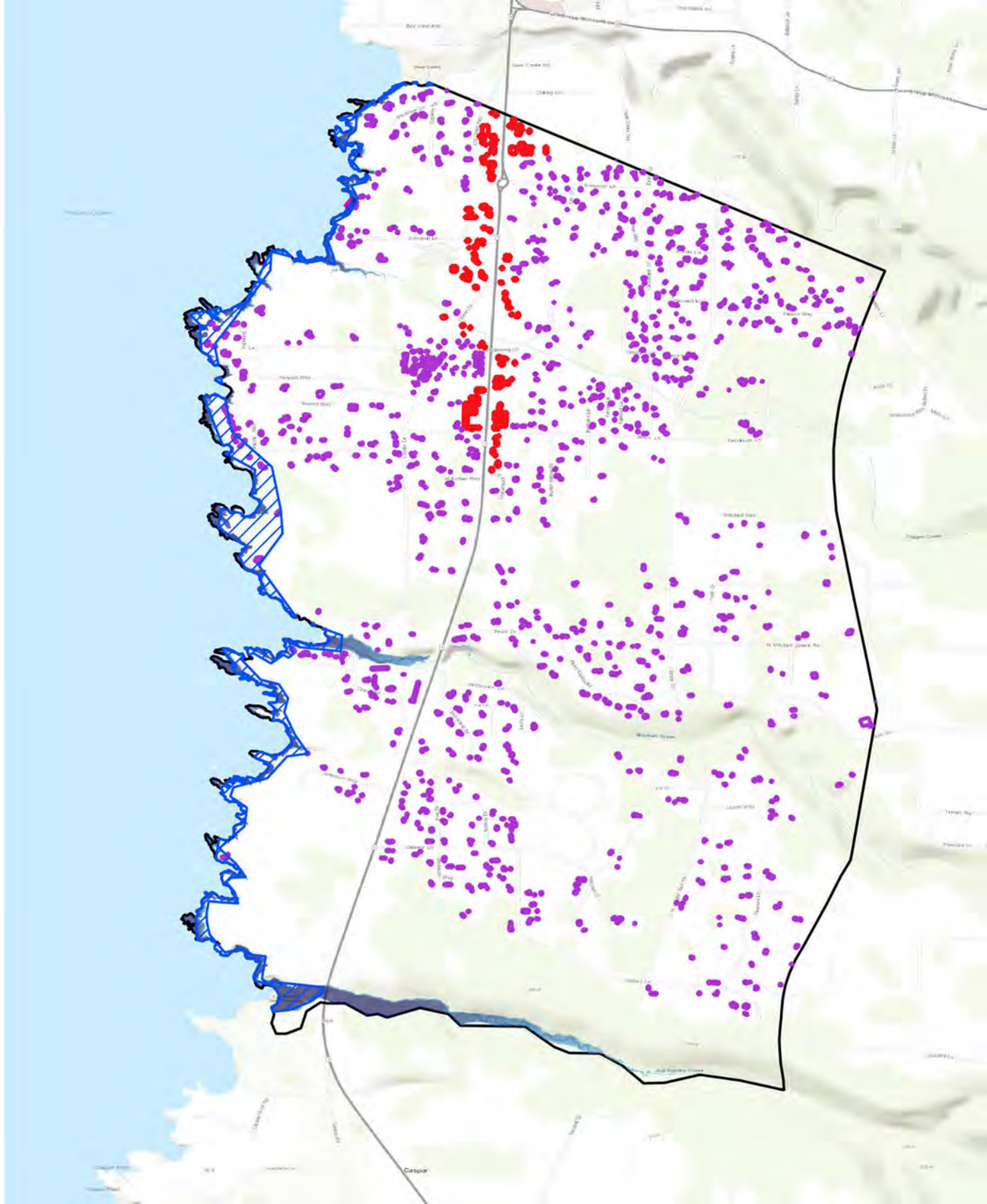
Built Environment

- Residential Buildings [1072]
- Commercial Buildings [101]

Coastal Armoring

- Coastal Armoring [1]

0 0.25 0.5 mi



5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Present Day

100-year Storm

Present day

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- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Critical Infrastructure

Power & Comms

- Transmission Lines [1]

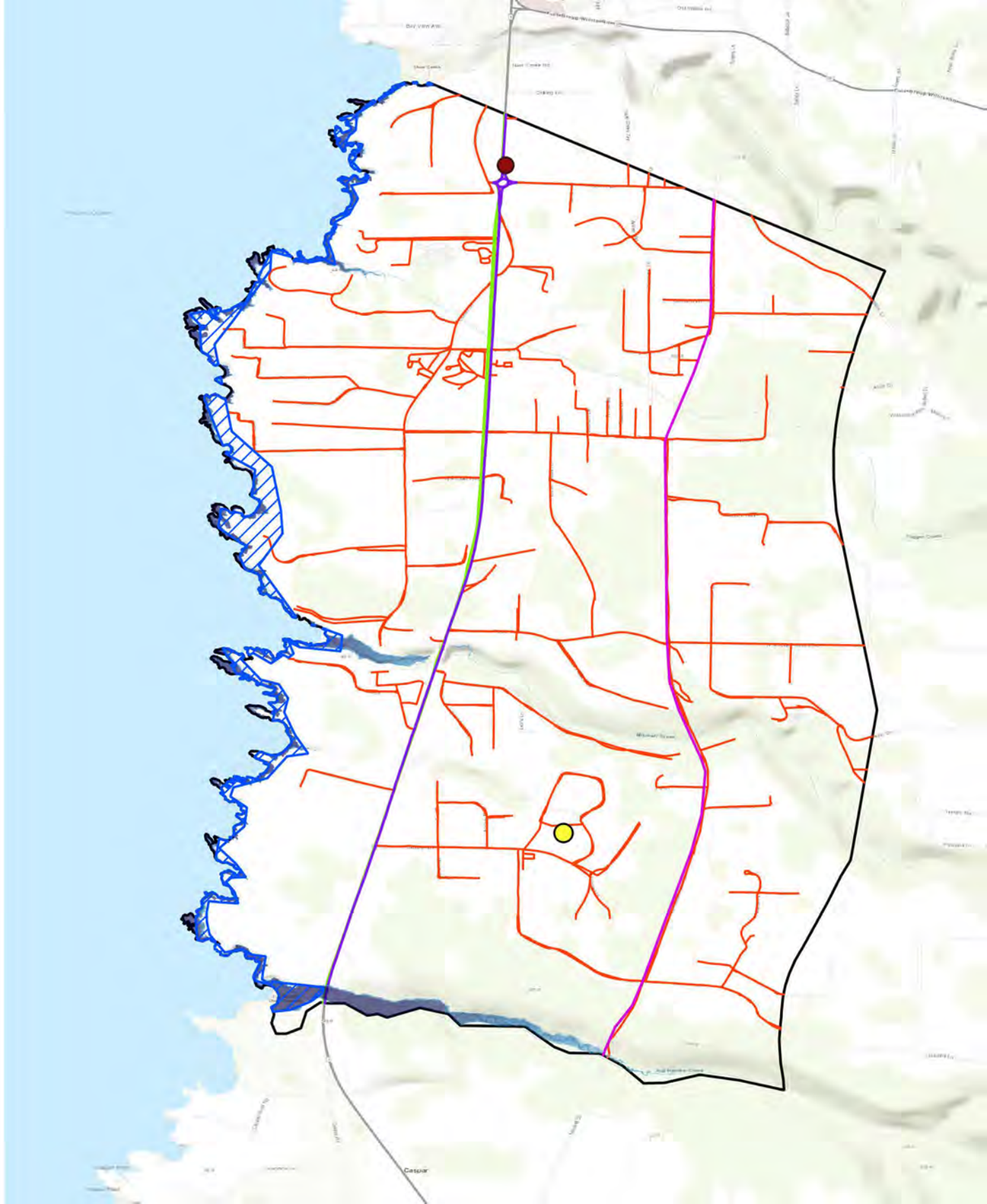
Environmental Sites

- Clean Up Sites [1]

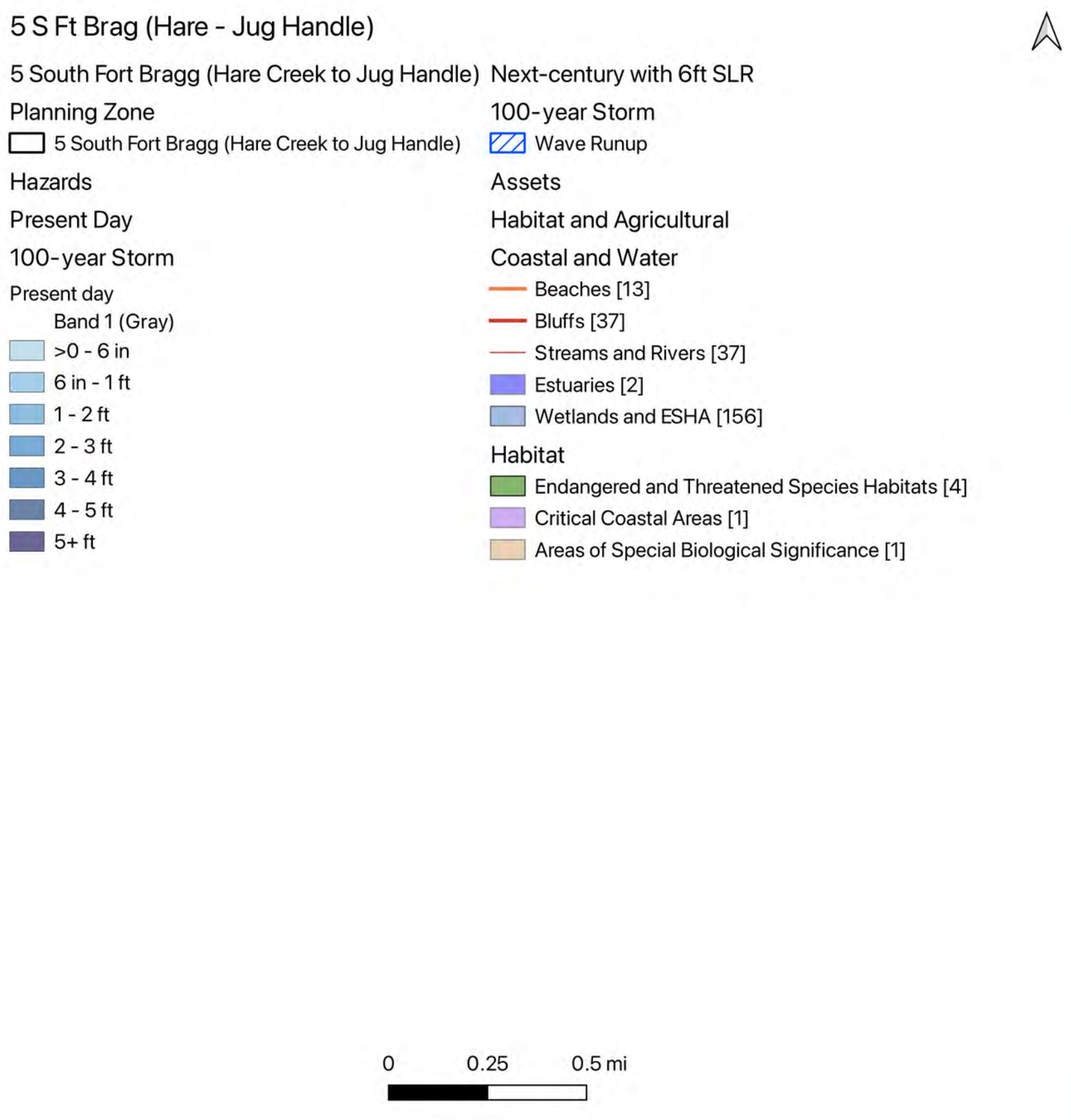
Transportation

- Bus Stops [1]
- State Route 1 [33]
- Bus Lines [8]
- Roads [300]

0 0.25 0.5 mi



5 S Ft Brag (Hare - Jug Handle)



5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Present Day

100-year Storm

Present day

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- 6 in - 1 ft
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Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Public Access and Recreation

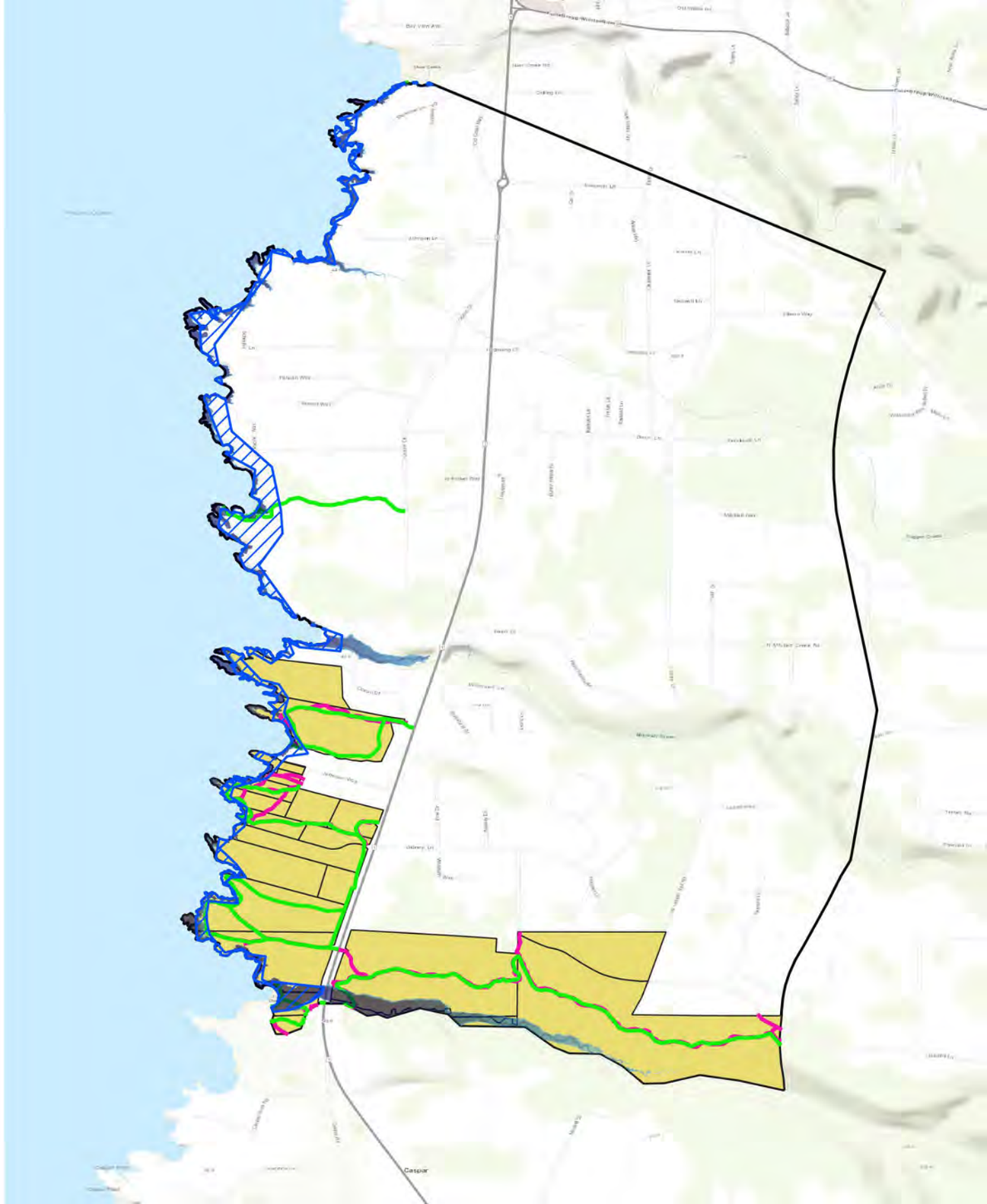
Recreation

- California Coastal Trail [17]
- Recreational Routes [41]

Parks & Govt Lands

- State Parks & Lands [26]

0 0.25 0.5 mi



5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Built Environment

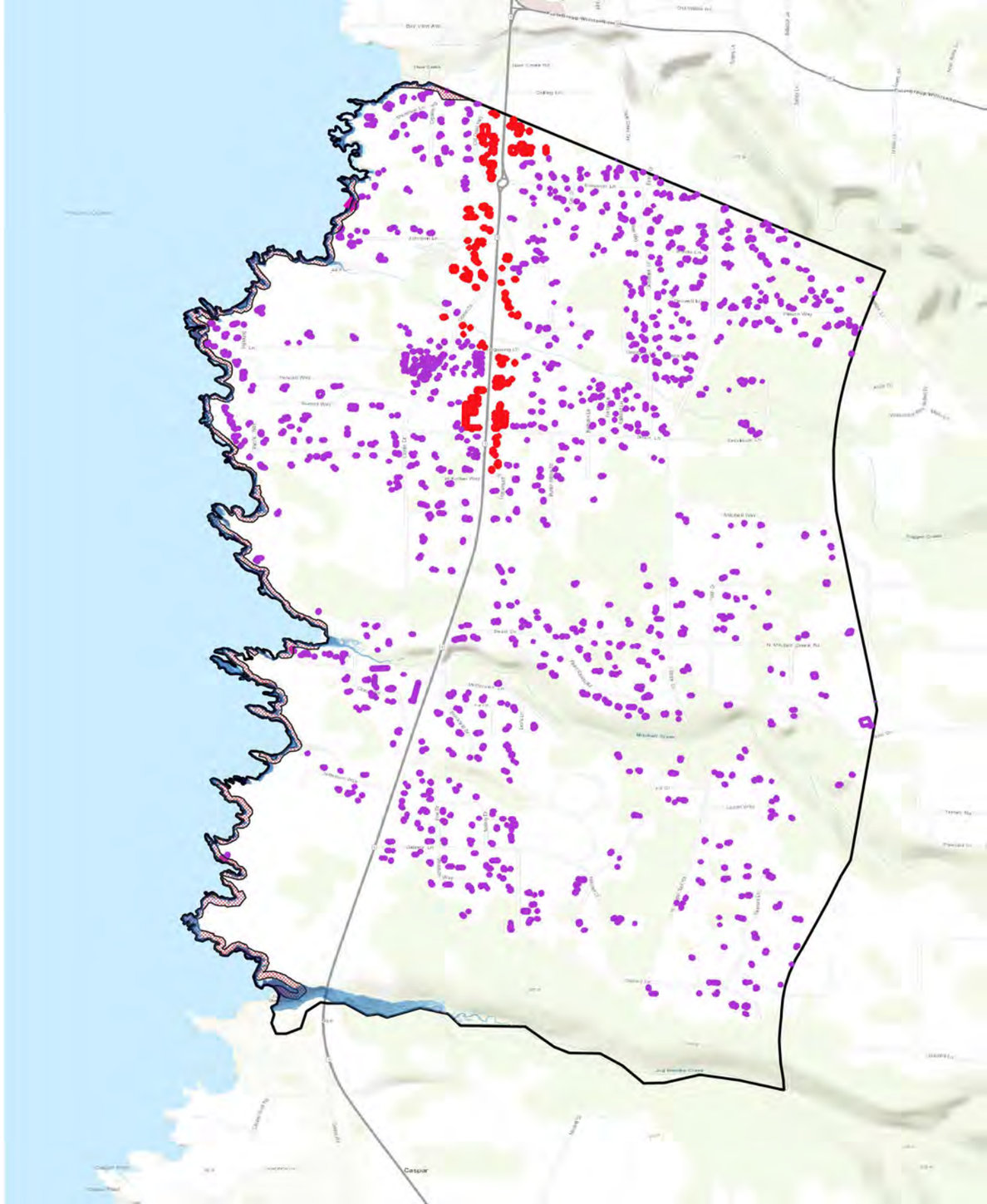
Built Environment

- Residential Buildings [1072]
- Commercial Buildings [101]

Coastal Armoring

- Coastal Armoring [1]

0 0.25 0.5 mi



5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Critical Infrastructure

Power & Comms

- Transmission Lines [1]

Environmental Sites

- Clean Up Sites [1]

Transportation

- Bus Stops [1]
- State Route 1 [33]
- Bus Lines [8]
- Roads [300]

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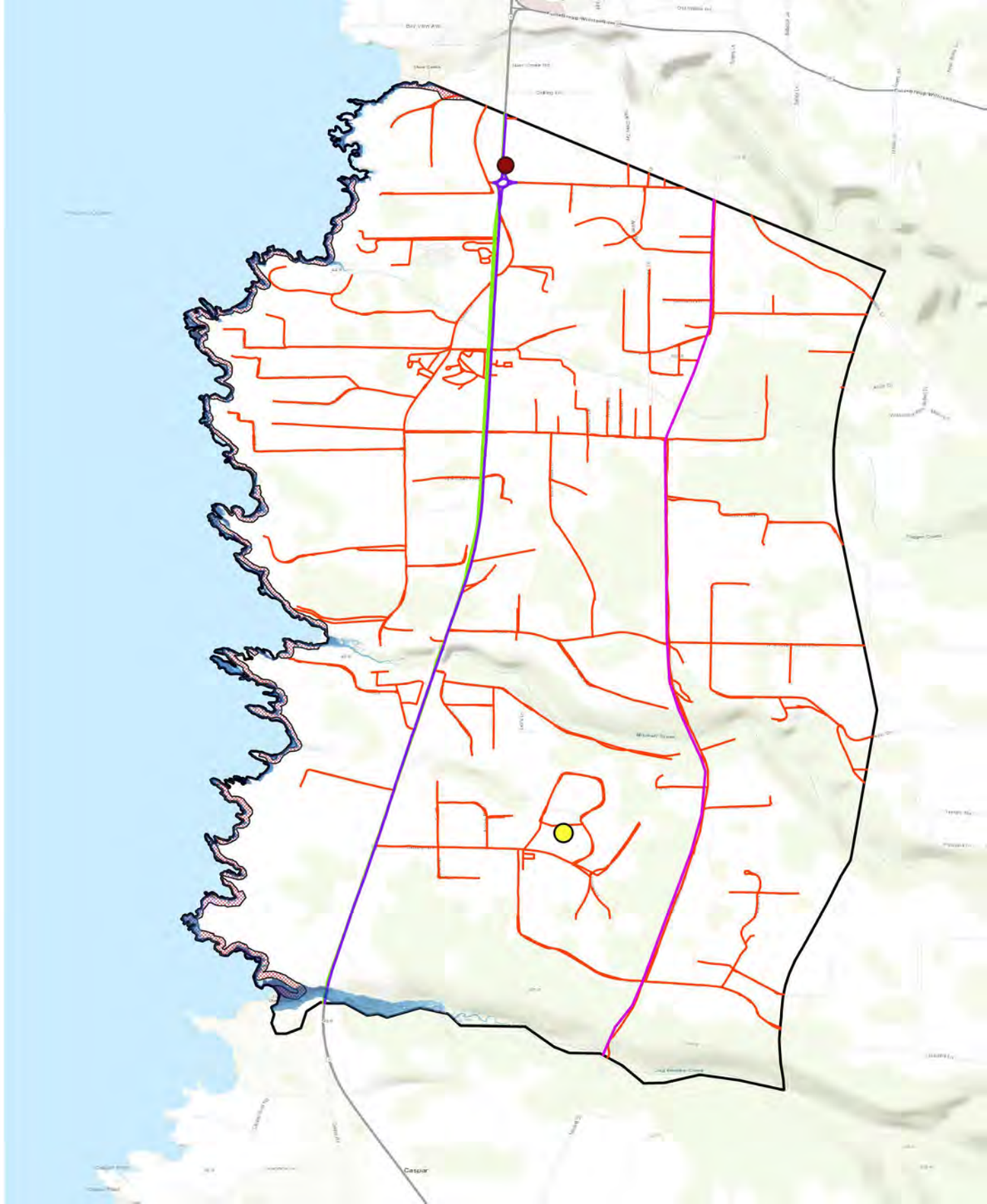
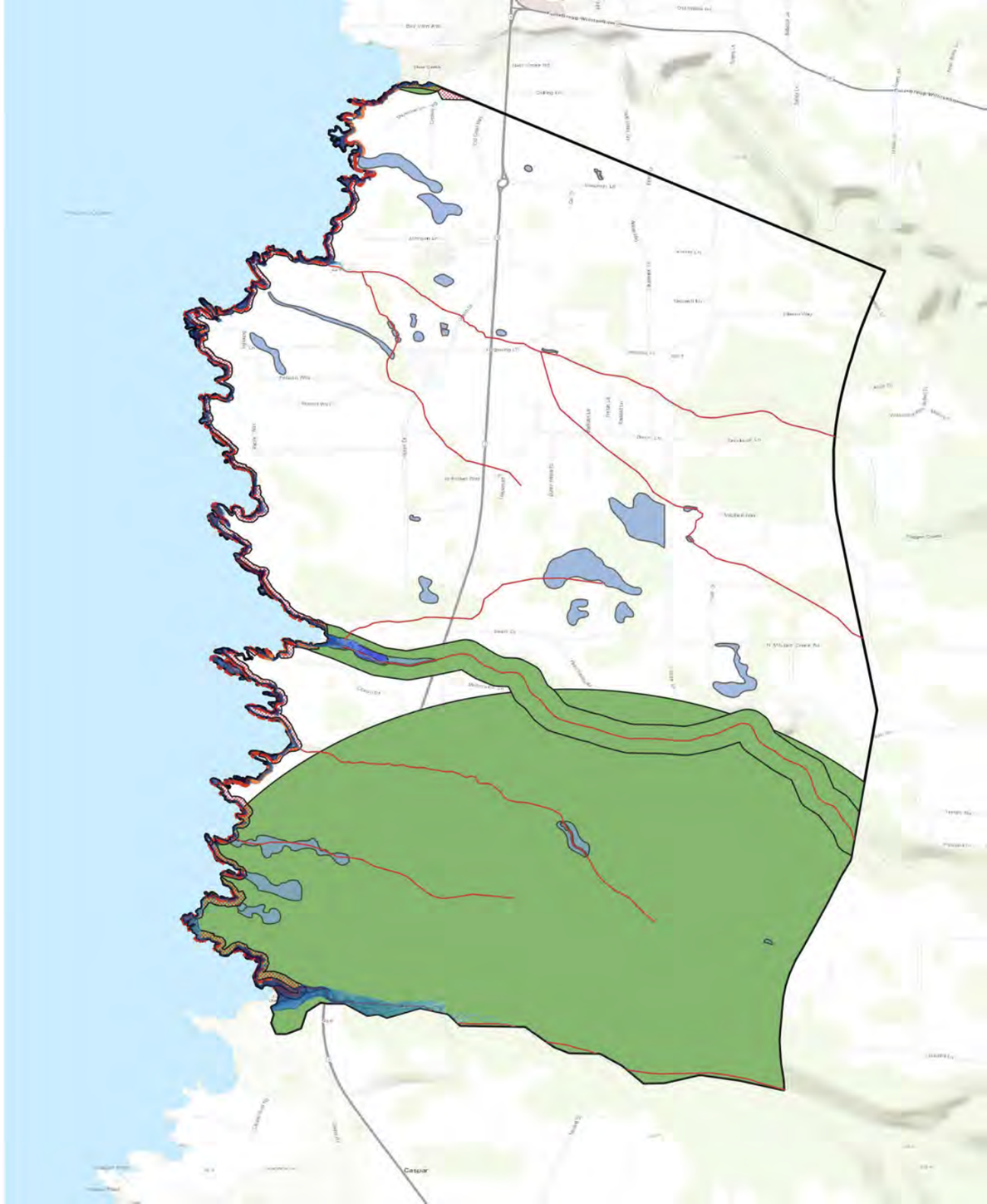


5 S Ft Brag (Hare - Jug Handle)



5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Habitat and Agricultural

Coastal and Water

- Beaches [13]
- Bluffs [37]
- Streams and Rivers [37]
- Estuaries [2]
- Wetlands and ESHA [156]

Habitat

- Endangered and Threatened Species Habitats [4]
- Critical Coastal Areas [1]
- Areas of Special Biological Significance [1]

0 0.25 0.5 mi

5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

- >0 - 6 in
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- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Public Access and Recreation

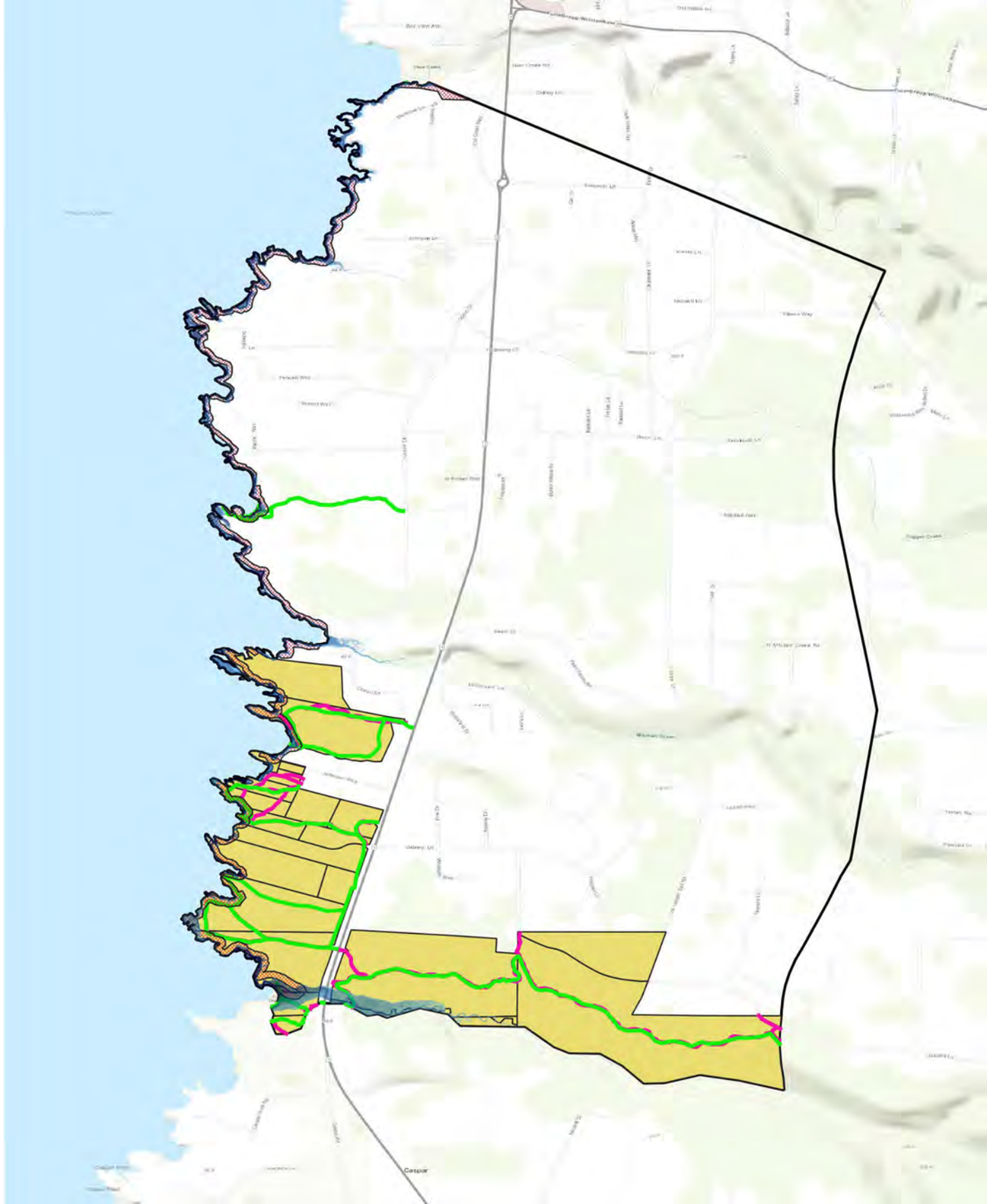
Recreation

- California Coastal Trail [17]
- Recreational Routes [41]

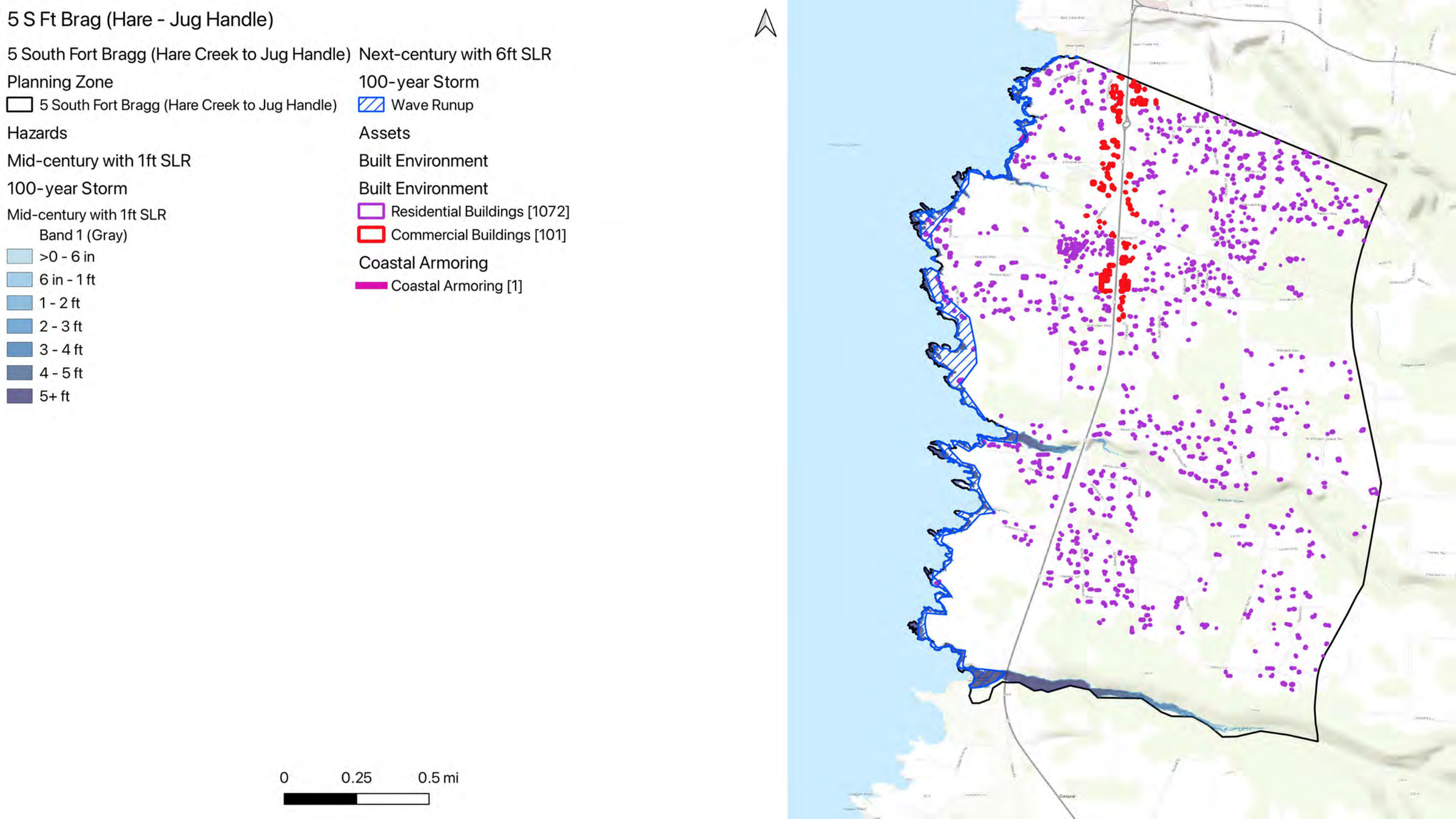
Parks & Govt Lands

- State Parks & Lands [26]

0 0.25 0.5 mi



5 S Ft Brag (Hare - Jug Handle)



5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Critical Infrastructure

Power & Comms

- Transmission Lines [1]

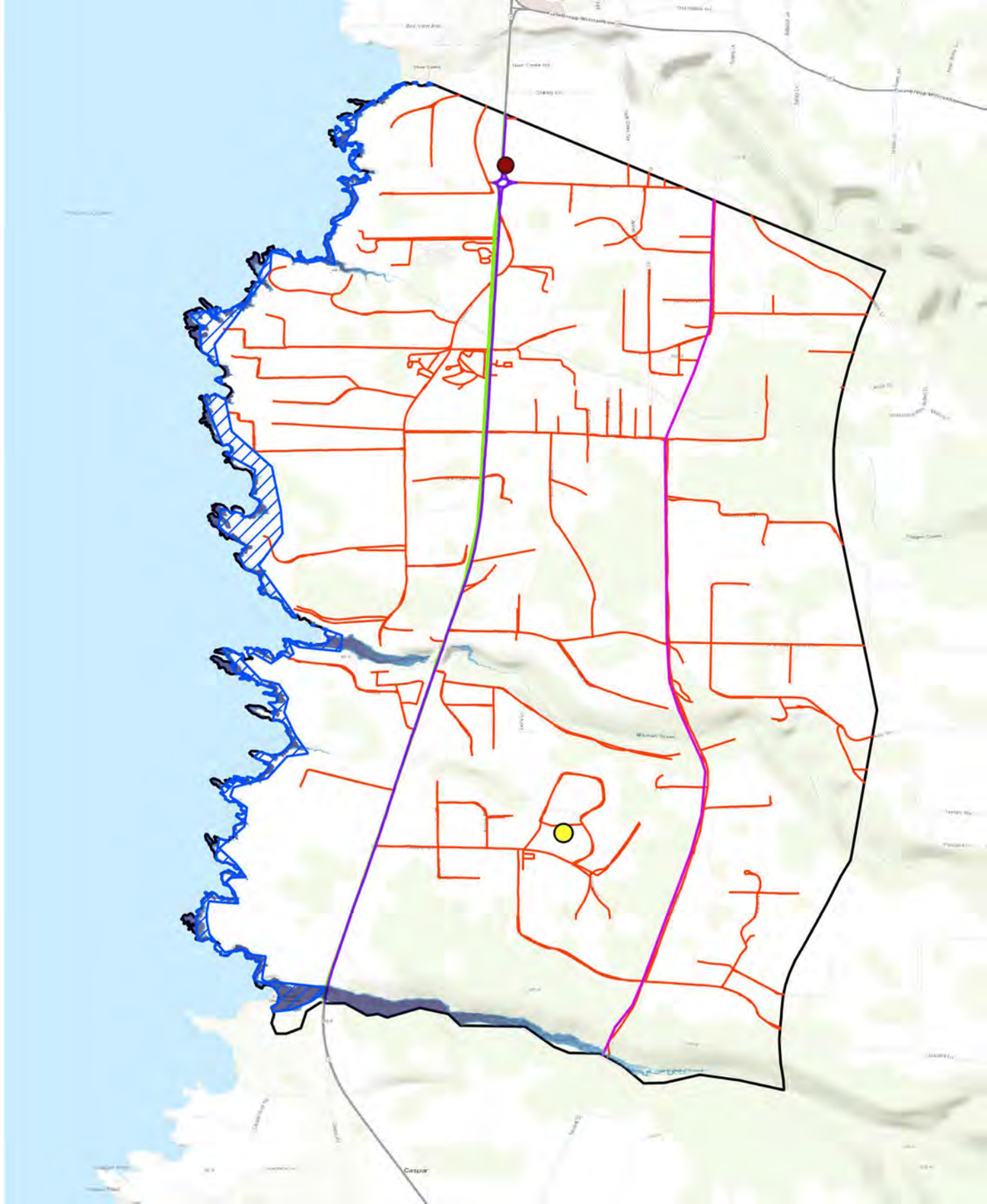
Environmental Sites

- Clean Up Sites [1]

Transportation

- Bus Stops [1]
- State Route 1 [33]
- Bus Lines [8]
- Roads [300]

0 0.25 0.5 mi



5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Habitat and Agricultural

Coastal and Water

- Beaches [13]
- Bluffs [37]
- Streams and Rivers [37]
- Estuaries [2]
- Wetlands and ESHA [156]

Habitat

- Endangered and Threatened Species Habitats [4]
- Critical Coastal Areas [1]
- Areas of Special Biological Significance [1]

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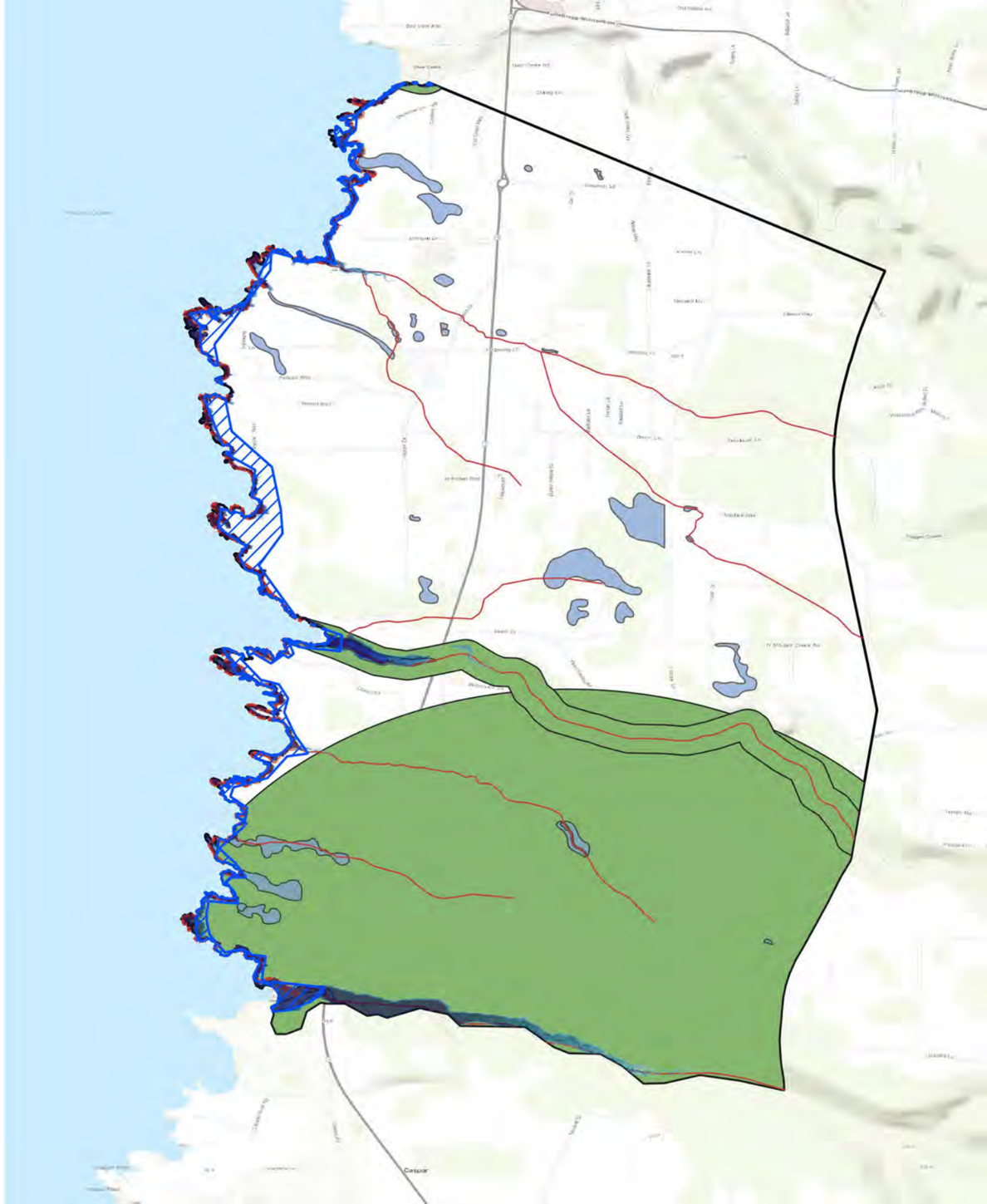


5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Public Access and Recreation

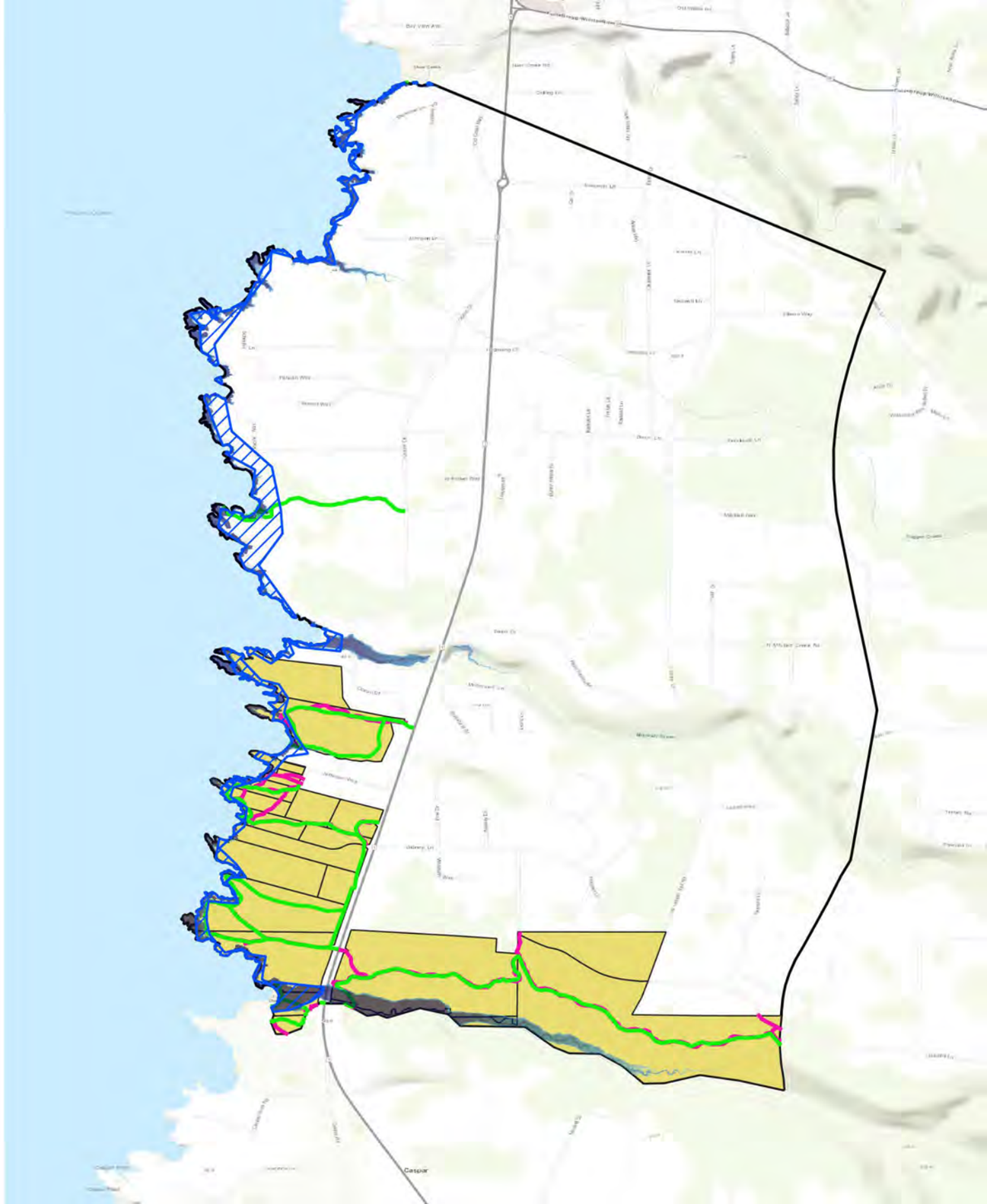
Recreation

- California Coastal Trail [17]
- Recreational Routes [41]

Parks & Govt Lands

- State Parks & Lands [26]

0 0.25 0.5 mi



5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

Mid-century with 1ft SLR

Bluff Dune Erosion

Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Built Environment

Built Environment

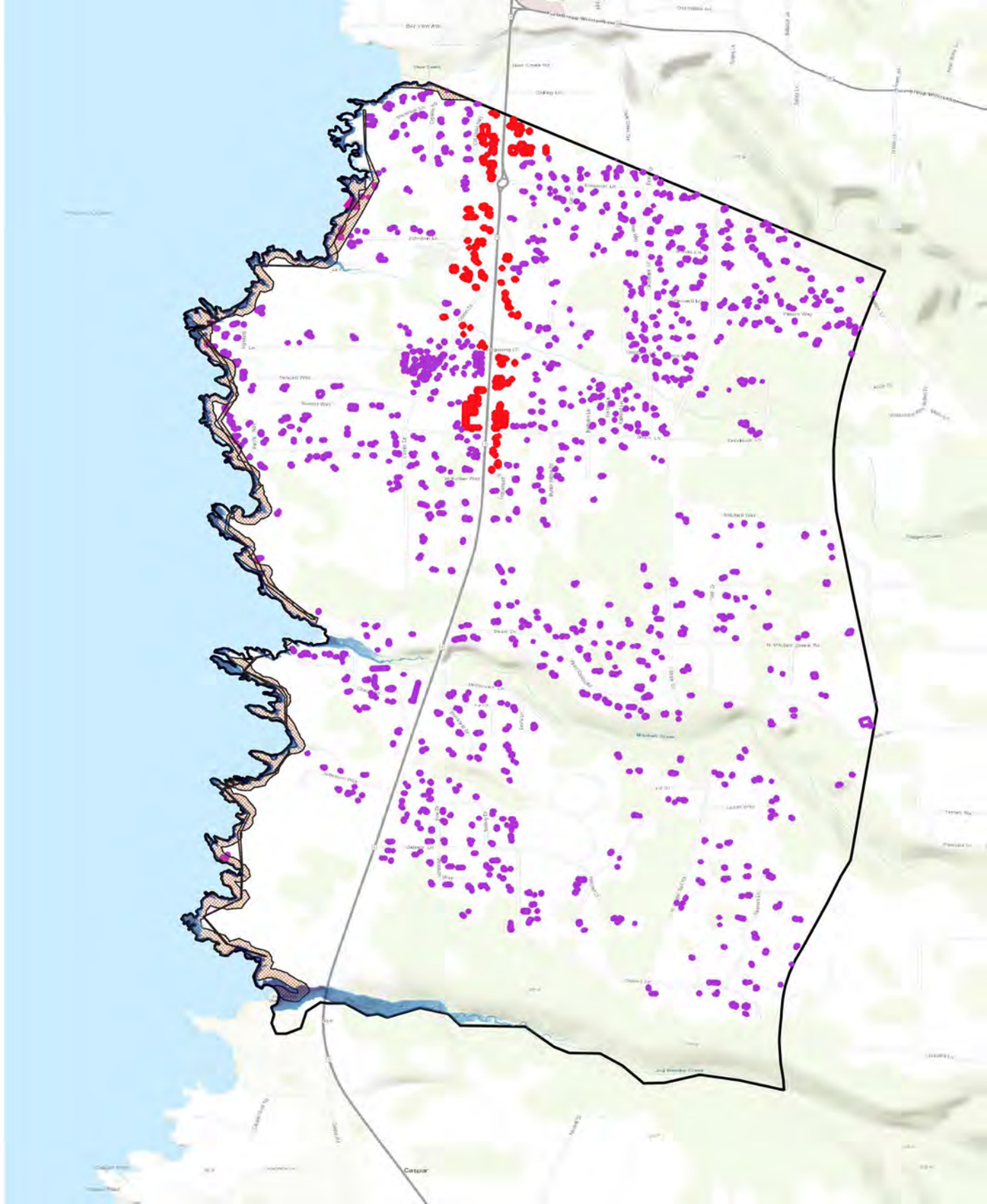
Residential Buildings [1072]

Commercial Buildings [101]

Coastal Armoring

Coastal Armoring [1]

0 0.25 0.5 mi



5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

Mid-century with 1ft SLR

Bluff Dune Erosion

Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Critical Infrastructure

Power & Comms

- Transmission Lines [1]

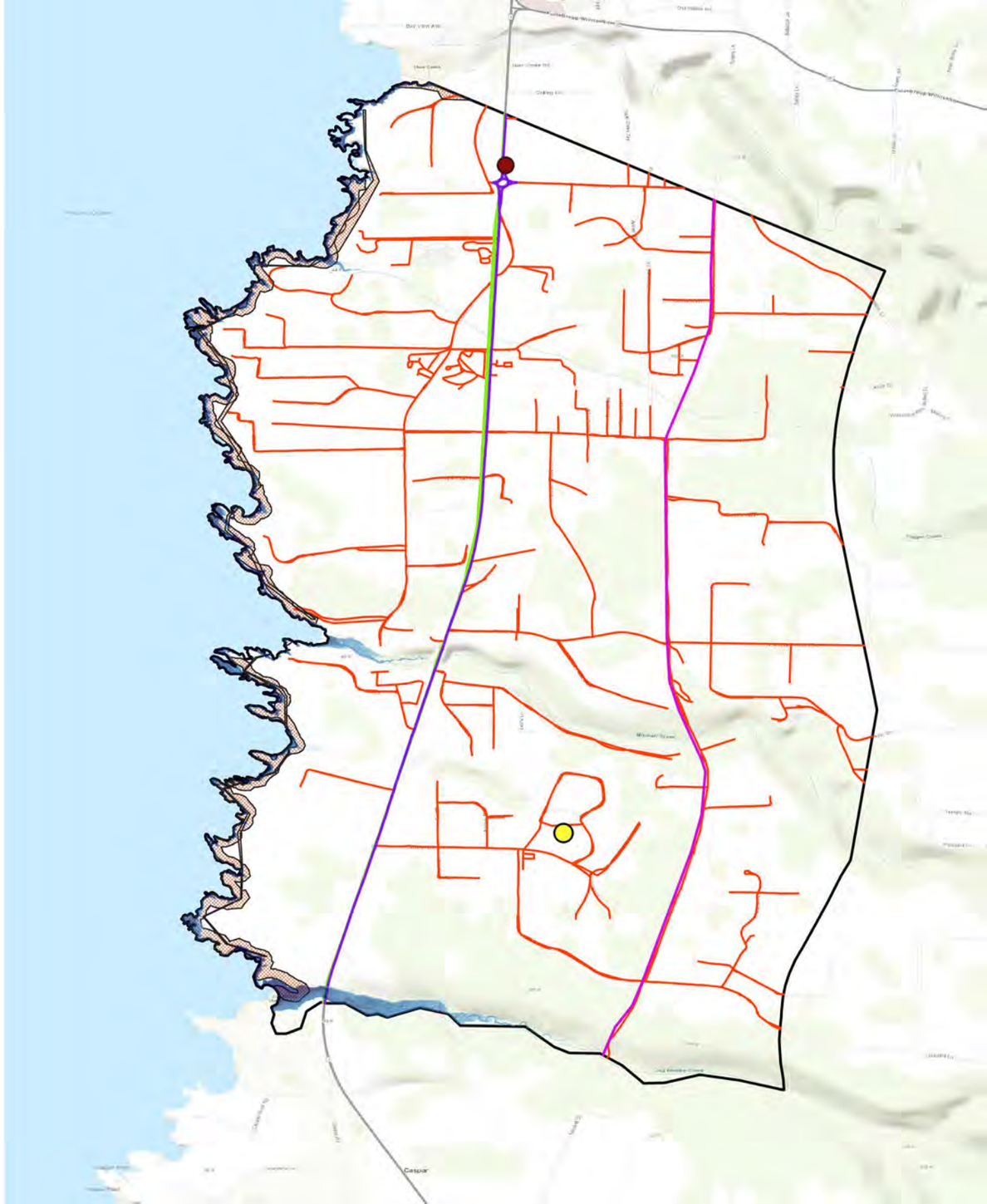
Environmental Sites

- Clean Up Sites [1]

Transportation

- Bus Stops [1]
- State Route 1 [33]
- Bus Lines [8]
- Roads [300]

0 0.25 0.5 mi



5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Habitat and Agricultural

Coastal and Water

- Beaches [13]
- Bluffs [37]
- Streams and Rivers [37]
- Estuaries [2]
- Wetlands and ESHA [156]

Habitat

- Endangered and Threatened Species Habitats [4]
- Critical Coastal Areas [1]
- Areas of Special Biological Significance [1]

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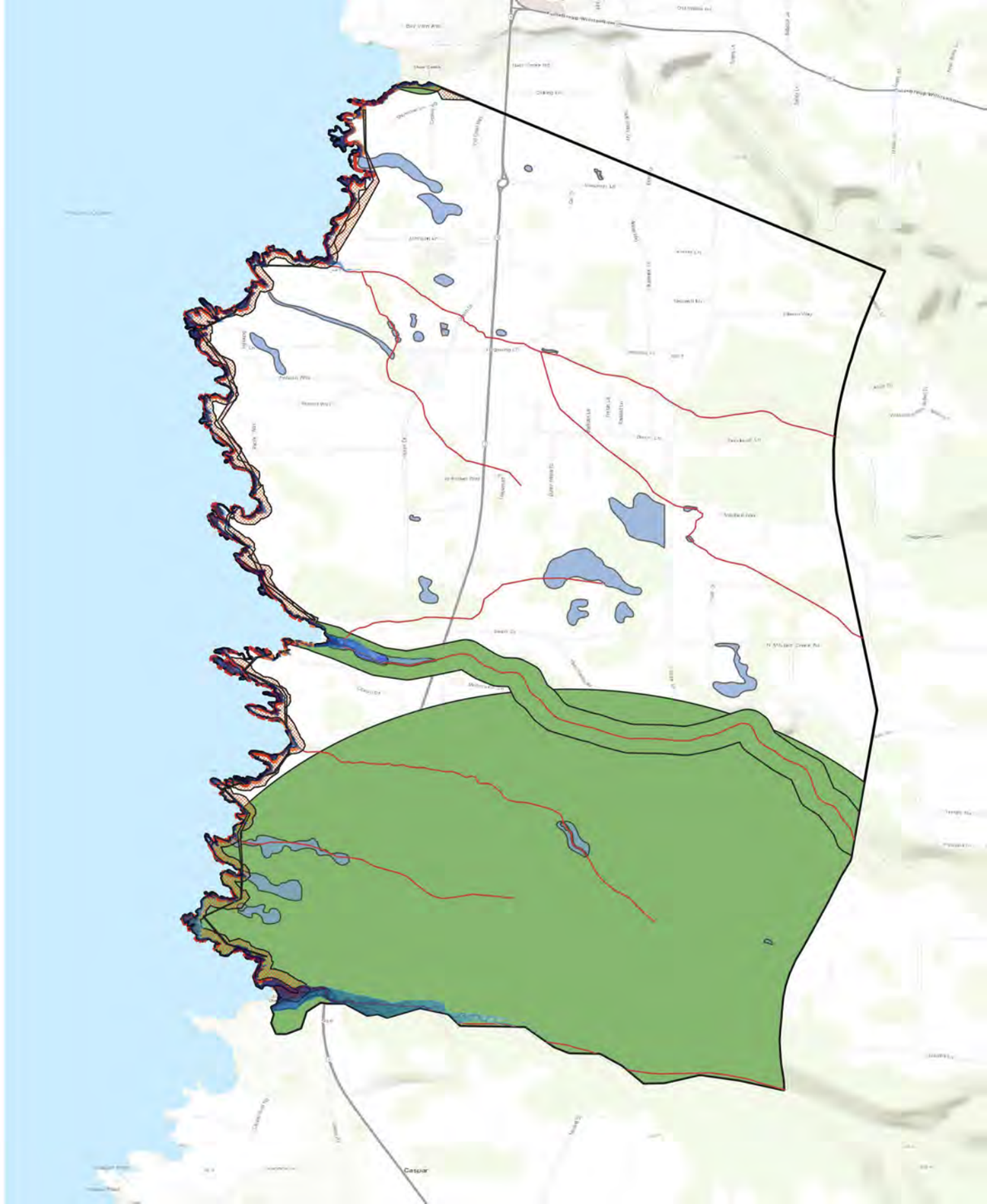

5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Public Access and Recreation

Recreation

- California Coastal Trail [17]
- Recreational Routes [41]

Parks & Govt Lands

- State Parks & Lands [26]

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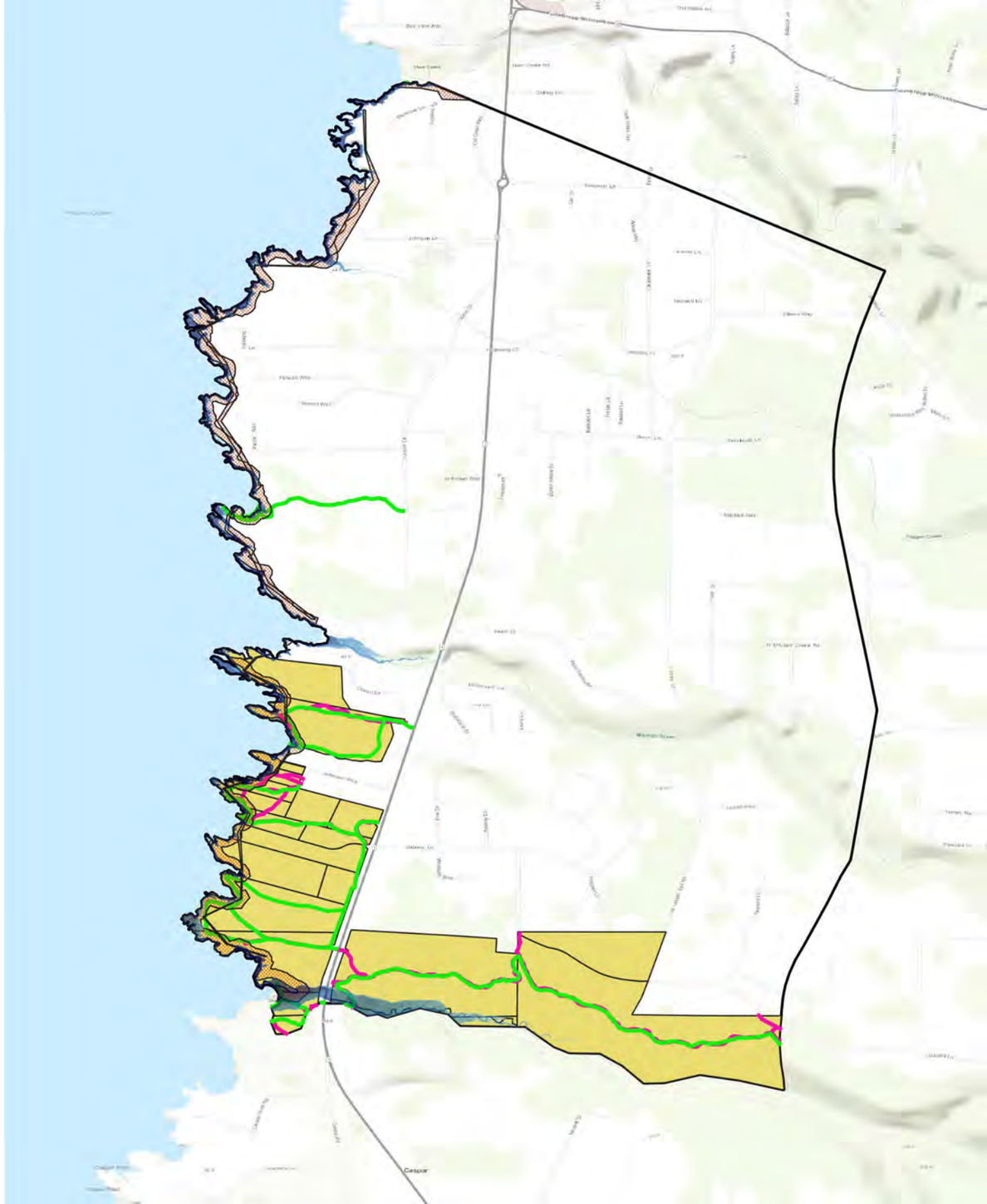


5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Built Environment

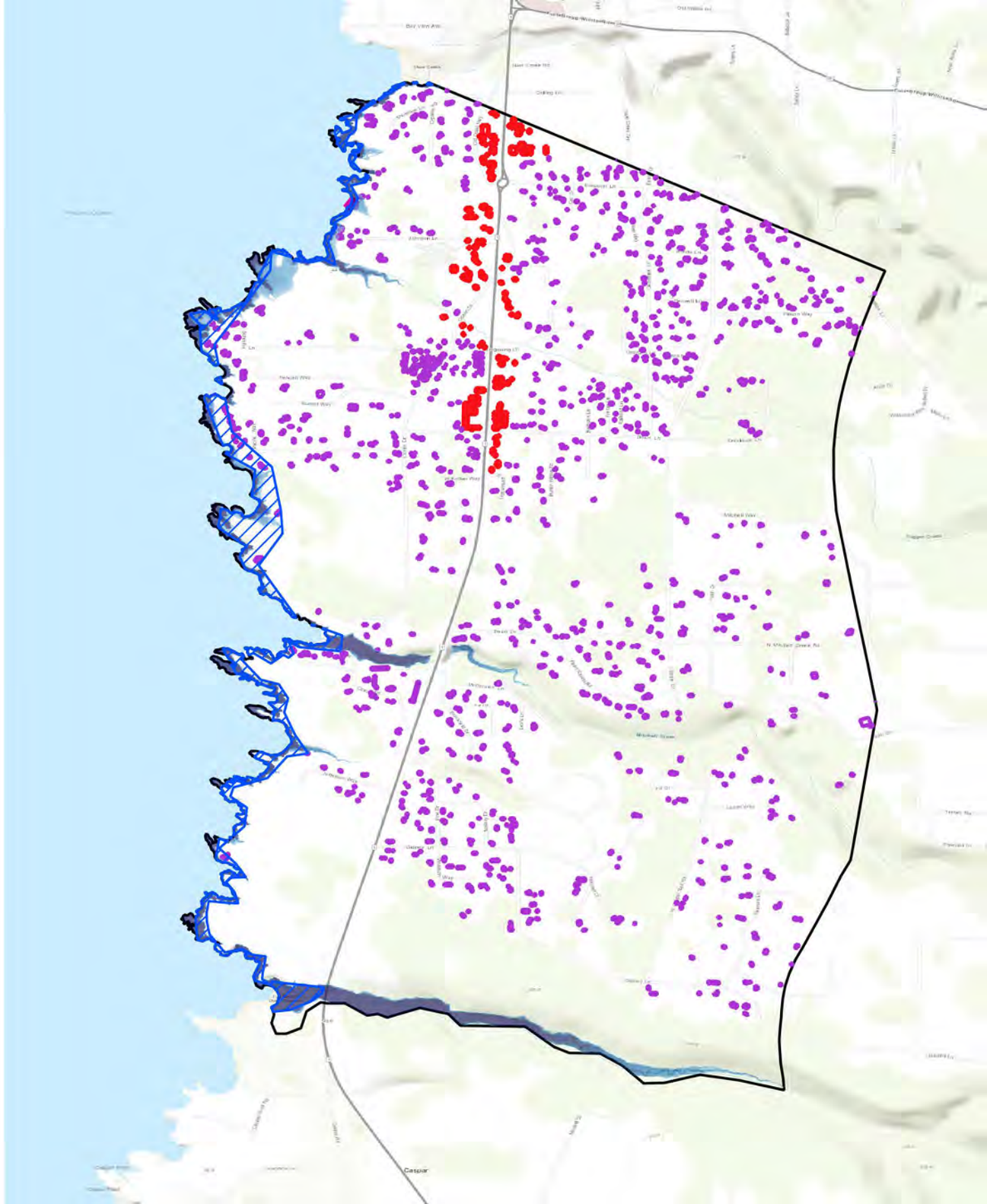
Built Environment

- Residential Buildings [1072]
- Commercial Buildings [101]

Coastal Armoring

- Coastal Armoring [1]

0 0.25 0.5 mi



5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Critical Infrastructure

Power & Comms

- Transmission Lines [1]

Environmental Sites

- Clean Up Sites [1]

Transportation

- Bus Stops [1]
- State Route 1 [33]
- Bus Lines [8]
- Roads [300]

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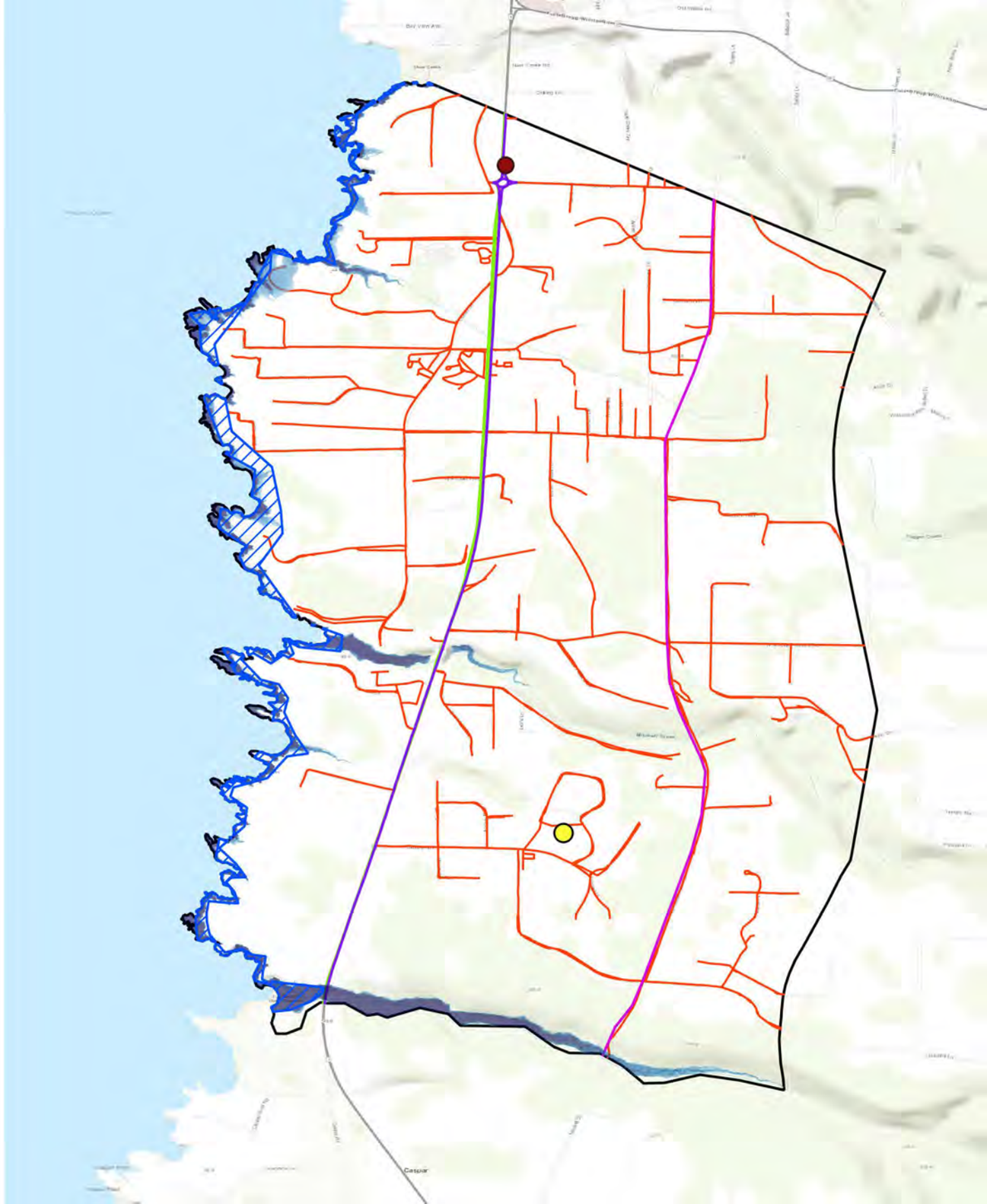

5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Habitat and Agricultural

Coastal and Water

- Beaches [13]
- Bluffs [37]
- Streams and Rivers [37]
- Estuaries [2]
- Wetlands and ESHA [156]

Habitat

- Endangered and Threatened Species Habitats [4]
- Critical Coastal Areas [1]
- Areas of Special Biological Significance [1]

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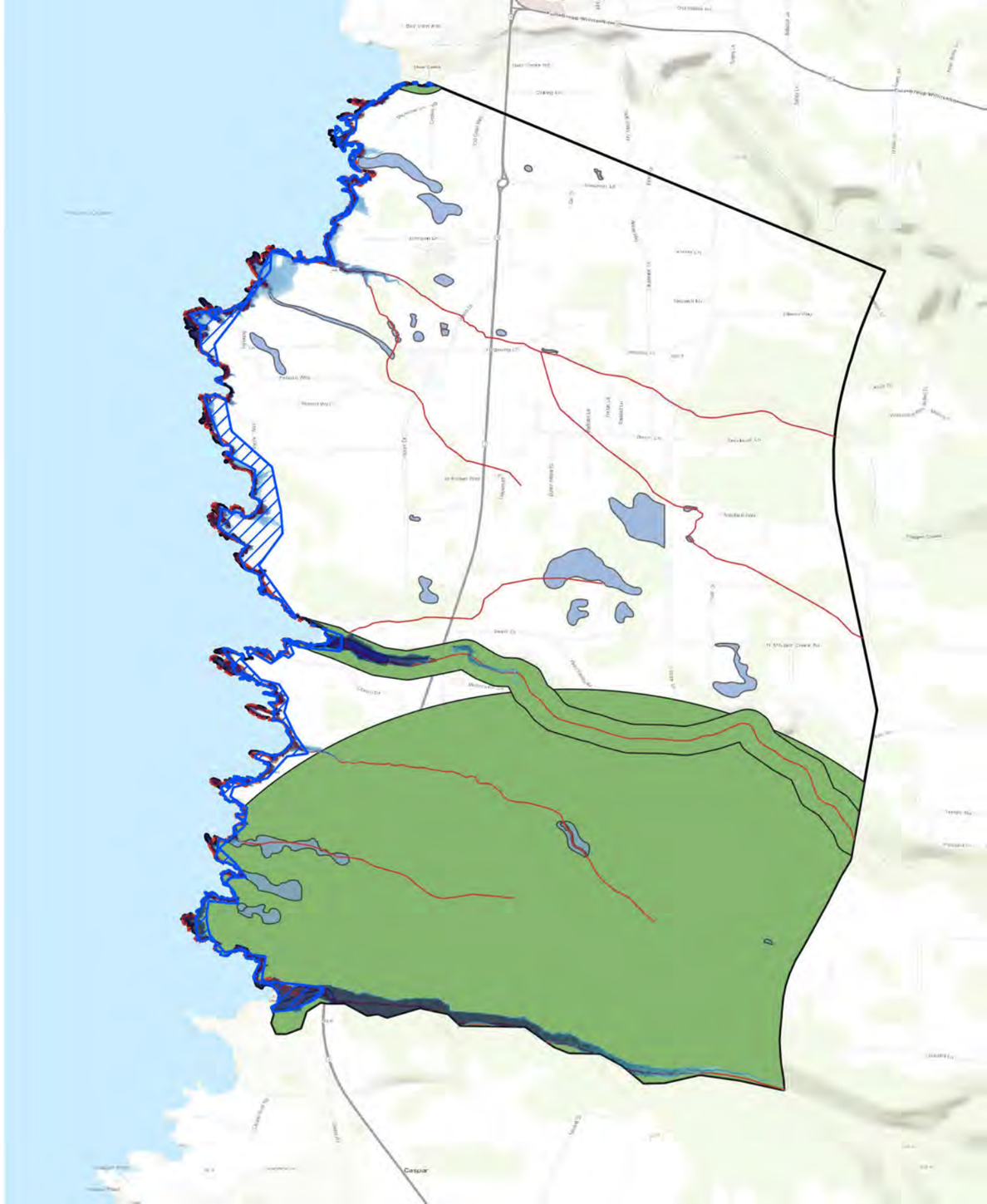

5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Public Access and Recreation

Recreation

- California Coastal Trail [17]
- Recreational Routes [41]

Parks & Govt Lands

- State Parks & Lands [26]

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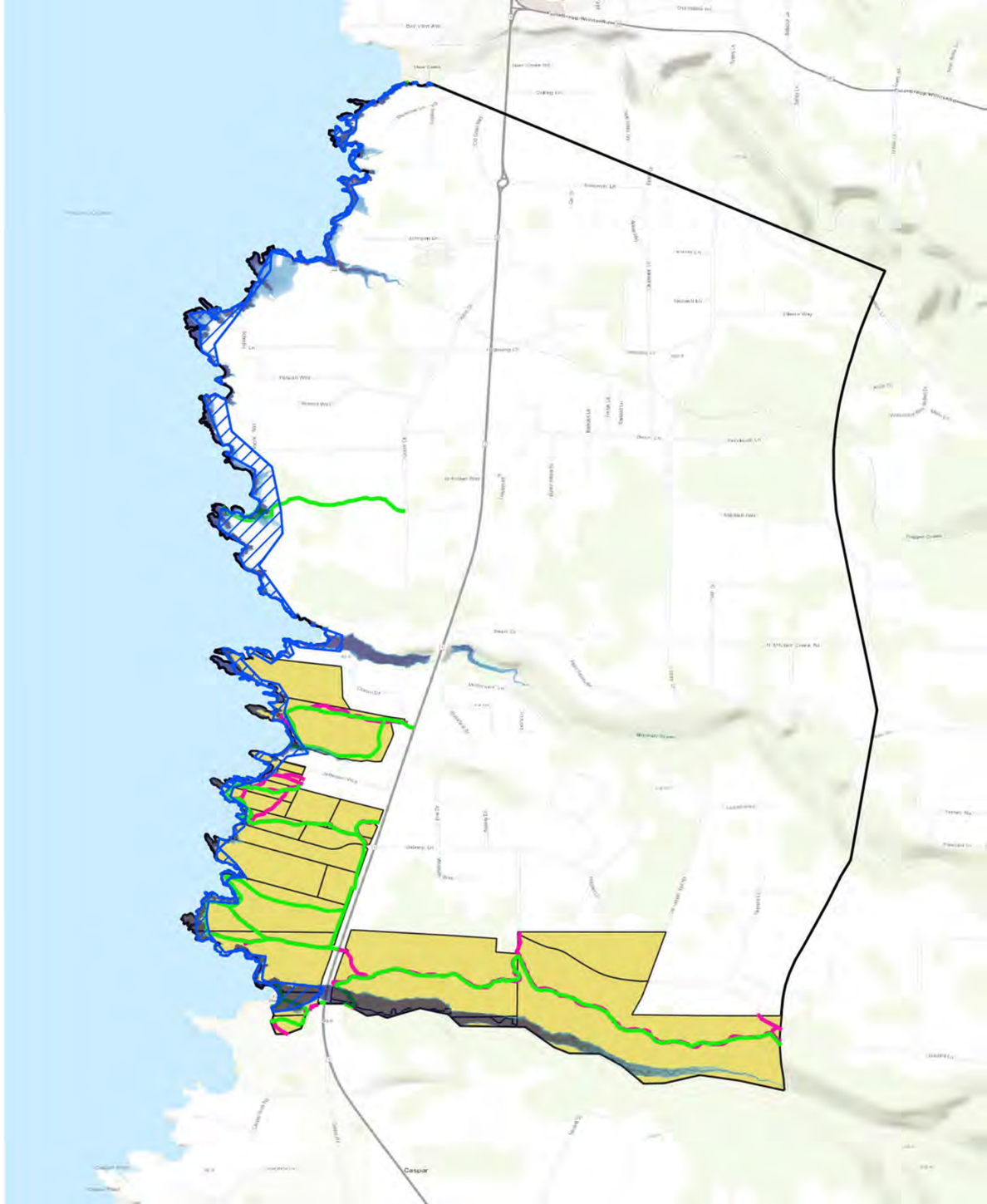

5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

Late-century with 3ft SLR

Bluff Dune Erosion

Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Built Environment

Built Environment

Residential Buildings [1072]

Commercial Buildings [101]

Coastal Armoring

Coastal Armoring [1]

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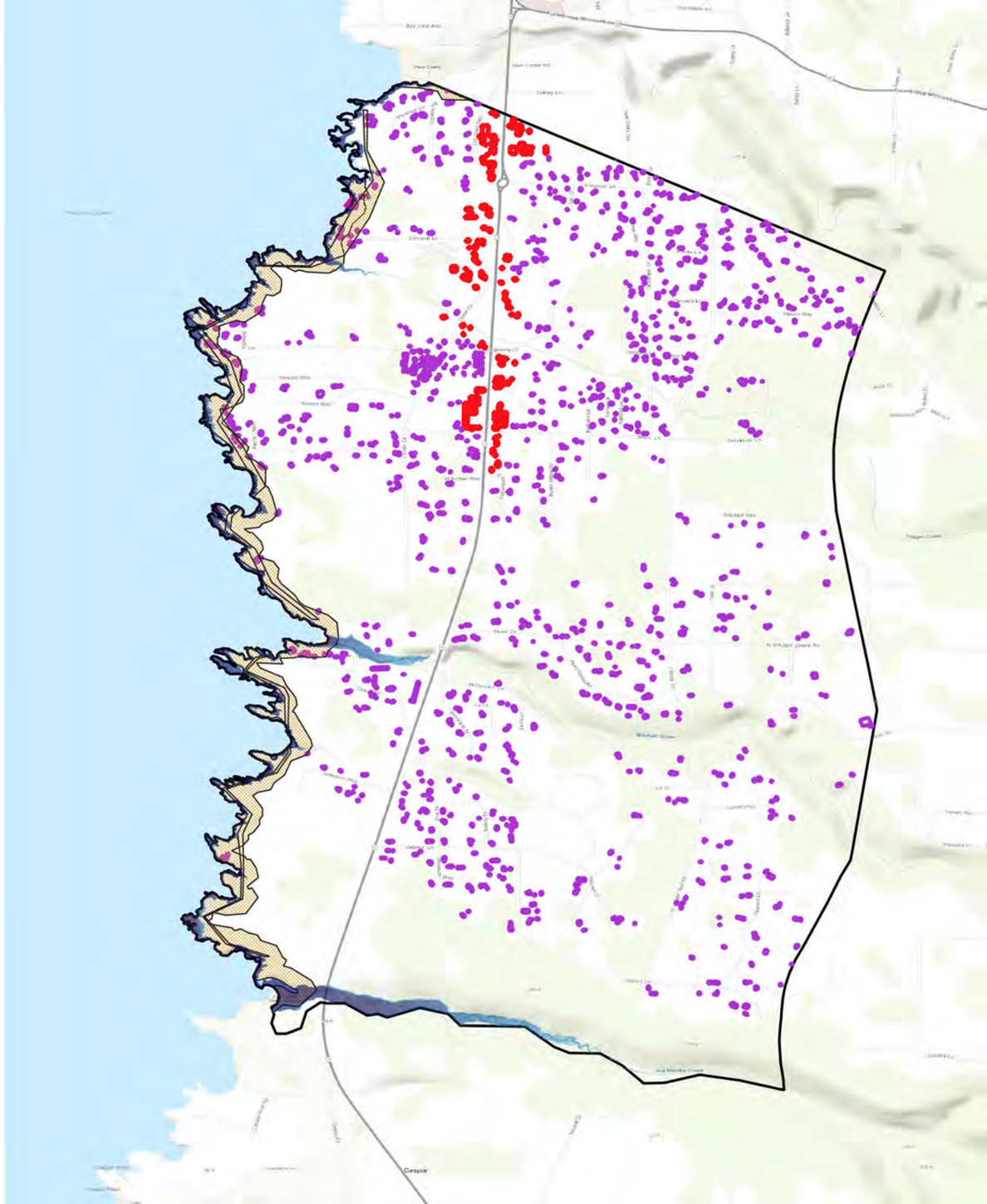


5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

- Late-century with 3ft SLR

Bluff Dune Erosion

- Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Critical Infrastructure

Power & Comms

- Transmission Lines [1]

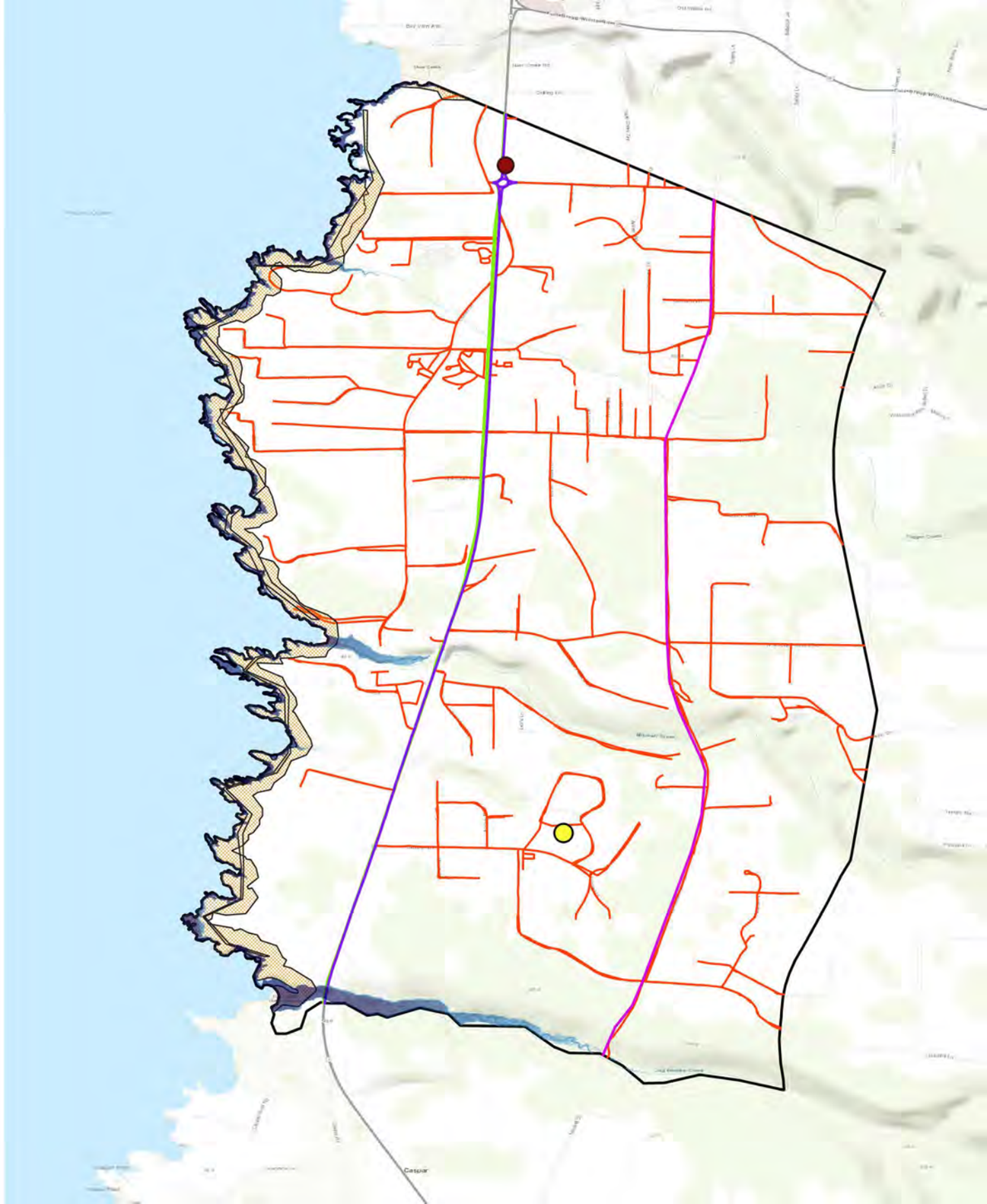
Environmental Sites

- Clean Up Sites [1]

Transportation

- Bus Stops [1]
- State Route 1 [33]
- Bus Lines [8]
- Roads [300]

0 0.25 0.5 mi



5 S Ft Brag (Hare - Jug Handle)

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

- Late-century with 3ft SLR

Bluff Dune Erosion

- Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Habitat and Agricultural

Coastal and Water

- Beaches [13]
- Bluffs [37]
- Streams and Rivers [37]
- Estuaries [2]
- Wetlands and ESHA [156]

Habitat

- Endangered and Threatened Species Habitats [4]
- Critical Coastal Areas [1]
- Areas of Special Biological Significance [1]

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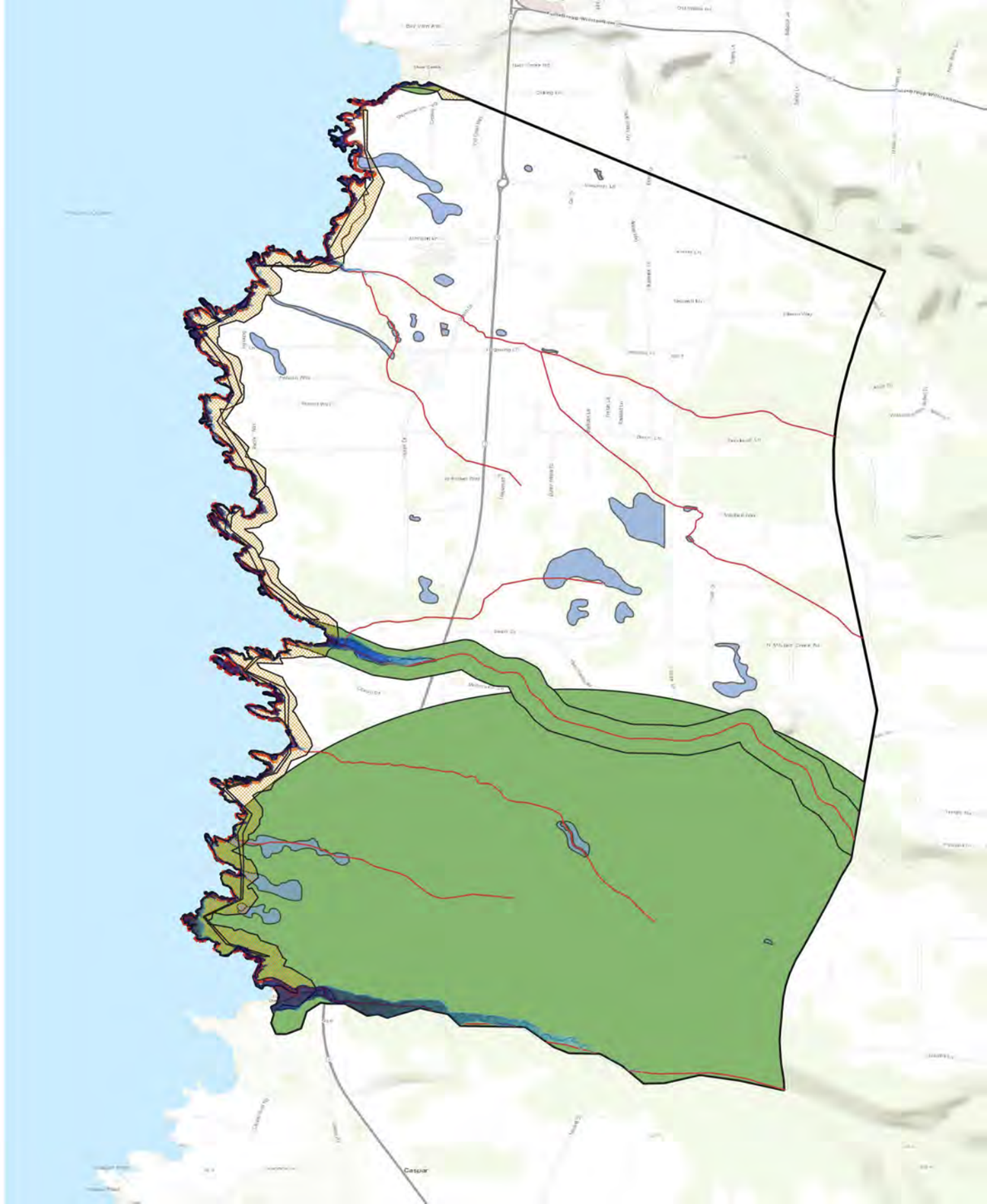

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Hazards

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Assets

Public Access and Recreation

Recreation

- California Coastal Trail [17]
- Recreational Routes [41]

Parks & Govt Lands

- State Parks & Lands [26]

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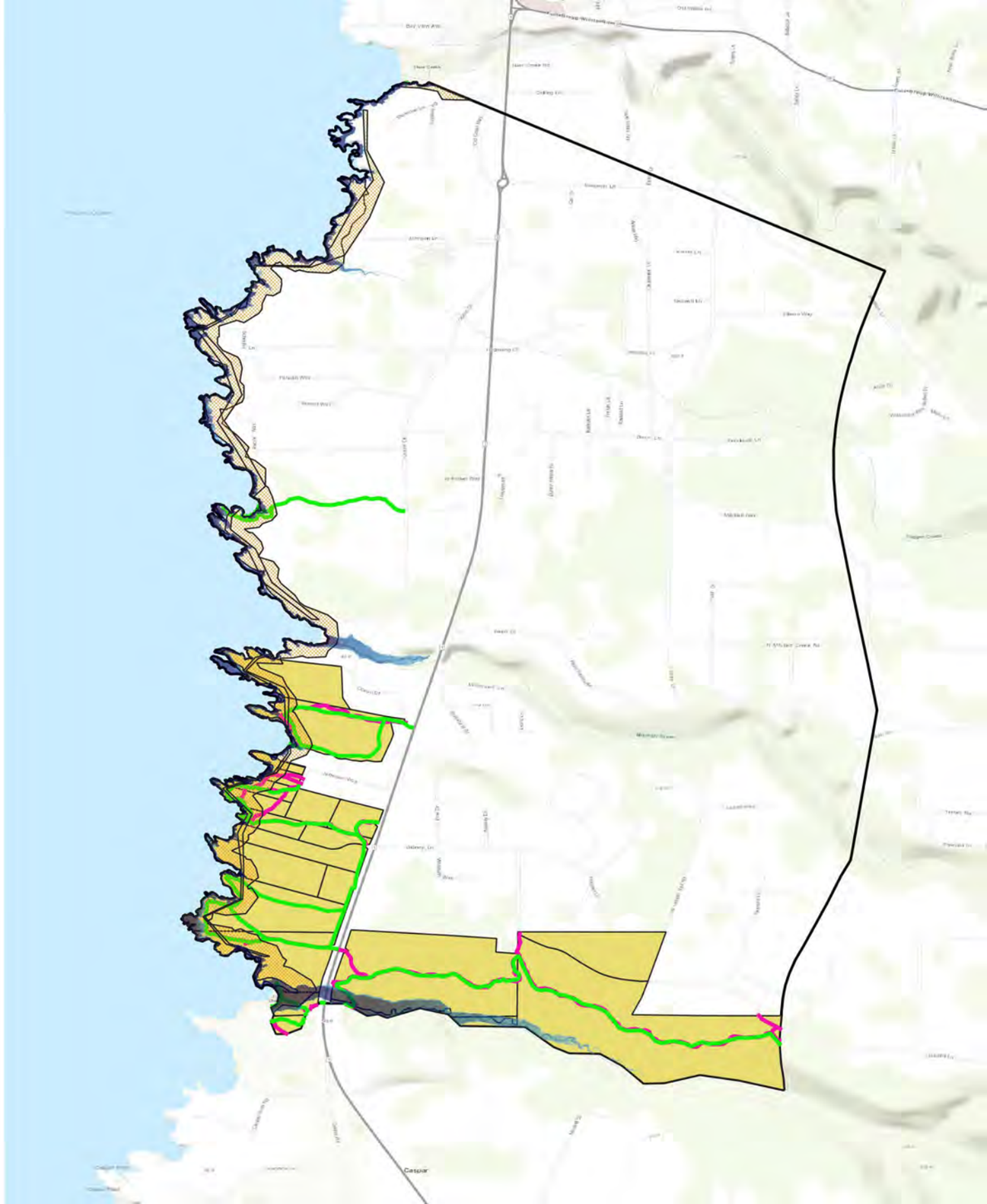

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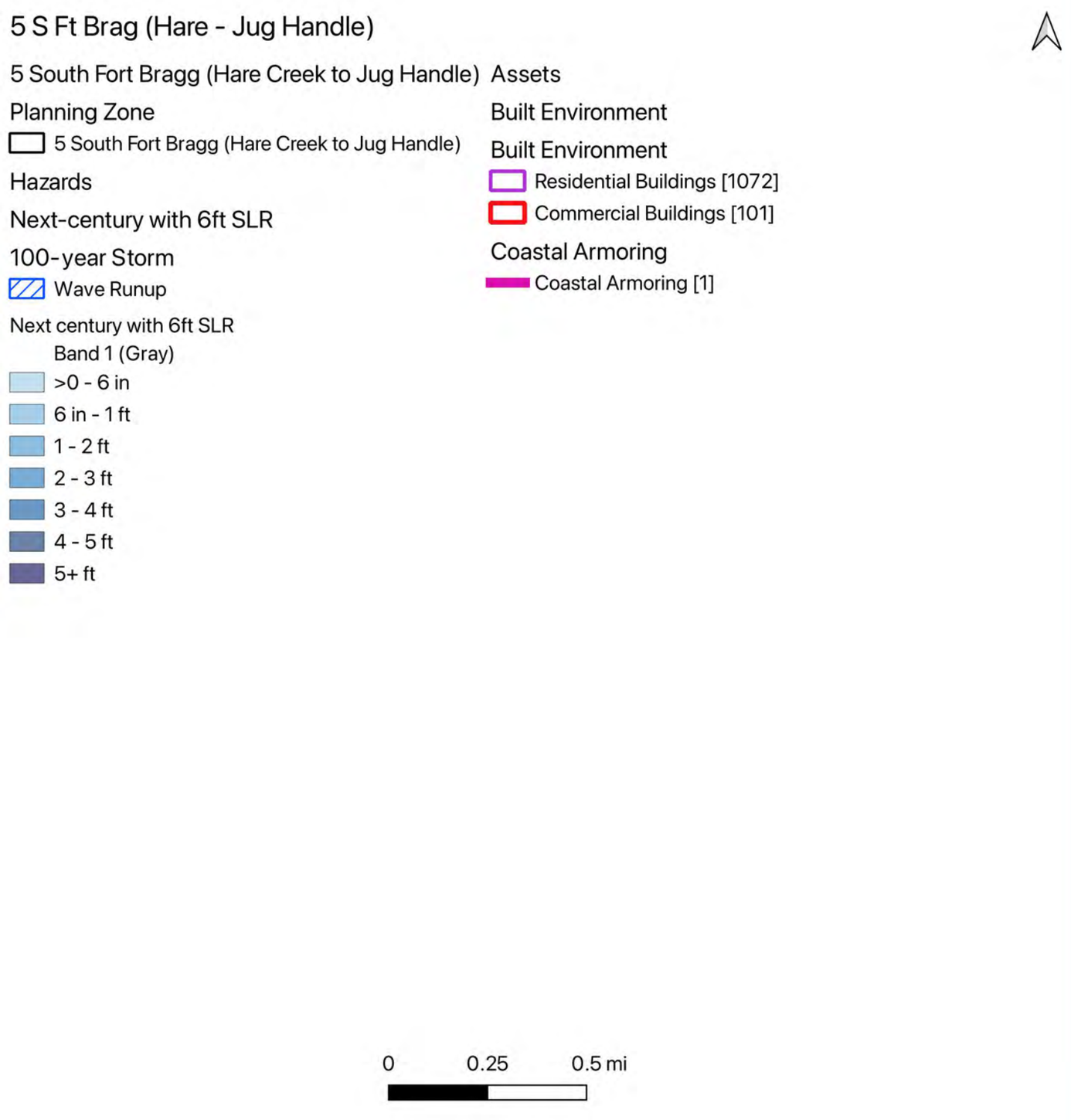

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5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Next century with 6ft SLR

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- Clean Up Sites [1]

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- Bus Lines [8]
- Roads [300]

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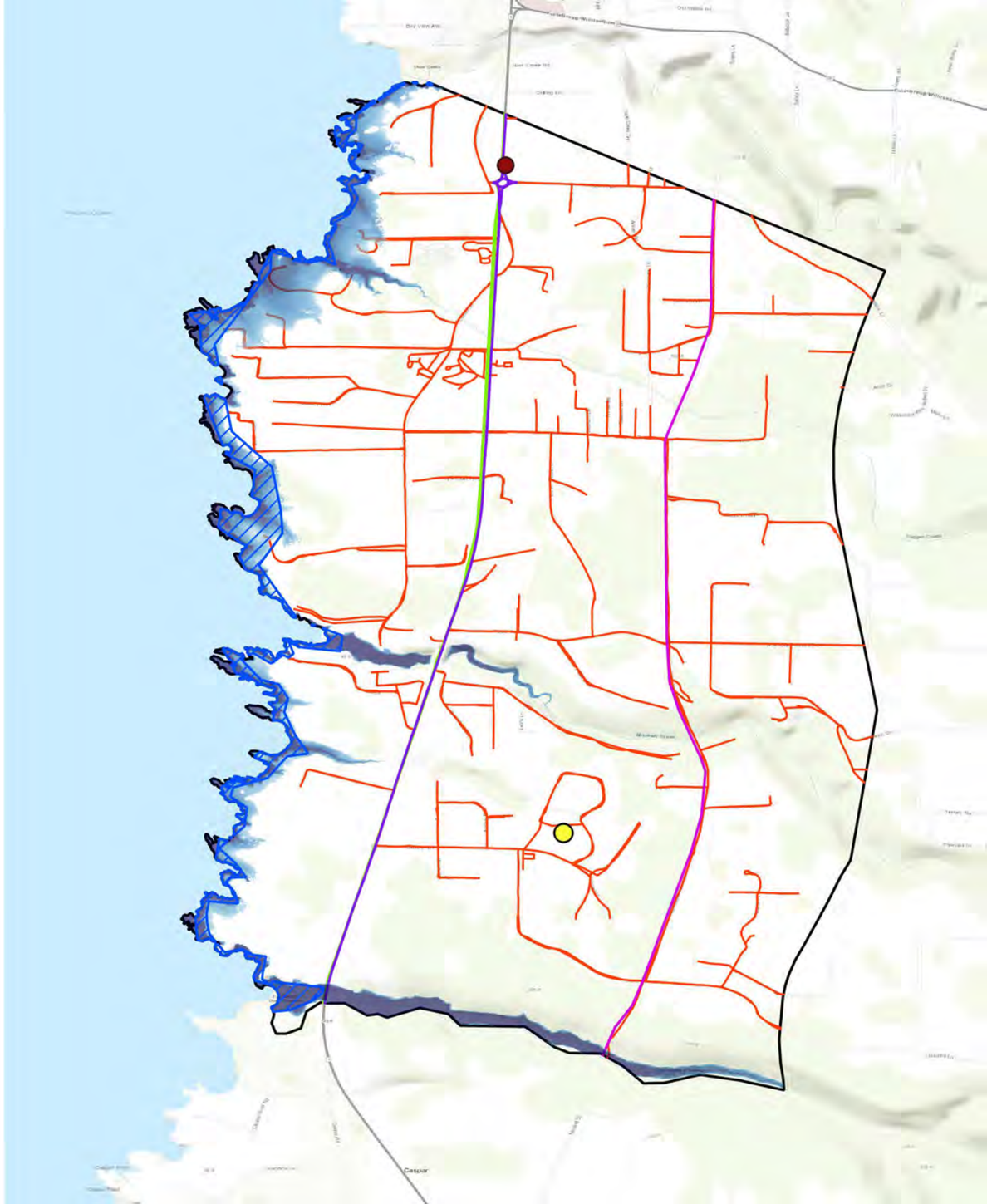

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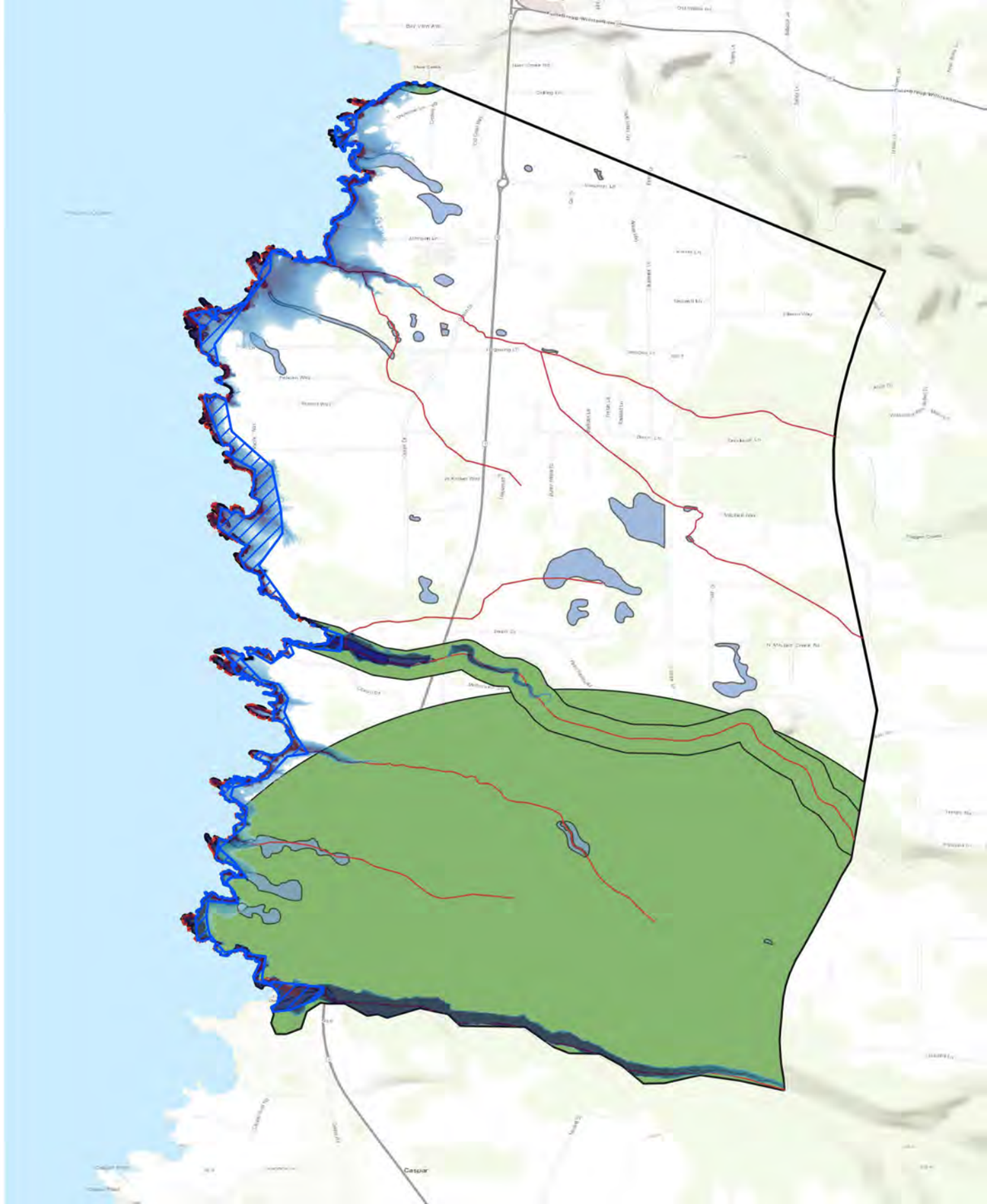
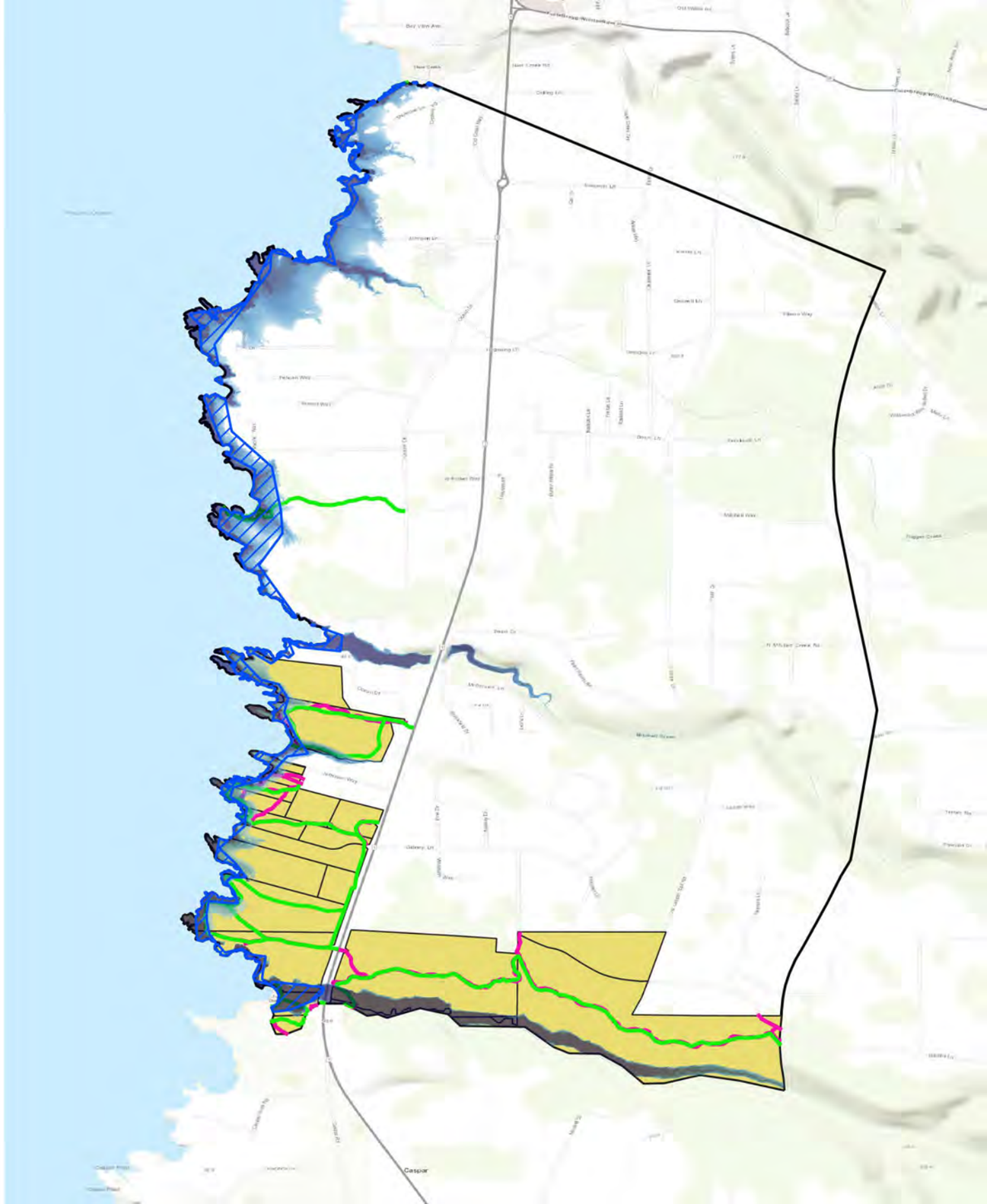


5 S Ft Brag (Hare - Jug Handle)



5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

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Next-century with 6ft SLR

100-year Storm

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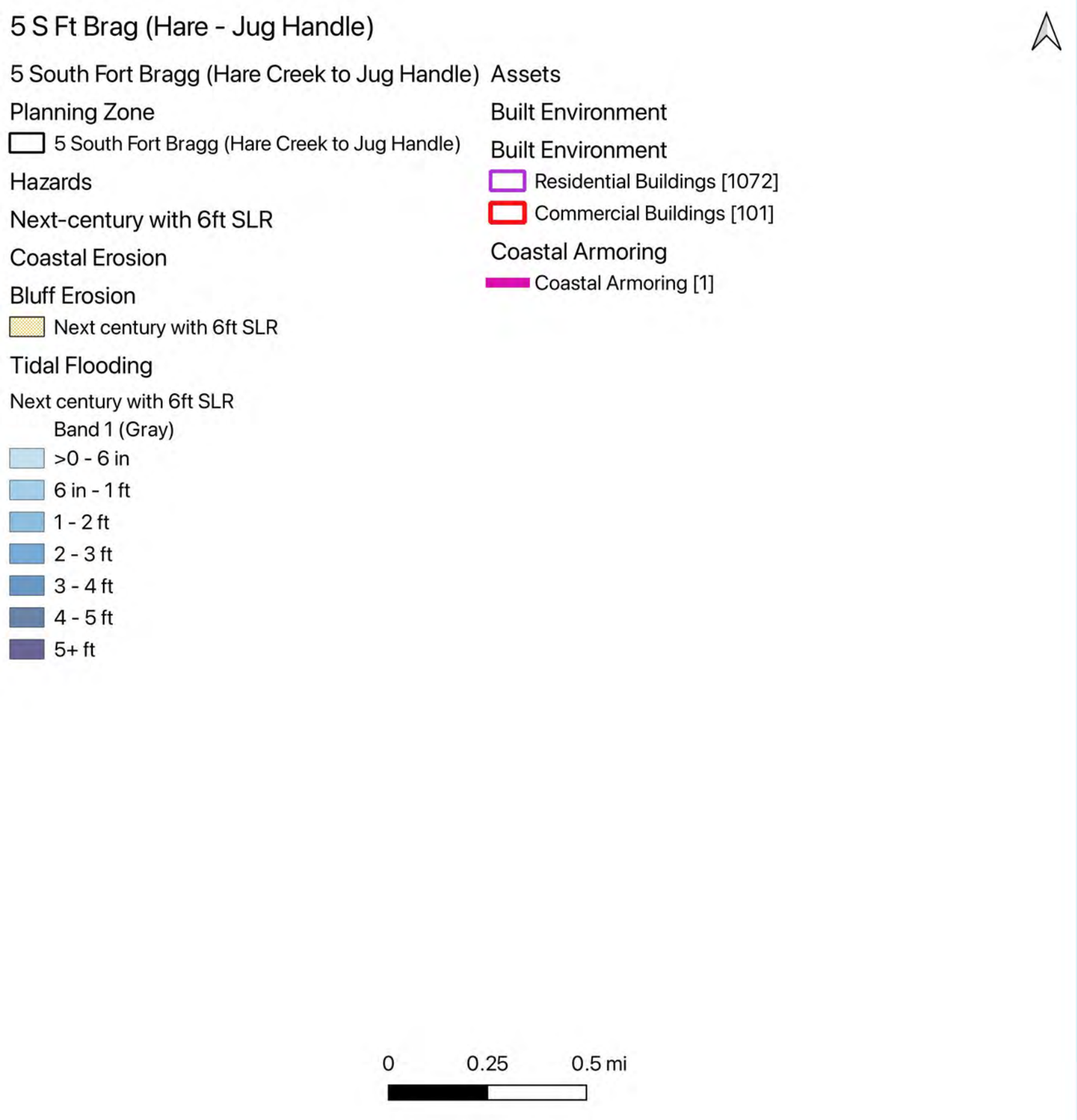

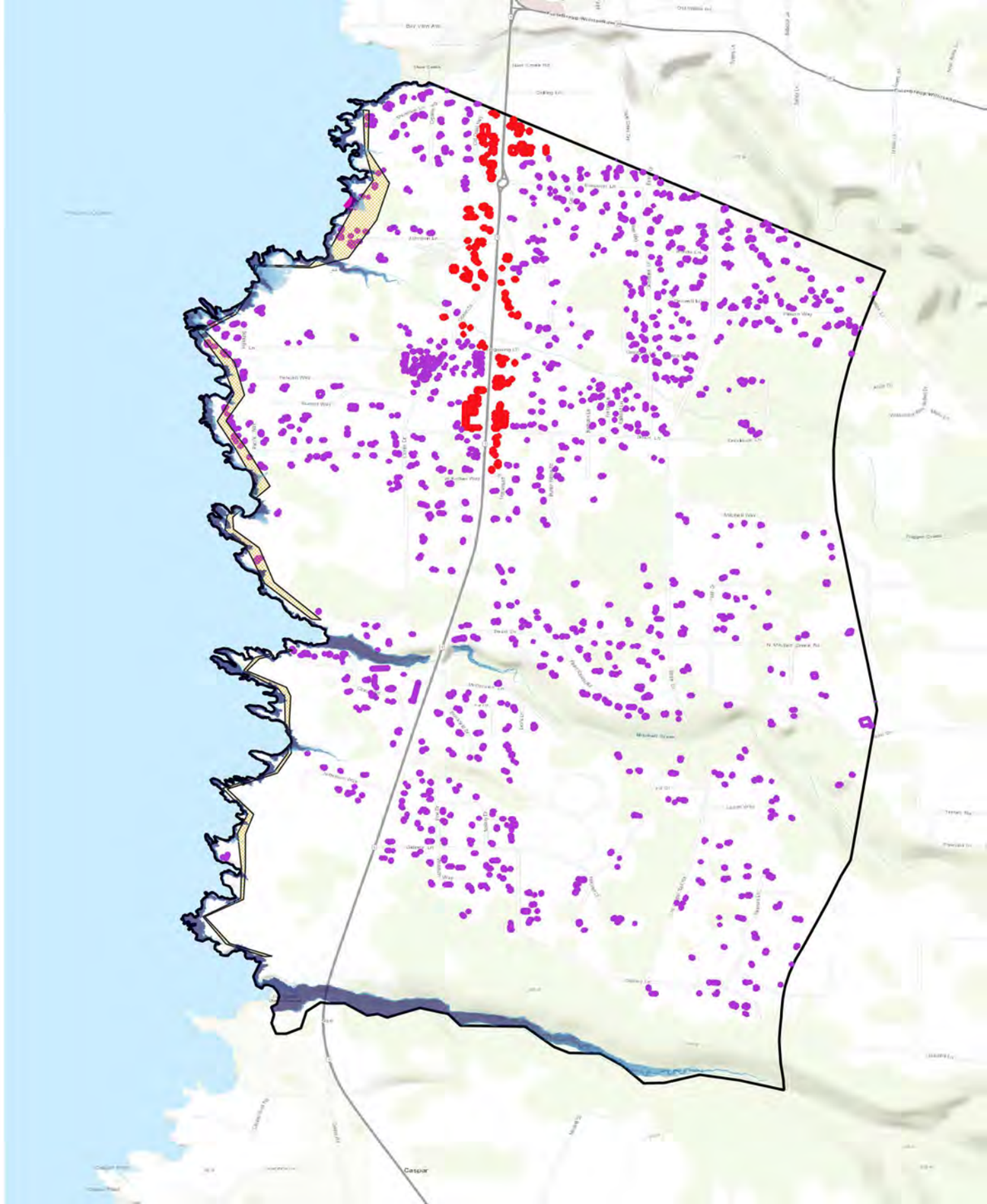

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5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

Band 1 (Gray)

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Assets

Critical Infrastructure

Power & Comms

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- Clean Up Sites [1]

Transportation

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- Bus Lines [8]
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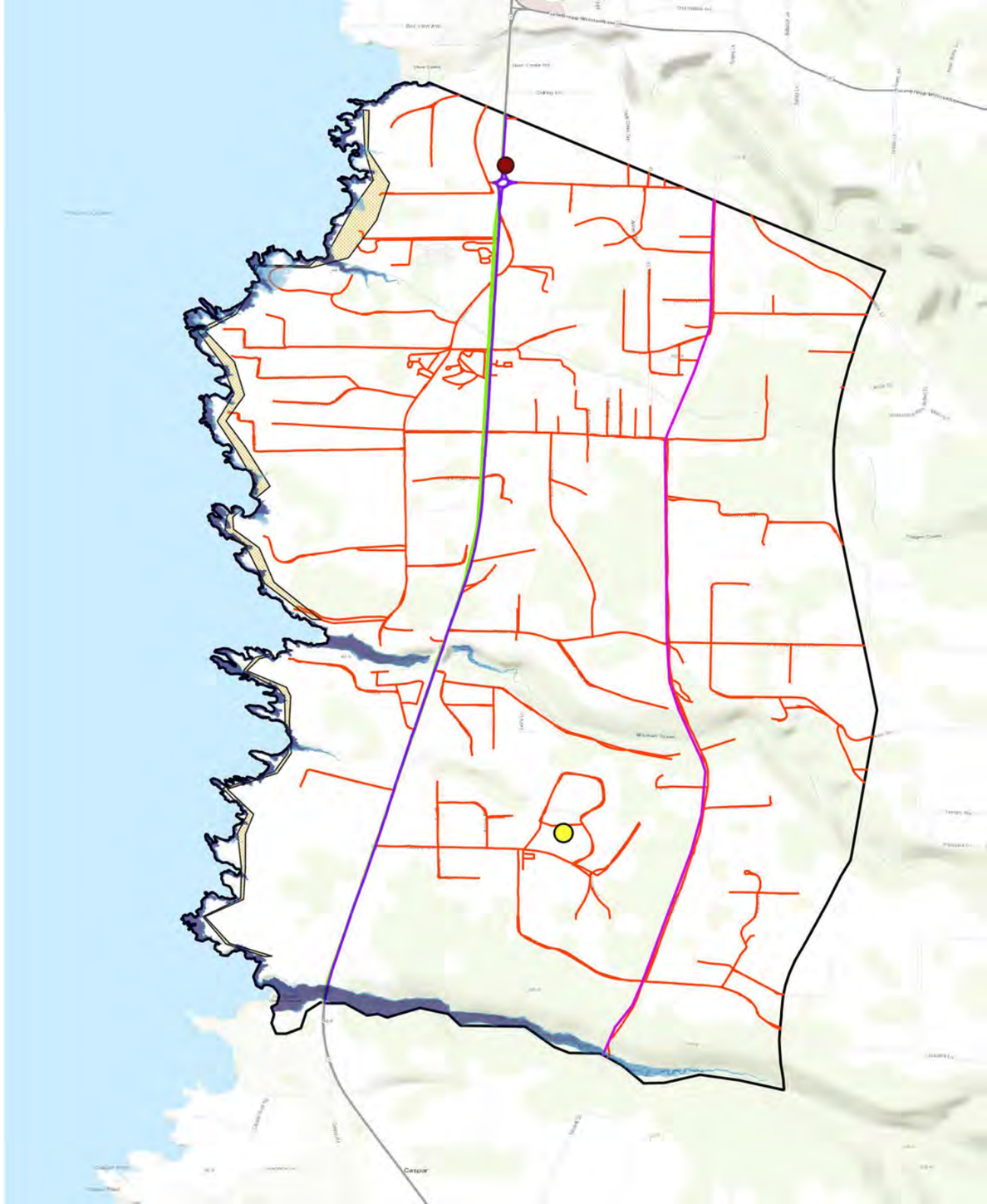

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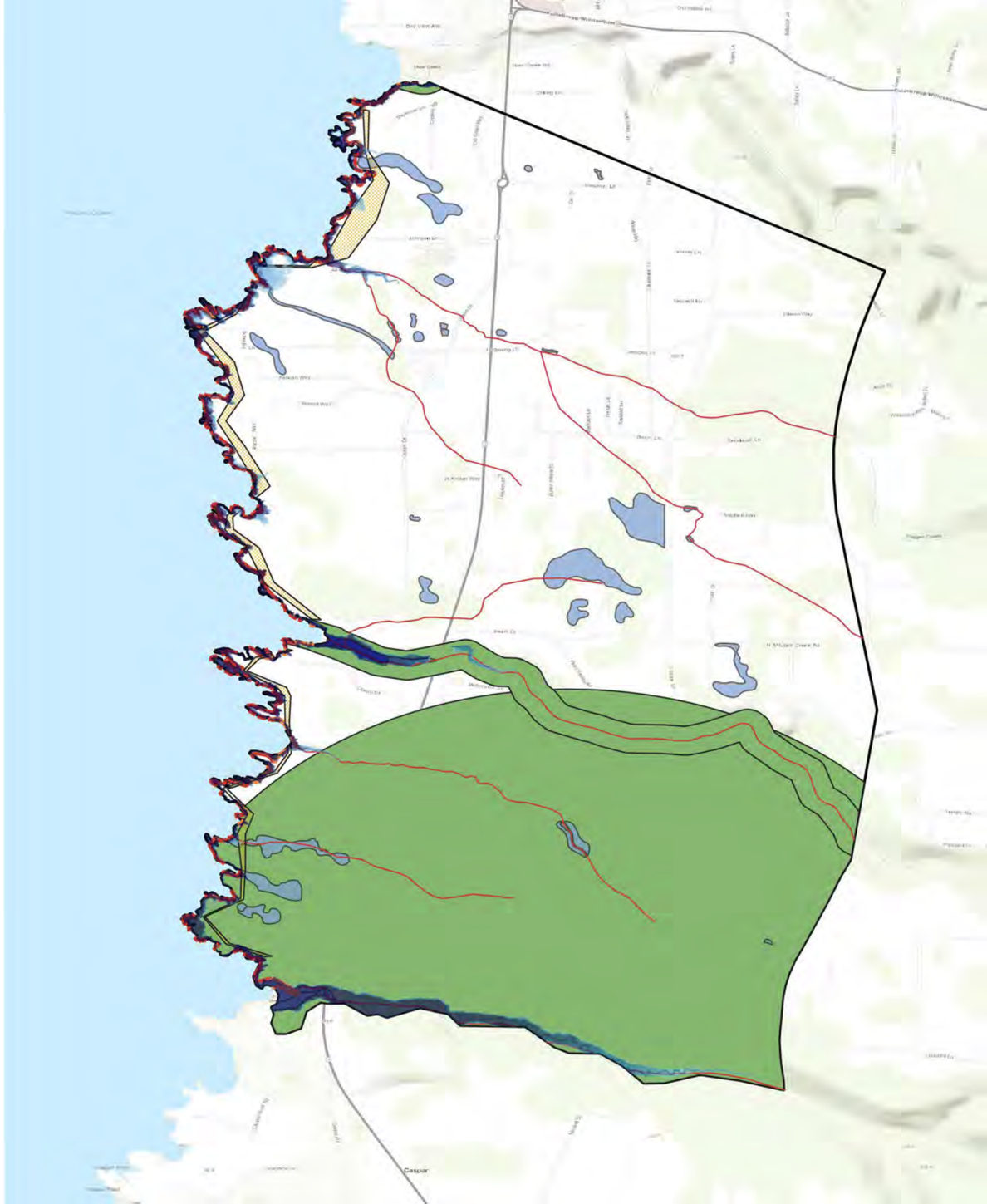

5 South Fort Bragg (Hare Creek to Jug Handle)

Planning Zone

- 5 South Fort Bragg (Hare Creek to Jug Handle)

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

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Coastal and Water

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Habitat

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- Critical Coastal Areas [1]
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0 0.25 0.5 mi

5 S Ft Brag (Hare - Jug Handle)

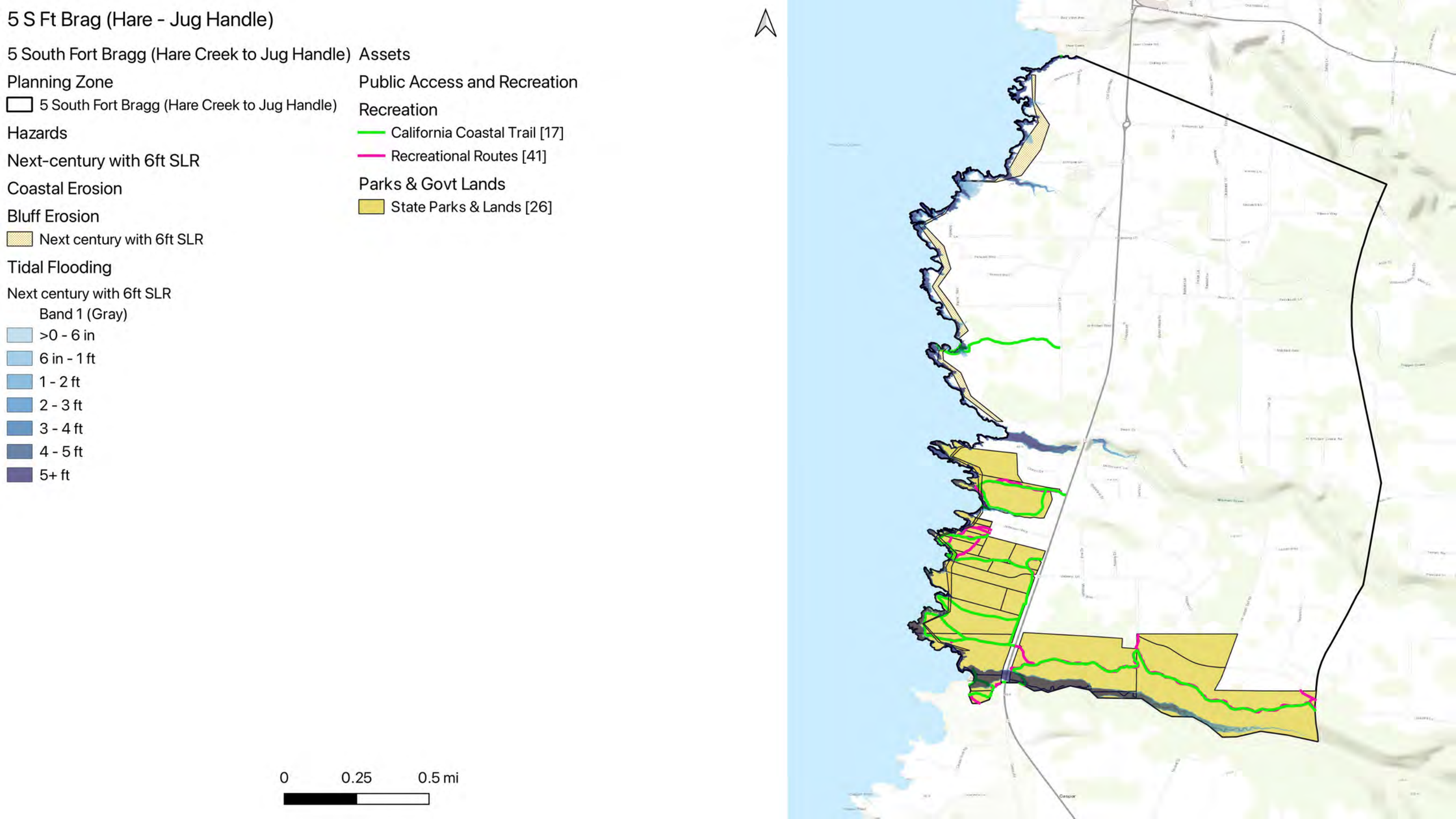
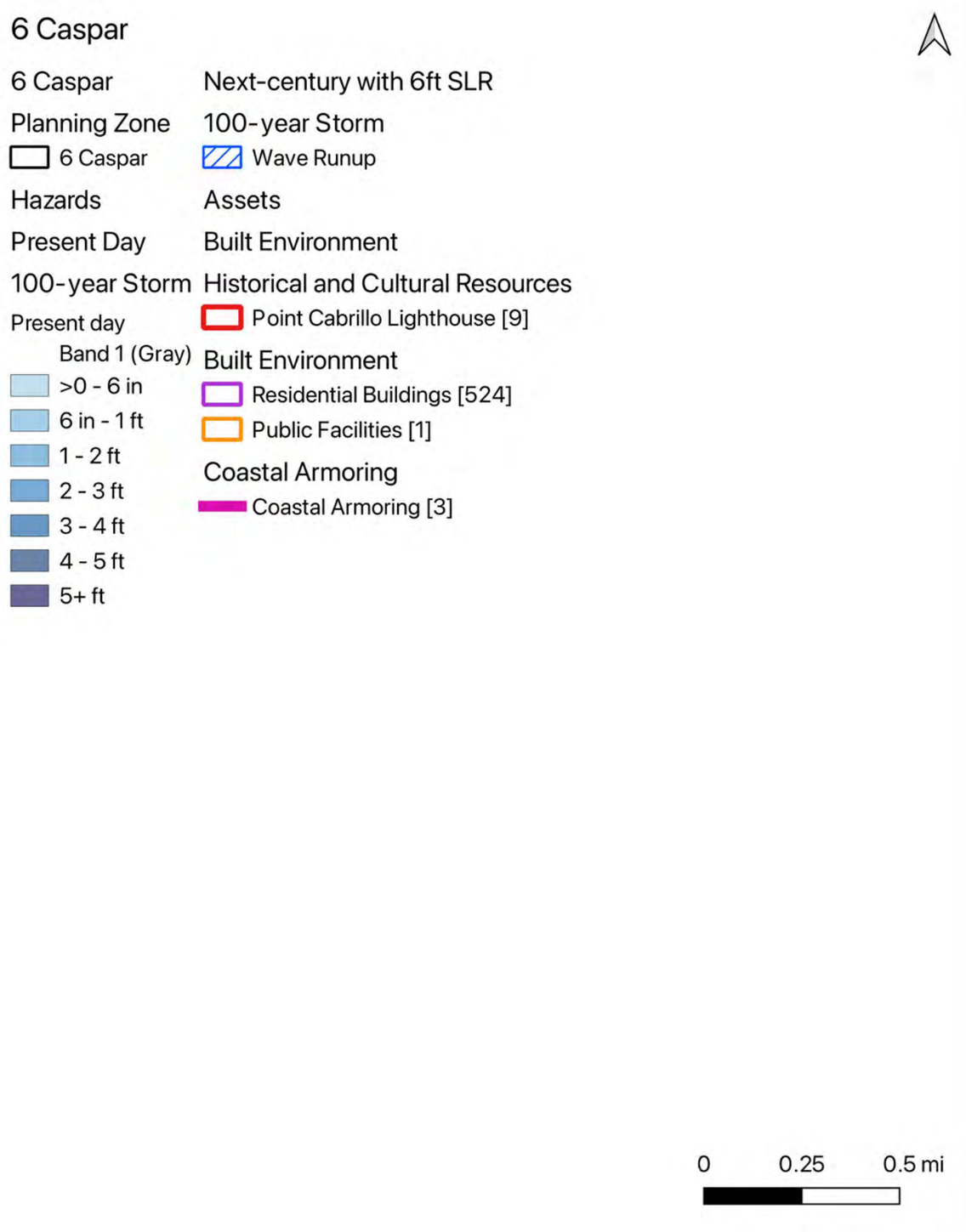


Table 6. Caspar

Sub-Category	Asset Type	Units	WaveP	StormP	TidalP	TotalsP	Storm1ft	Tidal1ft	BluffE1ft	CoastE1ft	Totals1ft	Storm3ft	Tidal3ft	BluffE3ft	CoastE3ft	Totals3ft	Storm6ft	Tidal6ft	BluffE6ft	CoastE6ft	Totals6ft
Power & Comms	Transmission Lines	Length (ft)	0	614	398	614	683	443	0	0	683	754	542	0	0	754	865	719	0	0	865
Environmental Sites	Clean Up Sites	Number of sites	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Transportation	Bus Stops	Number of stops	0	2	2	2	2	2	0	0	2	2	2	0	0	2	2	2	0	0	2
Transportation	State Route 1	Length (ft)	4	396	309	400	406	344	0	0	410	431	382	0	0	432	483	420	0	0	483
Transportation	Bus Lines	Length (mi)	0.2	2.8	1.4	2.8	3	2	0	0	3	3.7	2.6	0	0	3.7	4.5	3.4	0	0	4.5
Transportation	Roads	Length (mi)	0.1	1.9	0.9	1.9	2	1.3	0	0.1	2.2	2.3	1.8	0	0.2	2.5	2.7	2.2	0.1	0.5	3.2
Recreation	California Coastal Trail	Length (mi)	0.4	0.3	0.2	0.5	0.3	0.3	0.1	0.5	1	0.4	0.3	0.2	1	1.5	0.6	0.4	0.3	1.7	2.2
Recreation	Recreational Routes	Length (mi)	0.4	0.9	0.6	1.2	0.9	0.7	0.2	1.1	2.1	0.9	0.9	0.4	1.7	2.7	1.4	0.9	0.6	2.6	3.6
Parks & Govt Lands	State Parks & Lands	Area (acres)	25	64	43	73	69	49	5	33	94	79	59	10	47	113	99	75	15	72	145
Coastal and Water	Beaches	Length (ft)	515	881	742	920	918	770	33	635	967	950	849	33	635	987	988	939	33	636	992
Coastal and Water	Bluffs	Length (mi)	2.2	2.9	2.3	3.4	3.1	2.5	0.3	1.2	3.7	3.3	2.8	0.5	1.2	3.8	3.8	3.2	0.5	1.2	4
Coastal and Water	Streams and Rivers	Length (mi)	0.2	2.6	1.8	2.7	2.8	2.1	0	0.1	2.8	2.9	2.5	0.1	0.2	3	3.1	2.8	0.1	0.3	3.3
Coastal and Water	Estuaries	Area (acres)	4	17	15	17	17	16	0	0	17	17	17	0	0	17	17	17	0	0	17
Coastal and Water	Wetlands and ESHA	Area (acres)	12	61	51	61	62	57	1	7	63	63	60	2	8	66	66	63	3	12	70
Habitat	Endangered and Threatened Species Habitats	Area (acres)	9	90	59	91	96	72	2	9	102	105	85	3	13	114	119	101	5	20	133
Habitat	Critical Coastal Areas	Area (acres)	2	6	3	7	7	4	1	6	11	9	5	2	8	14	12	8	3	12	20
Habitat	Marine Protected Areas	Number of individually designated MPAs	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Habitat	Areas of Special Biological Significance	Number of individually designated ASBSs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Historical and Cultural Resources	Point Cabrillo Lighthouse	Set of buildings	0	0	0	0	0	0	0	1	1	0	0	0	2	2	1	0	0	4	4
Built Environment	Residential Buildings	Number of buildings	0	10	10	10	10	10	12	18	33	10	10	20	34	46	12	10	25	60	70
Built Environment	Public Facilities	Number of buildings	0	1	1	1	1	1	0	0	1	1	1	0	0	1	1	1	0	0	1
Coastal Armoring	Coastal Armoring	Length (ft)	395	470	466	470	470	469	111	85	541	470	470	114	89	541	470	470	114	91	541

6 Caspar


6 Caspar
Next-century with 6ft SLR
Planning Zone
100-year Storm
6 Caspar
Wave Runup
Hazards
Assets
Present Day
Built Environment
100-year Storm
Historical and Cultural Resources
Present day
Point Cabrillo Lighthouse [9]
Band 1 (Gray)
Built Environment
>0 - 6 in
Residential Buildings [524]
6 in - 1 ft
Public Facilities [1]
1 - 2 ft
Coastal Armoring
2 - 3 ft
Coastal Armoring [3]
3 - 4 ft
4 - 5 ft
5+ ft
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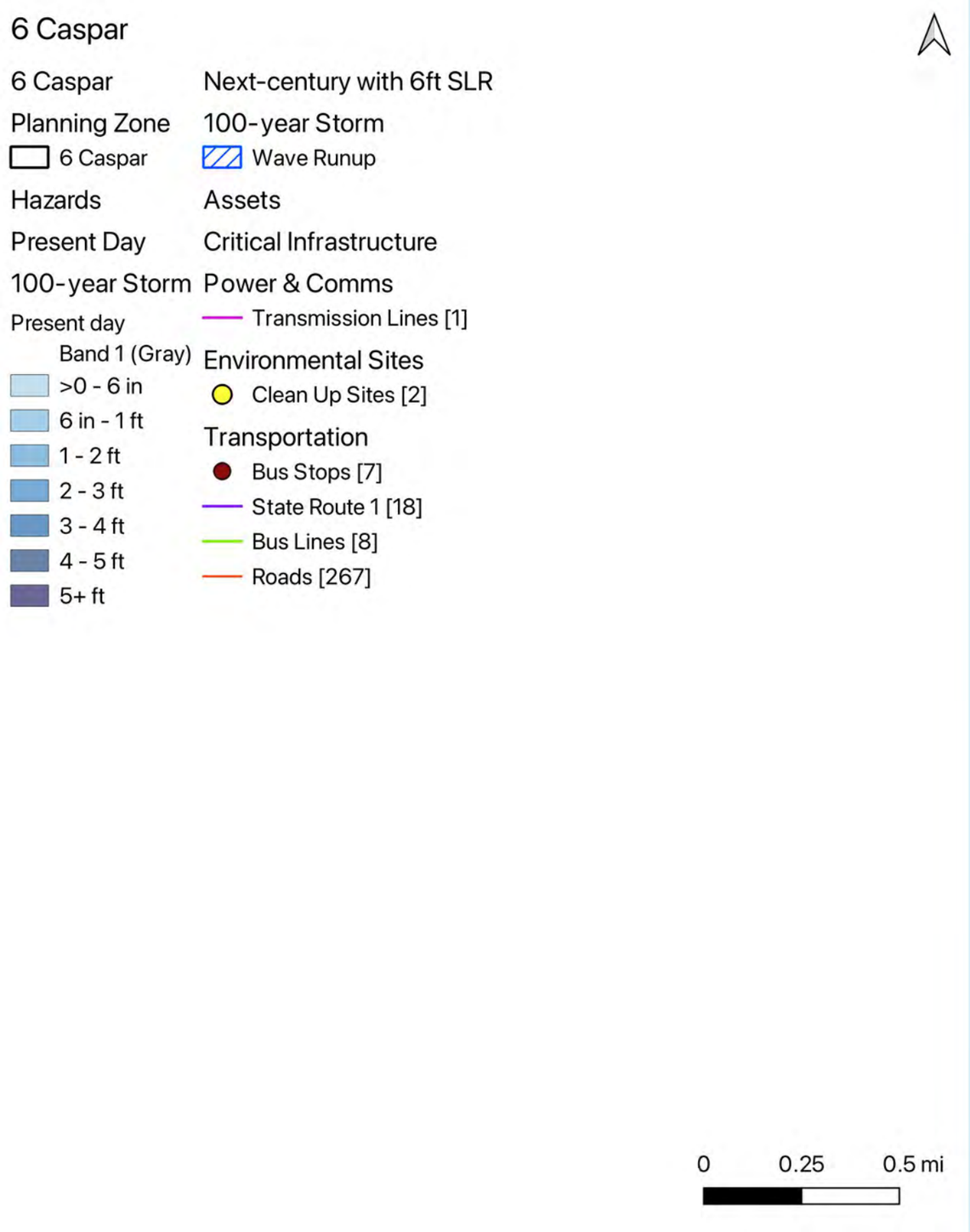
6 Caspar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Bus Lines [8]
Roads [267]
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0.25
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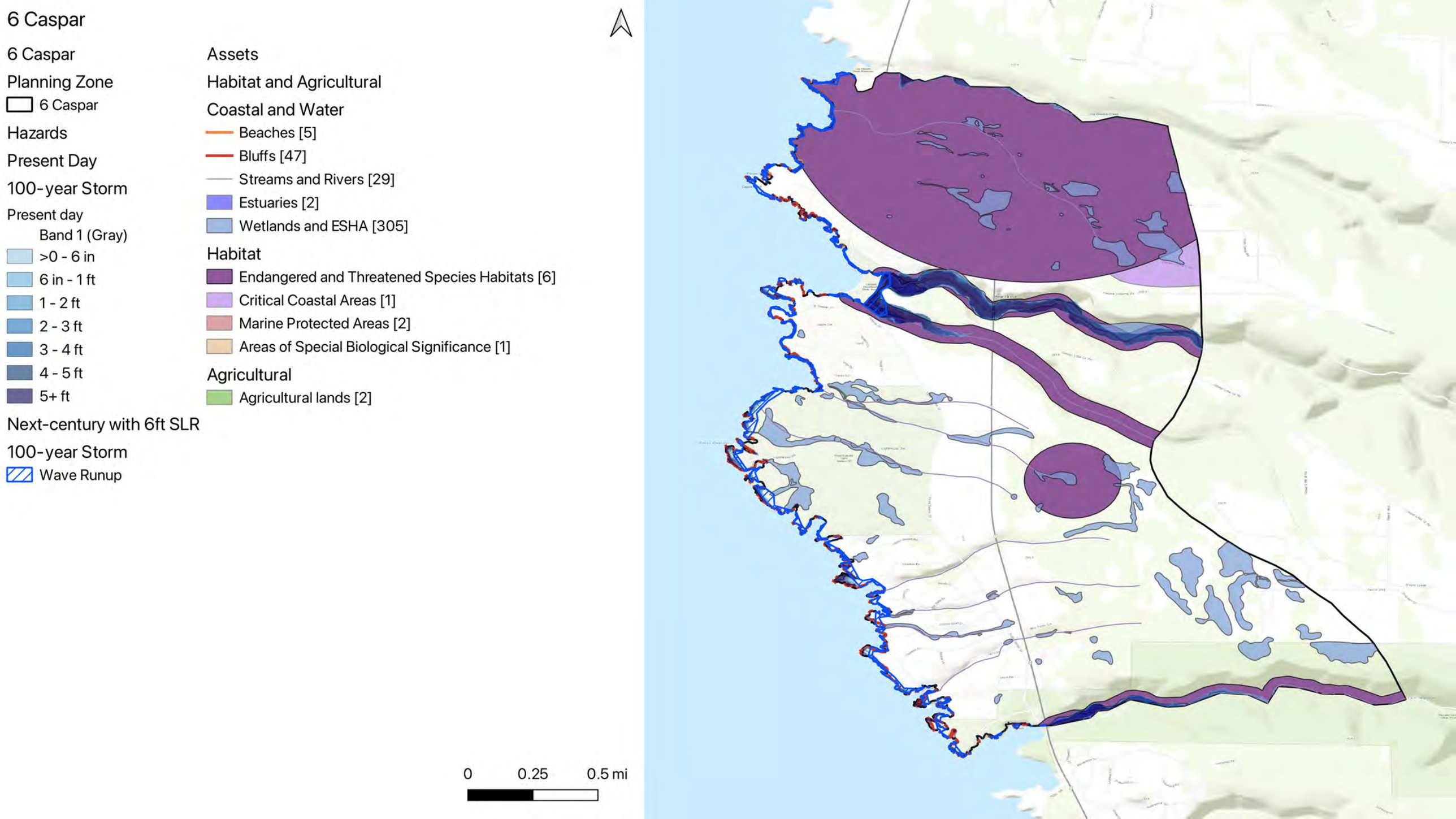
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Wave Runup

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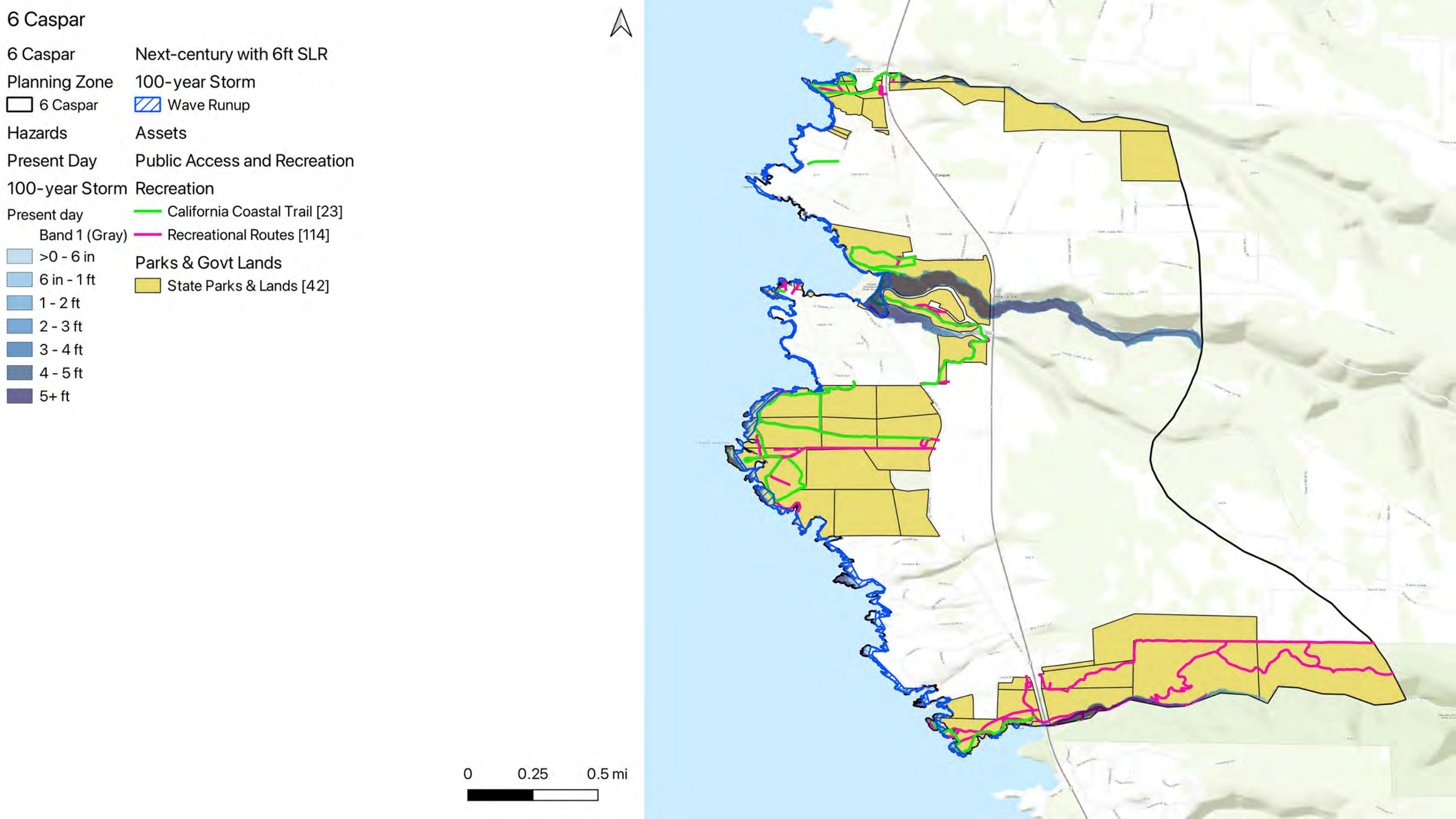

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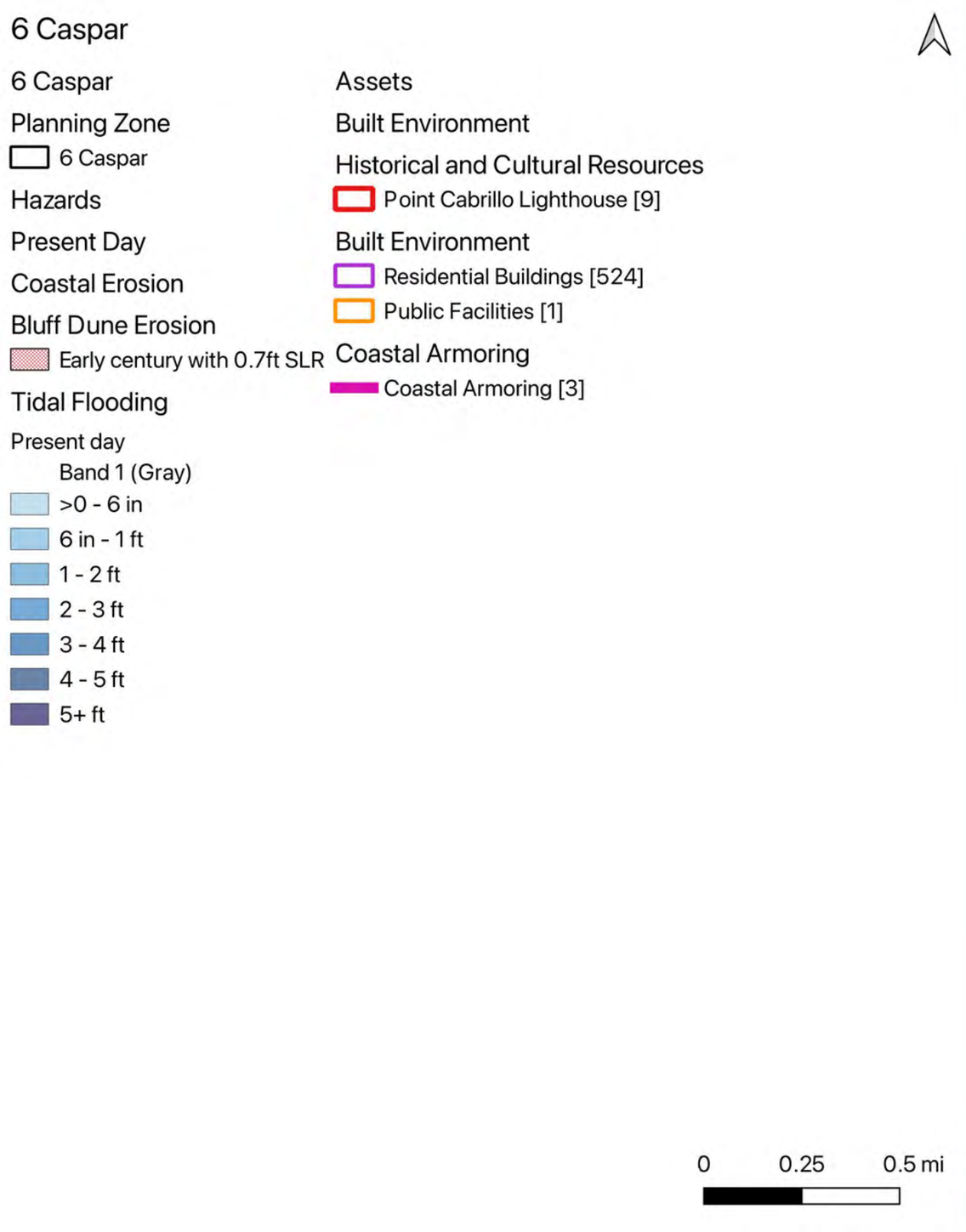
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Coastal Armoring [3]
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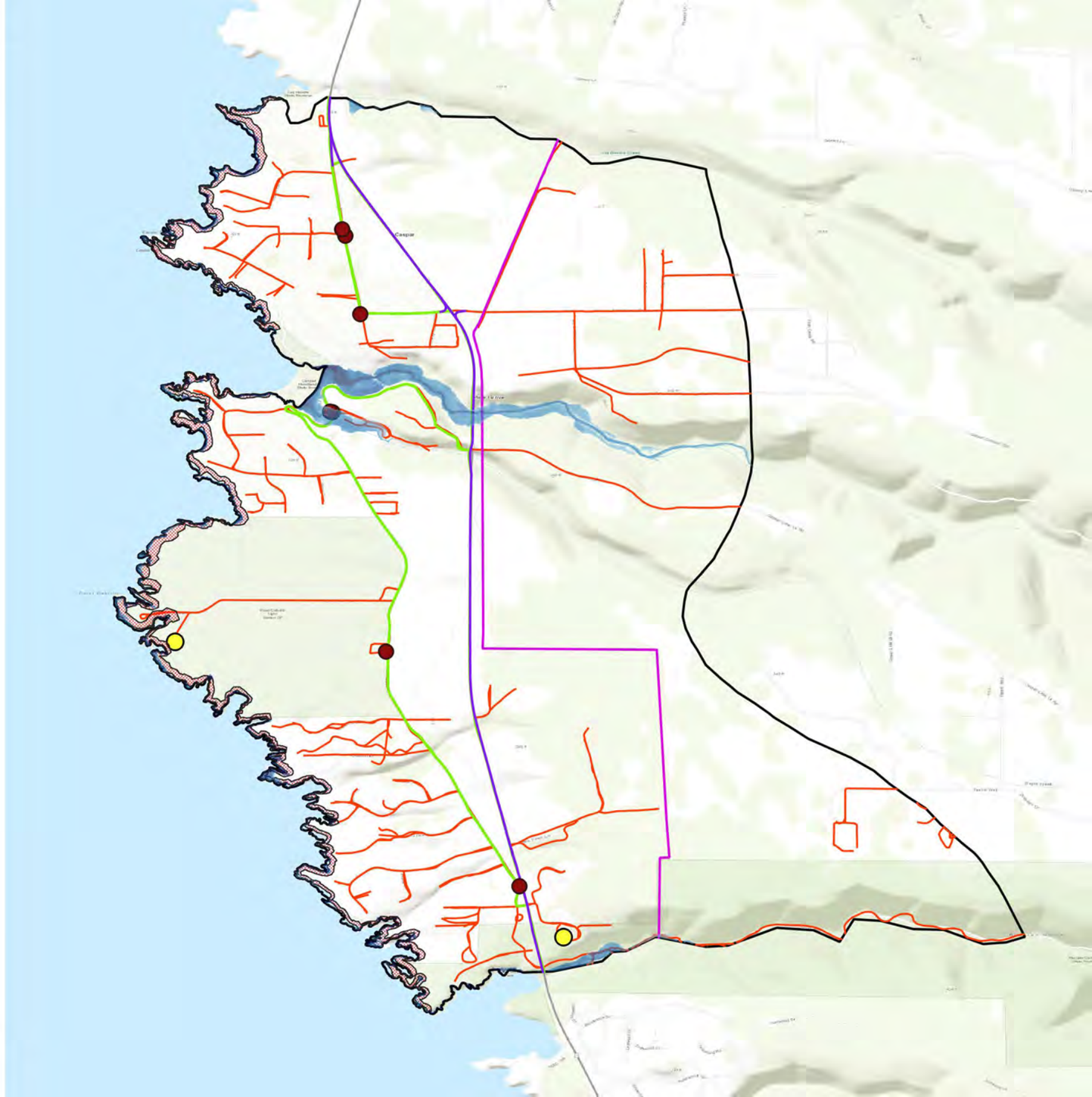
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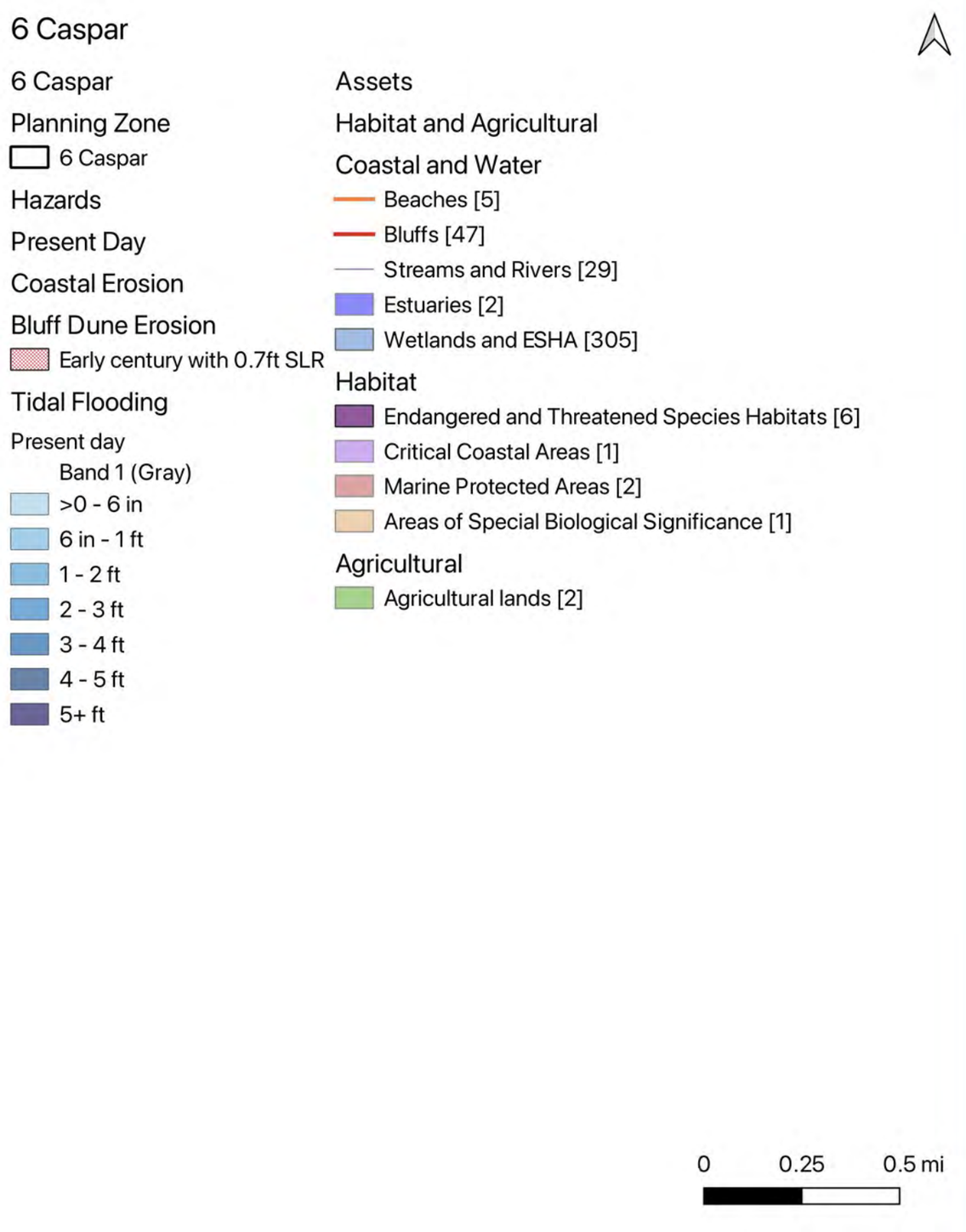
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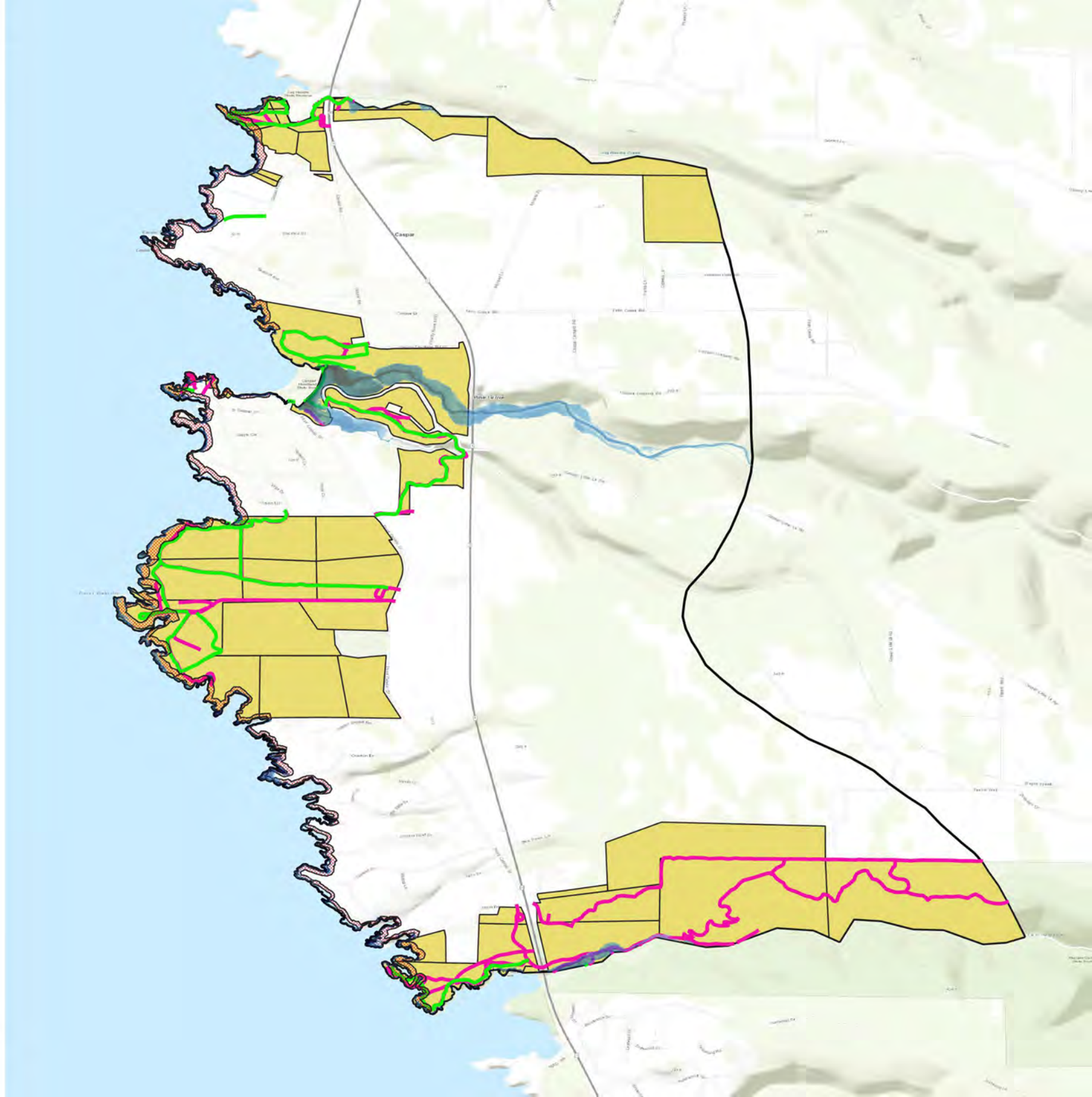

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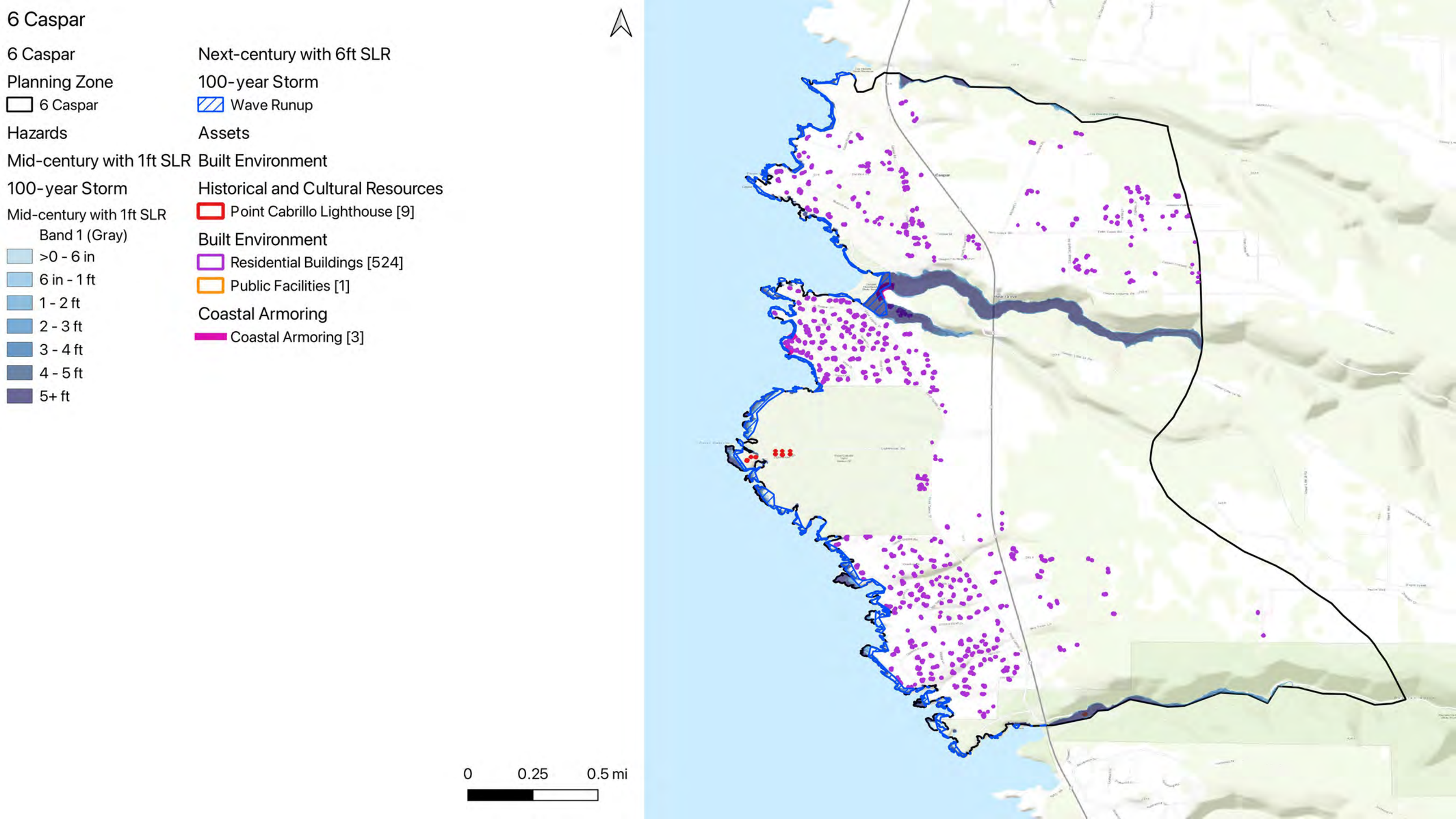
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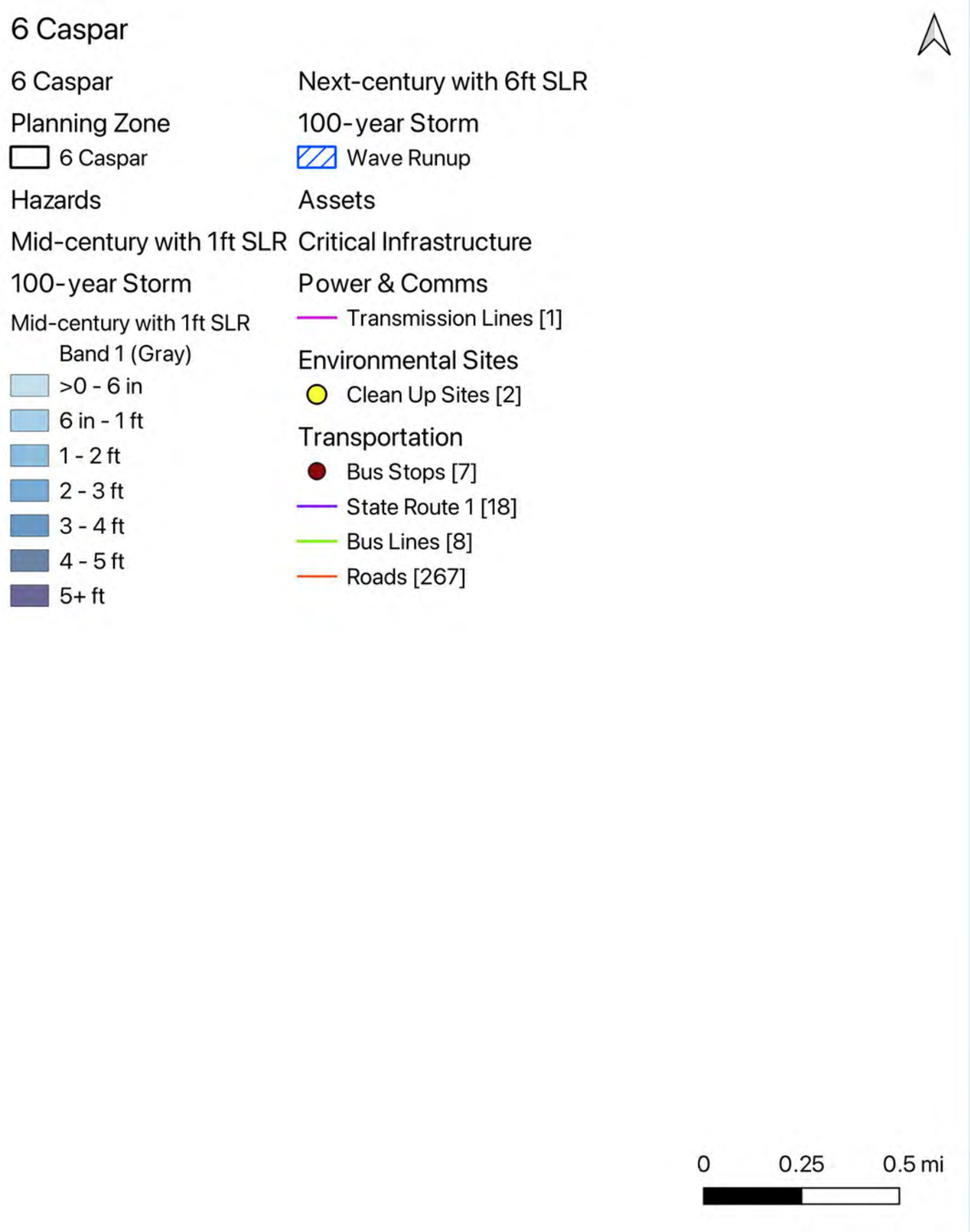
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Band 1 (Gray)
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6 in - 1 ft
1 - 2 ft
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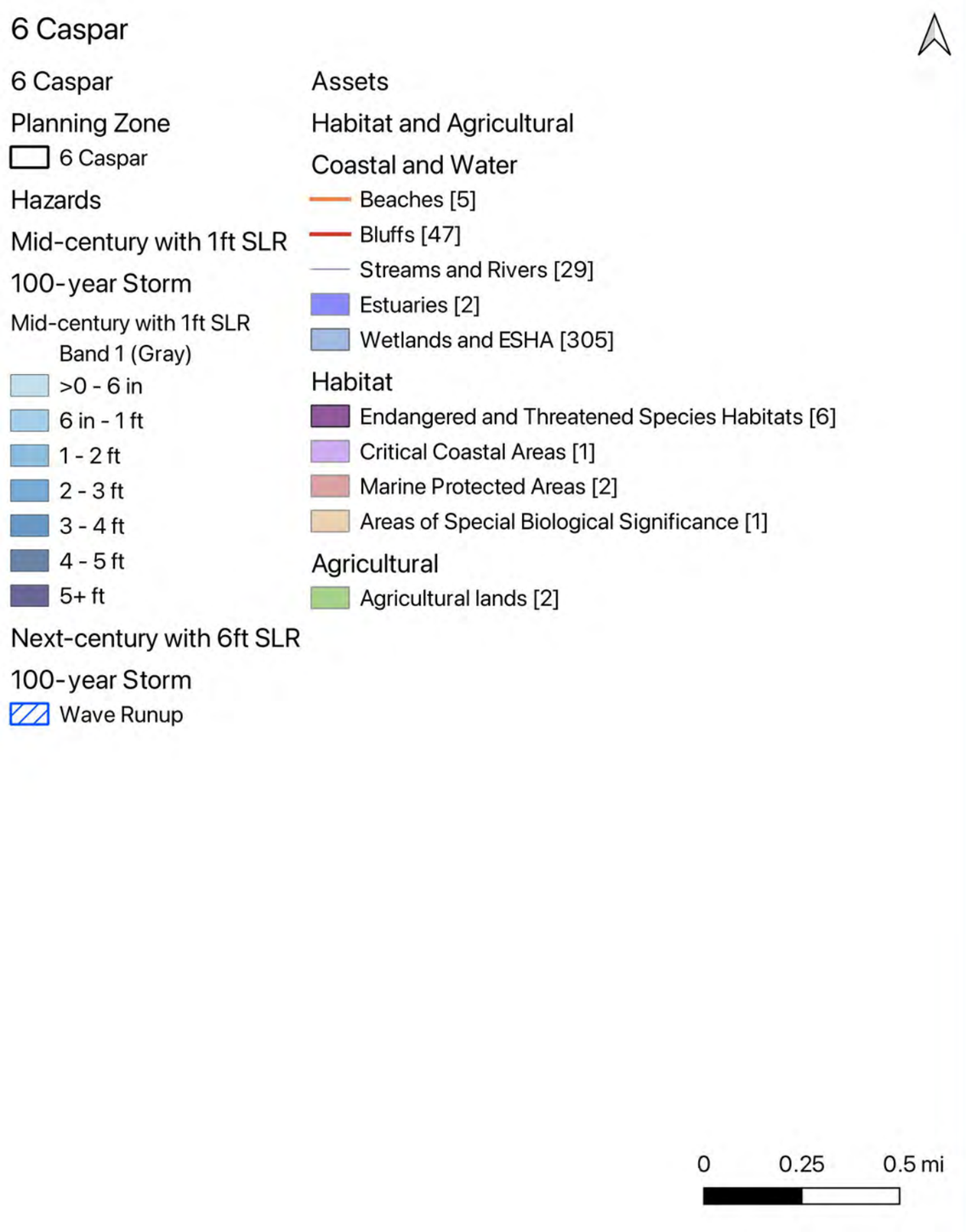
3 - 4 ft
4 - 5 ft
5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Critical Infrastructure
Power & Comms
Transmission Lines [1]
Environmental Sites
Clean Up Sites [2]
Transportation
Bus Stops [7]
State Route 1 [18]
Bus Lines [8]
Roads [267]
0
0.25
0.5 mi

6 Caspar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Planning Zone
6 Caspar
Hazards
Mid-century with 1ft SLR
100-year Storm
Mid-century with 1ft SLR
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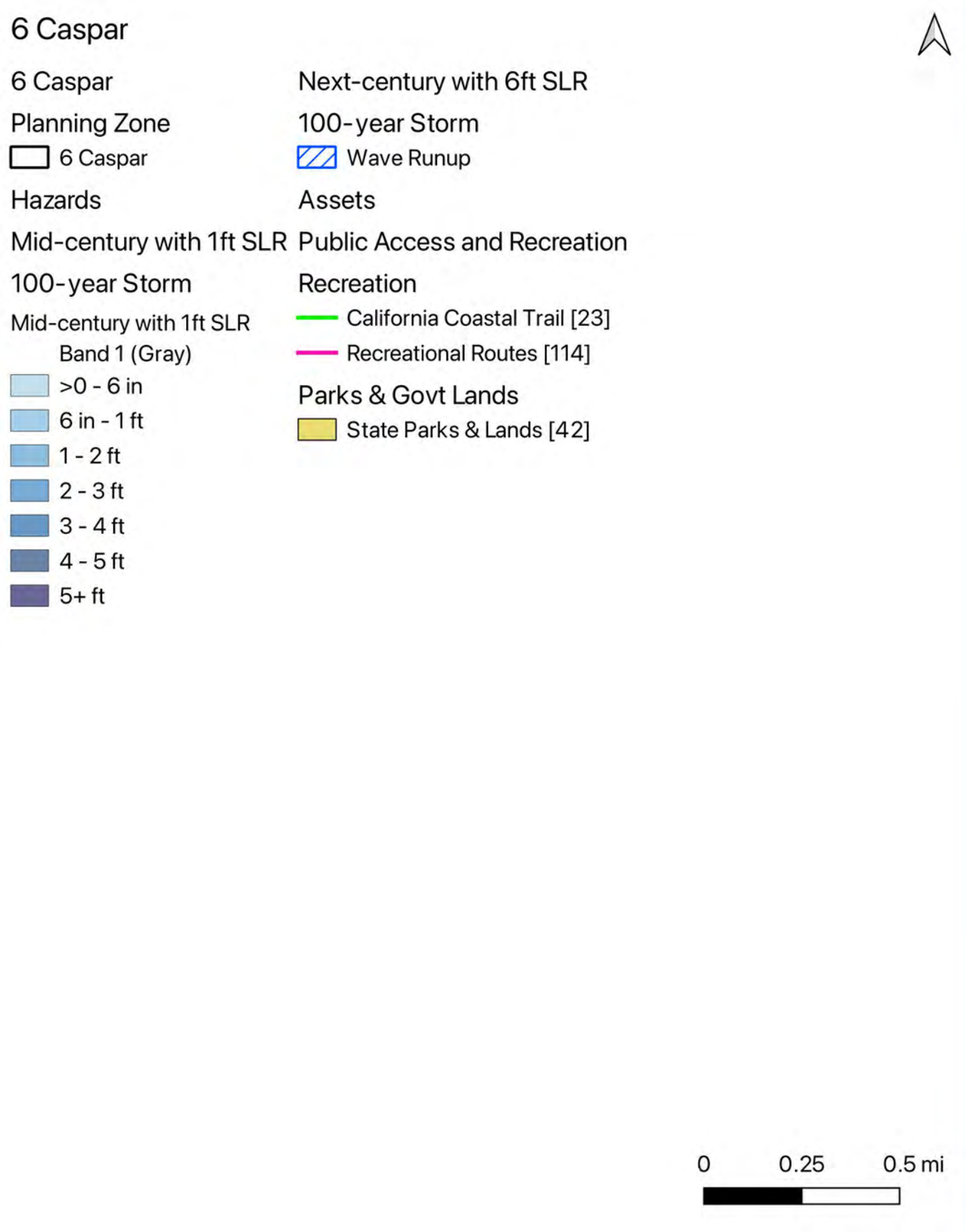
5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Habitat and Agricultural
Coastal and Water
Beaches [5]
Bluffs [47]
Streams and Rivers [29]
Estuaries [2]
Wetlands and ESHA [305]
Habitat
Endangered and Threatened Species Habitats [6]
Critical Coastal Areas [1]
Marine Protected Areas [2]
Areas of Special Biological Significance [1]
Agricultural
Agricultural lands [2]
0
0.25
0.5 mi

6 Caspar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Mid-century with 1ft SLR
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100-year Storm
Wave Runup
Assets
Public Access and Recreation
Recreation
California Coastal Trail [23]
Recreational Routes [114]
Parks & Govt Lands
State Parks & Lands [42]
0
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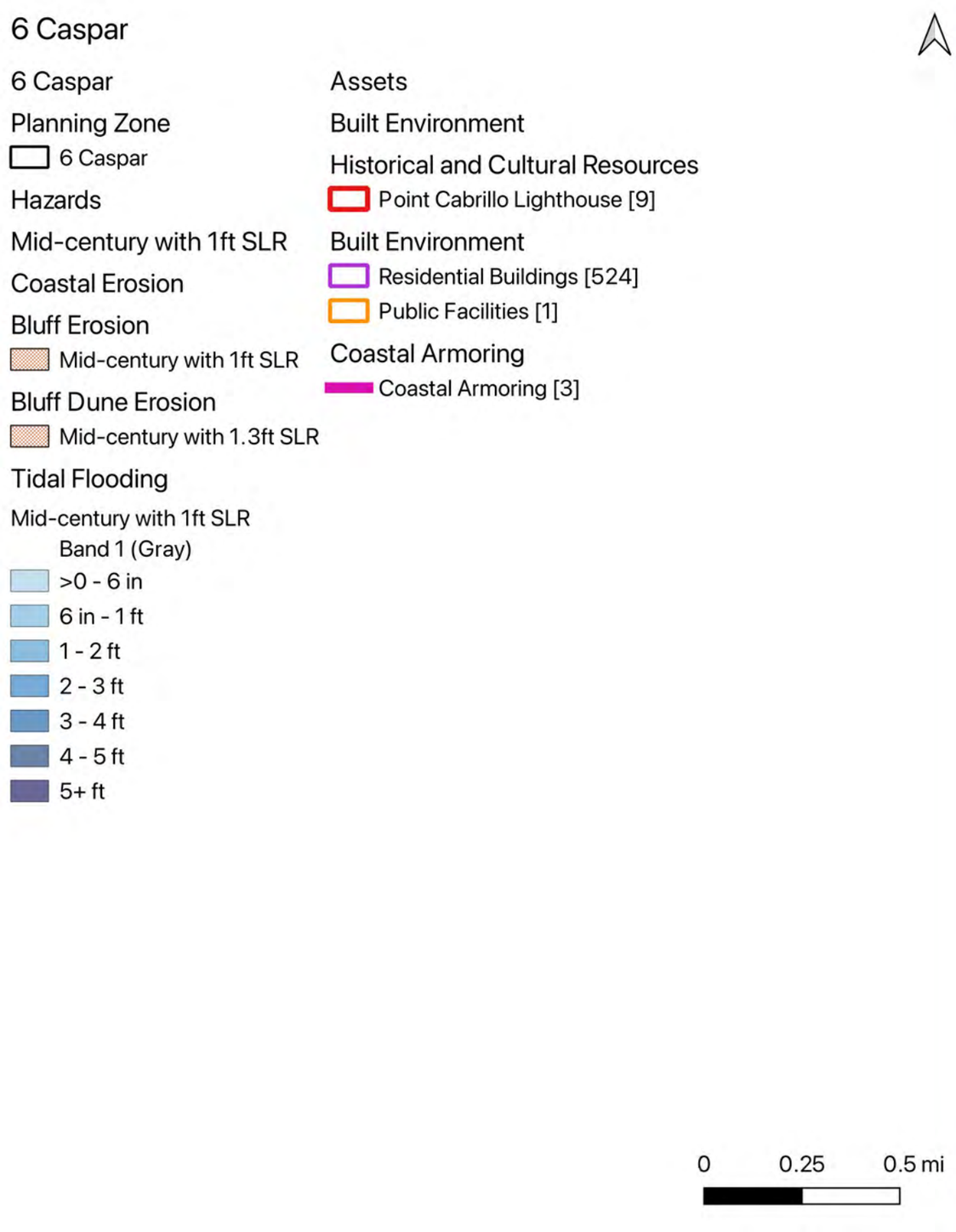
0.5 mi

6 Caspar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Planning Zone
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Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
Band 1 (Gray)
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6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Built Environment
Historical and Cultural Resources
Point Cabrillo Lighthouse [9]
Built Environment
Residential Buildings [524]
Public Facilities [1]
Coastal Armoring
Coastal Armoring [3]
0
0.25
0.5 mi

6 Caspar


6 Caspar
Planning Zone
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Hazards
Mid-century with 1ft SLR
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Bluff Dune Erosion
Mid-century with 1.3ft SLR
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Bus Stops [7]
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Bus Lines [8]
Roads [267]
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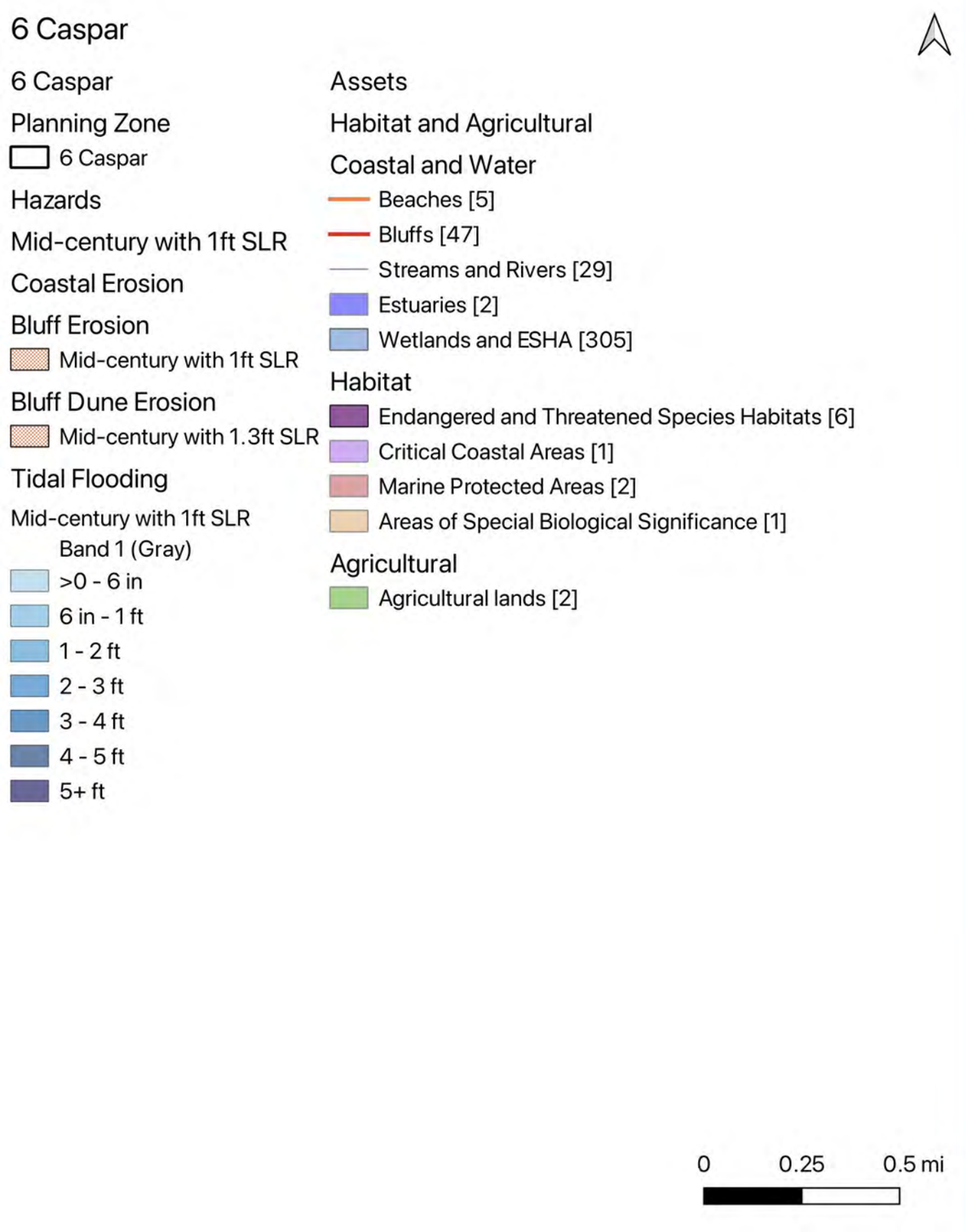
6 Caspar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Planning Zone
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Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
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Mid-century with 1ft SLR
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Agricultural
Agricultural lands [2]
0
0.25
0.5 mi

6 Caspar

6 Caspar

Planning Zone

6 Caspar

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

Mid-century with 1ft SLR

Bluff Dune Erosion

Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Public Access and Recreation

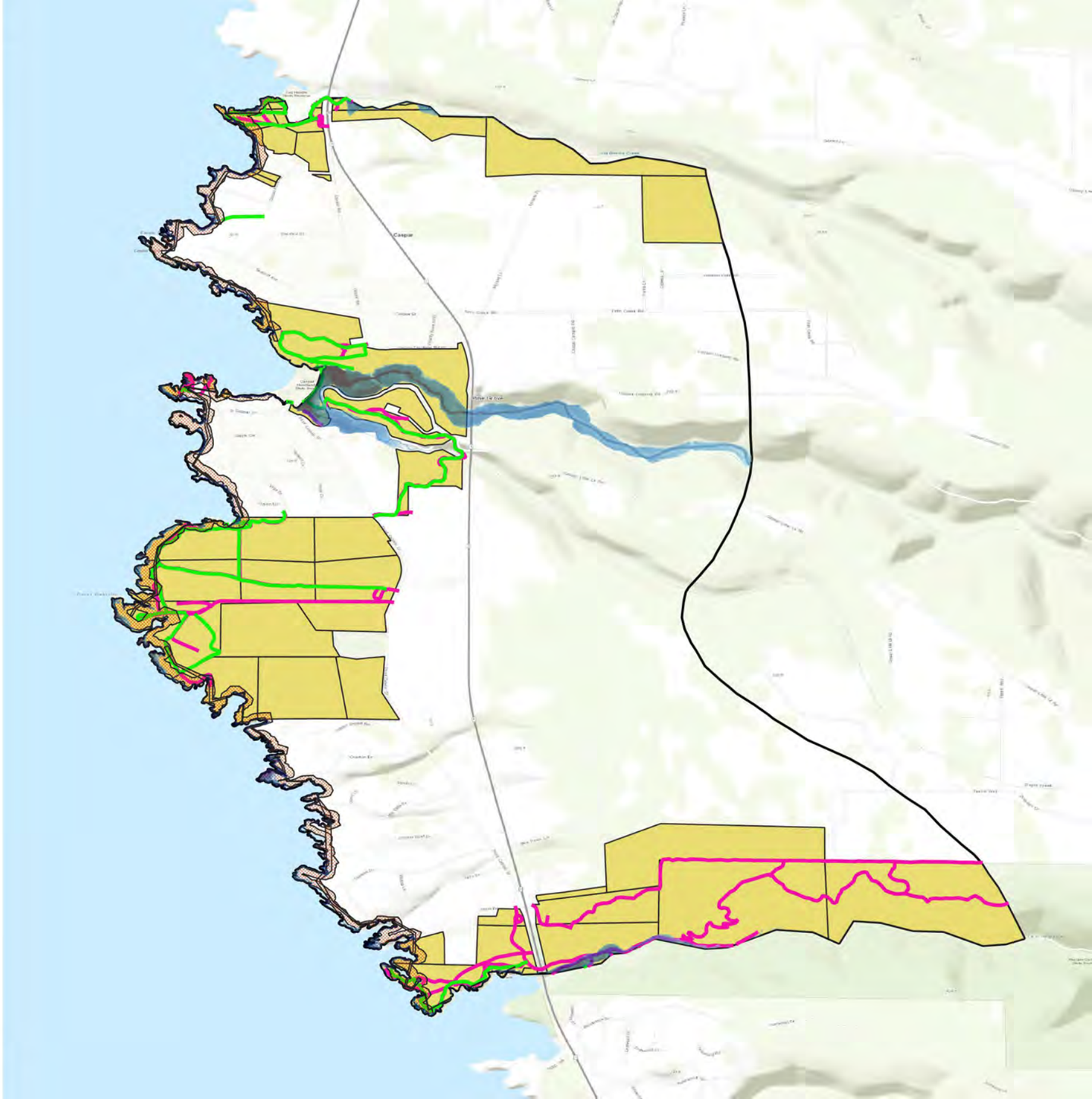
Recreation

California Coastal Trail [23]

Recreational Routes [114]

Parks & Govt Lands

State Parks & Lands [42]



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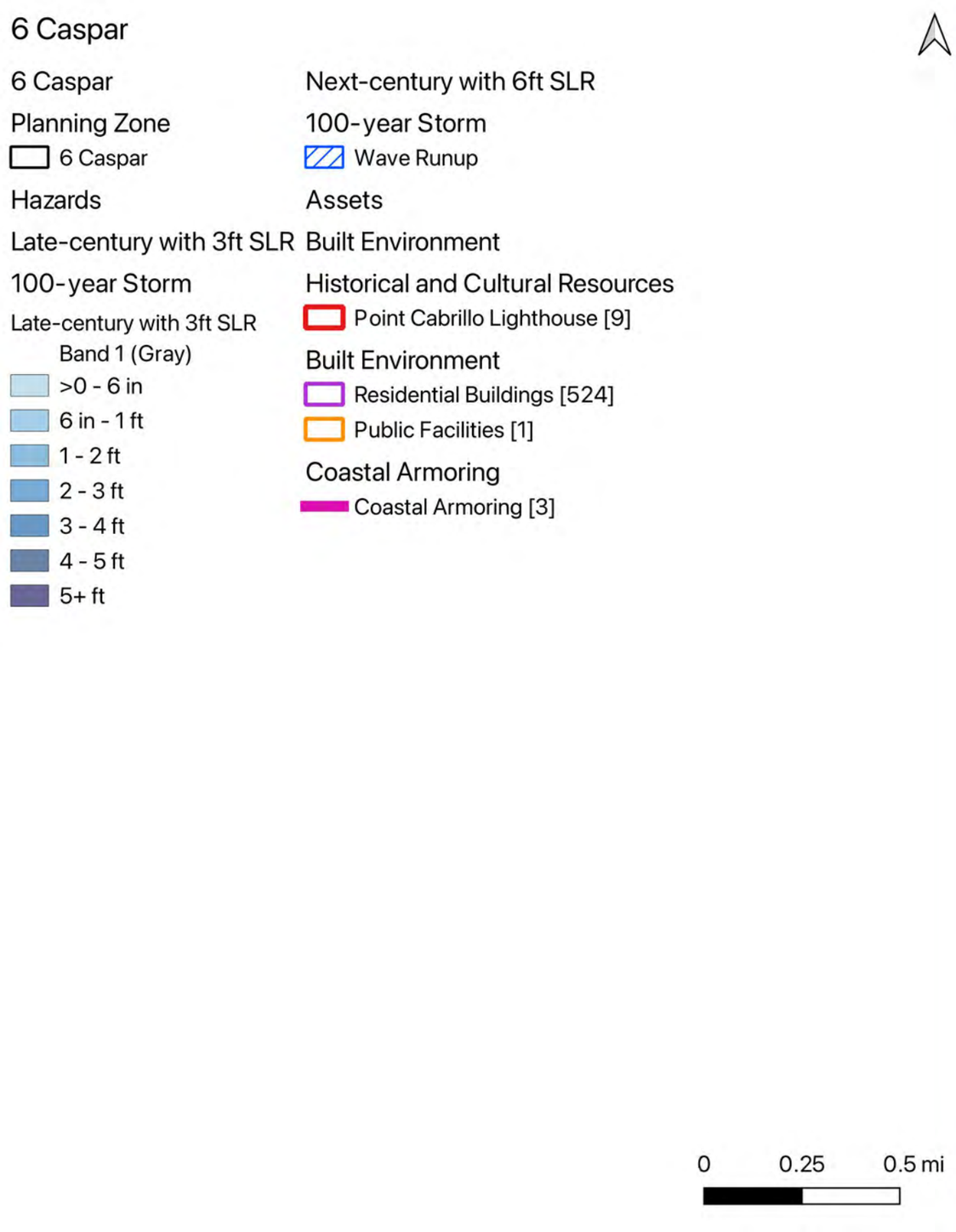
6 Caspar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Planning Zone
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Hazards
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
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1 - 2 ft
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Next-century with 6ft SLR
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Wave Runup
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Point Cabrillo Lighthouse [9]
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Public Facilities [1]
Coastal Armoring
Coastal Armoring [3]
0
0.25
0.5 mi

6 Caspar

6 Caspar

Planning Zone

- 6 Caspar

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

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Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Critical Infrastructure

Power & Comms

- Transmission Lines [1]

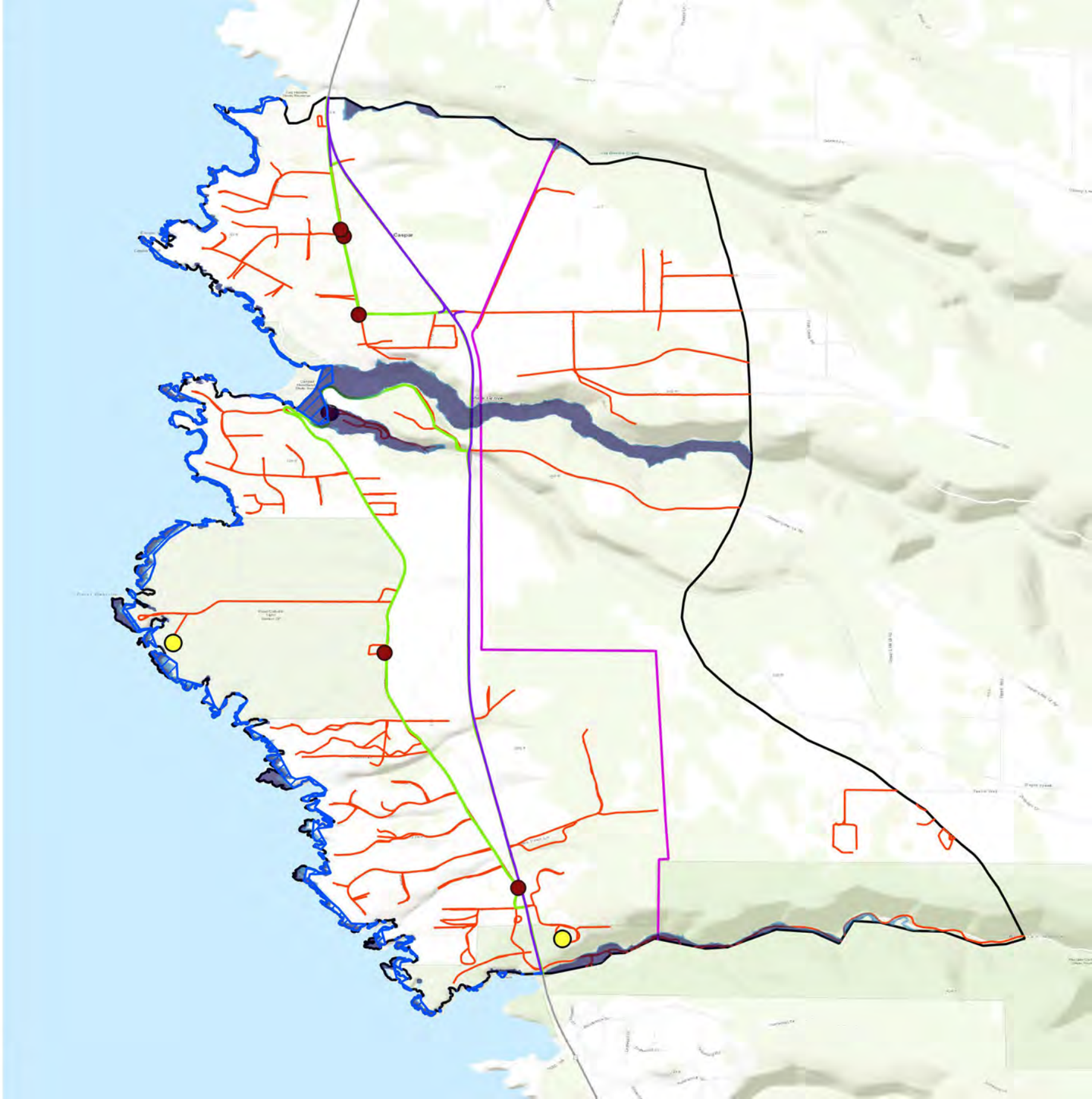
Environmental Sites

- Clean Up Sites [2]

Transportation

- Bus Stops [7]
- State Route 1 [18]
- Bus Lines [8]
- Roads [267]

0 0.25 0.5 mi



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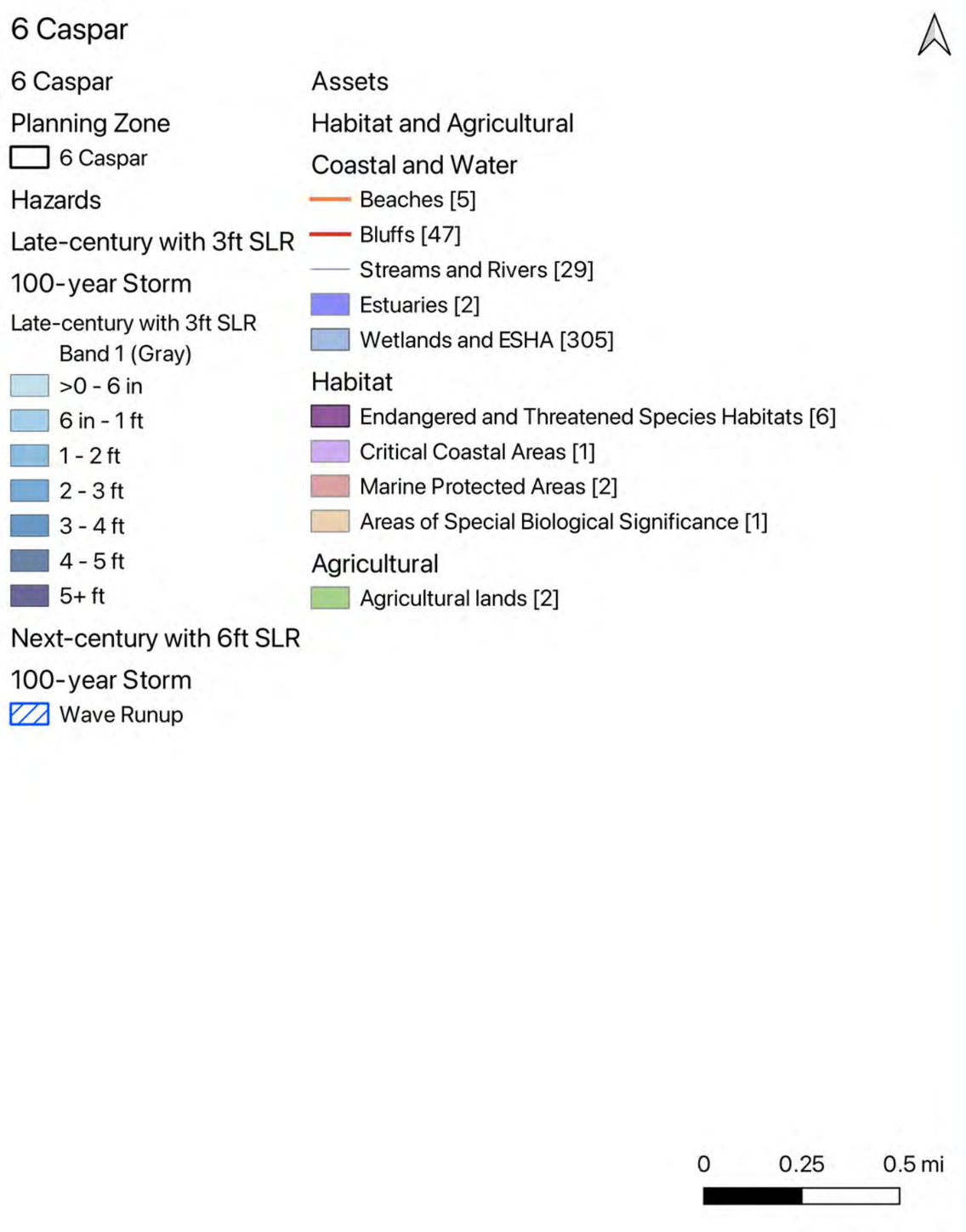
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Planning Zone
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Agricultural
Agricultural lands [2]
0
0.25
0.5 mi

6 Caspar

6 Caspar

Planning Zone

6 Caspar

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

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100-year Storm

Wave Runup

Assets

Public Access and Recreation

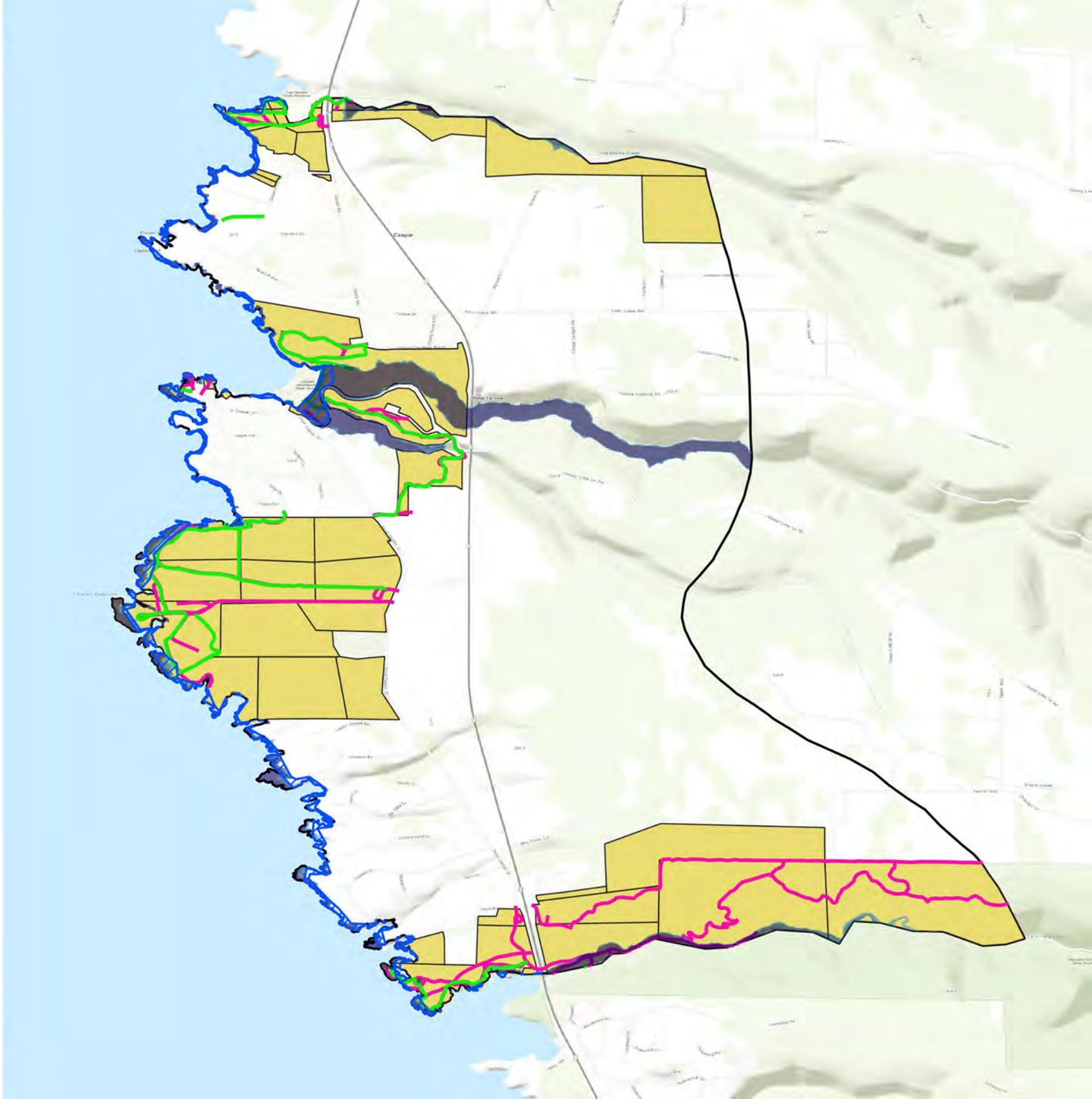
Recreation

California Coastal Trail [23]

Recreational Routes [114]

Parks & Govt Lands

State Parks & Lands [42]



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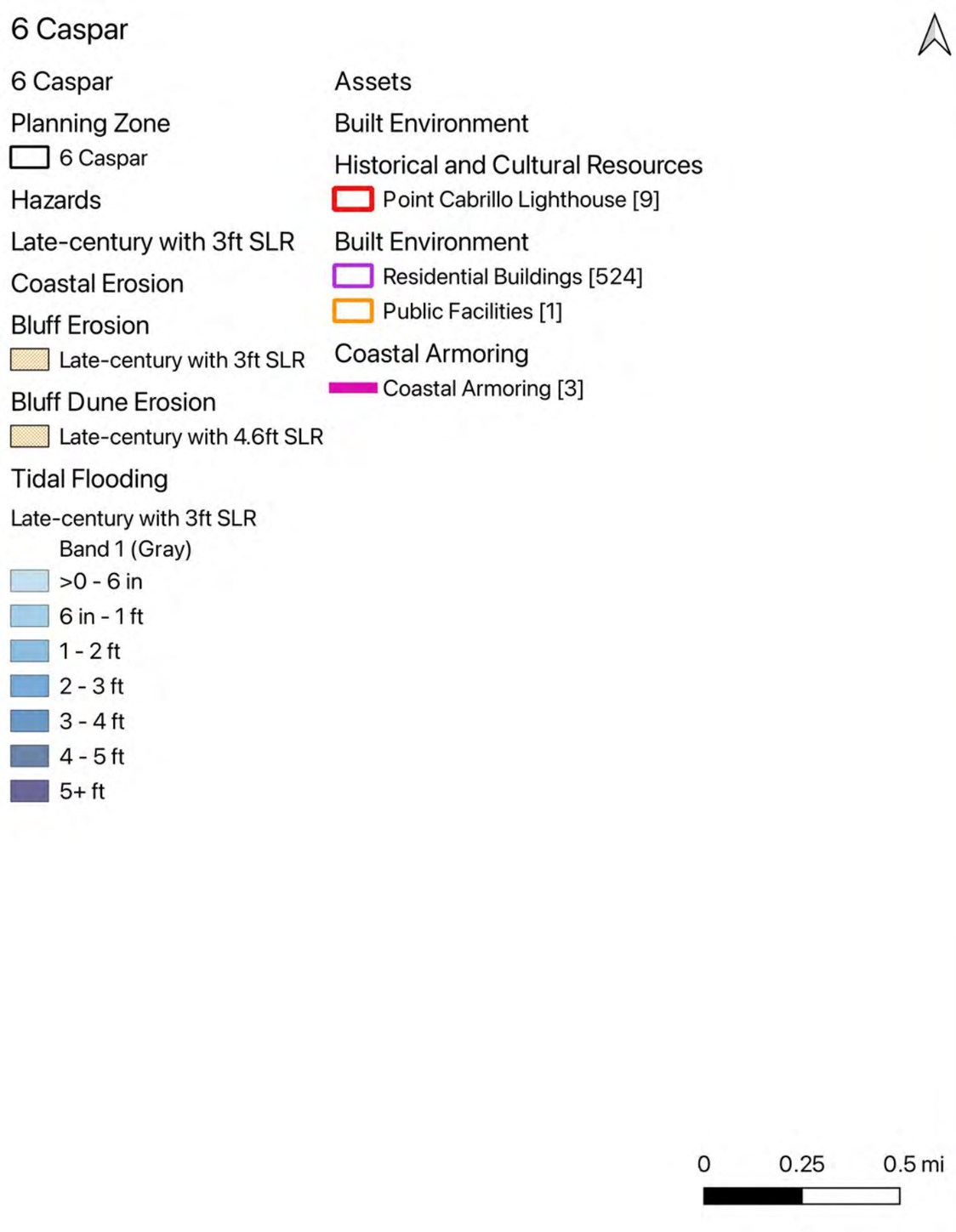
6 Caspar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Planning Zone
6 Caspar
Hazards
Late-century with 3ft SLR
Coastal Erosion
Bluff Erosion
Late-century with 3ft SLR
Bluff Dune Erosion
Late-century with 4.6ft SLR
Tidal Flooding
Late-century with 3ft SLR
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Built Environment
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Point Cabrillo Lighthouse [9]
Built Environment
Residential Buildings [524]
Public Facilities [1]
Coastal Armoring
Coastal Armoring [3]
0
0.25
0.5 mi

6 Caspar


6 Caspar
Planning Zone
6 Caspar
Hazards
Late-century with 3ft SLR
Coastal Erosion
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Critical Infrastructure
Power & Comms
Transmission Lines [1]
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Clean Up Sites [2]
Transportation
Bus Stops [7]
State Route 1 [18]
Bus Lines [8]
Roads [267]
0
0.25
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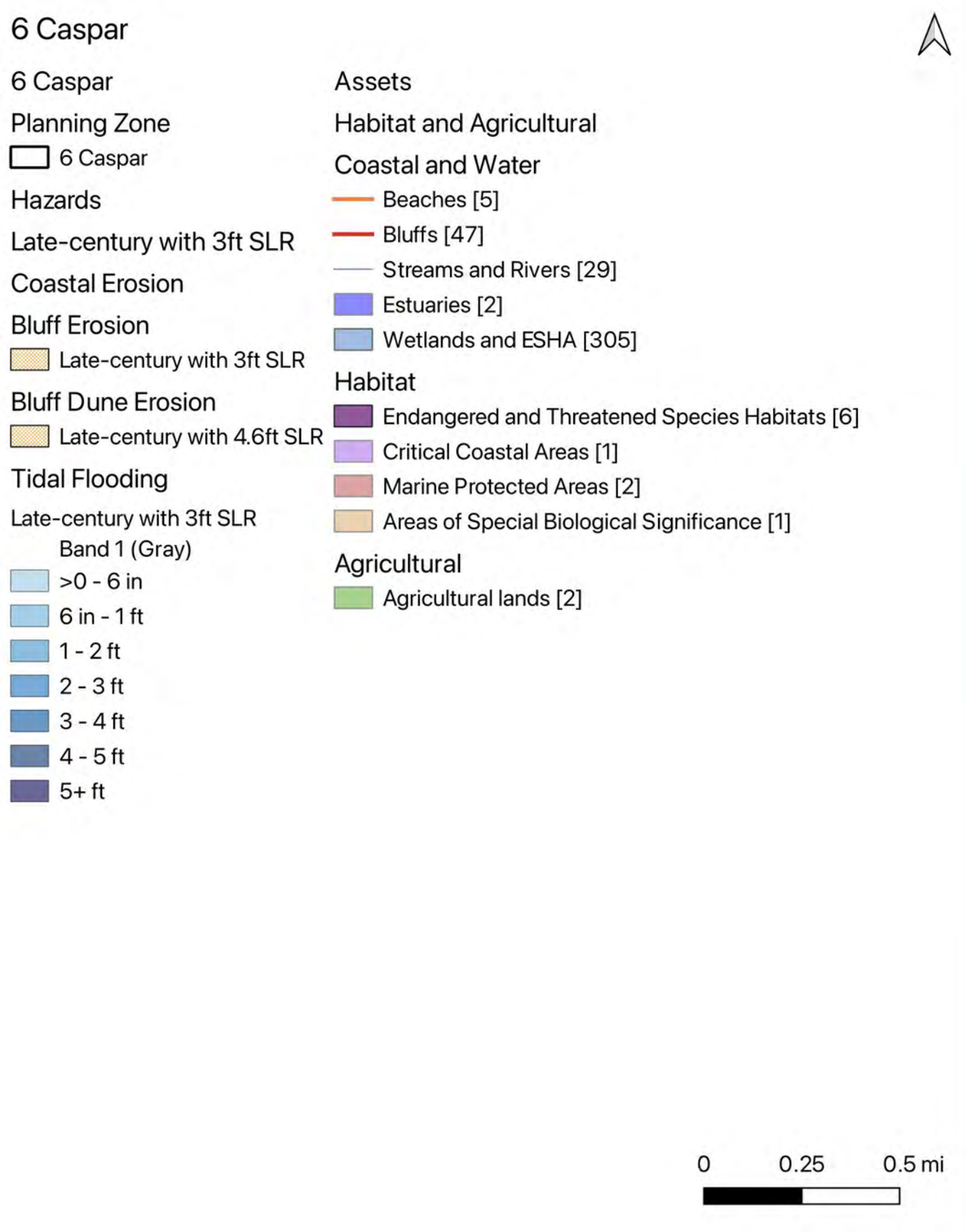
6 Caspar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Bluff Dune Erosion
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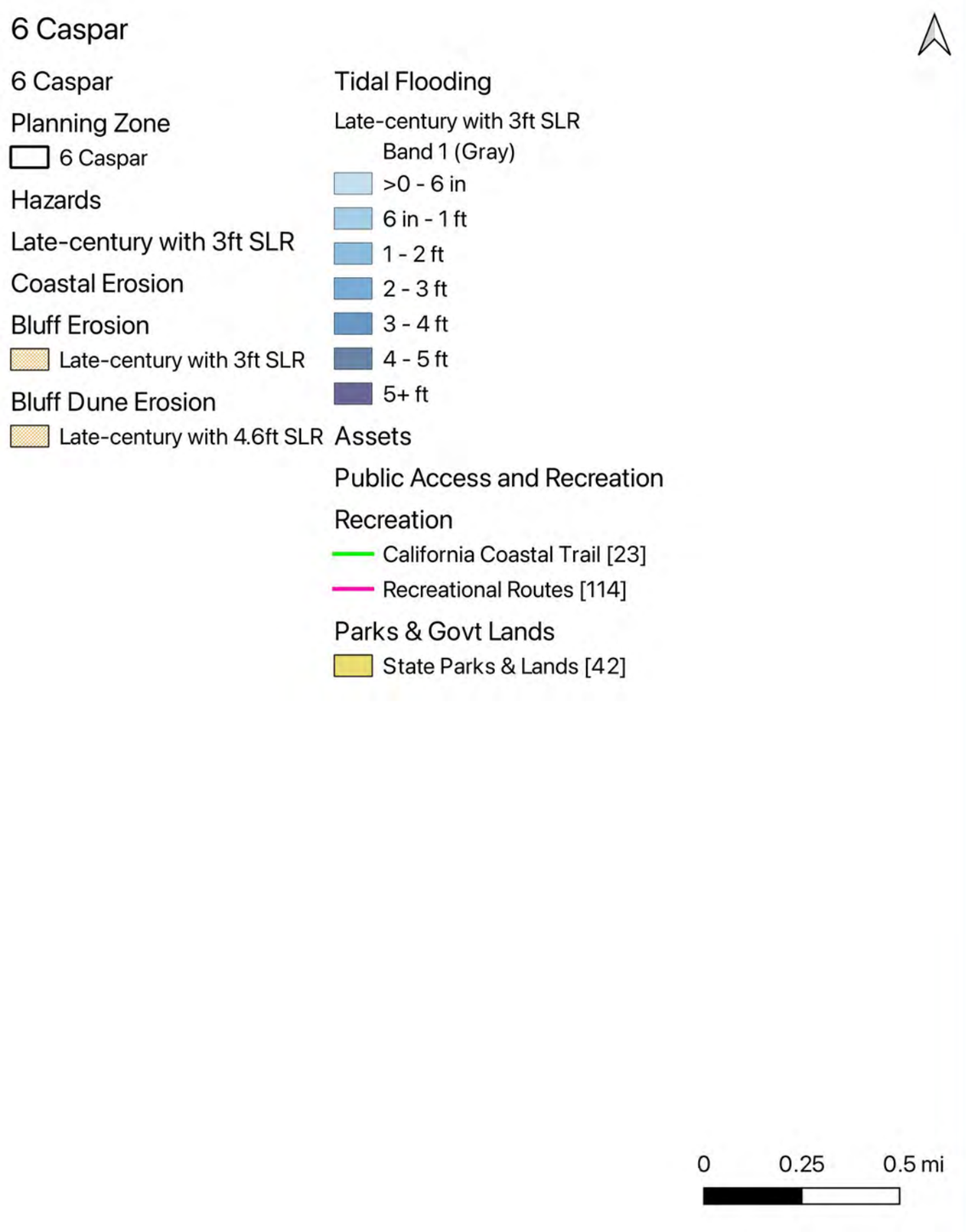
6 Caspar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Bluff Dune Erosion
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Assets
Public Access and Recreation
Recreation
California Coastal Trail [23]
Recreational Routes [114]
Parks & Govt Lands
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0
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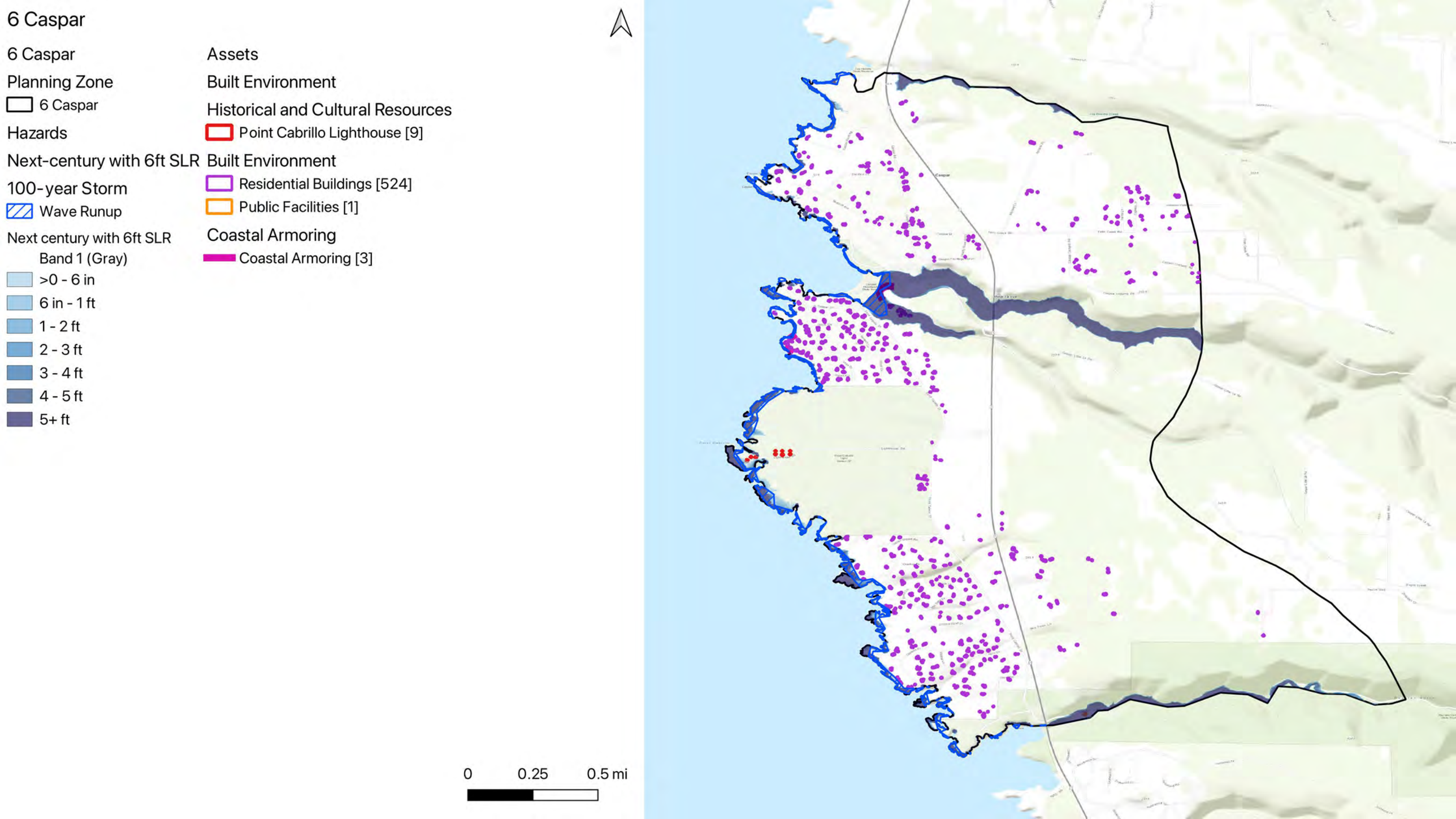
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Planning Zone
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Hazards
Next-century with 6ft SLR
100-year Storm
Wave Runup
Next century with 6ft SLR
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0
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6 Caspar


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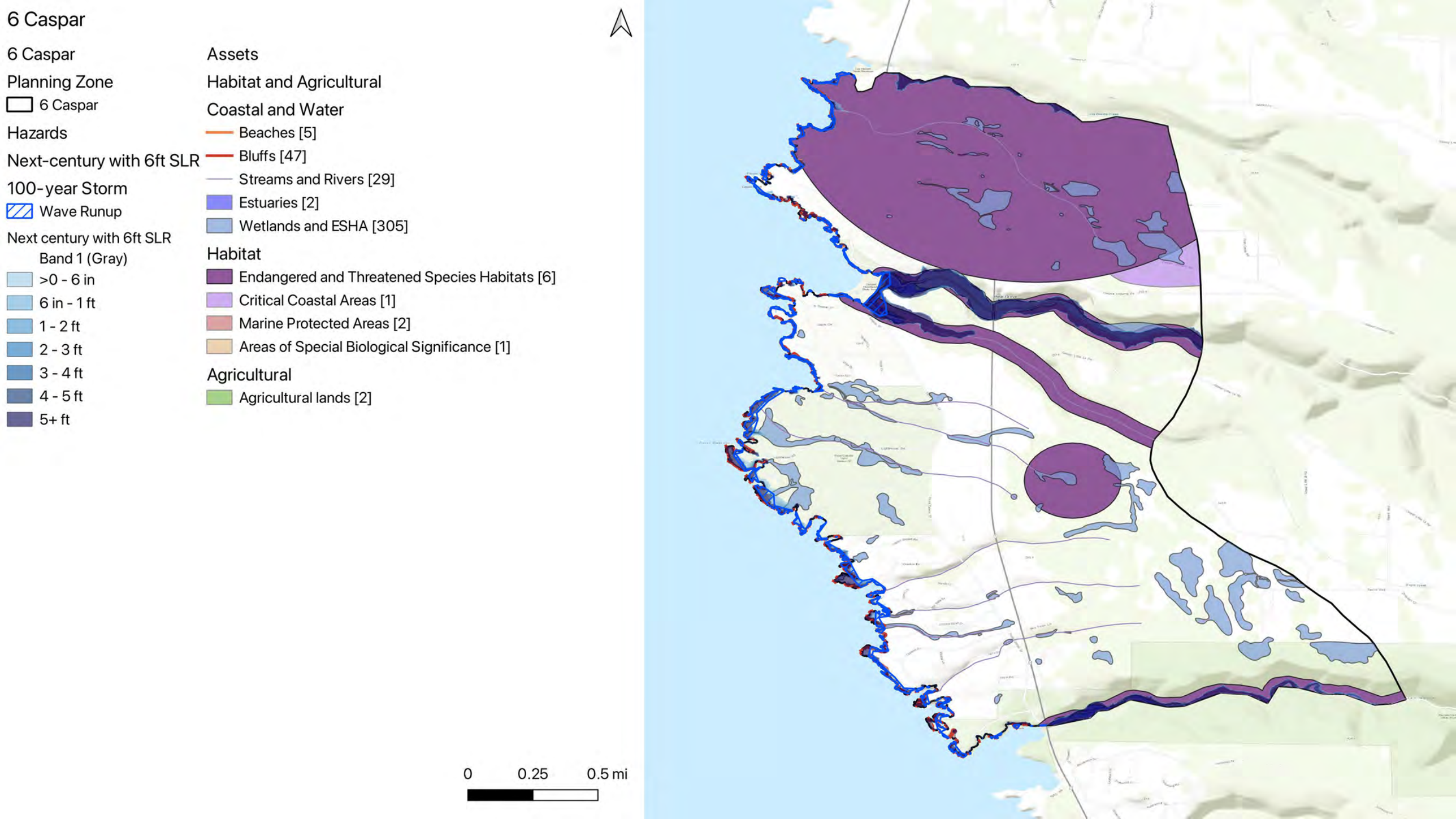
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0.25
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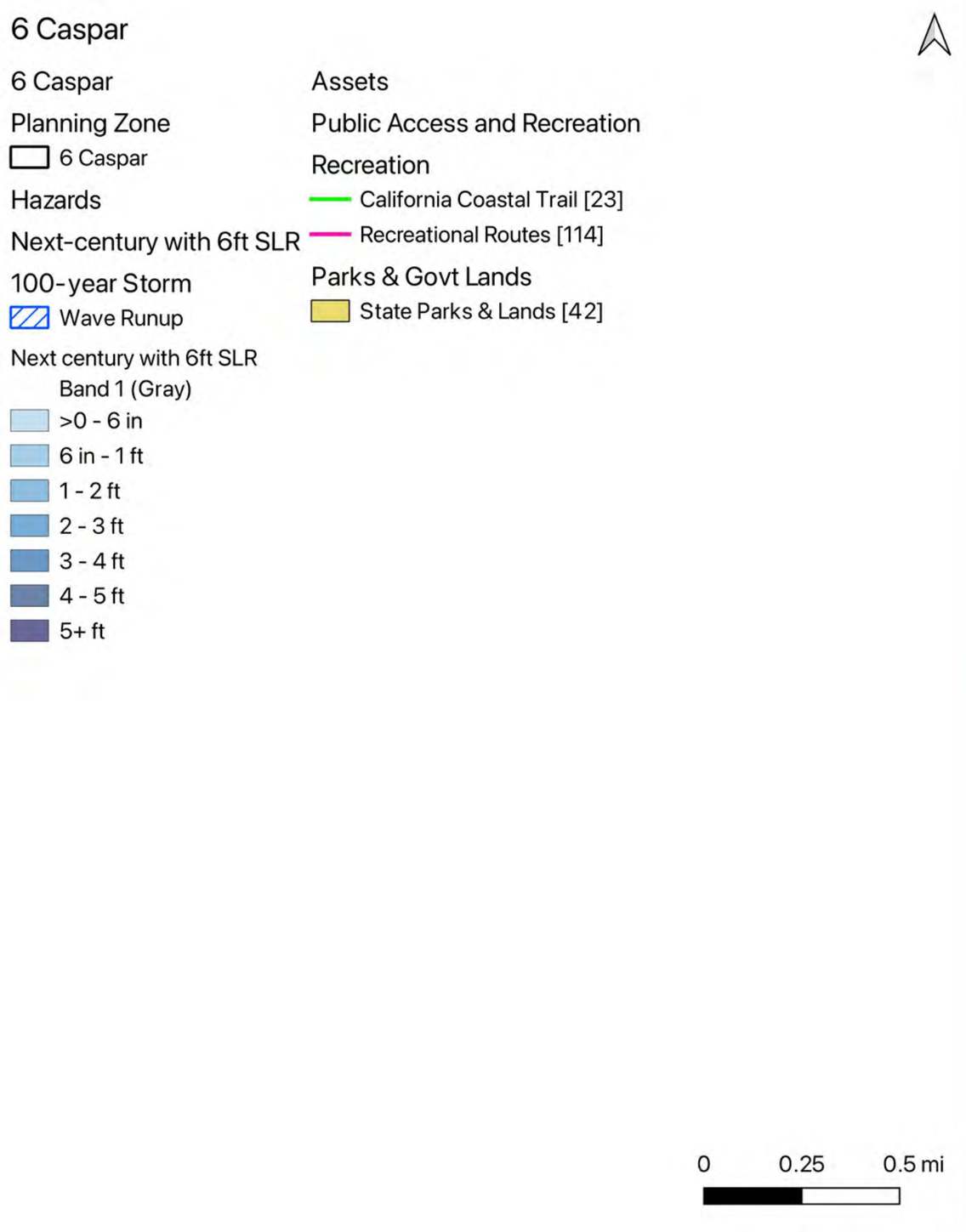
6 Caspar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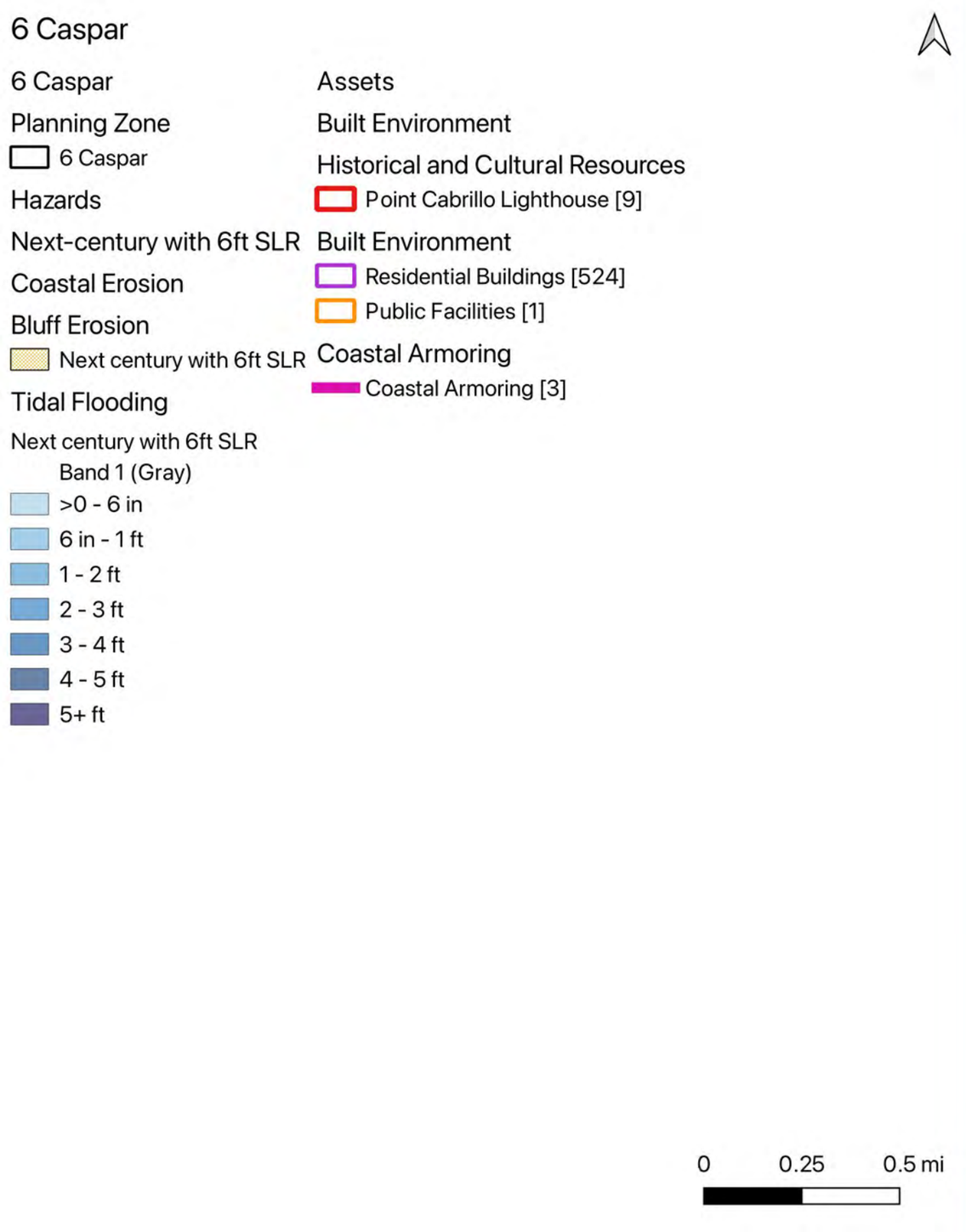
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Next century with 6ft SLR
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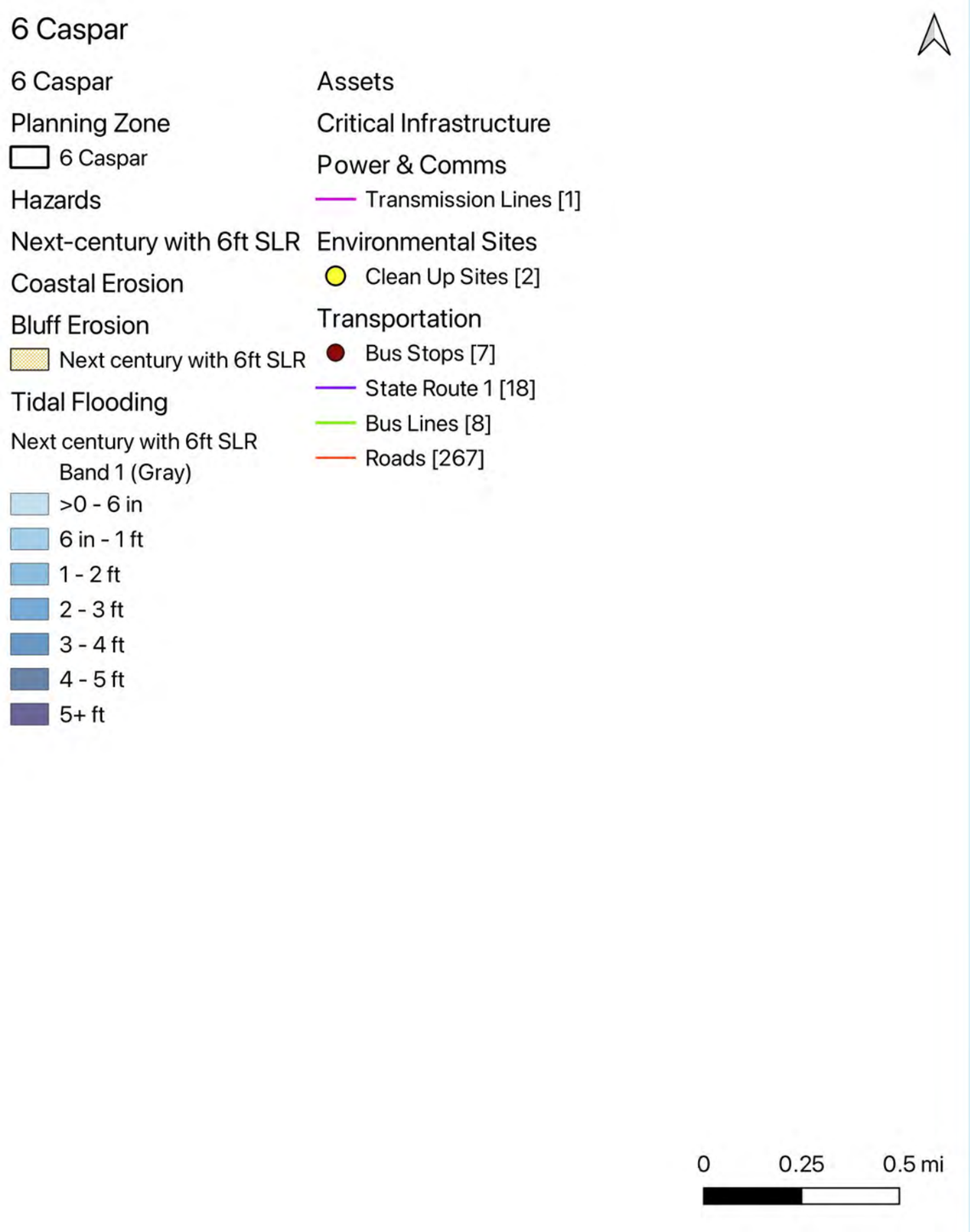
6 Caspar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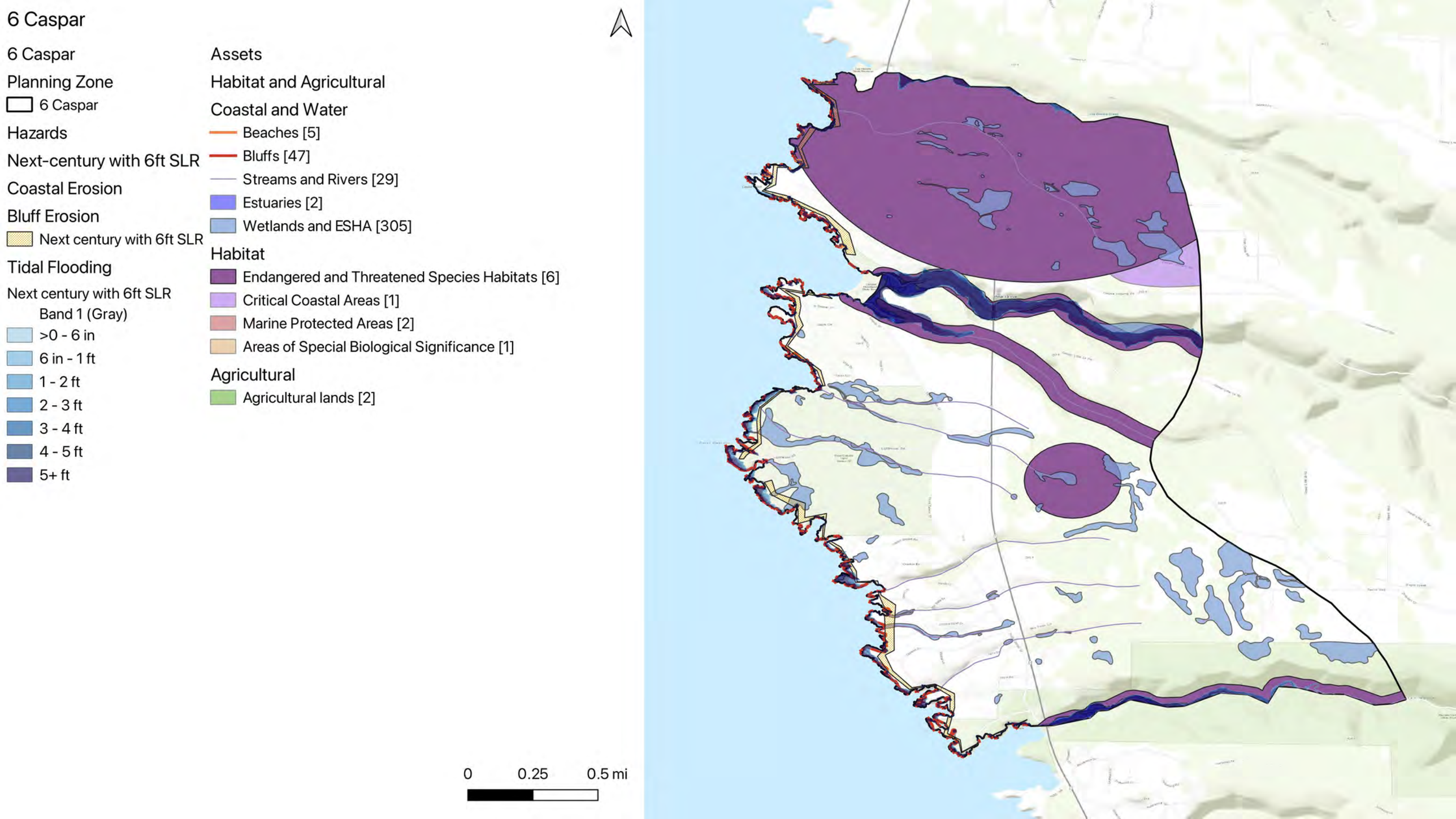
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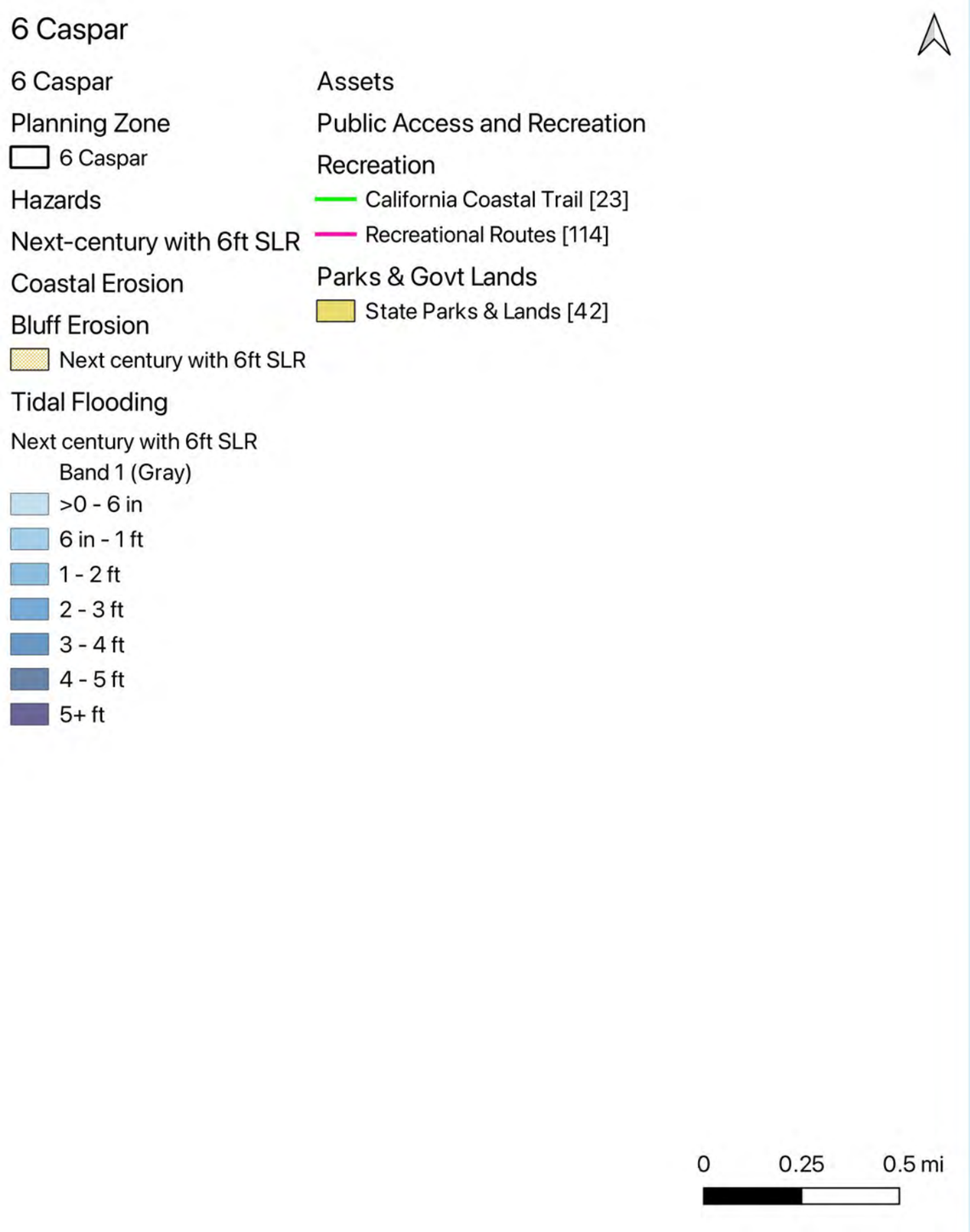
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Parks & Govt Lands
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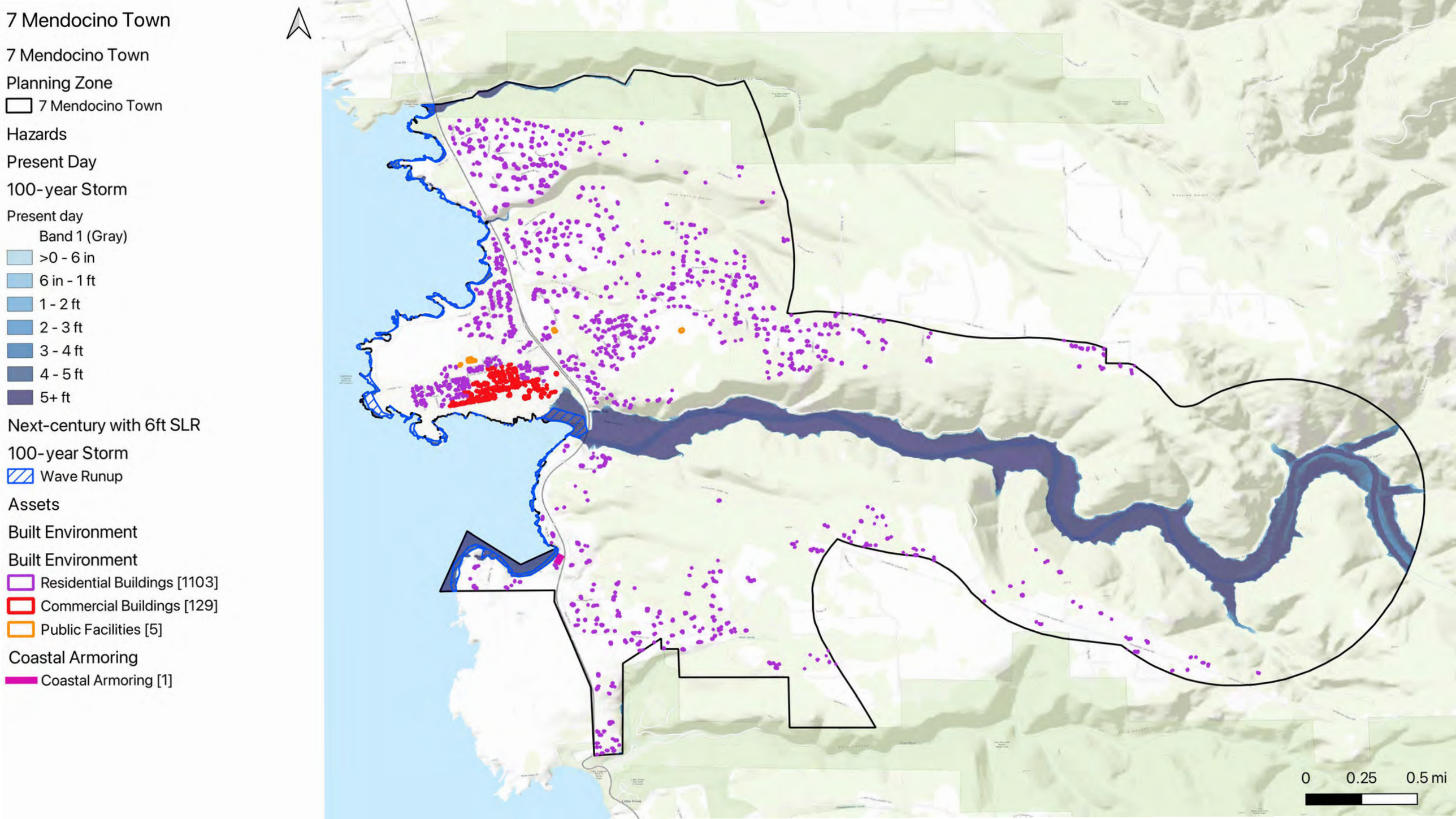
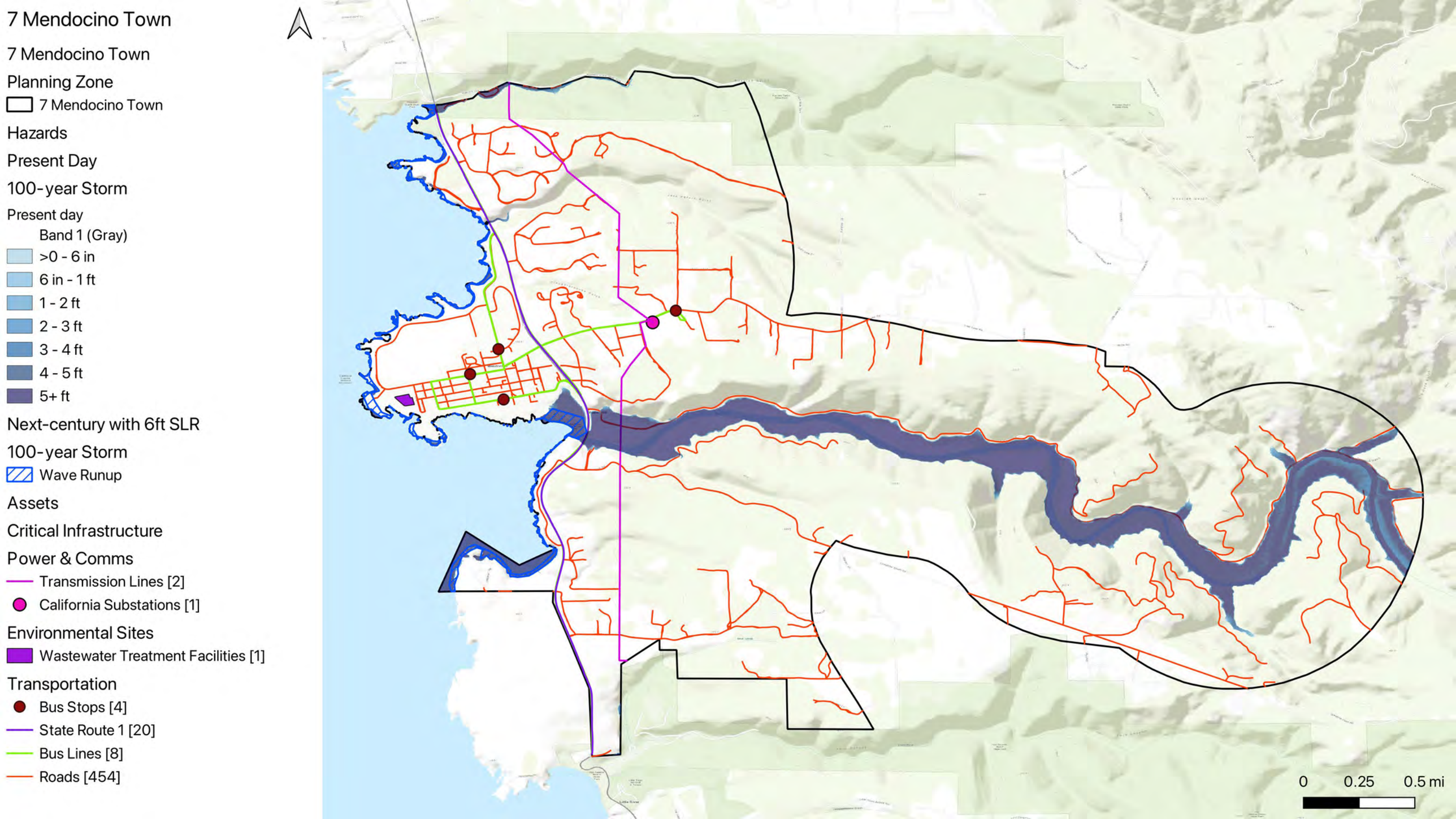
0
0.25
0.5 mi

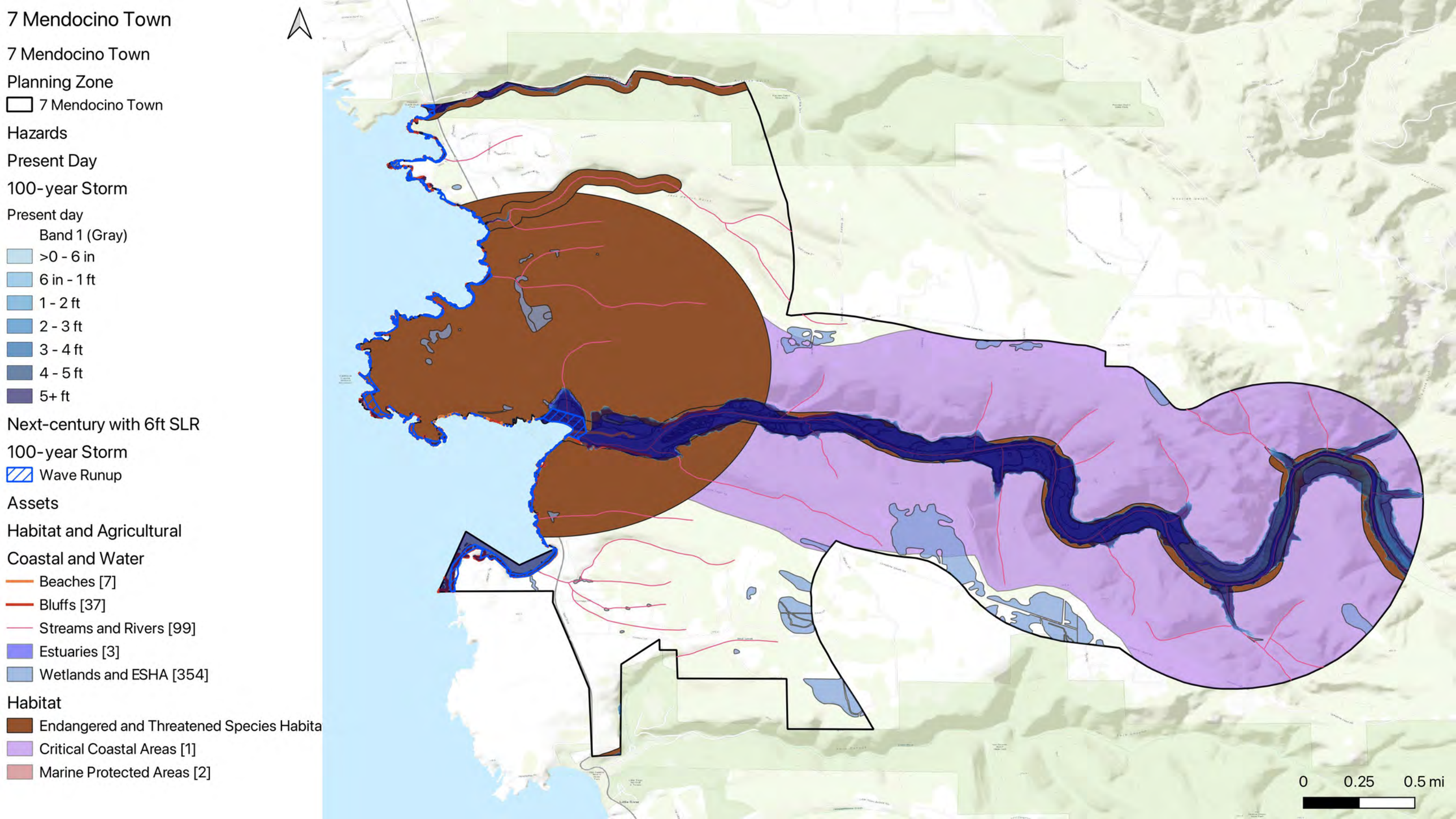
Table 7. Mendocino Town

Sub-Category	Asset Type	Units	WaveP	StormP	TidalP	TotalsP	Storm 1ft	Tidal 1ft	BluffE 1ft	CoastE1ft	Totals 1ft	Storm 3ft	Tidal 3ft	BluffE 3ft	CoastE3ft	Totals 3ft	Storm 6ft	Tidal 6ft	BluffE 6ft	CoastE6ft	Totals 6ft
Power & Comms	Transmission Lines	Length (mi)	0	0.2	0.2	0.2	0.2	0.2	0	0	0.2	0.2	0.2	0	0	0.2	0.2	0.2	0	0	0.2
Transportation	State Route 1	Length (mi)	0	0.1	0.1	0.1	0.1	0.1	0.1	0	0.3	0.2	0.1	0.2	0.4	0.7	0.2	0.2	0.4	0.8	1.4
Transportation	Bus Lines	Length (mi)	0	1	0.9	1	1	0.9	2.3	0	3.2	1.1	1	3.4	2.2	6.5	1.2	1.1	4.4	5.1	10.5
Transportation	Roads	Length (mi)	0	3.6	1.1	3.6	4.3	1.7	0.9	0.4	5.4	4.9	2.9	1.3	1.1	7.1	5.6	4.7	1.7	2.7	9.5
Recreation	California Coastal Trail	Length (mi)	0.4	0.2	0.2	0.4	0.3	0.2	0.4	1.5	2	0.3	0.2	0.7	2.2	2.6	0.5	0.3	0.9	2.6	3
Recreation	Recreational Routes	Length (mi)	0.2	3.4	1	3.5	3.9	1.6	0.7	1.7	6.1	4.6	2.8	1	2.5	7.5	5.4	4.4	1.3	3	8.6
Parks & Govt Lands	State Parks & Lands	Area (sqmi)	0	0.7	0.6	0.7	0.8	0.7	0	0	0.8	0.8	0.7	0	0.1	0.9	0.9	0.8	0	0.1	1
Coastal and Water	Beaches	Length (mi)	0.3	0.7	0.6	0.7	0.7	0.6	0	0.3	0.7	0.7	0.6	0	0.3	0.7	0.7	0.7	0	0.3	0.7
Coastal and Water	Bluffs	Length (mi)	2.1	3.7	3.3	3.9	3.8	3.4	0.1	0.9	4	3.9	3.6	0.2	0.8	4.1	4.1	3.9	0.2	0.9	4.2
Coastal and Water	Streams and Rivers	Length (mi)	0.2	8.5	7.8	8.5	8.6	8.1	0	0	8.6	8.7	8.4	0.1	0.1	8.8	9.1	8.6	0.1	0.2	9.3
Coastal and Water	Estuaries	Area (sqmi)	0	0.5	0.5	0.5	0.5	0.5	0	0	0.5	0.5	0.5	0	0	0.5	0.5	0.5	0	0	0.5
Coastal and Water	Wetlands and ESHA	Area (sqmi)	0	0.6	0.6	0.6	0.6	0.6	0	0	0.6	0.6	0.6	0	0	0.6	0.6	0.6	0	0	0.6
Habitat	Endangered and Threatened Species Habitats	Area (sqmi)	0.1	0.8	0.8	0.8	0.8	0.8	0	0.1	0.9	0.9	0.8	0.1	0.1	1	0.9	0.9	0.1	0.2	1.1
Habitat	Critical Coastal Areas	Area (sqmi)	0	0.8	0.7	0.8	0.8	0.7	0	0	0.8	0.9	0.8	0	0	0.9	0.9	0.8	0	0	0.9
Habitat	Marine Protected Areas	Number of individually designated MPAs	1	2	2	2	2	2	1	0	2	2	2	1	0	2	2	2	1	1	2
Built Environment	Residential Buildings	Number of buildings	0	0	0	0	0	0	13	4	15	0	0	25	9	31	0	0	36	15	48
Built Environment	Commercial Buildings	Number of buildings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Coastal Armoring	Coastal Armoring	Length (ft)	0	0	0	0	0	0	57	95	95	0	0	66	95	95	0	0	66	95	95


7 Mendocino Town
7 Mendocino Town
Planning Zone
7 Mendocino Town
Hazards
Present Day
100-year Storm
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Built Environment
Built Environment
Residential Buildings [1103]
Commercial Buildings [129]
Public Facilities [5]
Coastal Armoring
Coastal Armoring [1]
0
0.25
0.5 mi

7 Mendocino Town




7 Mendocino Town
7 Mendocino Town
Planning Zone
7 Mendocino Town
Hazards
Present Day
100-year Storm
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
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3 - 4 ft
4 - 5 ft
5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Habitat and Agricultural
Coastal and Water
Beaches [7]
Bluffs [37]
Streams and Rivers [99]
Estuaries [3]
Wetlands and ESHA [354]
Habitat
Endangered and Threatened Species Habita
Critical Coastal Areas [1]
Marine Protected Areas [2]
0
0.25
0.5 mi

7 Mendocino Town

7 Mendocino Town

Planning Zone

7 Mendocino Town

Hazards

Present Day

100-year Storm

Present day

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Next-century with 6ft SLR

100-year Storm

Wave Runup

Assets

Public Access and Recreation

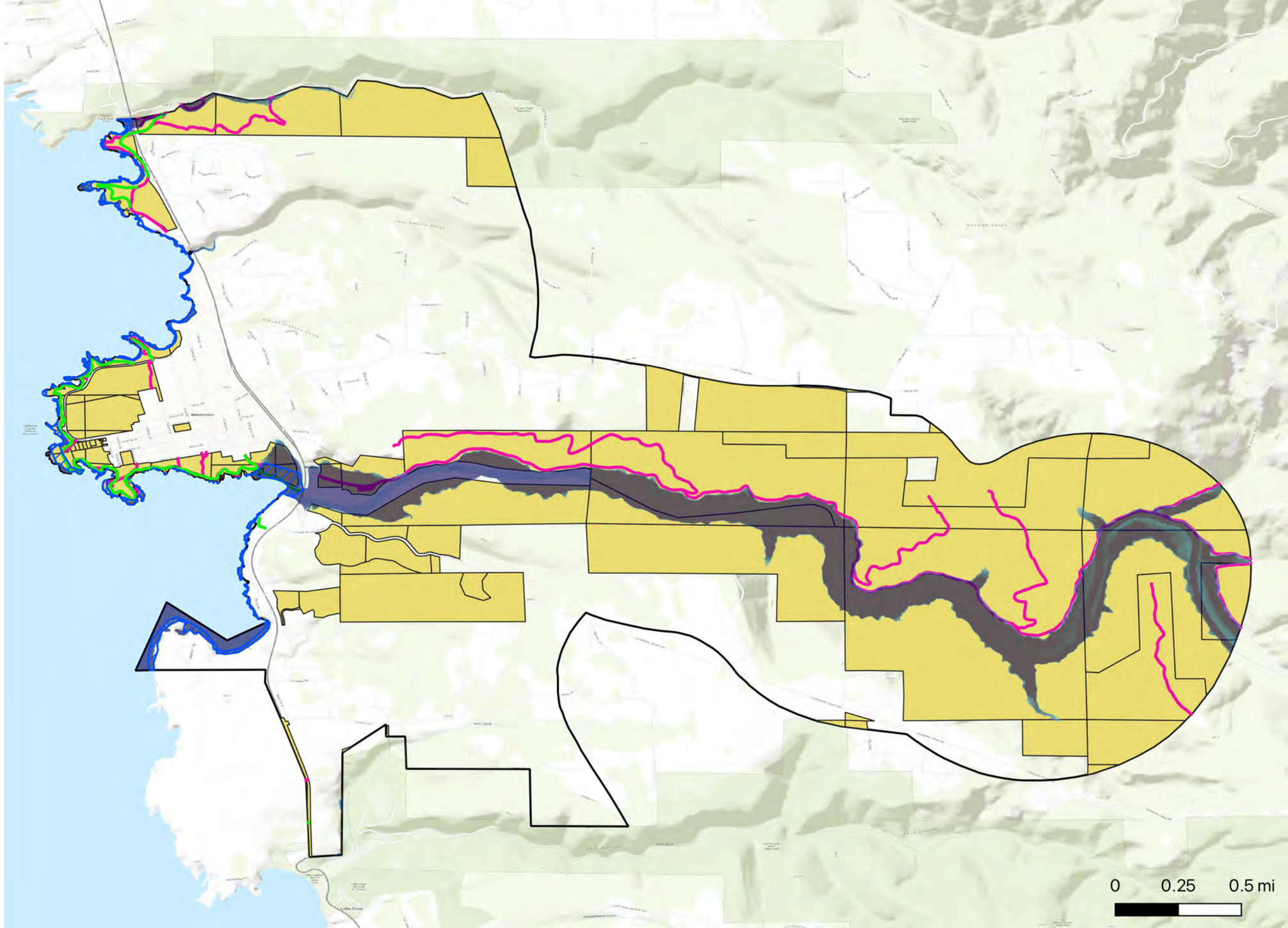
Recreation

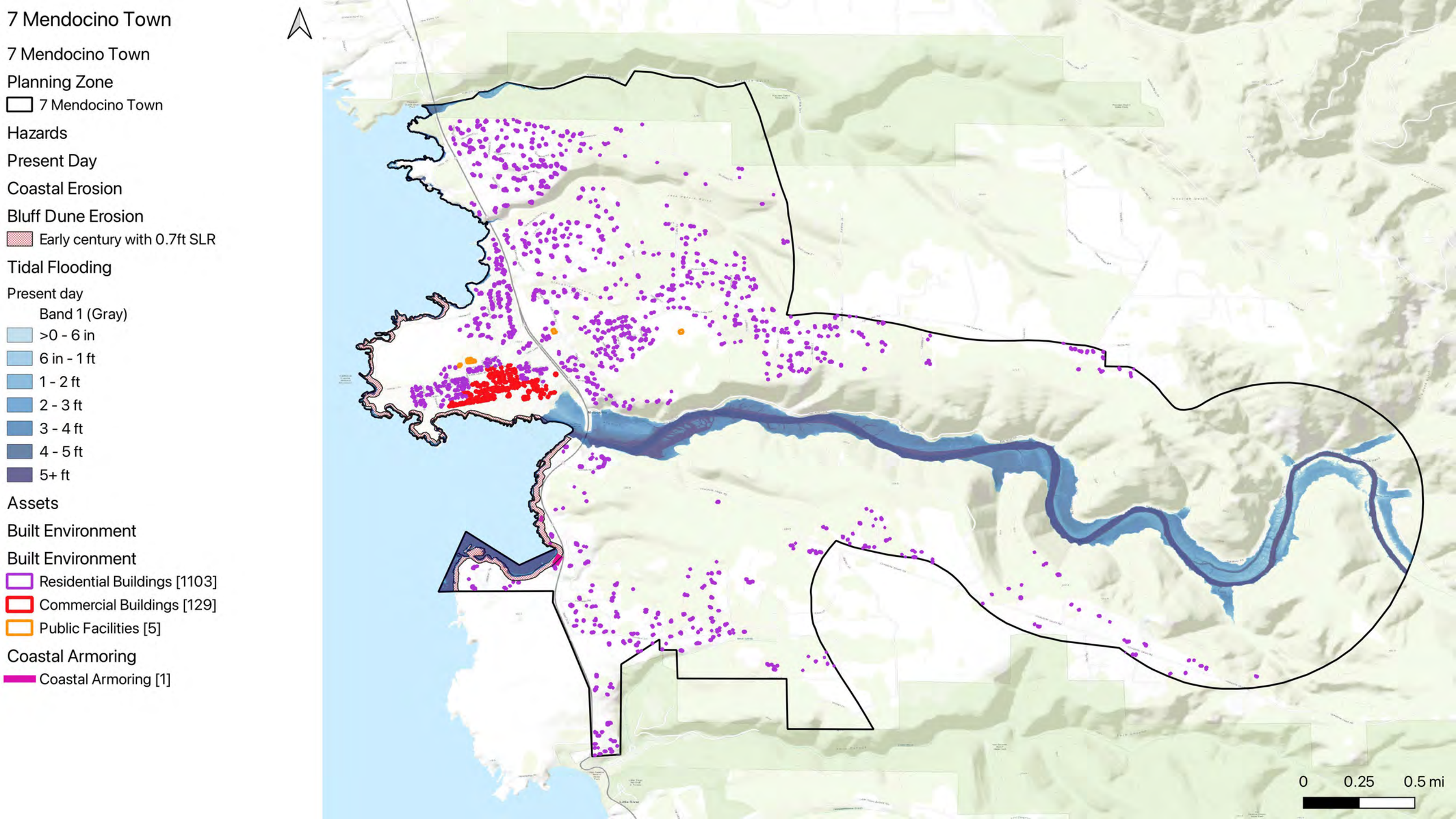
California Coastal Trail [11]

Recreational Routes [66]

Parks & Govt Lands

State Parks & Lands [95]




7 Mendocino Town
7 Mendocino Town
Planning Zone
7 Mendocino Town
Hazards
Present Day
Coastal Erosion
Bluff Dune Erosion
Early century with 0.7ft SLR
Tidal Flooding
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Built Environment
Built Environment
Residential Buildings [1103]
Commercial Buildings [129]
Public Facilities [5]
Coastal Armoring
Coastal Armoring [1]
0
0.25
0.5 mi

7 Mendocino Town

7 Mendocino Town

Planning Zone

- 7 Mendocino Town

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Critical Infrastructure

Power & Comms

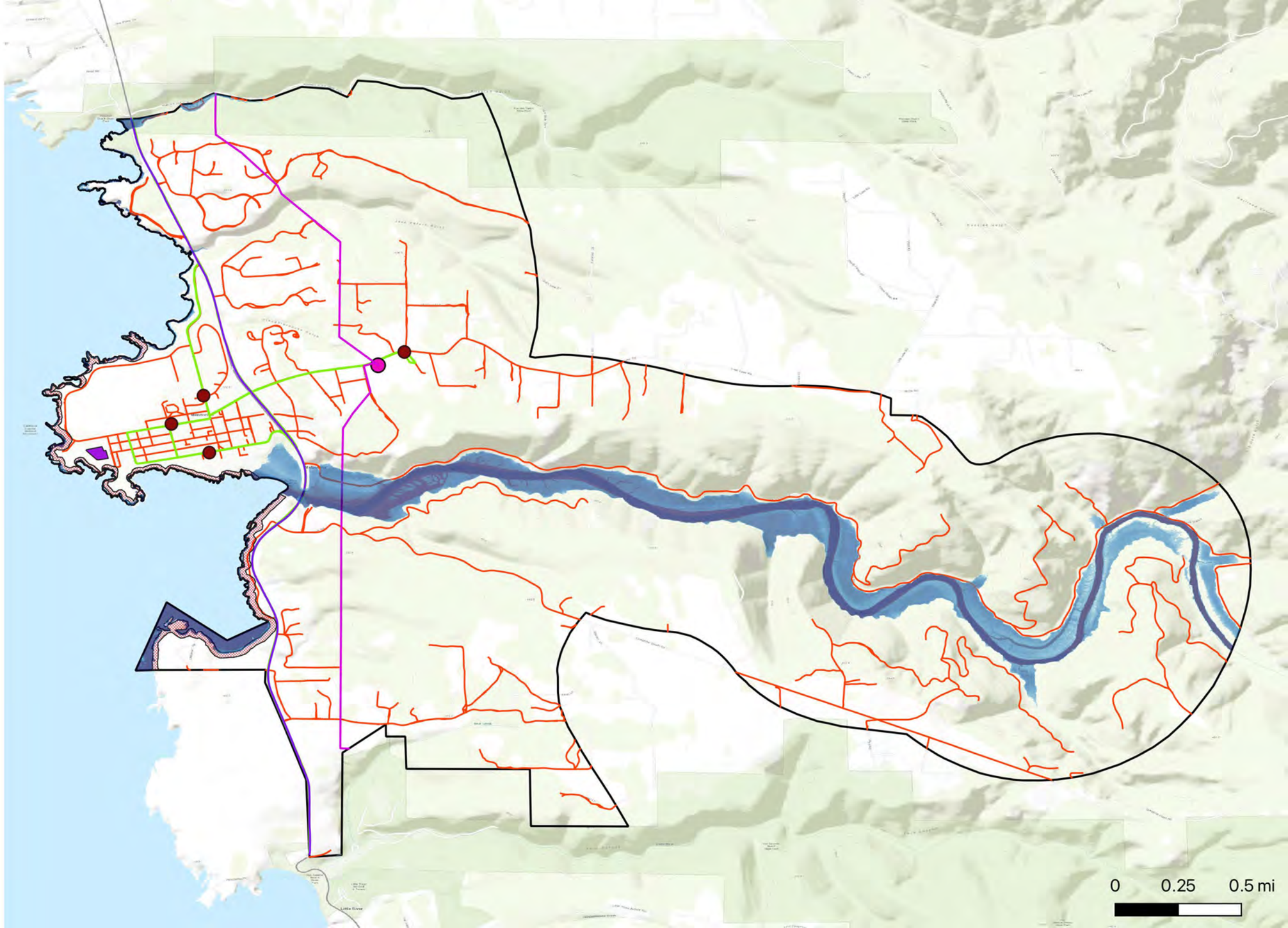
- Transmission Lines [2]
- California Substations [1]

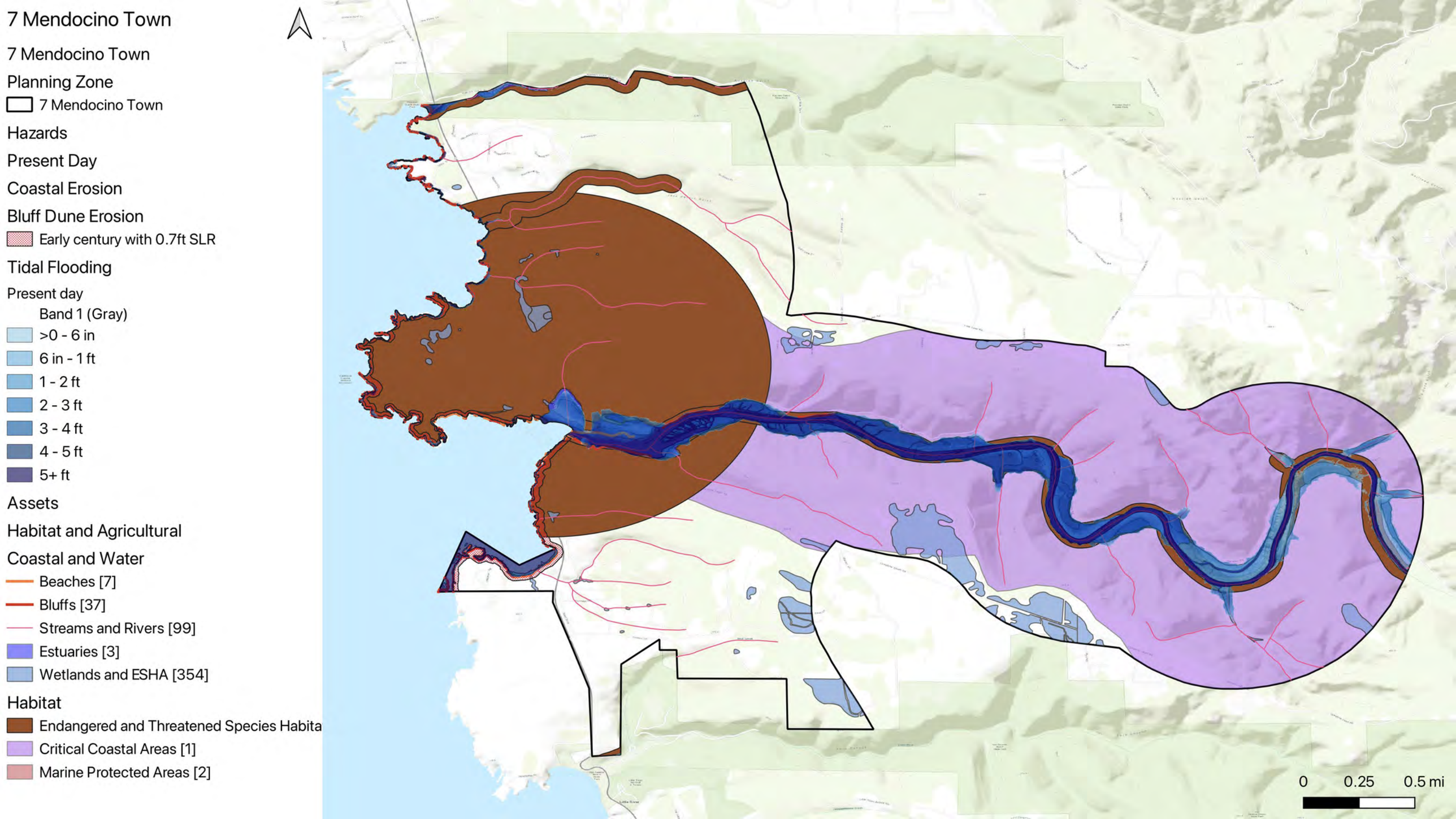
Environmental Sites

- Wastewater Treatment Facilities [1]

Transportation

- Bus Stops [4]
- State Route 1 [20]
- Bus Lines [8]
- Roads [454]

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Planning Zone
7 Mendocino Town
Hazards
Present Day
Coastal Erosion
Bluff Dune Erosion
Early century with 0.7ft SLR
Tidal Flooding
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
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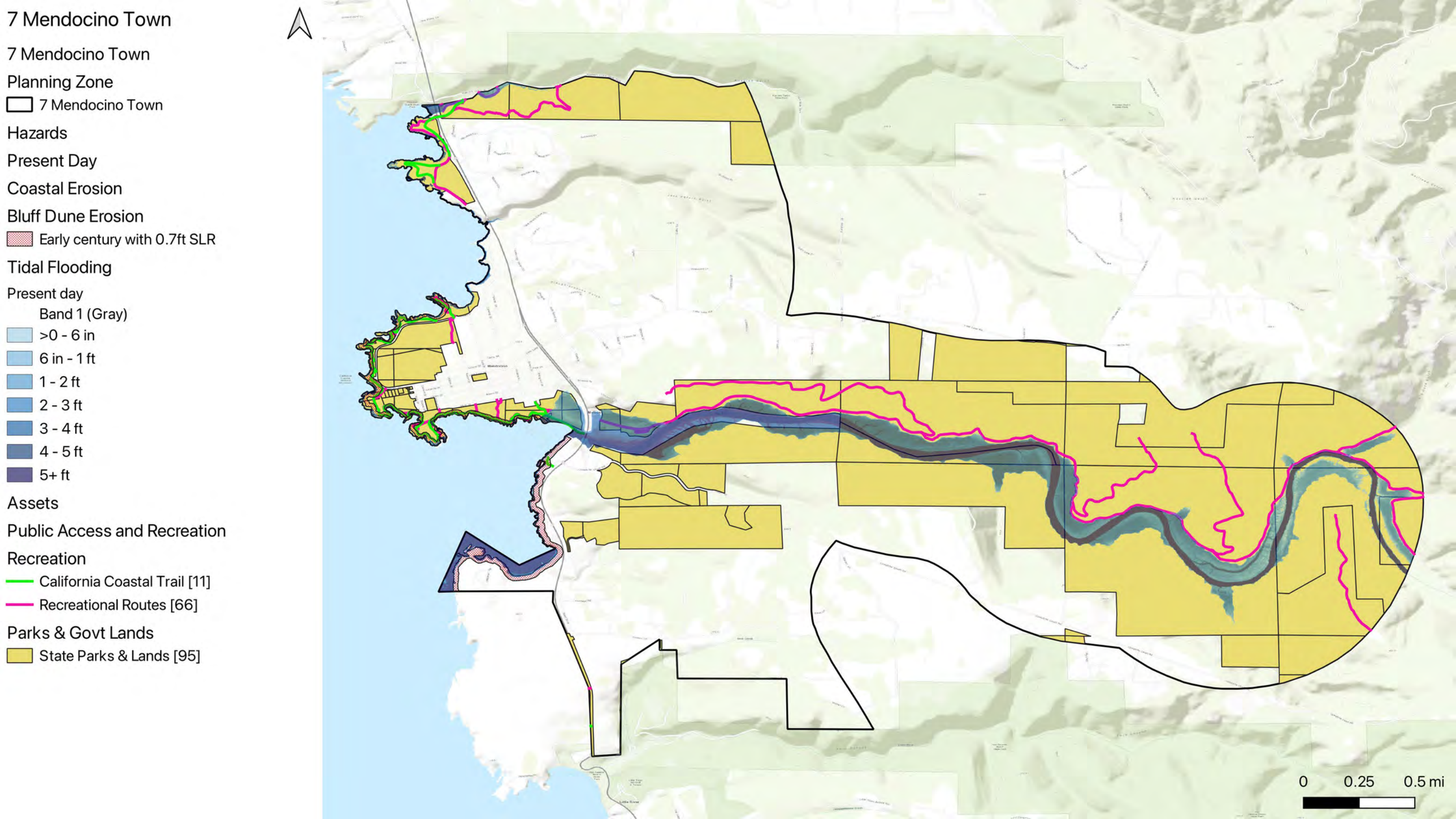
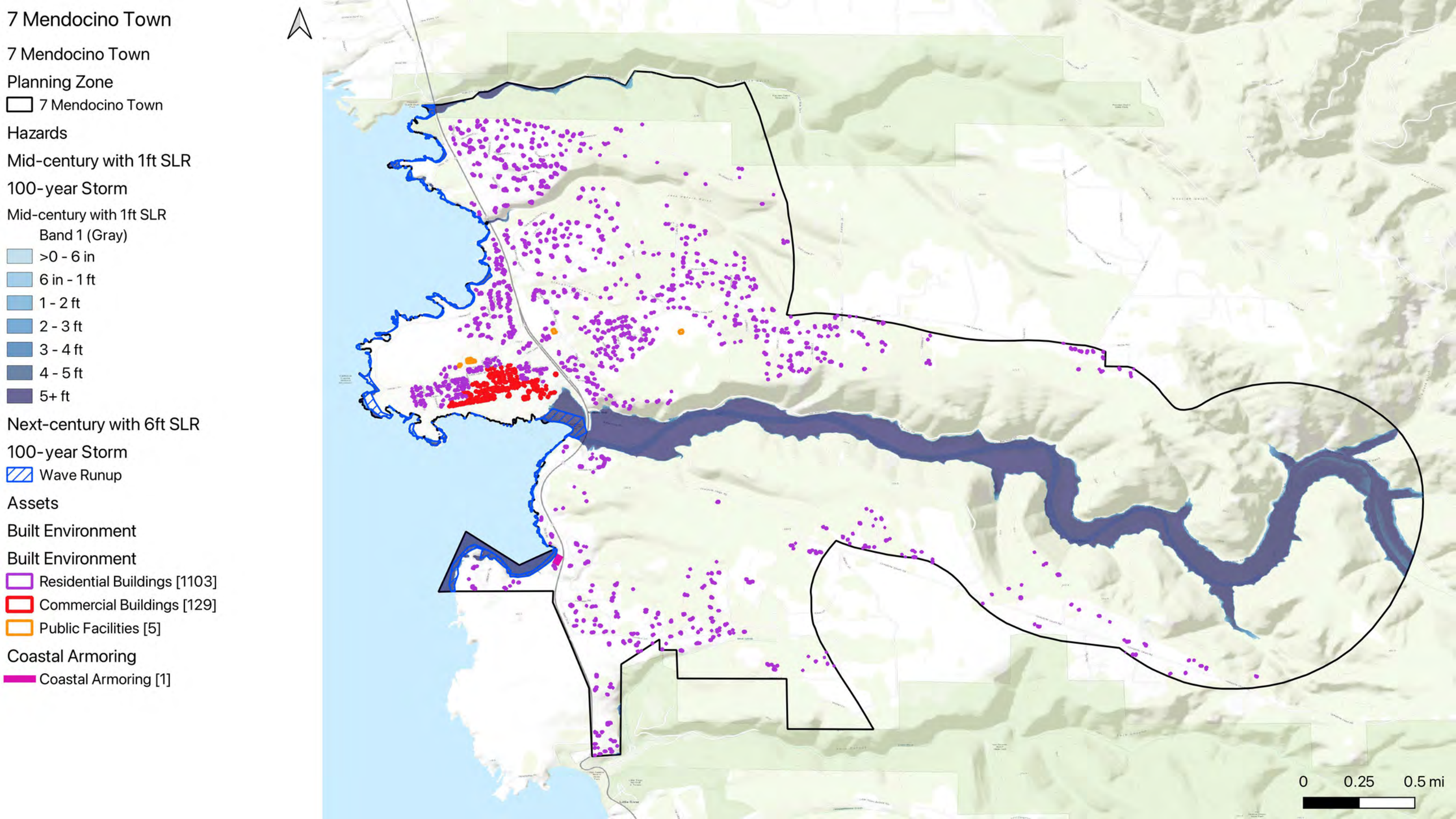
5+ ft
Assets
Habitat and Agricultural
Coastal and Water
Beaches [7]
Bluffs [37]
Streams and Rivers [99]
Estuaries [3]
Wetlands and ESHA [354]
Habitat
Endangered and Threatened Species Habita
Critical Coastal Areas [1]
Marine Protected Areas [2]
0
0.25
0.5 mi

7 Mendocino Town




7 Mendocino Town
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Planning Zone
7 Mendocino Town
Hazards
Mid-century with 1ft SLR
100-year Storm
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Built Environment
Built Environment
Residential Buildings [1103]
Commercial Buildings [129]
Public Facilities [5]
Coastal Armoring
Coastal Armoring [1]
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0.25
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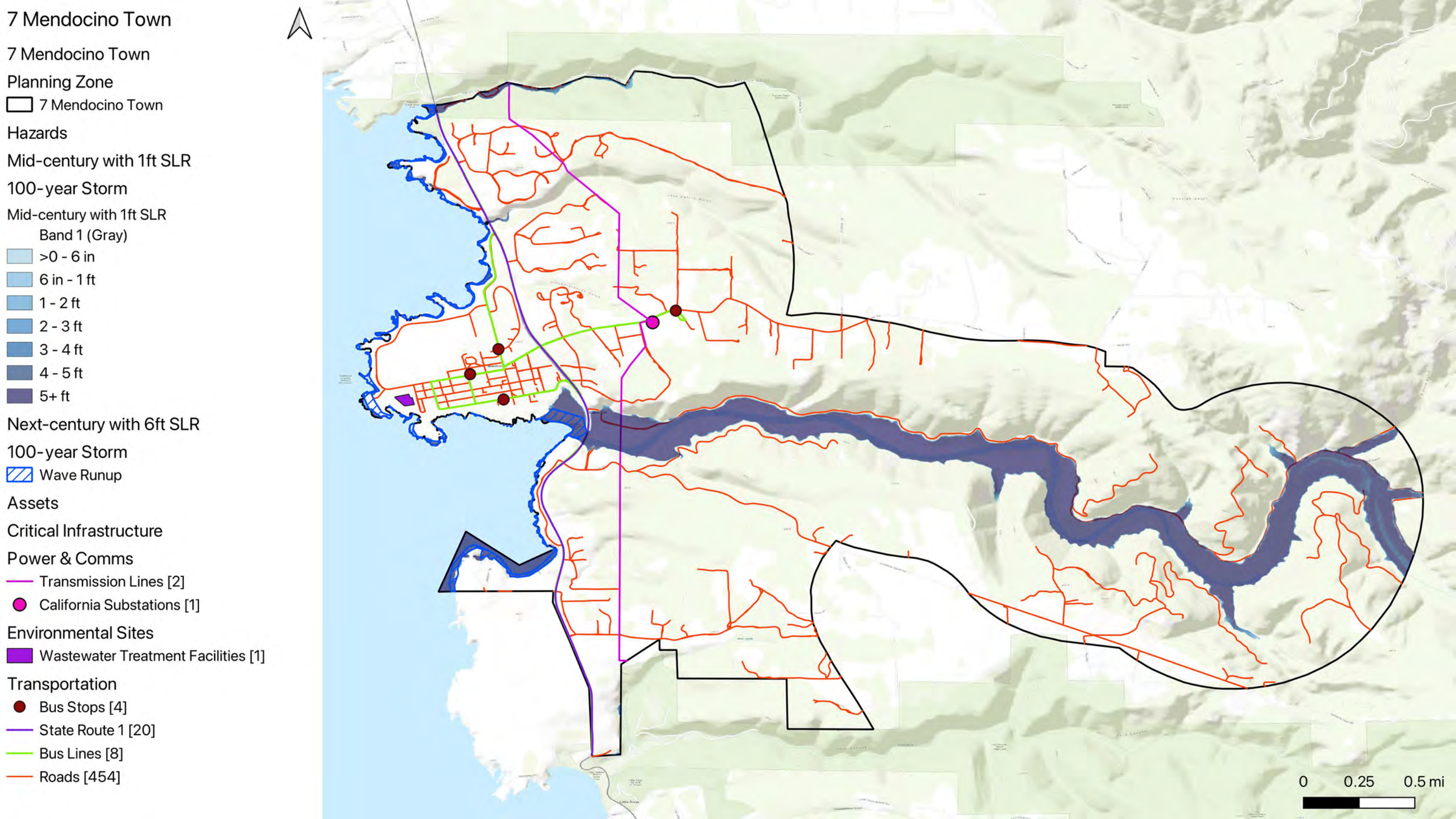
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Planning Zone
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Hazards
Mid-century with 1ft SLR
100-year Storm
Mid-century with 1ft SLR
Band 1 (Gray)
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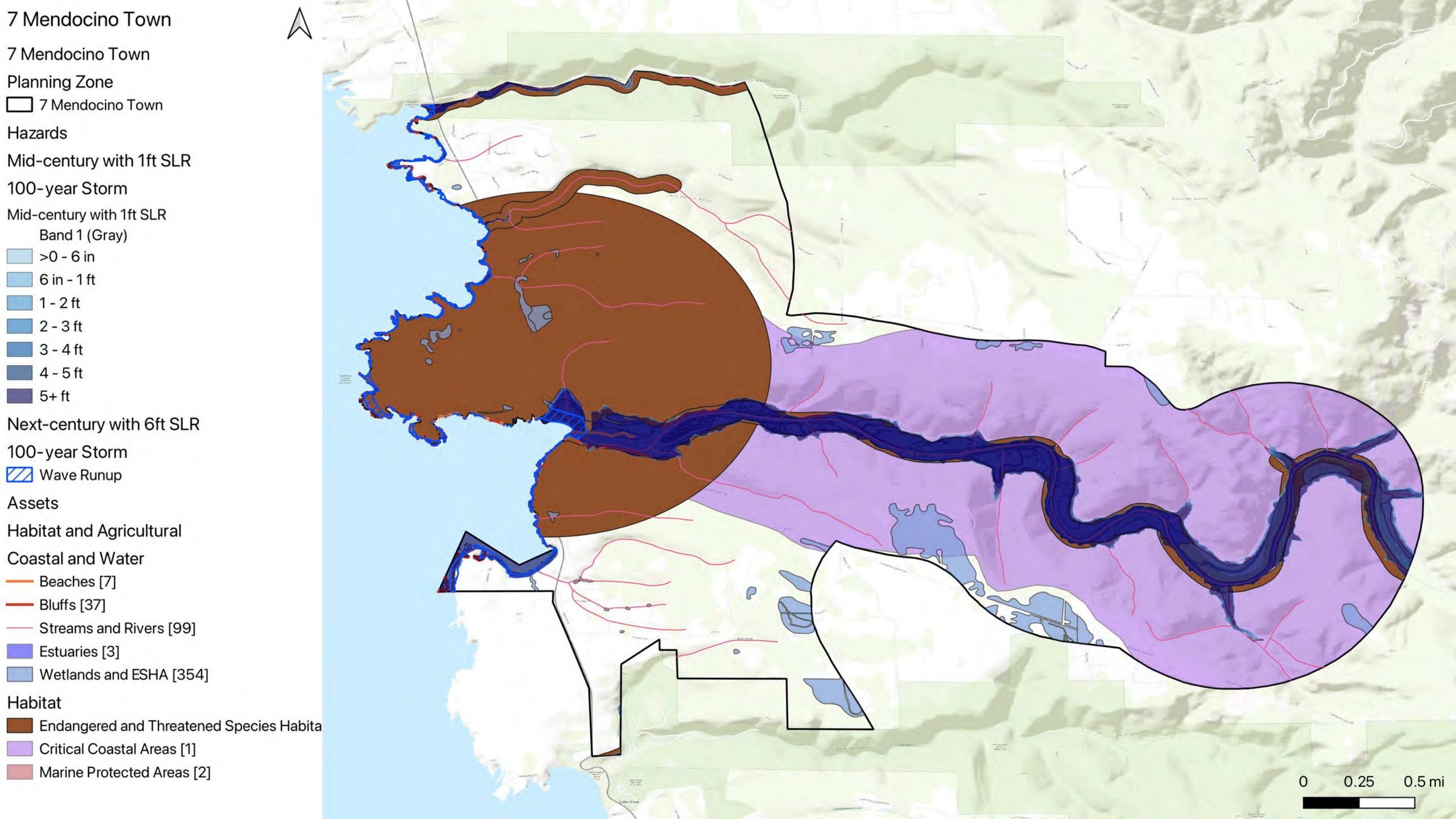
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Critical Infrastructure
Power & Comms
Transmission Lines [2]
California Substations [1]
Environmental Sites
Wastewater Treatment Facilities [1]
Transportation
Bus Stops [4]
State Route 1 [20]
Bus Lines [8]
Roads [454]
0
0.25
0.5 mi


7 Mendocino Town
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Planning Zone
7 Mendocino Town
Hazards
Mid-century with 1ft SLR
100-year Storm
Mid-century with 1ft SLR
Band 1 (Gray)
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5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Habitat and Agricultural
Coastal and Water
Beaches [7]
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Estuaries [3]
Wetlands and ESHA [354]
Habitat
Endangered and Threatened Species Habita
Critical Coastal Areas [1]
Marine Protected Areas [2]
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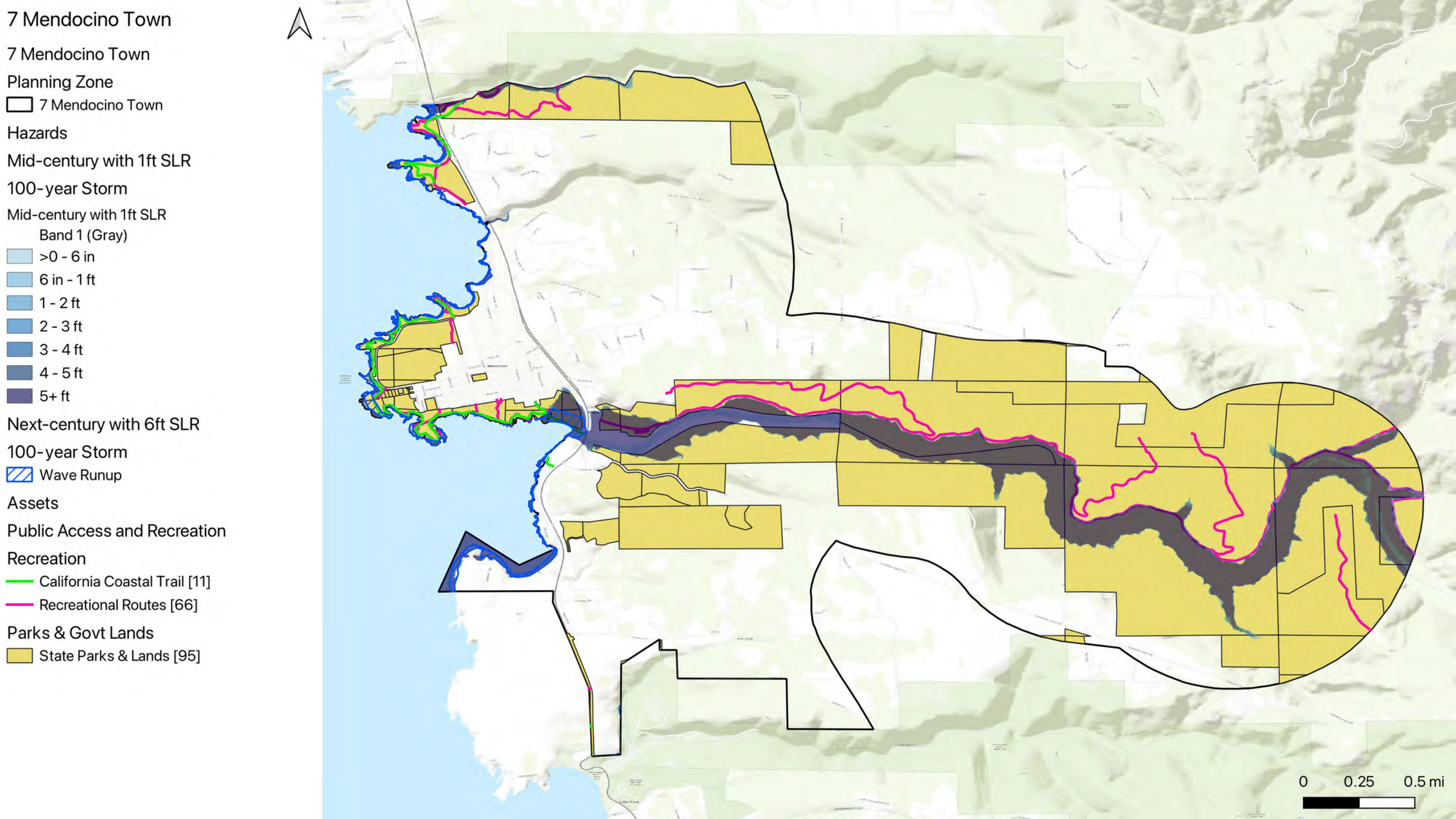
0.5 mi


7 Mendocino Town
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Planning Zone
7 Mendocino Town
Hazards
Mid-century with 1ft SLR
100-year Storm
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
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1 - 2 ft
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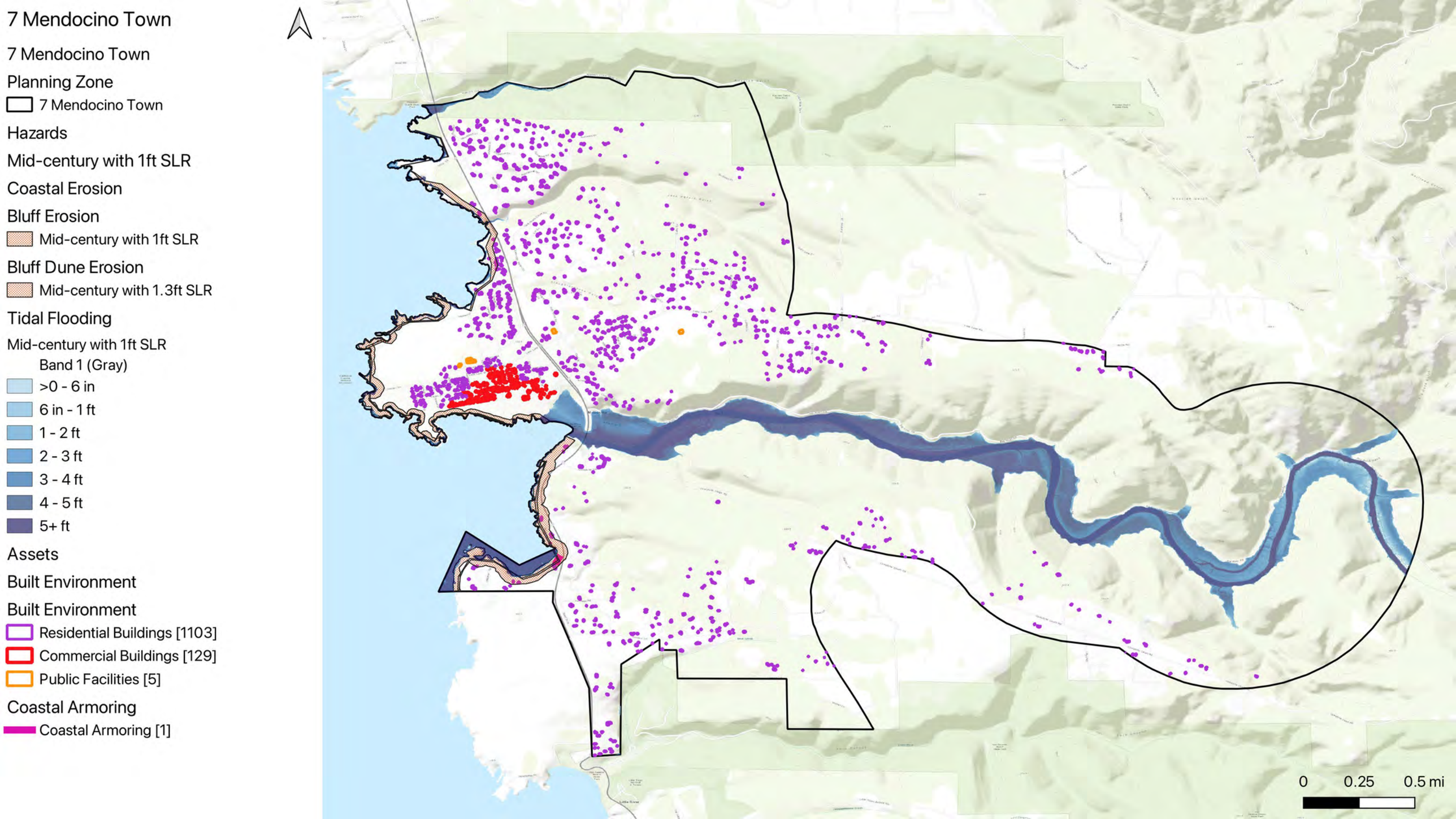
5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Public Access and Recreation
Recreation
California Coastal Trail [11]
Recreational Routes [66]
Parks & Govt Lands
State Parks & Lands [95]
0
0.25
0.5 mi


7 Mendocino Town
7 Mendocino Town
Planning Zone
7 Mendocino Town
Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Built Environment
Built Environment
Residential Buildings [1103]
Commercial Buildings [129]
Public Facilities [5]
Coastal Armoring
Coastal Armoring [1]
0
0.25
0.5 mi

7 Mendocino Town

7 Mendocino Town

Planning Zone

- 7 Mendocino Town

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Critical Infrastructure

Power & Comms

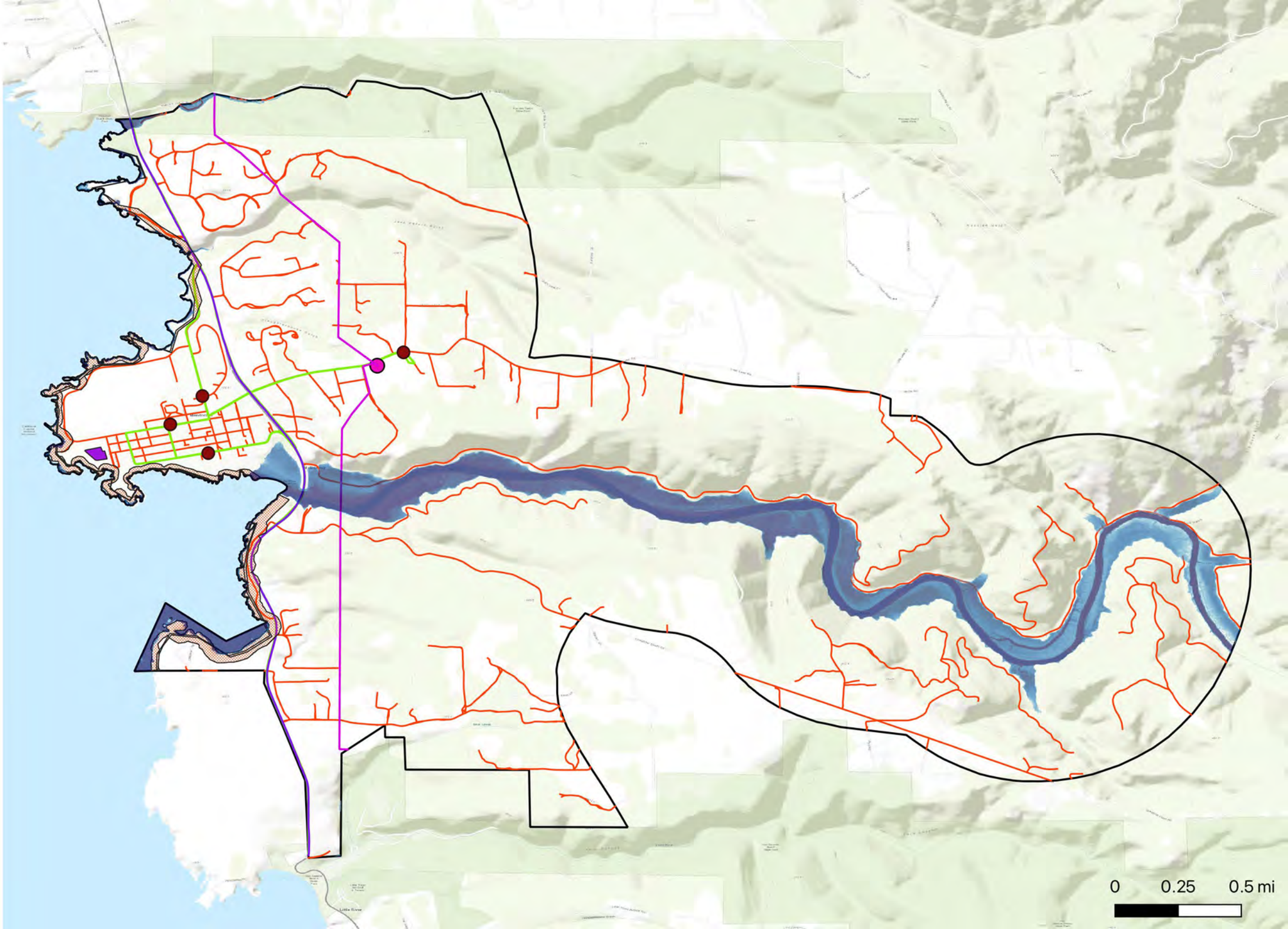
- Transmission Lines [2]
- California Substations [1]

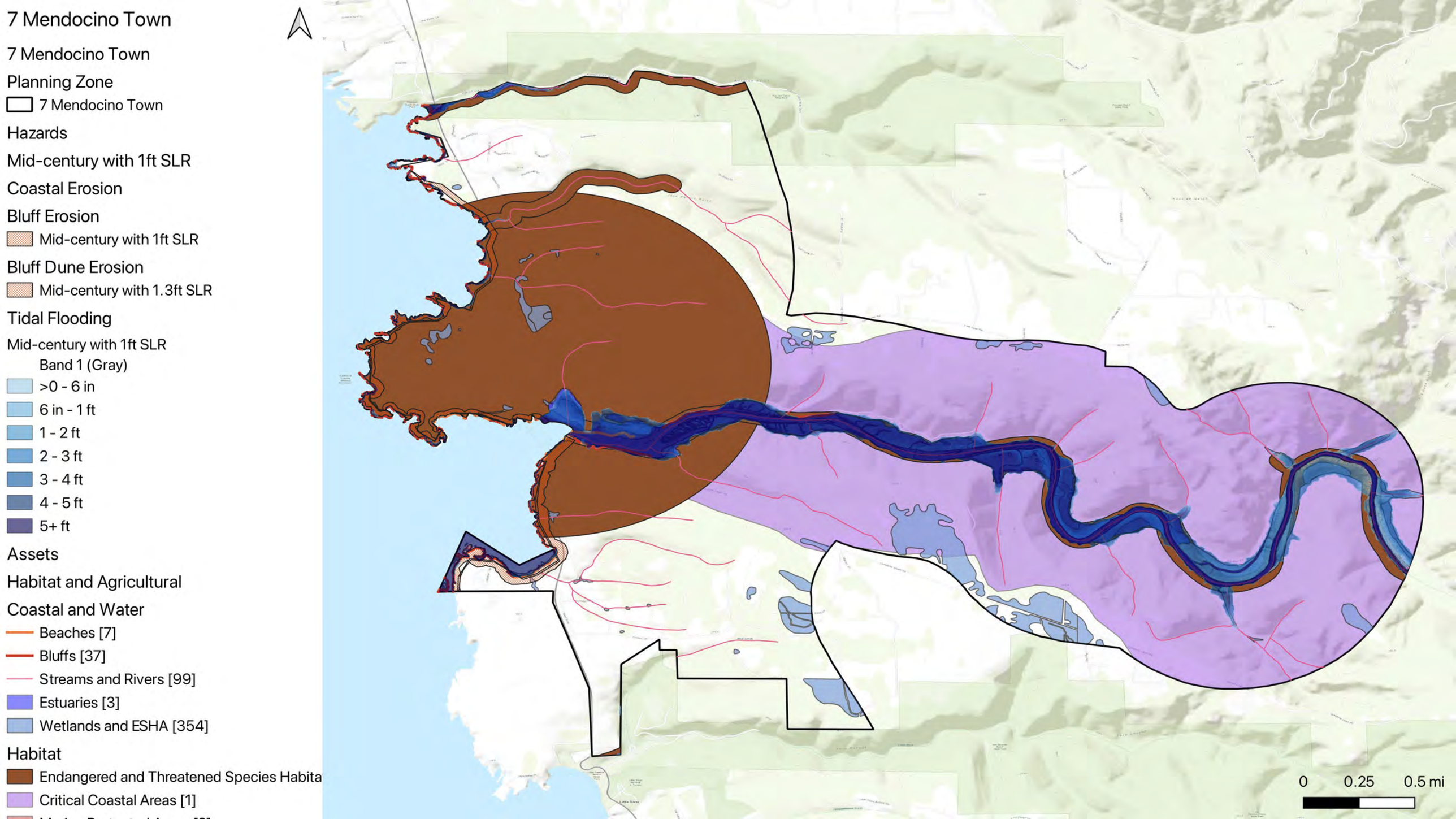
Environmental Sites

- Wastewater Treatment Facilities [1]

Transportation

- Bus Stops [4]
- State Route 1 [20]
- Bus Lines [8]




7 Mendocino Town
7 Mendocino Town
Planning Zone
7 Mendocino Town
Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
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4 - 5 ft
5+ ft
Assets
Habitat and Agricultural
Coastal and Water
Beaches [7]
Bluffs [37]
Streams and Rivers [99]
Estuaries [3]
Wetlands and ESHA [354]
Habitat
Endangered and Threatened Species Habita
Critical Coastal Areas [1]
0
0.25
0.5 mi

7 Mendocino Town

7 Mendocino Town

Planning Zone

- 7 Mendocino Town

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

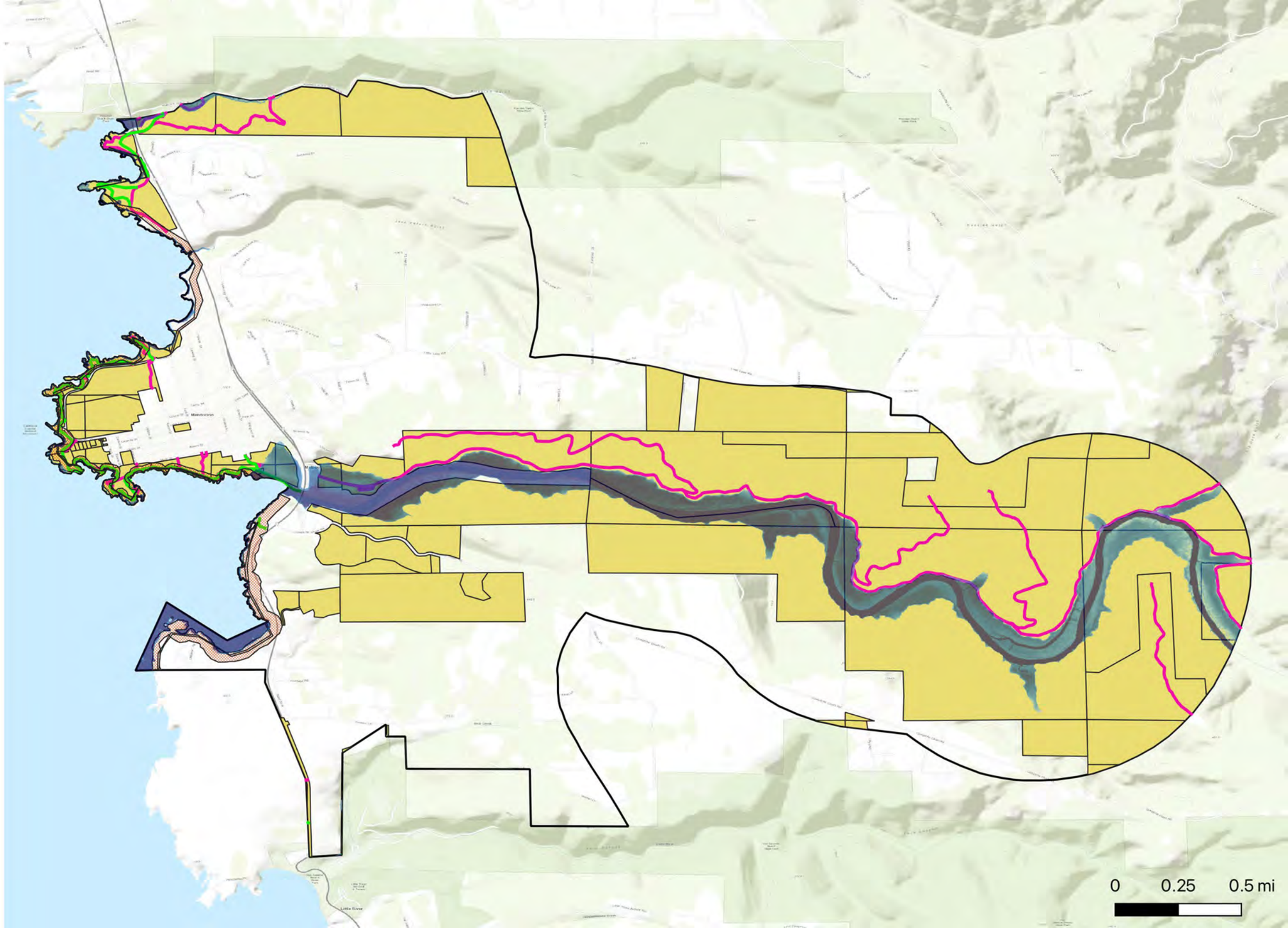
Public Access and Recreation

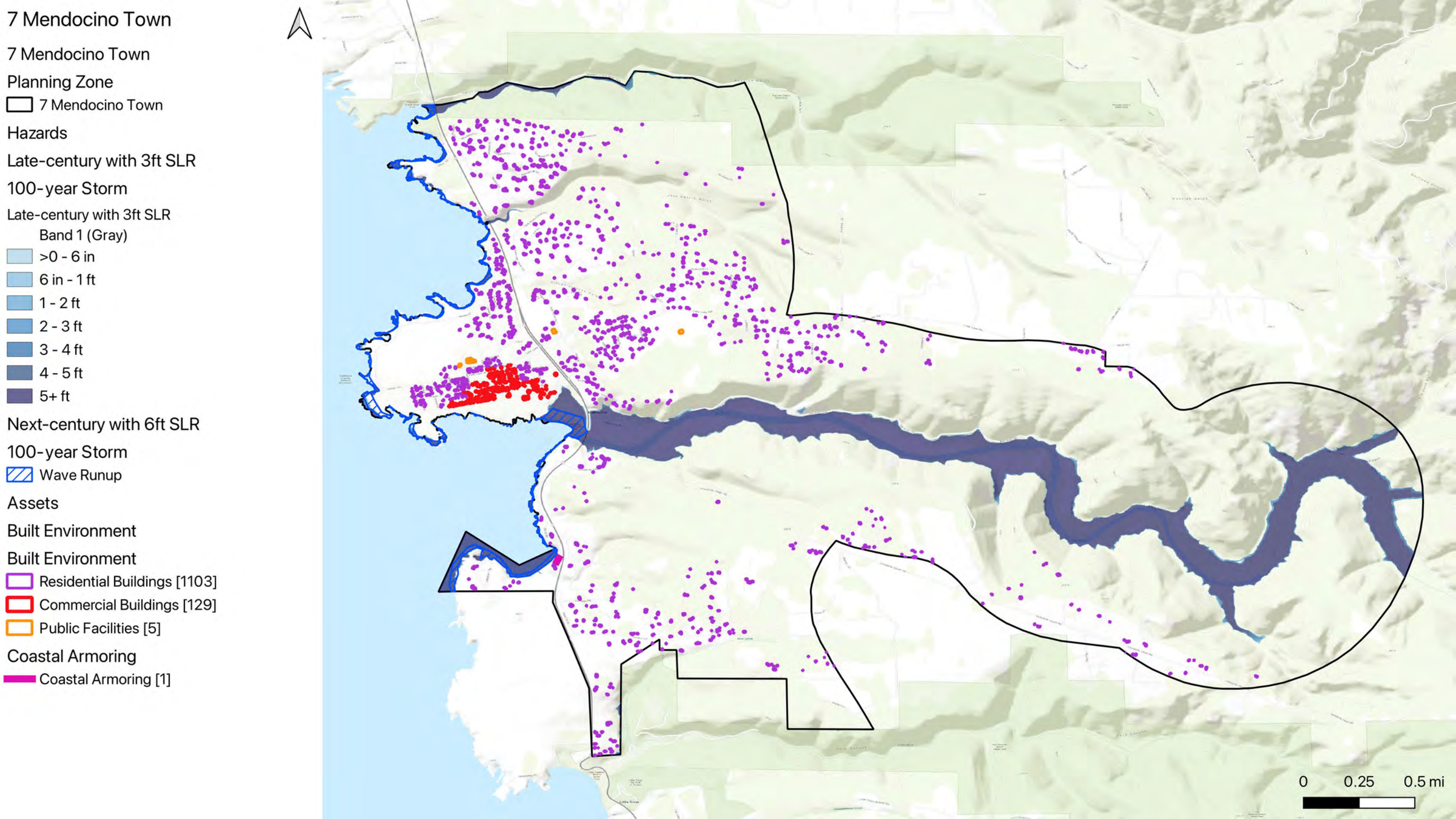
Recreation

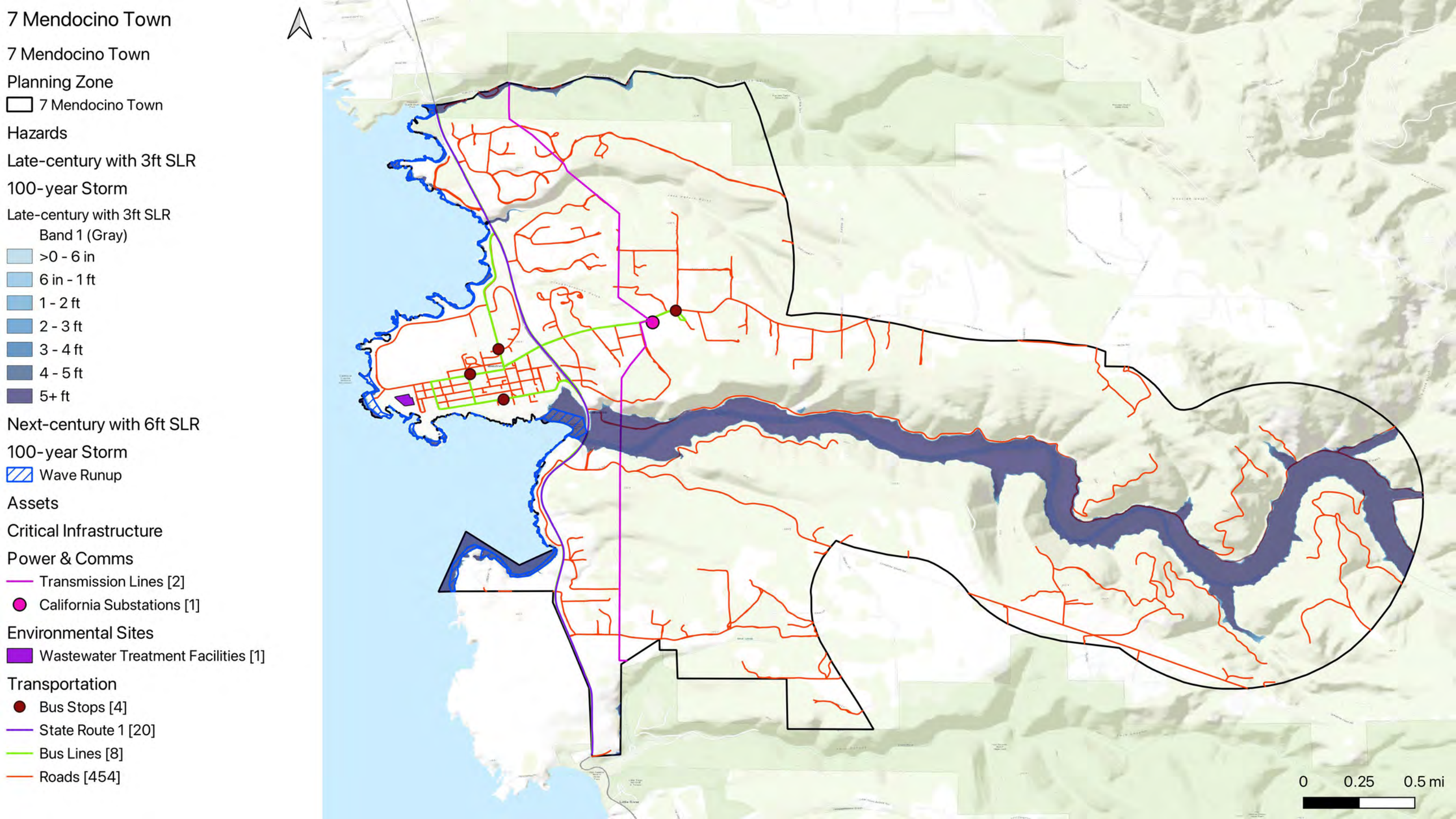
- California Coastal Trail [11]
- Recreational Routes [66]

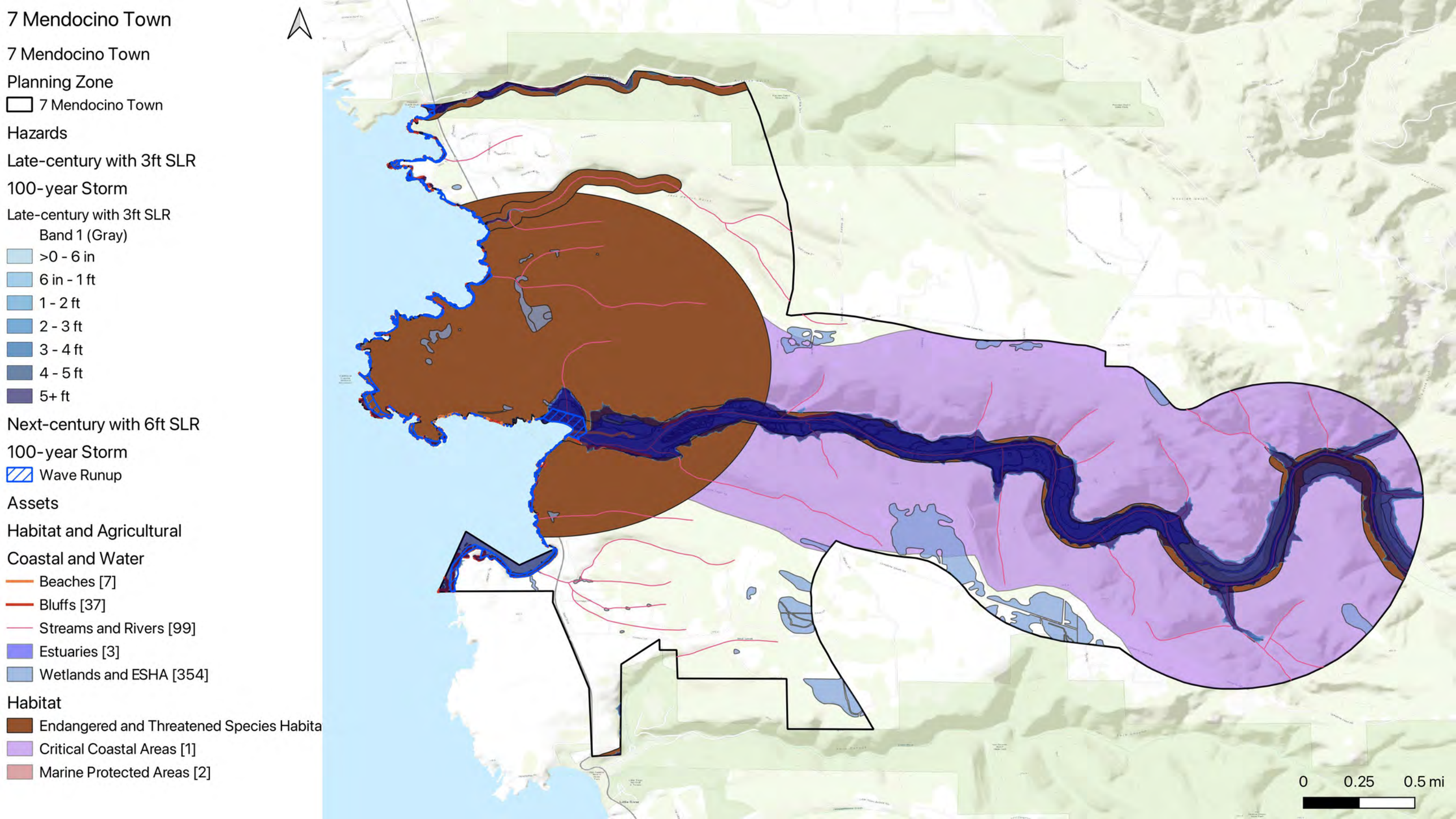
Parks & Govt Lands

- State Parks & Lands [95]




7 Mendocino Town
7 Mendocino Town
Planning Zone
7 Mendocino Town
Hazards
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Built Environment
Built Environment
Residential Buildings [1103]
Commercial Buildings [129]
Public Facilities [5]
Coastal Armoring
Coastal Armoring [1]
0
0.25
0.5 mi


7 Mendocino Town
7 Mendocino Town
Planning Zone
7 Mendocino Town
Hazards
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Critical Infrastructure
Power & Comms
Transmission Lines [2]
California Substations [1]
Environmental Sites
Wastewater Treatment Facilities [1]
Transportation
Bus Stops [4]
State Route 1 [20]
Bus Lines [8]
Roads [454]
0
0.25
0.5 mi


7 Mendocino Town
7 Mendocino Town
Planning Zone
7 Mendocino Town
Hazards
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
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Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Habitat and Agricultural
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Beaches [7]
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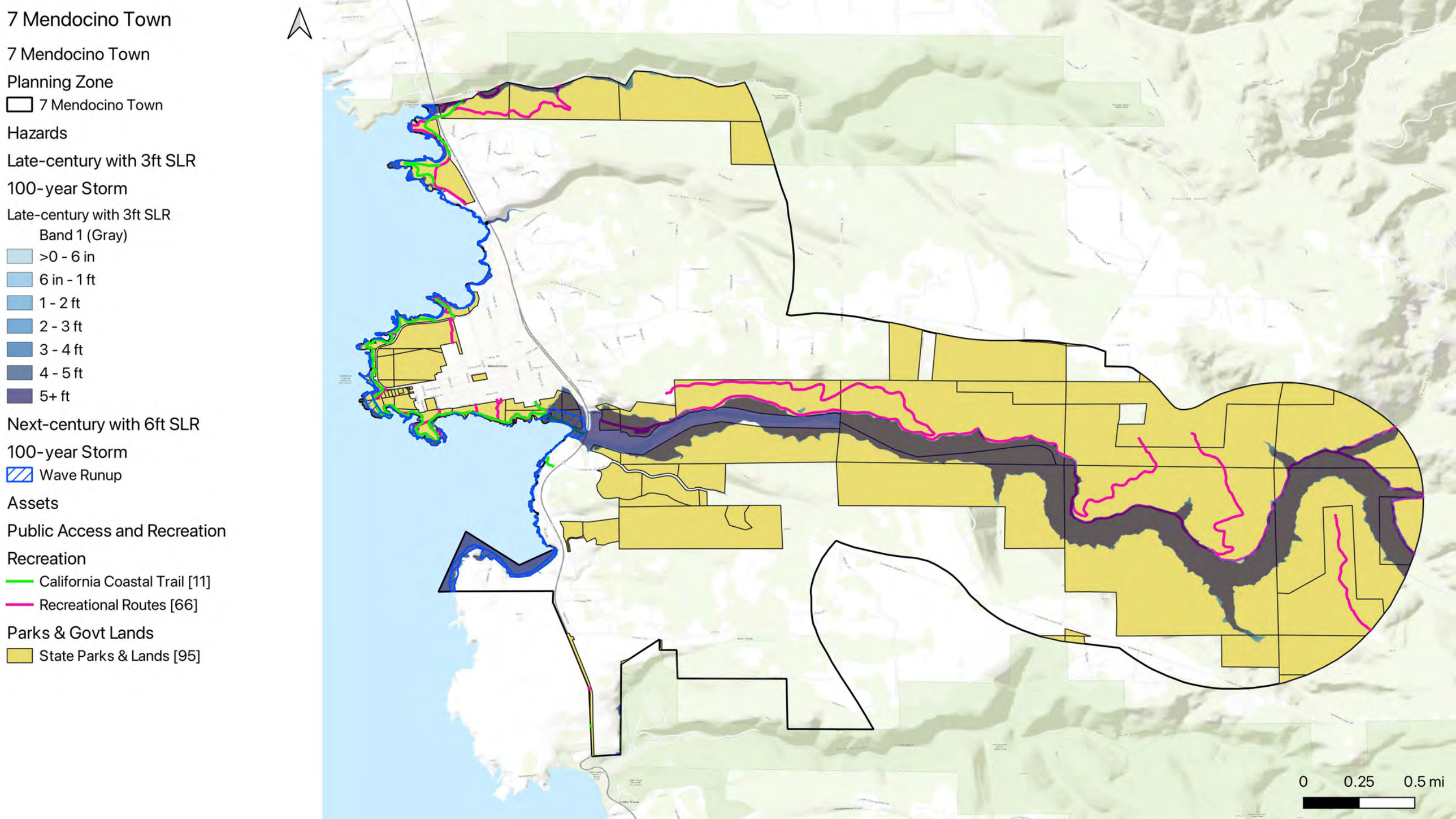
Habitat
Endangered and Threatened Species Habita
Critical Coastal Areas [1]
Marine Protected Areas [2]
0
0.25
0.5 mi


7 Mendocino Town
7 Mendocino Town
Planning Zone
7 Mendocino Town
Hazards
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
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6 in - 1 ft
1 - 2 ft
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5+ ft
Next-century with 6ft SLR
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Wave Runup
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Recreation
California Coastal Trail [11]
Recreational Routes [66]
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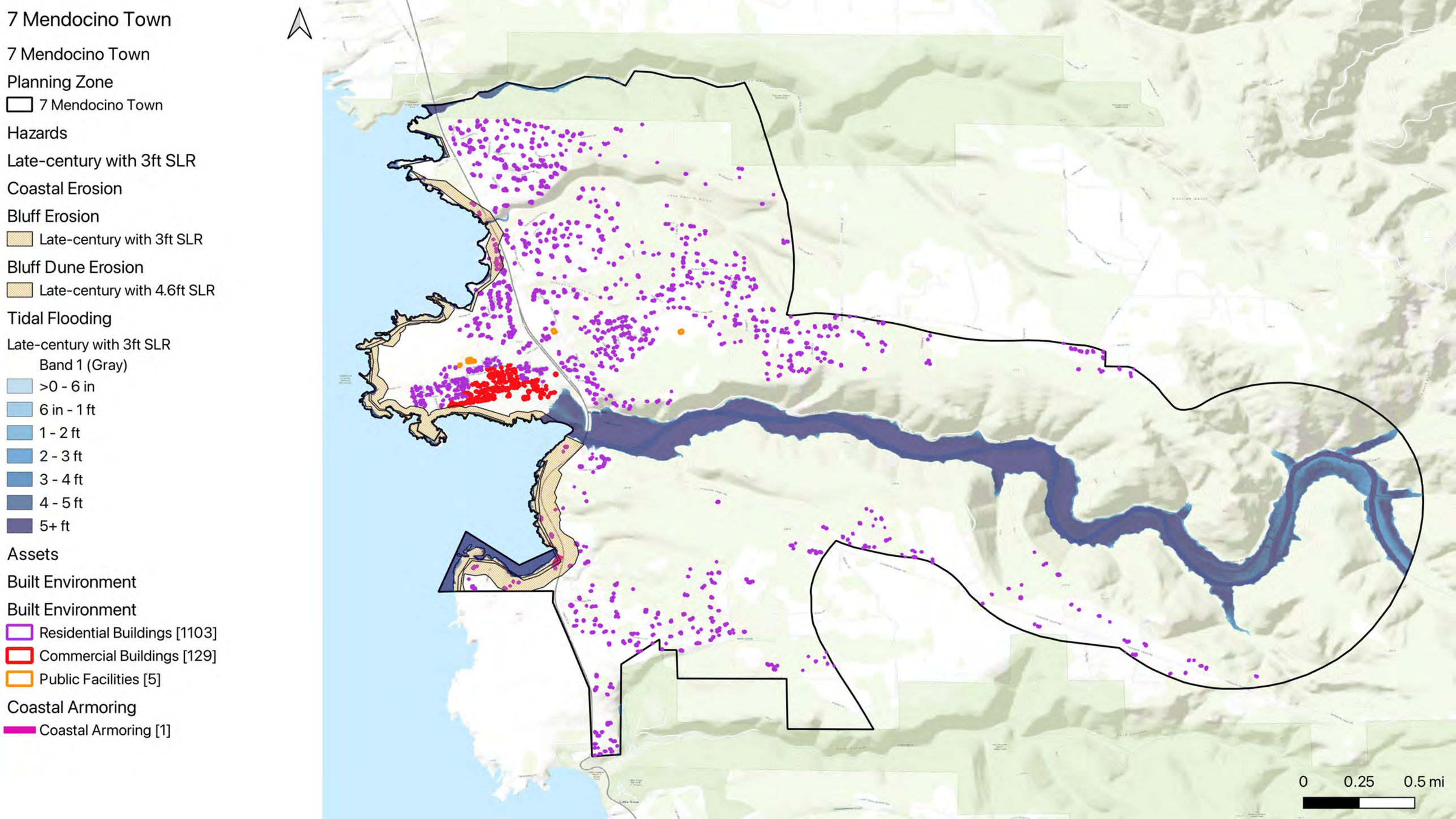
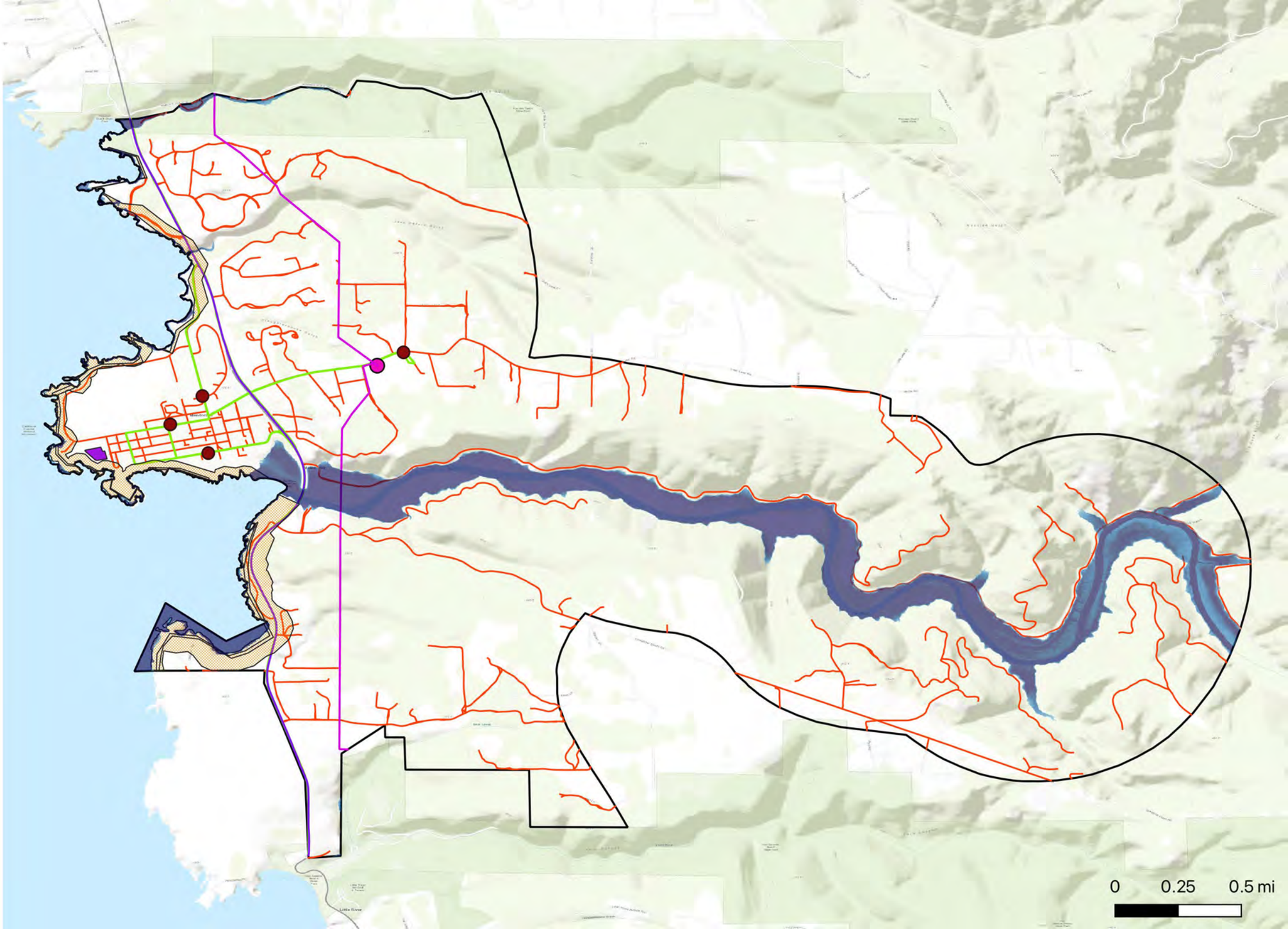
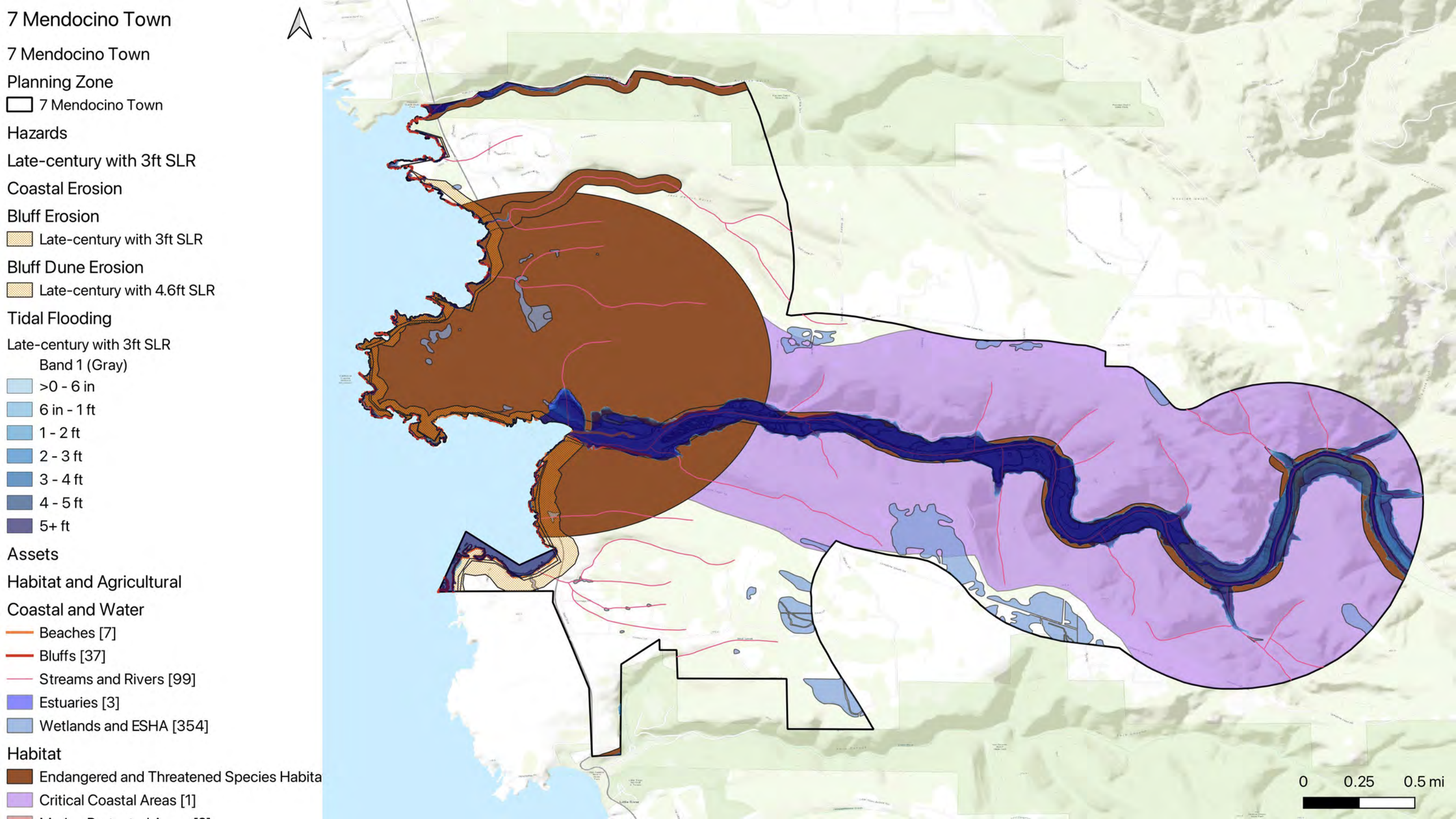
0
0.25
0.5 mi


7 Mendocino Town
7 Mendocino Town
Planning Zone
7 Mendocino Town
Hazards
Late-century with 3ft SLR
Coastal Erosion
Bluff Erosion
Late-century with 3ft SLR
Bluff Dune Erosion
Late-century with 4.6ft SLR
Tidal Flooding
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Built Environment
Built Environment
Residential Buildings [1103]
Commercial Buildings [129]
Public Facilities [5]
Coastal Armoring
Coastal Armoring [1]
0
0.25
0.5 mi

7 Mendocino Town

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Planning Zone
7 Mendocino Town
Hazards
Late-century with 3ft SLR
Coastal Erosion
Bluff Erosion
Late-century with 3ft SLR
Bluff Dune Erosion
Late-century with 4.6ft SLR
Tidal Flooding
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Habitat and Agricultural
Coastal and Water
Beaches [7]
Bluffs [37]
Streams and Rivers [99]
Estuaries [3]
Wetlands and ESHA [354]
Habitat
Endangered and Threatened Species Habita
Critical Coastal Areas [1]
0
0.25
0.5 mi

7 Mendocino Town

7 Mendocino Town

Planning Zone

- 7 Mendocino Town

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

- Late-century with 3ft SLR

Bluff Dune Erosion

- Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

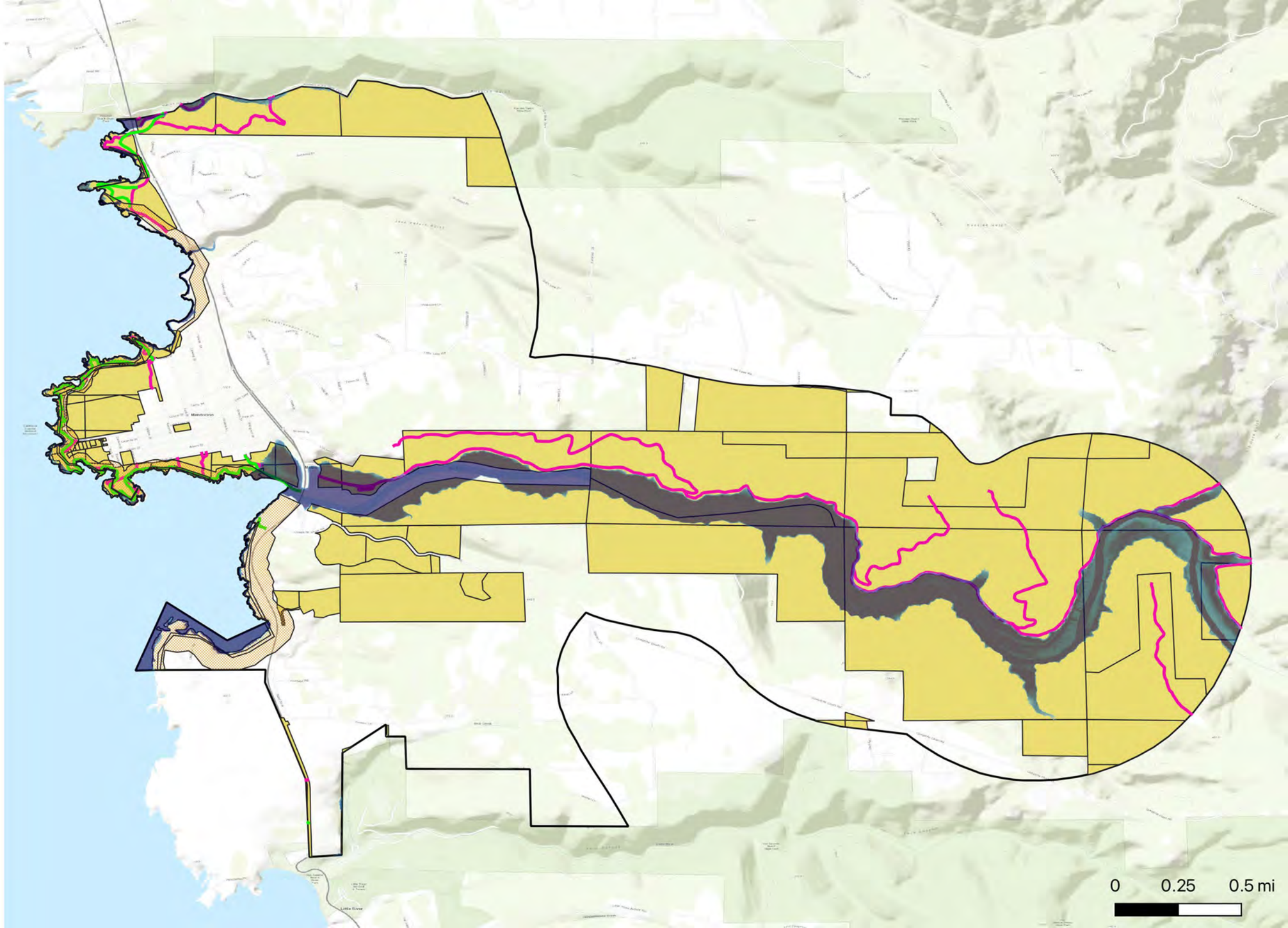
Public Access and Recreation

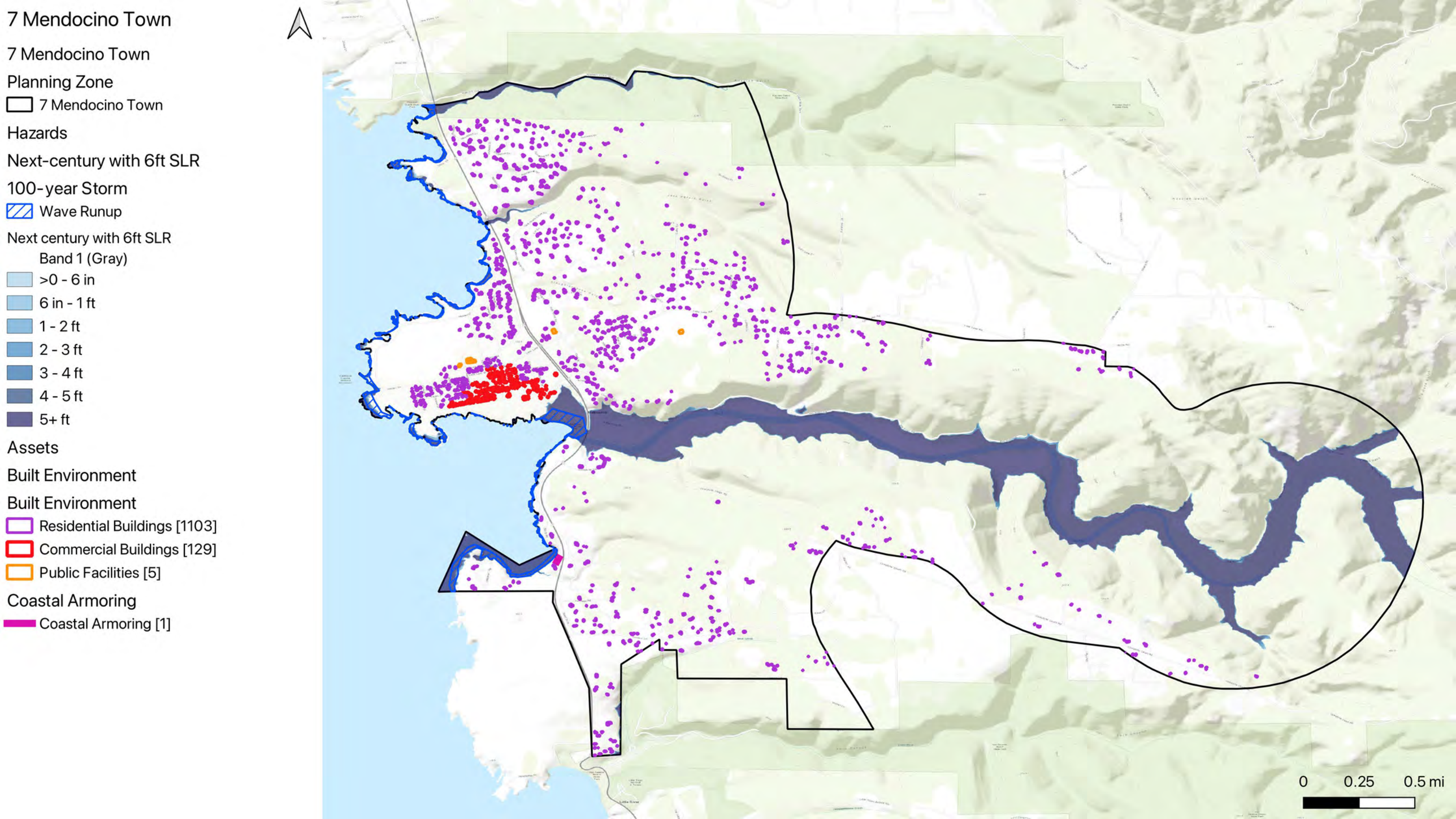
Recreation

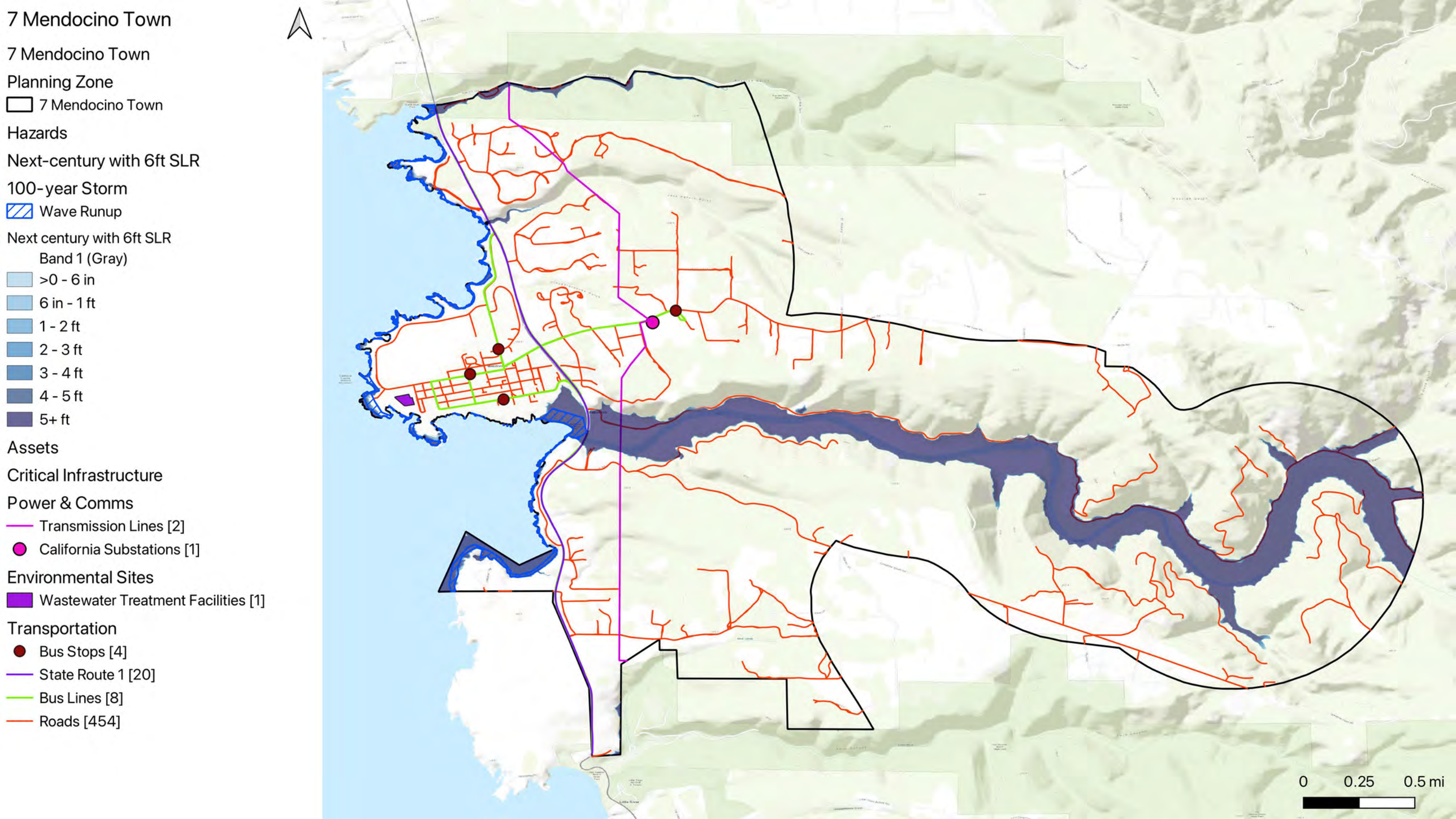
- California Coastal Trail [11]
- Recreational Routes [66]

Parks & Govt Lands

- State Parks & Lands [95]




7 Mendocino Town
7 Mendocino Town
Planning Zone
7 Mendocino Town
Hazards
Next-century with 6ft SLR
100-year Storm
Wave Runup
Next century with 6ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Built Environment
Built Environment
Residential Buildings [1103]
Commercial Buildings [129]
Public Facilities [5]
Coastal Armoring
Coastal Armoring [1]
0
0.25
0.5 mi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7 Mendocino Town
Planning Zone
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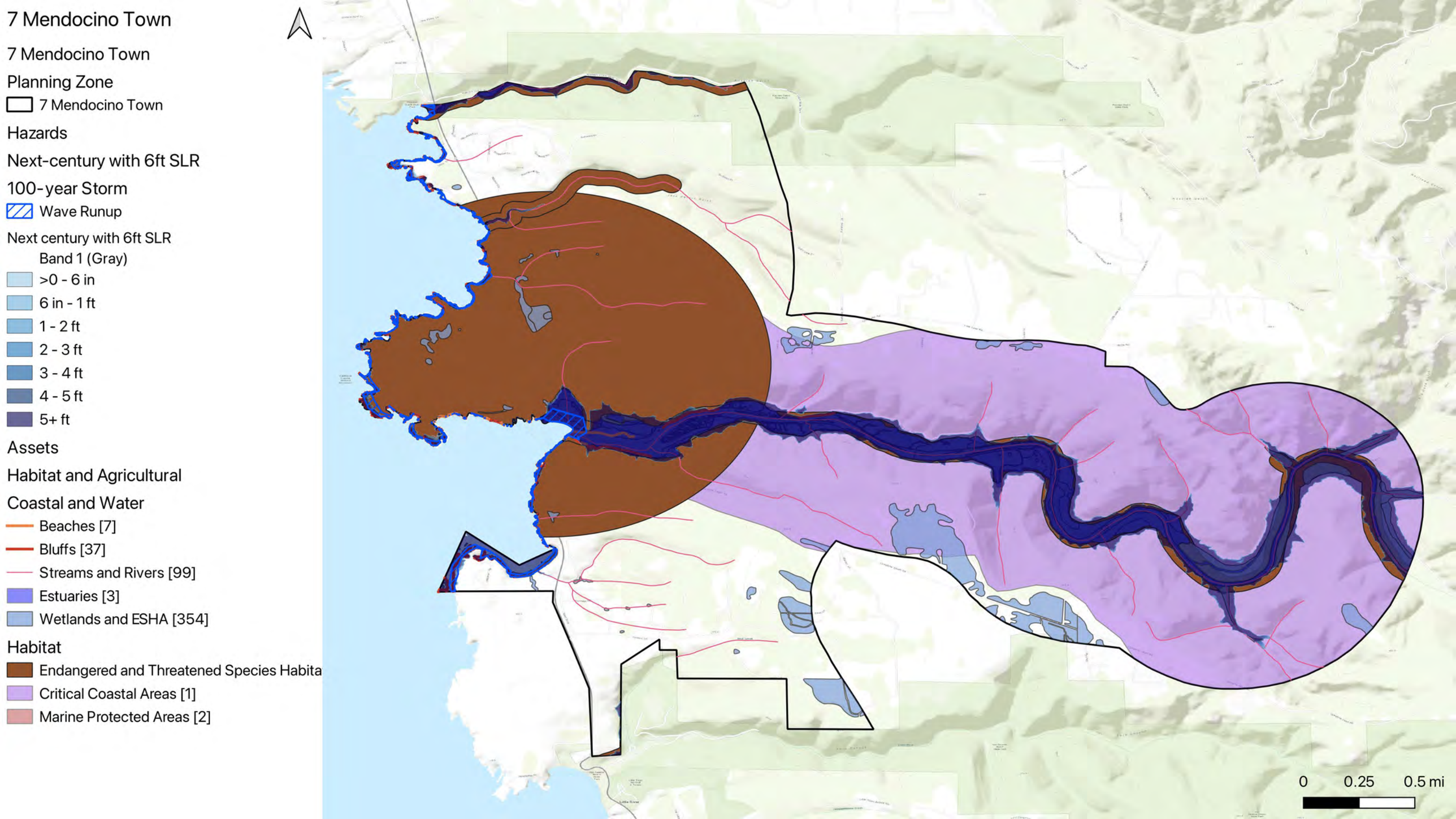
Hazards
Next-century with 6ft SLR
100-year Storm
Wave Runup
Next century with 6ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Critical Infrastructure
Power & Comms
Transmission Lines [2]
California Substations [1]
Environmental Sites
Wastewater Treatment Facilities [1]
Transportation
Bus Stops [4]
State Route 1 [20]
Bus Lines [8]
Roads [454]
0
0.25
0.5 mi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Planning Zone
7 Mendocino Town
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Wave Runup
Next century with 6ft SLR
Band 1 (Gray)
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Assets
Habitat and Agricultural
Coastal and Water
Beaches [7]
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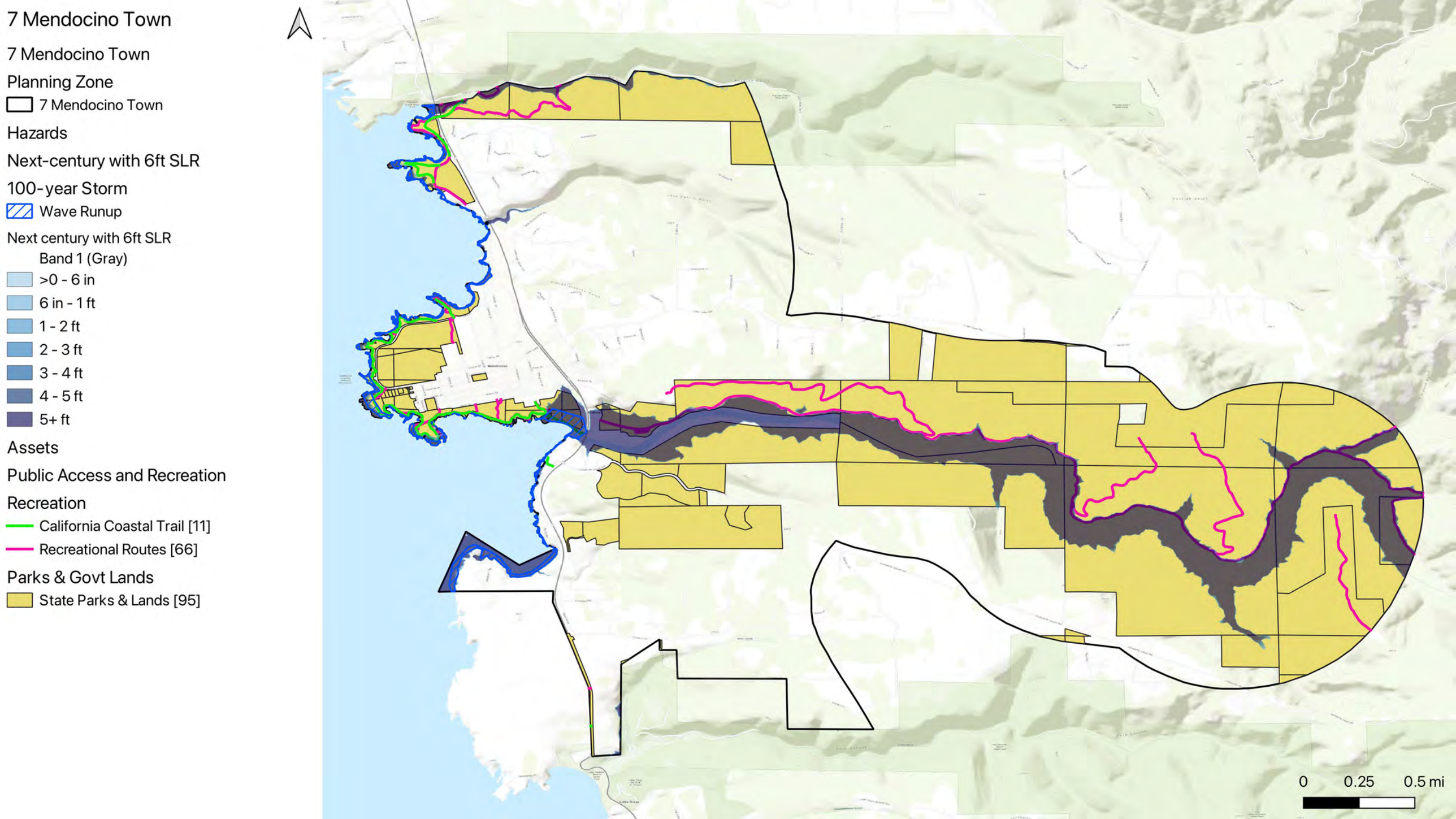
Streams and Rivers [99]
Estuaries [3]
Wetlands and ESHA [354]
Habitat
Endangered and Threatened Species Habita
Critical Coastal Areas [1]
Marine Protected Areas [2]
0
0.25
0.5 mi

7 Mendocino Town



7 Mendocino Town

7 Mendocino Town

Planning Zone

- 7 Mendocino Town

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Critical Infrastructure

Power & Comms

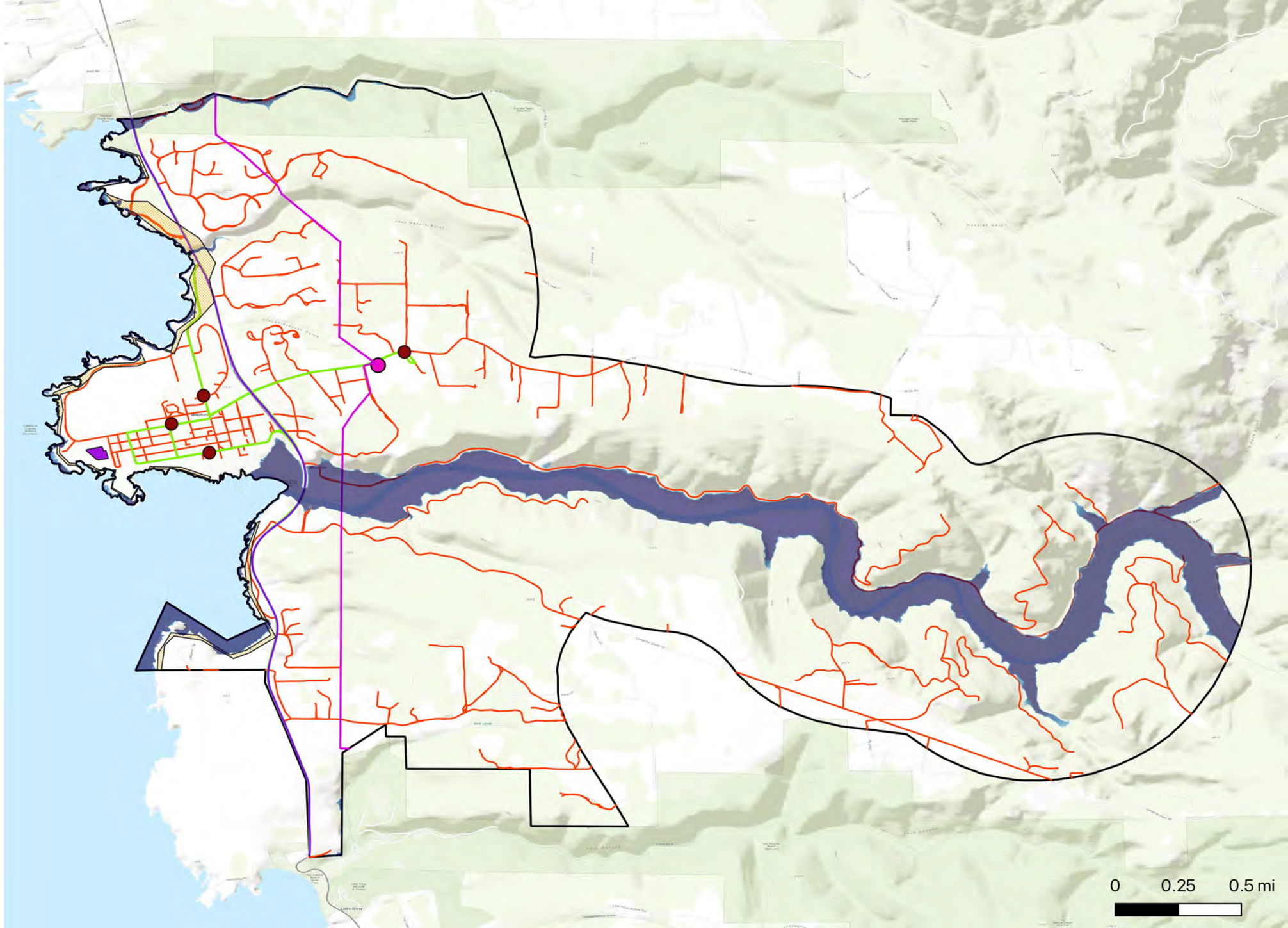
- Transmission Lines [2]
- California Substations [1]

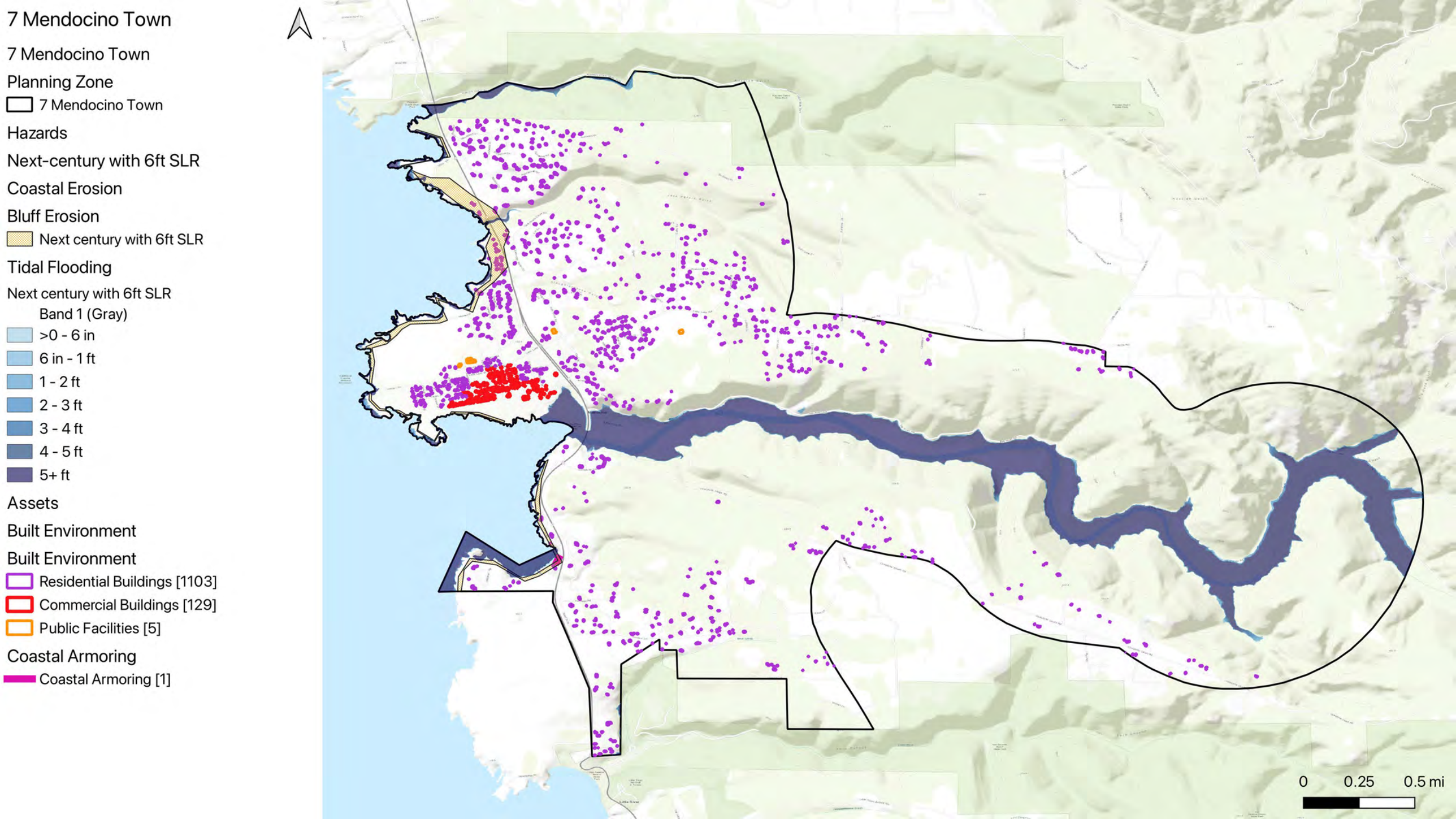
Environmental Sites

- Wastewater Treatment Facilities [1]

Transportation

- Bus Stops [4]
- State Route 1 [20]
- Bus Lines [8]
- Roads [454]




7 Mendocino Town
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Planning Zone
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Next-century with 6ft SLR
Coastal Erosion
Bluff Erosion
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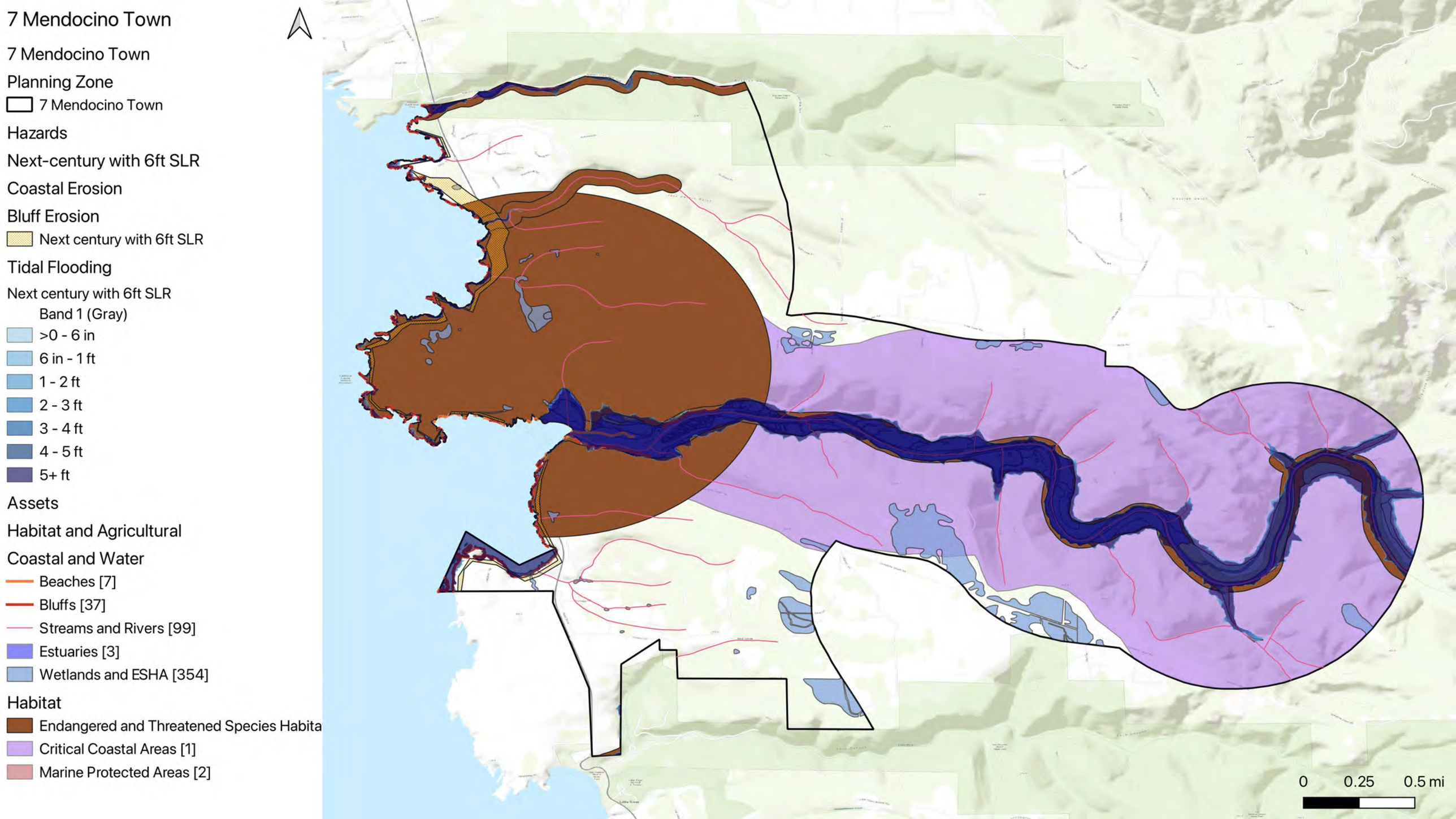
Coastal Armoring
Coastal Armoring [1]
0
0.25
0.5 mi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Planning Zone
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Hazards
Next-century with 6ft SLR
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Bluff Erosion
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7 Mendocino Town

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Planning Zone

7 Mendocino Town

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

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Recreational Routes [66]

Parks & Govt Lands

State Parks & Lands [95]

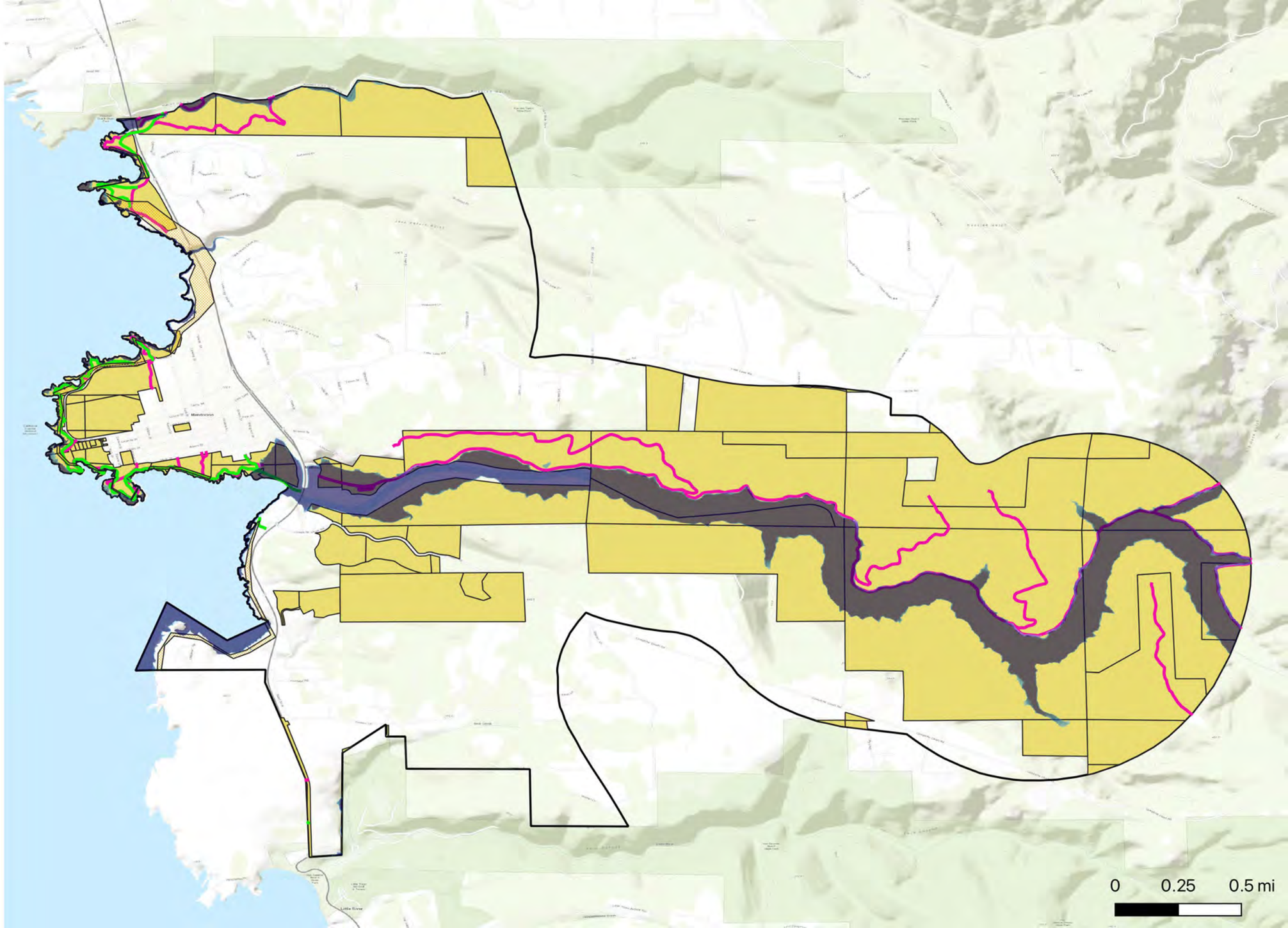
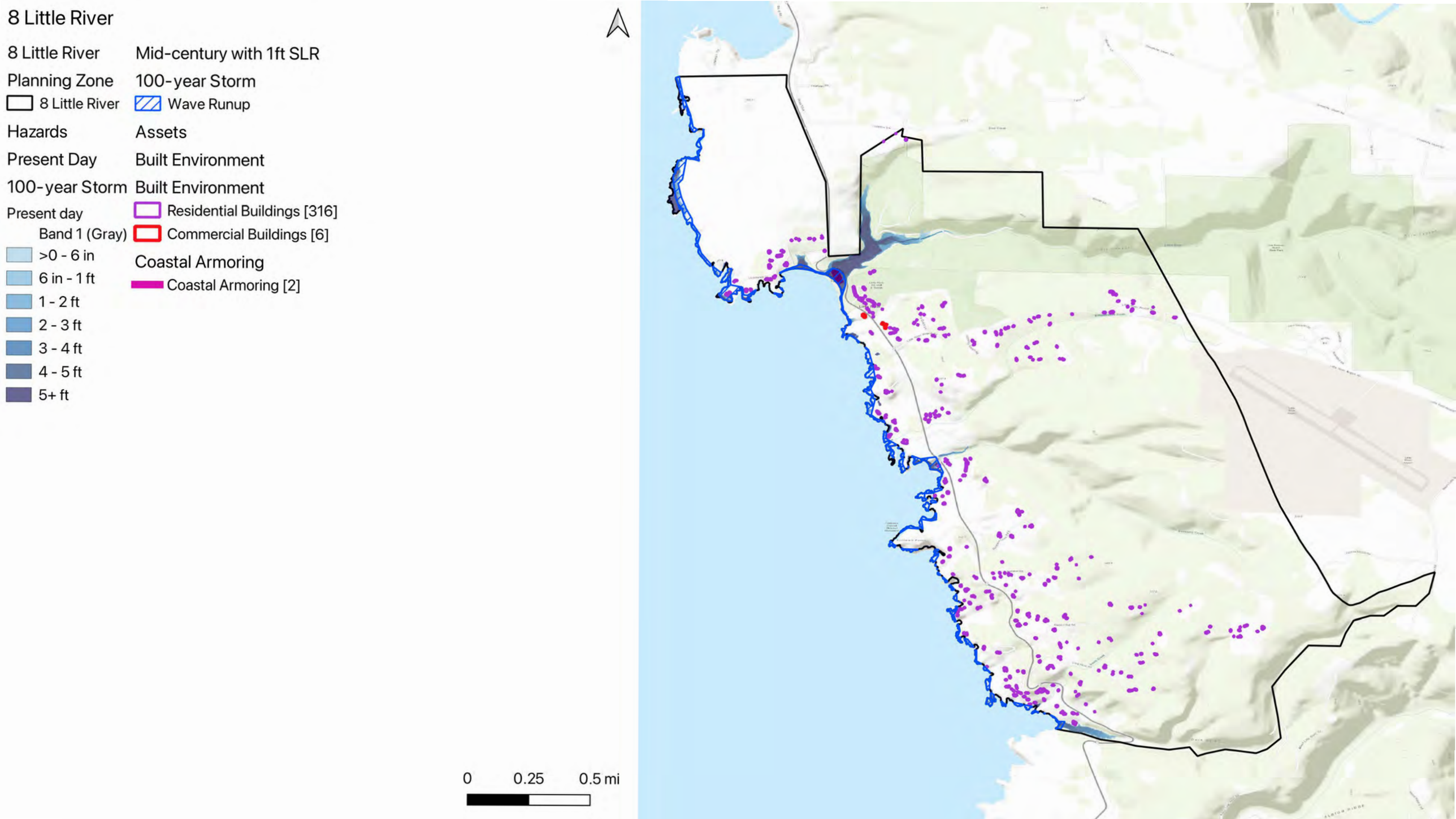


Table 8. Little River

Sub-Category	Asset Type	Units	WaveP	StormP	TidalP	TotalsP	Storm 1ft	Tidal 1ft	BluffE 1ft	CoastE1ft	Totals 1ft	Storm 3ft	Tidal 3ft	BluffE 3ft	CoastE3ft	Totals 3ft	Storm 6ft	Tidal 6ft	BluffE 6ft	CoastE6ft	Totals 6ft
Power & Comms	Transmission Lines	Length (ft)	0	329	0	329	449	14	0	0	449	505	191	0	0	505	694	479	0	0	694
Transportation	Bus Stops	Number of stops	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Transportation	State Route 1	Length (mi)	0	0.1	0.1	0.1	0.1	0.1	0	0.1	0.2	0.2	0.1	0	0.3	0.4	0.3	0.2	0	0.6	0.6
Transportation	Bus Lines	Length (mi)	0	0.9	0.4	0.9	1	0.6	0	0.8	1.6	1.1	0.8	0	1.9	2.2	1.5	1.1	0	3.2	3.3
Transportation	Roads	Length (mi)	0	1.1	0.6	1.2	1.3	0.7	0	0.1	1.4	1.6	1	0.1	0.4	1.9	1.9	1.5	0.1	1.5	3
Recreation	California Coastal Trail	Length (mi)	0.3	0.1	0.1	0.3	0.1	0.1	0.1	0.4	0.5	0.2	0.1	0.2	0.8	0.8	0.6	0.1	0.2	1.2	1.2
Recreation	Recreational Routes	Length (mi)	0.3	1.2	0.7	1.4	1.3	0.7	0.2	0.5	1.9	1.6	1	0.4	1.1	2.5	2.5	1.4	0.6	1.7	3.2
Parks & Govt Lands	State Parks & Lands	Area (acres)	15	42	25	46	46	28	3	23	58	53	38	7	35	72	77	50	10	55	96
Coastal and Water	Beaches	Length (mi)	0.3	0.4	0.3	0.4	0.4	0.4	0	0.1	0.4	0.4	0.4	0	0.1	0.4	0.4	0.4	0	0.1	0.4
Coastal and Water	Bluffs	Length (mi)	2.3	2.4	1.9	2.9	2.5	2	0.2	1.6	3.3	2.7	2.3	0.3	1.6	3.3	3.1	2.6	0.4	1.6	3.4
Coastal and Water	Streams and Rivers	Length (mi)	0.2	1.2	0.7	1.2	1.3	0.8	0	0.3	1.4	1.5	1.1	0.1	0.4	1.6	2	1.4	0.1	0.8	2.3
Coastal and Water	Estuaries	Area (acres)	1	16	12	16	16	13	0	1	16	16	15	0	1	16	16	16	0	4	16
Coastal and Water	Wetlands and ESHA	Area (acres)	7	22	16	22	22	18	0	8	23	23	21	1	9	23	24	23	1	11	25
Habitat	Endangered and Threatened Species Habitats	Area (acres)	6	32	15	33	36	20	0	9	40	41	29	0	13	46	51	39	0	22	57
Habitat	Marine Protected Areas	Number of individually designated MPAs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Built Environment	Residential Buildings	Number of buildings	4	1	1	4	1	1	14	14	25	2	1	17	32	34	6	1	18	57	57
Built Environment	Commercial Buildings	Number of buildings	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Coastal Armoring	Coastal Armoring	Length (ft)	287	287	287	287	287	287	0	276	287	287	287	0	287	287	287	287	0	287	287


8 Little River
8 Little River
Planning Zone
8 Little River
Hazards
Present Day
100-year Storm
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Assets
Built Environment
Built Environment
Residential Buildings [316]
Commercial Buildings [6]
Coastal Armoring
Coastal Armoring [2]
0
0.25
0.5 mi

8 Little River

8 Little River

Planning Zone

8 Little River

Hazards

Present Day

100-year Storm

Present day

Band 1 (Gray)

>0 - 6 in

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5+ ft

Mid-century with 1ft SLR

100-year Storm

Wave Runup

Assets

Critical Infrastructure

Power & Comms

Transmission Lines [1]

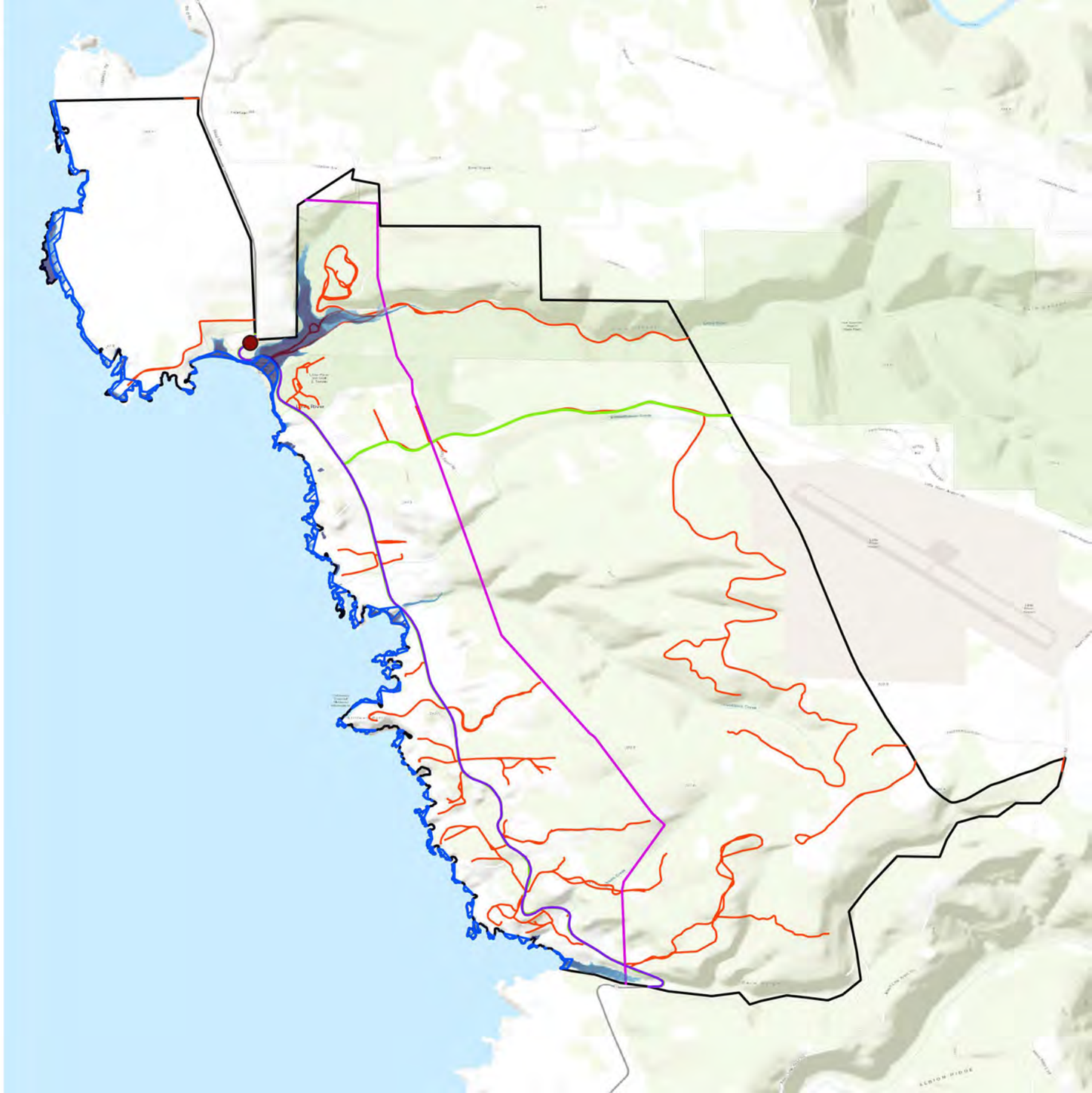
Transportation

Bus Stops [1]

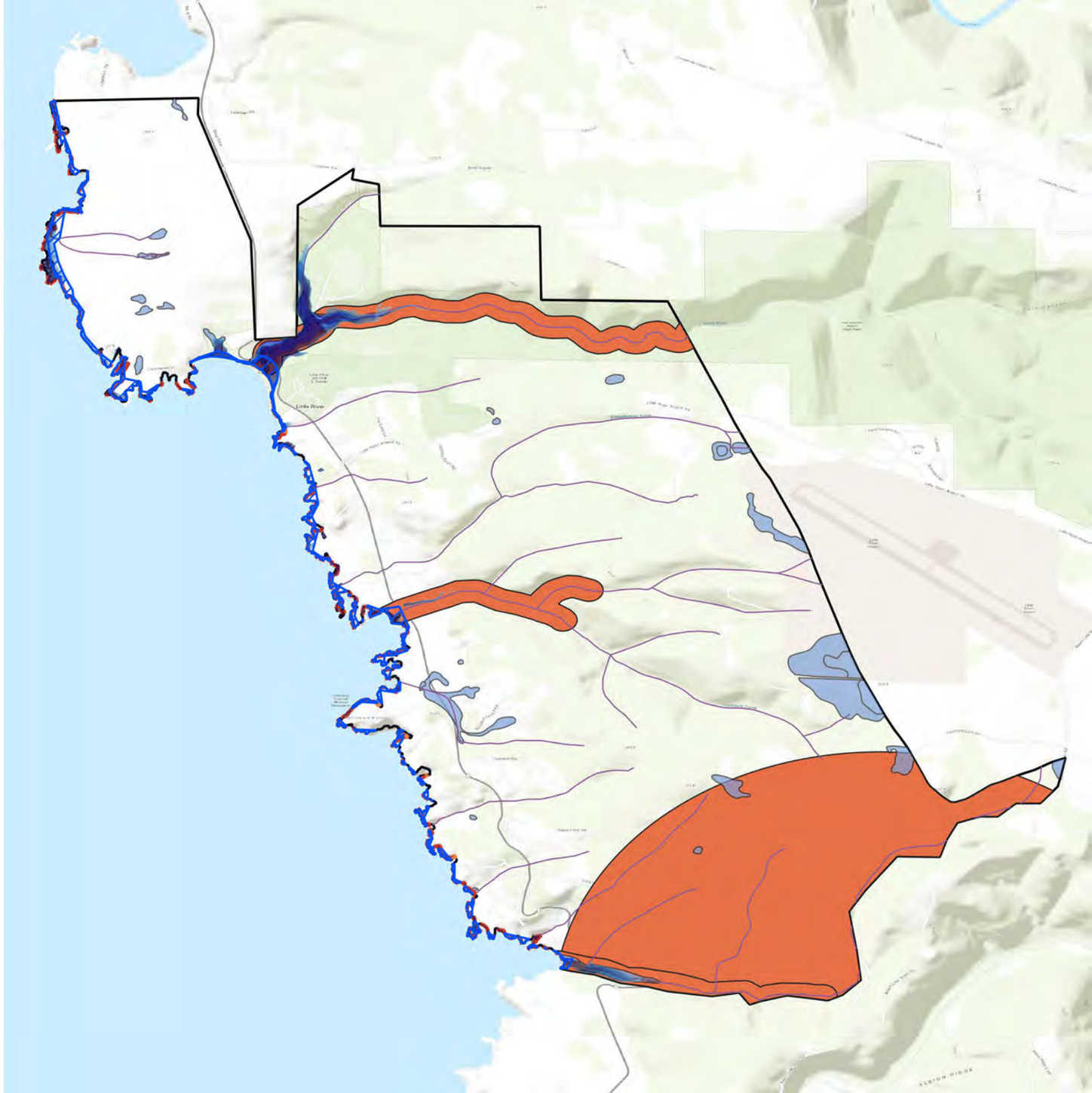
State Route 1 [17]

Bus Lines [6]

Roads [125]



8 Little River



8 Little River

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Planning Zone

8 Little River

Hazards

Present Day

100-year Storm

Present day

Band 1 (Gray)

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6 in - 1 ft

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Mid-century with 1ft SLR

100-year Storm

Wave Runup

Assets

Public Access and Recreation

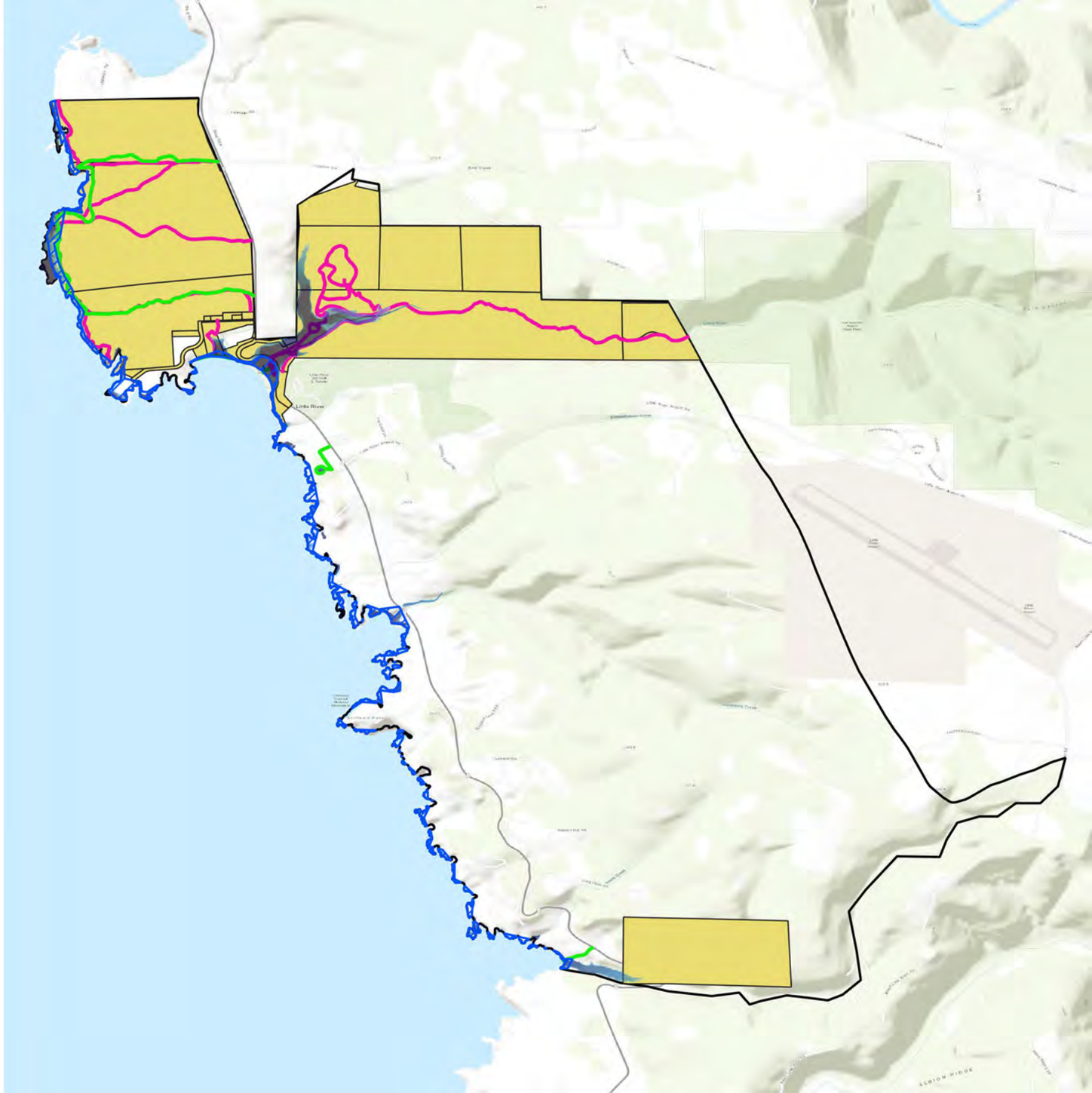
Recreation

California Coastal Trail [8]

Recreational Routes [55]

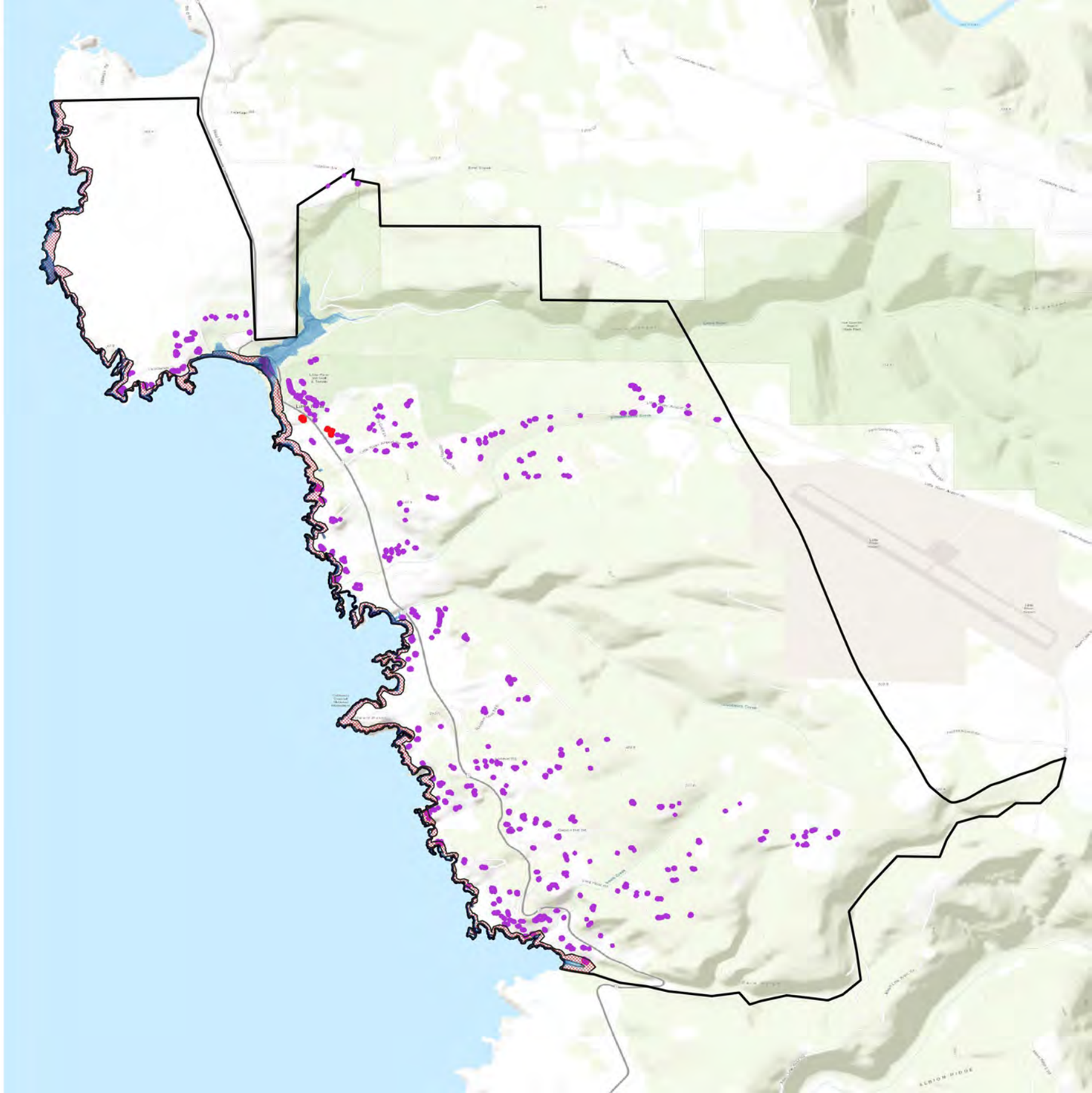
Parks & Govt Lands

State Parks & Lands [25]



0 0.25 0.5 mi

8 Little River



8 Little River

8 Little River

Planning Zone

- 8 Little River

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

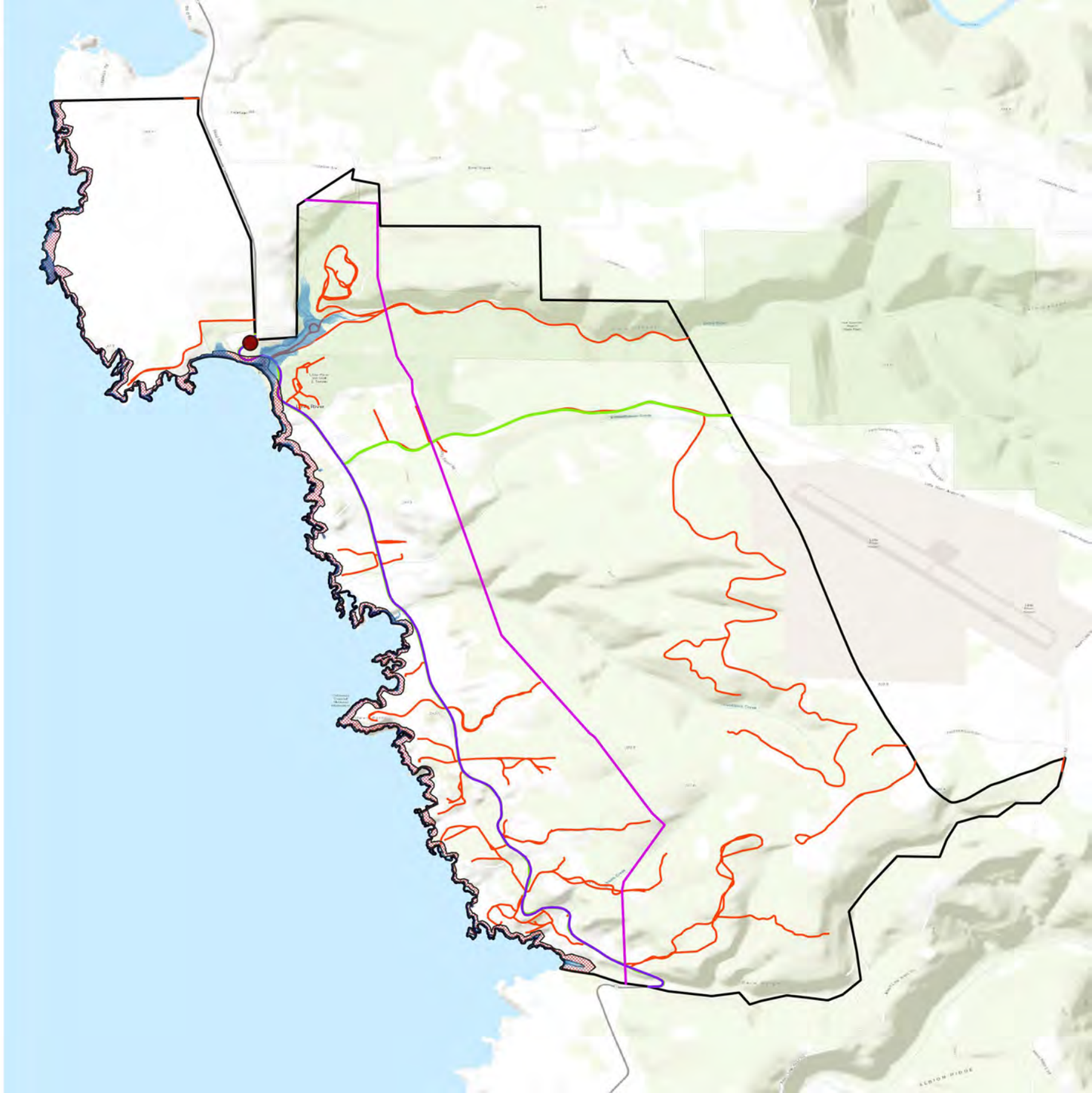
Critical Infrastructure

Power & Comms

- Transmission Lines [1]

Transportation

- Bus Stops [1]
- State Route 1 [17]
- Bus Lines [6]
- Roads [125]



8 Little River

8 Little River

Planning Zone

8 Little River

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

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6 in - 1 ft

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4 - 5 ft

5+ ft

Assets

Habitat and Agricultural

Coastal and Water

Beaches [6]

Bluffs [26]

Streams and Rivers [46]

Estuaries [1]

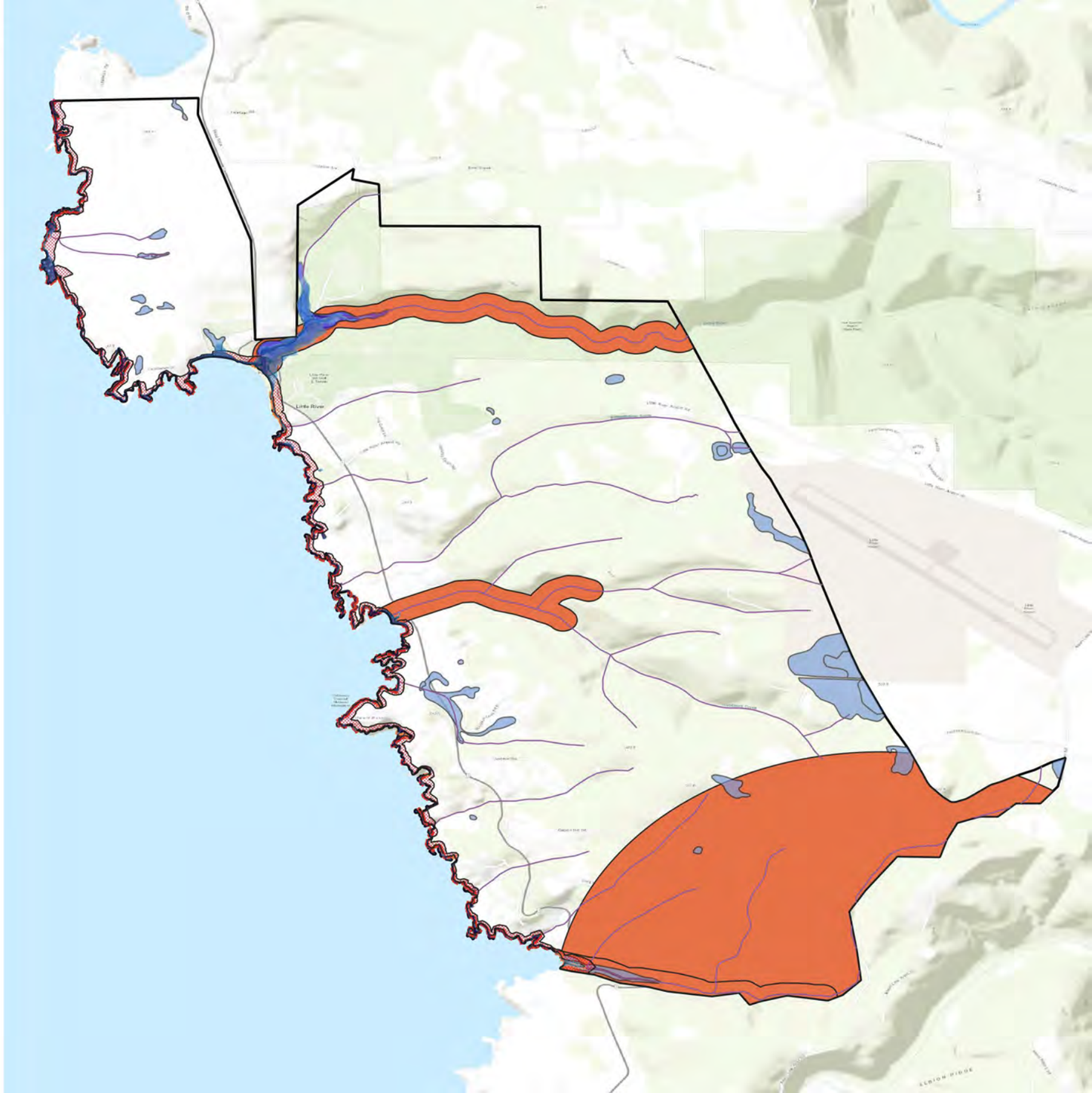
Wetlands and ESHA [233]

Habitat

Endangered and Threatened Species Habitats [4]

Critical Coastal Areas [1]

Marine Protected Areas [1]



0 0.25 0.5 mi

8 Little River

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Planning Zone

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Hazards

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Coastal Erosion

Bluff Dune Erosion

Early century with 0.7ft SLR

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Present day

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4 - 5 ft

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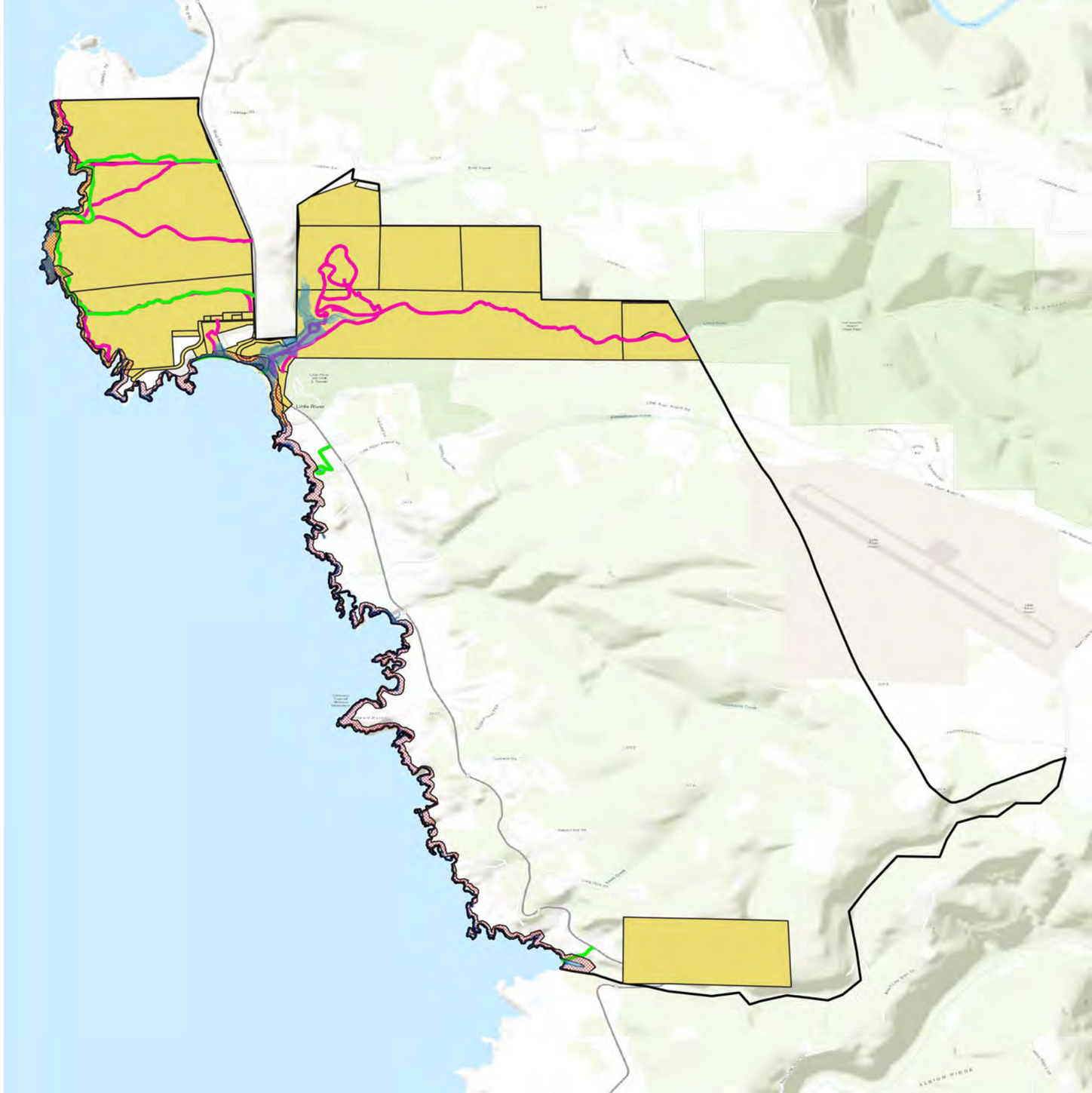


0 0.25 0.5 mi

8 Little River

8 Little River

Planning Zone

8 Little River

Hazards

Mid-century with 1ft SLR

100-year Storm

Wave Runup

Mid-century with 1ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Built Environment

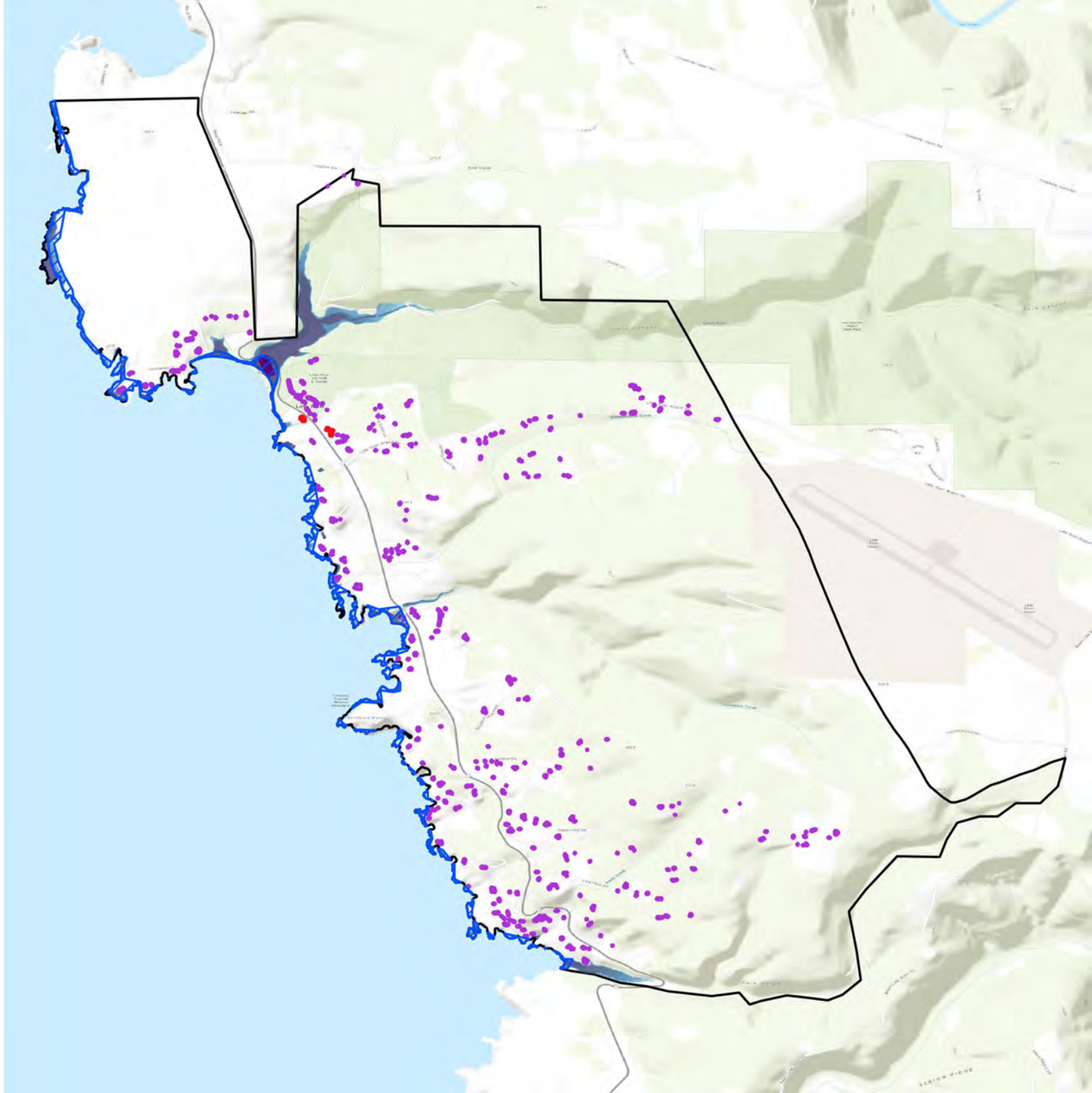
Built Environment

Residential Buildings [316]

Commercial Buildings [6]

Coastal Armoring

Coastal Armoring [2]



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Planning Zone

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Hazards

Mid-century with 1ft SLR

100-year Storm

Wave Runup

Mid-century with 1ft SLR

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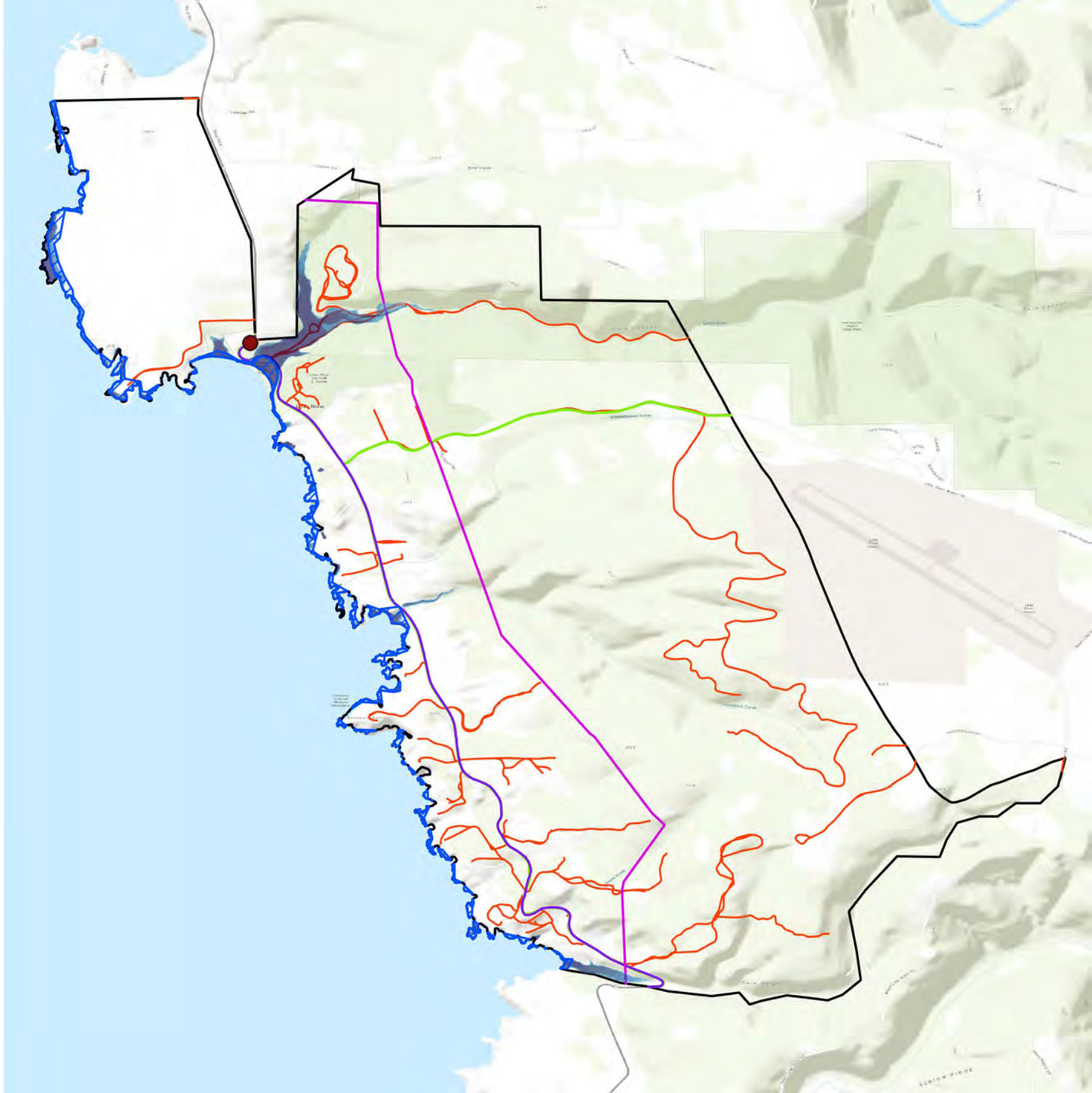
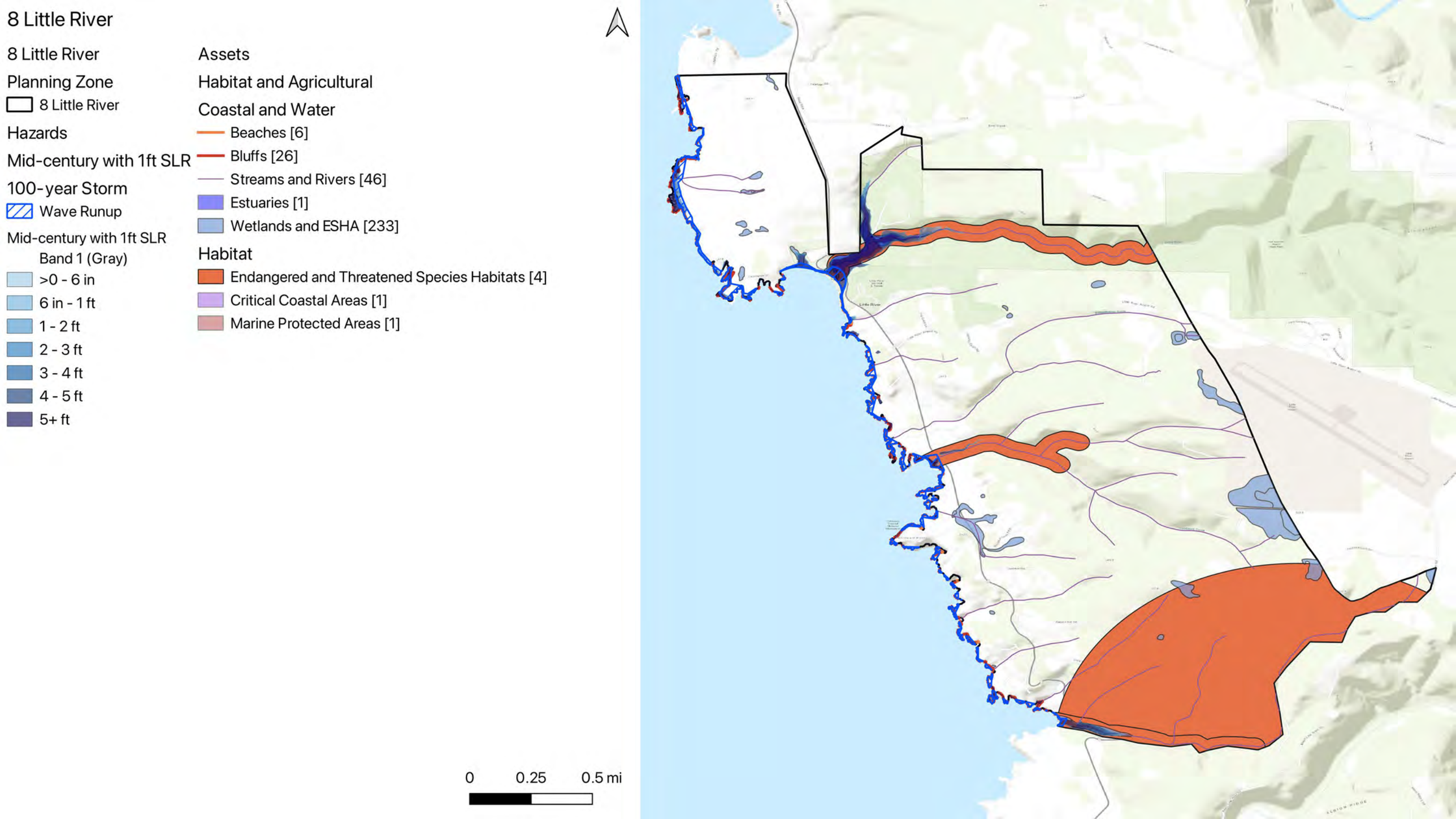
Bus Lines [6]

Roads [125]

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Hazards

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Wave Runup

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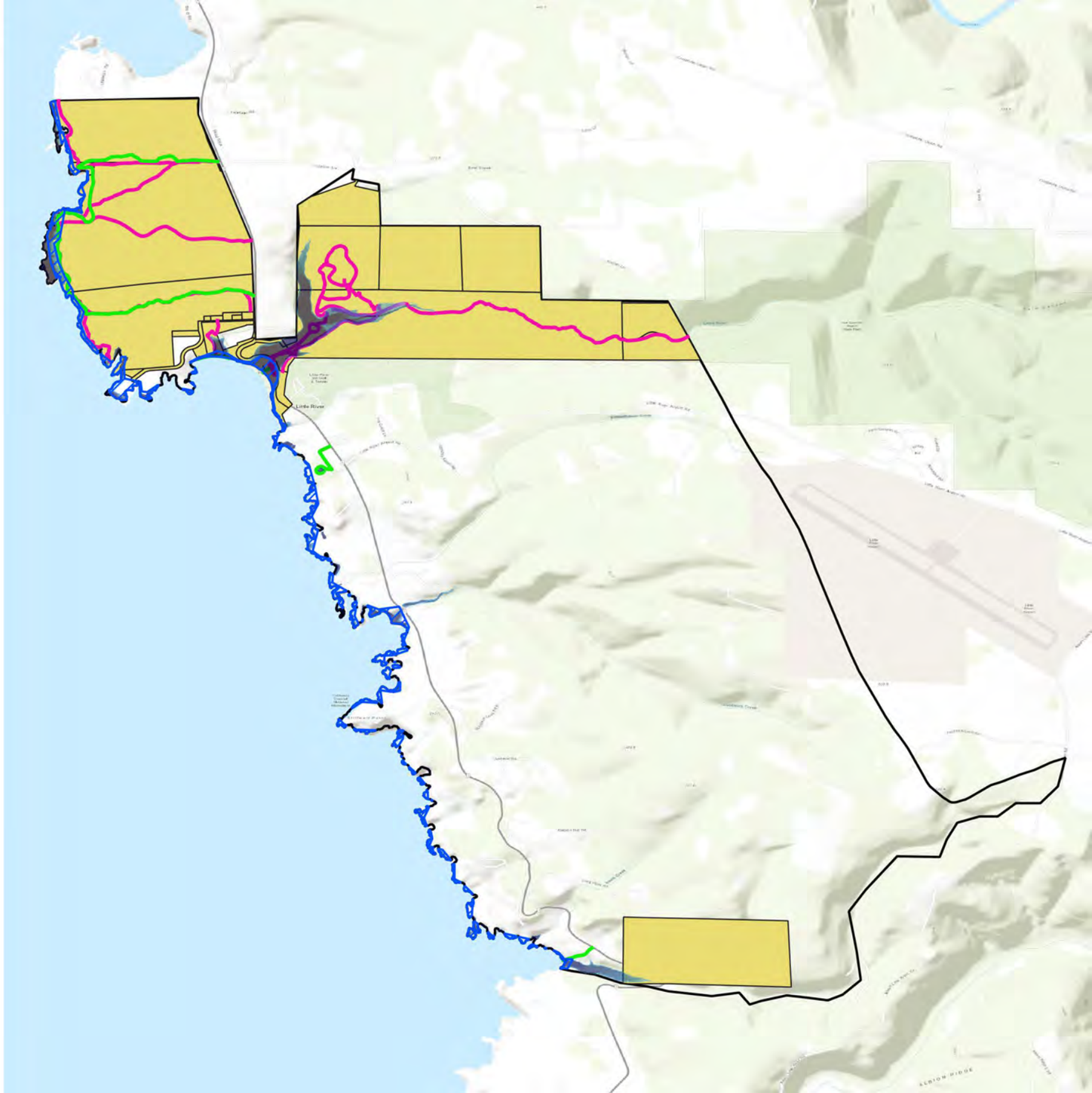
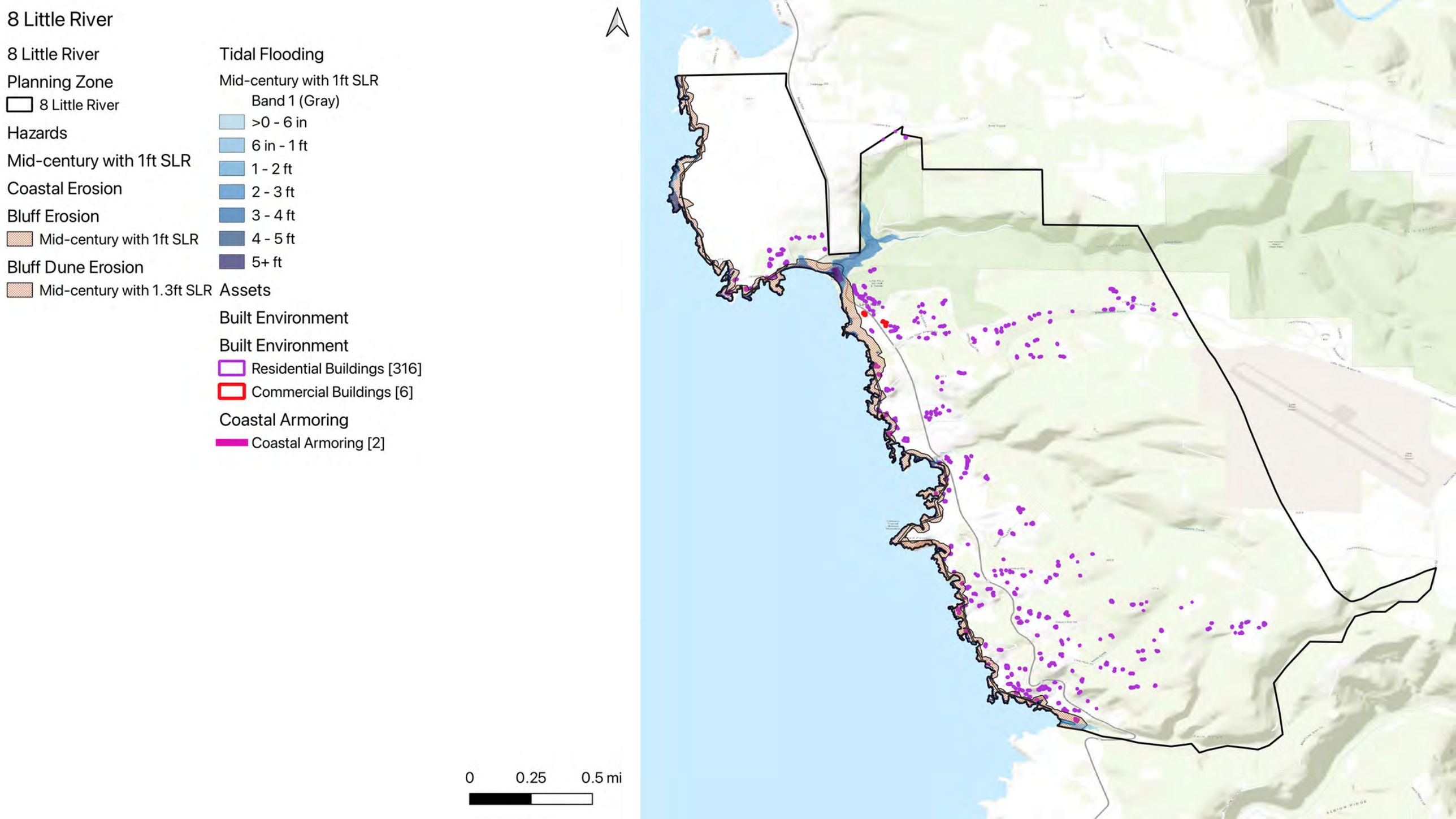
State Parks & Lands [25]



0 0.25 0.5 mi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Mid-century with 1ft SLR
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Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
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Coastal Armoring [2]
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0.25
0.5 mi

8 Little River

8 Little River

Planning Zone

- 8 Little River

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

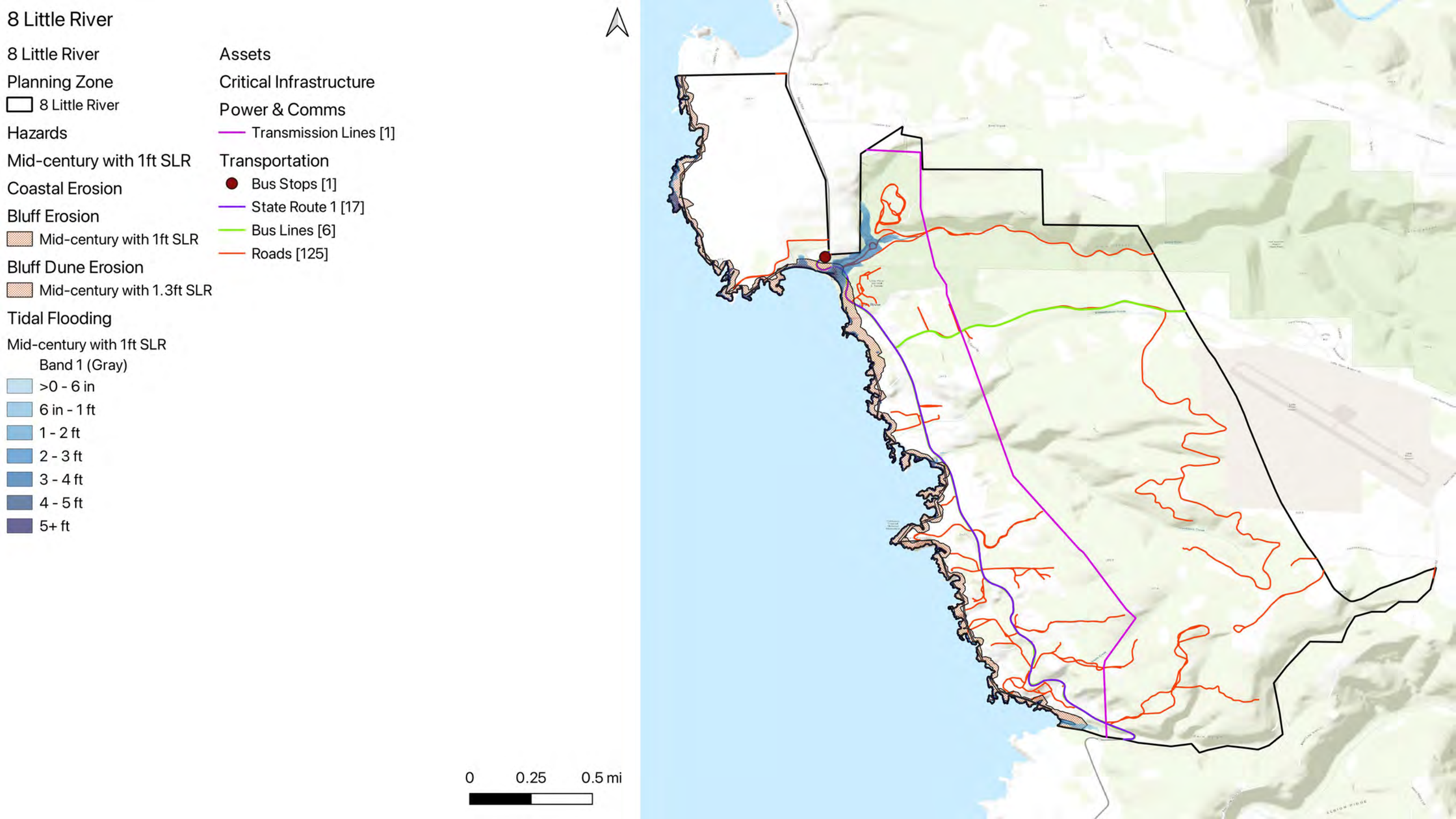
Critical Infrastructure

Power & Comms

- Transmission Lines [1]

Transportation

- Bus Stops [1]
- State Route 1 [17]
- Bus Lines [6]
- Roads [125]



8 Little River

8 Little River

Planning Zone

- 8 Little River

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

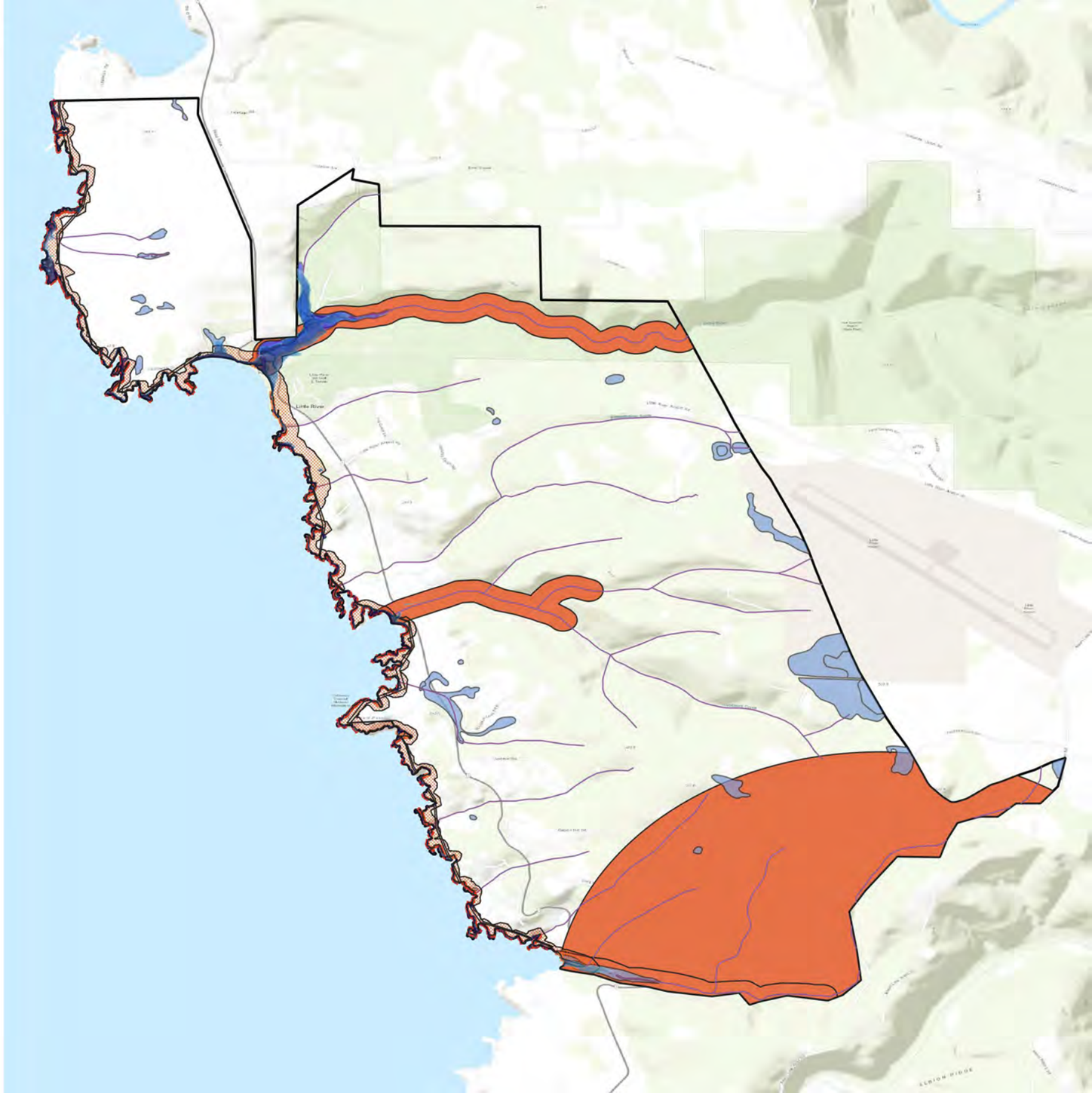
Habitat and Agricultural

Coastal and Water

- Beaches [6]
- Bluffs [26]
- Streams and Rivers [46]
- Estuaries [1]
- Wetlands and ESHA [233]

Habitat

- Endangered and Threatened Species Habitats [4]
- Critical Coastal Areas [1]
- Marine Protected Areas [1]



0 0.25 0.5 mi

8 Little River

8 Little River

Planning Zone

8 Little River

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

Mid-century with 1ft SLR

Bluff Dune Erosion

Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Public Access and Recreation

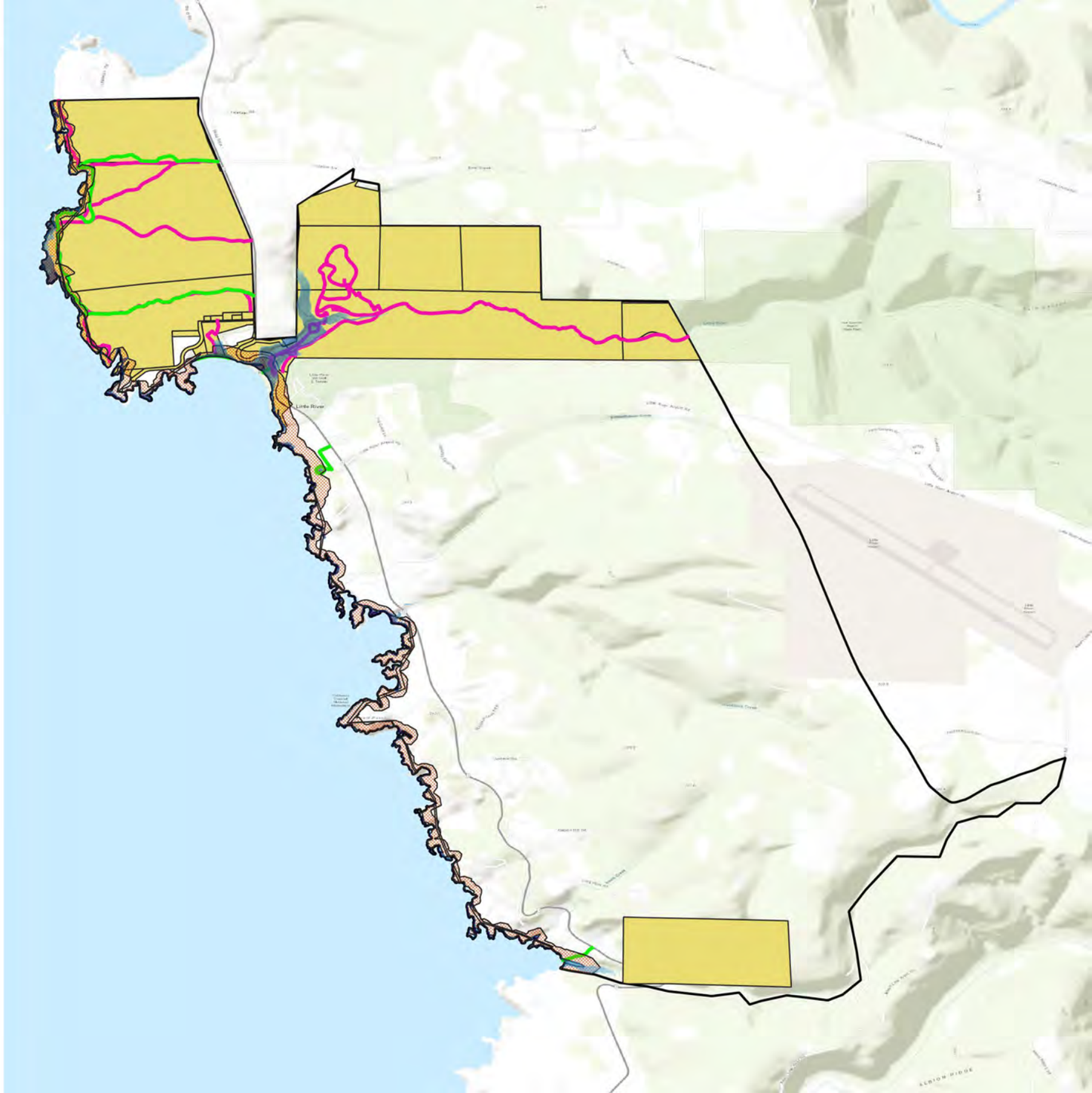
Recreation

California Coastal Trail [8]

Recreational Routes [55]

Parks & Govt Lands

State Parks & Lands [25]



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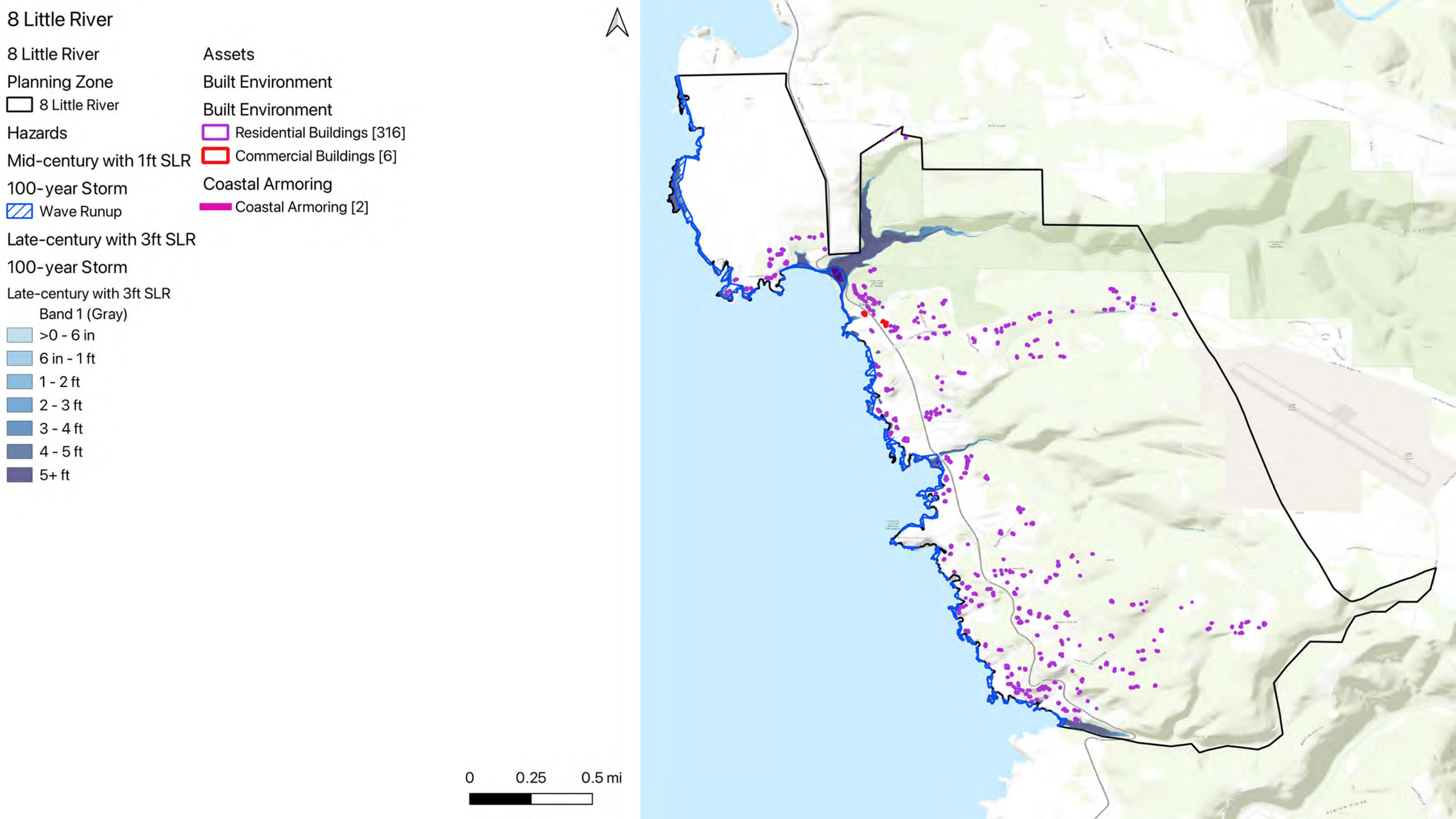

8 Little River
8 Little River
Planning Zone
8 Little River
Hazards
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Built Environment
Built Environment
Residential Buildings [316]
Commercial Buildings [6]
Coastal Armoring
Coastal Armoring [2]
0
0.25
0.5 mi

8 Little River

8 Little River

Planning Zone

- 8 Little River

Hazards

Mid-century with 1ft SLR

100-year Storm

- Wave Runup

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

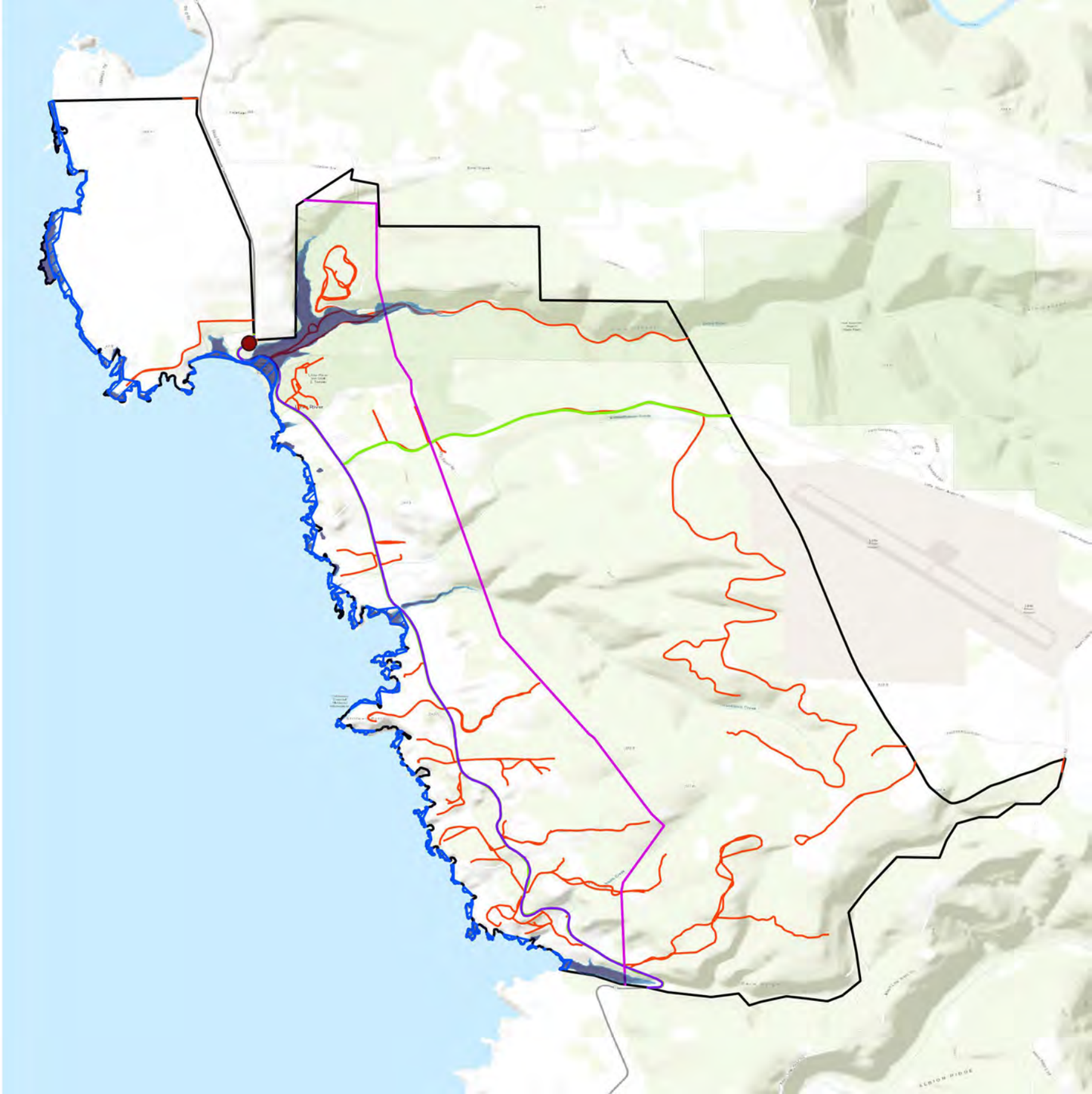
Critical Infrastructure

Power & Comms

- Transmission Lines [1]

Transportation

- Bus Stops [1]
- State Route 1 [17]
- Bus Lines [6]
- Roads [125]



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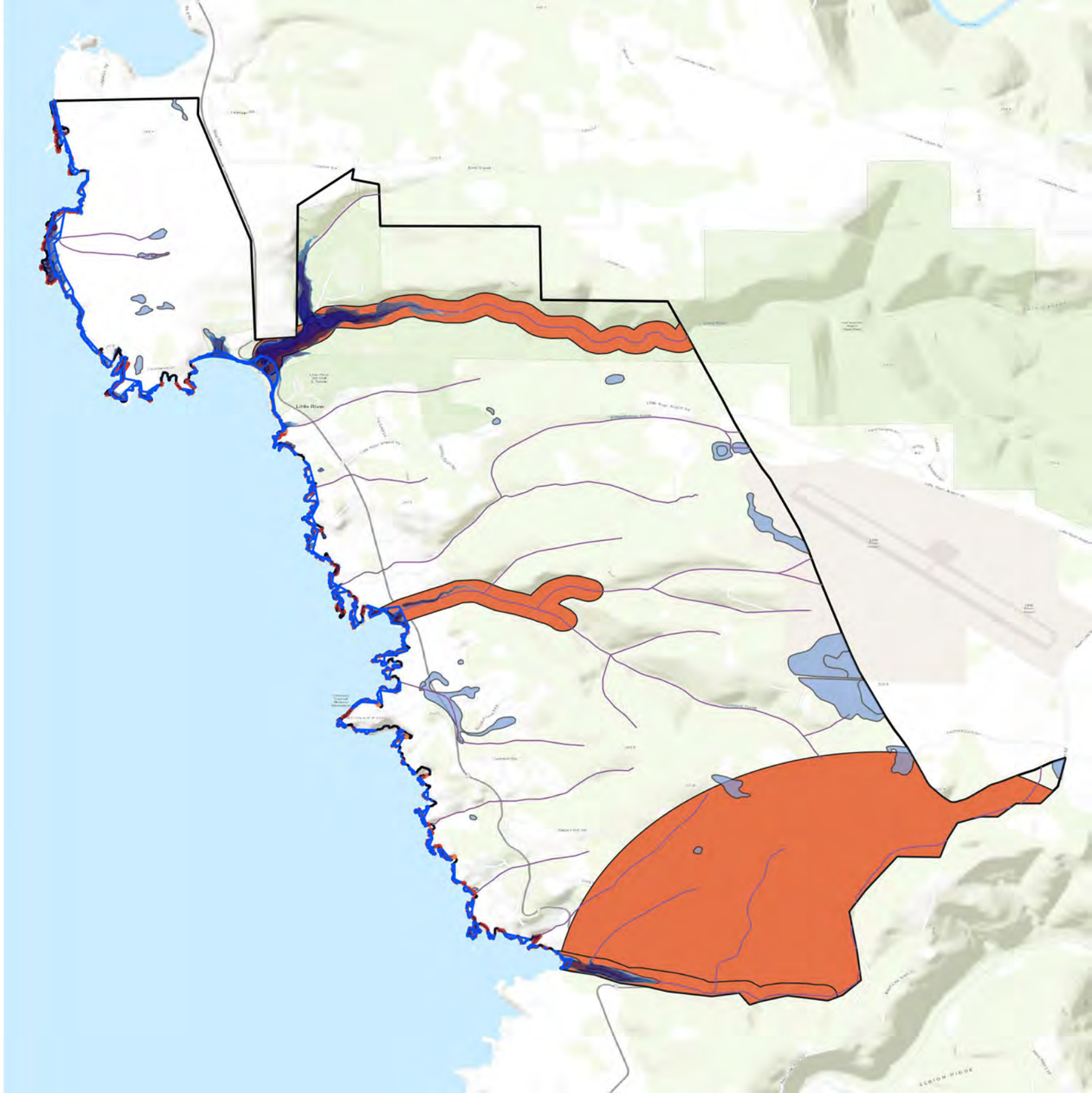
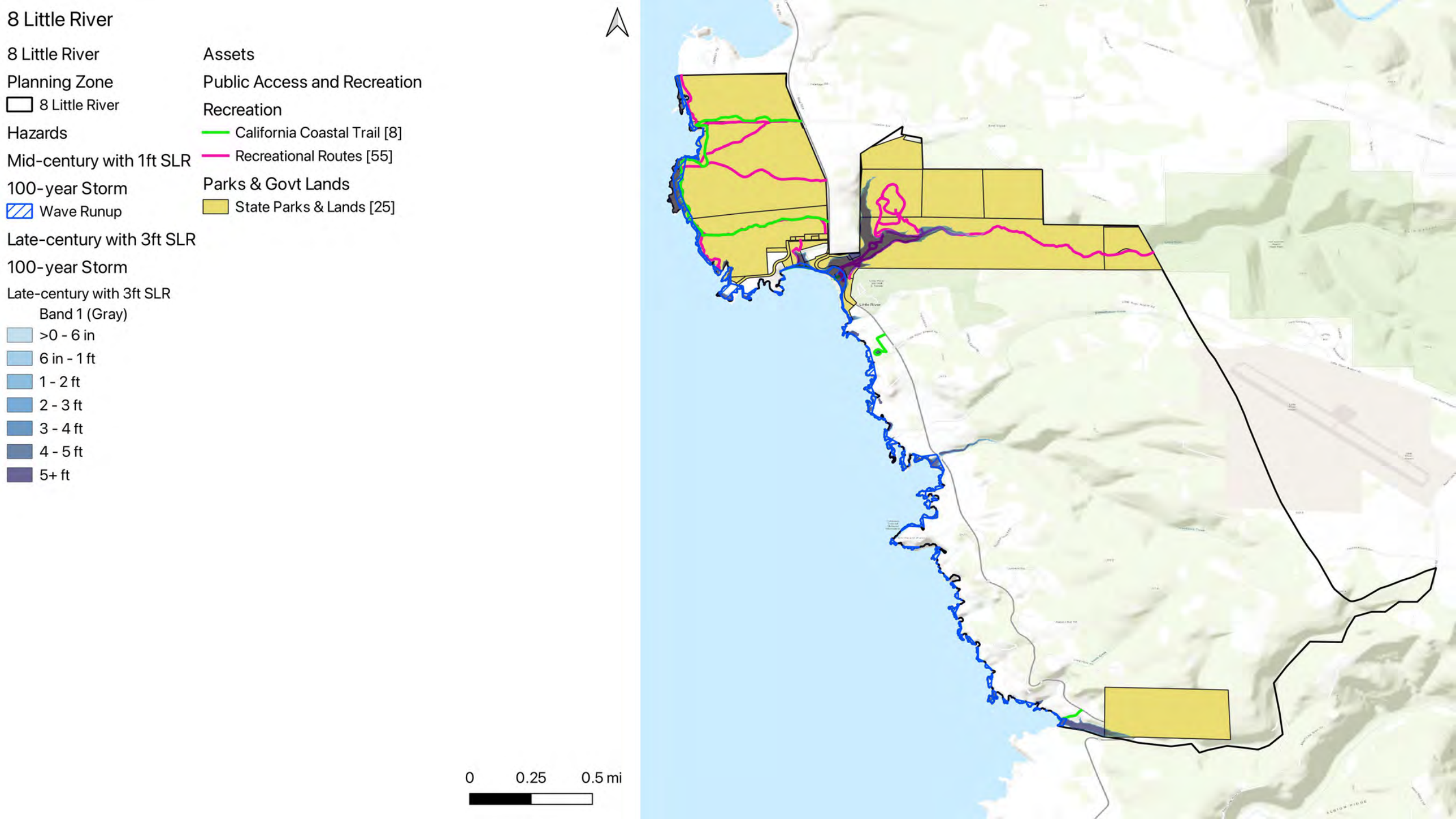
8 Little River

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Planning Zone
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Hazards
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
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6 in - 1 ft
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Assets
Public Access and Recreation
Recreation
California Coastal Trail [8]
Recreational Routes [55]
Parks & Govt Lands
State Parks & Lands [25]
0
0.25
0.5 mi

8 Little River

8 Little River

Planning Zone

8 Little River

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

Late-century with 3ft SLR

Bluff Dune Erosion

Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Built Environment

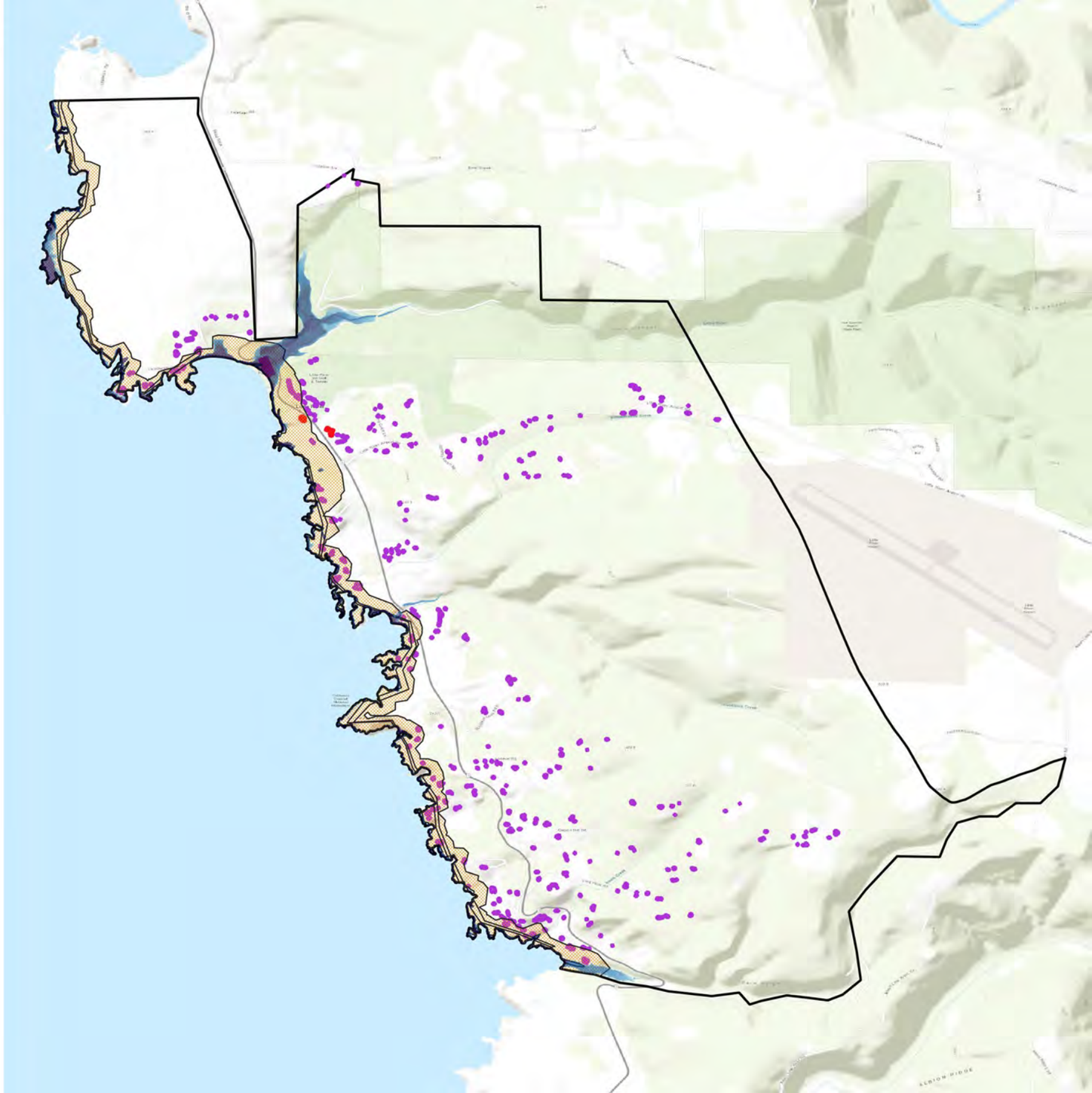
Built Environment

Residential Buildings [316]

Commercial Buildings [6]

Coastal Armoring

Coastal Armoring [2]



8 Little River

8 Little River

Planning Zone

- 8 Little River

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

- Late-century with 3ft SLR

Bluff Dune Erosion

- Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
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- 5+ ft

Assets

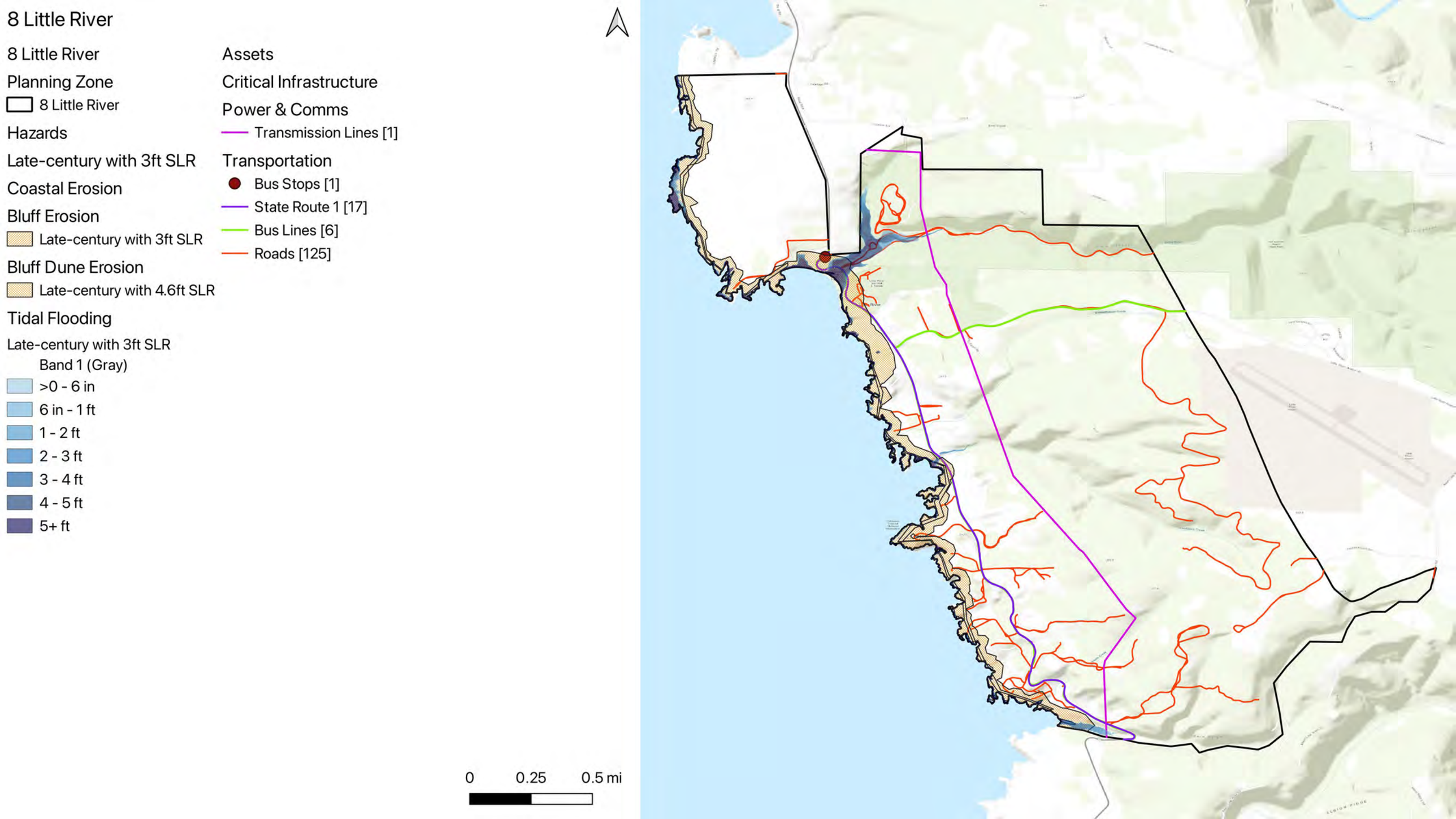
Critical Infrastructure

Power & Comms

- Transmission Lines [1]

Transportation

- Bus Stops [1]
- State Route 1 [17]
- Bus Lines [6]
- Roads [125]



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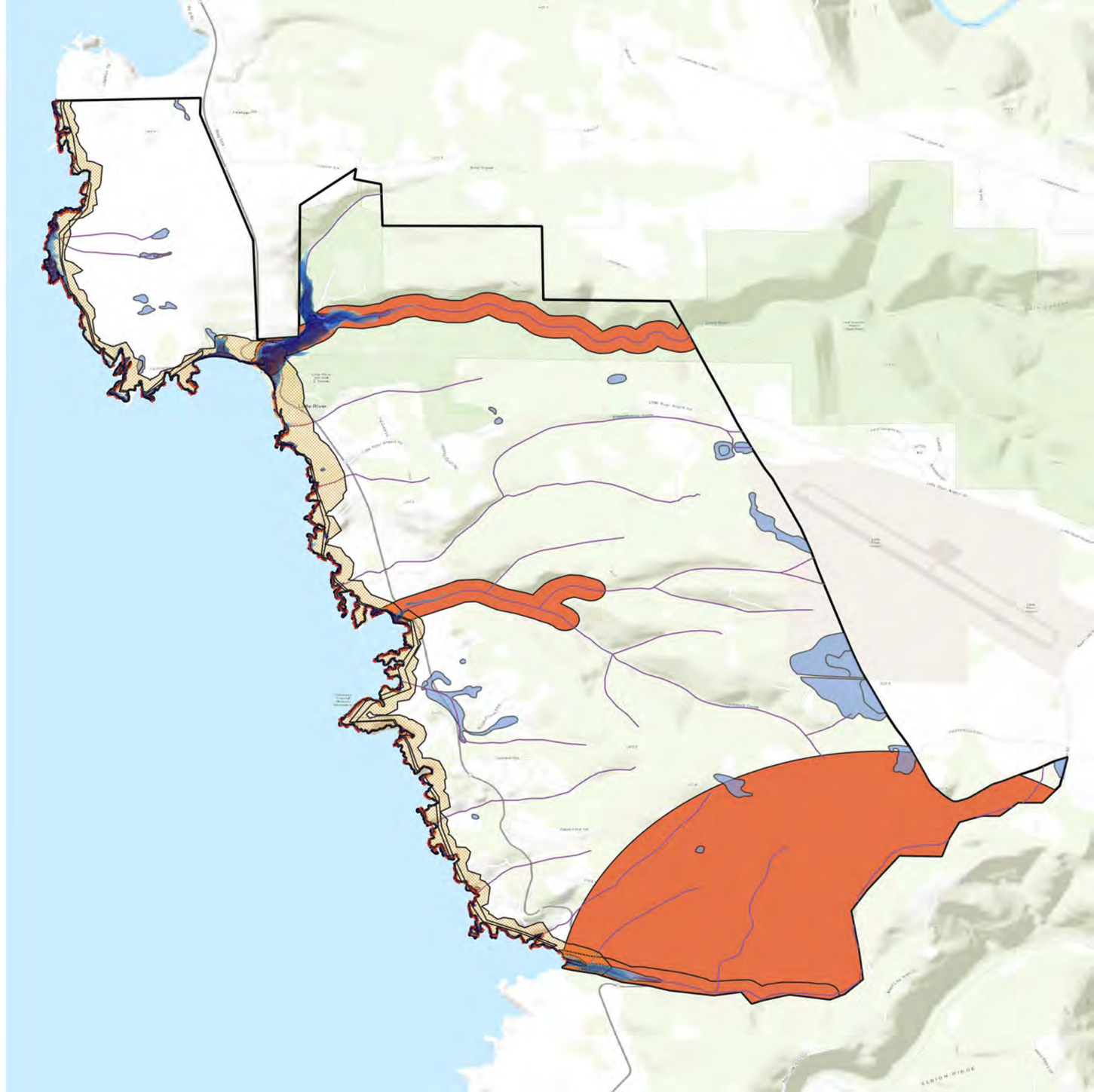

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Planning Zone

8 Little River

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

Late-century with 3ft SLR

Bluff Dune Erosion

Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

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6 in - 1 ft

1 - 2 ft

2 - 3 ft

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5+ ft

Assets

Public Access and Recreation

Recreation

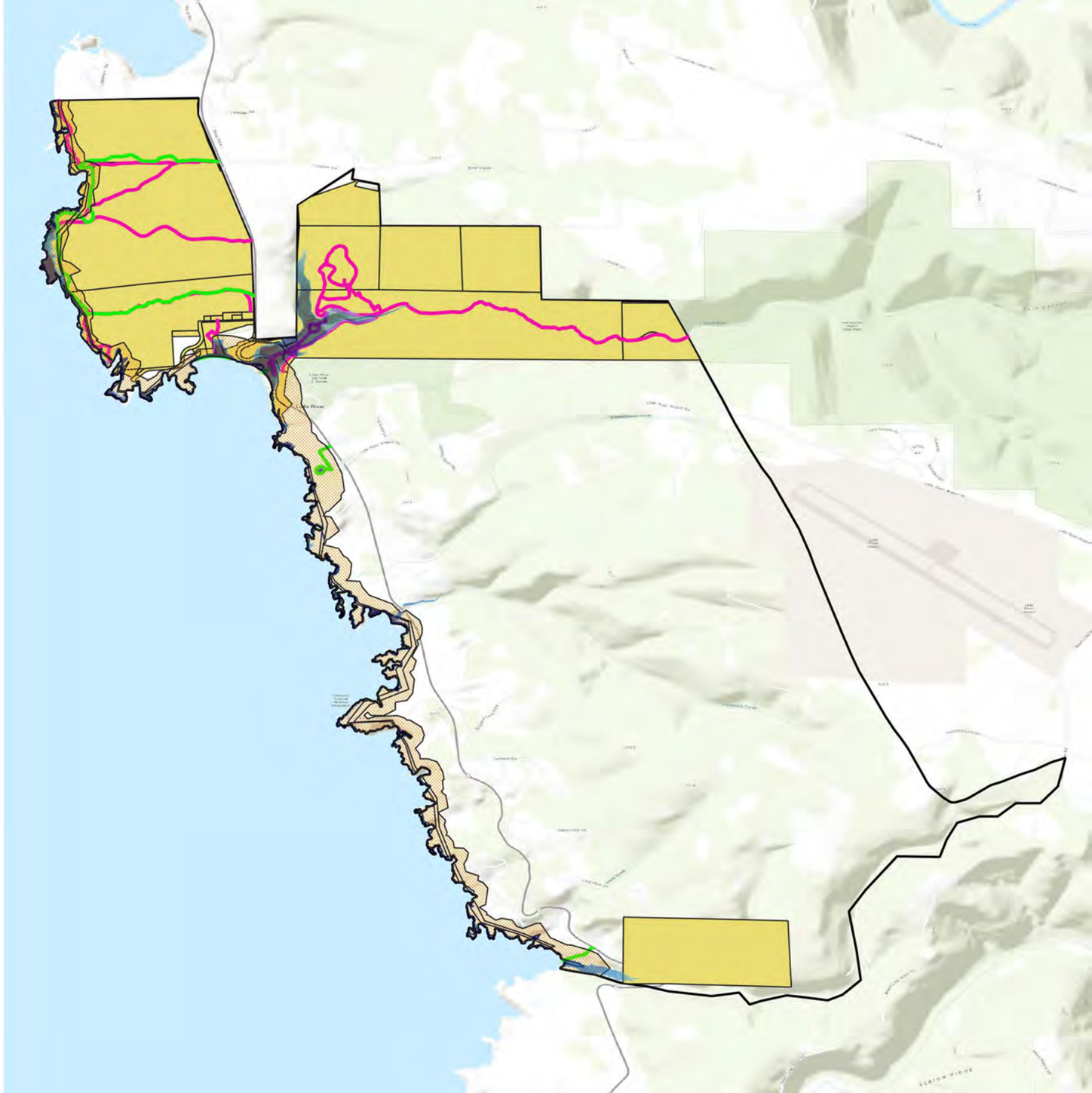
California Coastal Trail [8]

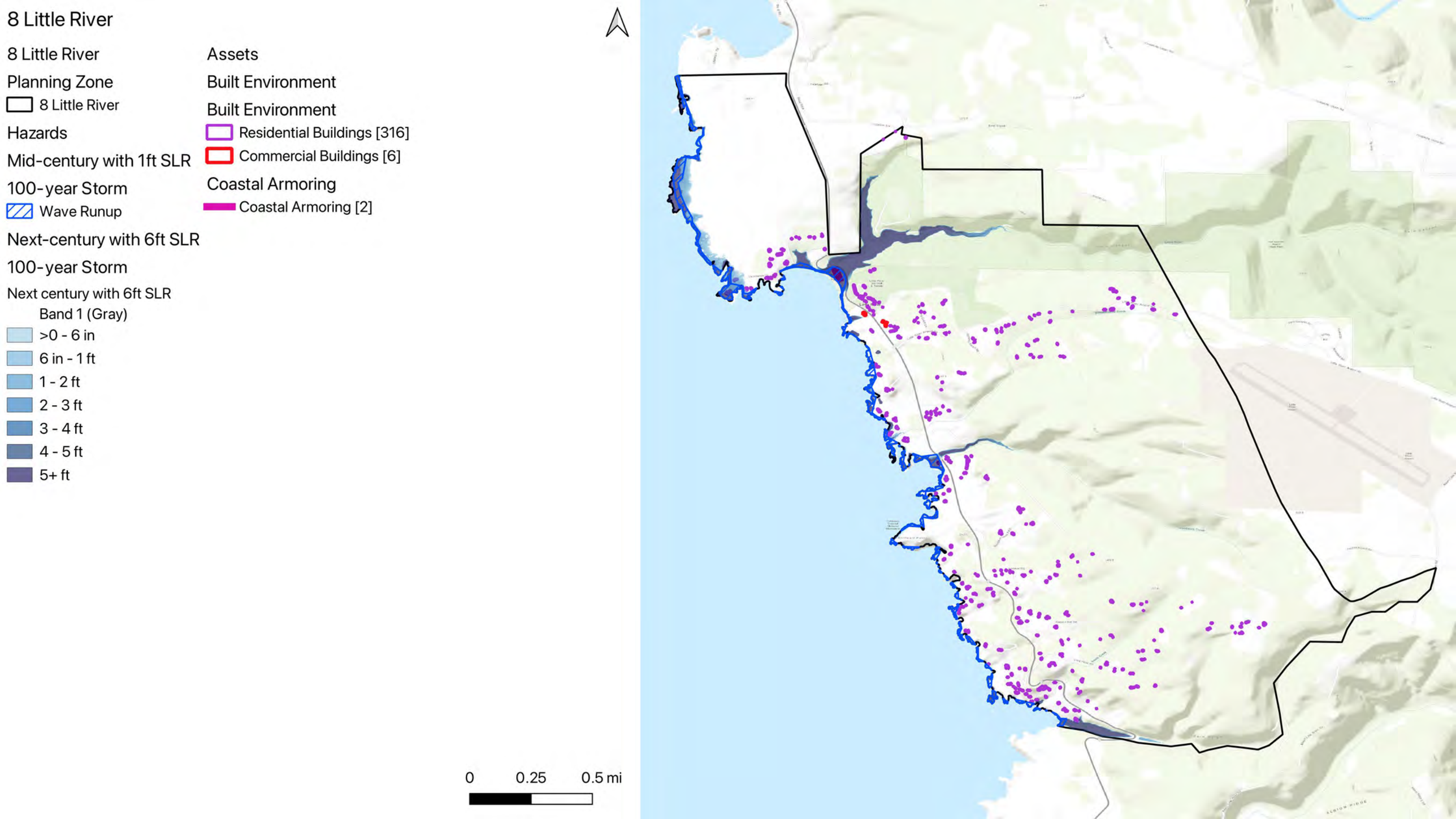
Recreational Routes [55]

Parks & Govt Lands

State Parks & Lands [25]

0 0.25 0.5 mi




8 Little River
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Planning Zone
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Hazards
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Next-century with 6ft SLR
100-year Storm
Next century with 6ft SLR
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Residential Buildings [316]
Commercial Buildings [6]
Coastal Armoring
Coastal Armoring [2]
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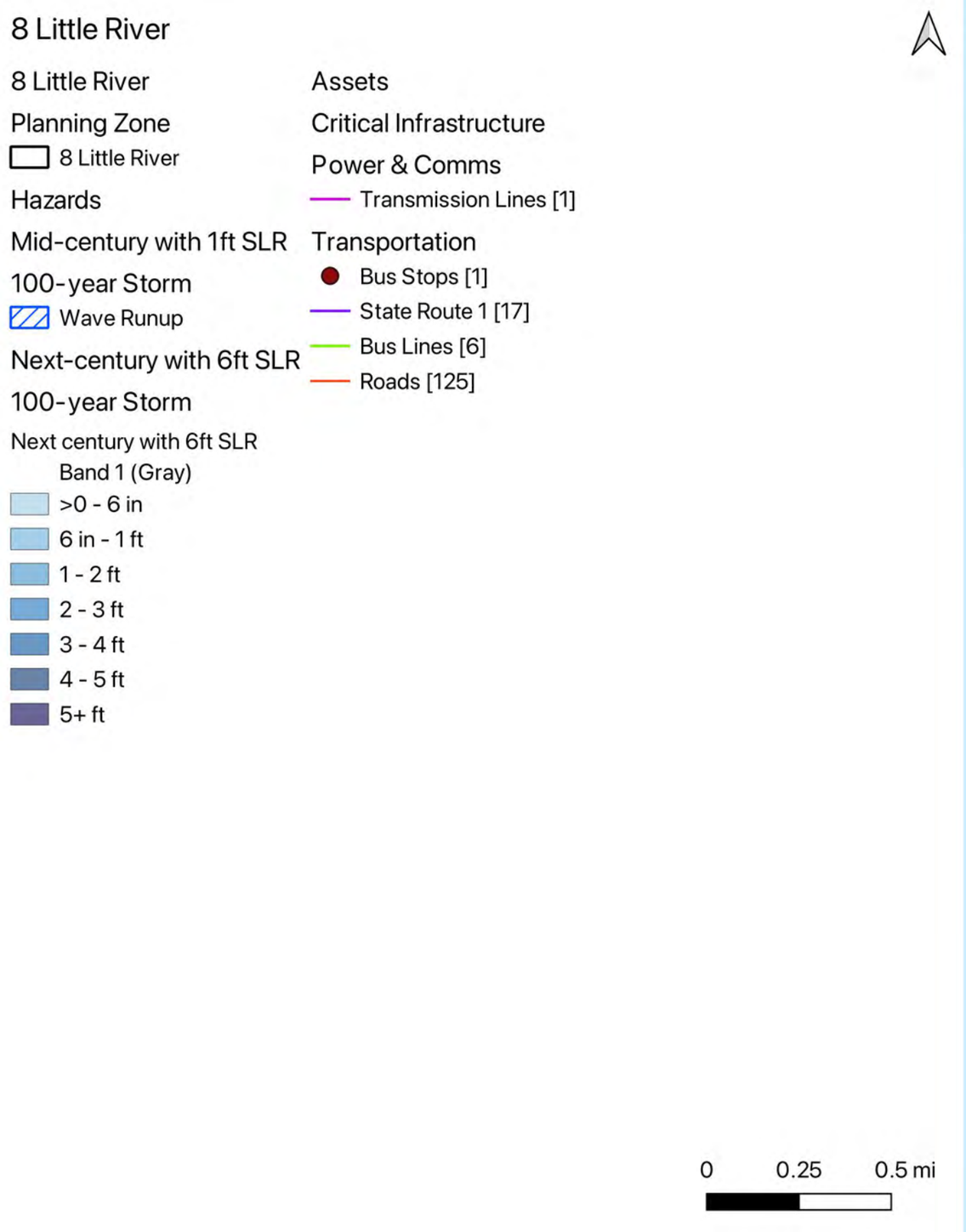
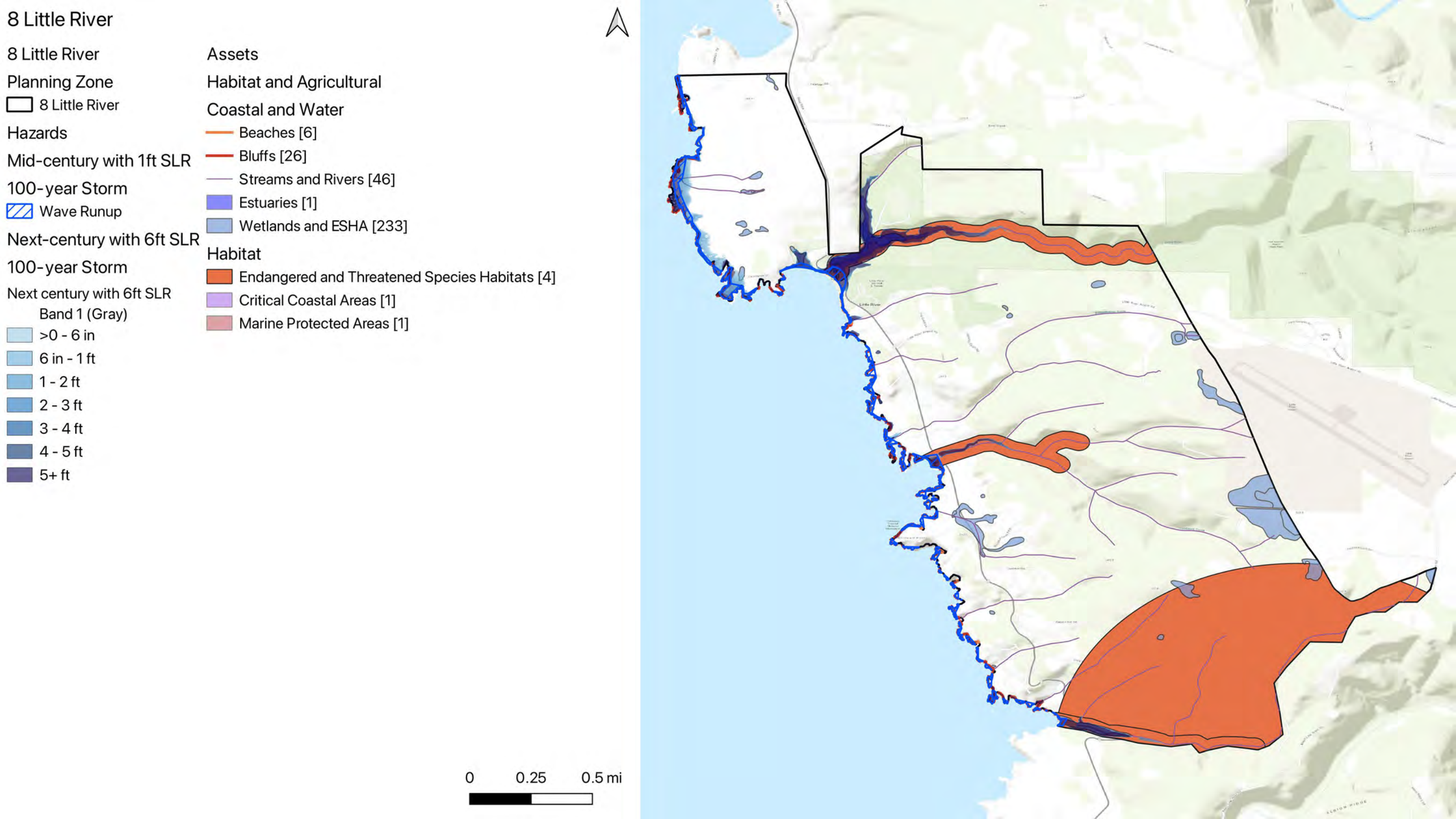
0.25
0.5 mi

8 Little River

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Assets
Habitat and Agricultural
Coastal and Water
Beaches [6]
Bluffs [26]
Streams and Rivers [46]
Estuaries [1]
Wetlands and ESHA [233]
Habitat
Endangered and Threatened Species Habitats [4]
Critical Coastal Areas [1]
Marine Protected Areas [1]
0
0.25
0.5 mi

8 Little River

8 Little River

Planning Zone

8 Little River

Hazards

Mid-century with 1ft SLR

100-year Storm

Wave Runup

Next-century with 6ft SLR

100-year Storm

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
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- 5+ ft

Assets

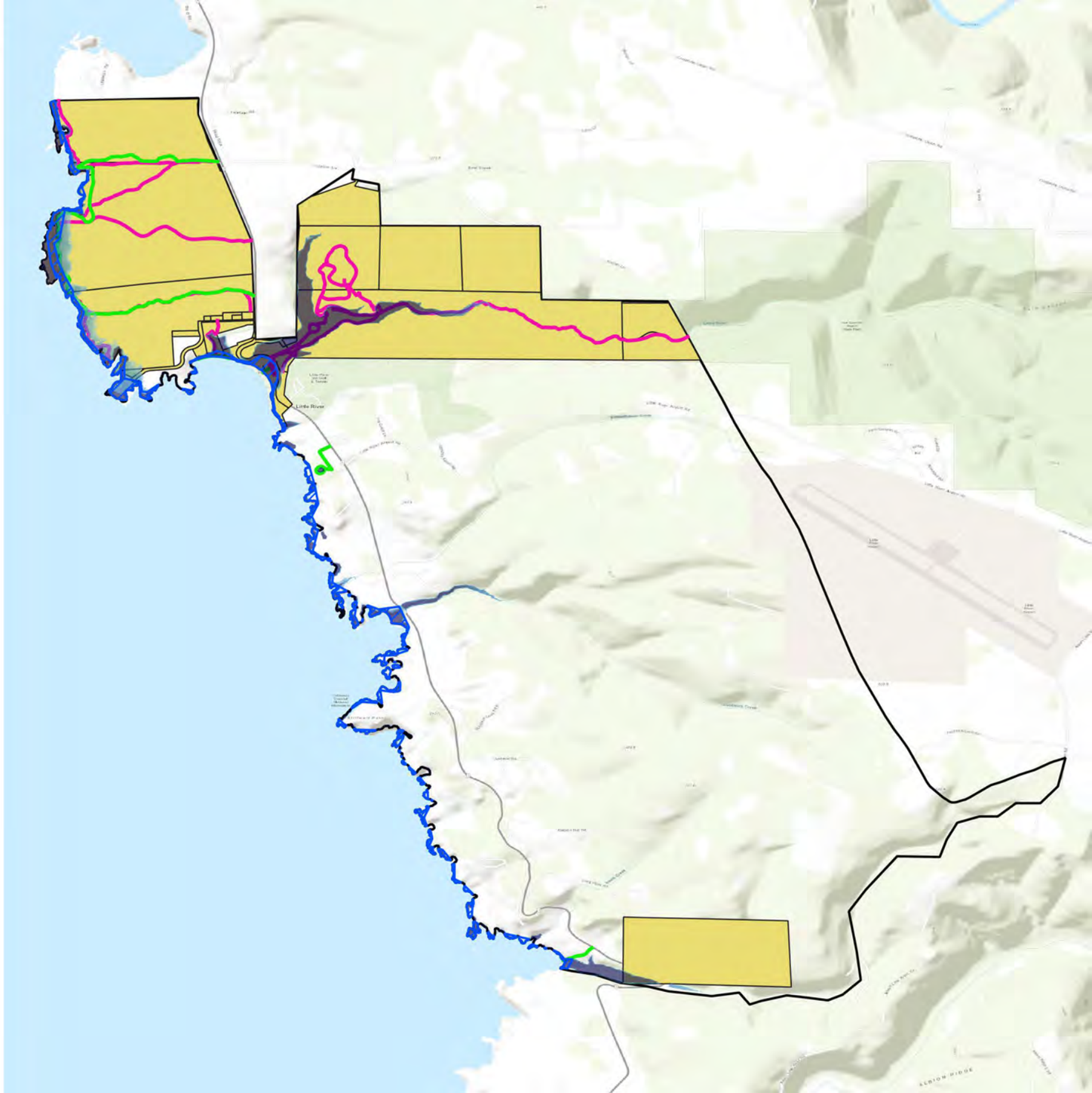
Public Access and Recreation

Recreation

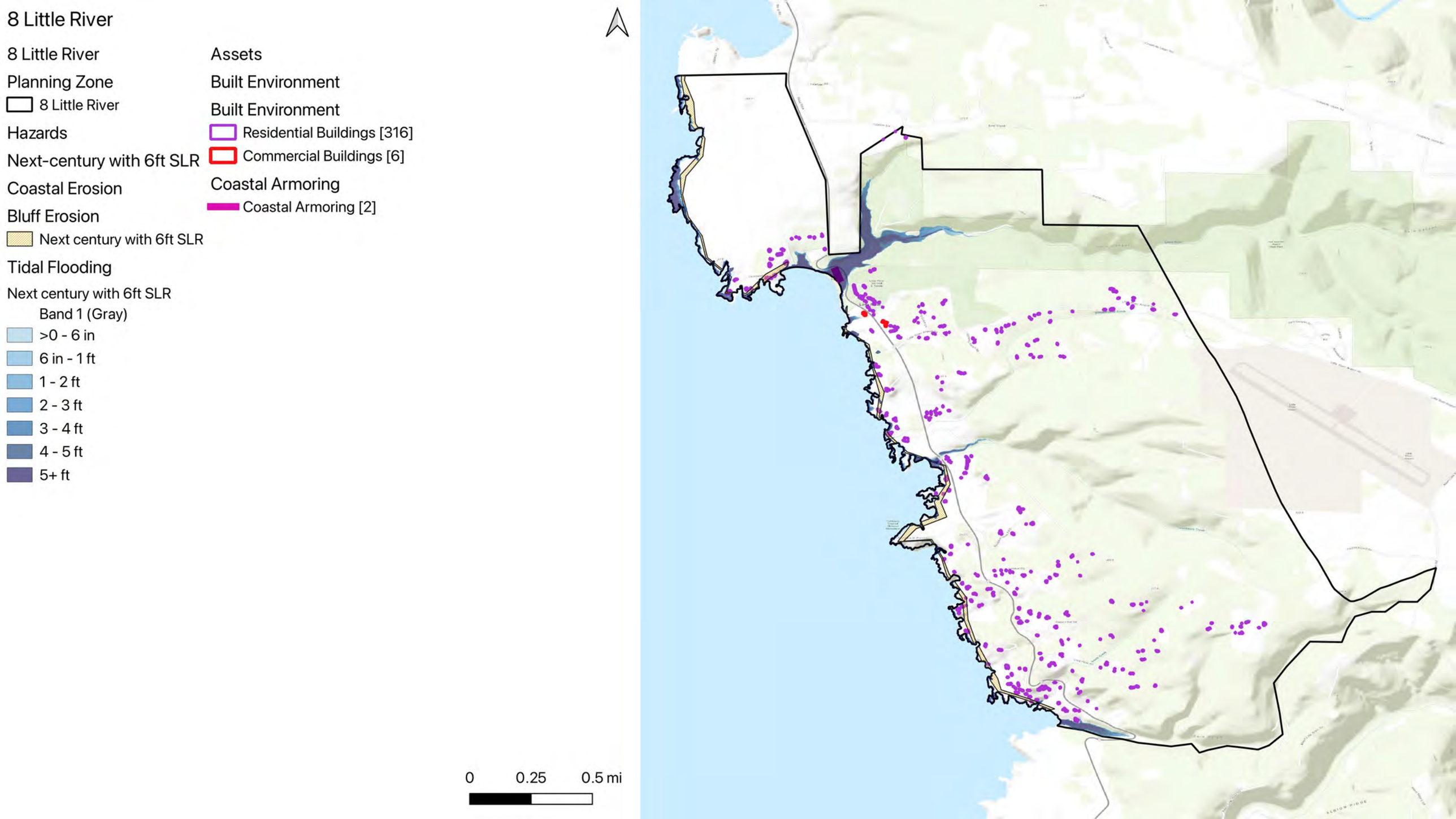
- California Coastal Trail [8]
- Recreational Routes [55]

Parks & Govt Lands

- State Parks & Lands [25]



0 0.25 0.5 mi


8 Little River
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Planning Zone
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Hazards
Next-century with 6ft SLR
Coastal Erosion
Bluff Erosion
Next century with 6ft SLR
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Residential Buildings [316]
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Coastal Armoring
Coastal Armoring [2]
0
0.25
0.5 mi

8 Little River

8 Little River

Planning Zone

- 8 Little River

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
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Assets

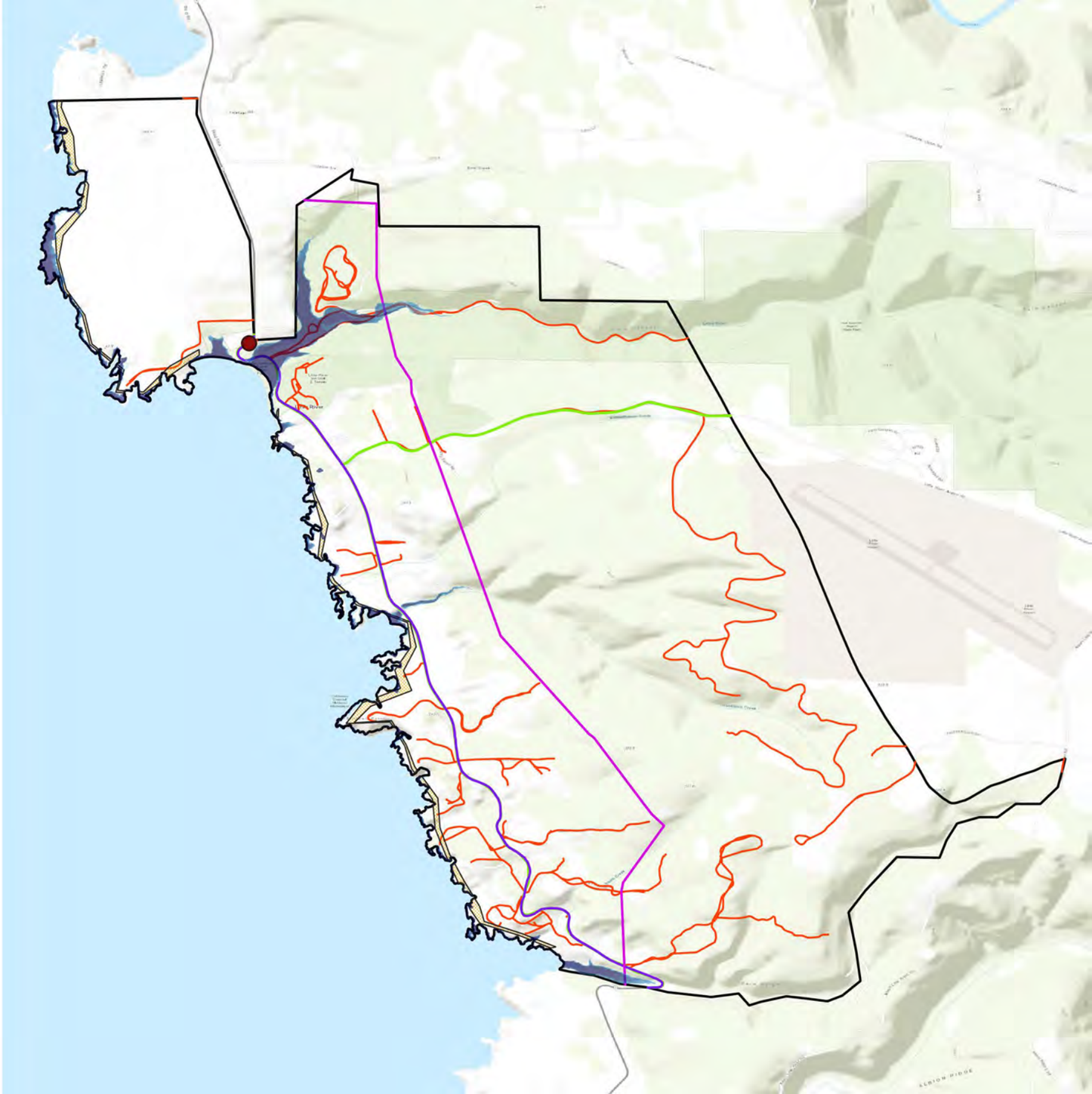
Critical Infrastructure

Power & Comms

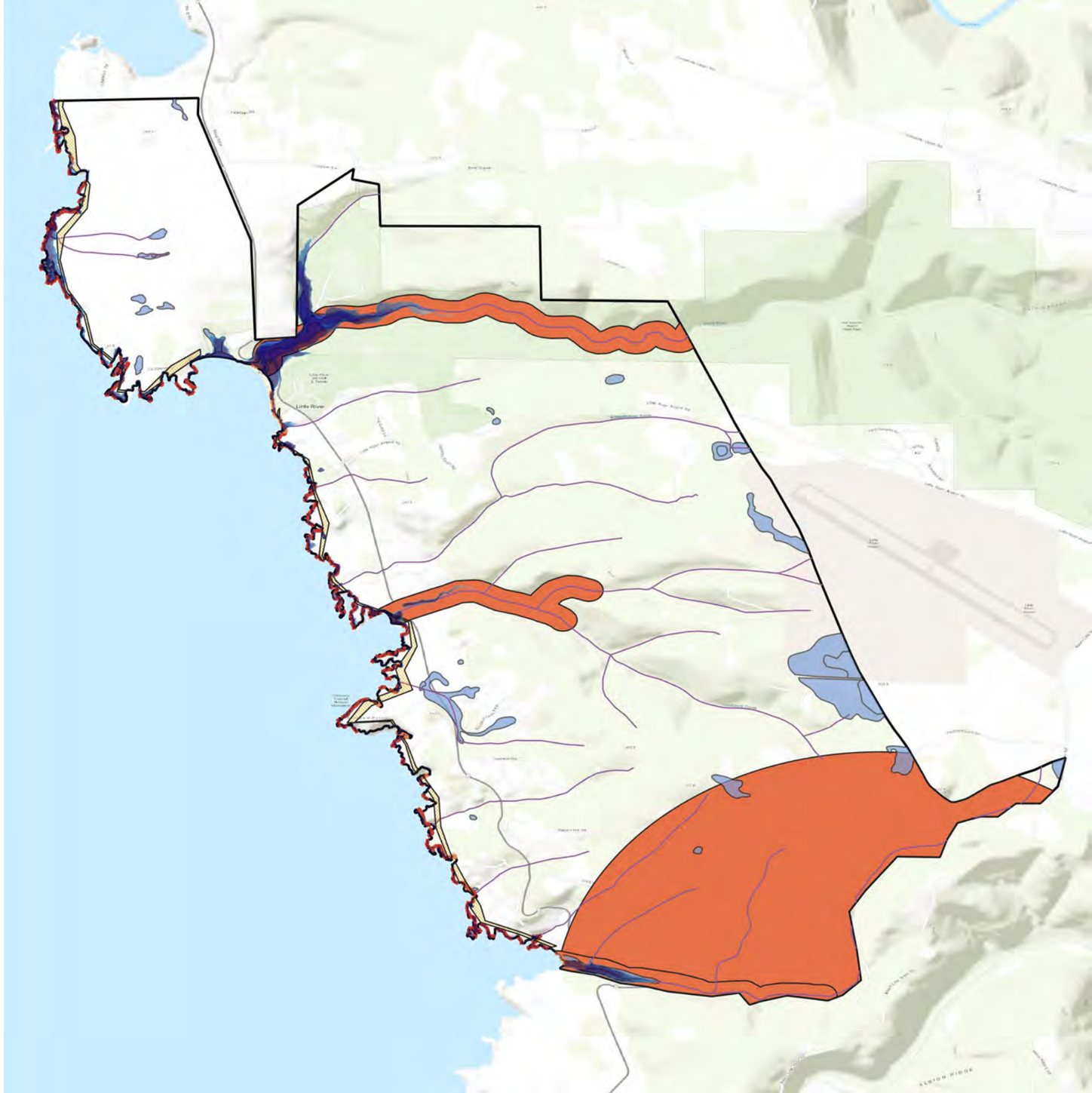
- Transmission Lines [1]

Transportation

- Bus Stops [1]
- State Route 1 [17]
- Bus Lines [6]
- Roads [125]



8 Little River



8 Little River

8 Little River

Planning Zone

8 Little River

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

Band 1 (Gray)

>0 - 6 in

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Assets

Public Access and Recreation

Recreation

California Coastal Trail [8]

Recreational Routes [55]

Parks & Govt Lands

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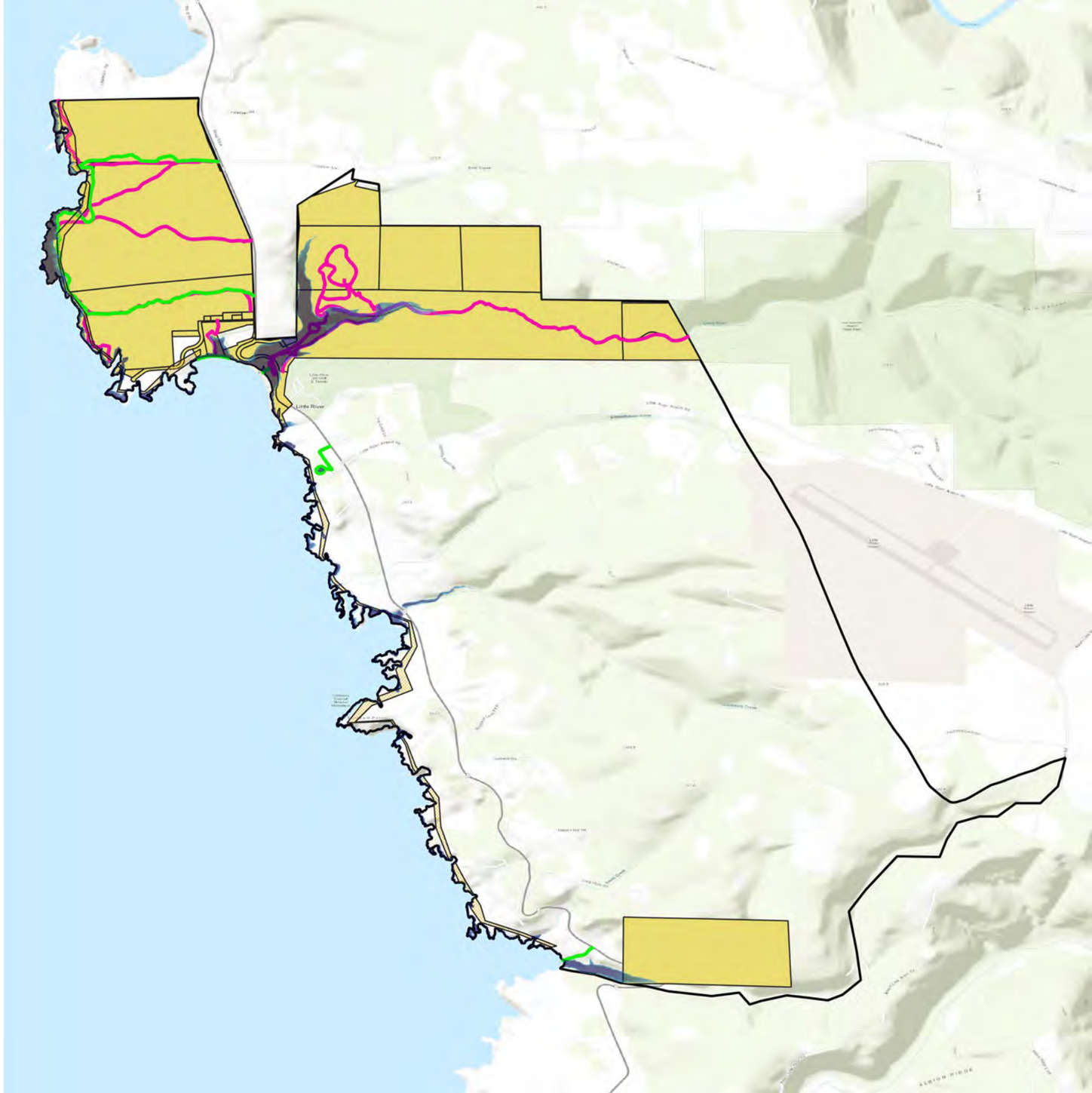


0 0.25 0.5 mi

Table 9. Albion

Sub-Category	Asset Type	Units	Wave P	Storm P	TidalP	Totals P	Storm 1ft	Tidal1ft	BluffE1ft	CoastE 1ft	Totals 1ft	Storm 3ft	Tidal3ft	BluffE3ft	CoastE 3ft	Totals 3ft	Storm 6ft	Tidal6ft	BluffE6ft	CoastE 6ft	Totals 6ft
Power & Comms	Transmission Lines	Length (mi)	0	0.2	0.2	0.2	0.2	0.2	0	0	0.2	0.2	0.2	0	0	0.2	0.2	0.2	0	0	0.2
Environmental Sites	Clean Up Sites	Number of sites	2	2	2	2	2	2	0	0	2	2	2	0	0	2	2	2	0	0	2
Transportation	State Route 1	Length (mi)	0	2.4	0.7	2.4	2.8	1.2	0	0.1	2.9	3.2	2	0	0.1	3.3	3.4	3.2	0.1	0.3	3.7
Transportation	Bus Lines	Length (mi)	0	5.5	1.9	5.5	6.3	2.9	0	0.3	6.5	7.2	4.9	0.1	0.3	7.5	7.5	7.1	0.3	0.7	8.4
Transportation	Roads	Length (mi)	0	4.9	2.8	4.9	5.4	3.4	0.1	0.1	5.5	5.9	4.5	0.2	0.4	6.3	6.3	5.8	0.3	1.2	7.5
Recreation	California Coastal Trail	Length (mi)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.1	0.1	0.2	0.5	0.6	0.1	0.1	0.2	0.8	0.9
Recreation	Private Campgrounds	Number of private campgrounds	0	1	1	1	1	1	0	0	1	1	1	0	0	1	1	1	0	0	1
Parks & Govt Lands	State Parks & Lands	Area (acres)	0	49	10	49	51	20	0	0	51	54	44	0	0	54	58	53	0	0	58
Parks & Govt Lands	Land Trust lands	Area (acres)	3	4	3	5	5	4	2	16	18	5	4	4	21	23	6	5	6	32	33
Coastal and Water	Beaches	Length (mi)	0.2	0.3	0.3	0.3	0.3	0.3	0	0.1	0.3	0.3	0.3	0	0.1	0.3	0.3	0.3	0	0.1	0.3
Coastal and Water	Bluffs	Length (mi)	2.6	4.4	3.9	4.6	4.5	4	0	1.8	4.8	4.6	4.3	0	1.8	4.8	4.7	4.5	0	1.8	4.9
Coastal and Water	Streams and Rivers	Length (mi)	0.1	10.6	9.2	10.6	11	9.6	0	0.1	11.1	11.4	10.4	0.1	0.2	11.6	11.9	11.3	0.1	0.4	12.3
Coastal and Water	Estuaries	Area (sqmi)	0	0.4	0.4	0.4	0.4	0.4	0	0	0.4	0.4	0.4	0	0	0.4	0.4	0.4	0	0	0.4
Coastal and Water	Wetlands and ESHA	Area (sqmi)	0	0.4	0.4	0.4	0.4	0.4	0	0	0.4	0.4	0.4	0	0	0.4	0.4	0.4	0	0	0.4
Habitat	Endangered and Threatened Species Habitats	Area (sqmi)	0	0.8	0.7	0.8	0.8	0.7	0	0	0.8	0.9	0.8	0	0	0.9	0.9	0.9	0	0	1
Habitat	Critical Coastal Areas	Area (sqmi)	0	0.6	0.5	0.6	0.6	0.5	0	0	0.7	0.7	0.6	0	0	0.7	0.7	0.7	0	0	0.7
Habitat	Marine Protected Areas	Number of individually designated MPAs	0	1	1	1	1	1	0	0	1	1	1	0	0	1	1	1	0	0	1
Historical and Cultural Resources	Albion River Bridge	Area of bridge (sqft)	776.6479617	16538.2835	14582.09167	16538.2835	16820.36559	15310.31737	0	4553.805853	20189.9908	17266.60456	16262.41815	0	4815.190609	20313.23574	17790.93224	17056.51249	0	4776.053587	20469.05264
Built Environment	Residential Buildings	Number of buildings	0	1	1	1	1	1	5	4	8	2	1	10	15	20	2	1	18	37	42
Built Environment	Coastal Dependent Use	Number of buildings	0	14	9	14	15	12	0	0	15	16	14	0	0	16	17	16	0	0	17

9 Albion

9 Albion

Planning Zone

- 9 Albion

Hazards

Present Day

100-year Storm

- Wave Runup

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

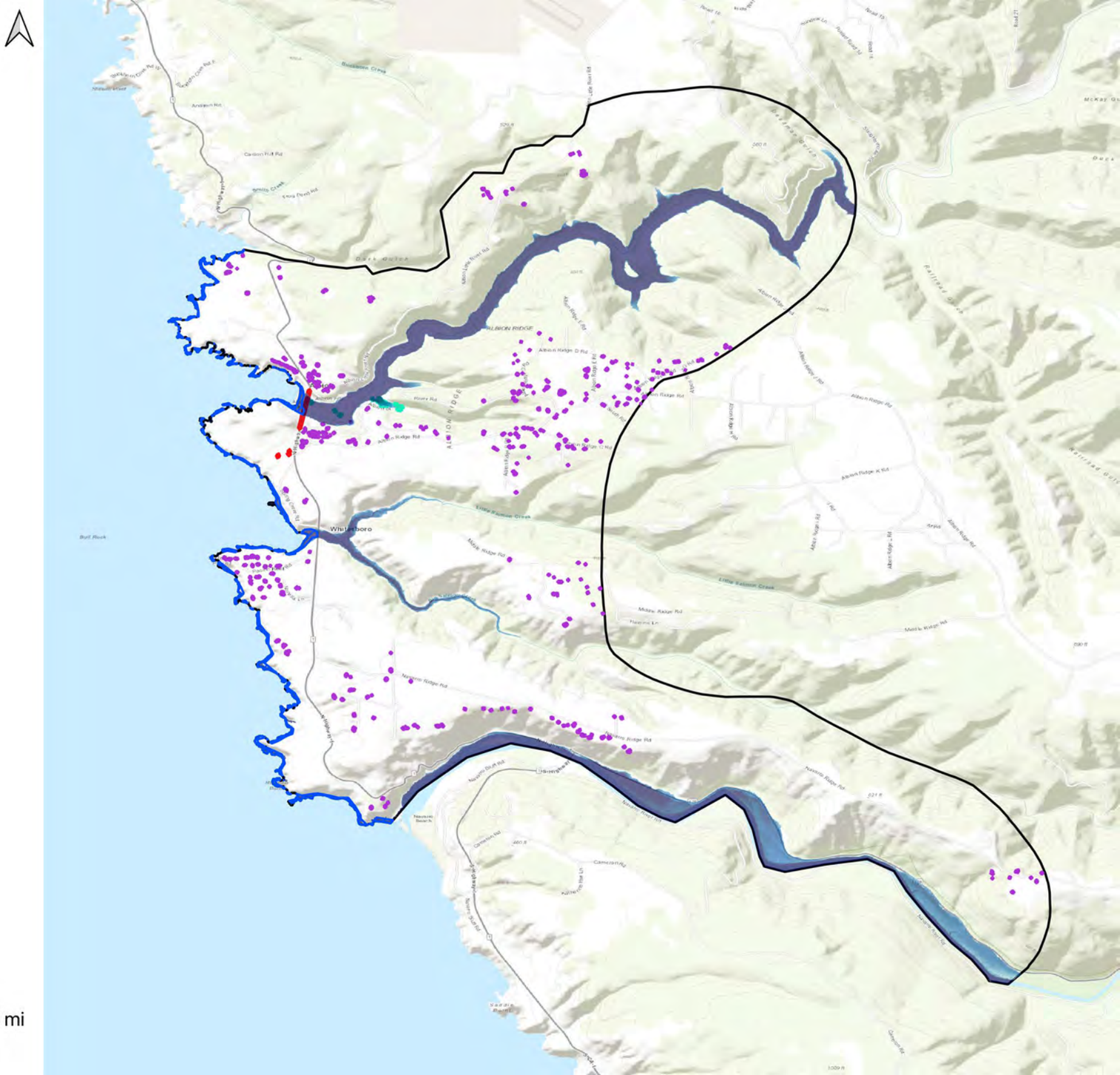
Built Environment

Historical and Cultural Resources

- Albion River Bridge [1]

Built Environment

- Residential Buildings [361]
- Commercial Buildings [3]
- Public Facilities [1]
- Coastal Dependent Use [17]



0 0.25 0.5 mi

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Planning Zone

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Hazards

Present Day

100-year Storm

- Wave Runup

Present day

- Band 1 (Gray)
- >0 - 6 in
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Assets

Critical Infrastructure

Power & Comms

- Transmission Lines [1]

Environmental Sites

- Clean Up Sites [3]

Transportation

- Bus Stops [1]
- State Route 1 [16]
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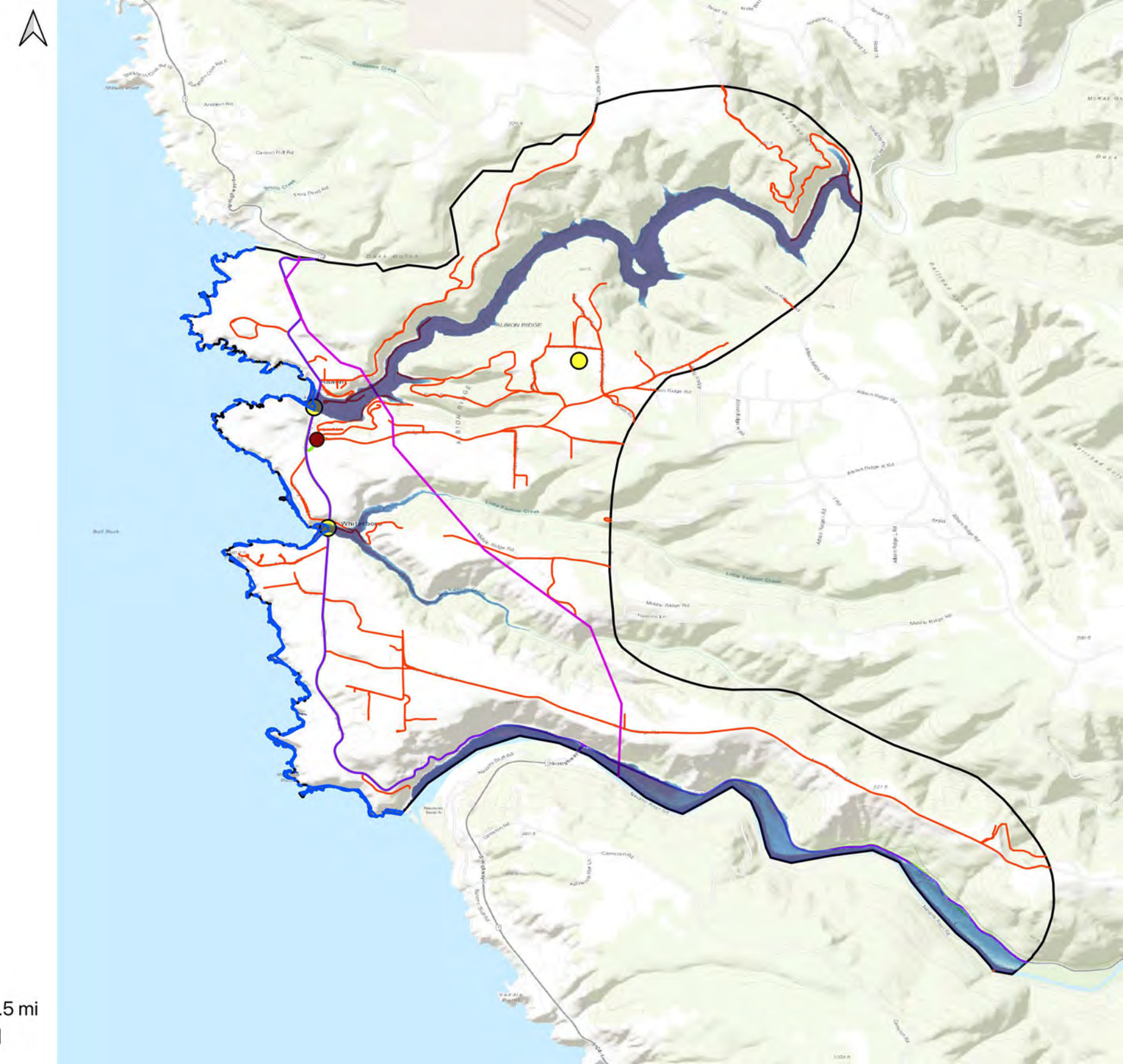
- Roads [161]



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Planning Zone

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Hazards

Present Day

100-year Storm

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Present day

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Critical Coastal Areas [2]

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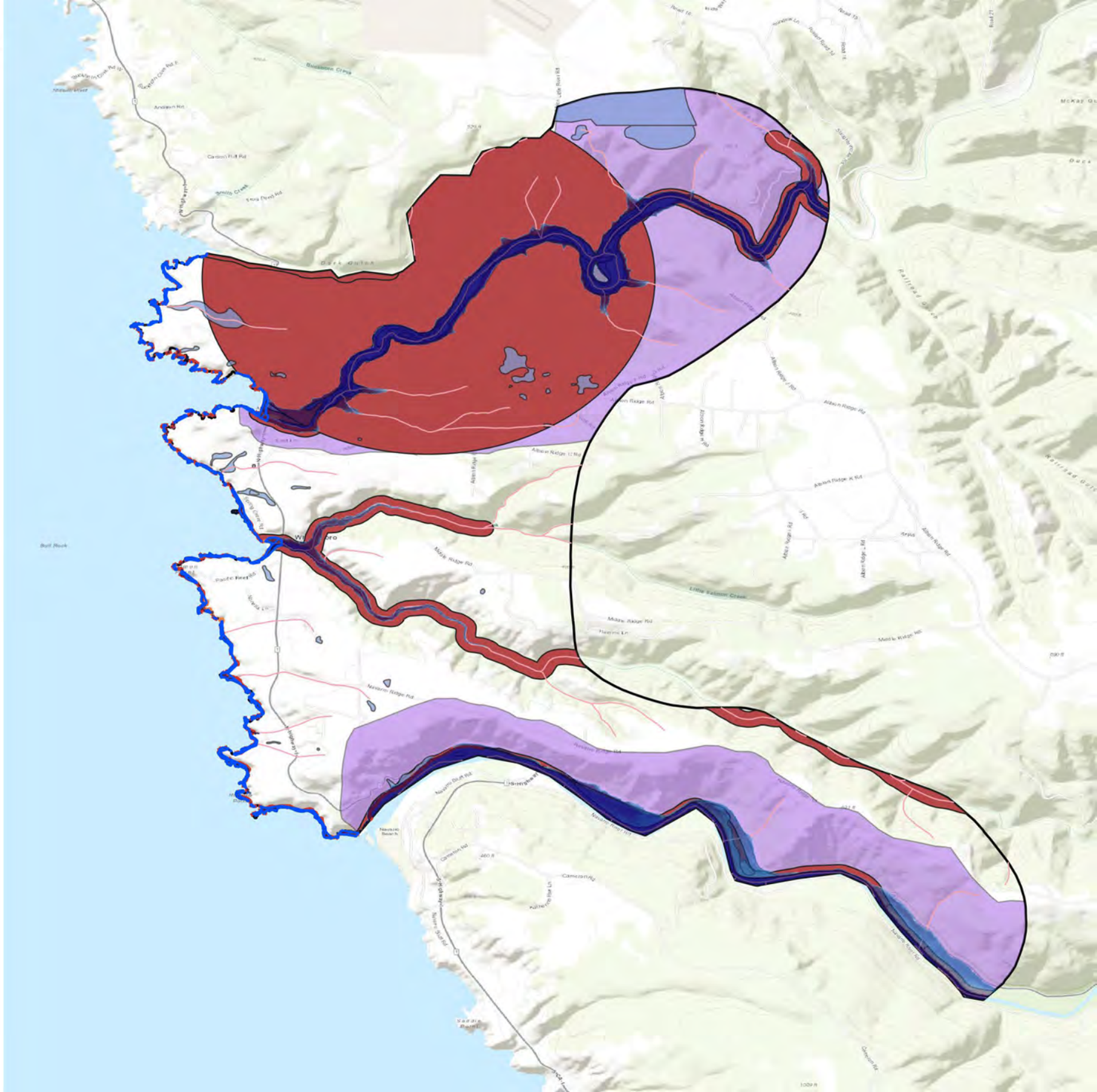

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Planning Zone

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Hazards

Present Day

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Band 1 (Gray)

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- 4 - 5 ft
- 5+ ft

Assets

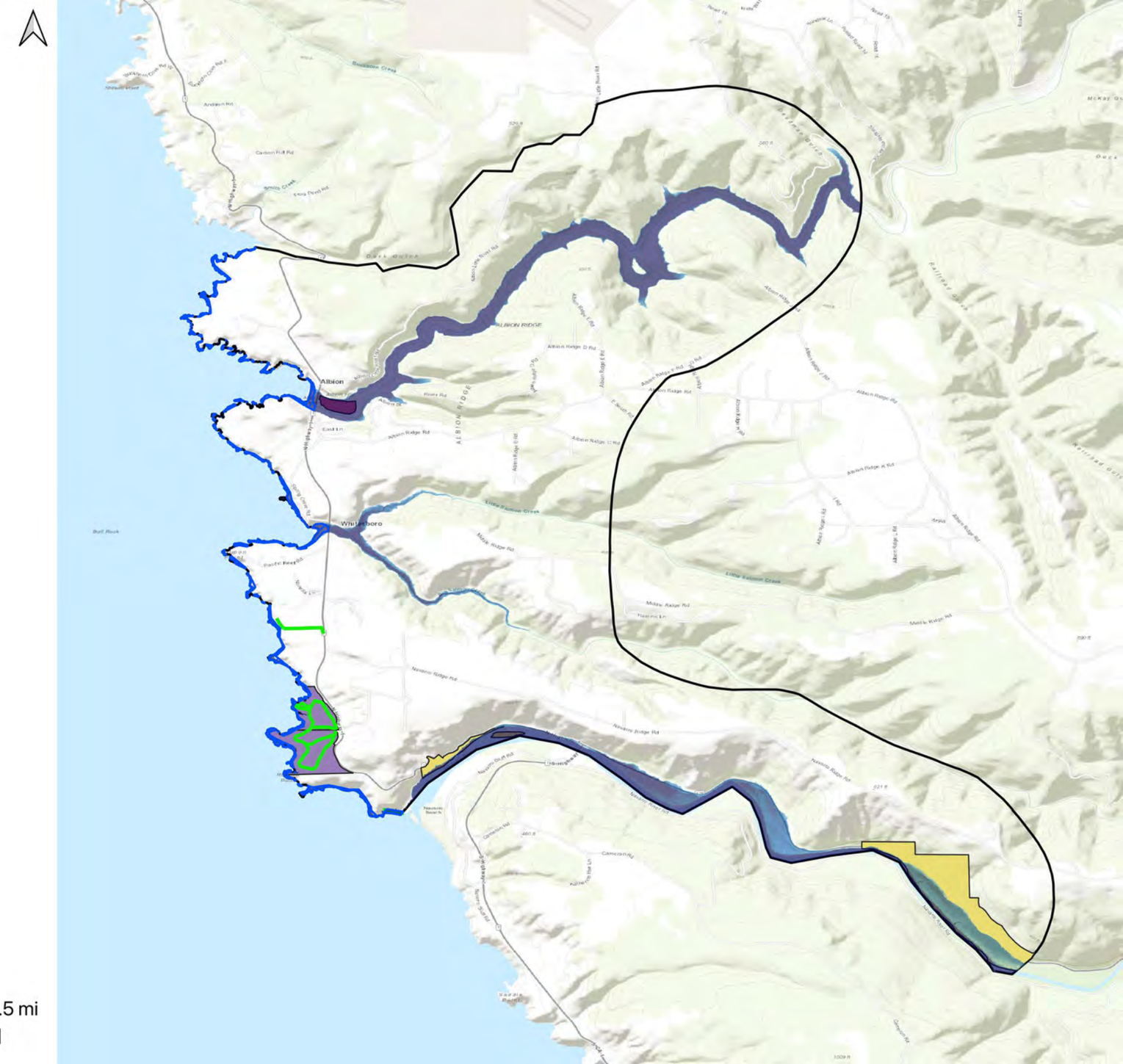
Public Access and Recreation

Recreation

- California Coastal Trail [6]
- Private Campgrounds [1]

Parks & Govt Lands

- State Parks & Lands [4]
- Land Trust lands [2]



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9 Albion

9 Albion

Planning Zone

- 9 Albion

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

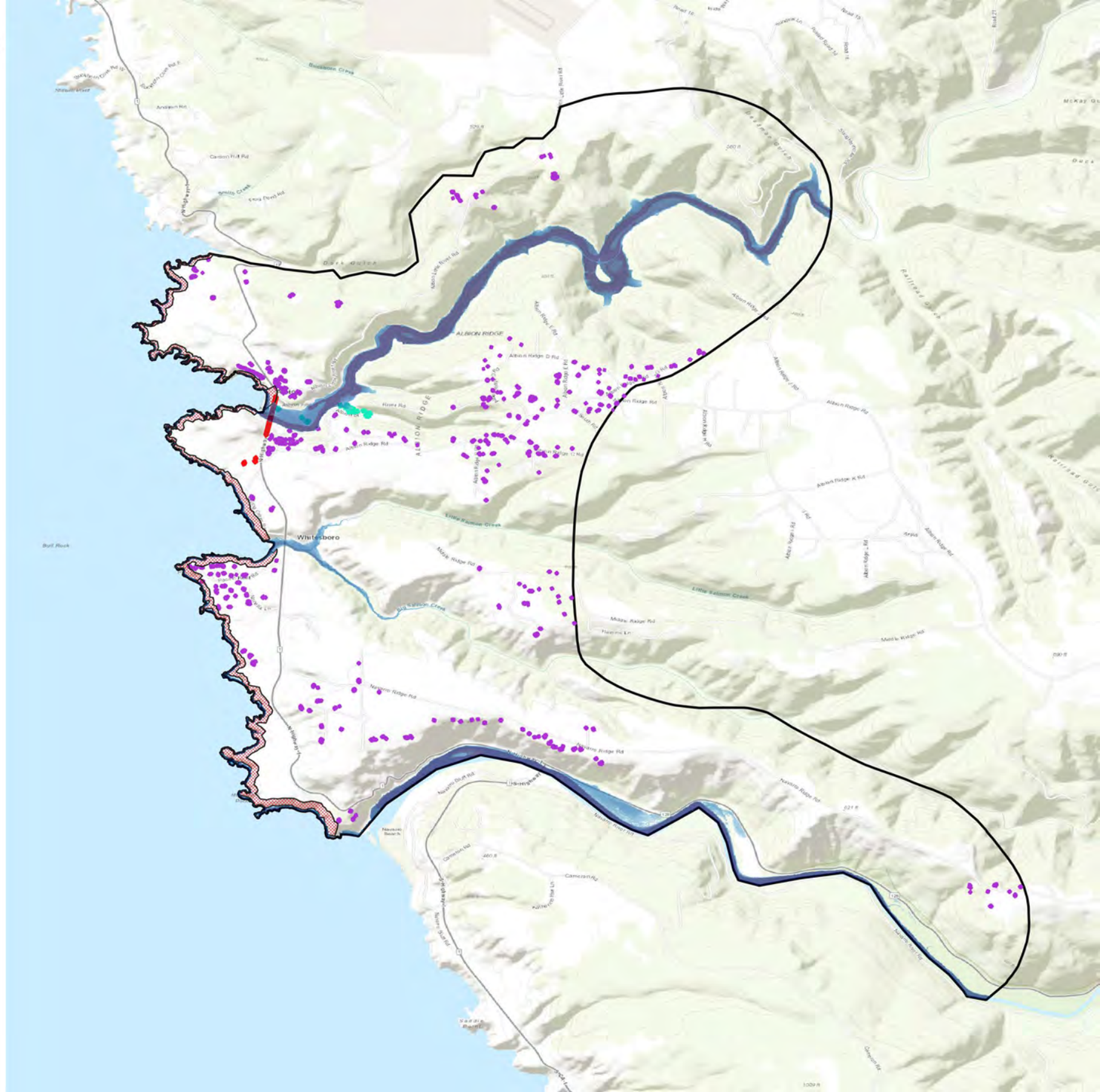
Built Environment

Historical and Cultural Resources

- Albion River Bridge [1]

Built Environment

- Residential Buildings [361]
- Commercial Buildings [3]
- Public Facilities [1]
- Coastal Dependent Use [17]



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Planning Zone

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Hazards

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Assets

Critical Infrastructure

Power & Comms

Transmission Lines [1]

Environmental Sites

Clean Up Sites [3]

Transportation

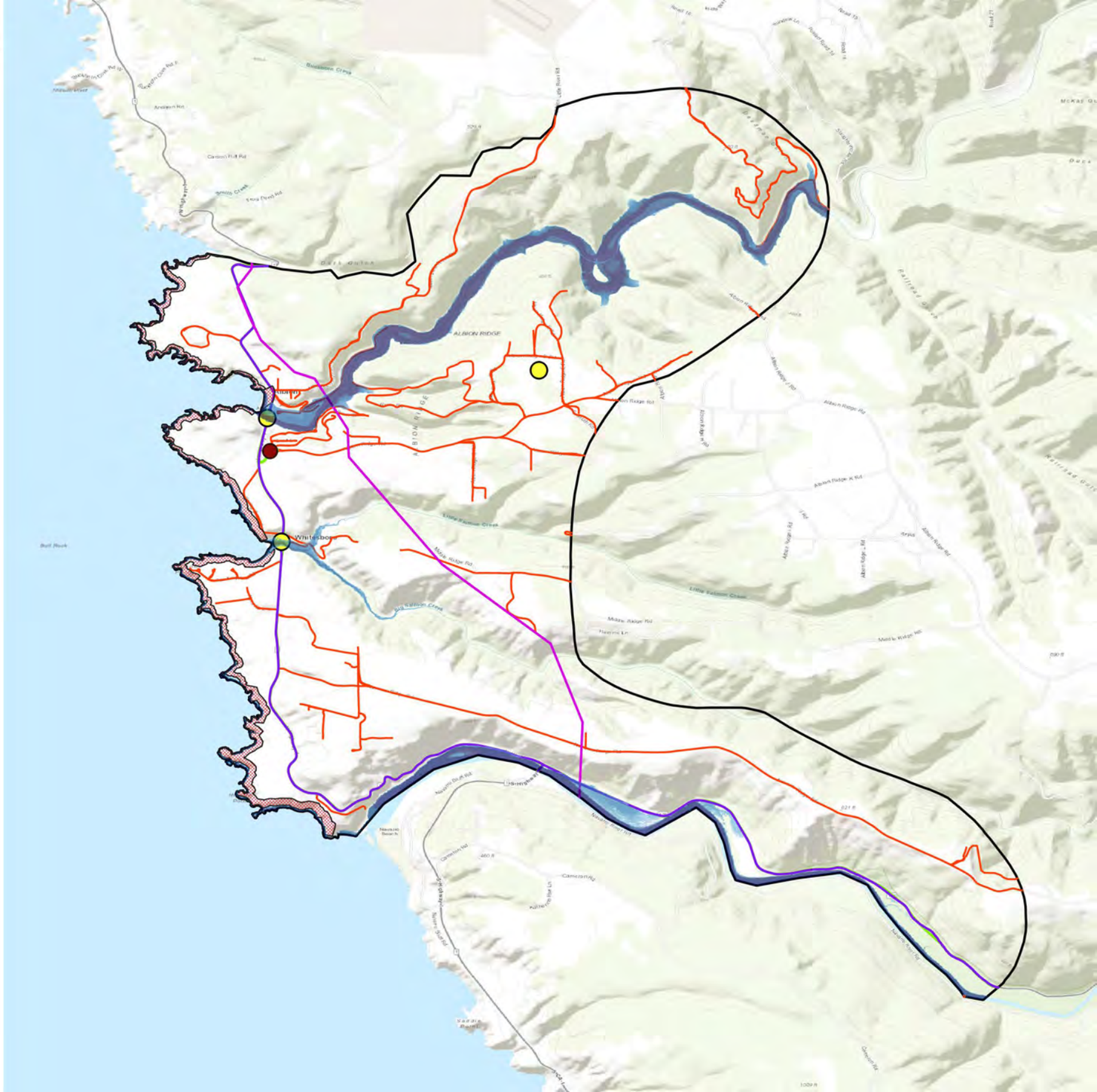
Bus Stops [1]

State Route 1 [16]

Bus Lines [5]

Roads [161]





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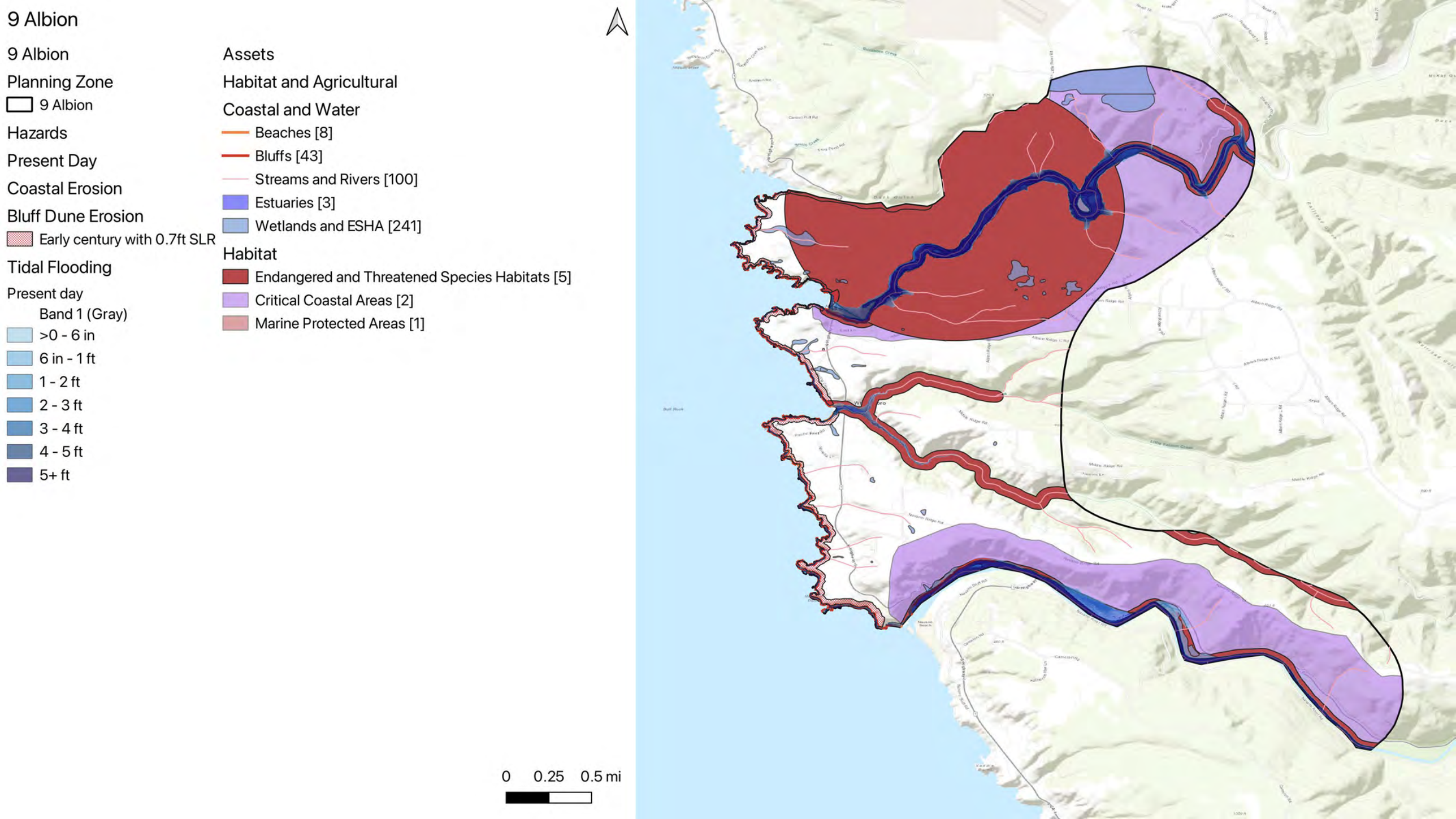
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Hazards
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Assets
Habitat and Agricultural
Coastal and Water
Beaches [8]
Bluffs [43]
Streams and Rivers [100]
Estuaries [3]
Wetlands and ESHA [241]
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Endangered and Threatened Species Habitats [5]
Critical Coastal Areas [2]
Marine Protected Areas [1]
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Planning Zone

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Hazards

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Assets

Public Access and Recreation

Recreation

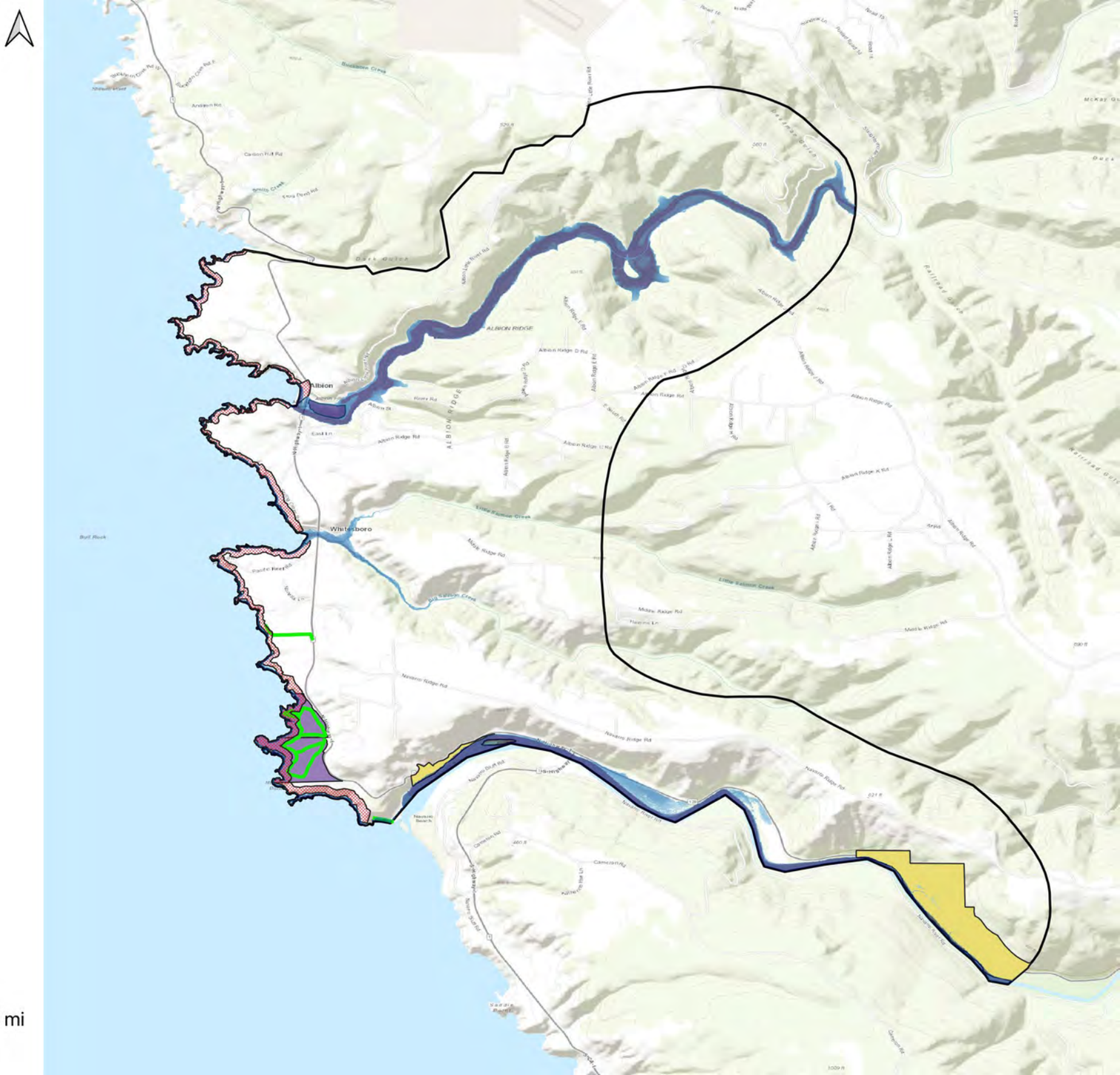
California Coastal Trail [6]

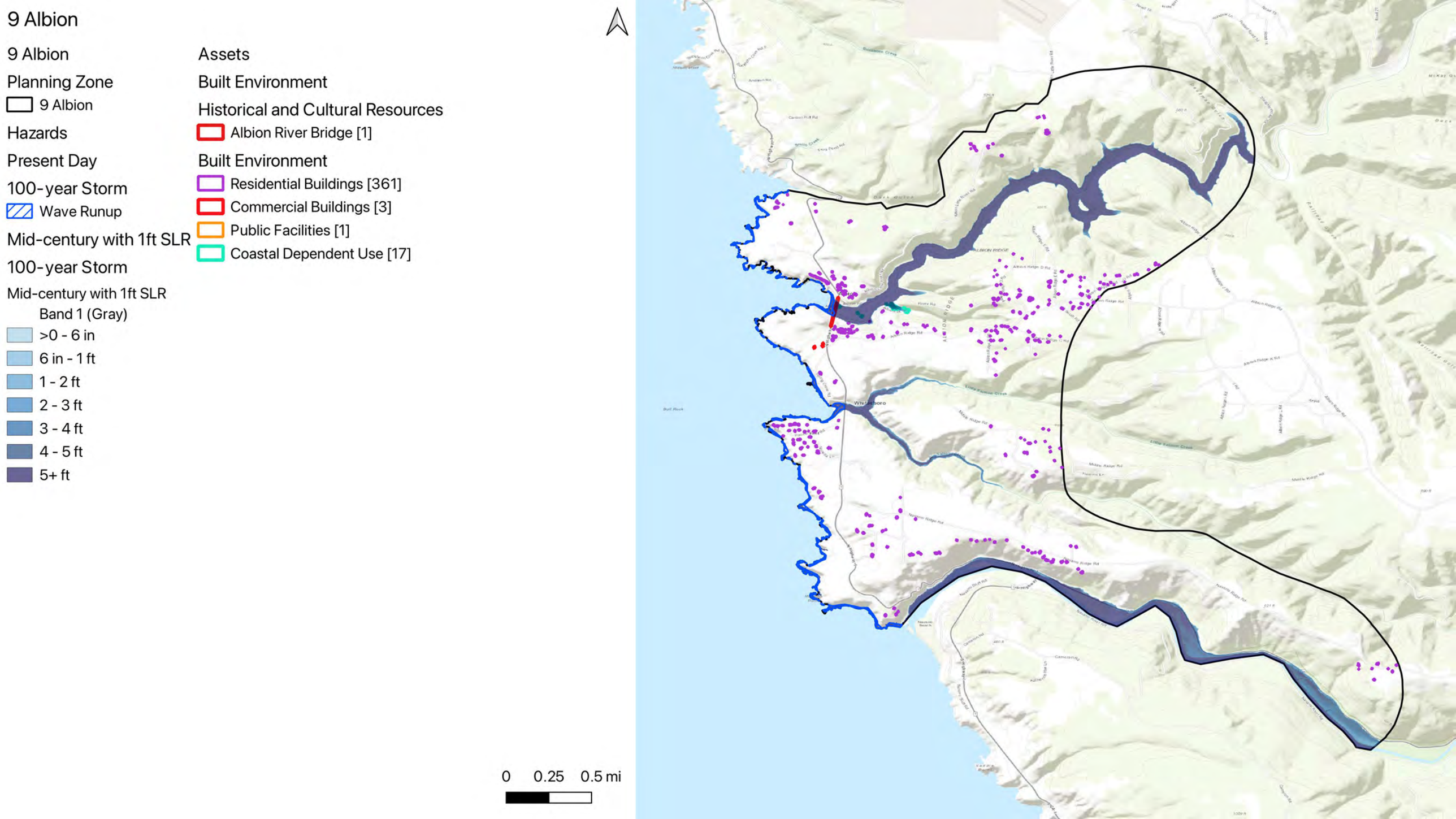
Private Campgrounds [1]

Parks & Govt Lands

State Parks & Lands [4]

Land Trust lands [2]

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Planning Zone
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Hazards
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100-year Storm
Wave Runup
Mid-century with 1ft SLR
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Critical Infrastructure

Power & Comms

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Environmental Sites

- Clean Up Sites [3]

Transportation

- Bus Stops [1]
- State Route 1 [16]
- Bus Lines [5]
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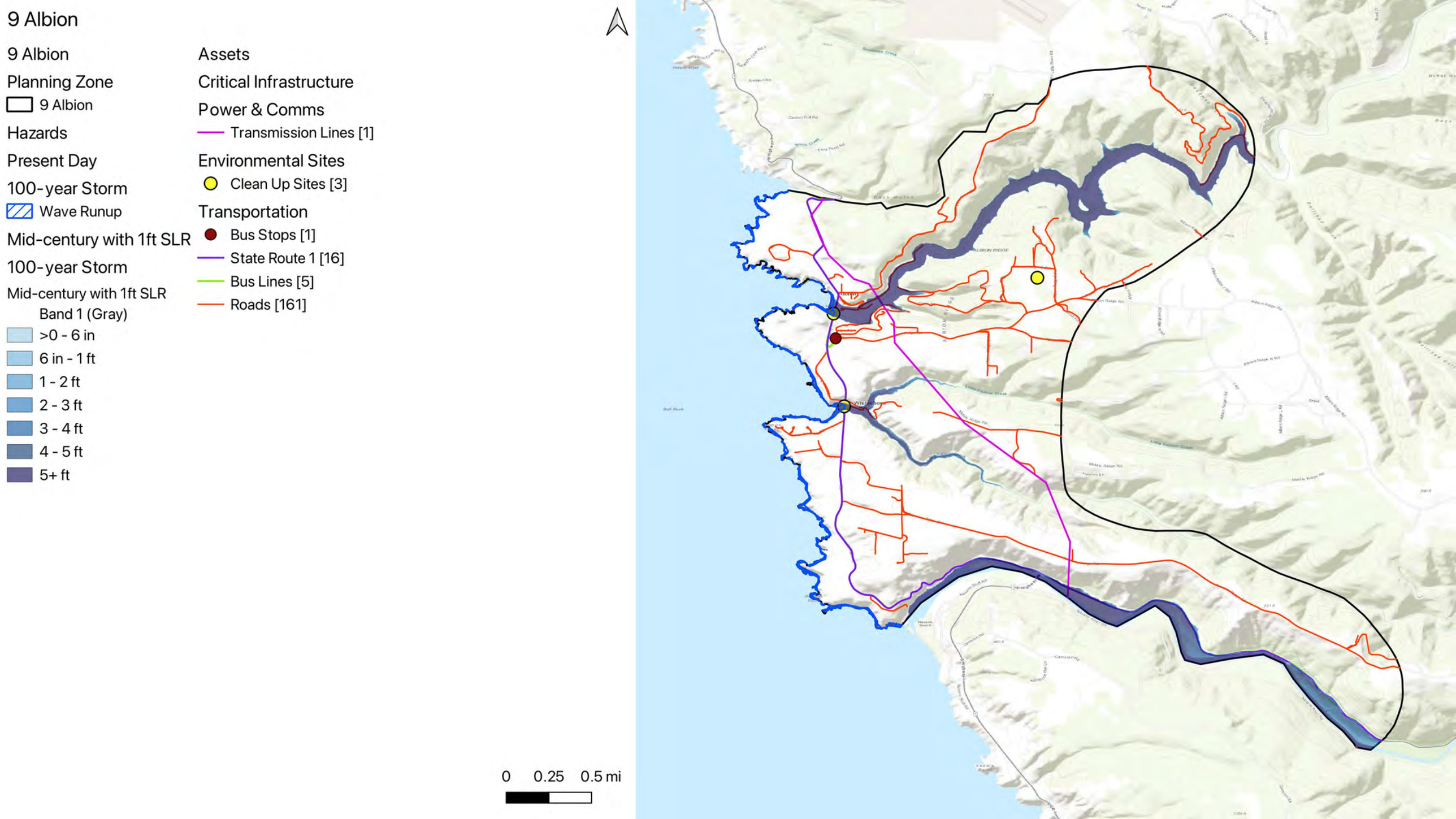

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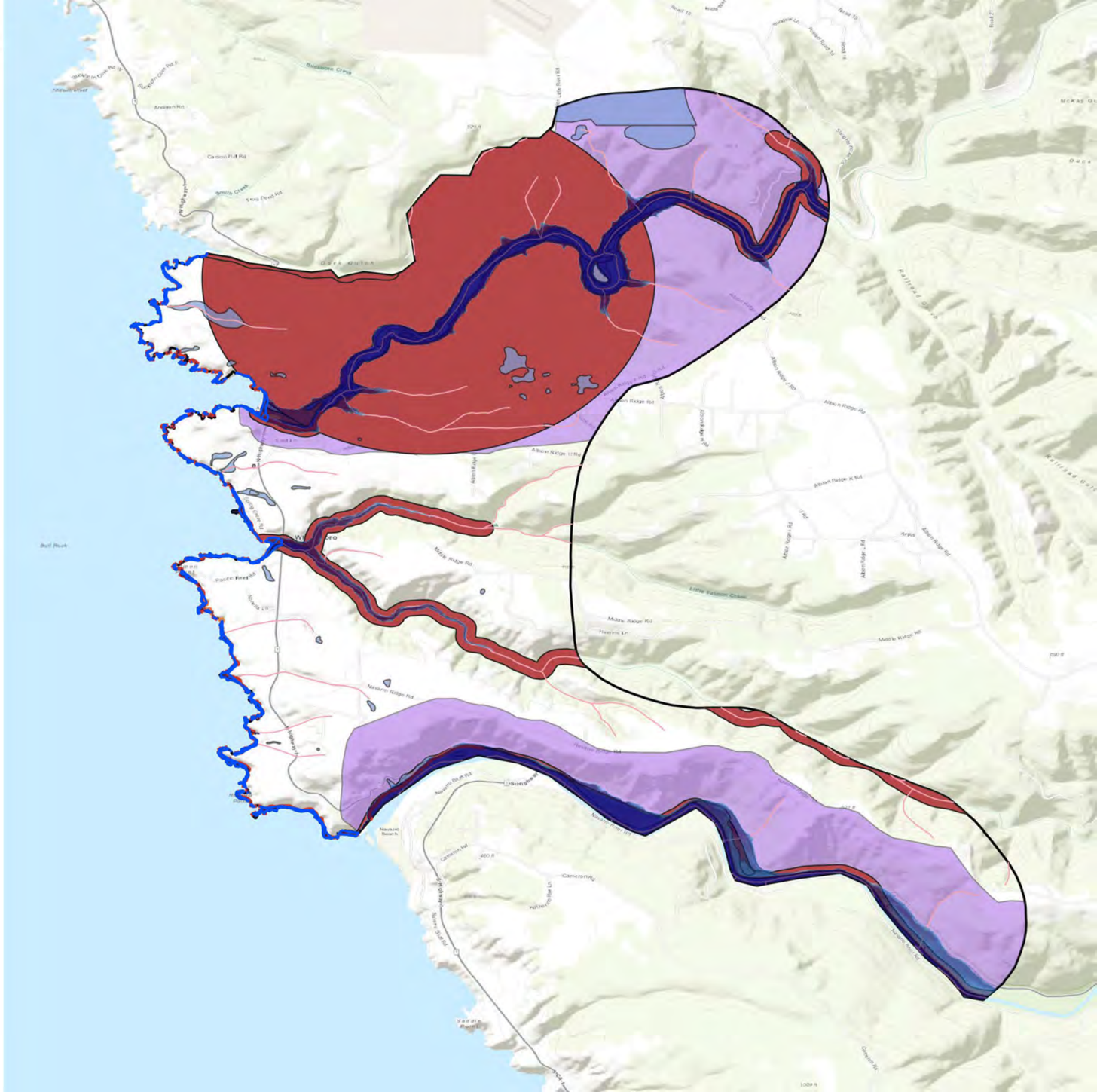
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Public Access and Recreation

Recreation

- California Coastal Trail [6]
- Private Campgrounds [1]

Parks & Govt Lands

- State Parks & Lands [4]
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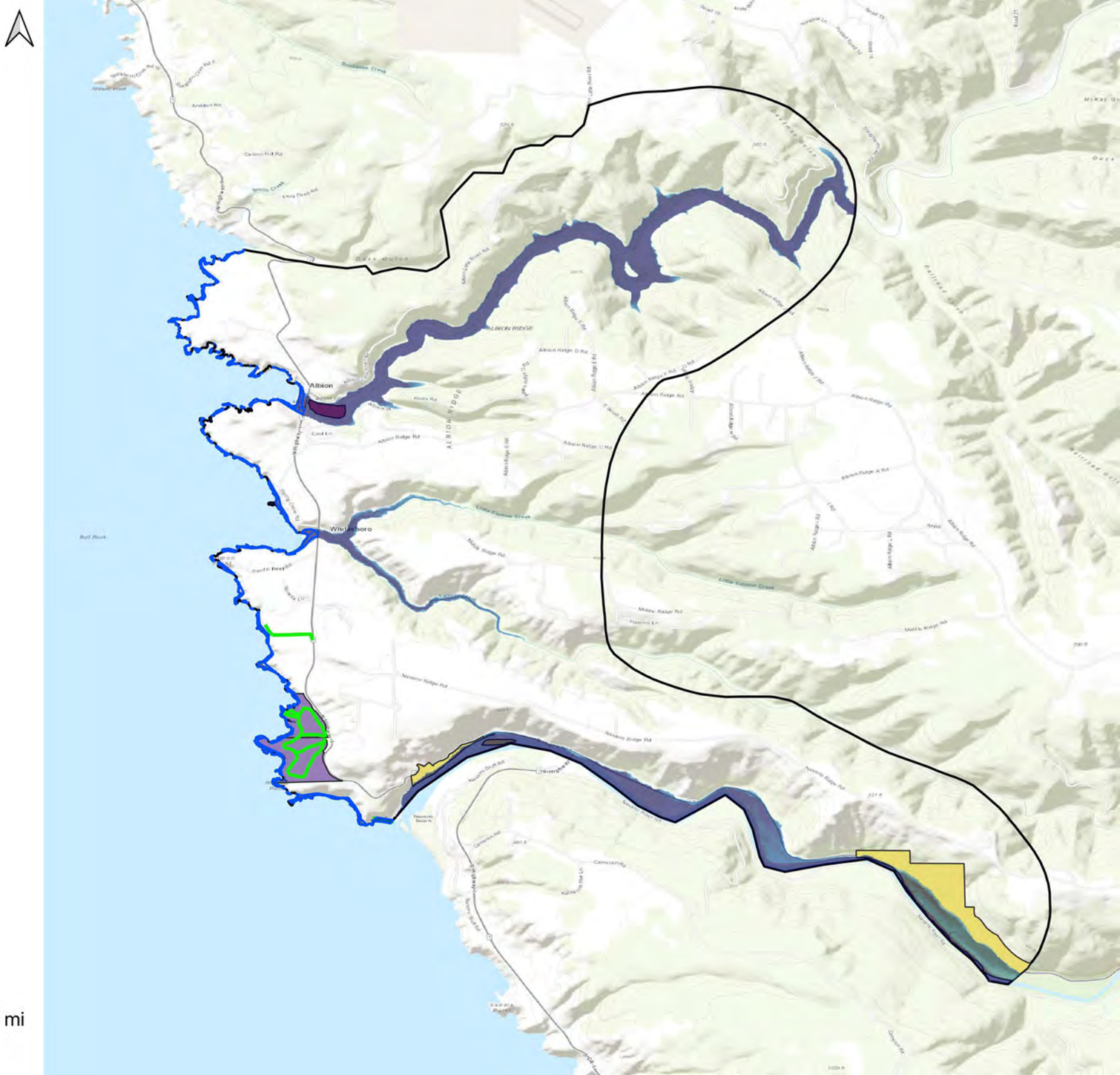
Albion
Whitesboro
ALBION RIDGE
Albion Ridge Rd
Navarro Ridge Rd
Middle Ridge Rd
Little Salmon Creek
Albion River
Albion River Bridge
Albion Ridge Campground
Albion Ridge Campground Rd
Albion Ridge Campground Loop
Albion Ridge Campground Entrance Rd
Albion Ridge Campground Host Site
Albion Ridge Campground Overflow
Albion Ridge Campground Restroom
Albion Ridge Campground Trailhead
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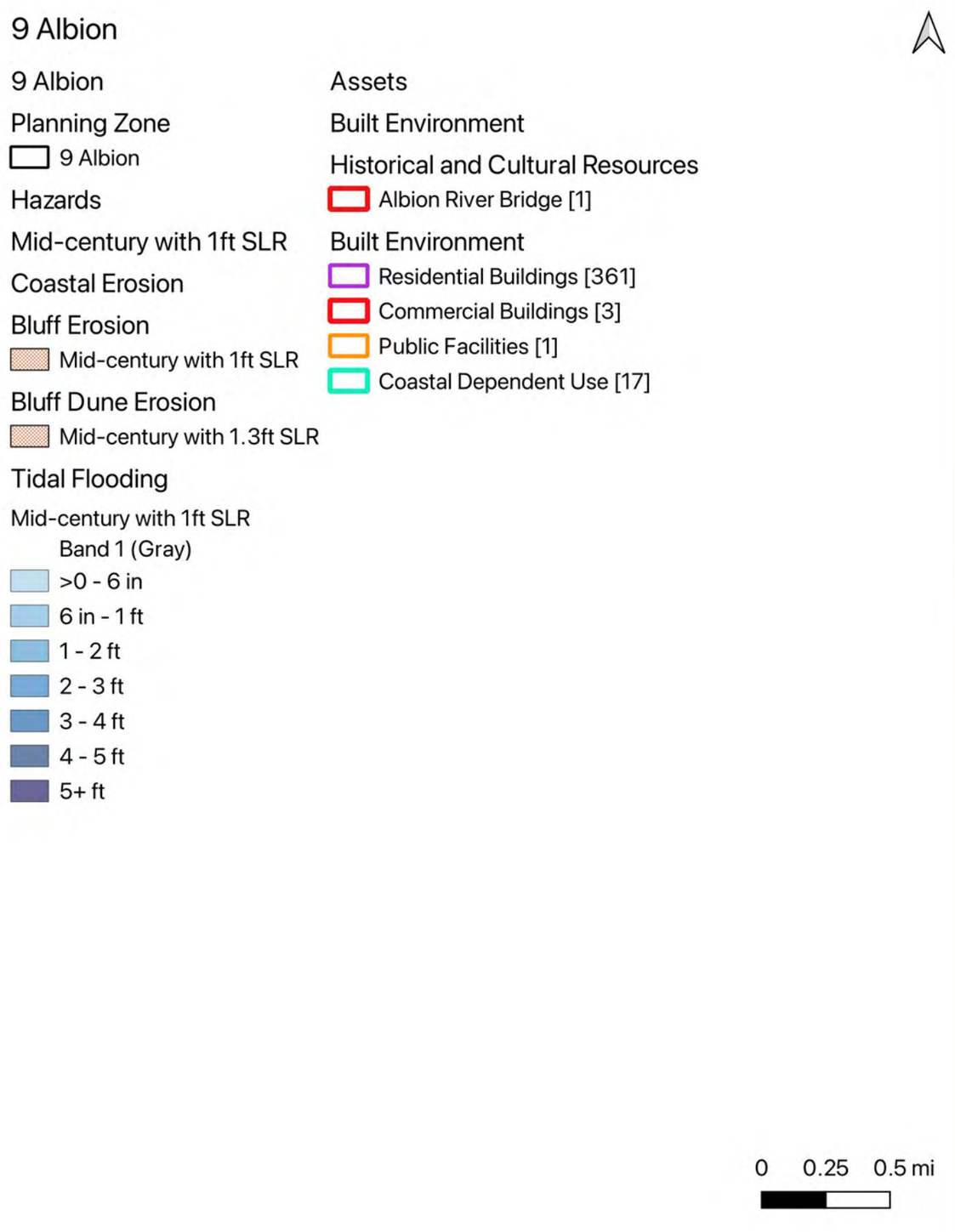
9 Albion


9 Albion
Planning Zone
9 Albion
Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
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Hazards

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Assets

Critical Infrastructure

Power & Comms

Transmission Lines [1]

Environmental Sites

Clean Up Sites [3]

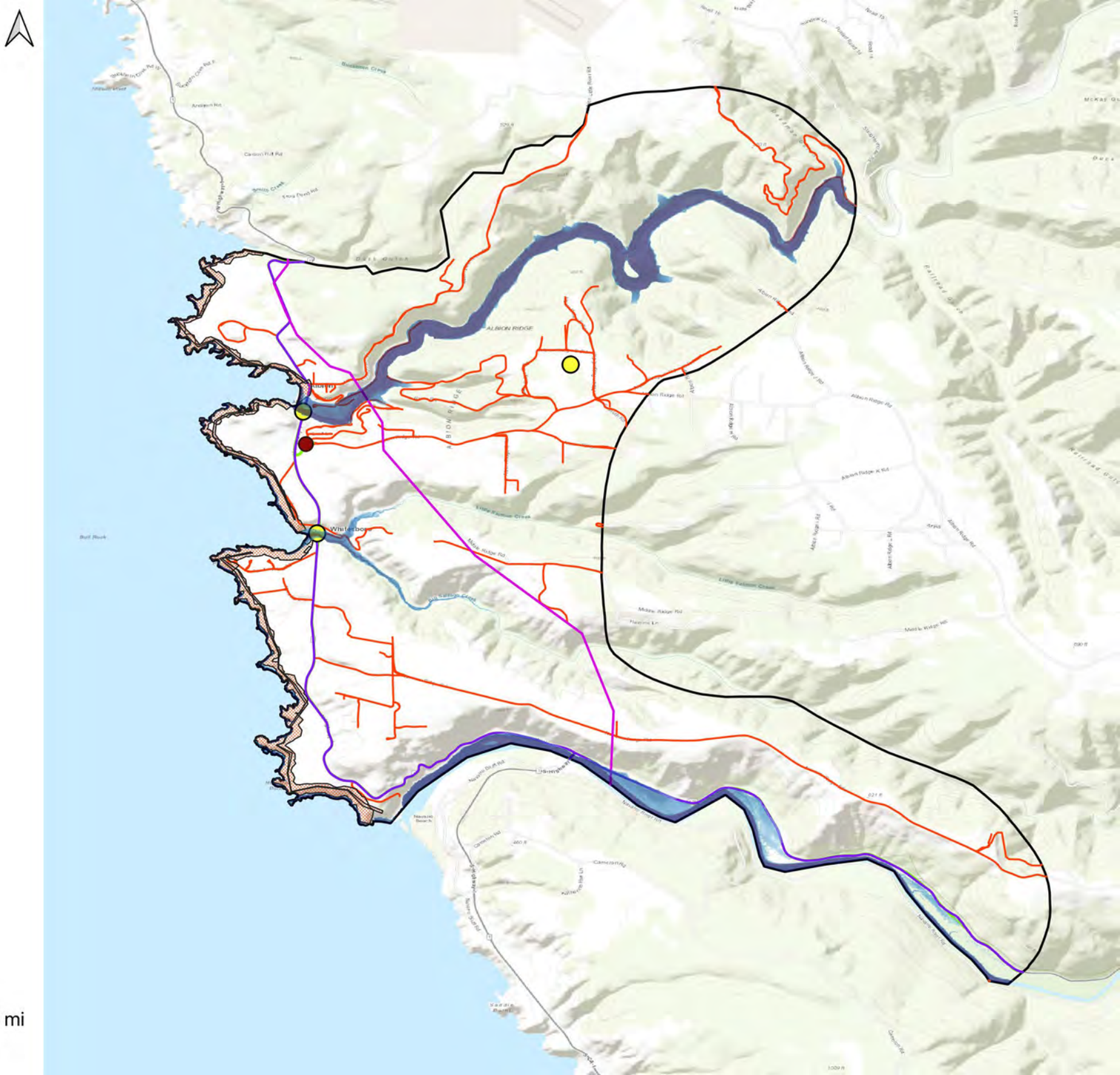
Transportation

Bus Stops [1]

State Route 1 [16]

Bus Lines [5]

Roads [161]



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Assets

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Coastal and Water

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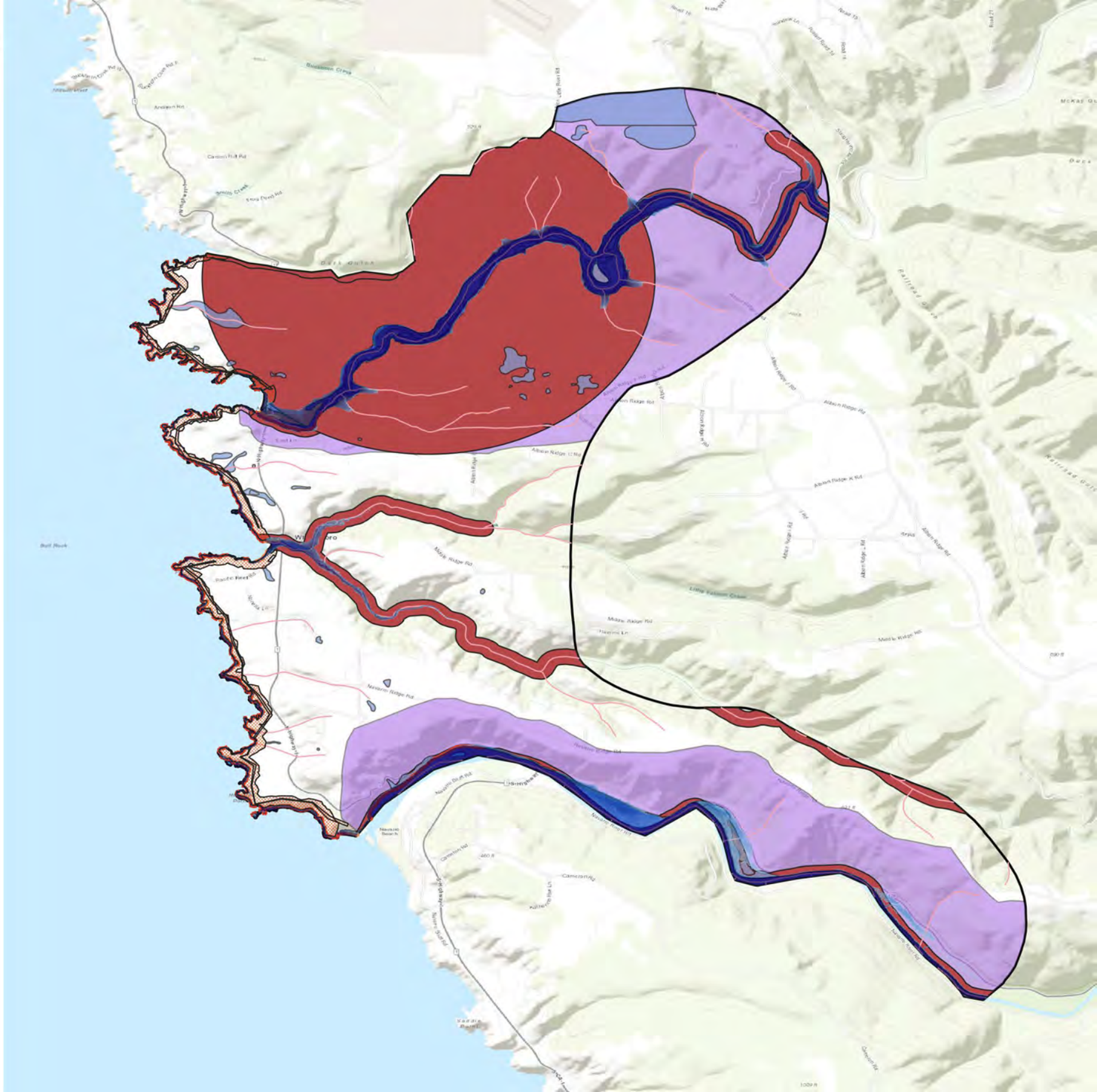
Critical Coastal Areas [2]

Marine Protected Areas [1]



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Assets

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Recreation

California Coastal Trail [6]

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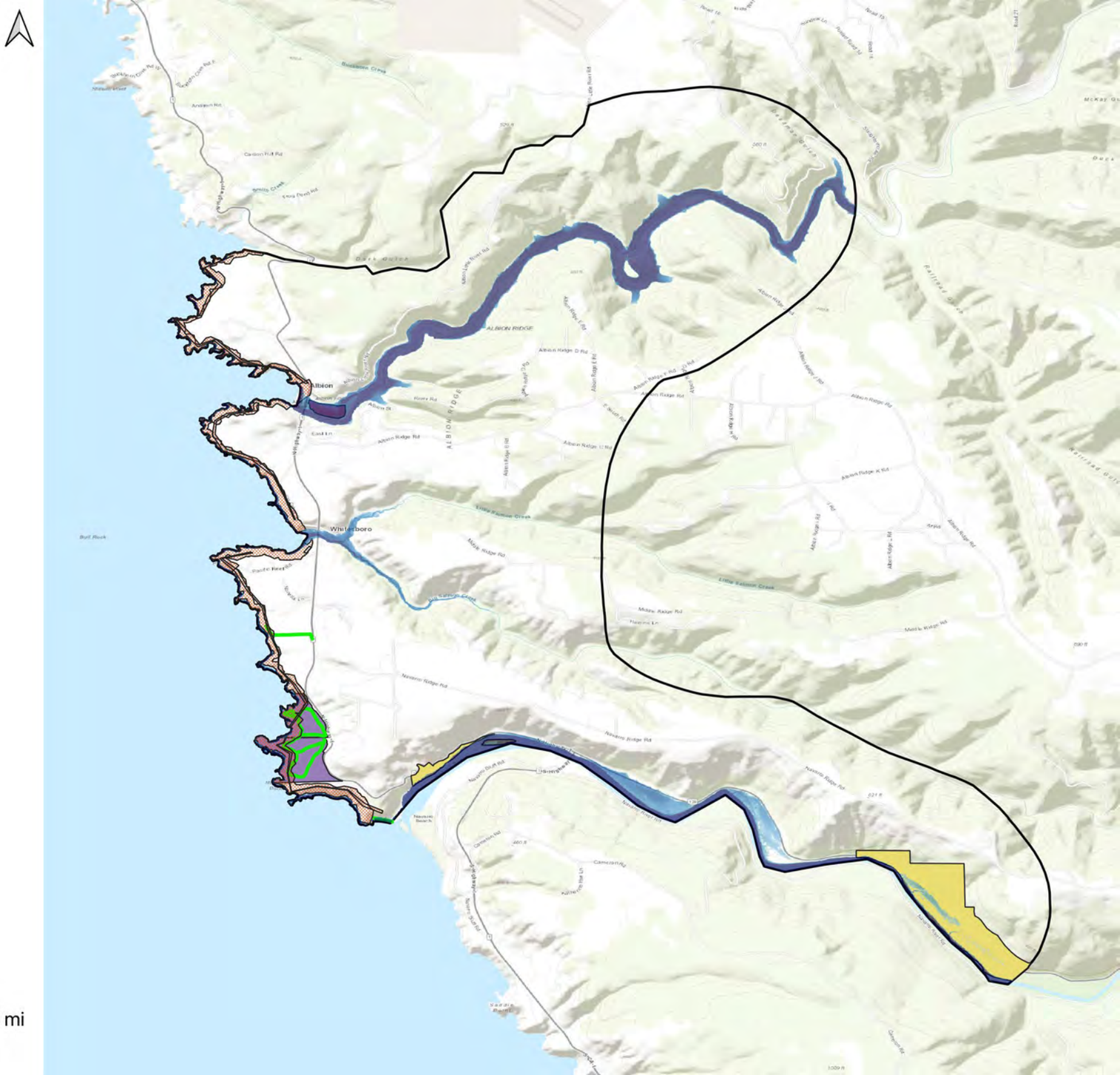

9 Albion

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Planning Zone

- 9 Albion

Hazards

Present Day

100-year Storm

- Wave Runup

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

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Historical and Cultural Resources

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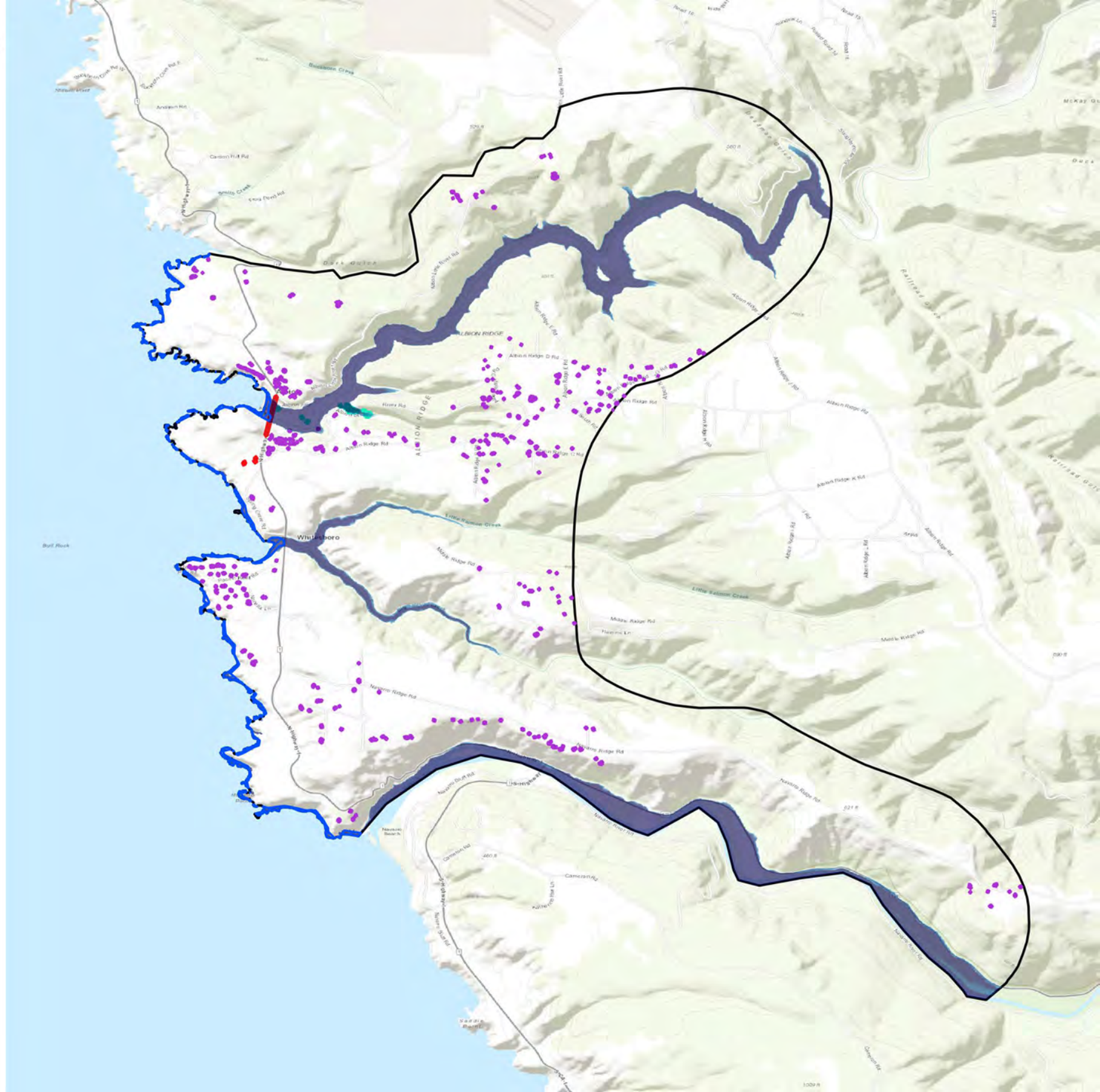

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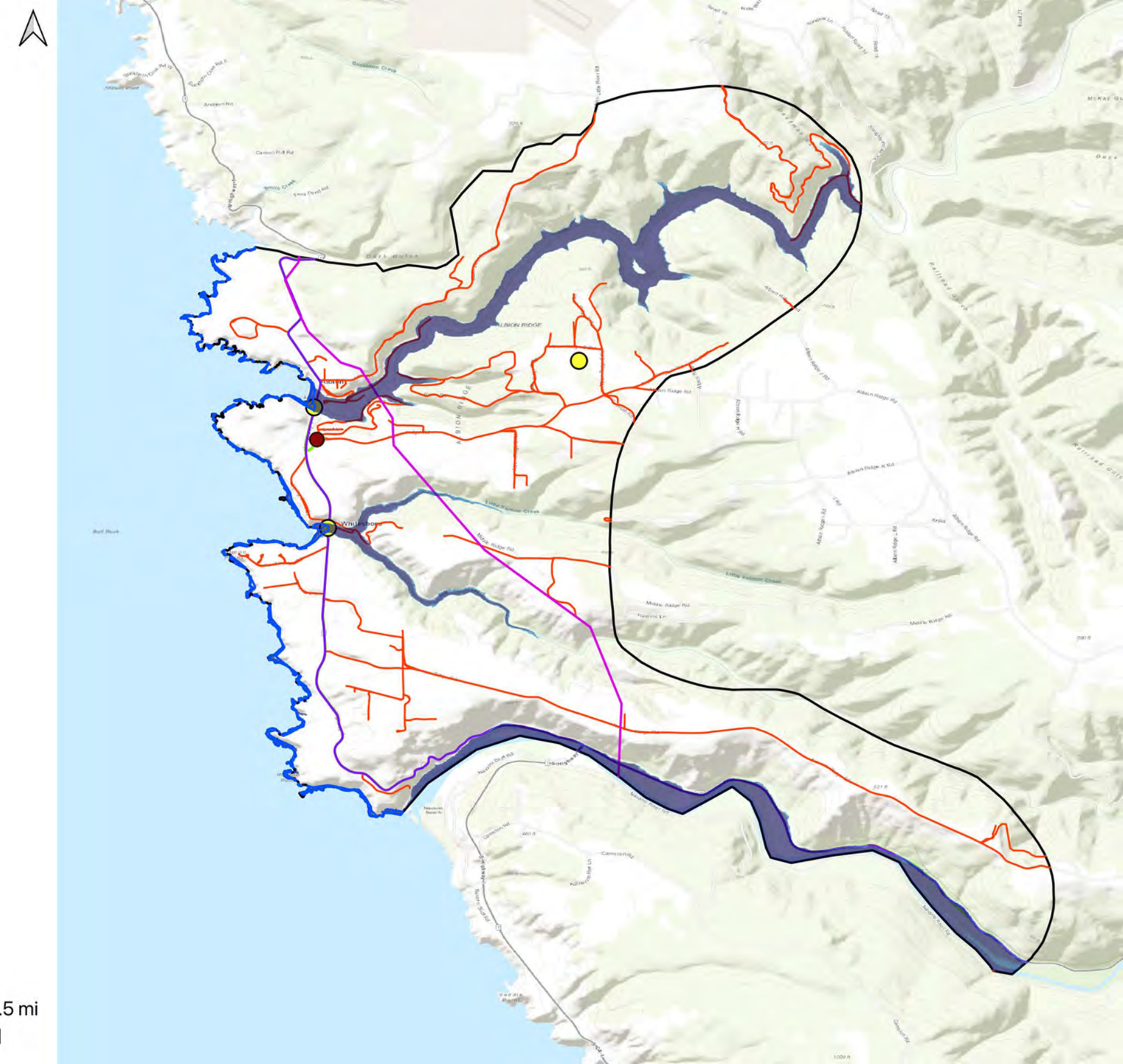

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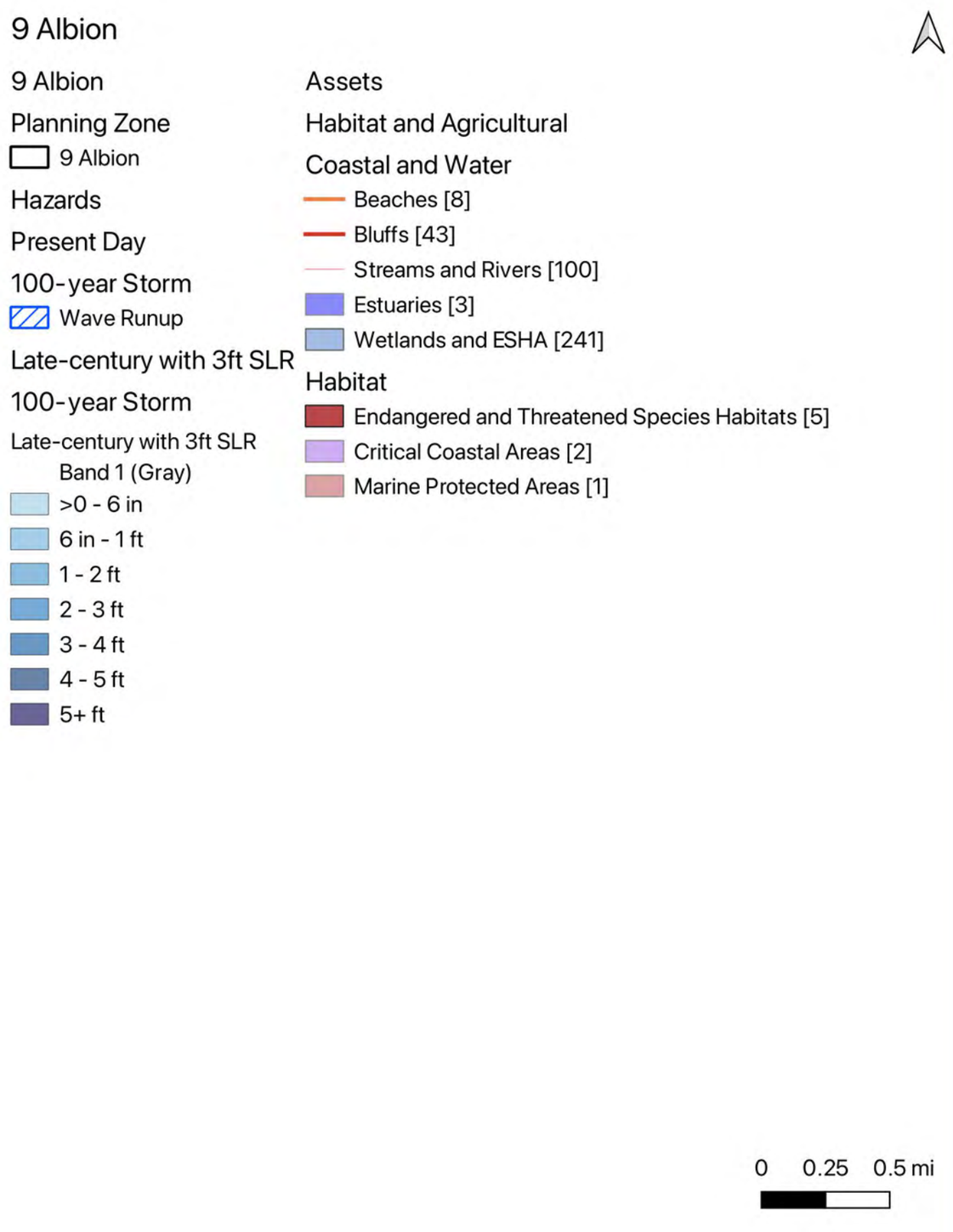
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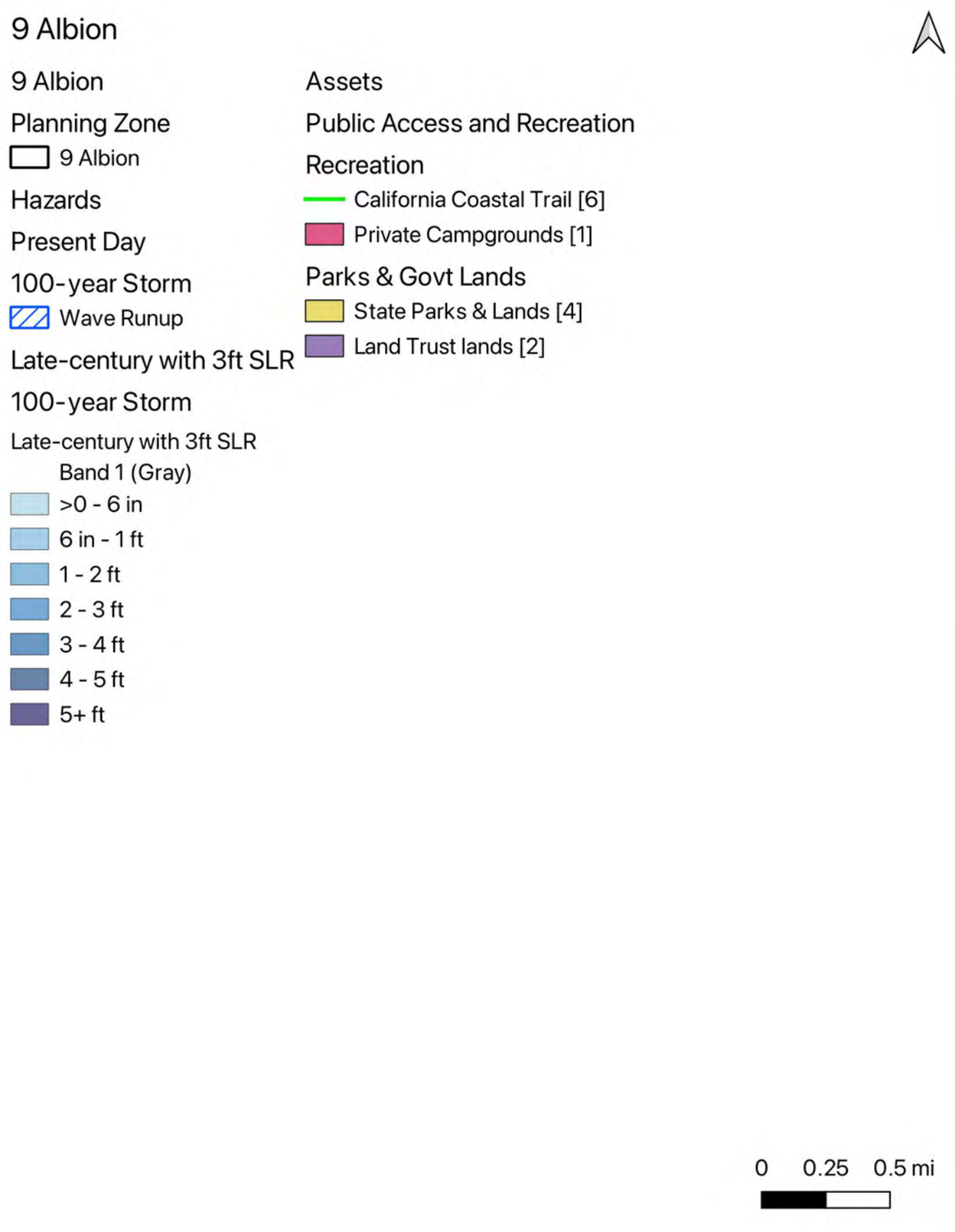
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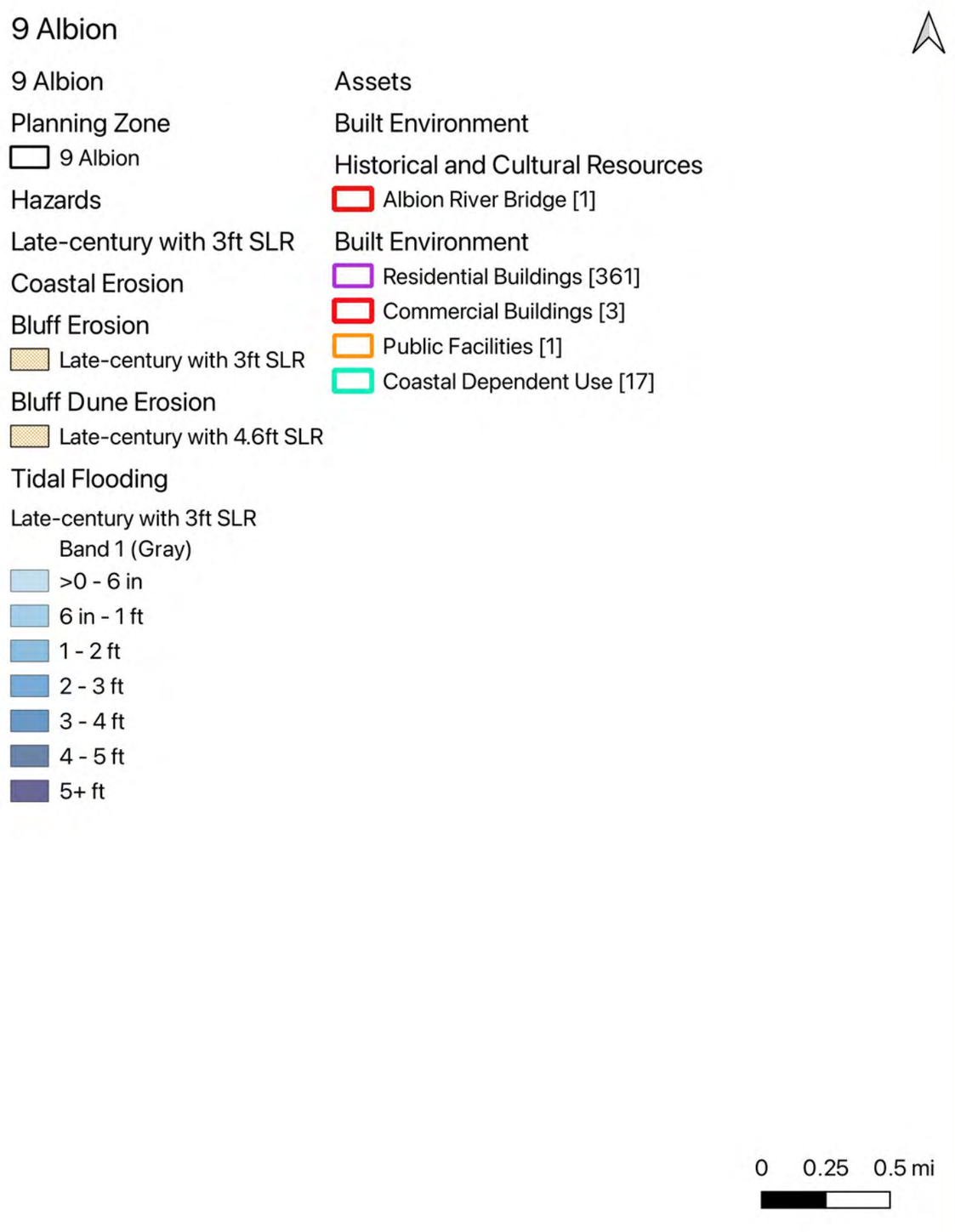
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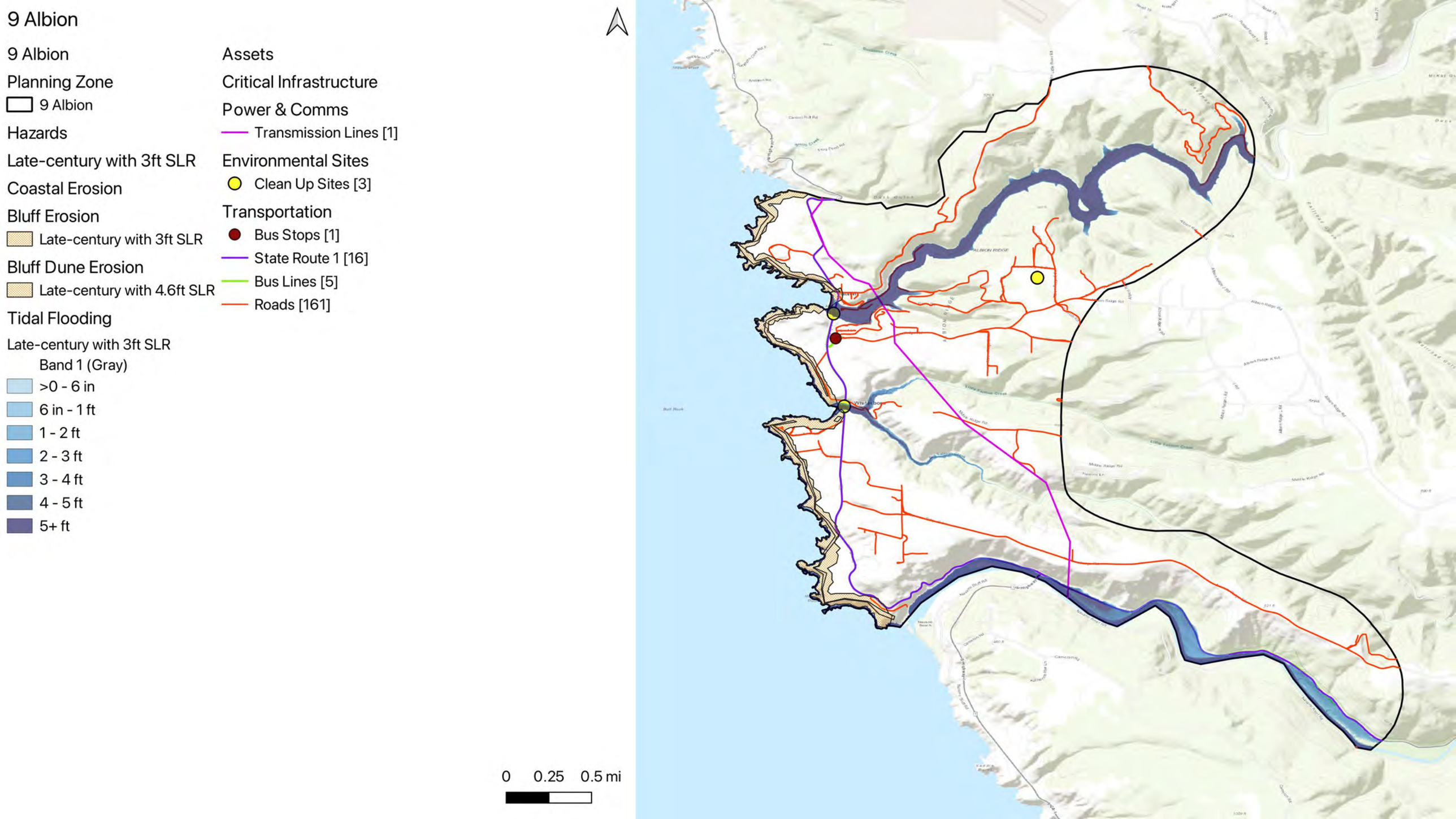
Bluff Dune Erosion
Late-century with 4.6ft SLR
Tidal Flooding
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Built Environment
Historical and Cultural Resources
Albion River Bridge [1]
Built Environment
Residential Buildings [361]
Commercial Buildings [3]
Public Facilities [1]
Coastal Dependent Use [17]
0
0.25
0.5 mi

9 Albion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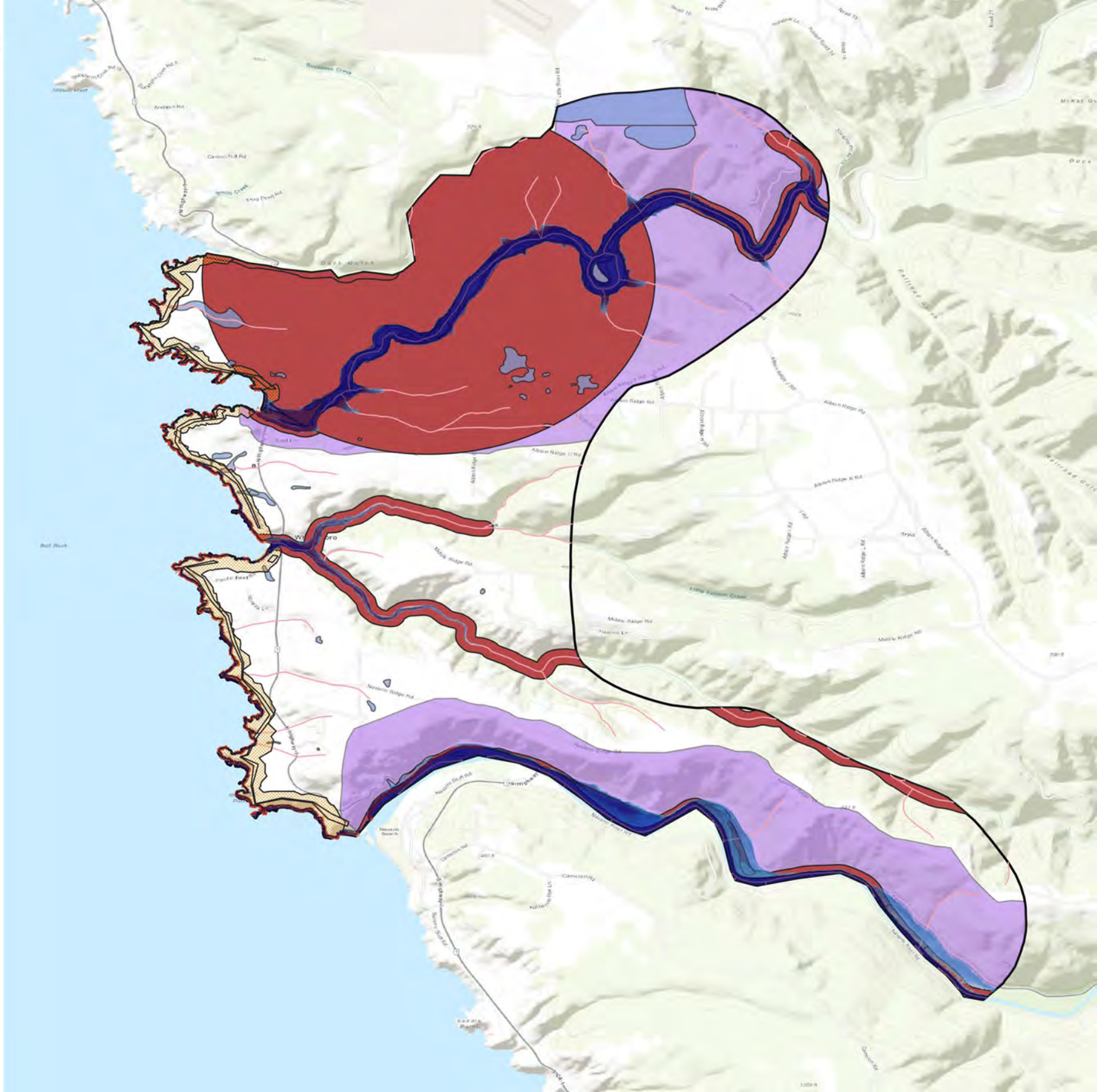
Planning Zone
9 Albion
Hazards
Late-century with 3ft SLR
Coastal Erosion
Bluff Erosion
Late-century with 3ft SLR
Bluff Dune Erosion
Late-century with 4.6ft SLR
Tidal Flooding
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Critical Infrastructure
Power & Comms
Transmission Lines [1]
Environmental Sites
Clean Up Sites [3]
Transportation
Bus Stops [1]
State Route 1 [16]
Bus Lines [5]
Roads [161]
0 0.25 0.5 mi

9 Albion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Planning Zone
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Hazards
Late-century with 3ft SLR
Coastal Erosion
Bluff Erosion
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Bluff Dune Erosion
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Late-century with 3ft SLR
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Assets
Habitat and Agricultural
Coastal and Water
Beaches [8]
Bluffs [43]
Streams and Rivers [100]
Estuaries [3]
Wetlands and ESHA [241]
Habitat
Endangered and Threatened Species Habitats [5]
Critical Coastal Areas [2]
Marine Protected Areas [1]
0
0.25
0.5 mi

9 Albion

9 Albion

Planning Zone

9 Albion

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

Late-century with 3ft SLR

Bluff Dune Erosion

Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Public Access and Recreation

Recreation

California Coastal Trail [6]

Private Campgrounds [1]

Parks & Govt Lands

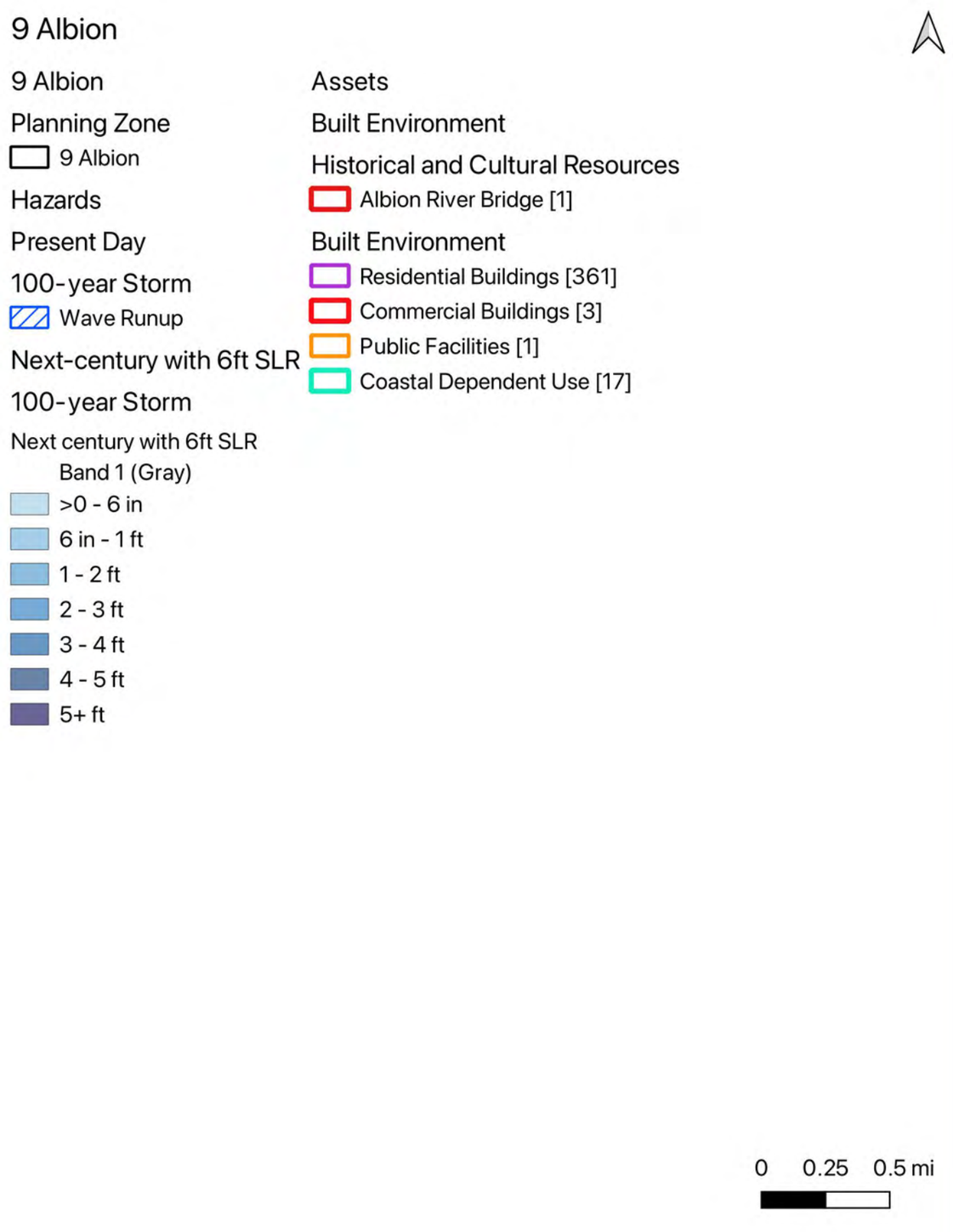
State Parks & Lands [4]

Land Trust lands [2]



0 0.25 0.5 mi

9 Albion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Planning Zone
9 Albion
Hazards
Present Day
100-year Storm
Wave Runup
Next-century with 6ft SLR
100-year Storm
Next century with 6ft SLR
Band 1 (Gray)
>0 - 6 in
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Albion River Bridge [1]
Built Environment
Residential Buildings [361]
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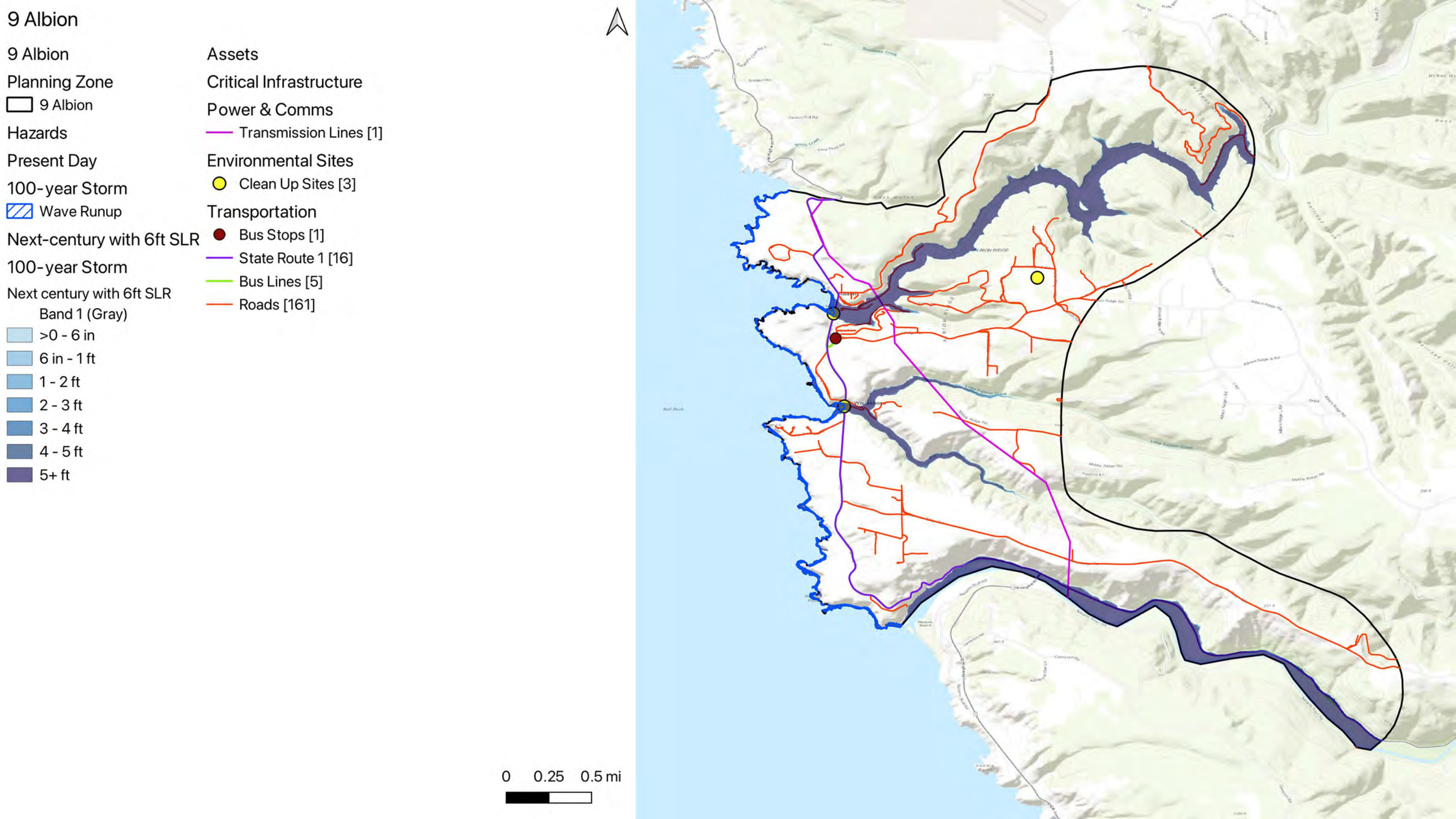
Coastal Dependent Use [17]
0
0.25
0.5 mi

9 Albion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Planning Zone
9 Albion
Hazards
Present Day
100-year Storm
Wave Runup
Next-century with 6ft SLR
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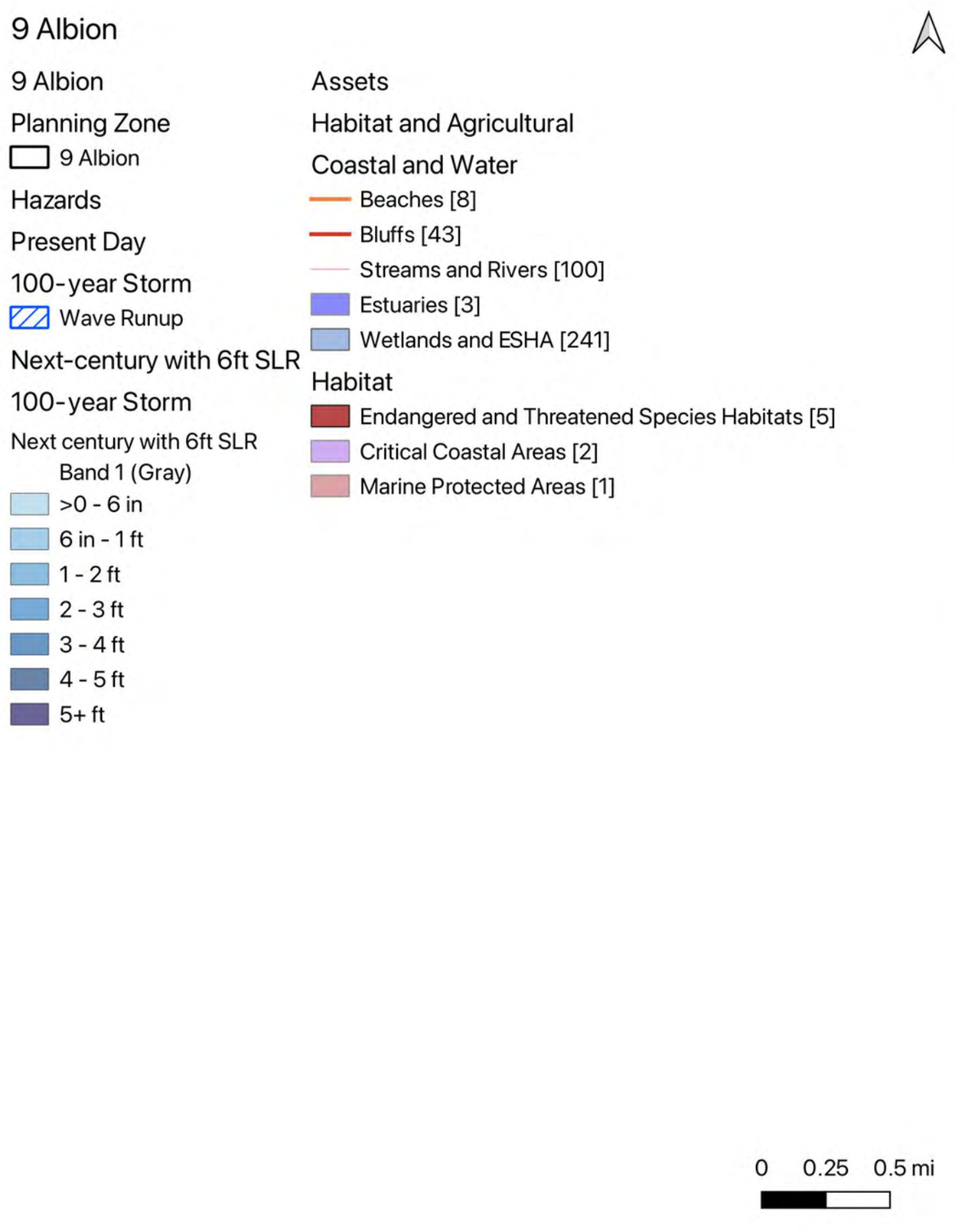
Clean Up Sites [3]
Transportation
Bus Stops [1]
State Route 1 [16]
Bus Lines [5]
Roads [161]
0 0.25 0.5 mi

9 Albion


9 Albion
Planning Zone
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Hazards
Present Day
100-year Storm
Wave Runup
Next-century with 6ft SLR
100-year Storm
Next century with 6ft SLR
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Endangered and Threatened Species Habitats [5]
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0
0.25
0.5 mi

9 Albion

9 Albion

Planning Zone

- 9 Albion

Hazards

Present Day

100-year Storm

- Wave Runup

Next-century with 6ft SLR

100-year Storm

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
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- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

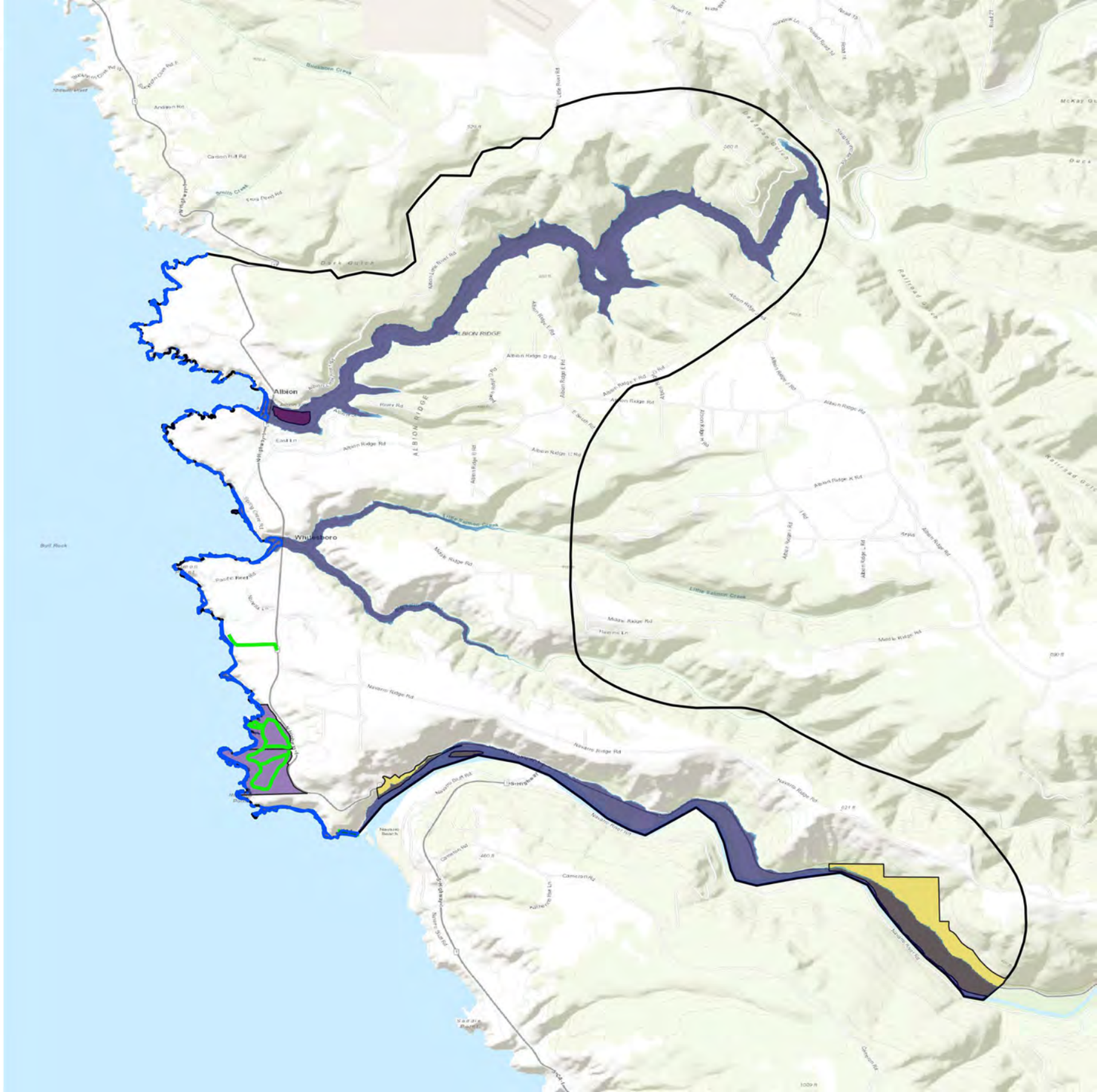
Public Access and Recreation

Recreation

- California Coastal Trail [6]
- Private Campgrounds [1]

Parks & Govt Lands

- State Parks & Lands [4]
- Land Trust lands [2]


Albion
Whitesboro
ALBION RIDGE
Albion Ridge Rd
Navarro Ridge Rd
Middle Ridge Rd
Little Salmon Creek
Albion River
Albion River Bridge
Albion River Campground
Albion River Inn
Albion River Rd
Albion Ridge D Rd
Albion Ridge E Rd
Albion Ridge K Rd
Albion Ridge Rd
Albion Ridge Trail
Albion Ridge Trail Rd
Albion Ridge Trail Rd
Albion Ridge Trail Rd

9 Albion

9 Albion

Planning Zone

- 9 Albion

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

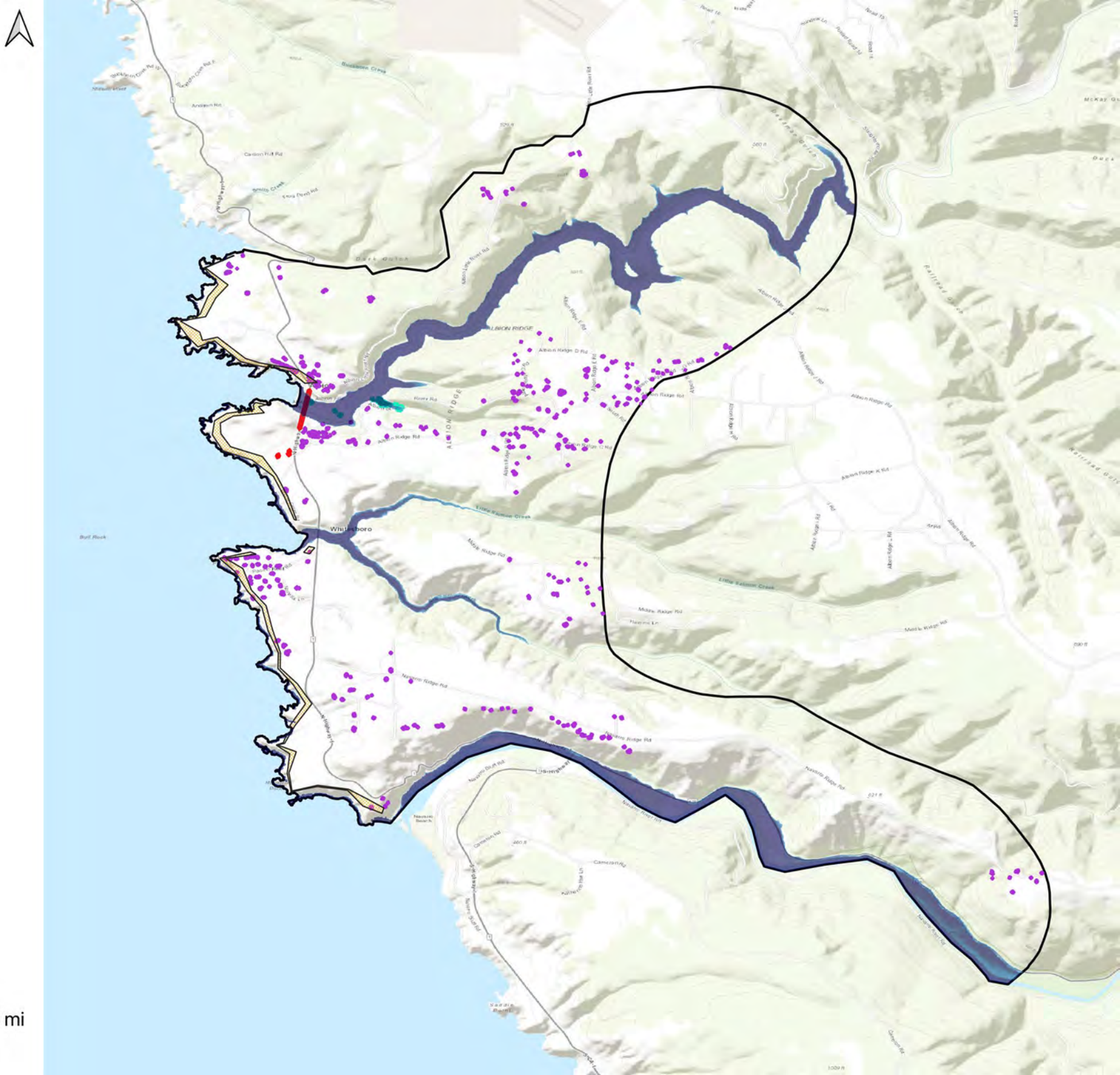
Built Environment

Historical and Cultural Resources

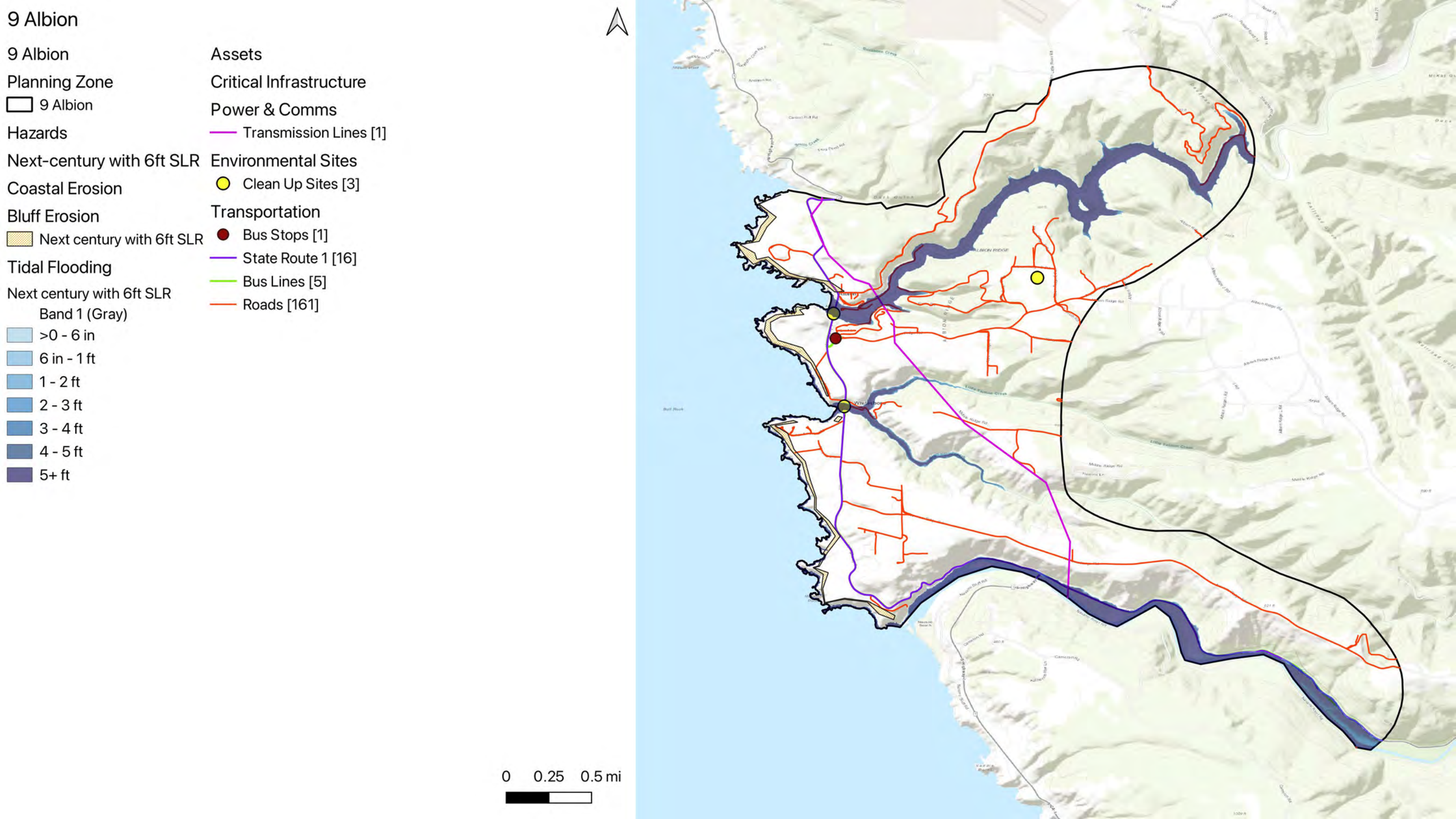
- Albion River Bridge [1]

Built Environment

- Residential Buildings [361]
- Commercial Buildings [3]
- Public Facilities [1]
- Coastal Dependent Use [17]



9 Albion


9 Albion
Planning Zone
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Hazards
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Coastal Erosion
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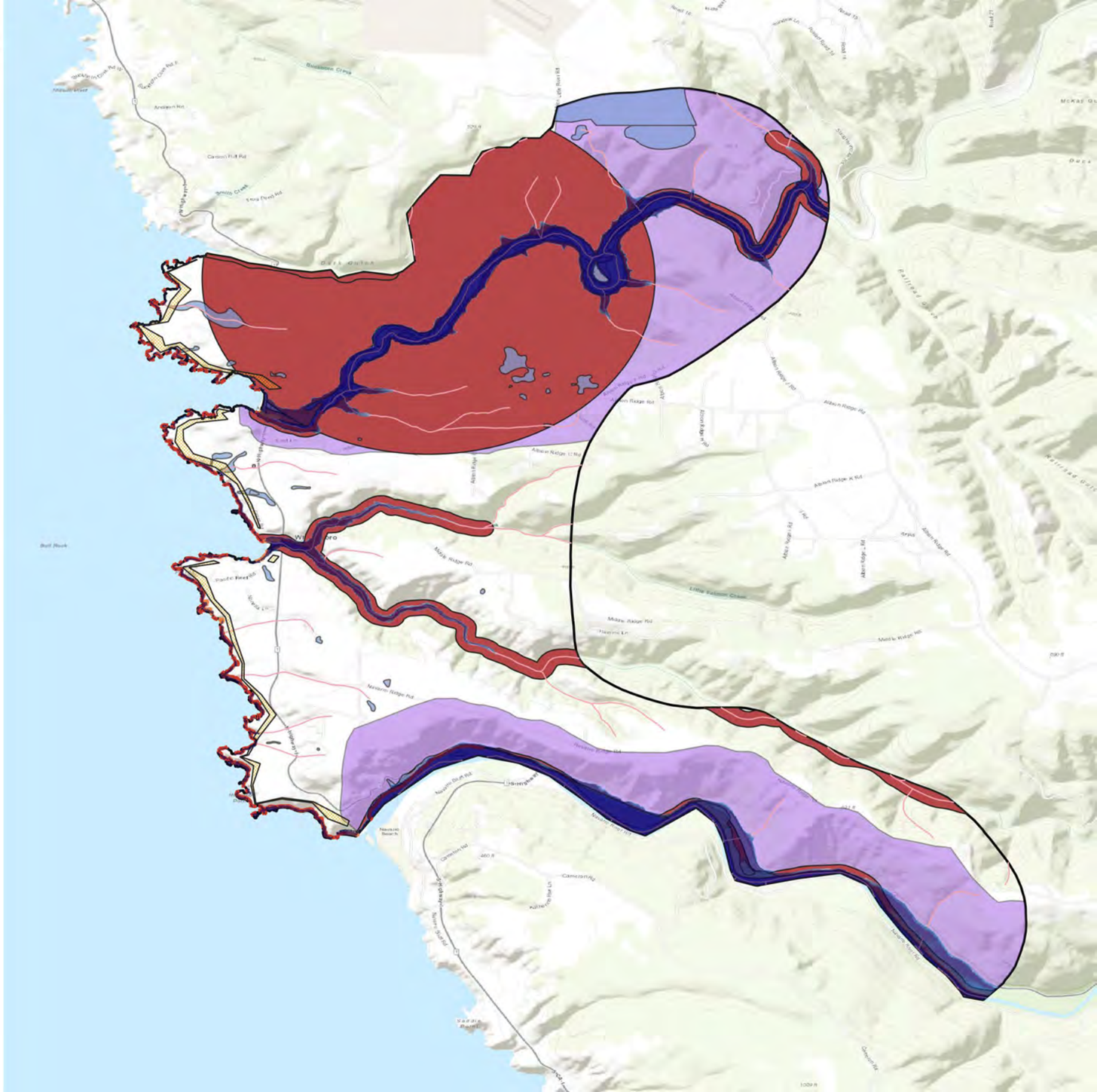
Clean Up Sites [3]
Transportation
Bus Stops [1]
State Route 1 [16]
Bus Lines [5]
Roads [161]
0
0.25
0.5 mi

9 Albion


9 Albion
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Planning Zone
9 Albion
Hazards
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Coastal Erosion
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Wetlands and ESHA [241]
Habitat
Endangered and Threatened Species Habitats [5]
Critical Coastal Areas [2]
Marine Protected Areas [1]
0
0.25
0.5 mi

9 Albion

9 Albion

Planning Zone

- 9 Albion

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Public Access and Recreation

Recreation

- California Coastal Trail [6]
- Private Campgrounds [1]

Parks & Govt Lands

- State Parks & Lands [4]
- Land Trust lands [2]

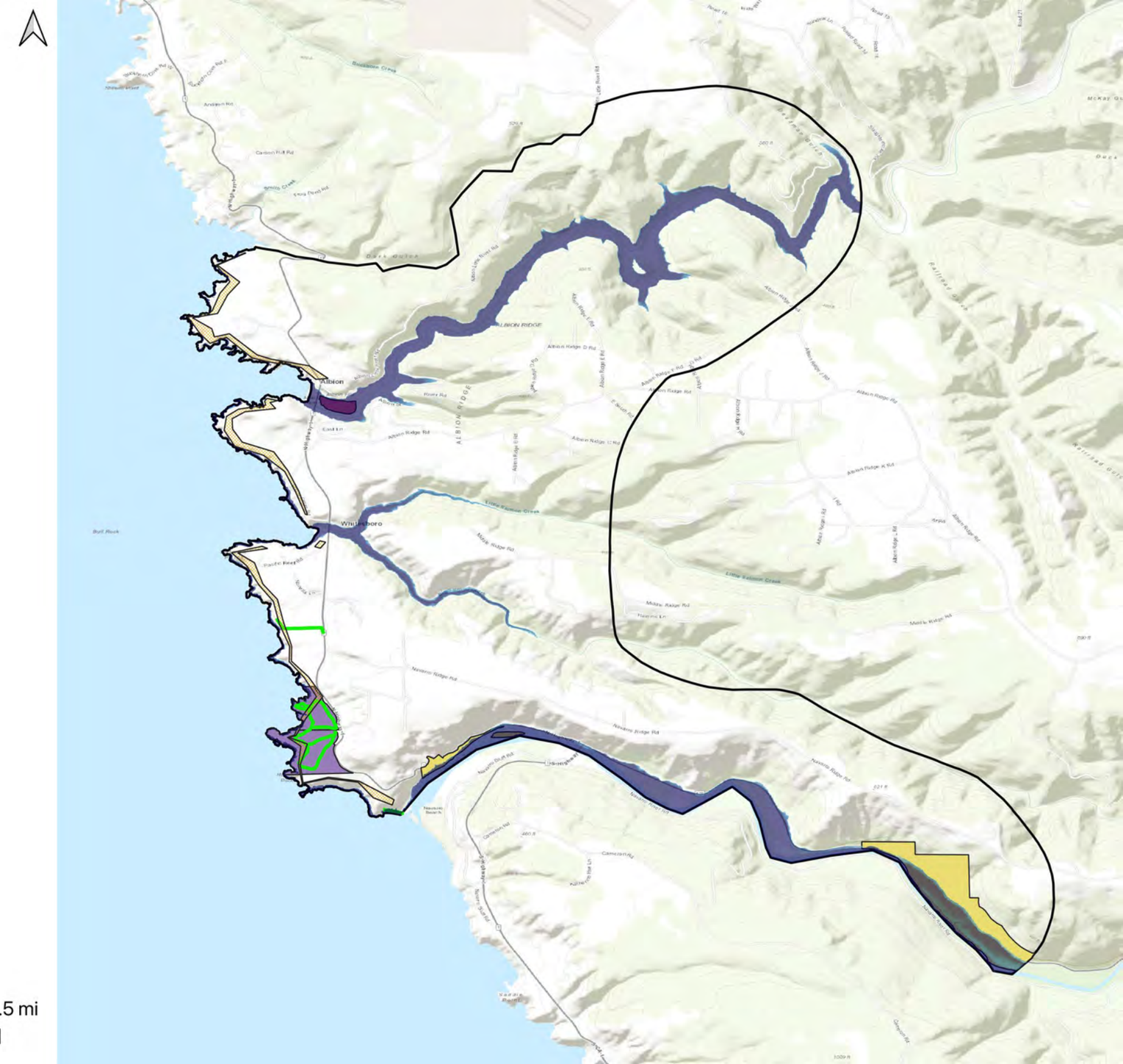
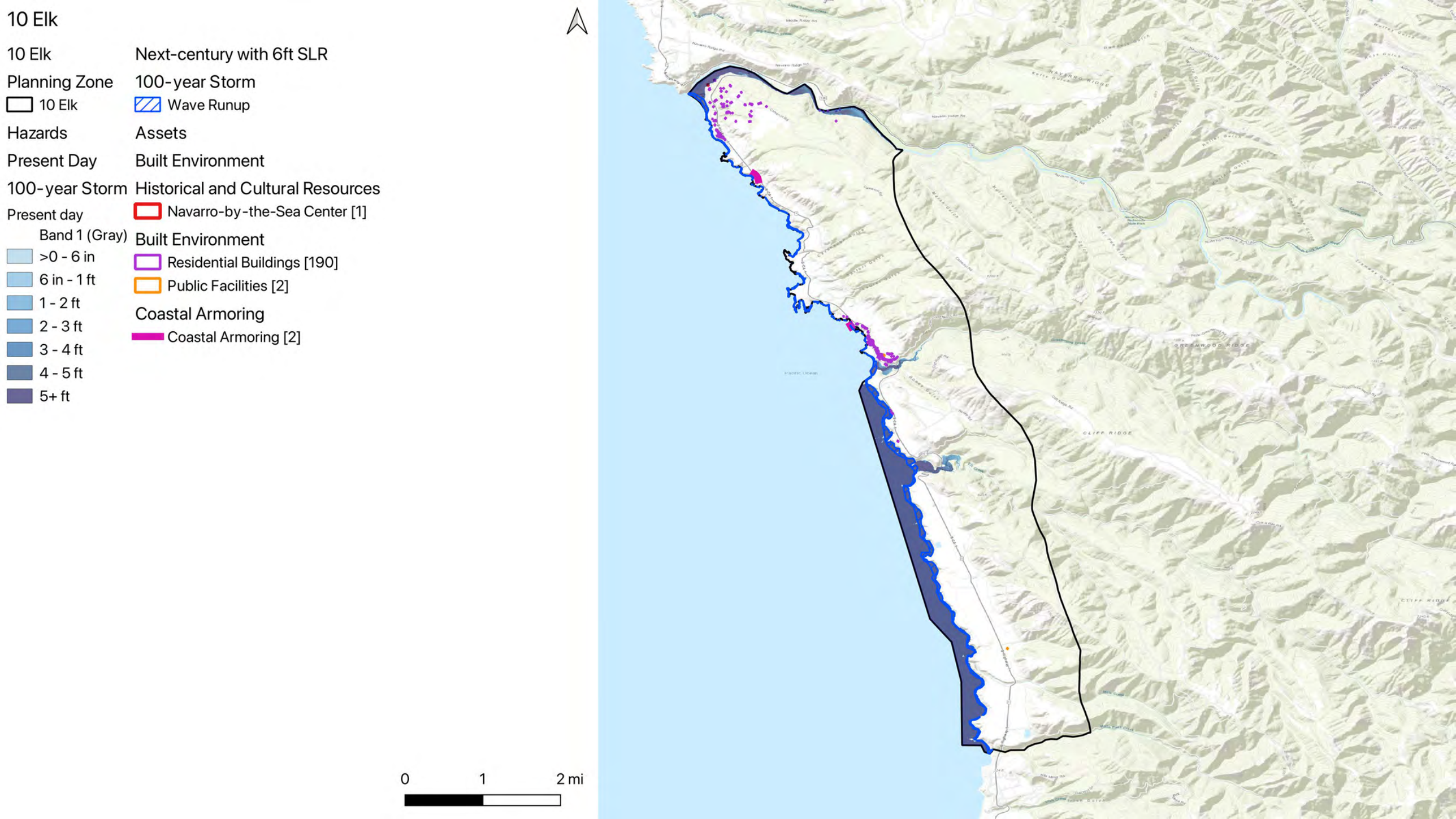

Albion
Whitesboro
ALBION RIDGE
Albion Ridge Rd
Navarro Ridge Rd
Middle Ridge Rd
Little Salmon Creek
Albion River
Pacific Ocean
Albion River Bridge
Albion Ridge Campground
Albion Ridge Campground Rd
Albion Ridge Campground Loop
Albion Ridge Campground Entrance Rd
Albion Ridge Campground Overflow Rd
Albion Ridge Campground Upper Loop
Albion Ridge Campground Lower Loop
Albion Ridge Campground Group Camp Rd
Albion Ridge Campground Group Camp Loop
Albion Ridge Campground Group Camp Overflow Rd
Albion Ridge Campground Group Camp Entrance Rd
Albion Ridge Campground Group Camp Upper Loop
Albion Ridge Campground Group Camp Lower Loop
Albion Ridge Campground Group Camp Overflow Loop
Albion Ridge Campground Group Camp Entrance Loop

Table 10. Elk

Sub-Category	Asset Type	Units	Present Day	Mid-Century (1ft SLR)	Late-Century (3ft SLR)	End-of-Century (6ft SLR)
Power & Comms	Transmission Lines	Length (mi)	0.3	0.4	0.4	0.5
Power & Comms	Well Locations	Number of Wells	0	0	1	1
Transportation	Bus Stops	Number of stops	1	2	2	2
Transportation	State Route 1	Length (mi)	0.3	1.4	2.3	4.5
Transportation	Bus Lines	Length (mi)	0.9	3.2	5	9.4
Transportation	Roads	Length (mi)	4.5	7.3	8.7	11.5
Recreation	California Coastal Trail	Length (mi)	0.7	1.1	1.2	1.3
Recreation	Recreational Routes	Length (mi)	0.7	1.2	1.2	1.3
Parks & Govt Lands	State Parks & Lands	Area (acres)	70	92	95	101
Coastal and Water	Beaches	Length (mi)	1.7	2	2.1	2.2
Coastal and Water	Bluffs	Length (mi)	10.2	11.2	11.5	11.9
Coastal and Water	Streams and Rivers	Length (mi)	3.9	5.7	6.7	8.2
Coastal and Water	Estuaries	Area (acres)	143	144	145	146
Coastal and Water	Wetlands and ESHA	Area (sqmi)	0.5	0.5	0.5	0.5
Habitat	Endangered and Threatened Species Habitats	Area (sqmi)	0.3	0.3	0.4	0.4
Habitat	Critical Coastal Areas	Area (sqmi)	0.3	0.3	0.3	0.3
Habitat	Marine Protected Areas	Number of individually designated MPAs	1	1	1	1
Agricultural	Agricultural lands	Area (sqmi)	0.1	0.2	0.3	0.3
Historical and Cultural Resources	Navarro-by-the-Sea Center	Single building	1	1	1	1
Built Environment	Residential Buildings	Number of buildings	9	67	81	111
Coastal Armoring	Coastal Armoring	Length (ft)	27	138	372	736


10 Elk
10 Elk
Next-century with 6ft SLR
Planning Zone
100-year Storm
10 Elk
Wave Runup
Hazards
Assets
Present Day
Built Environment
100-year Storm
Historical and Cultural Resources
Present day
Navarro-by-the-Sea Center [1]
Band 1 (Gray)
Built Environment
>0 - 6 in
Residential Buildings [190]
6 in - 1 ft
Public Facilities [2]
1 - 2 ft
Coastal Armoring
2 - 3 ft
Coastal Armoring [2]
3 - 4 ft
4 - 5 ft
5+ ft
0
1
2 mi

10 Elk

10 Elk

Planning Zone

- 10 Elk

Hazards

Next-century with 6ft SLR

100-year Storm

Next-century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

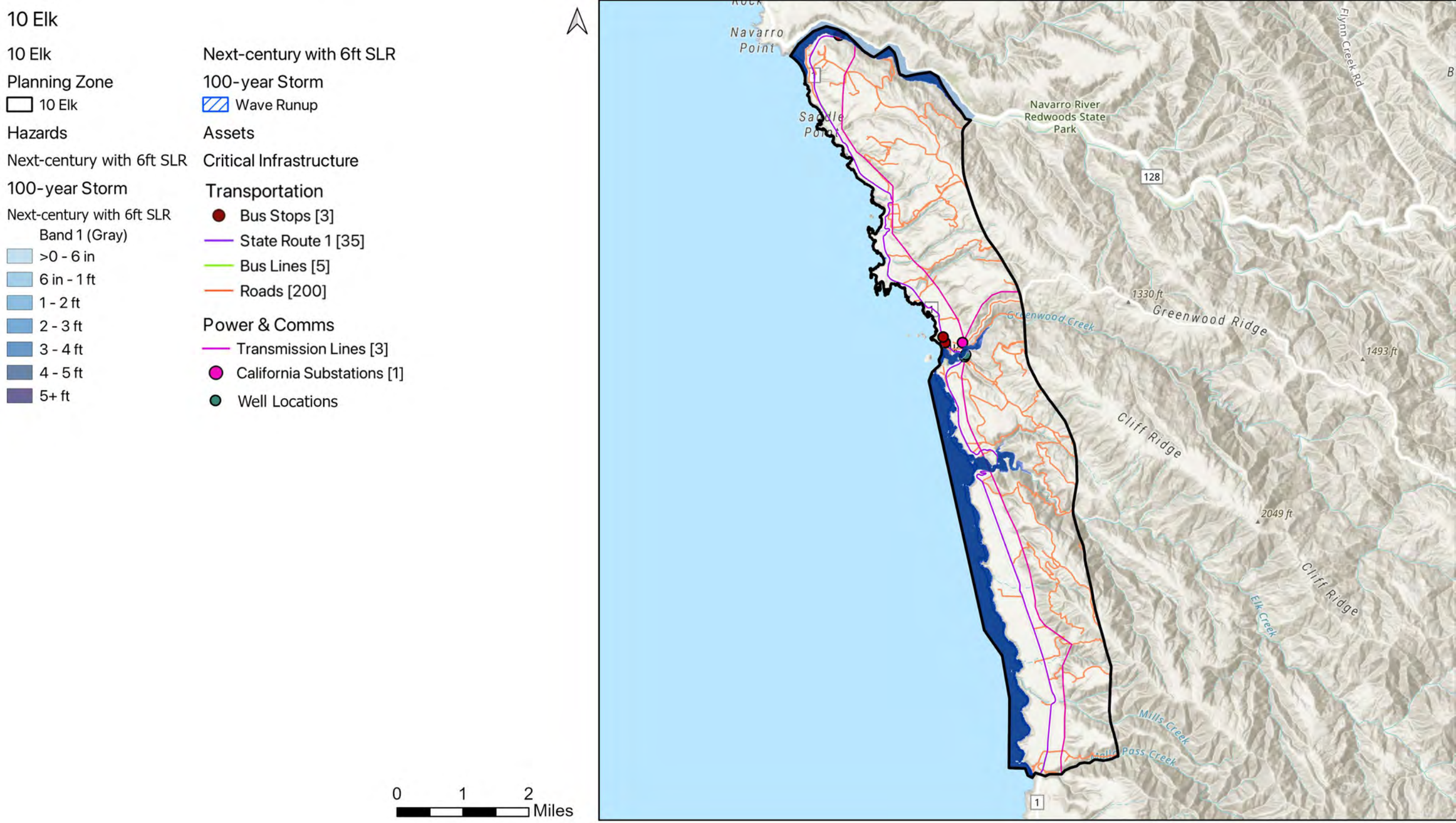
Critical Infrastructure

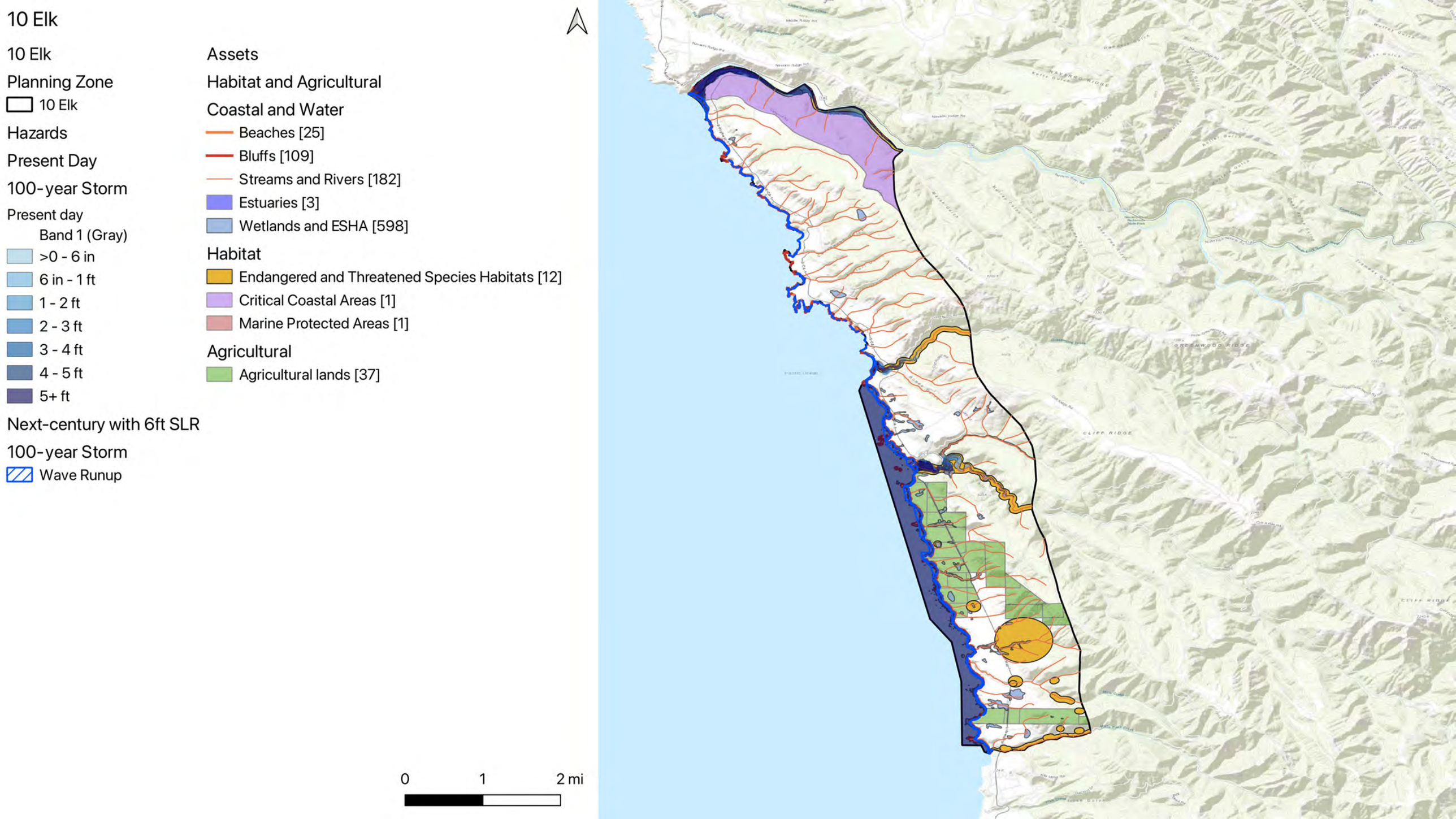
Transportation

- Bus Stops [3]
- State Route 1 [35]
- Bus Lines [5]
- Roads [200]

Power & Comms

- Transmission Lines [3]
- California Substations [1]
- Well Locations

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Planning Zone
10 Elk
Hazards
Present Day
100-year Storm
Present day
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>0 - 6 in
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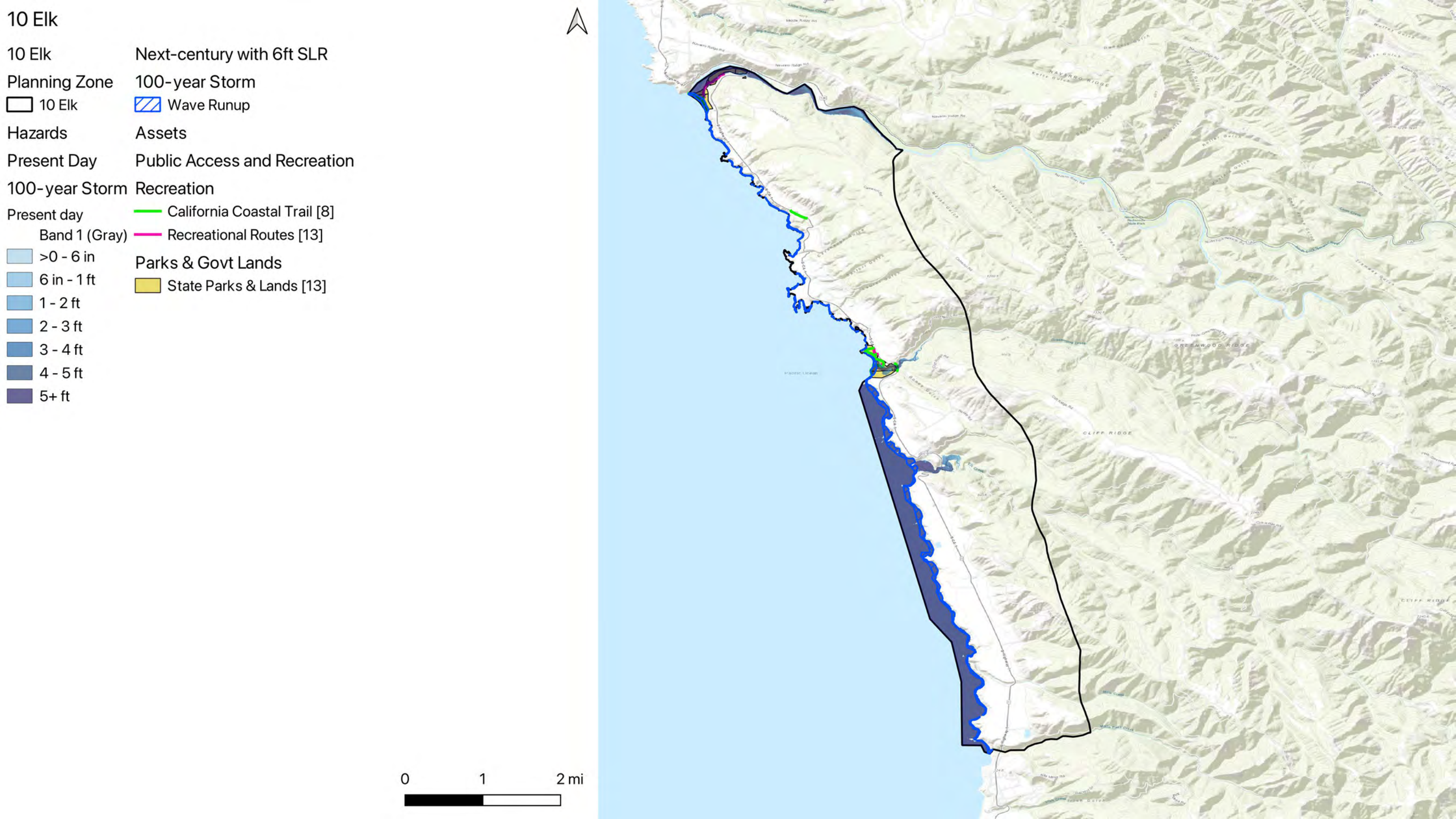
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Habitat and Agricultural
Coastal and Water
Beaches [25]
Bluffs [109]
Streams and Rivers [182]
Estuaries [3]
Wetlands and ESHA [598]
Habitat
Endangered and Threatened Species Habitats [12]
Critical Coastal Areas [1]
Marine Protected Areas [1]
Agricultural
Agricultural lands [37]
0
1
2 mi


10 Elk
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Planning Zone
10 Elk
Hazards
Present Day
100-year Storm
Present day
Band 1 (Gray)
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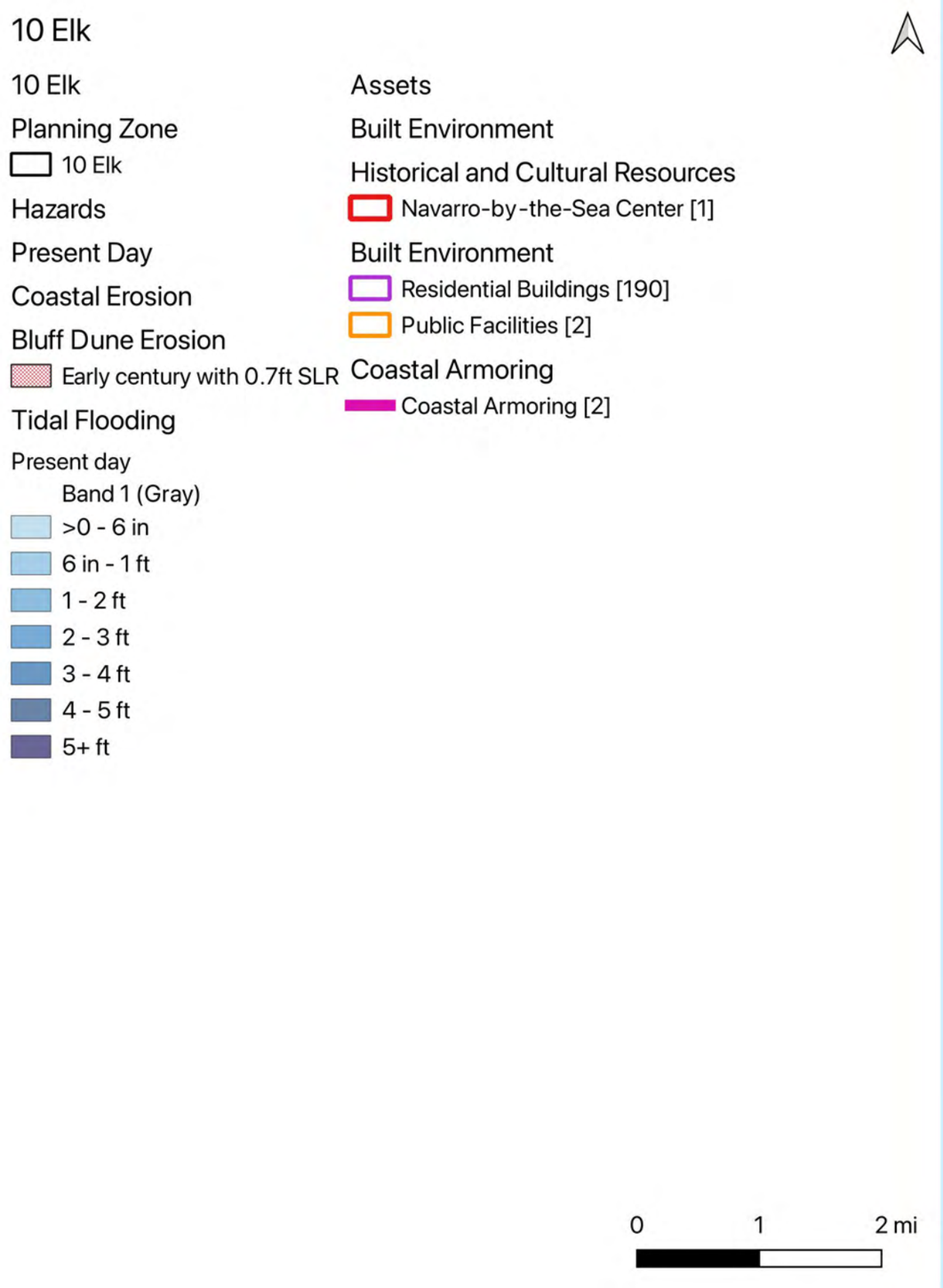
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Public Access and Recreation
Recreation
California Coastal Trail [8]
Recreational Routes [13]
Parks & Govt Lands
State Parks & Lands [13]
0
1
2 mi

10 Elk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Planning Zone
10 Elk
Hazards
Present Day
Coastal Erosion
Bluff Dune Erosion
Early century with 0.7ft SLR
Tidal Flooding
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Built Environment
Historical and Cultural Resources
Navarro-by-the-Sea Center [1]
Built Environment
Residential Buildings [190]
Public Facilities [2]
Coastal Armoring
Coastal Armoring [2]
0
1
2 mi

10 Elk


10 Elk
Planning Zone
10 Elk
Hazards
Present Day
Coastal Erosion
Bluff Dune Erosion
Early century with 0.7ft SLR
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Critical Infrastructure
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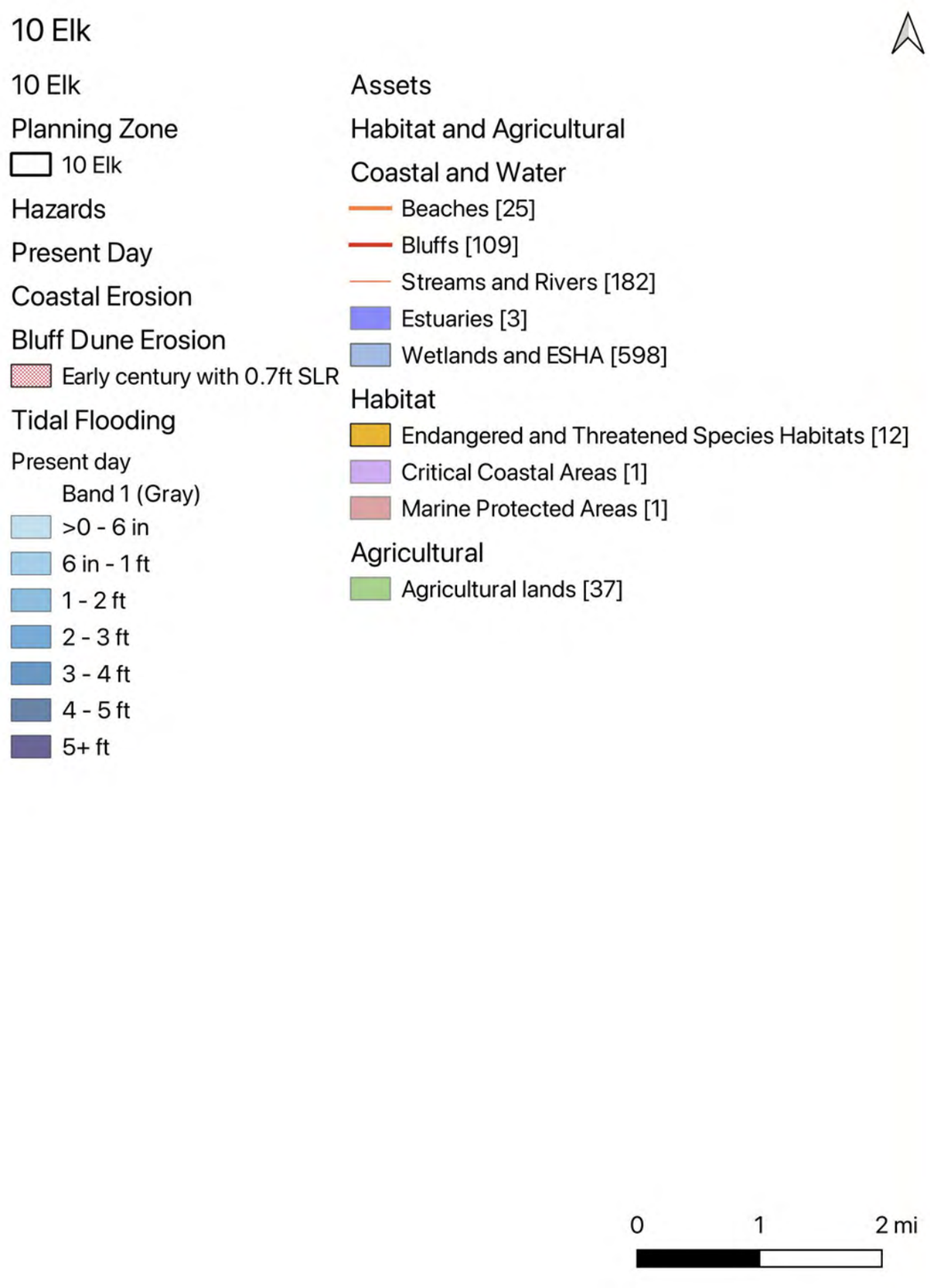
Transmission Lines [3]
California Substations [1]
Transportation
Bus Stops [3]
State Route 1 [35]
Bus Lines [5]
Roads [200]
0
1
2 mi

10 Elk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10 Elk

10 Elk

Planning Zone

10 Elk

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Public Access and Recreation

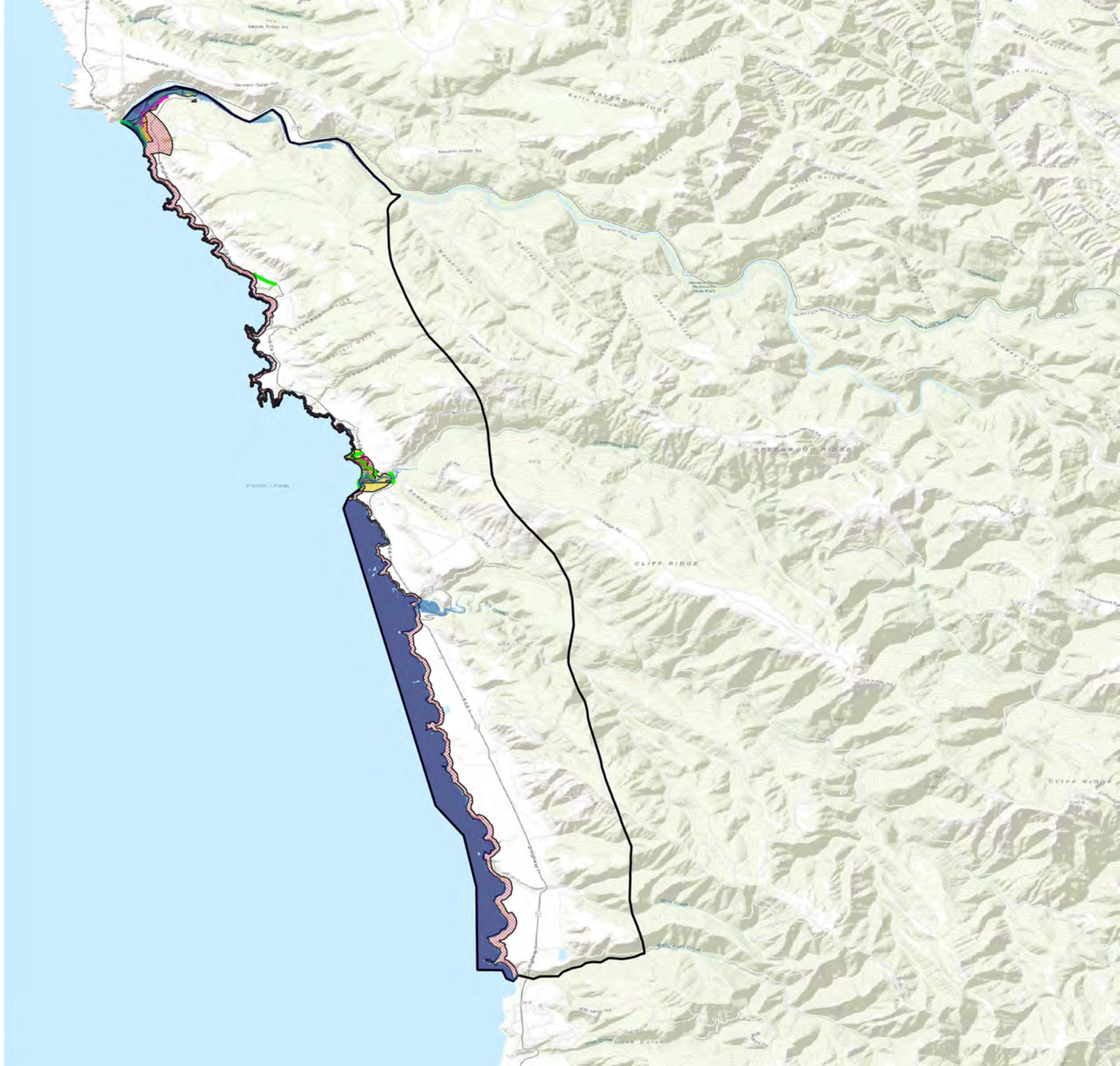
Recreation

California Coastal Trail [8]

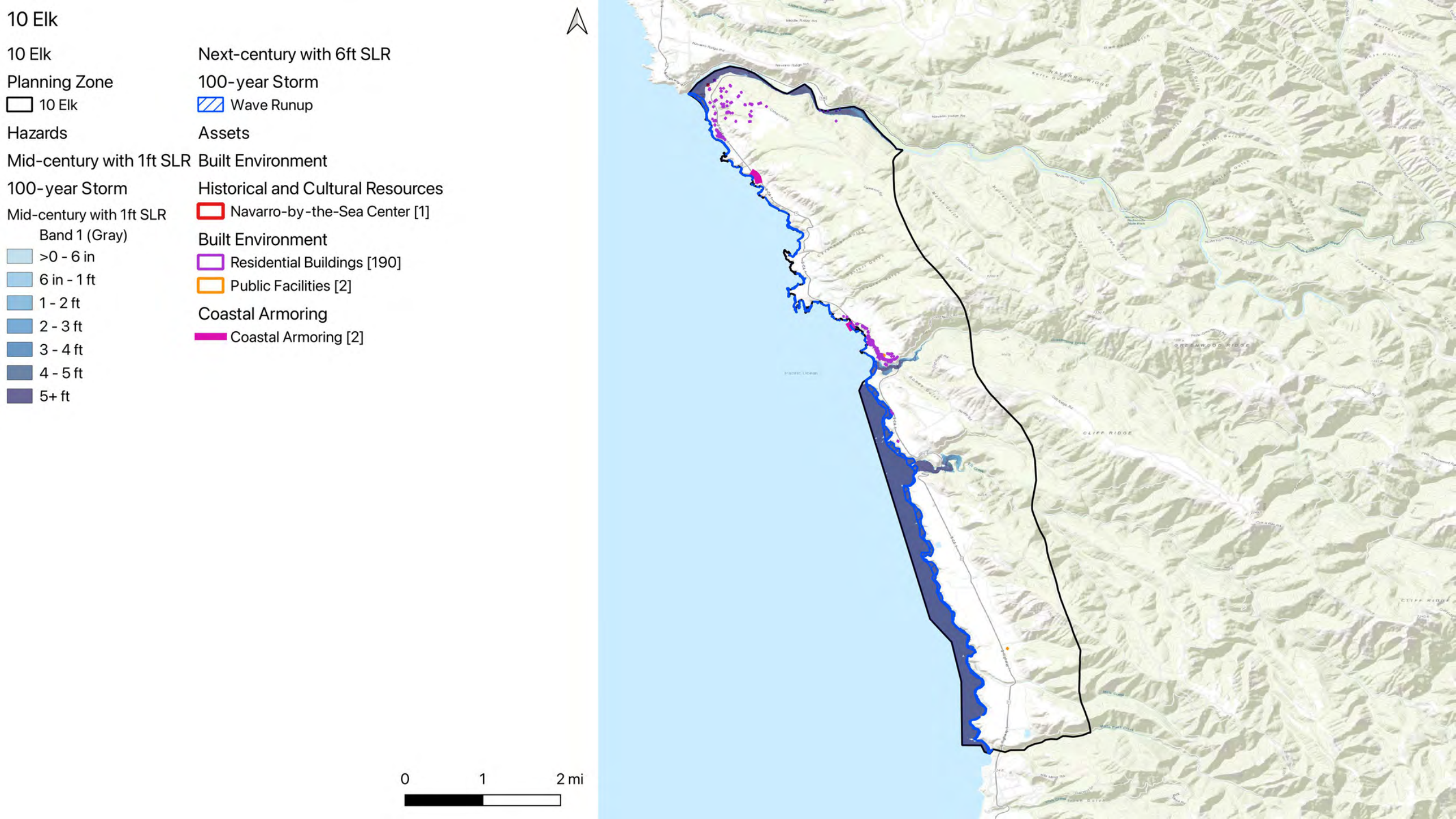
Recreational Routes [13]

Parks & Govt Lands

State Parks & Lands [13]



0 1 2 mi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10 Elk
Planning Zone
10 Elk
Hazards
Mid-century with 1ft SLR
100-year Storm
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Built Environment
Historical and Cultural Resources
Navarro-by-the-Sea Center [1]
Built Environment
Residential Buildings [190]
Public Facilities [2]
Coastal Armoring
Coastal Armoring [2]
0
1
2 mi

10 Elk



10 Elk

Planning Zone

10 Elk

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

Wave Runup

Assets

Critical Infrastructure

Power & Comms

- Transmission Lines [3]
- California Substations [1]

Transportation

- Bus Stops [3]
- State Route 1 [35]
- Bus Lines [5]
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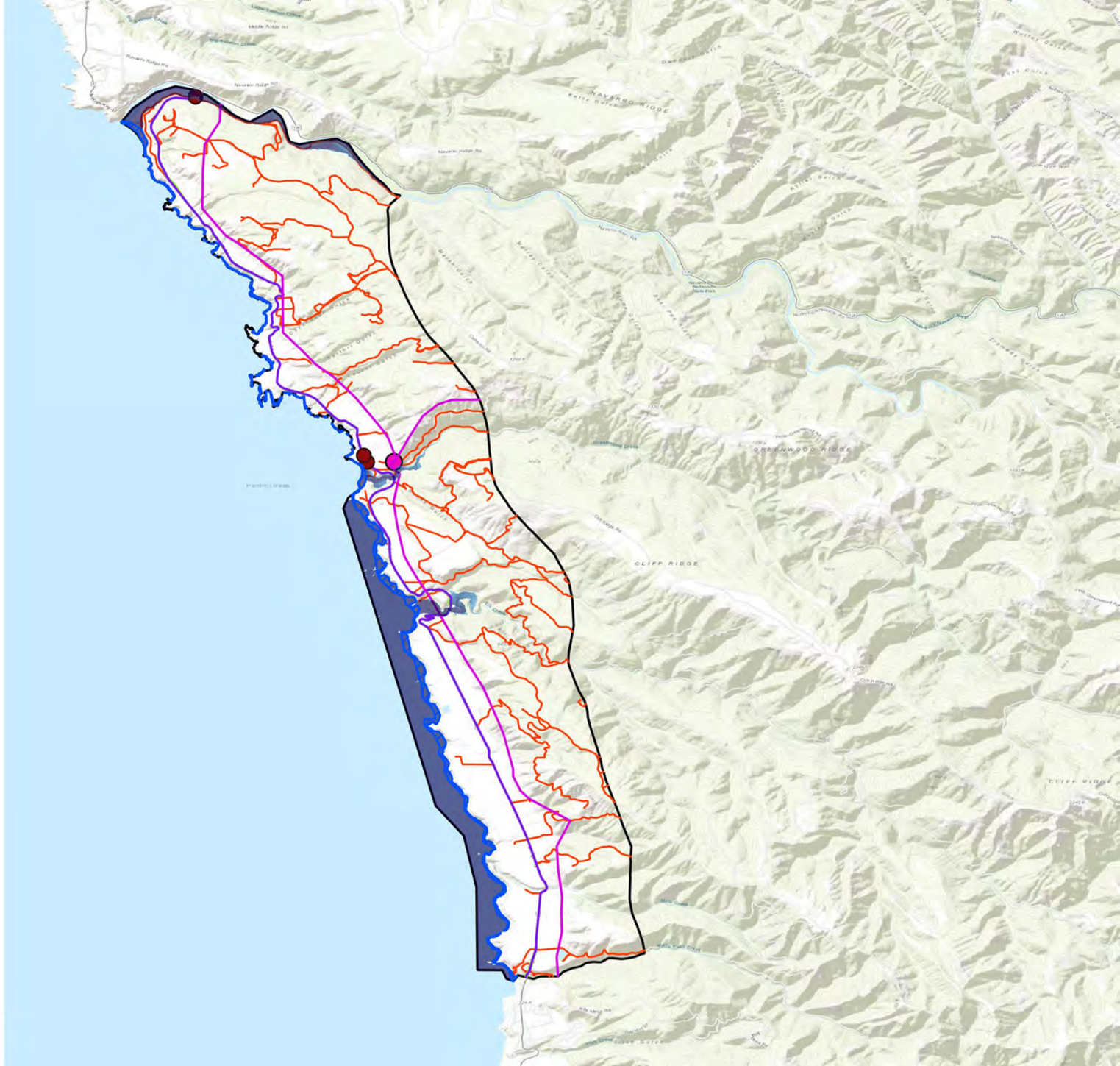
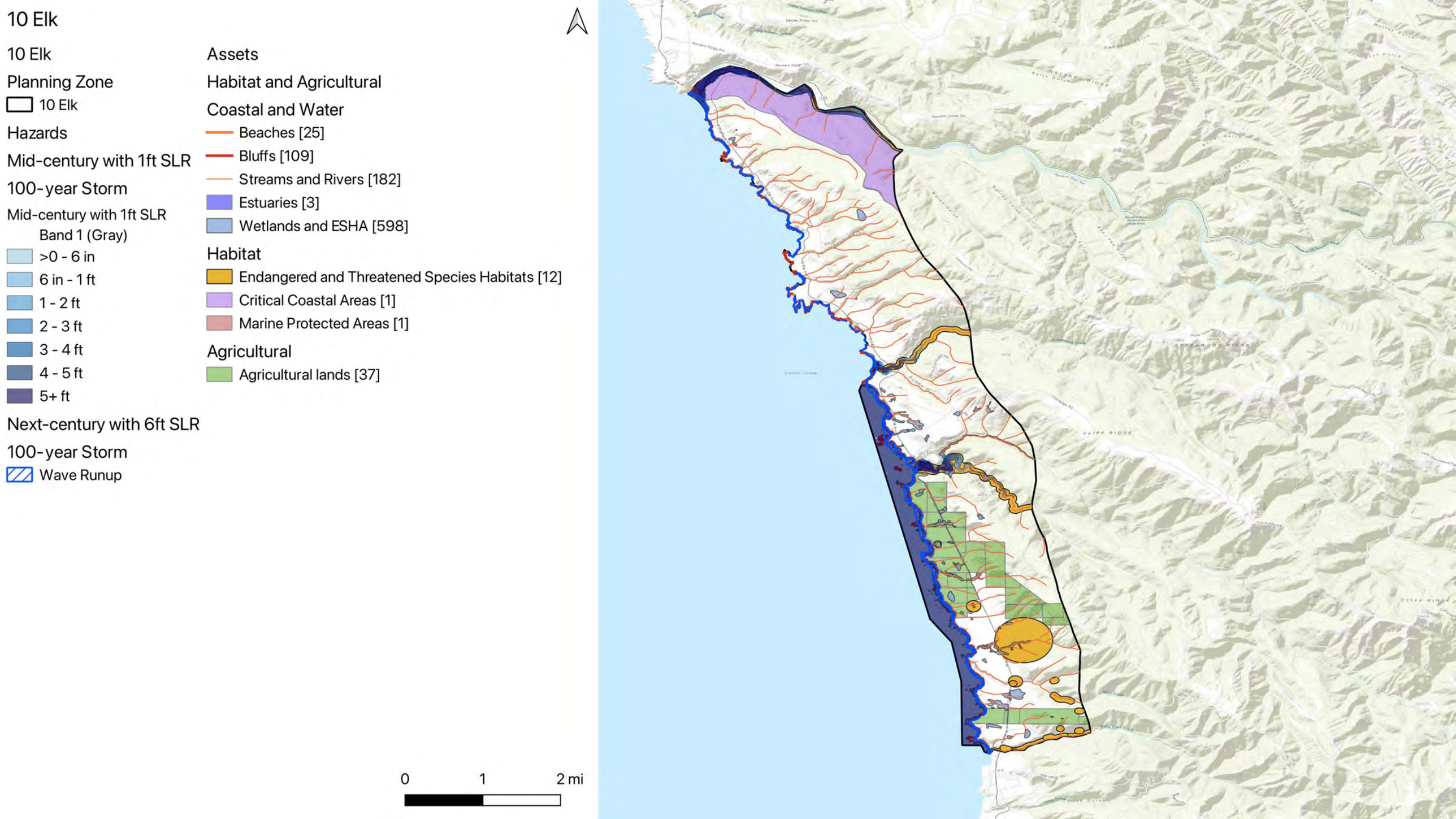
0 1 2 mi




10 Elk
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Planning Zone
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Hazards
Mid-century with 1ft SLR
100-year Storm
Mid-century with 1ft SLR
Band 1 (Gray)
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6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Next-century with 6ft SLR
100-year Storm
Wave Runup
Assets
Habitat and Agricultural
Coastal and Water
Beaches [25]
Bluffs [109]
Streams and Rivers [182]
Estuaries [3]
Wetlands and ESHA [598]
Habitat
Endangered and Threatened Species Habitats [12]
Critical Coastal Areas [1]
Marine Protected Areas [1]
Agricultural
Agricultural lands [37]
0
1
2 mi

10 Elk

10 Elk

Planning Zone

10 Elk

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Next-century with 6ft SLR

100-year Storm

Wave Runup

Assets

Public Access and Recreation

Recreation

California Coastal Trail [8]

Recreational Routes [13]

Parks & Govt Lands

State Parks & Lands [13]



0 1 2 mi

10 Elk

10 Elk

Planning Zone

10 Elk

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

Mid-century with 1ft SLR

Bluff Dune Erosion

Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Built Environment

Historical and Cultural Resources

Navarro-by-the-Sea Center [1]

Built Environment

Residential Buildings [190]

Public Facilities [2]

Coastal Armoring

Coastal Armoring [2]



0 1 2 mi

10 Elk

10 Elk

Planning Zone

10 Elk

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

Mid-century with 1ft SLR

Bluff Dune Erosion

Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Critical Infrastructure

Power & Comms

Transmission Lines [3]

California Substations [1]

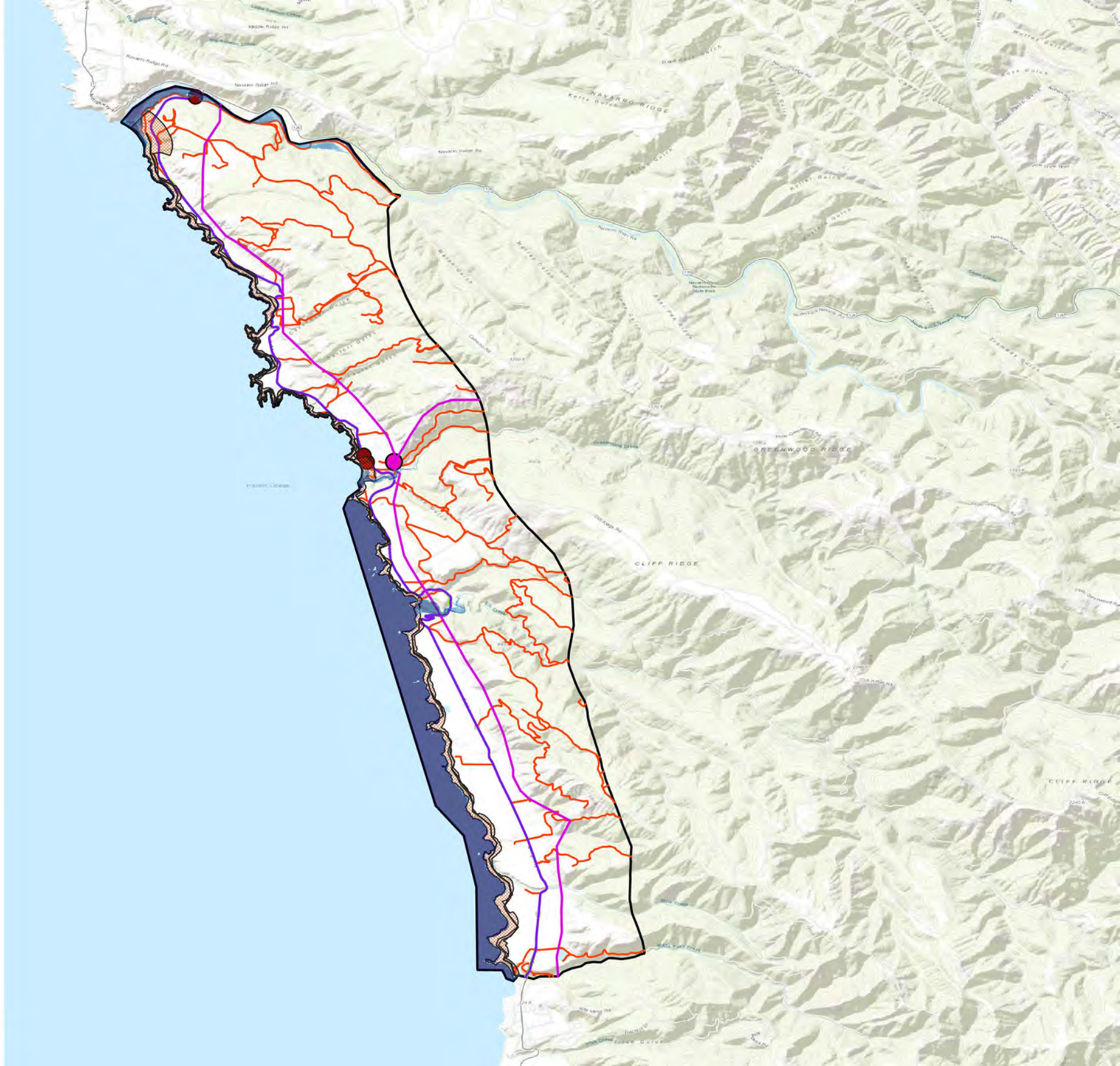
Transportation

Bus Stops [3]

State Route 1 [35]

Bus Lines [5]

Roads [200]



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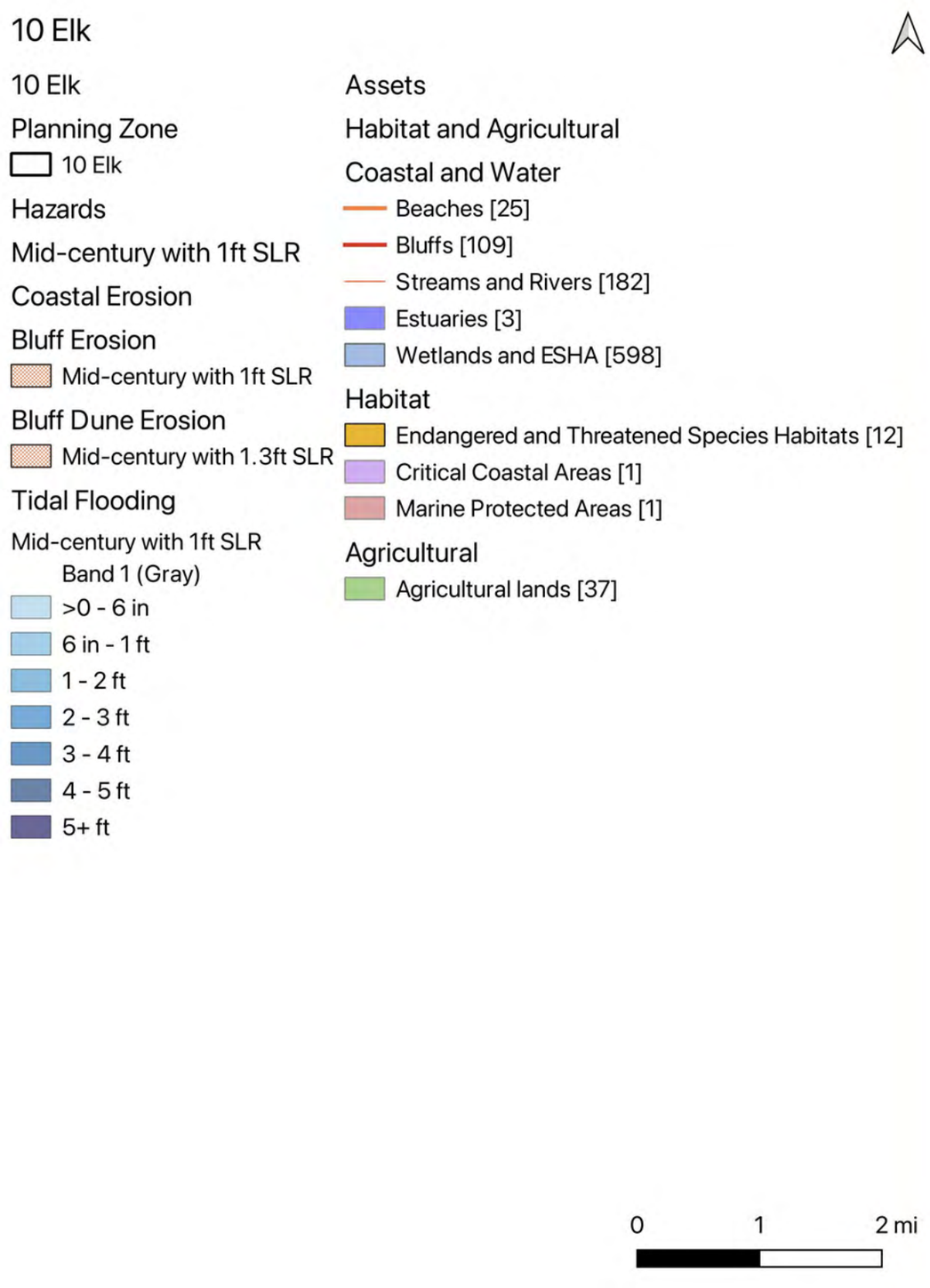
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Planning Zone
10 Elk
Hazards
Mid-century with 1ft SLR
Coastal Erosion
Bluff Erosion
Mid-century with 1ft SLR
Bluff Dune Erosion
Mid-century with 1.3ft SLR
Tidal Flooding
Mid-century with 1ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
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2 - 3 ft
3 - 4 ft
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5+ ft
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0
1
2 mi

10 Elk

10 Elk

Planning Zone

10 Elk

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

Mid-century with 1ft SLR

Bluff Dune Erosion

Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Public Access and Recreation

Recreation

California Coastal Trail [8]

Recreational Routes [13]

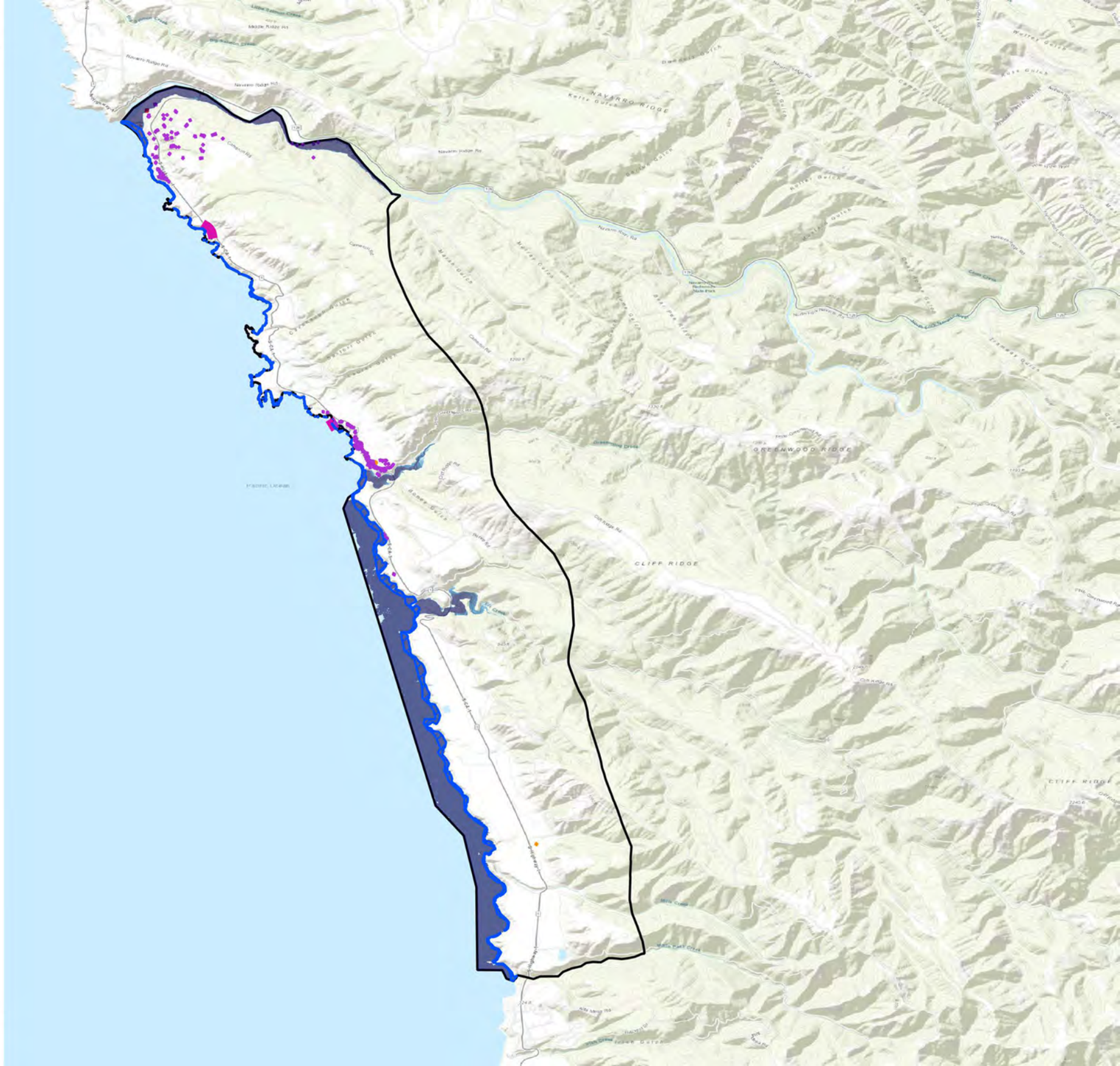
Parks & Govt Lands

State Parks & Lands [13]



0 1 2 mi

10 Elk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Planning Zone
10 Elk
Hazards
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
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Next-century with 6ft SLR
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Wave Runup
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Navarro-by-the-Sea Center [1]
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Residential Buildings [190]
Public Facilities [2]
Coastal Armoring
Coastal Armoring [2]
0
1
2 mi

10 Elk

10 Elk

Planning Zone

- 10 Elk

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

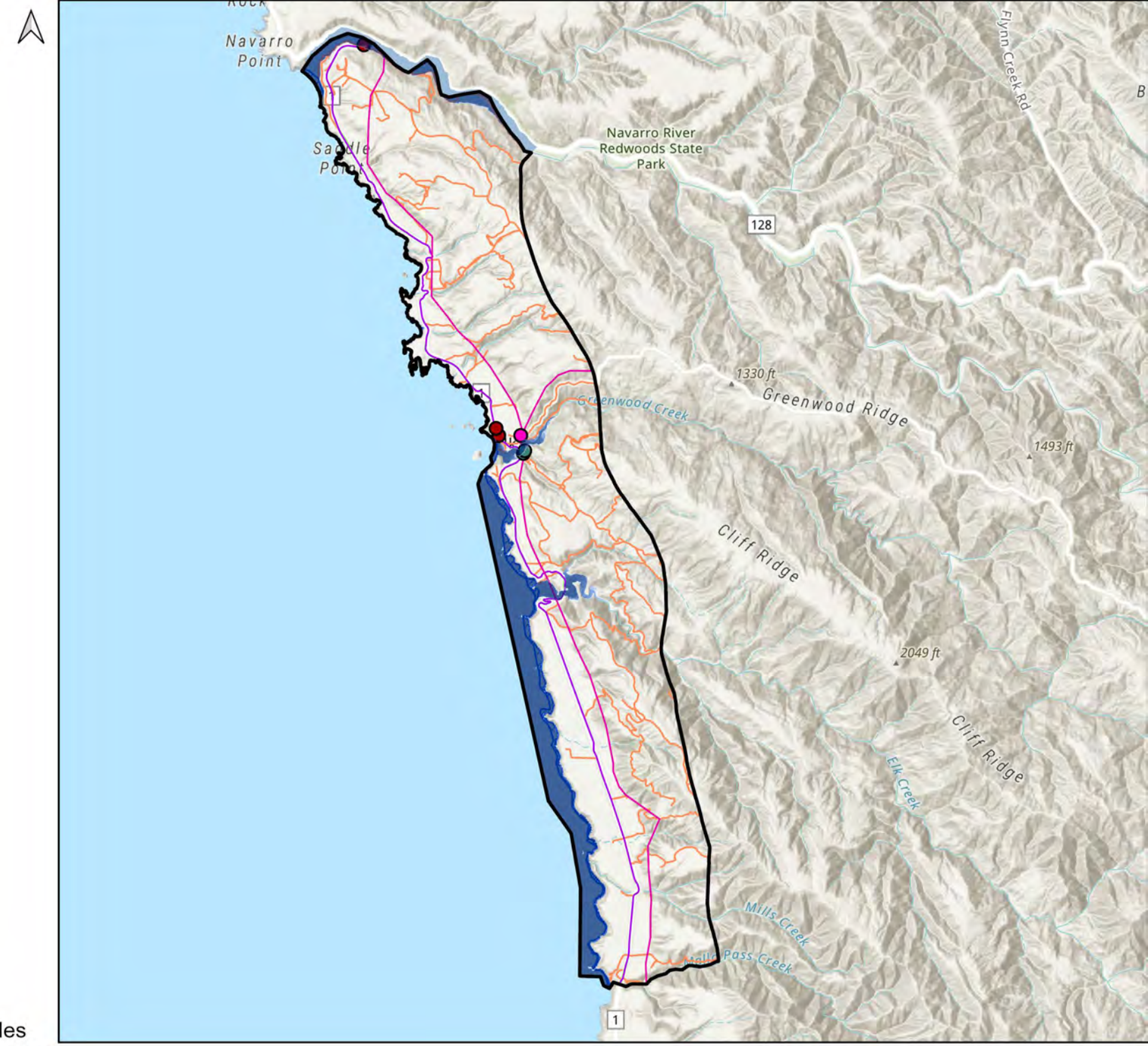
Critical Infrastructure

Transportation

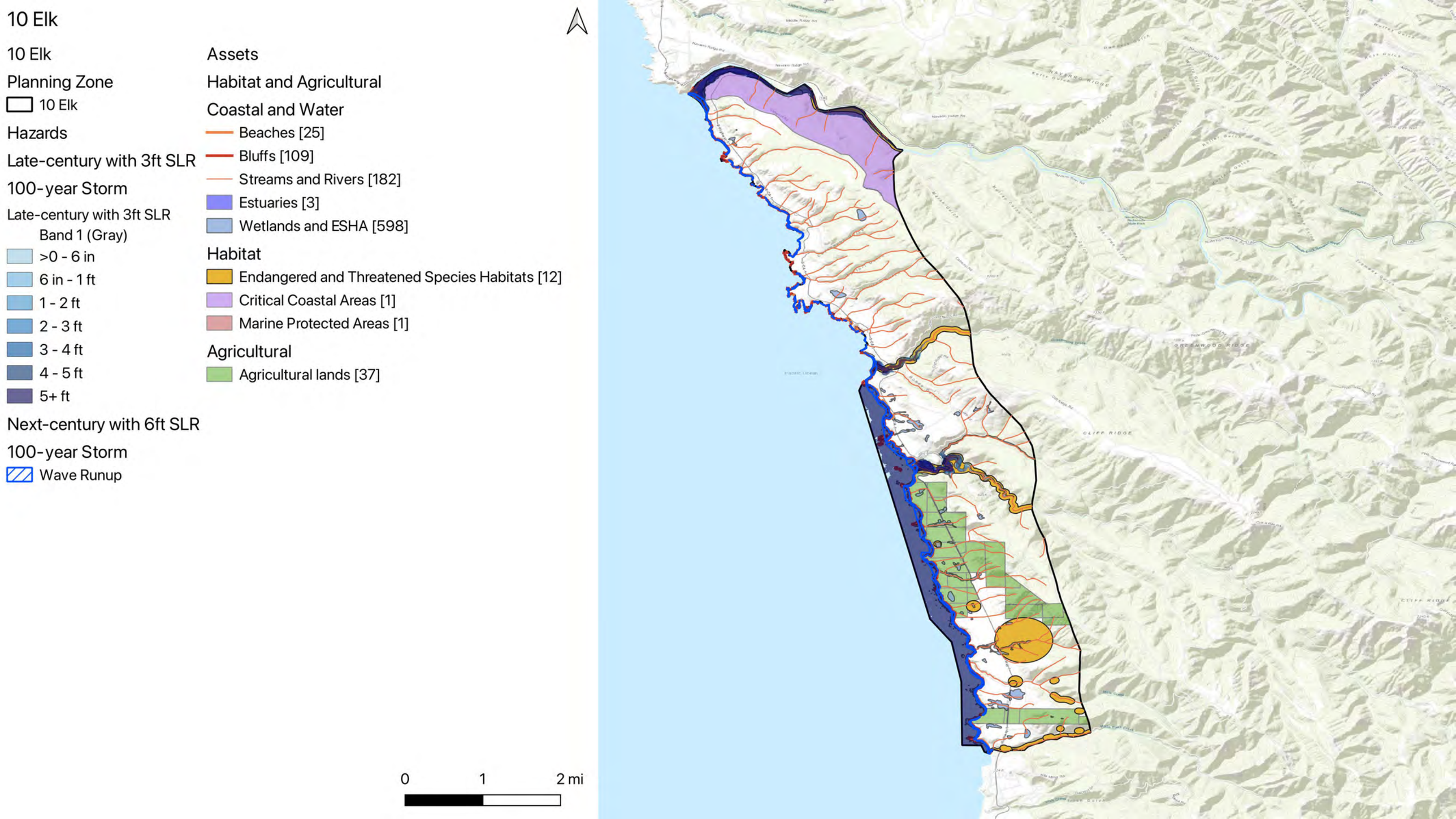
- Bus Stops [3]
- State Route 1 [35]
- Bus Lines [5]
- Roads [200]

Power & Comms

- Transmission Lines [3]
- California Substations [1]
- Well Locations



0 1 2 Miles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Planning Zone
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Hazards
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
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0
1
2 mi

10 Elk

10 Elk

Planning Zone

10 Elk

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR
Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
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- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

Wave Runup

Assets

Public Access and Recreation

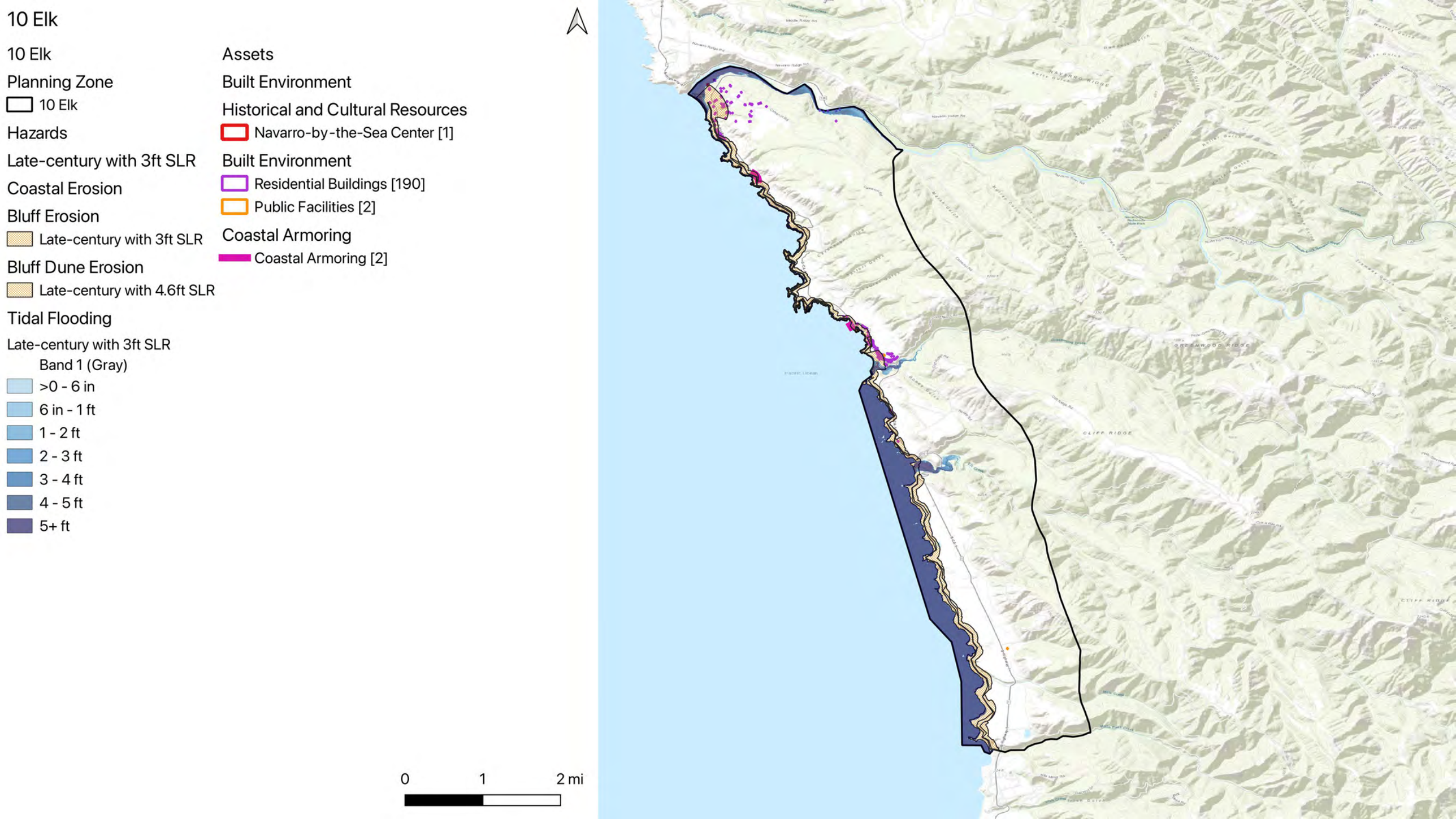
Recreation

- California Coastal Trail [8]
- Recreational Routes [13]

Parks & Govt Lands

State Parks & Lands [13]

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Planning Zone
10 Elk
Hazards
Late-century with 3ft SLR
Coastal Erosion
Bluff Erosion
Late-century with 3ft SLR
Bluff Dune Erosion
Late-century with 4.6ft SLR
Tidal Flooding
Late-century with 3ft SLR
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
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2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Built Environment
Historical and Cultural Resources
Navarro-by-the-Sea Center [1]
Built Environment
Residential Buildings [190]
Public Facilities [2]
Coastal Armoring
Coastal Armoring [2]
0
1
2 mi

10 Elk

10 Elk

Planning Zone

10 Elk

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

Late-century with 3ft SLR

Bluff Dune Erosion

Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

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6 in - 1 ft

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5+ ft

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Critical Infrastructure

Power & Comms

Transmission Lines [3]

California Substations [1]

Transportation

Bus Stops [3]

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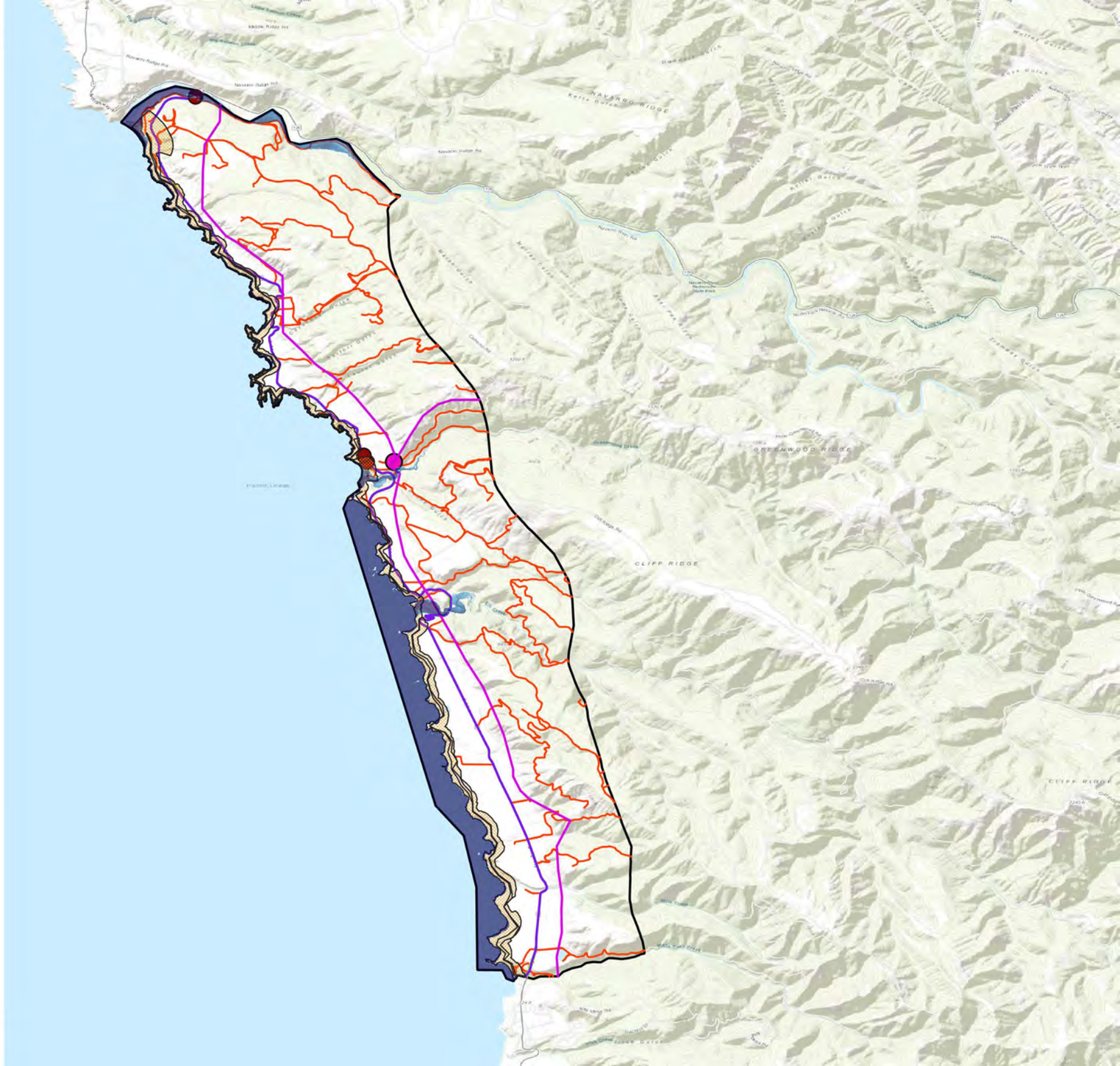
Bus Lines [5]

Roads [200]



10 Elk

10 Elk

Planning Zone

10 Elk

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

Late-century with 3ft SLR

Bluff Dune Erosion

Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

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5+ ft

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Bluffs [109]

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Wetlands and ESHA [598]

Habitat

Endangered and Threatened Species Habitats [12]

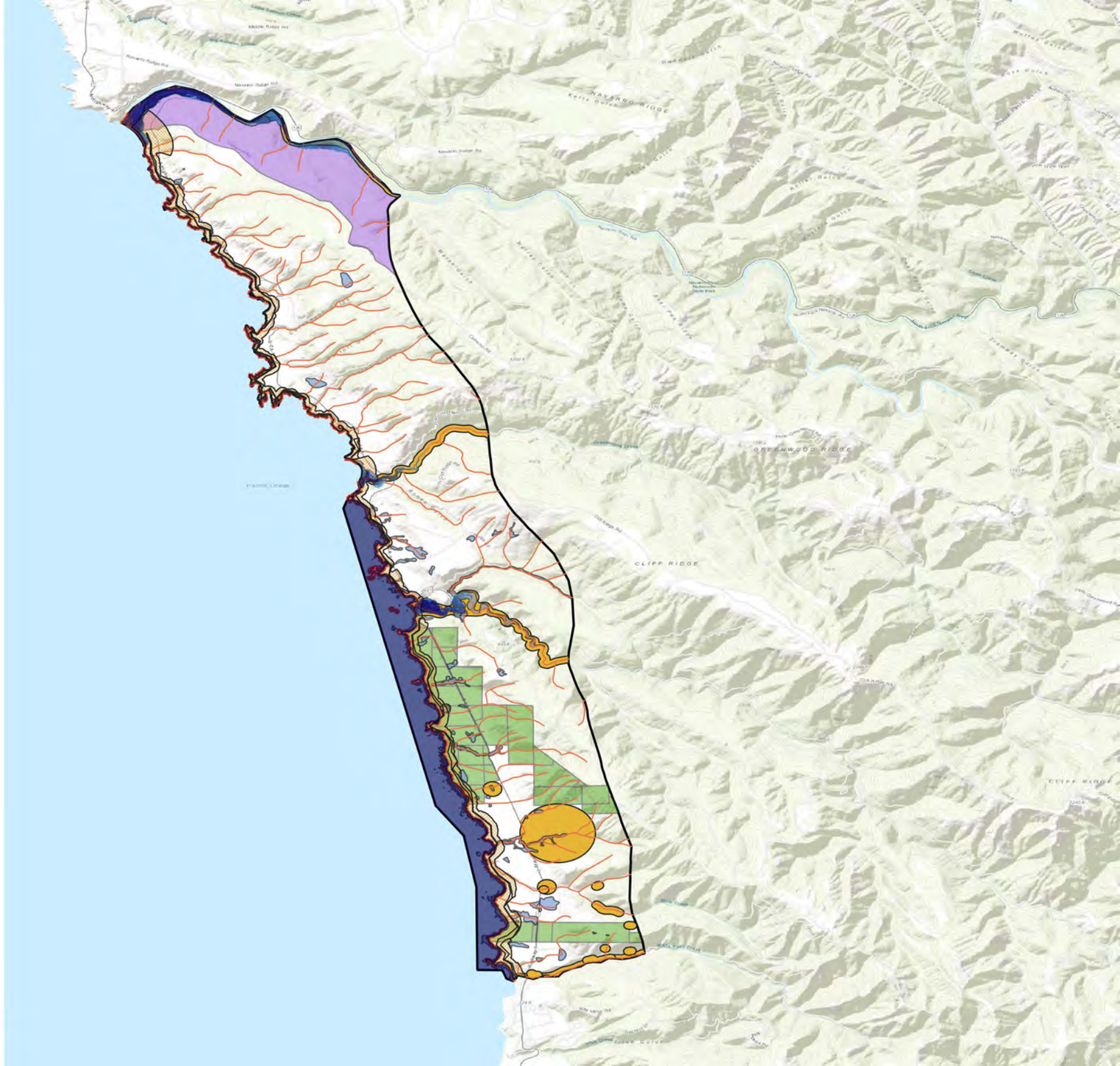
Critical Coastal Areas [1]

Marine Protected Areas [1]

Agricultural

Agricultural lands [37]

0 1 2 mi



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Planning Zone

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Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

Late-century with 3ft SLR

Bluff Dune Erosion

Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

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5+ ft

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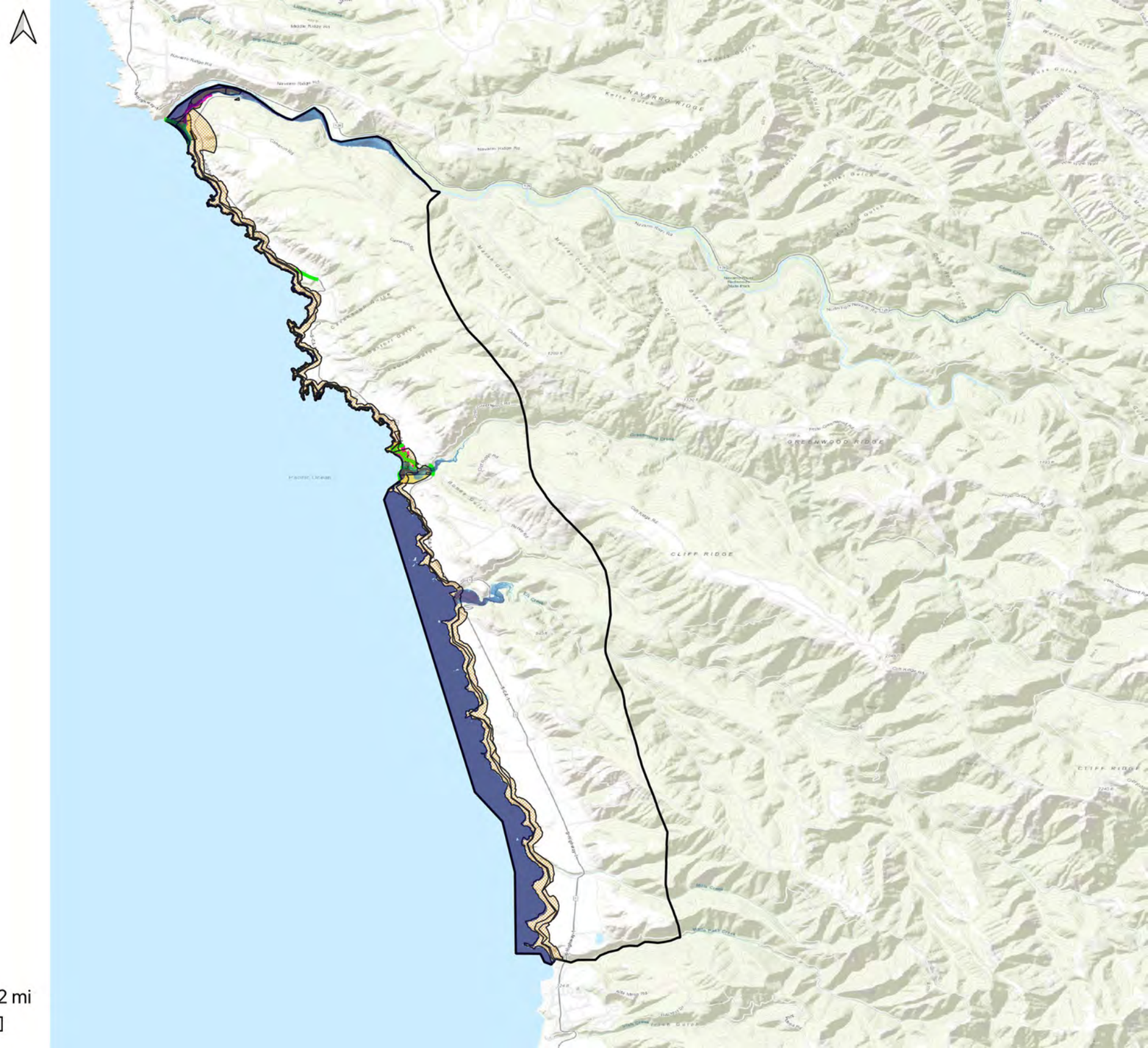

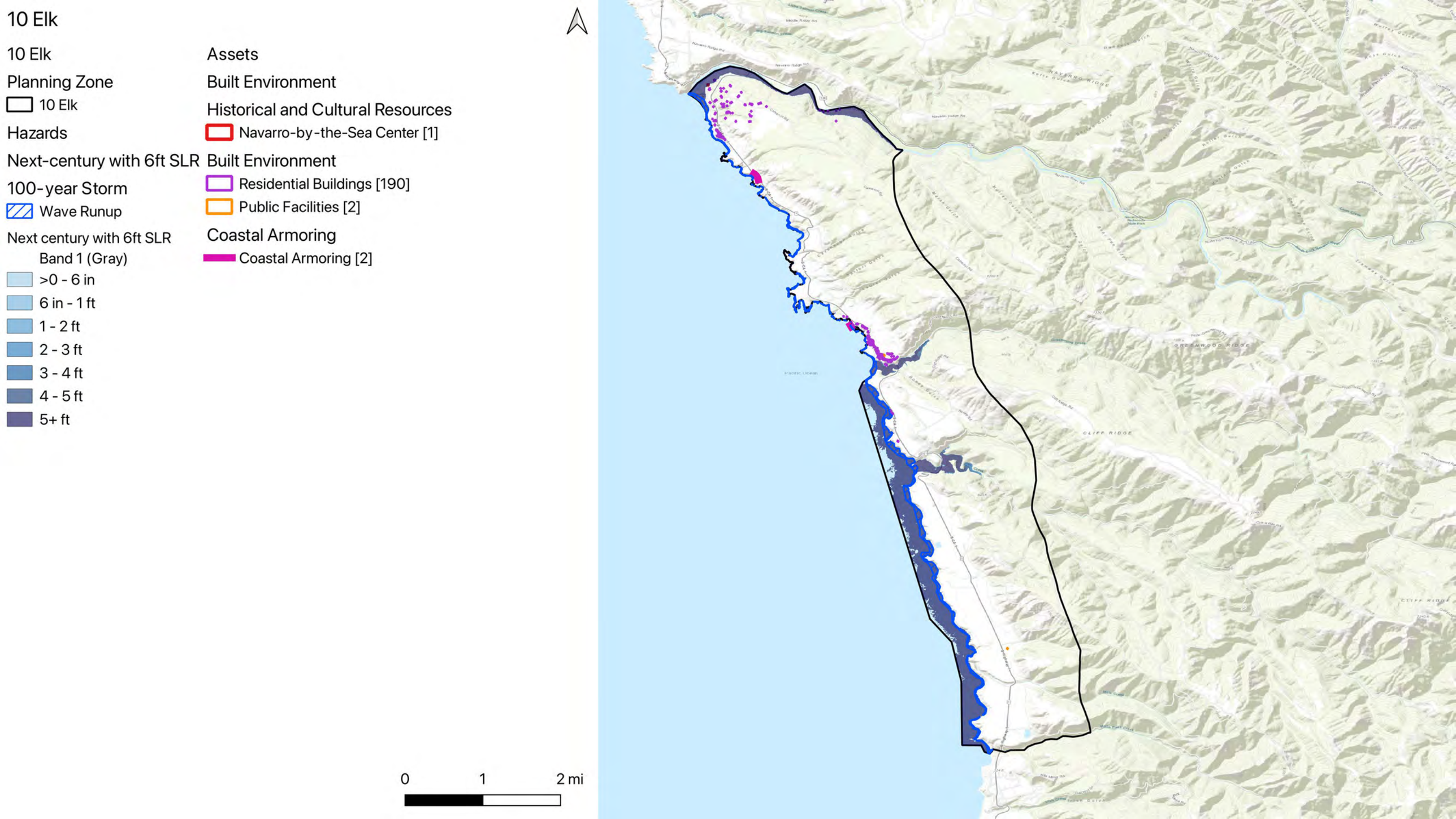
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Planning Zone
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Hazards
Next-century with 6ft SLR
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Next century with 6ft SLR
Band 1 (Gray)
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Coastal Armoring [2]
0
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2 mi

10 Elk


10 Elk
Planning Zone
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Next-century with 6ft SLR
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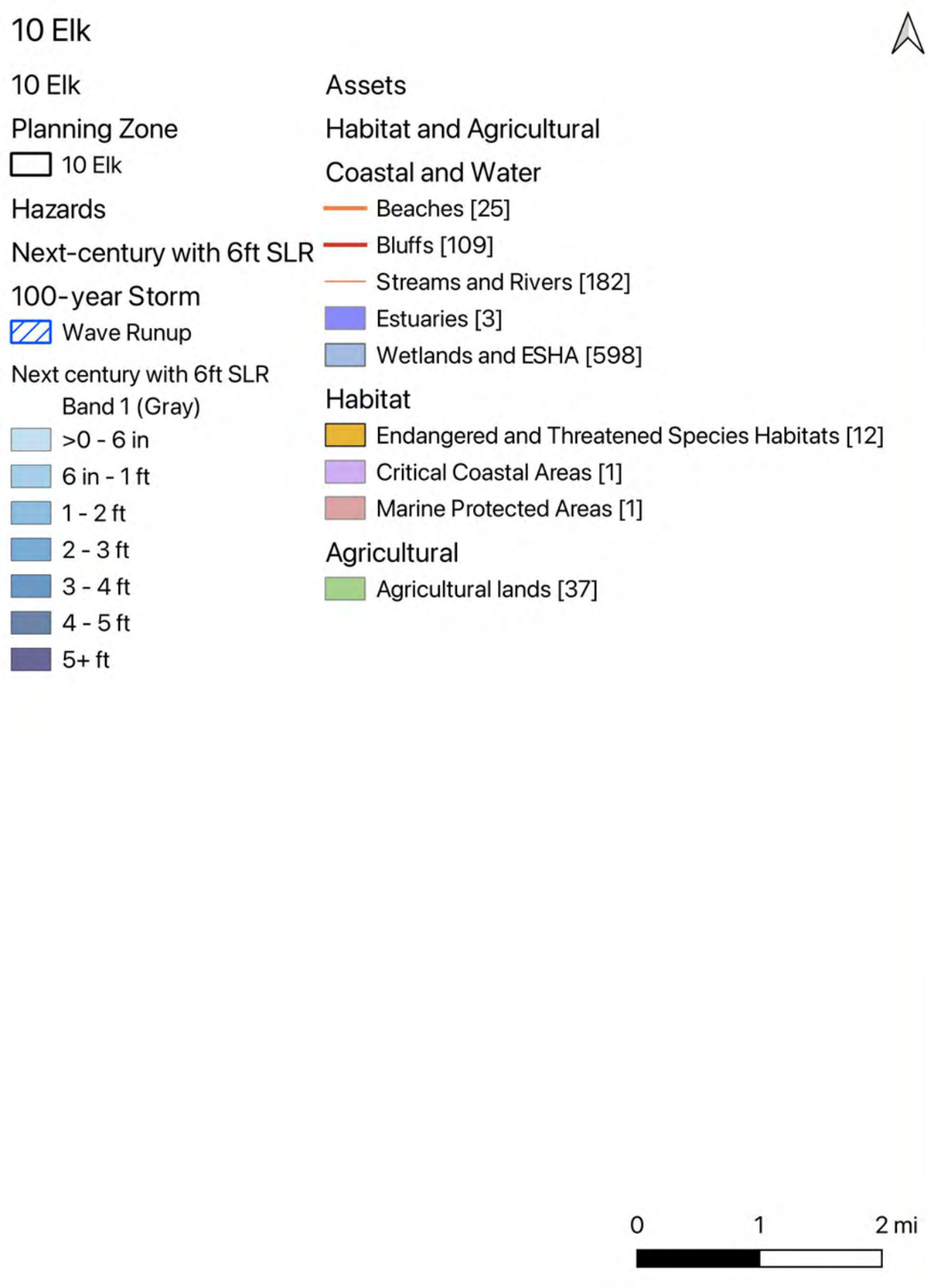
5+ ft
Assets
Critical Infrastructure
Power & Comms
Transmission Lines [3]
California Substations [1]
Transportation
Bus Stops [3]
State Route 1 [35]
Bus Lines [5]
Roads [200]
0
1
2 mi

10 Elk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Planning Zone
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Hazards
Next-century with 6ft SLR
100-year Storm
Wave Runup
Next century with 6ft SLR
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Endangered and Threatened Species Habitats [12]
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Agricultural
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0
1
2 mi

10 Elk


10 Elk
Planning Zone
10 Elk
Hazards
Next-century with 6ft SLR
100-year Storm
Wave Runup
Next century with 6ft SLR
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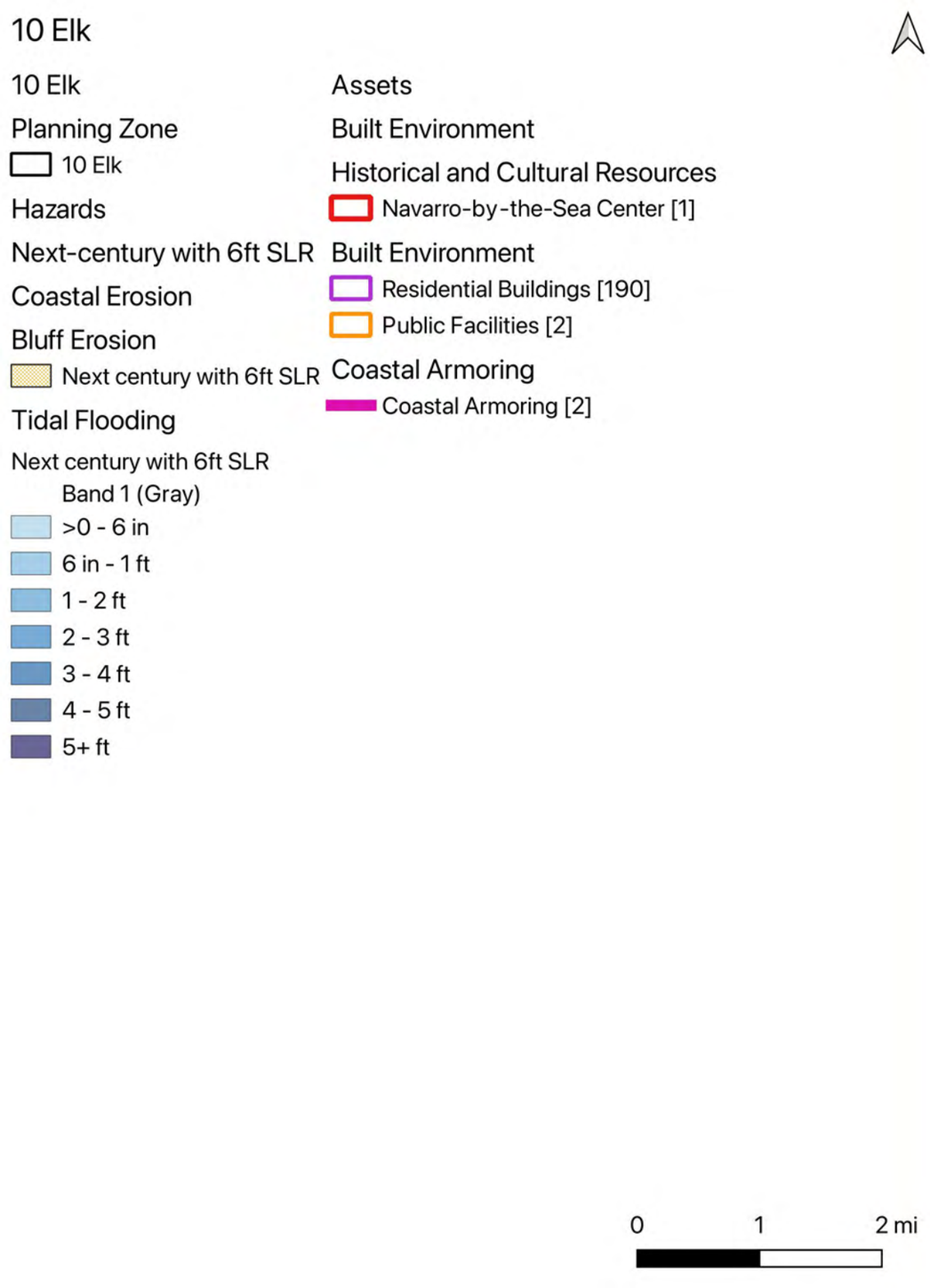
Public Access and Recreation
Recreation
California Coastal Trail [8]
Recreational Routes [13]
Parks & Govt Lands
State Parks & Lands [13]
0
1
2 mi

10 Elk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Planning Zone
10 Elk
Hazards
Next-century with 6ft SLR
Coastal Erosion
Bluff Erosion
Next century with 6ft SLR
Tidal Flooding
Next century with 6ft SLR
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0
1
2 mi

10 Elk

10 Elk

Planning Zone

10 Elk

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

Next century with 6ft SLR

Tidal Flooding

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4 - 5 ft

5+ ft

Assets

Critical Infrastructure

Power & Comms

Transmission Lines [3]

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Bus Stops [3]

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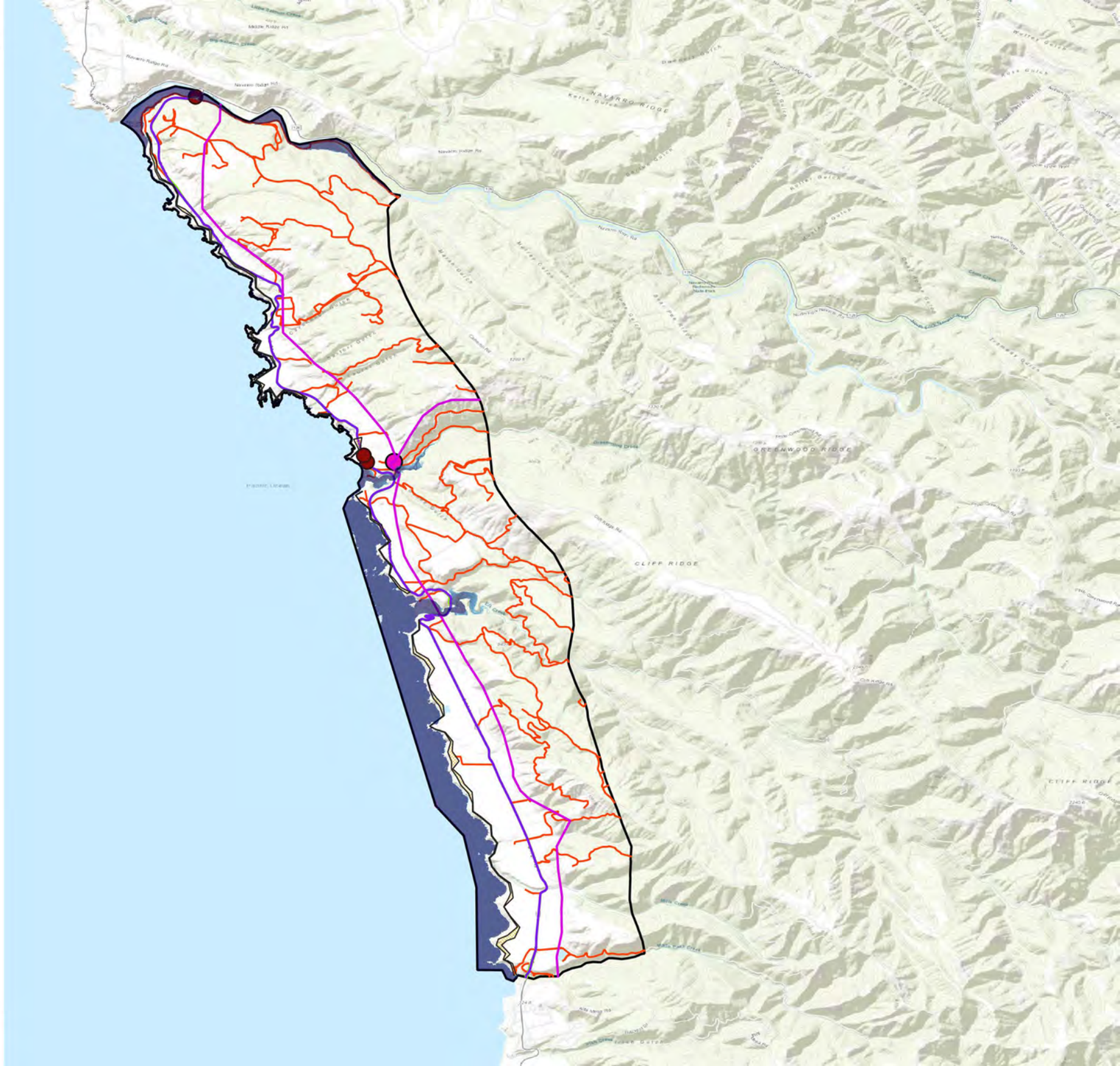

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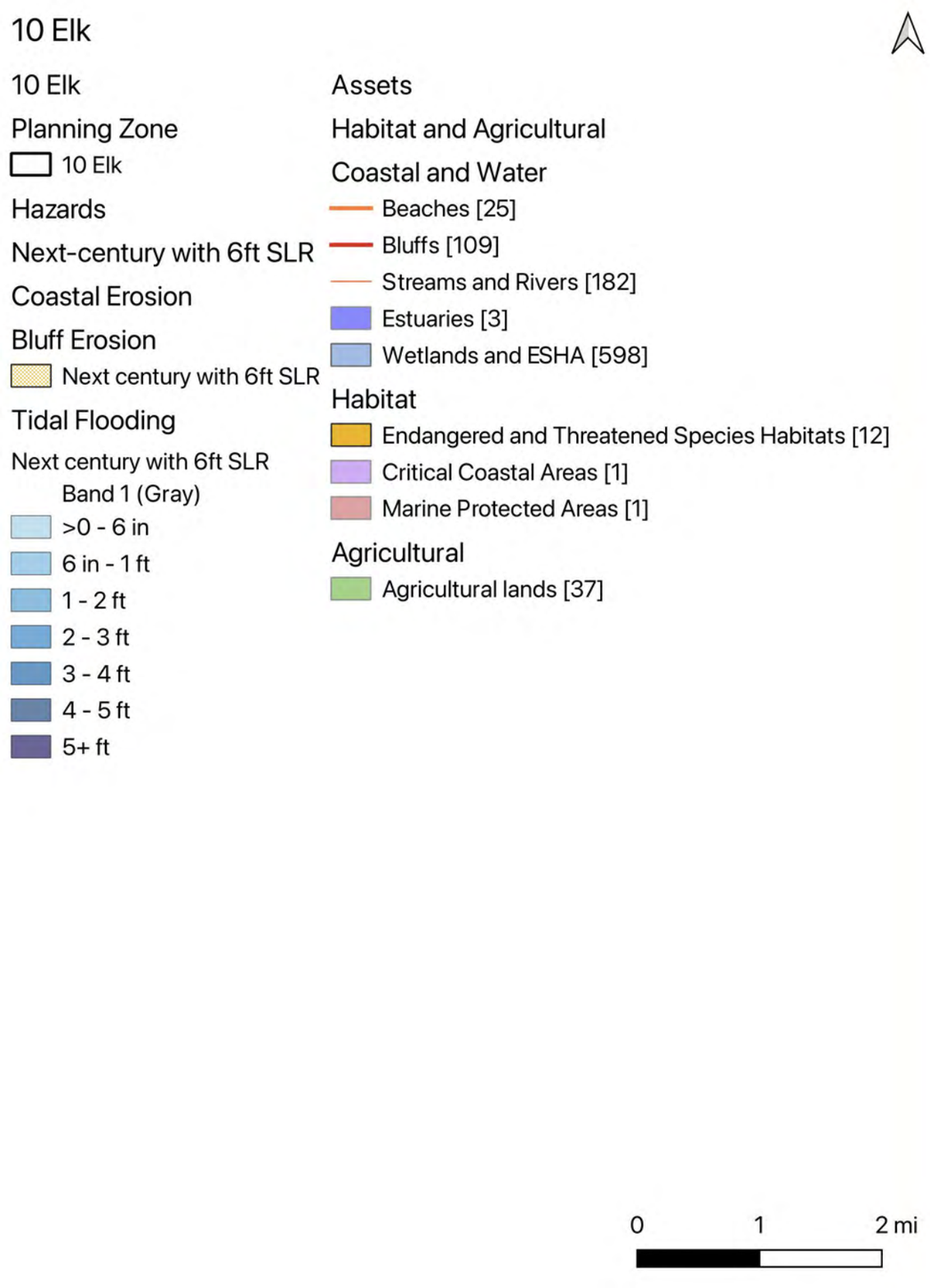
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Agricultural lands [37]
0
1
2 mi

10 Elk

10 Elk

Planning Zone

10 Elk

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

Next century with 6ft SLR

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5+ ft

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Recreation

California Coastal Trail [8]

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Parks & Govt Lands

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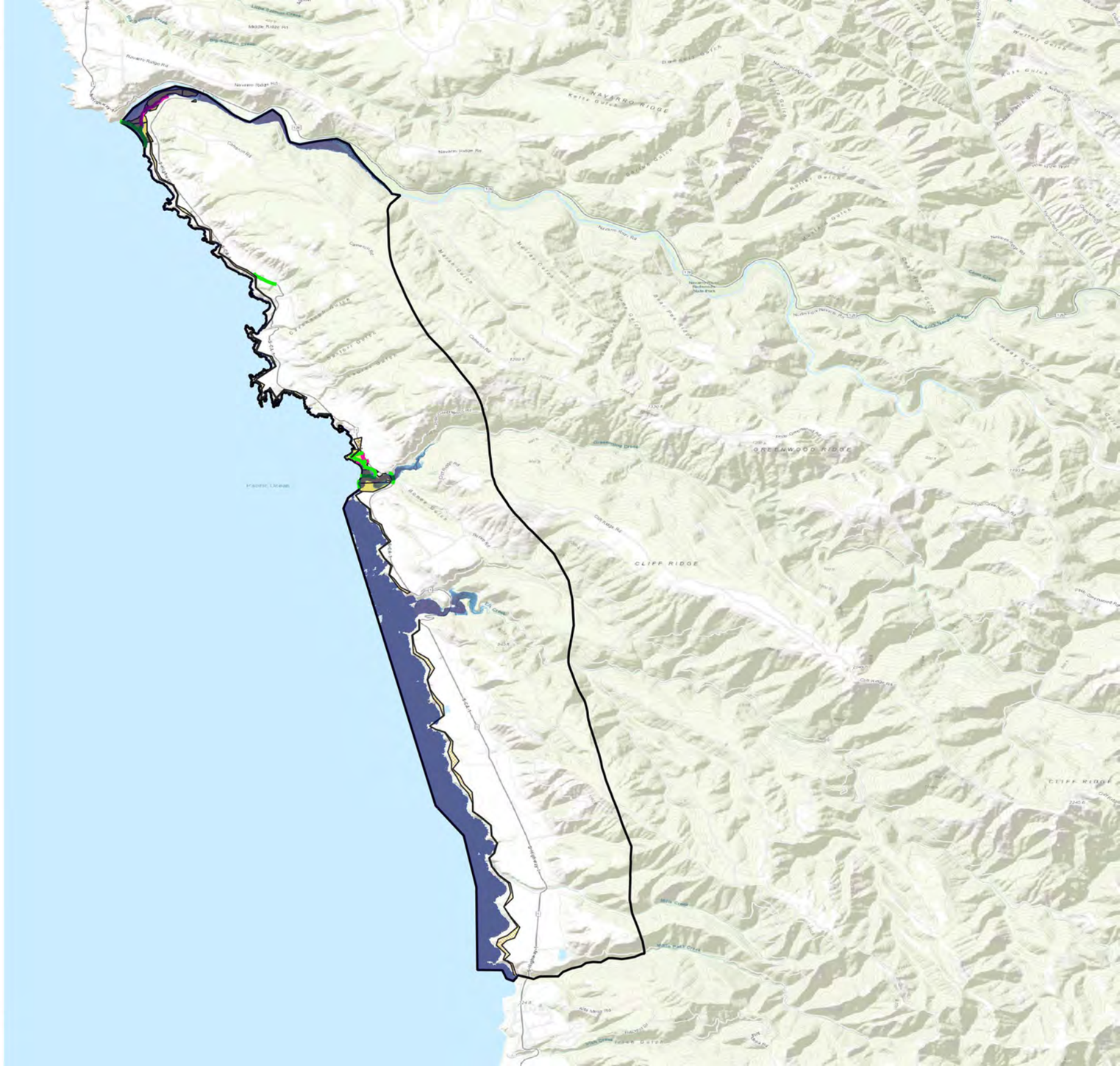


0 1 2 mi

Table 11. Manchester and Point Arena

Sub-Category	Asset Type	Units	WaveP	StormP	TidalP	TotalsP	Storm1ft	Tidal1ft	BluffE1ft	CoastE1ft	Totals1ft	Storm3ft	Tidal3ft	BluffE3ft	CoastE3ft	Totals3ft	Storm6ft	Tidal6ft	BluffE6ft	CoastE6ft	Totals6ft
Power & Comms	Manchester Trans-Pacific Cable Landing Site	Single building	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1
Power & Comms	Transmission Lines	Length (mi)	0	0.1	0	0.1	0.1	0	0	0	0.1	0.2	0	0	0	0.2	0.2	0.2	0	0	0.2
Transportation	State Route 1	Length (mi)	0	0.9	0.2	0.9	1	0.7	0	0	1	1.2	0.8	0.1	0	1.3	1.5	1.1	0.1	0.3	1.7
Transportation	Bus Lines	Length (mi)	0	1.8	0.4	1.8	2	1.3	0	0	2.1	2.3	1.6	0.2	0	2.5	3	2.2	0.3	0.5	3.5
Transportation	Roads	Length (mi)	0.1	6.2	2.7	6.2	6.8	3.7	0.6	0.2	7.5	8.2	5.5	1.2	1	9.9	11.7	7.6	1.6	3.2	14.7
Recreation	California Coastal Trail	Length (mi)	3.2	4.3	3.2	4.4	4.6	3.4	0.8	4	6.2	5	3.8	1.6	5.2	7.7	6.8	4.8	2	7.1	9.4
Recreation	Recreational Routes	Length (mi)	0.2	1.3	0.2	1.3	1.7	0.4	0	0.9	2.1	2	0.9	0	1	2.3	2.2	1.9	0	1.2	2.5
Parks & Govt Lands	Federal Parks & Lands	Area (acres)	4	98	65	99	103	79	5	15	115	111	94	10	21	129	129	107	14	36	150
Parks & Govt Lands	State Parks & Lands	Area (sqmi)	0.1	0.7	0.4	0.7	0.8	0.5	0	0.2	0.9	1	0.7	0	0.3	1	1.1	0.9	0	0.4	1.1
Parks & Govt Lands	City Parks & Lands	Area (acres)	0	7	5	7	7	6	0	0	7	7	7	0	0	7	7	7	0	0	7
Parks & Govt Lands	Tribal lands	Area (acres)	0	31	0	31	43	0	0	0	43	53	14	0	0	53	85	47	0	0	85
Coastal and Water	Beaches	Length (mi)	1.3	1.5	1.3	1.5	1.5	1.4	0	1.5	1.6	1.5	1.5	0	1.5	1.6	1.6	1.5	0	1.5	1.6
Coastal and Water	Bluffs	Length (mi)	2.7	3.6	3.2	3.8	3.7	3.4	0.2	2	4.1	3.9	3.6	0.2	2	4.2	4.1	3.8	0.3	2	4.2
Coastal and Water	Streams and Rivers	Length (mi)	0.8	17.8	12	17.8	19.3	13.2	0.1	0.7	19.4	21.6	16.2	0.1	0.9	21.7	24.3	20.8	0.2	1.4	24.4
Coastal and Water	Estuaries	Area (sqmi)	0	0.4	0.4	0.5	0.5	0.4	0	0	0.5	0.5	0.4	0	0	0.5	0.5	0.5	0	0.1	0.5
Coastal and Water	Wetlands and ESHA	Area (sqmi)	0.2	1.4	1	1.4	1.5	1.1	0	0.2	1.5	1.7	1.3	0	0.2	1.7	1.8	1.6	0	0.3	1.8
Habitat	Endangered and Threatened Species Habitats	Area (sqmi)	0.1	1.7	1	1.7	1.9	1.1	0	0.2	2	2.3	1.5	0	0.3	2.4	2.8	2.2	0.1	0.4	2.9
Habitat	Critical Coastal Areas	Area (sqmi)	0	1.8	1.1	1.8	1.9	1.3	0	0	1.9	2.1	1.7	0	0	2.1	2.3	2	0	0	2.3
Habitat	Marine Protected Areas	Number of individually designated MPAs	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Agricultural	Agricultural lands	Area (sqmi)	0	2	1.2	2	2.1	1.5	0	0	2.1	2.3	1.9	0	0.1	2.3	2.6	2.2	0	0.1	2.6
Historical and Cultural Resources	Point Arena Lighthouse	Set of buildings	0	0	0	0	0	0	0	1	1	0	0	2	2	3	0	0	4	3	4
Built Environment	Residential Buildings	Number of buildings	0	0	0	0	0	0	3	12	14	0	0	3	23	24	0	0	3	48	48
Coastal Armoring	Coastal Armoring	Length (ft)	31	31	31	31	31	31	0	68	98	31	31	0	68	98	31	31	0	68	98

11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Present Day

100-year Storm

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Built Environment

Historical and Cultural Resources

- Point Arena Lighthouse [4]

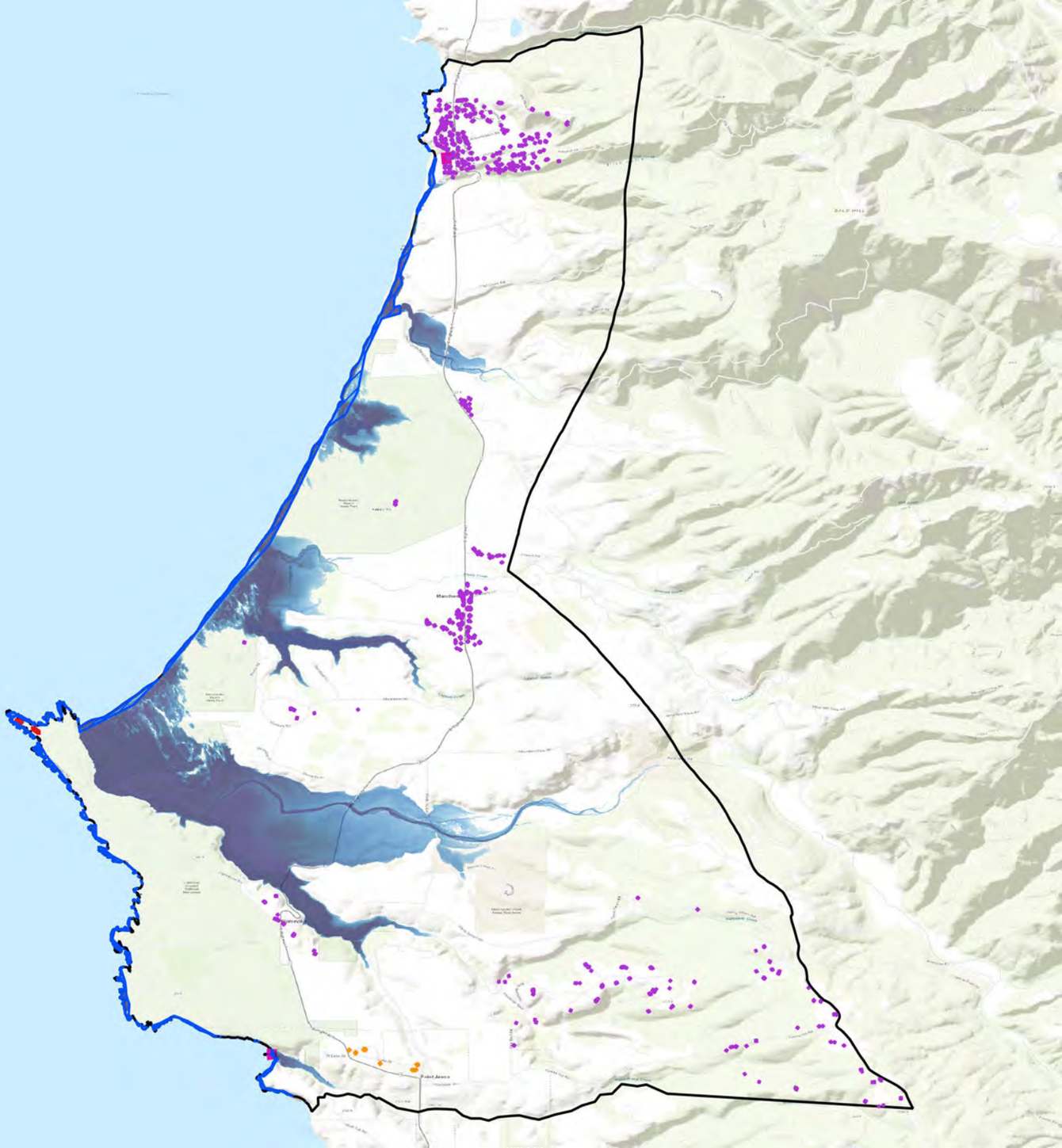
Built Environment

- Residential Buildings [411]
- Public Facilities [9]

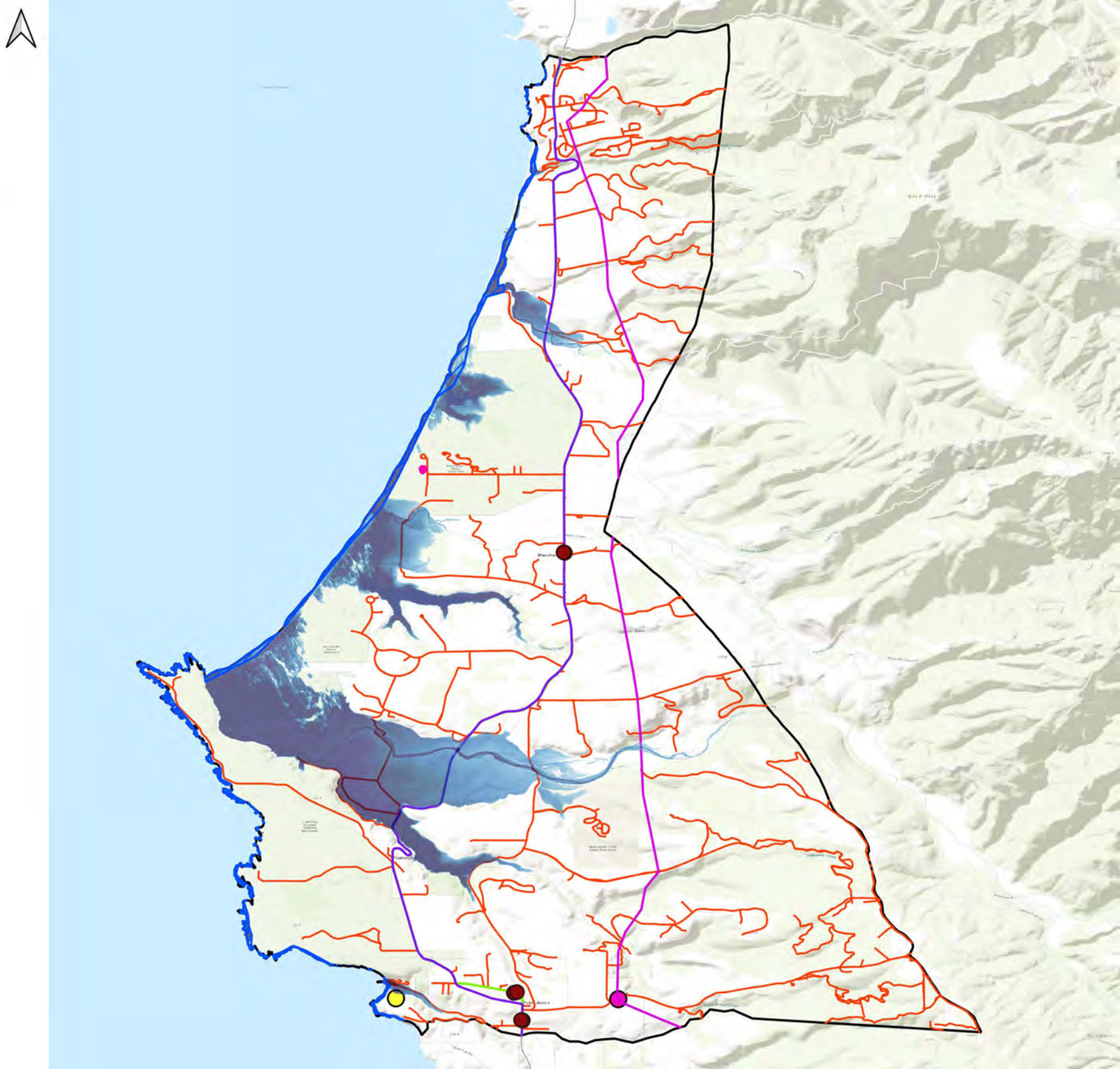
Coastal Armoring

- Coastal Armoring [2]

0 1 2 mi



11 Manchester & Point Arena



11 Manchester & Point Arena

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Planning Zone

- 11 Manchester & Point Arena

Hazards

Present Day

100-year Storm

Present day

Band 1 (Gray)

- >0 - 6 in
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- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Habitat and Agricultural

Coastal and Water

- Beaches [5]
- Bluffs [52]
- Streams and Rivers [254]
- Estuaries [5]
- Wetlands and ESHA [562]

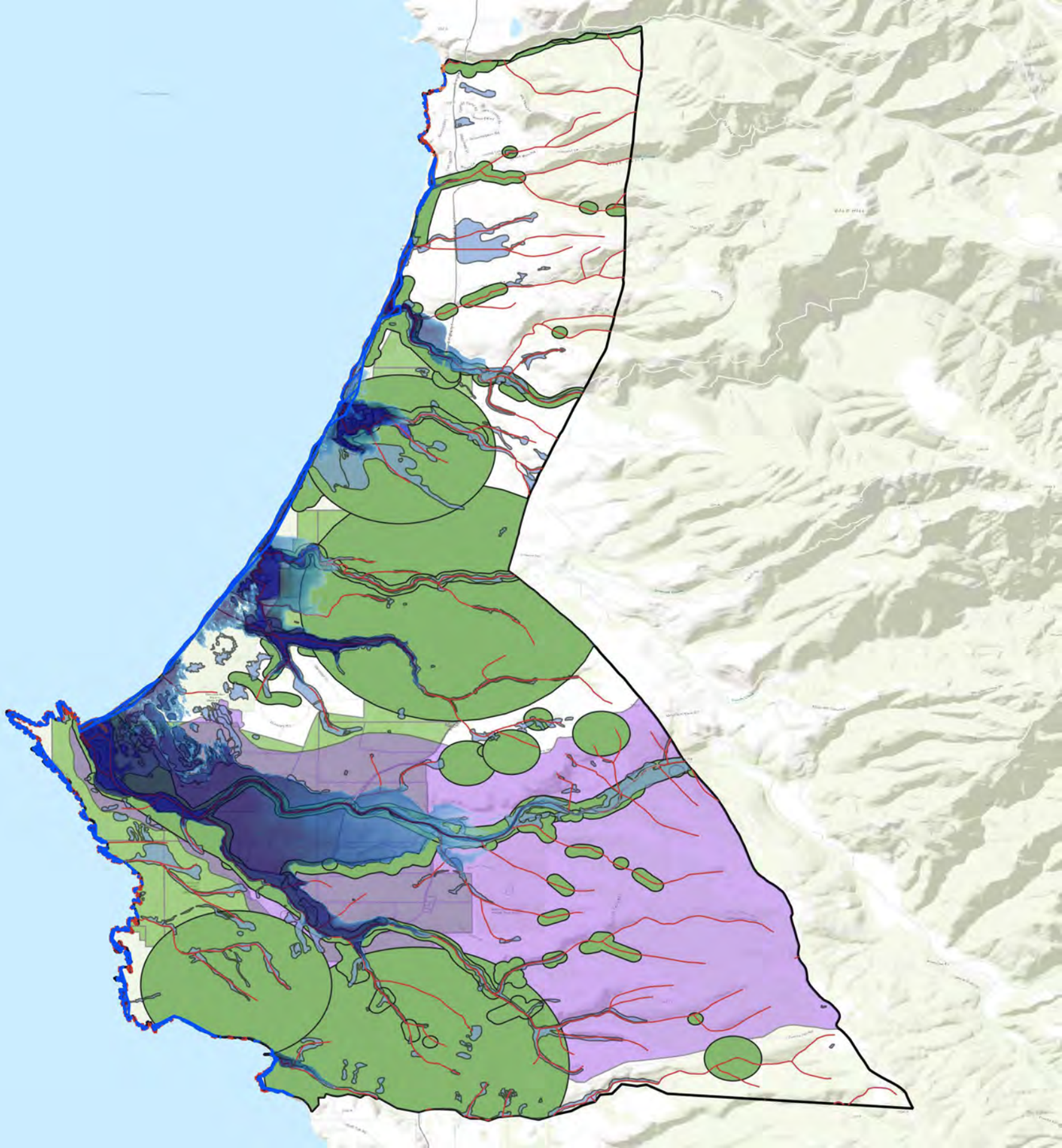
Habitat

- Endangered and Threatened Species Habitats [41]
- Critical Coastal Areas [1]
- Marine Protected Areas [2]

Agricultural

- Agricultural lands [78]

0 1 2 mi



11 Manchester & Point Arena

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Planning Zone

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Hazards

Present Day

100-year Storm

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

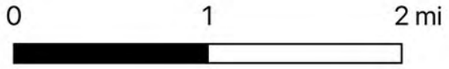
Public Access and Recreation

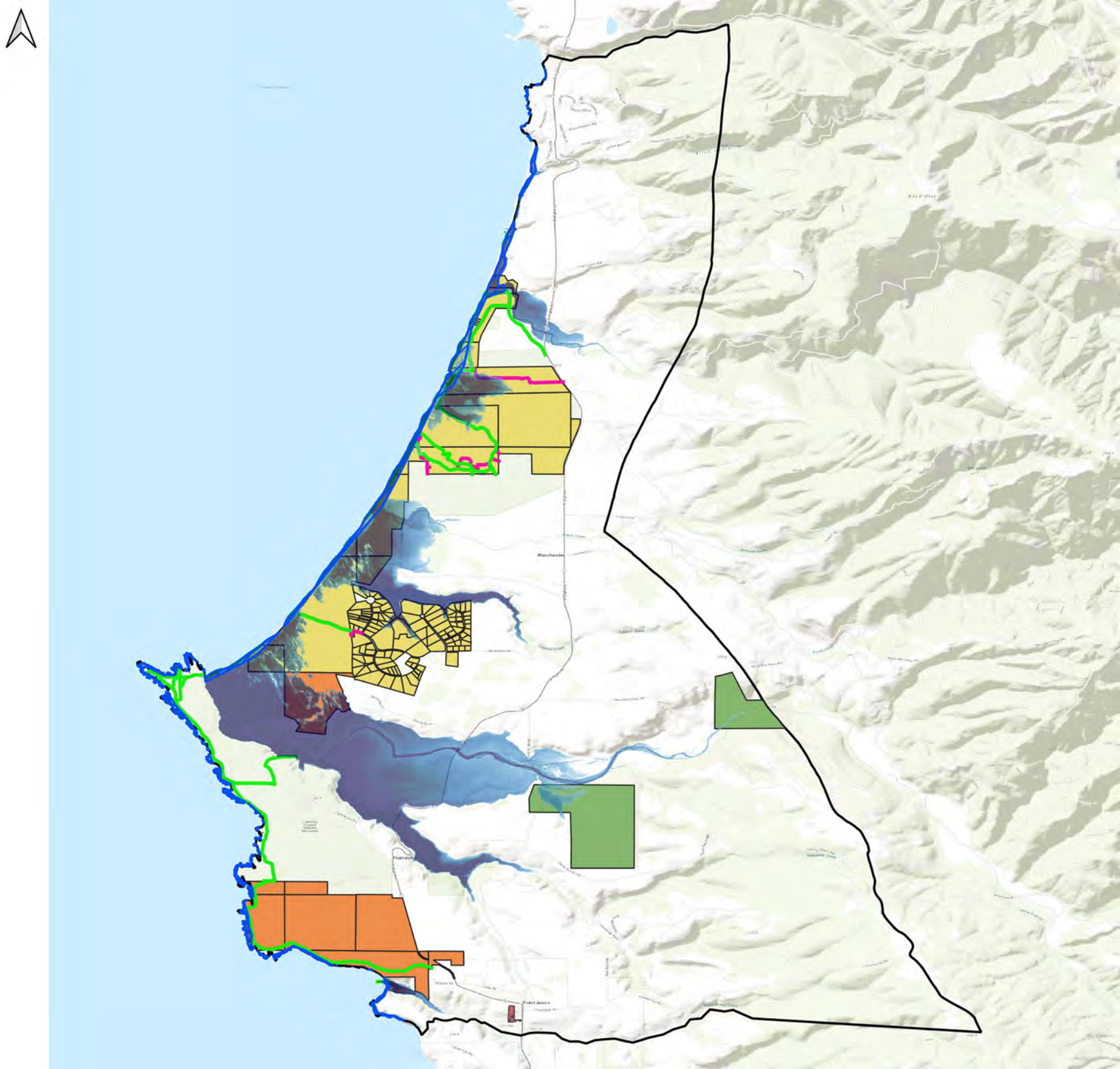
Recreation

- California Coastal Trail [26]
- Recreational Routes [35]

Parks & Govt Lands

- Federal Parks & Lands [10]
- State Parks & Lands [137]
- City Parks & Lands [8]
- Tribal lands [1]





11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

11 Manchester & Point Arena

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Built Environment

Historical and Cultural Resources

Point Arena Lighthouse [4]

Built Environment

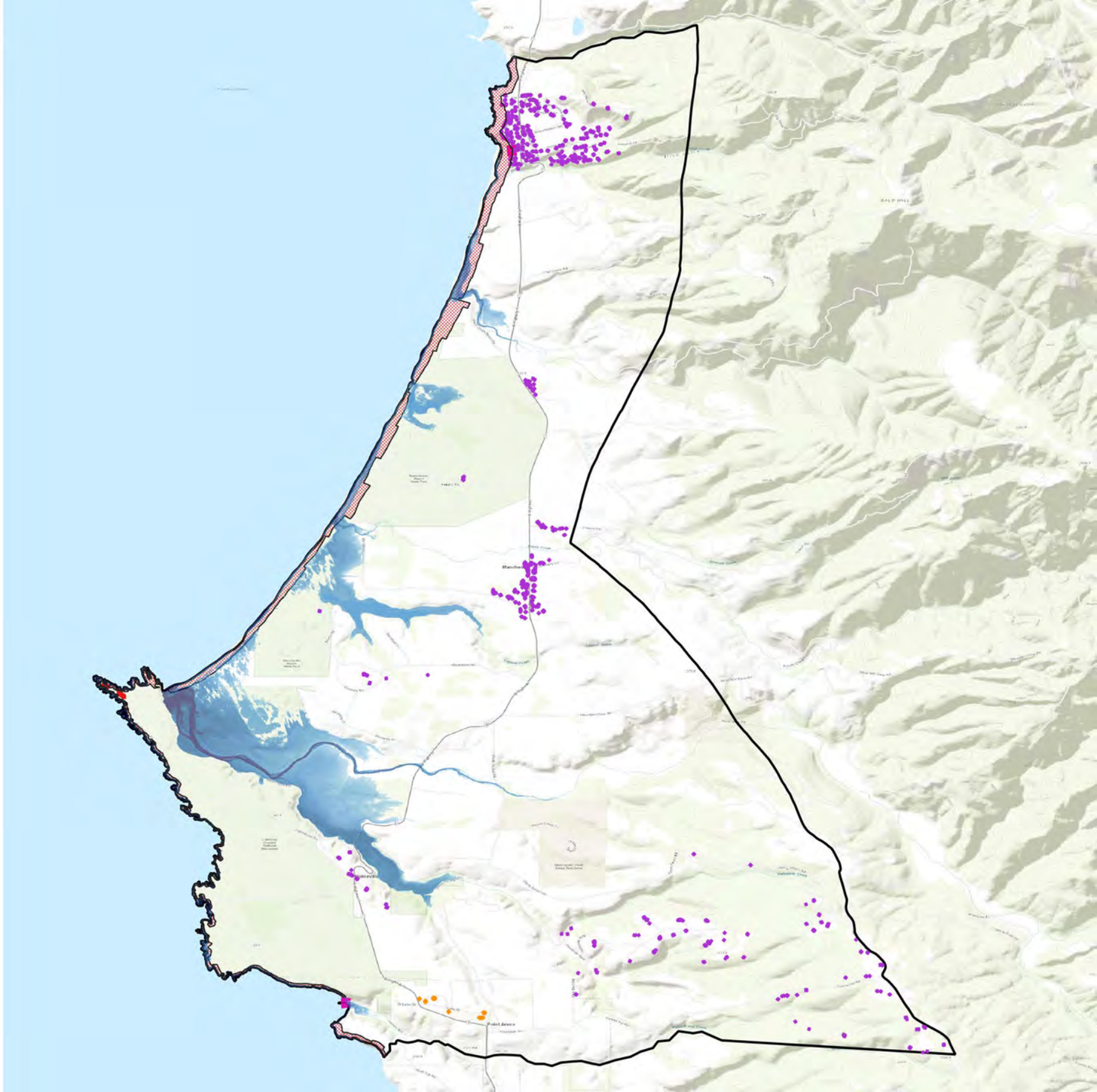
Residential Buildings [411]

Public Facilities [9]

Coastal Armoring

Coastal Armoring [2]

0 1 2 mi



11 Manchester & Point Arena

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Planning Zone

- 11 Manchester & Point Arena

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Critical Infrastructure

Power & Comms

- Manchester Trans-Pacific Cable Landing Site [1]
- Transmission Lines [2]
- California Substations [1]

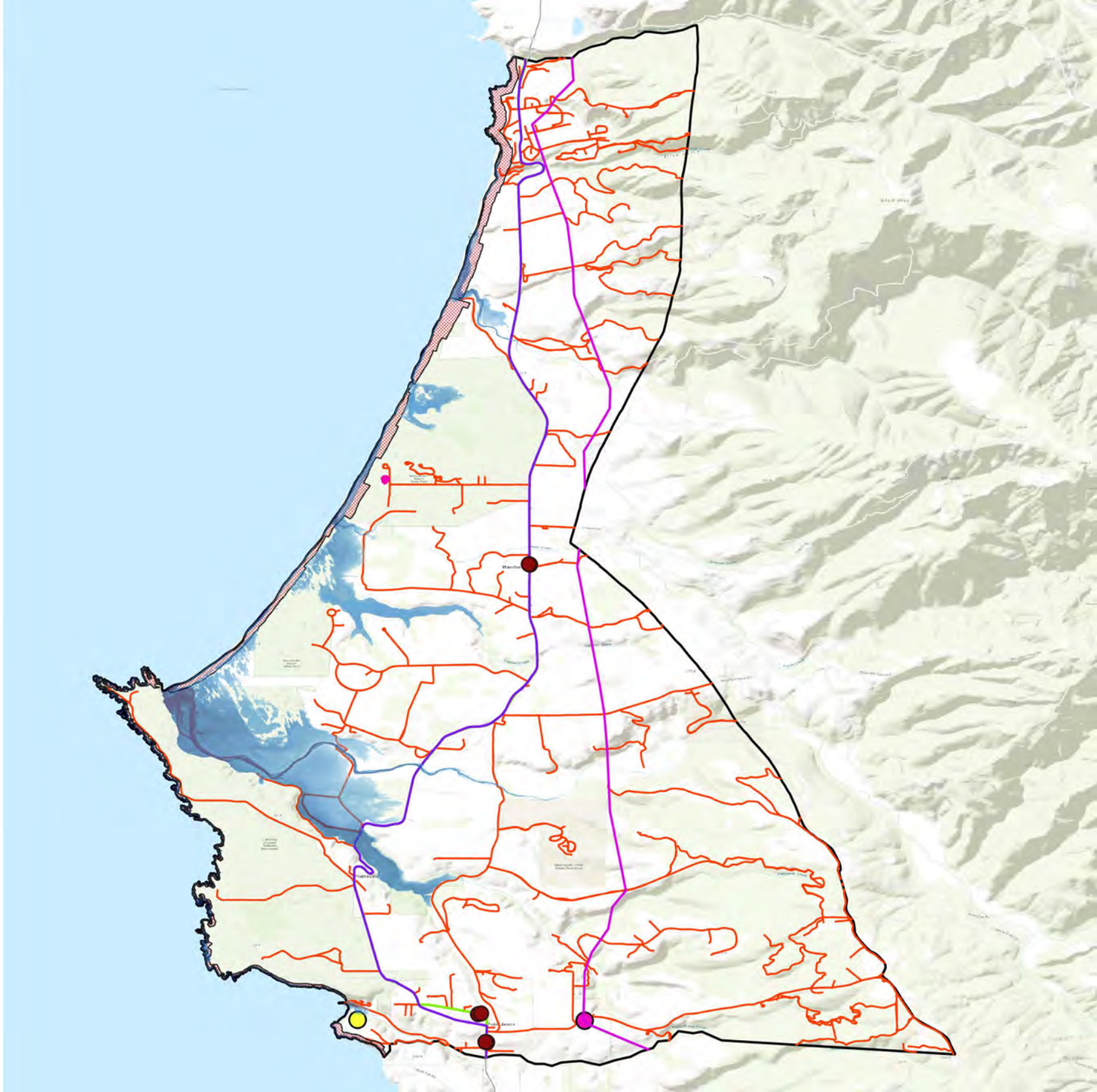
Environmental Sites

- Clean Up Sites [1]

Transportation

- Bus Stops [6]
- State Route 1 [42]
- Bus Lines [6]
- Roads [455]

0 1 2 mi



11 Manchester & Point Arena

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Planning Zone

- 11 Manchester & Point Arena

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Habitat and Agricultural

Coastal and Water

- Beaches [5]
- Bluffs [52]
- Streams and Rivers [254]
- Estuaries [5]
- Wetlands and ESHA [562]

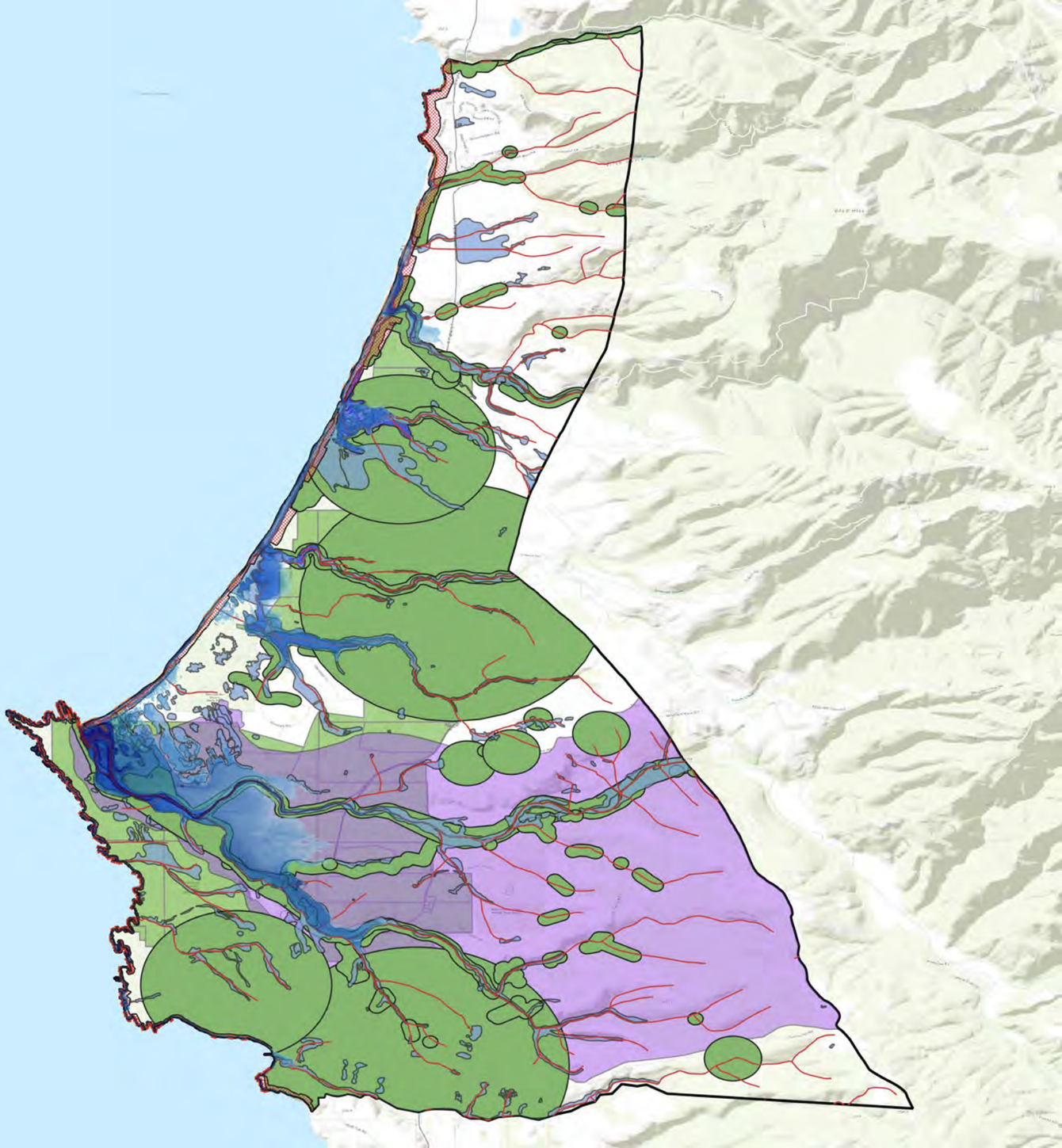
Habitat

- Endangered and Threatened Species Habitats [41]
- Critical Coastal Areas [1]
- Marine Protected Areas [2]

Agricultural

- Agricultural lands [78]

0 1 2 mi



11 Manchester & Point Arena

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Planning Zone

- 11 Manchester & Point Arena

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

- Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Public Access and Recreation

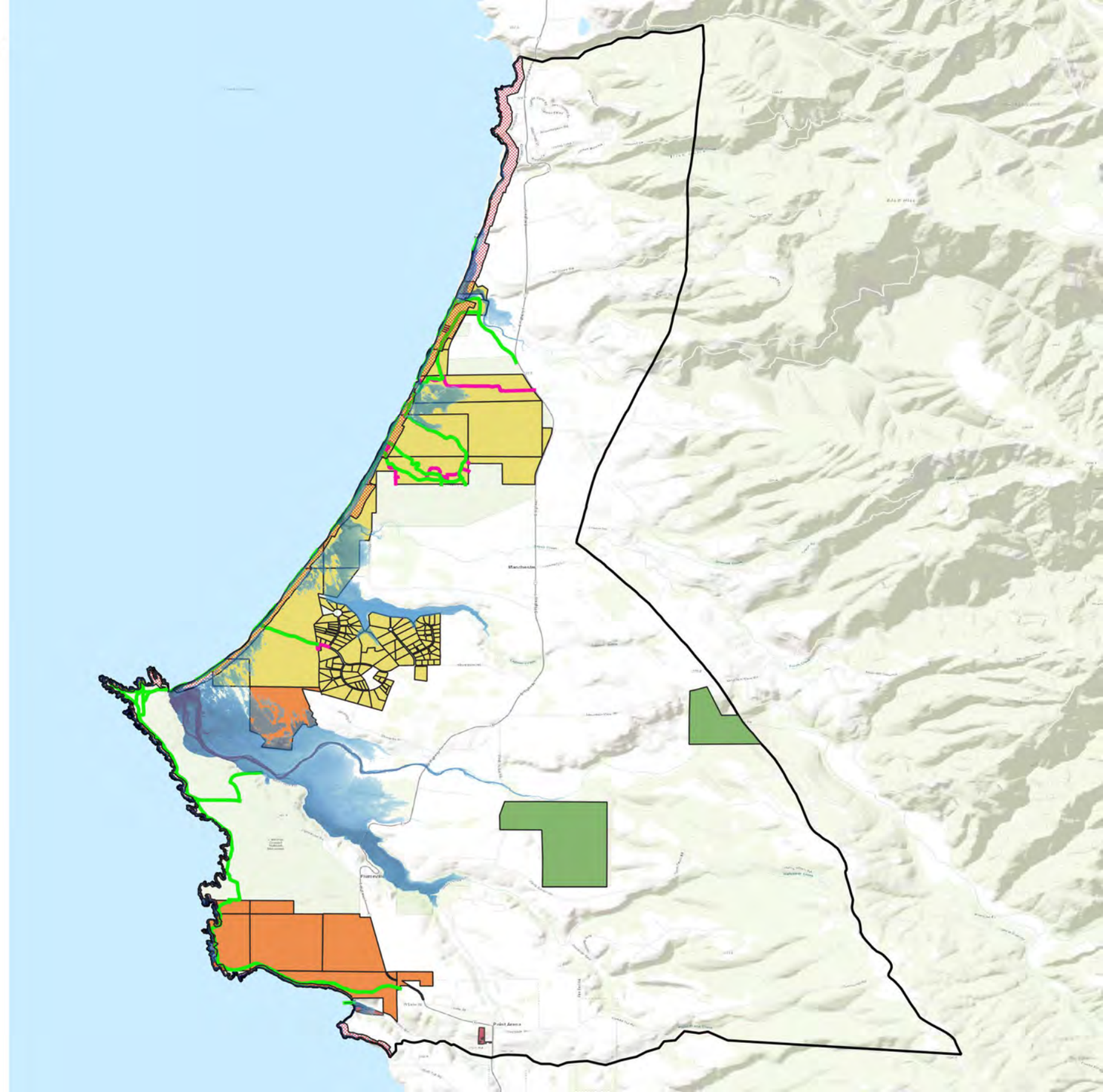
Recreation

- California Coastal Trail [26]
- Recreational Routes [35]

Parks & Govt Lands

- Federal Parks & Lands [10]
- State Parks & Lands [137]
- City Parks & Lands [8]
- Tribal lands [1]

0 1 2 mi



11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Built Environment

Historical and Cultural Resources

- Point Arena Lighthouse [4]

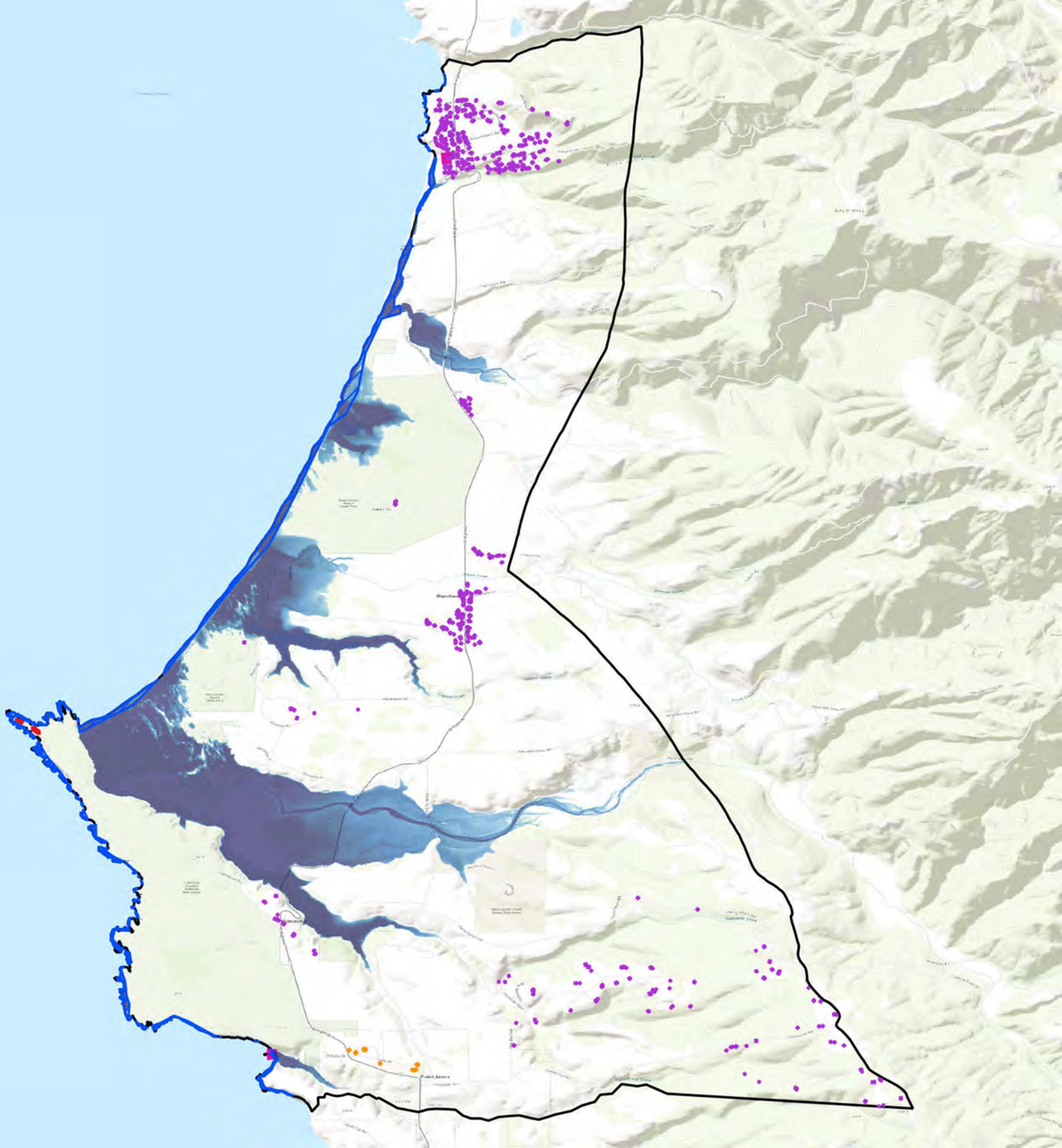
Built Environment

- Residential Buildings [411]
- Public Facilities [9]

Coastal Armoring

- Coastal Armoring [2]

0 1 2 mi



11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Critical Infrastructure

Power & Comms

- Manchester Trans-Pacific Cable Landing Site [1]
- Transmission Lines [2]
- California Substations [1]

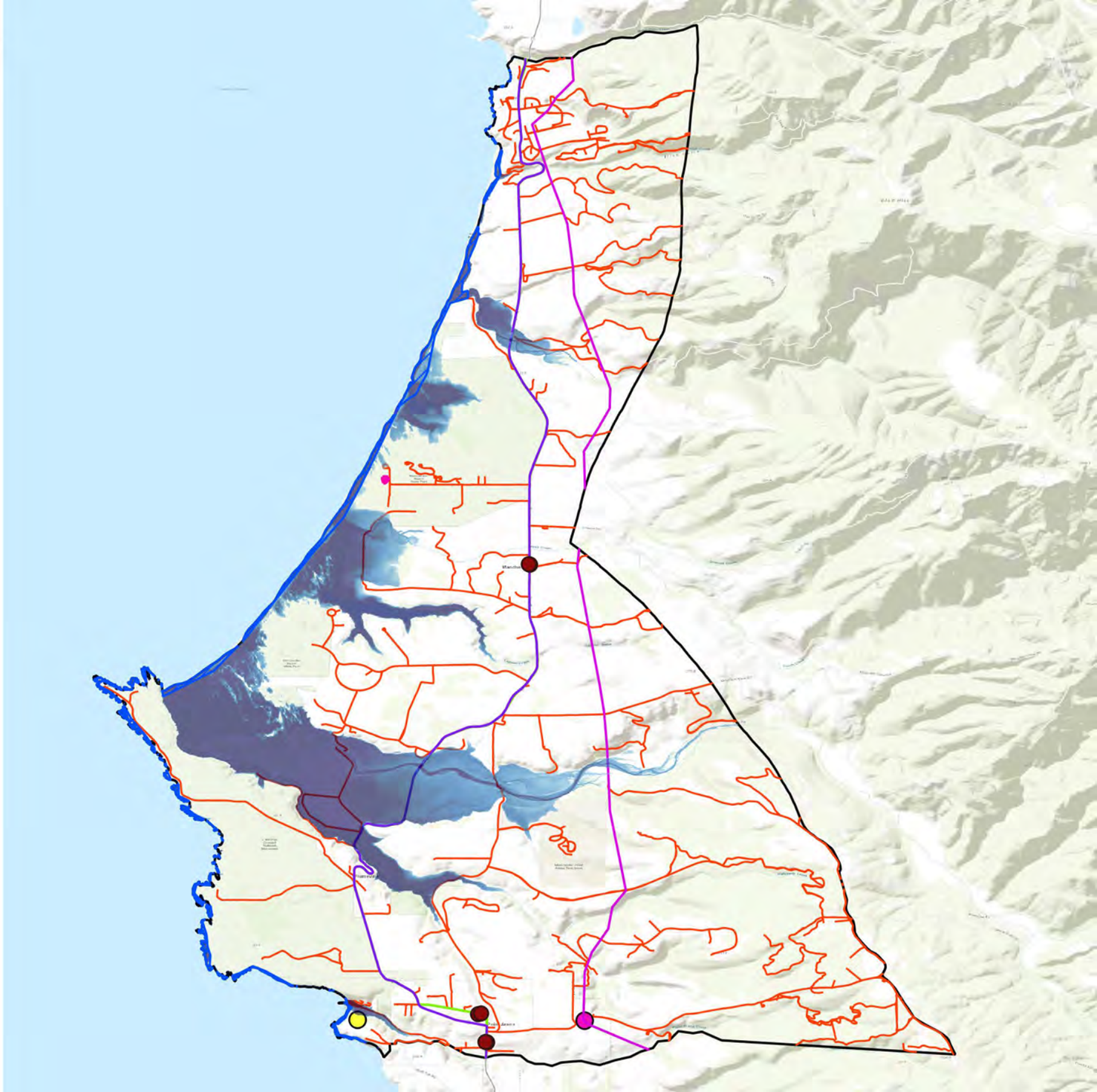
Environmental Sites

- Clean Up Sites [1]

Transportation

- Bus Stops [6]
- State Route 1 [42]
- Bus Lines [6]
- Roads [455]

0 1 2 mi



11 Manchester & Point Arena

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Planning Zone

- 11 Manchester & Point Arena

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR
Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Habitat and Agricultural

Coastal and Water

- Beaches [5]
- Bluffs [52]
- Streams and Rivers [254]
- Estuaries [5]
- Wetlands and ESHA [562]

Habitat

- Endangered and Threatened Species Habitats [41]
- Critical Coastal Areas [1]
- Marine Protected Areas [2]

Agricultural

- Agricultural lands [78]

0 1 2 mi

11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Mid-century with 1ft SLR

100-year Storm

Mid-century with 1ft SLR
Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Public Access and Recreation

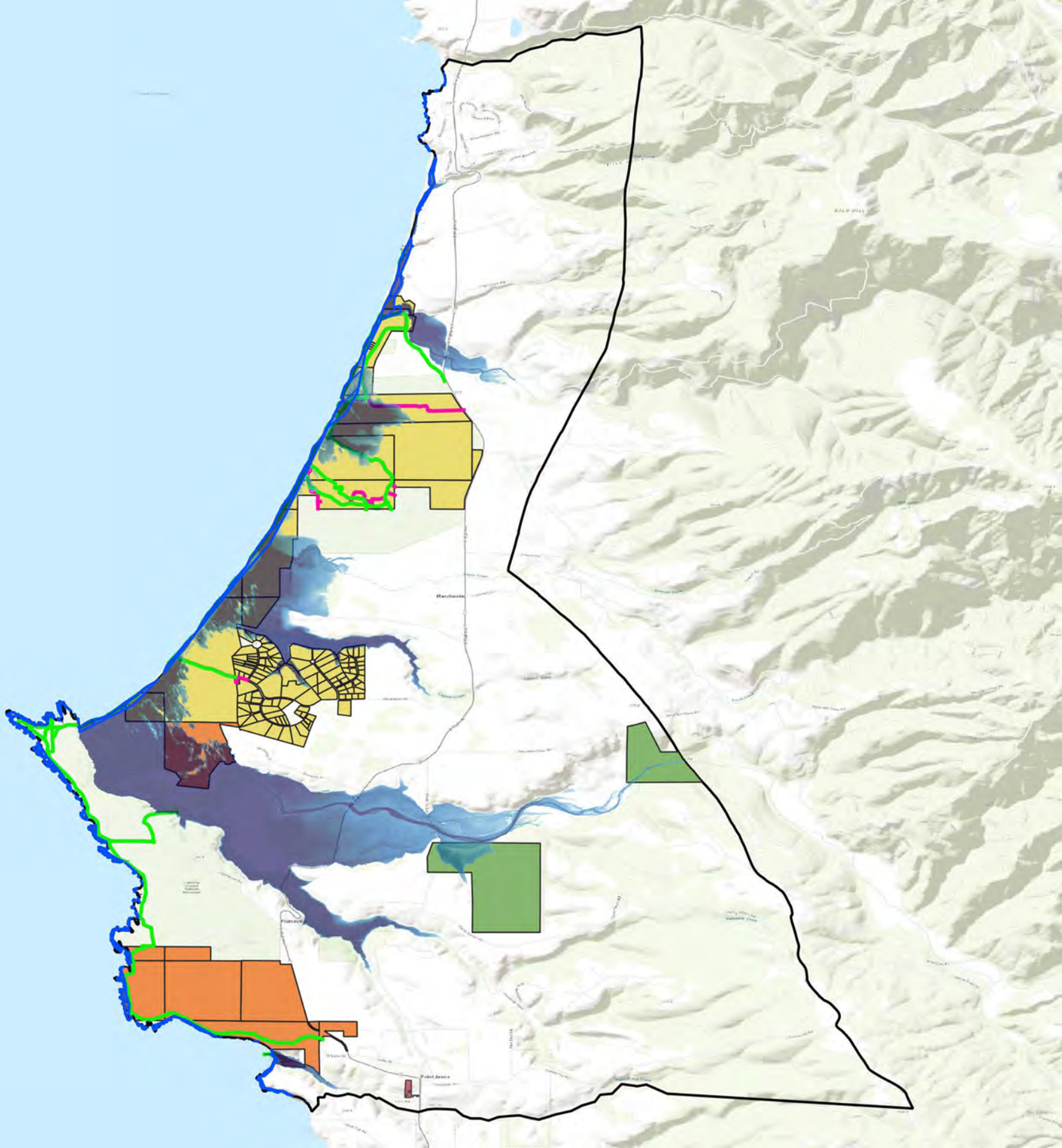
Recreation

- California Coastal Trail [26]
- Recreational Routes [35]

Parks & Govt Lands

- Federal Parks & Lands [10]
- State Parks & Lands [137]
- City Parks & Lands [8]
- Tribal lands [1]

0 1 2 mi



11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Built Environment

Historical and Cultural Resources

- Point Arena Lighthouse [4]

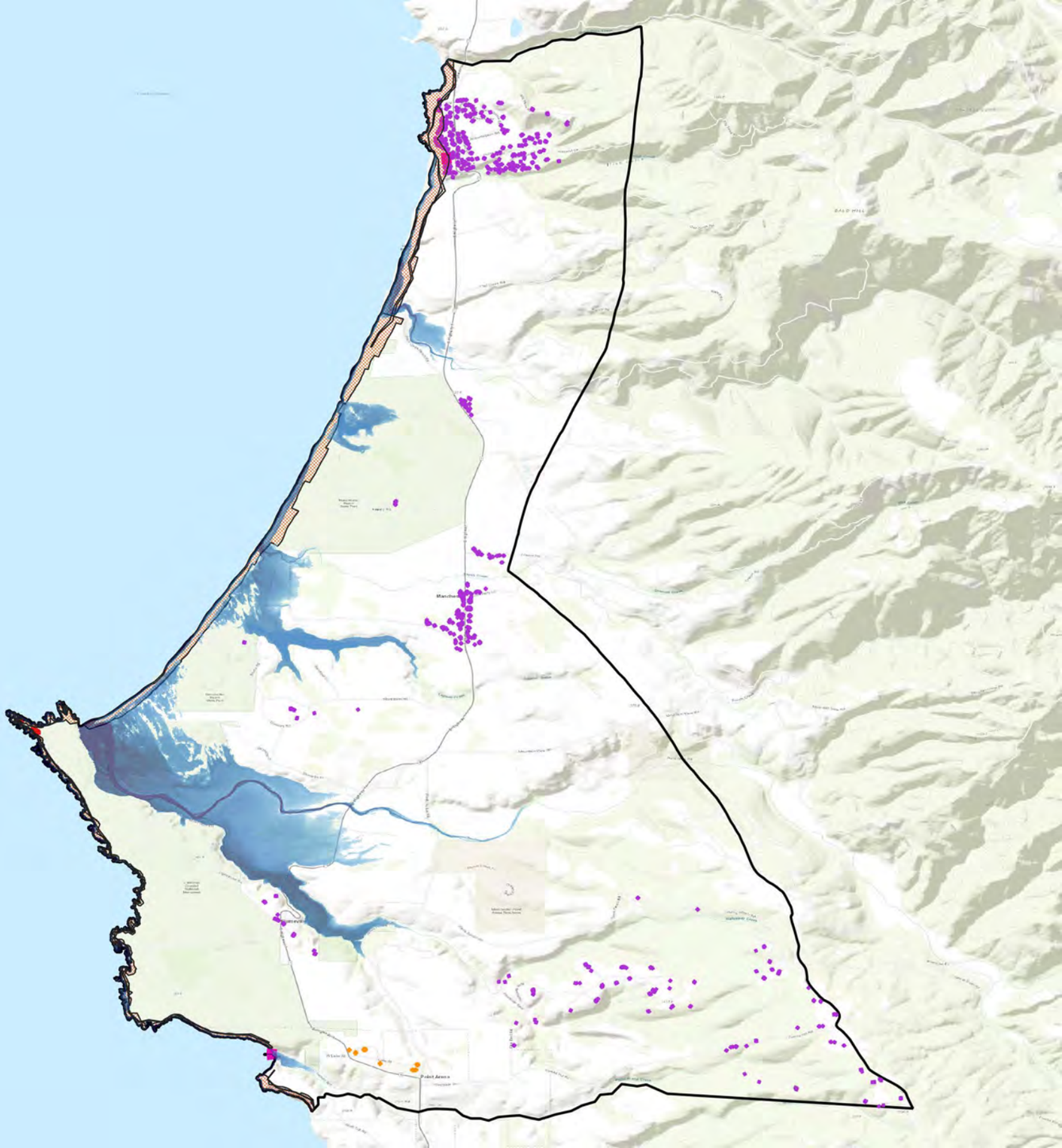
Built Environment

- Residential Buildings [411]
- Public Facilities [9]

Coastal Armoring

- Coastal Armoring [2]

0 1 2 mi



11 Manchester & Point Arena



11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Critical Infrastructure

Power & Comms

- Manchester Trans-Pacific Cable Landing Site [1]
- Transmission Lines [2]
- California Substations [1]

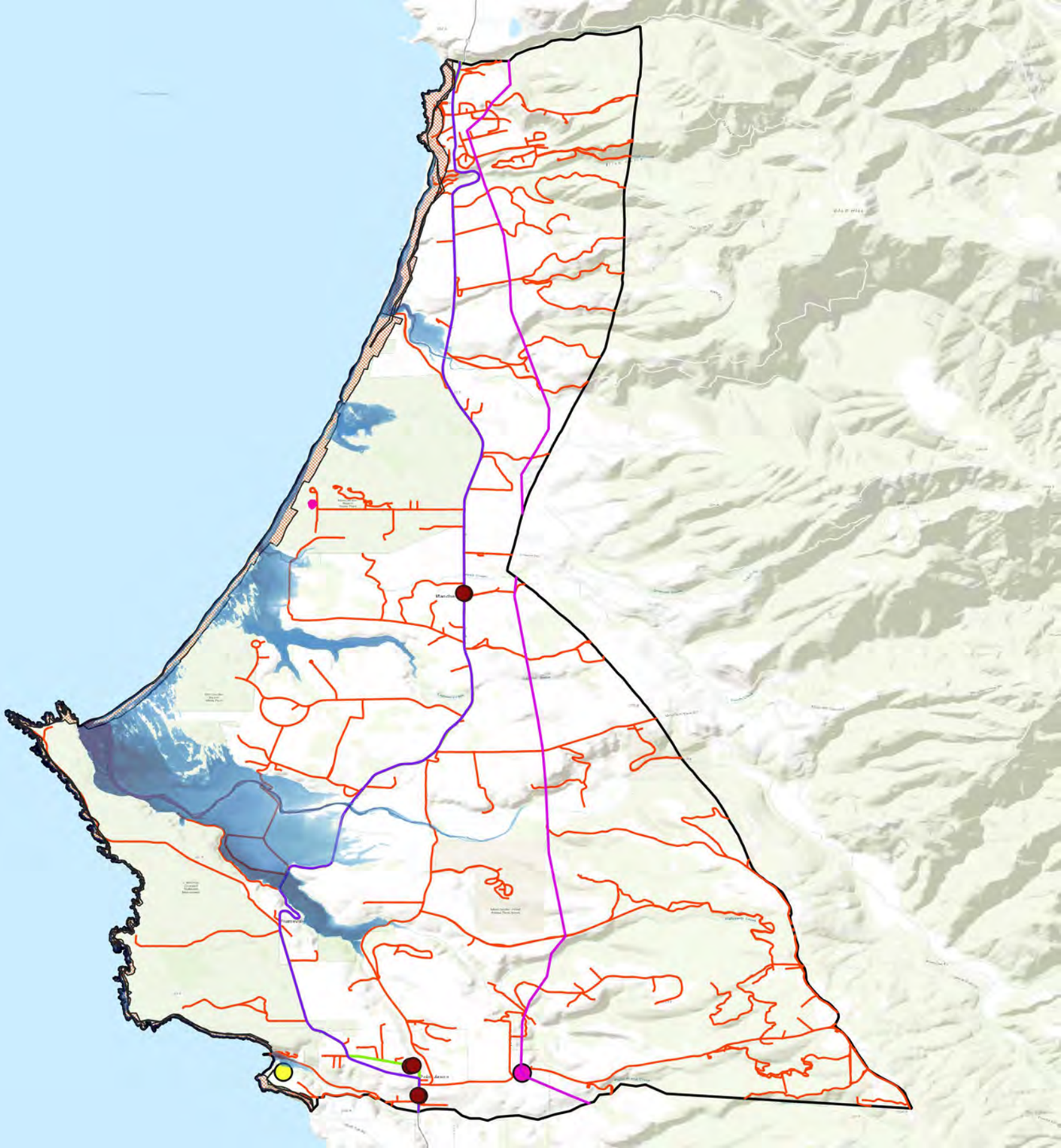
Environmental Sites

- Clean Up Sites [1]

Transportation

- Bus Stops [6]
- State Route 1 [42]
- Bus Lines [6]
- Roads [455]

0 1 2 mi



11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
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- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Habitat and Agricultural

Coastal and Water

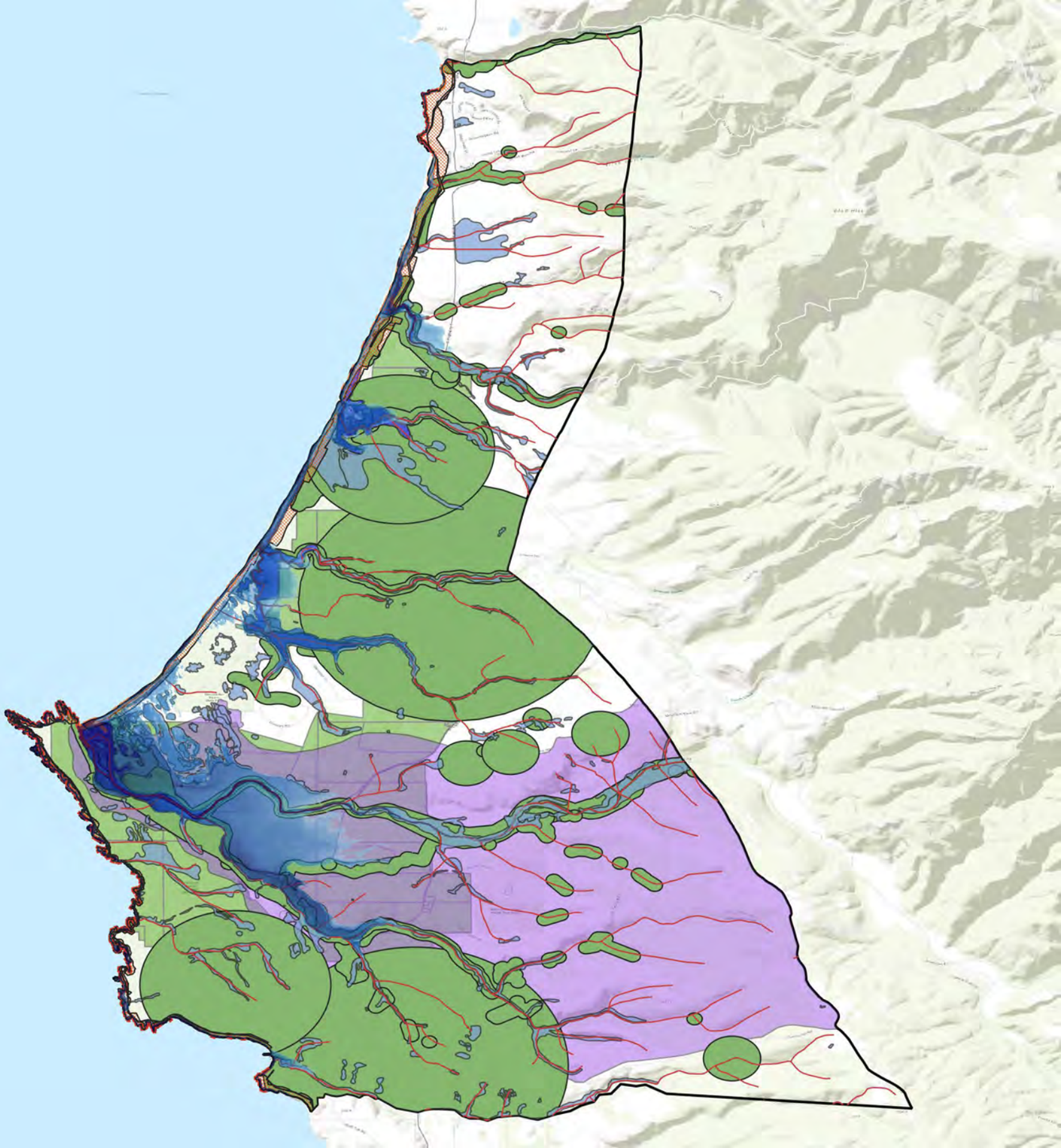
- Beaches [5]
- Bluffs [52]
- Streams and Rivers [254]
- Estuaries [5]
- Wetlands and ESHA [562]

Habitat

- Endangered and Threatened Species Habitats [41]
- Critical Coastal Areas [1]
- Marine Protected Areas [2]

Agricultural

- Agricultural lands [78]



0 1 2 mi

11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Mid-century with 1ft SLR

Coastal Erosion

Bluff Erosion

- Mid-century with 1ft SLR

Bluff Dune Erosion

- Mid-century with 1.3ft SLR

Tidal Flooding

Mid-century with 1ft SLR

Band 1 (Gray)

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- 5+ ft

Assets

Public Access and Recreation

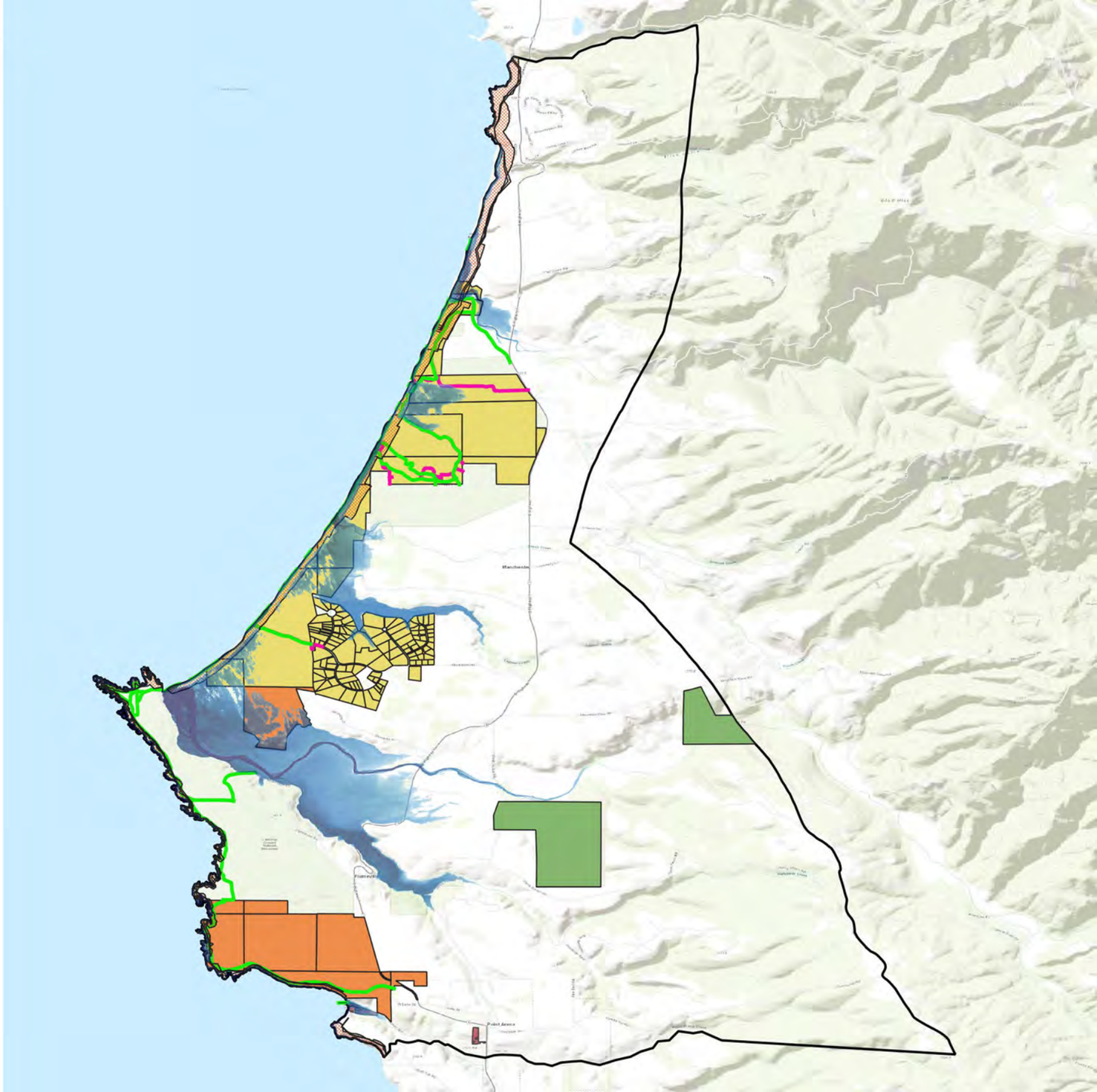
Recreation

- California Coastal Trail [26]
- Recreational Routes [35]

Parks & Govt Lands

- Federal Parks & Lands [10]
- State Parks & Lands [137]
- City Parks & Lands [8]
- Tribal lands [1]

0 1 2 mi



11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Built Environment

Historical and Cultural Resources

- Point Arena Lighthouse [4]

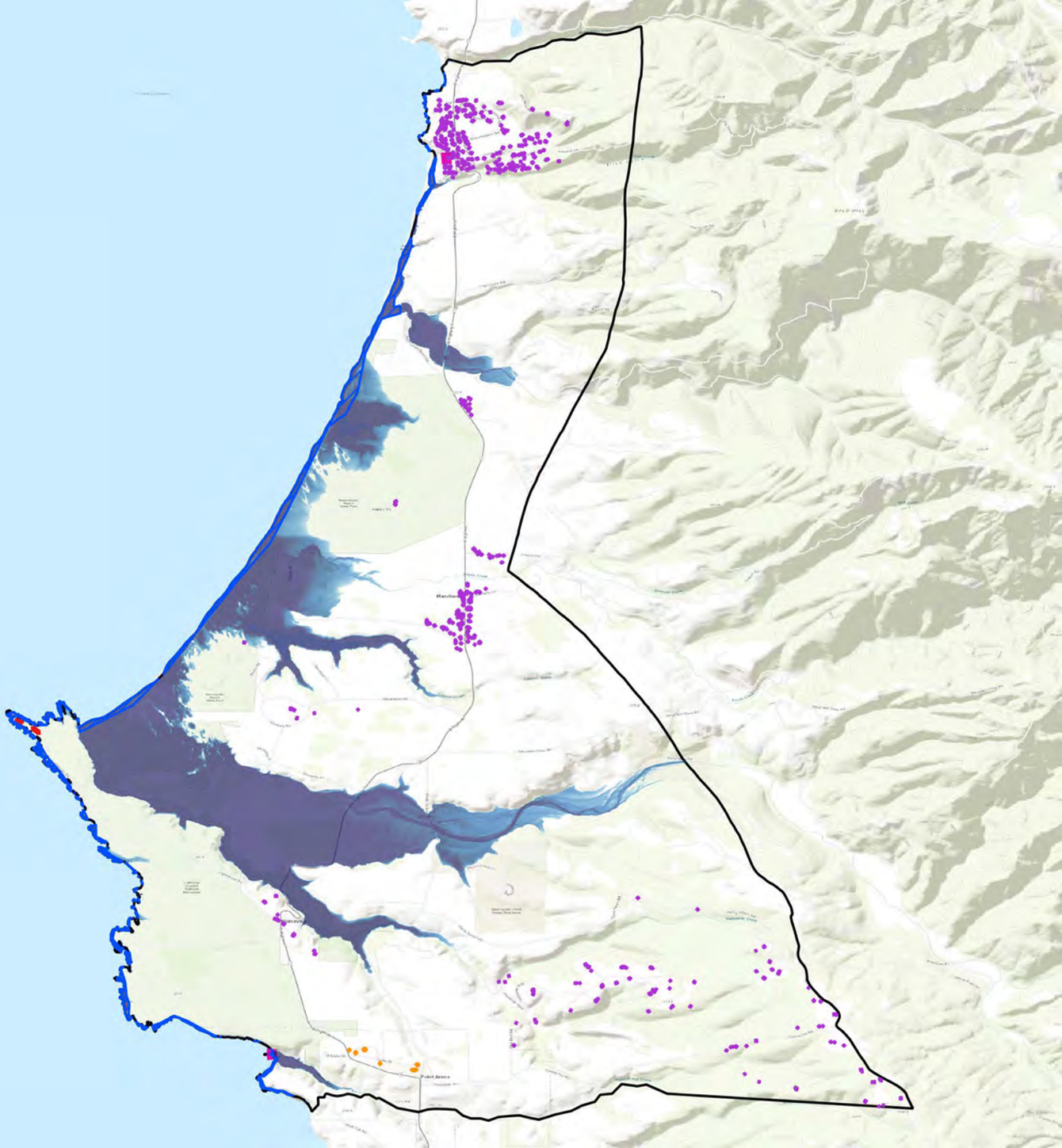
Built Environment

- Residential Buildings [411]
- Public Facilities [9]

Coastal Armoring

- Coastal Armoring [2]

0 1 2 mi



11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR
Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Critical Infrastructure

Power & Comms

- Manchester Trans-Pacific Cable Landing Site [1]
- Transmission Lines [2]
- California Substations [1]

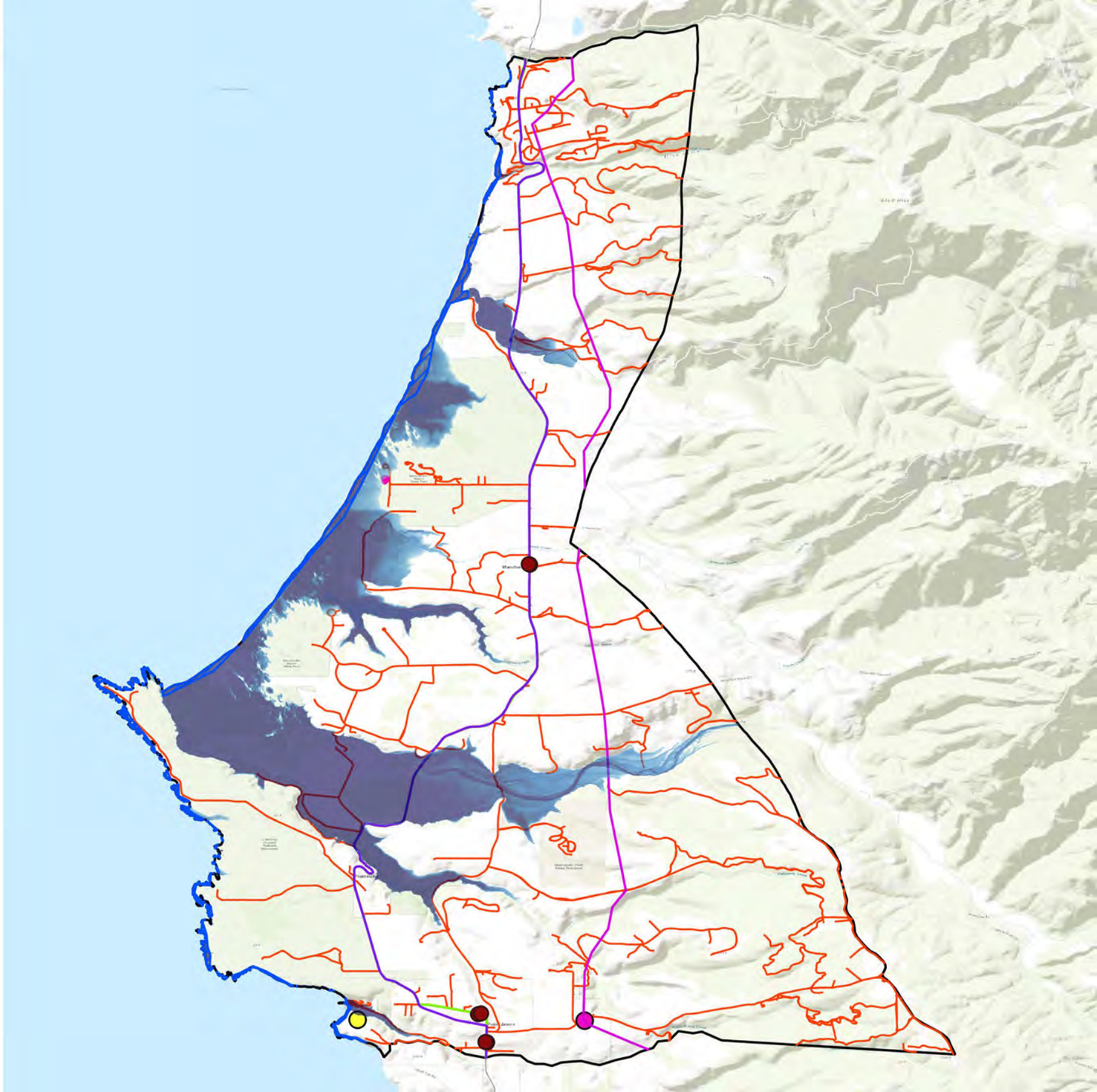
Environmental Sites

- Clean Up Sites [1]

Transportation

- Bus Stops [6]
- State Route 1 [42]
- Bus Lines [6]
- Roads [455]

0 1 2 mi



11 Manchester & Point Arena

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Planning Zone

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Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

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- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Habitat and Agricultural

Coastal and Water

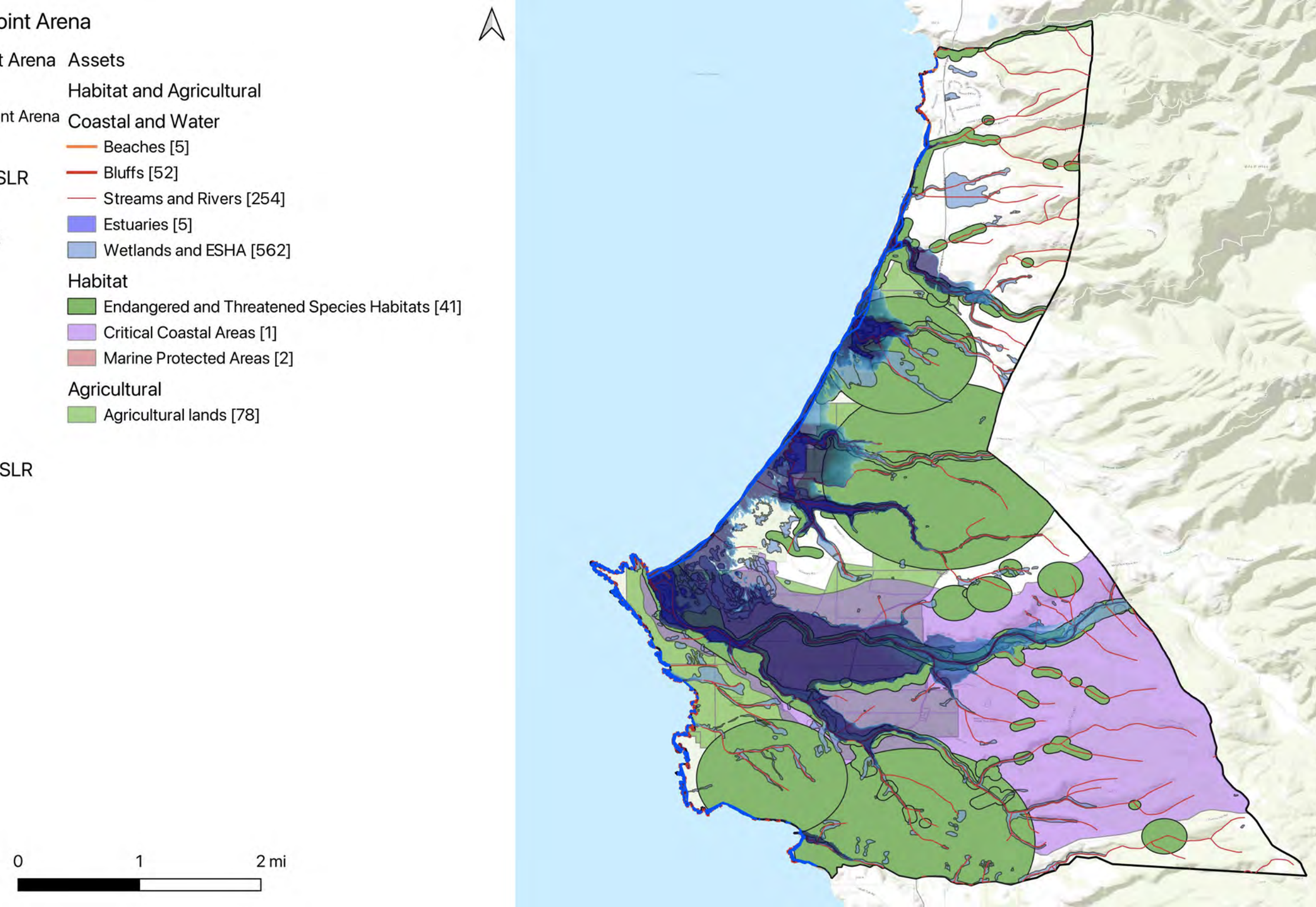
- Beaches [5]
- Bluffs [52]
- Streams and Rivers [254]
- Estuaries [5]
- Wetlands and ESHA [562]

Habitat

- Endangered and Threatened Species Habitats [41]
- Critical Coastal Areas [1]
- Marine Protected Areas [2]

Agricultural

- Agricultural lands [78]



11 Manchester & Point Arena

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Planning Zone

- 11 Manchester & Point Arena

Hazards

Late-century with 3ft SLR

100-year Storm

Late-century with 3ft SLR

Band 1 (Gray)

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- 4 - 5 ft
- 5+ ft

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Assets

Public Access and Recreation

Recreation

- California Coastal Trail [26]
- Recreational Routes [35]

Parks & Govt Lands

- Federal Parks & Lands [10]
- State Parks & Lands [137]
- City Parks & Lands [8]
- Tribal lands [1]

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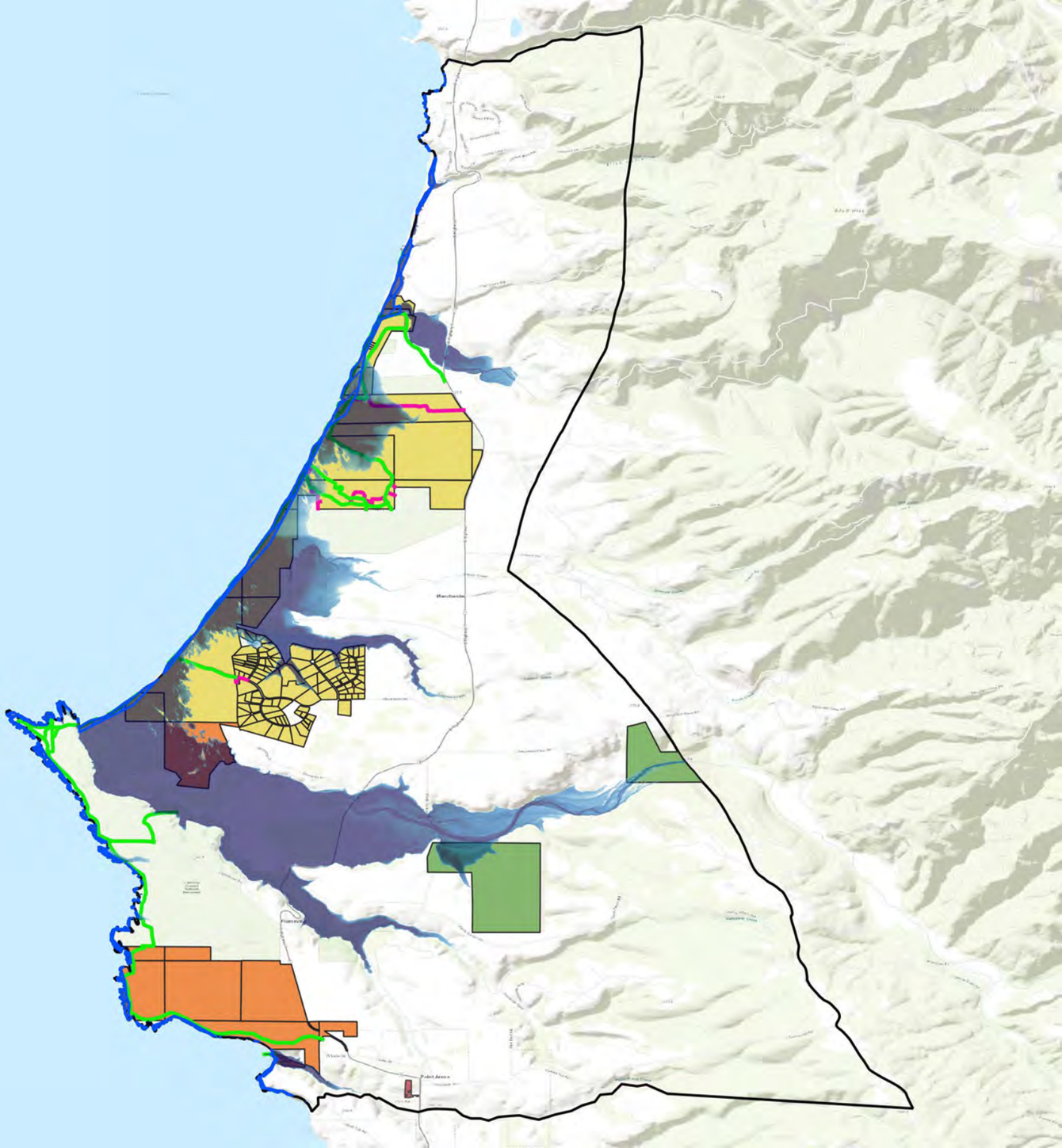


11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

- Late-century with 3ft SLR

Bluff Dune Erosion

- Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Built Environment

Historical and Cultural Resources

- Point Arena Lighthouse [4]

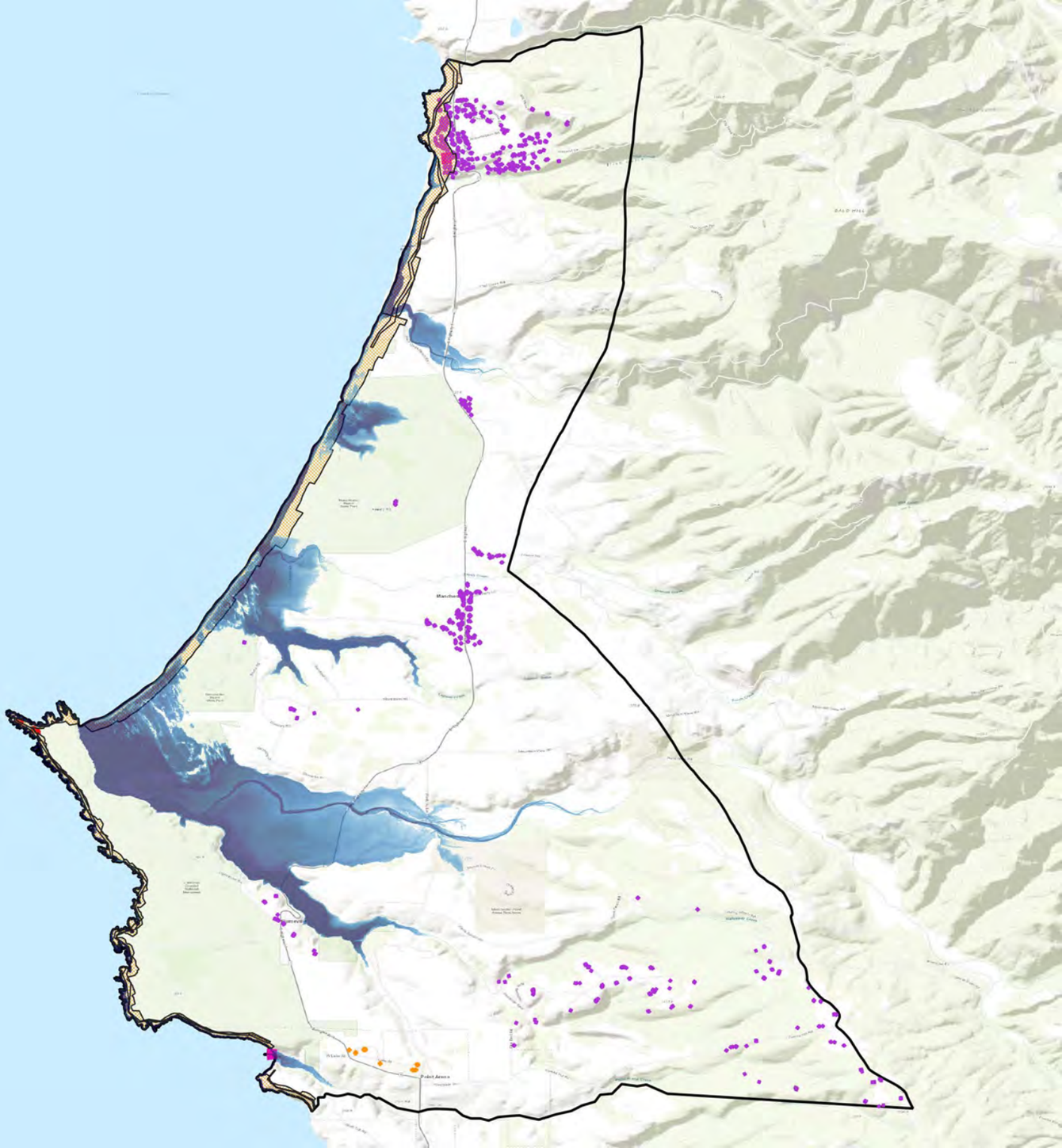
Built Environment

- Residential Buildings [411]
- Public Facilities [9]

Coastal Armoring

- Coastal Armoring [2]

0 1 2 mi



11 Manchester & Point Arena

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Planning Zone

- 11 Manchester & Point Arena

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

- Late-century with 3ft SLR

Bluff Dune Erosion

- Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Critical Infrastructure

Power & Comms

- Manchester Trans-Pacific Cable Landing Site [1]
- Transmission Lines [2]
- California Substations [1]

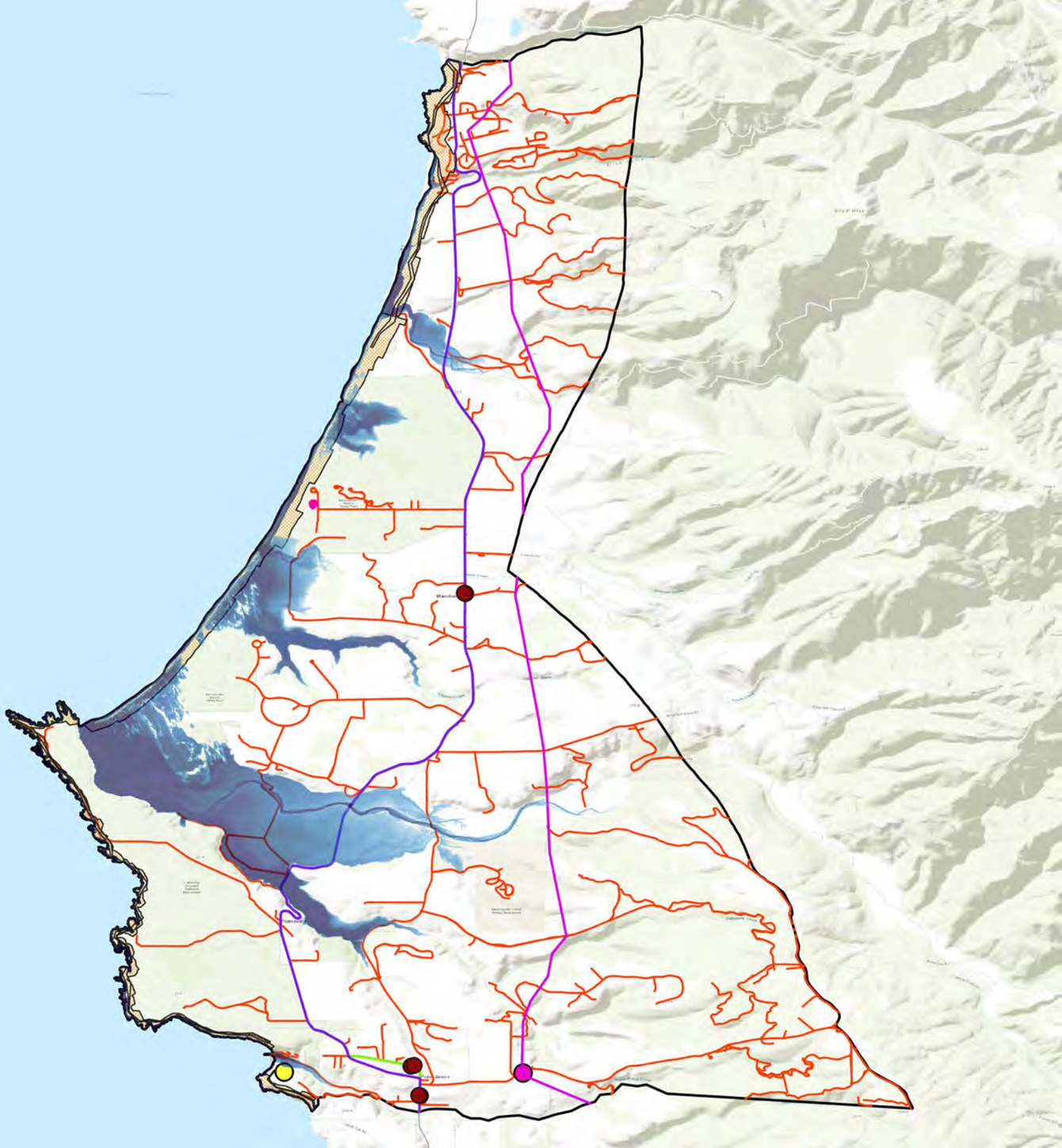
Environmental Sites

- Clean Up Sites [1]

Transportation

- Bus Stops [6]
- State Route 1 [42]
- Bus Lines [6]
- Roads [455]

0 1 2 mi



11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

11 Manchester & Point Arena

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

Late-century with 3ft SLR

Bluff Dune Erosion

Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Habitat and Agricultural

Coastal and Water

Beaches [5]

Bluffs [52]

Streams and Rivers [254]

Estuaries [5]

Wetlands and ESHA [562]

Habitat

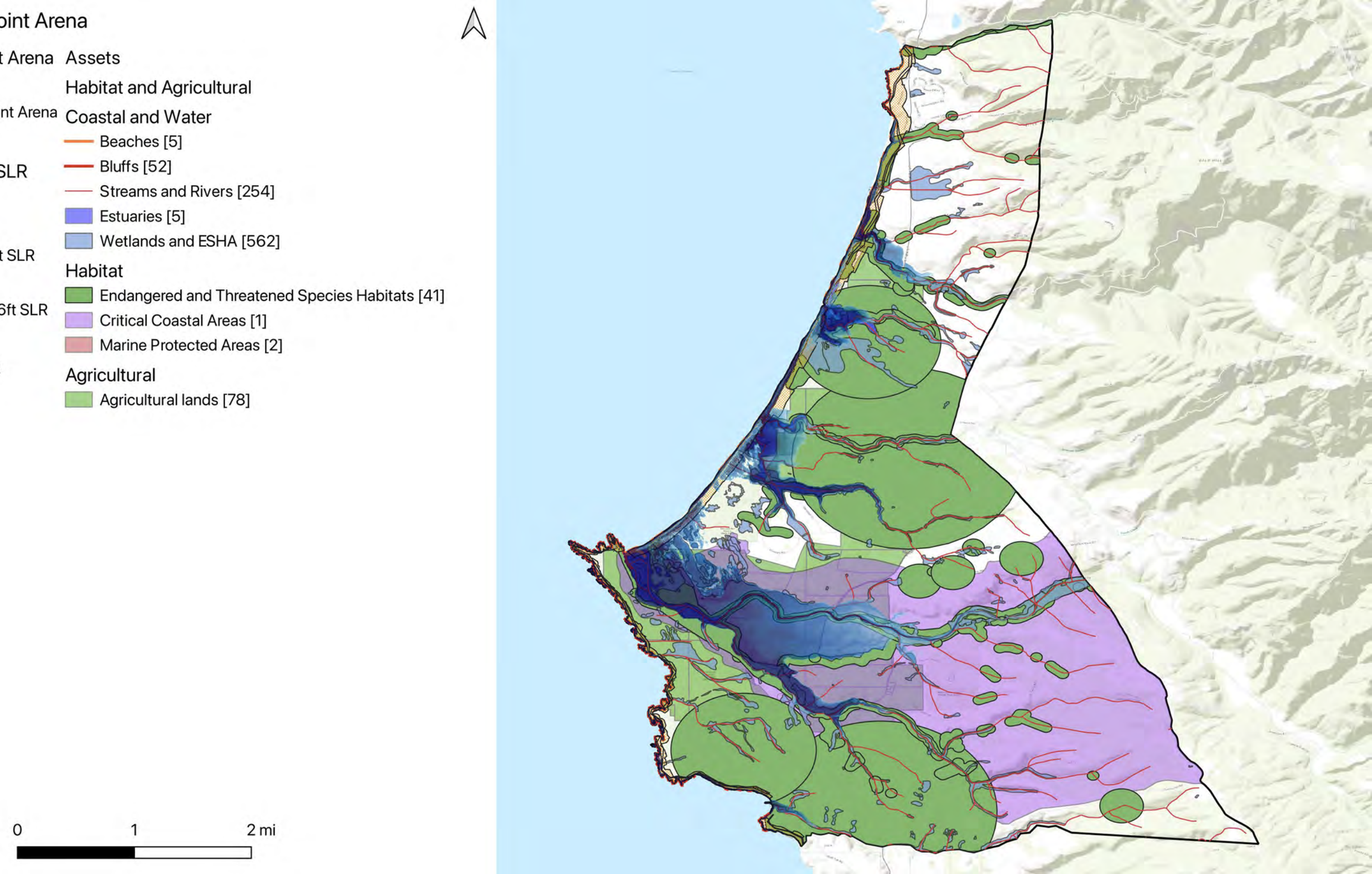
Endangered and Threatened Species Habitats [41]

Critical Coastal Areas [1]

Marine Protected Areas [2]

Agricultural

Agricultural lands [78]



11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

- Late-century with 3ft SLR

Bluff Dune Erosion

- Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Public Access and Recreation

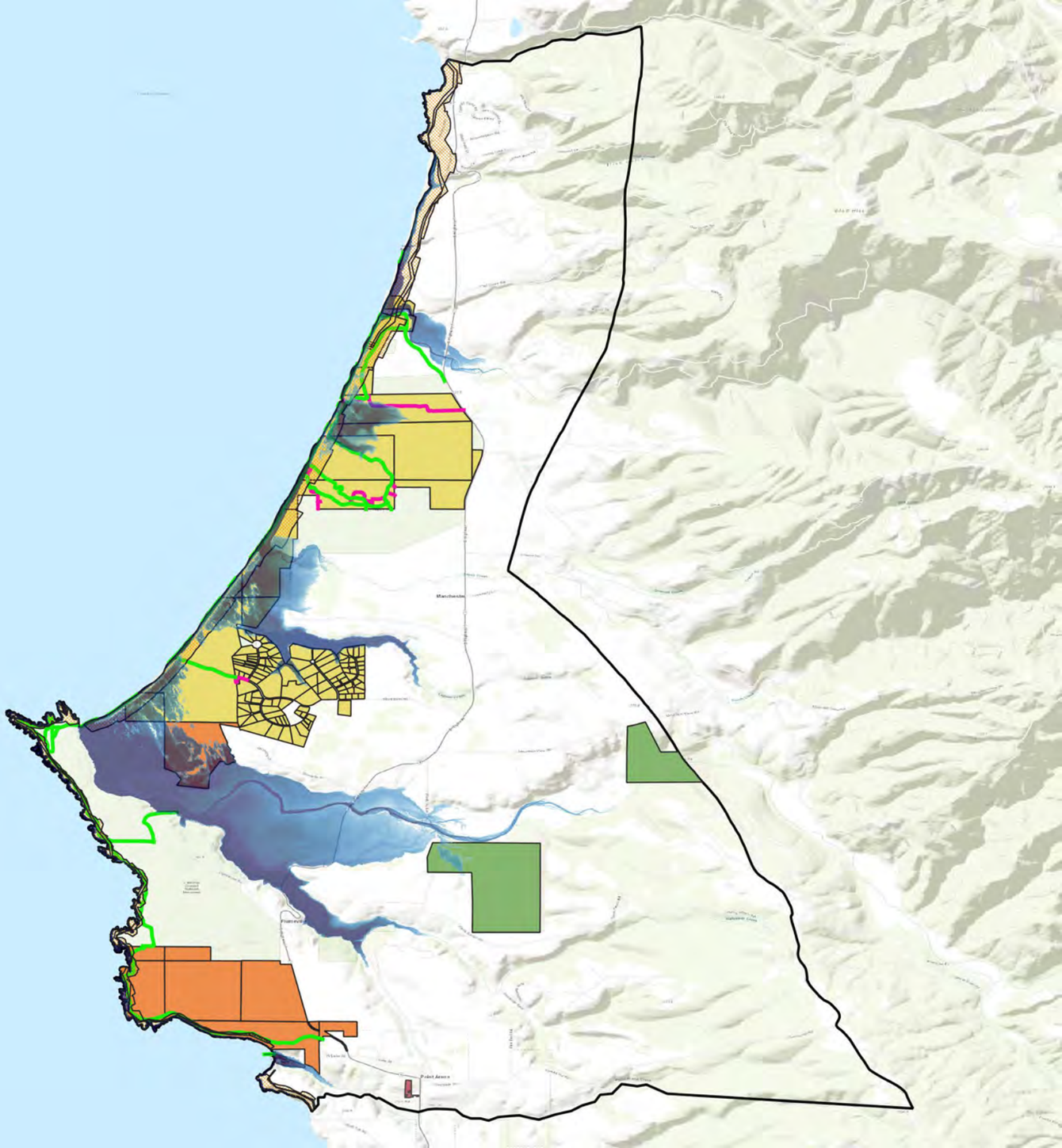
Recreation

- California Coastal Trail [26]
- Recreational Routes [35]

Parks & Govt Lands

- Federal Parks & Lands [10]
- State Parks & Lands [137]
- City Parks & Lands [8]
- Tribal lands [1]

0 1 2 mi



11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

11 Manchester & Point Arena

Hazards

Next-century with 6ft SLR

100-year Storm

Wave Runup

Next century with 6ft SLR

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Built Environment

Historical and Cultural Resources

Point Arena Lighthouse [4]

Built Environment

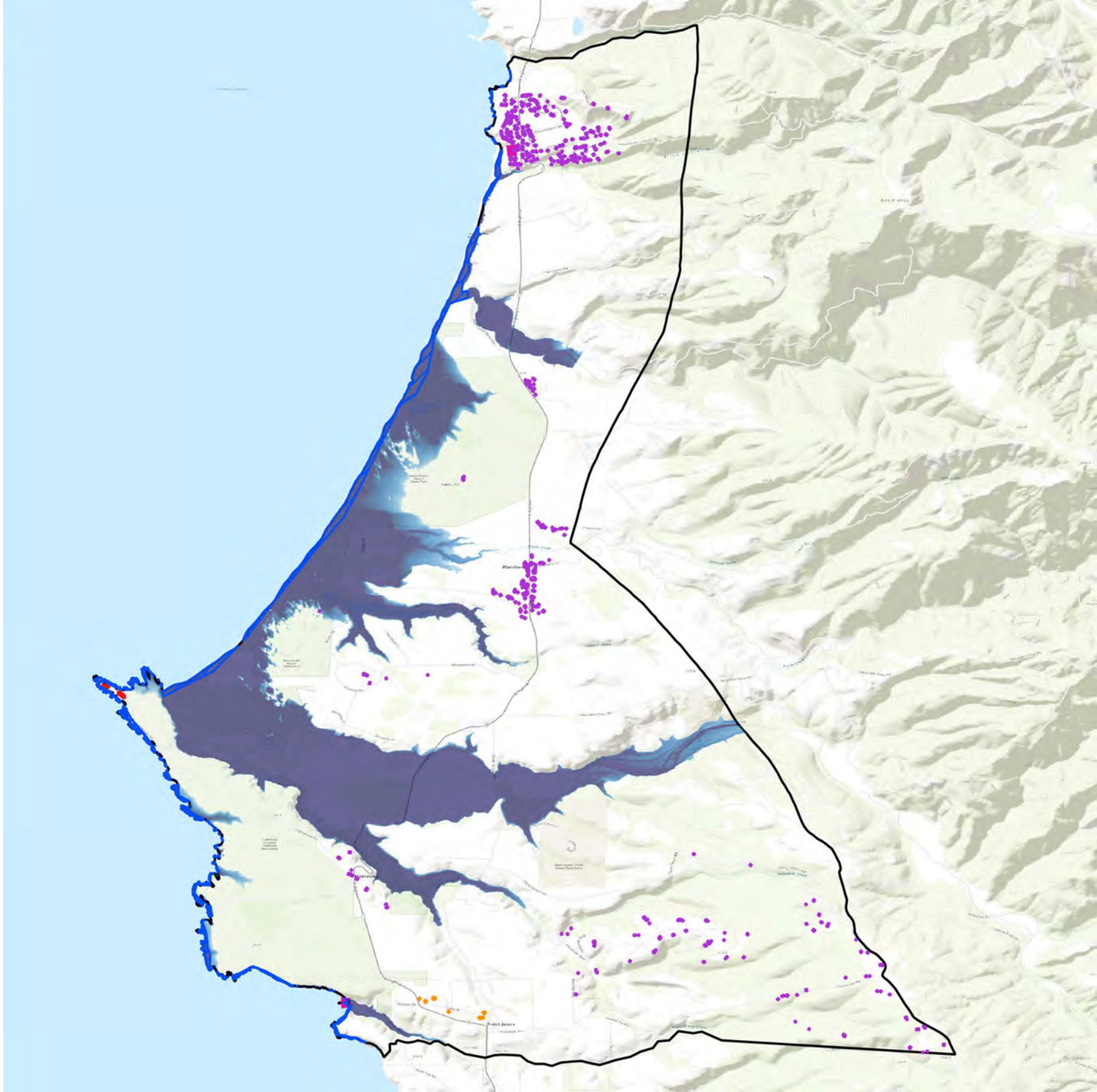
Residential Buildings [411]

Public Facilities [9]

Coastal Armoring

Coastal Armoring [2]

0 1 2 mi



11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Critical Infrastructure

Power & Comms

- Manchester Trans-Pacific Cable Landing Site [1]
- Transmission Lines [2]
- California Substations [1]

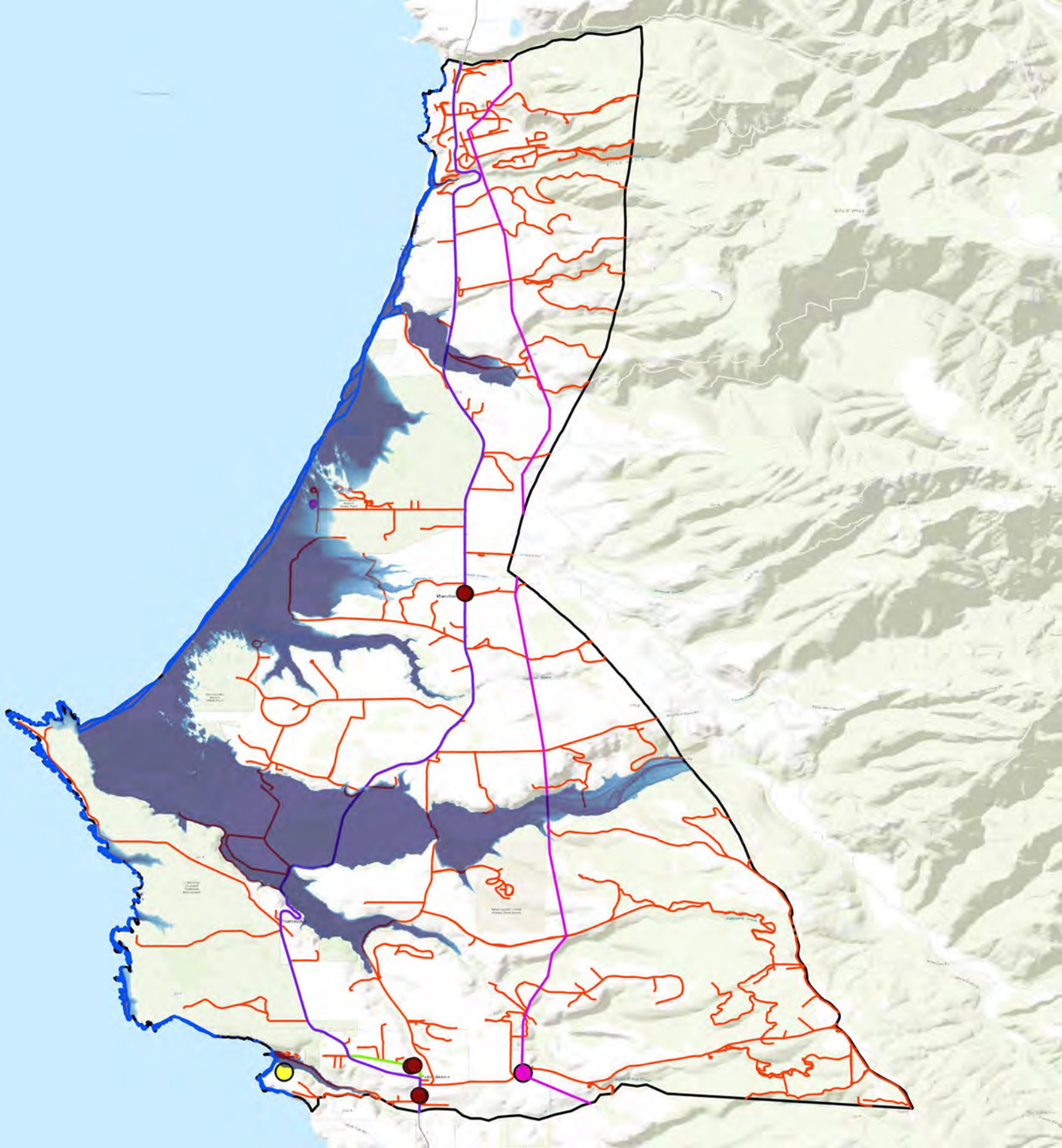
Environmental Sites

- Clean Up Sites [1]

Transportation

- Bus Stops [6]
- State Route 1 [42]
- Bus Lines [6]
- Roads [455]

0 1 2 mi



11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Habitat and Agricultural

Coastal and Water

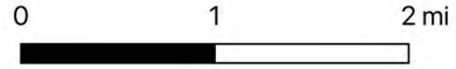
- Beaches [5]
- Bluffs [52]
- Streams and Rivers [254]
- Estuaries [5]
- Wetlands and ESHA [562]

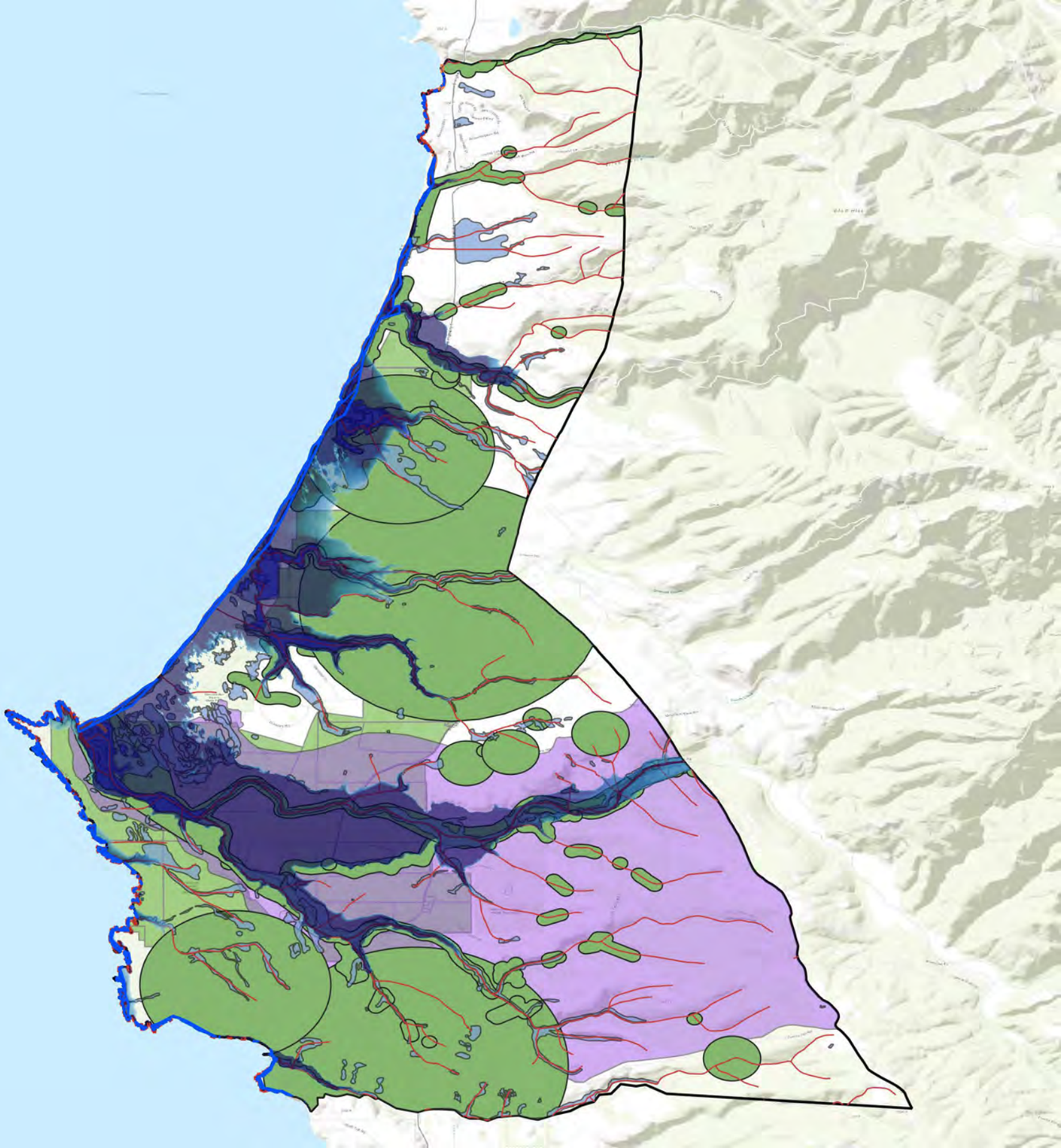
Habitat

- Endangered and Threatened Species Habitats [41]
- Critical Coastal Areas [1]
- Marine Protected Areas [2]

Agricultural

- Agricultural lands [78]





11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Next-century with 6ft SLR

100-year Storm

- Wave Runup

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Public Access and Recreation

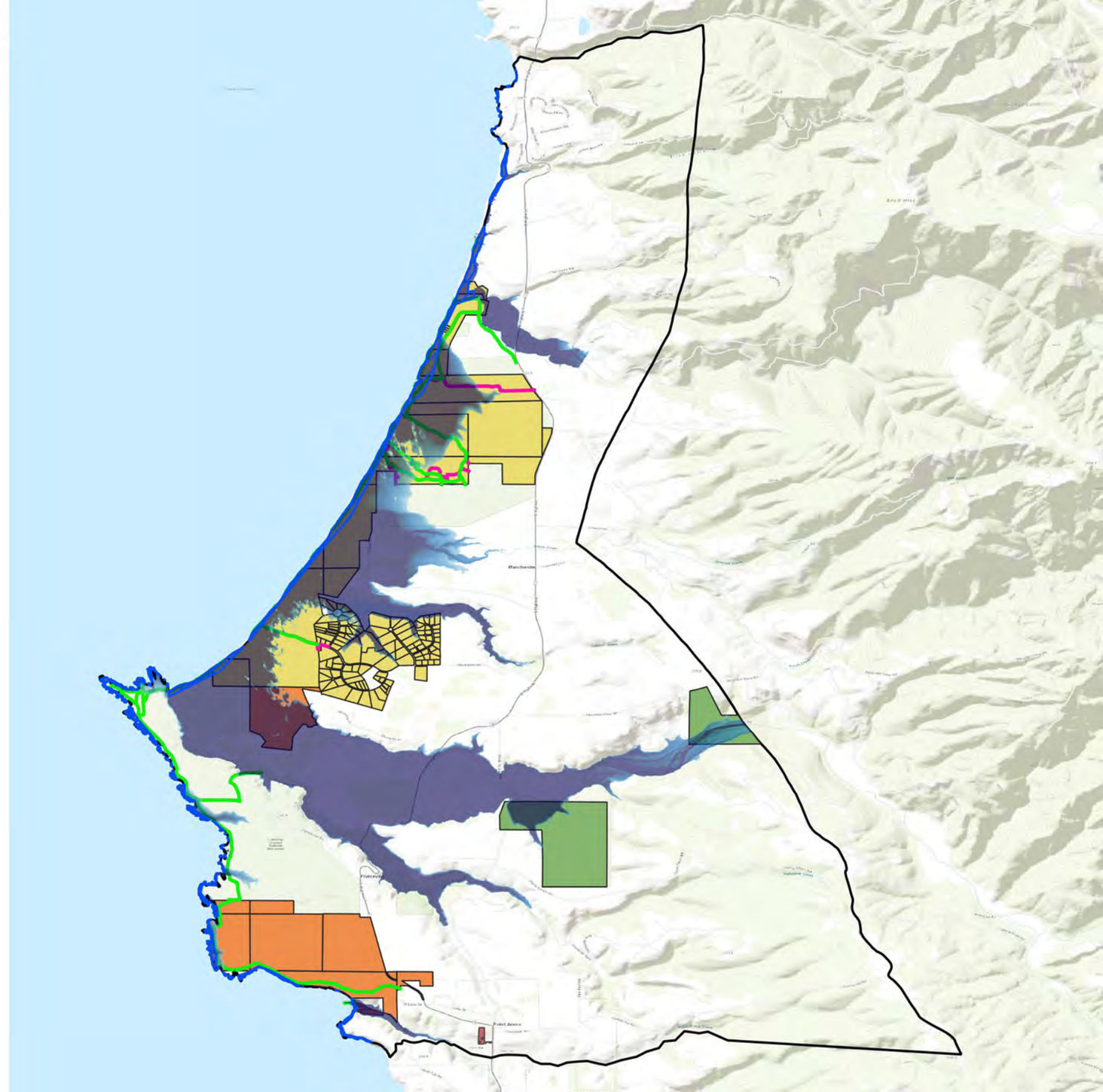
Recreation

- California Coastal Trail [26]
- Recreational Routes [35]

Parks & Govt Lands

- Federal Parks & Lands [10]
- State Parks & Lands [137]
- City Parks & Lands [8]
- Tribal lands [1]

0 1 2 mi



11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Built Environment

Historical and Cultural Resources

- Point Arena Lighthouse [4]

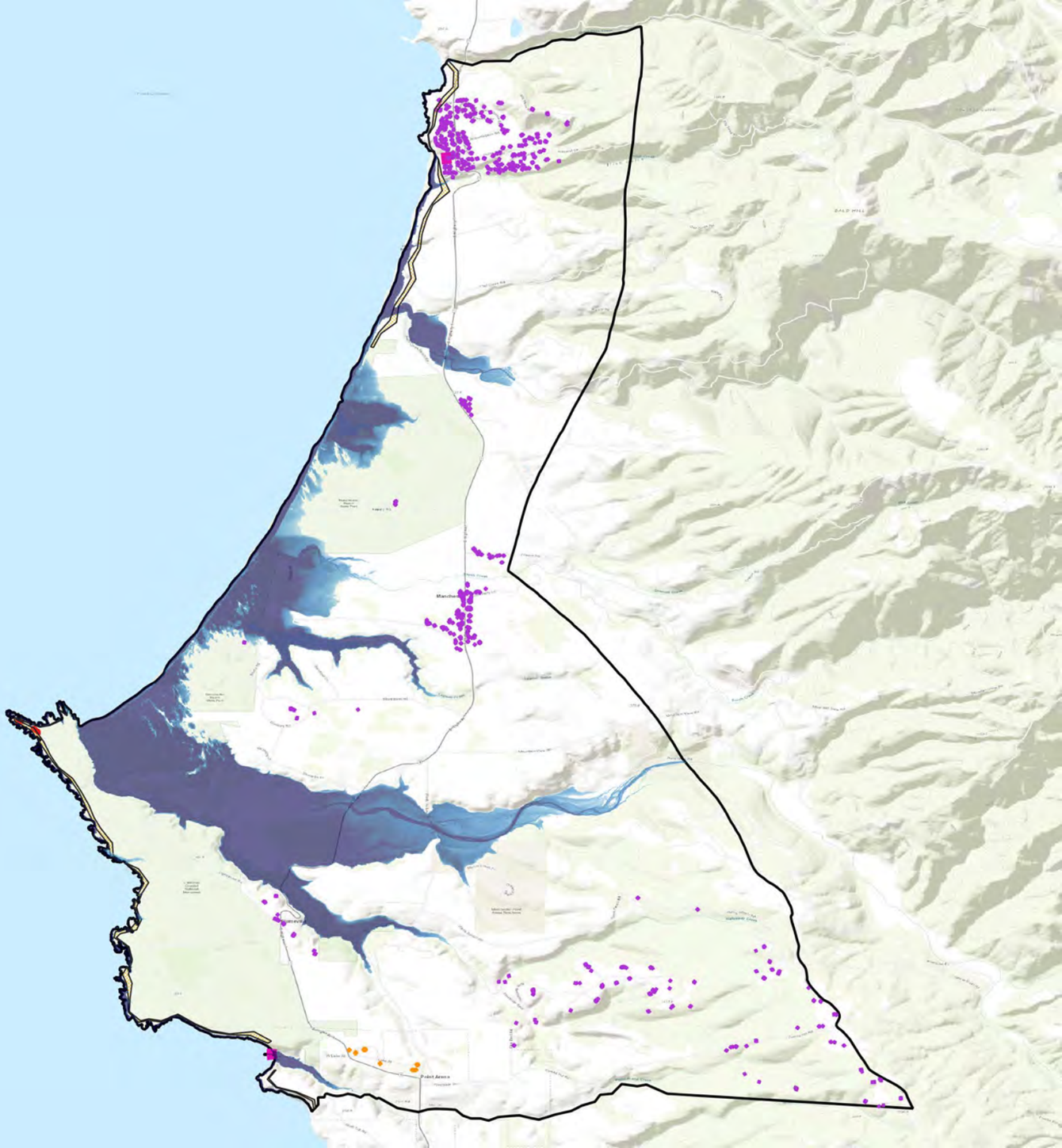
Built Environment

- Residential Buildings [411]
- Public Facilities [9]

Coastal Armoring

- Coastal Armoring [2]

0 1 2 mi



11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Critical Infrastructure

Power & Comms

- Manchester Trans-Pacific Cable Landing Site [1]
- Transmission Lines [2]
- California Substations [1]

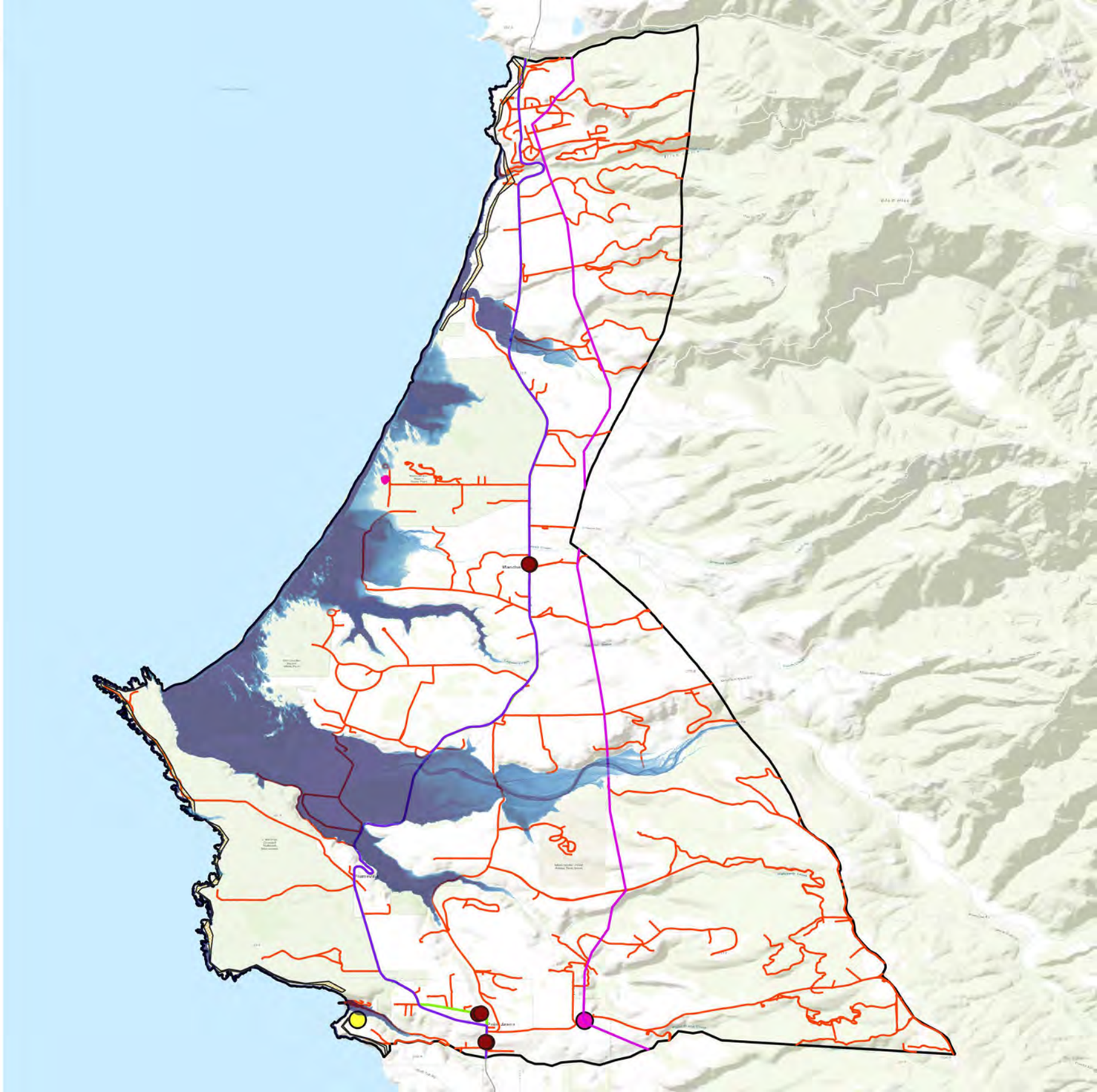
Environmental Sites

- Clean Up Sites [1]

Transportation

- Bus Stops [6]
- State Route 1 [42]
- Bus Lines [6]
- Roads [455]

0 1 2 mi



11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
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- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Assets

Habitat and Agricultural

Coastal and Water

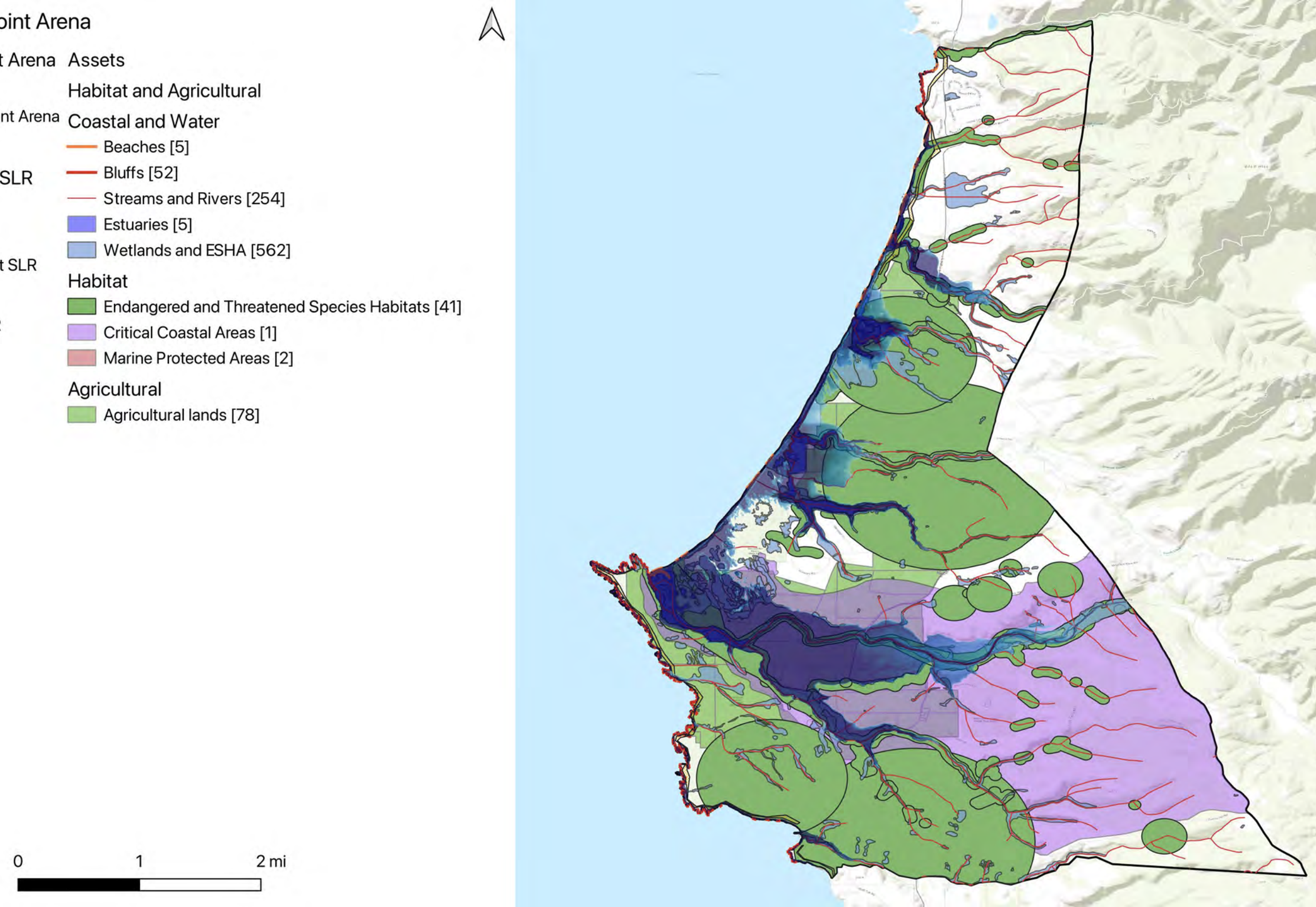
- Beaches [5]
- Bluffs [52]
- Streams and Rivers [254]
- Estuaries [5]
- Wetlands and ESHA [562]

Habitat

- Endangered and Threatened Species Habitats [41]
- Critical Coastal Areas [1]
- Marine Protected Areas [2]

Agricultural

- Agricultural lands [78]



0 1 2 mi

11 Manchester & Point Arena

11 Manchester & Point Arena

Planning Zone

- 11 Manchester & Point Arena

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
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- 5+ ft

Assets

Public Access and Recreation

Recreation

- California Coastal Trail [26]
- Recreational Routes [35]

Parks & Govt Lands

- Federal Parks & Lands [10]
- State Parks & Lands [137]
- City Parks & Lands [8]
- Tribal lands [1]

0 1 2 mi

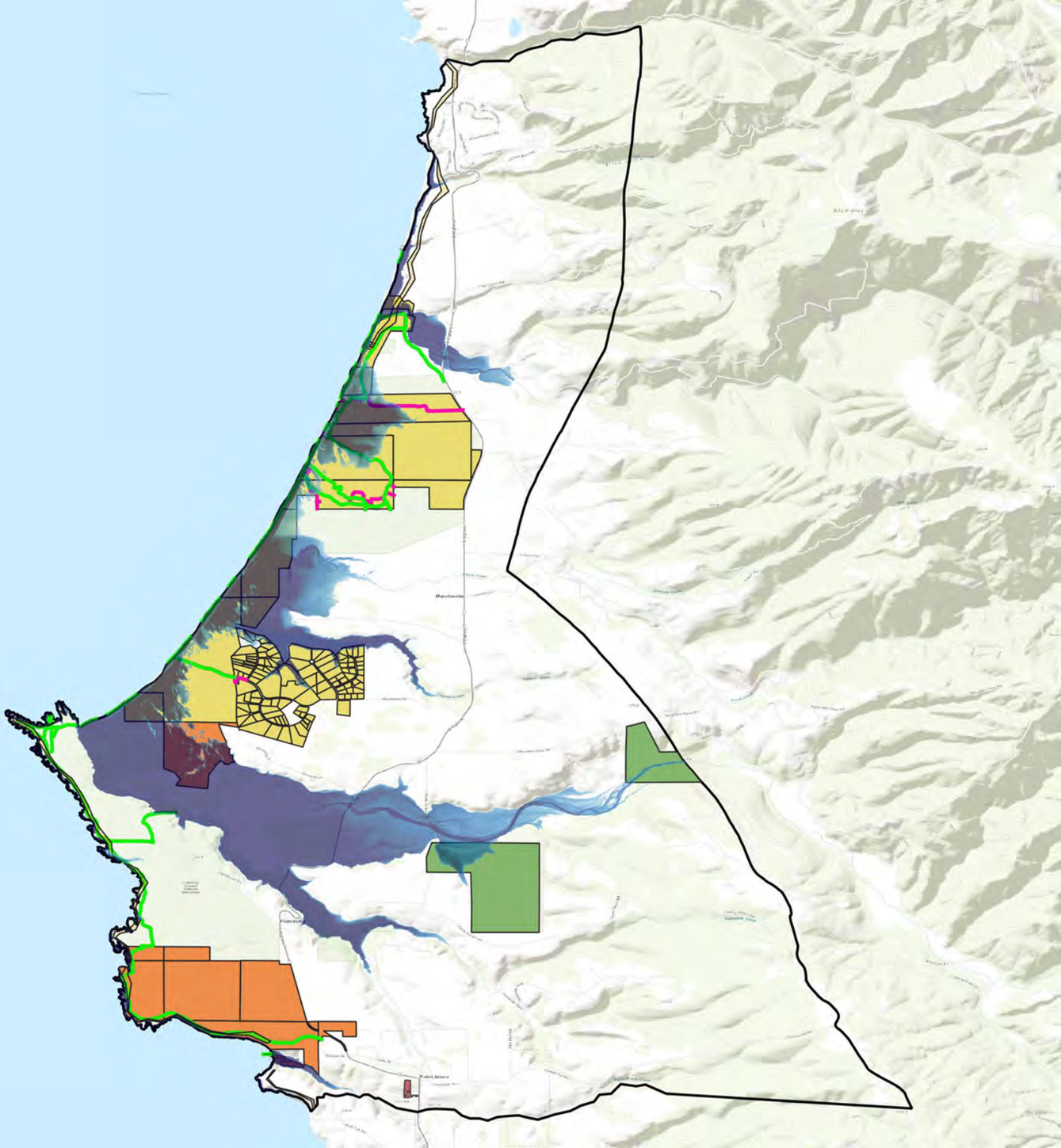


Table 12. Anchor Bay and Gualala

Sub-Category	Asset Type	Units	WaveP	StormP	TidalP	TotalsP	Storm 1ft	Tidal 1ft	BluffE 1ft	CoastE1ft	Totals 1ft	Storm 3ft	Tidal 3ft	BluffE 3ft	CoastE3ft	Totals 3ft	Storm 6ft	Tidal 6ft	BluffE 6ft	CoastE6ft	Totals 6ft
Power & Comms	Transmission Lines	Length (ft)	0	83	69	83	90	69	0	0	90	97	79	0	0	97	111	93	0	0	111
Transportation	State Route 1	Length (mi)	0	0.2	0	0.2	0.4	0.1	0.6	0.2	1.1	0.6	0.1	0.9	0.5	1.7	0.9	0.5	1	1.2	2.5
Transportation	Bus Lines	Length (mi)	0	0.8	0.2	0.8	1.6	0.3	2.7	0.9	5.1	2.4	0.7	4.1	2.2	7.8	4.1	2	5.4	6.6	13.3
Transportation	Roads	Length (mi)	0	1	0.2	1	1.3	0.5	0.7	0.3	2.3	1.7	0.8	1.1	0.8	3.3	2.4	1.5	1.5	1.9	5.1
Recreation	California Coastal Trail	Length (mi)	0.3	0.9	0.7	0.9	0.9	0.7	0.5	1.5	2.3	1	0.8	0.7	2.1	2.8	1.2	1	0.8	2.9	3.5
Recreation	Recreational Routes	Length (mi)	0	0.1	0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.2	0.1	0.1	0.2	0.4
Recreation	Private Campgrounds	Number of private campgrounds	1	1	1	1	1	1	0	0	1	1	1	0	0	1	1	1	0	0	1
Parks & Govt Lands	State Parks & Lands	Area (acres)	4	19	9	19	21	11	1	5	25	25	17	3	7	30	29	24	3	11	36
Parks & Govt Lands	Land Trust lands	Area (acres)	1	1	1	1	1	1	2	7	8	1	1	3	9	10	2	1	4	16	17
Coastal and Water	Beaches	Length (mi)	0.4	1.2	1	1.2	1.2	1.1	0.1	1	1.4	1.3	1.2	0.1	1	1.5	1.4	1.3	0.1	1	1.5
Coastal and Water	Bluffs	Length (mi)	3.5	6.4	5.4	6.7	6.6	5.7	0.2	3.2	7.6	6.9	6.2	0.5	3.2	7.7	7.3	6.8	0.6	3.2	7.9
Coastal and Water	Streams and Rivers	Length (mi)	0.1	3.7	2.3	3.7	4.1	2.6	0.1	0.8	4.3	4.8	3.4	0.2	0.9	5.1	6	4.5	0.3	1.2	6.4
Coastal and Water	Estuaries	Area (acres)	0	62	54	62	62	60	0	12	62	63	62	0	12	63	63	62	0	13	63
Coastal and Water	Wetlands and ESHA	Area (acres)	25	122	103	122	123	115	2	37	125	125	120	3	39	127	127	124	4	43	131
Habitat	Endangered and Threatened Species Habitats	Area (acres)	9	94	70	95	97	77	7	51	134	104	90	14	62	151	115	101	20	92	184
Habitat	Critical Coastal Areas	Area (acres)	2	5	4	5	6	4	5	17	21	7	5	10	22	27	8	6	13	33	36
Habitat	Marine Protected Areas	Number of individually designated MPAs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Habitat	Areas of Special Biological Significance	Number of individually designated ASBSs	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Built Environment	Residential Buildings	Number of buildings	0	0	0	0	0	0	30	24	46	0	0	48	50	78	2	0	65	89	112
Built Environment	Commercial Buildings	Number of buildings	0	1	0	1	1	1	0	19	20	1	1	0	23	24	4	1	0	39	40
Coastal Armoring	Coastal Armoring	Length (ft)	120	206	187	206	211	191	0	734	854	234	201	128	734	958	277	226	180	771	988

12 Anchor Point & Gualala

12 Anchor Bay & Gualala

Planning Zone

- 12 Anchor Bay & Gualala

Hazards

Present Day

100-year Storm

Present day

Band 1 (Gray)

- >0 - 6 in
- 6 in - 1 ft
- 1 - 2 ft
- 2 - 3 ft
- 3 - 4 ft
- 4 - 5 ft
- 5+ ft

Mid-century with 1ft SLR

100-year Storm

- Wave Runup

Assets

Built Environment

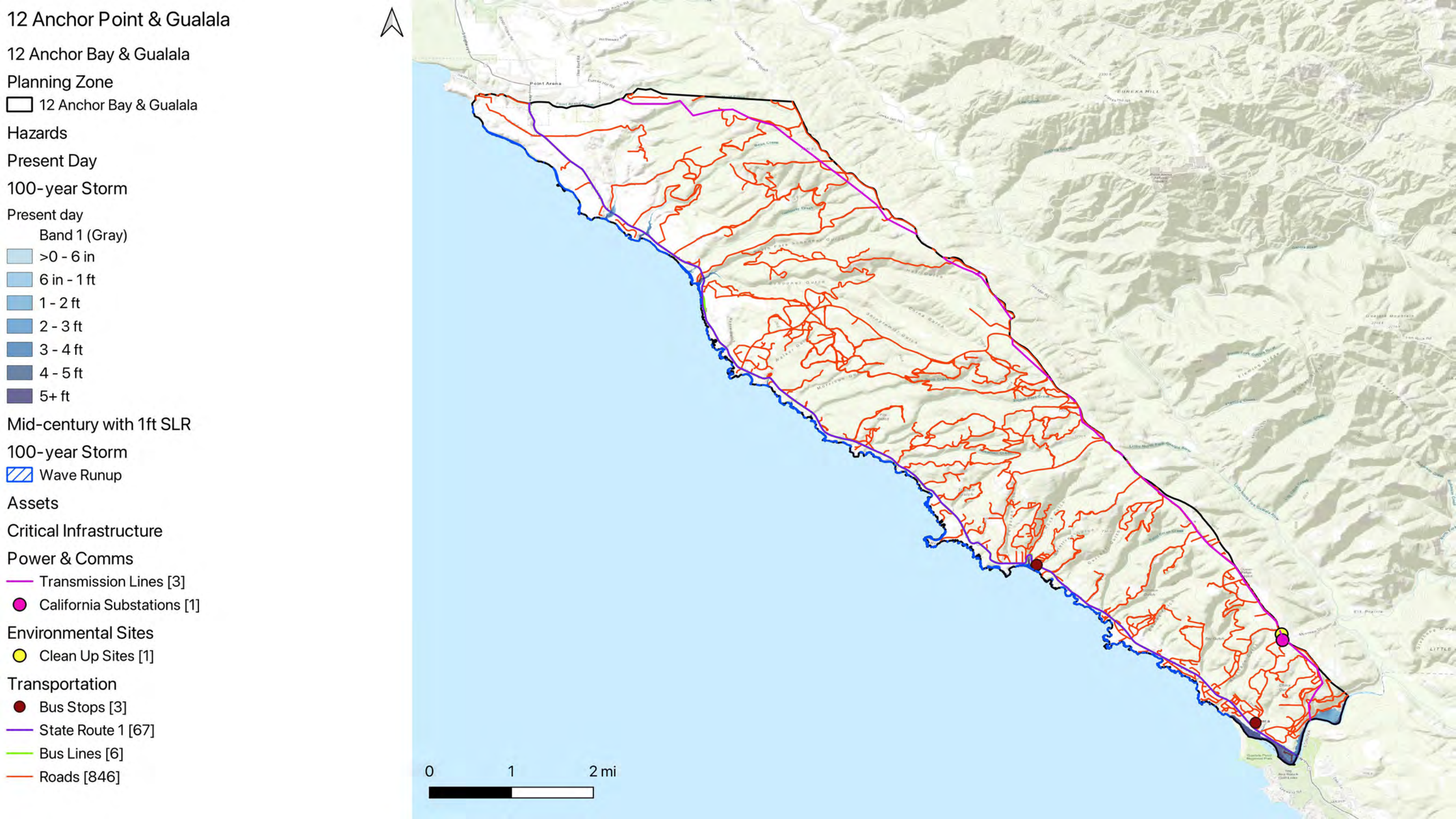
Built Environment

- Residential Buildings [1406]
- Commercial Buildings [70]
- Public Facilities [2]

Coastal Armoring

- Coastal Armoring [9]

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12 Anchor Bay & Gualala
Planning Zone
12 Anchor Bay & Gualala
Hazards
Present Day
100-year Storm
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
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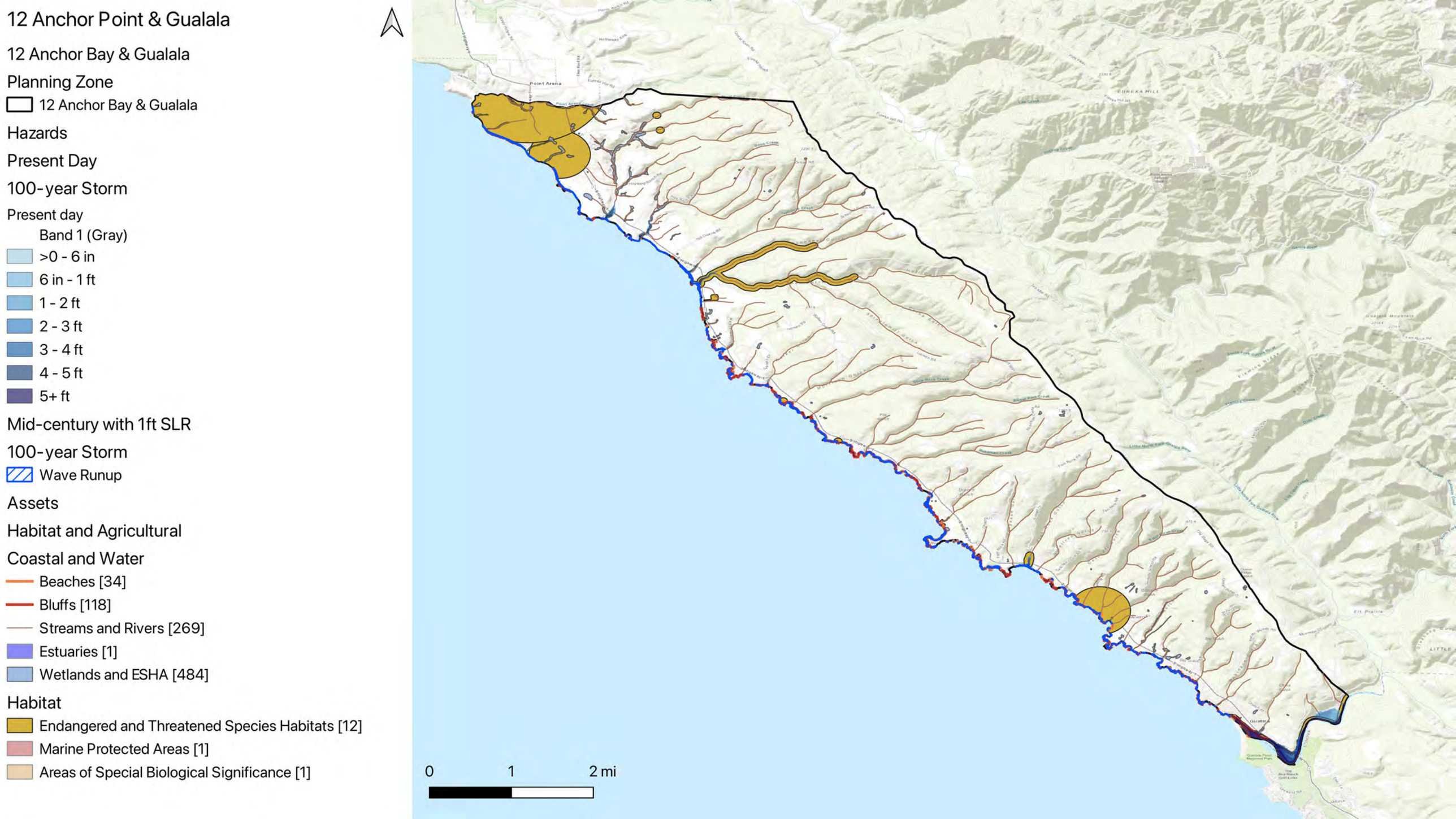
5+ ft
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Assets
Critical Infrastructure
Power & Comms
Transmission Lines [3]
California Substations [1]
Environmental Sites
Clean Up Sites [1]
Transportation
Bus Stops [3]
State Route 1 [67]
Bus Lines [6]
Roads [846]
0
1
2 mi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5+ ft
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Assets
Habitat and Agricultural
Coastal and Water
Beaches [34]
Bluffs [118]
Streams and Rivers [269]
Estuaries [1]
Wetlands and ESHA [484]
Habitat
Endangered and Threatened Species Habitats [12]
Marine Protected Areas [1]
Areas of Special Biological Significance [1]
0
1
2 mi


12 Anchor Point & Gualala
12 Anchor Bay & Gualala
Planning Zone
12 Anchor Bay & Gualala
Hazards
Present Day
100-year Storm
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100-year Storm
Wave Runup
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Recreation
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Recreational Routes [10]
Private Campgrounds [1]
Parks & Govt Lands
State Parks & Lands [27]
Land Trust lands [1]
0
1
2 mi

12 Anchor Point & Gualala

12 Anchor Bay & Gualala

Planning Zone

12 Anchor Bay & Gualala

Hazards

Present Day

Coastal Erosion

Bluff Dune Erosion

Early century with 0.7ft SLR

Tidal Flooding

Present day

Band 1 (Gray)

>0 - 6 in

6 in - 1 ft

1 - 2 ft

2 - 3 ft

3 - 4 ft

4 - 5 ft

5+ ft

Assets

Built Environment

Built Environment

Residential Buildings [1406]

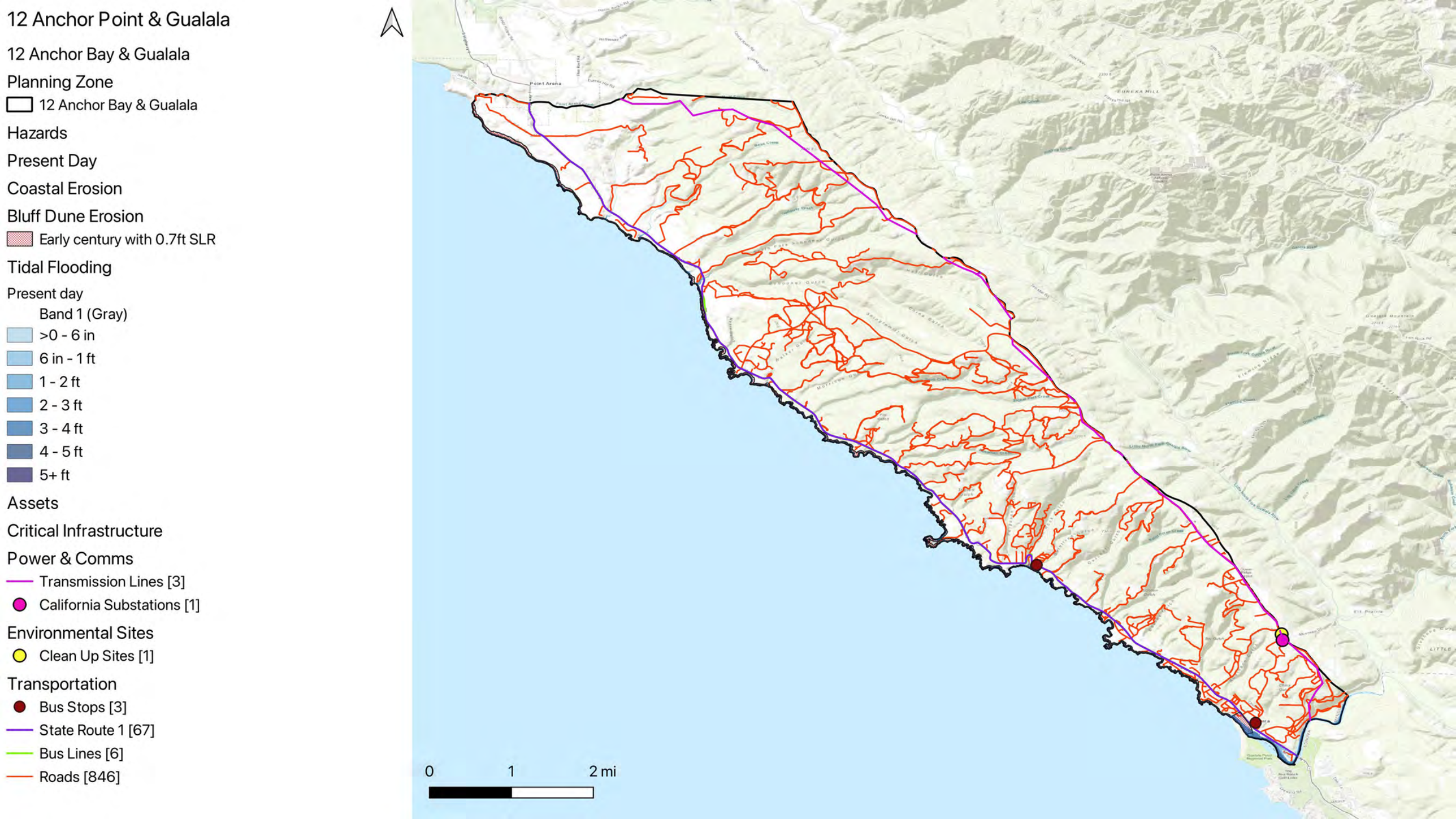
Commercial Buildings [70]

Public Facilities [2]

Coastal Armoring

Coastal Armoring [9]




12 Anchor Point & Gualala
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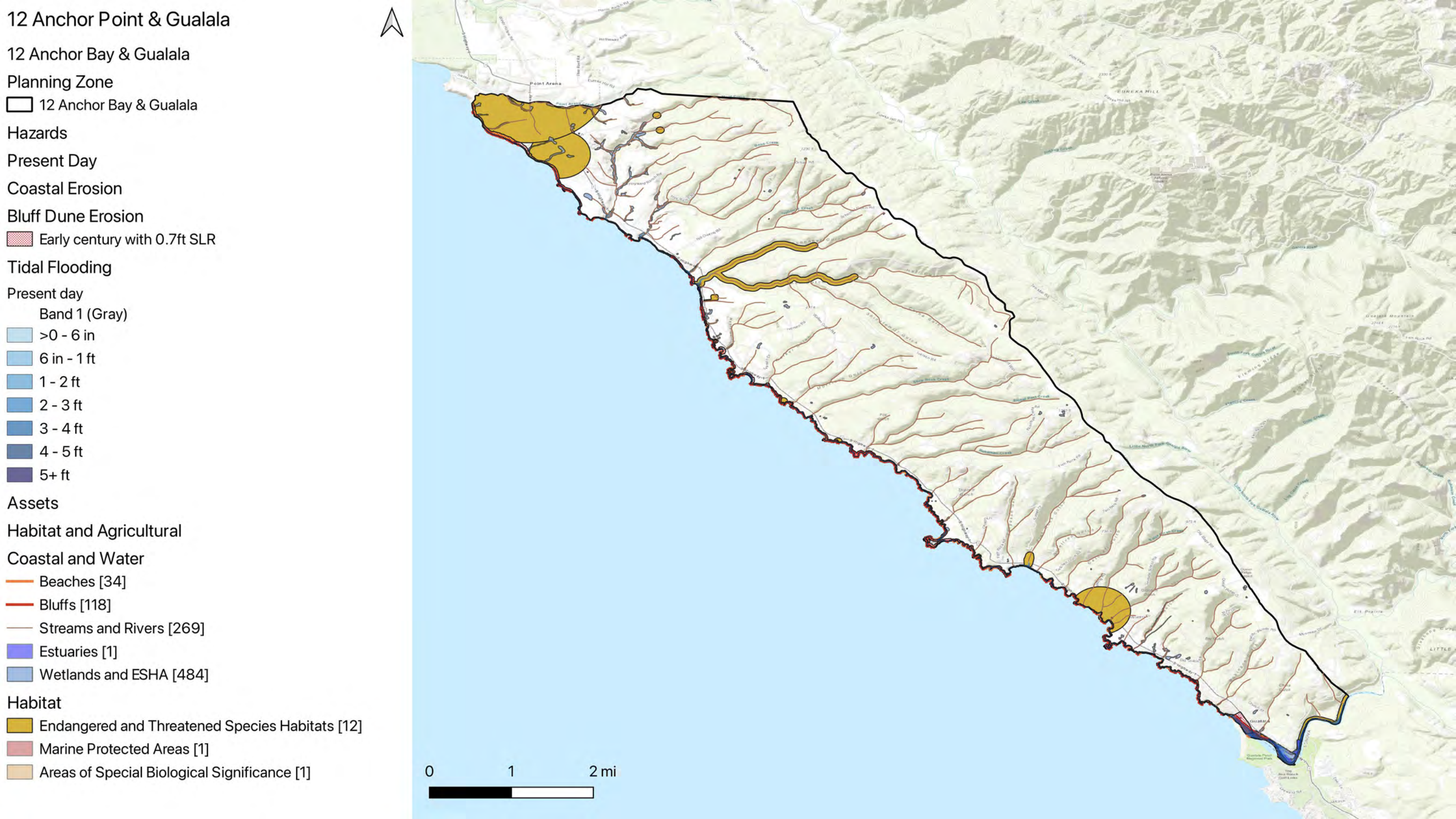
12 Anchor Bay & Gualala
Hazards
Present Day
Coastal Erosion
Bluff Dune Erosion
Early century with 0.7ft SLR
Tidal Flooding
Present day
Band 1 (Gray)
>0 - 6 in
6 in - 1 ft
1 - 2 ft
2 - 3 ft
3 - 4 ft
4 - 5 ft
5+ ft
Assets
Critical Infrastructure
Power & Comms
Transmission Lines [3]
California Substations [1]
Environmental Sites
Clean Up Sites [1]
Transportation
Bus Stops [3]
State Route 1 [67]
Bus Lines [6]
Roads [846]
0
1
2 mi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Bluff Dune Erosion
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1
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Hazards
Present Day
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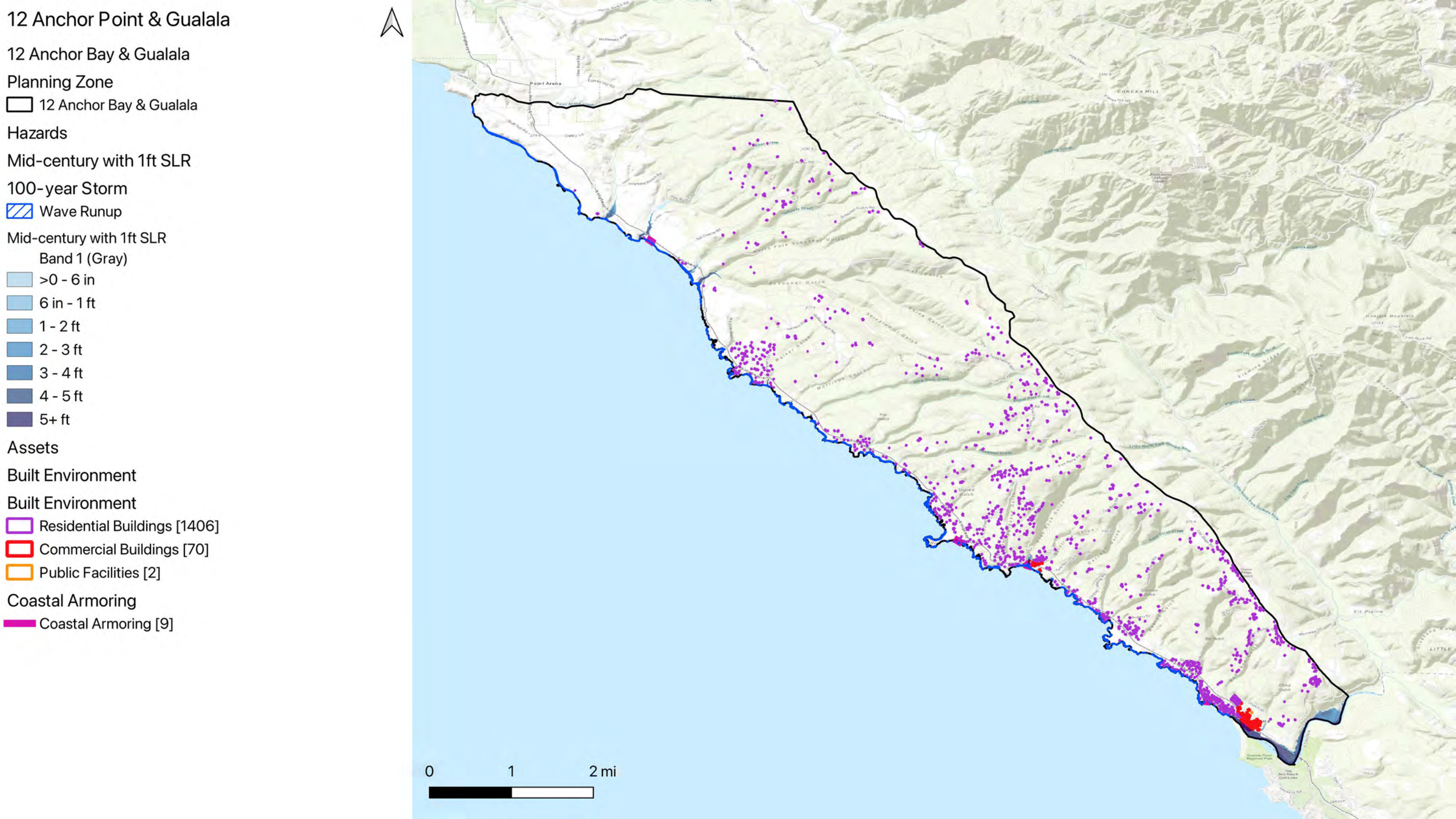
State Parks & Lands [27]
Land Trust lands [1]
Point Arena
EUREKA HILL
Gualala
0
1
2 mi


12 Anchor Point & Gualala
12 Anchor Bay & Gualala
Planning Zone
12 Anchor Bay & Gualala
Hazards
Mid-century with 1ft SLR
100-year Storm
Wave Runup
Mid-century with 1ft SLR
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4 - 5 ft
5+ ft
Assets
Built Environment
Built Environment
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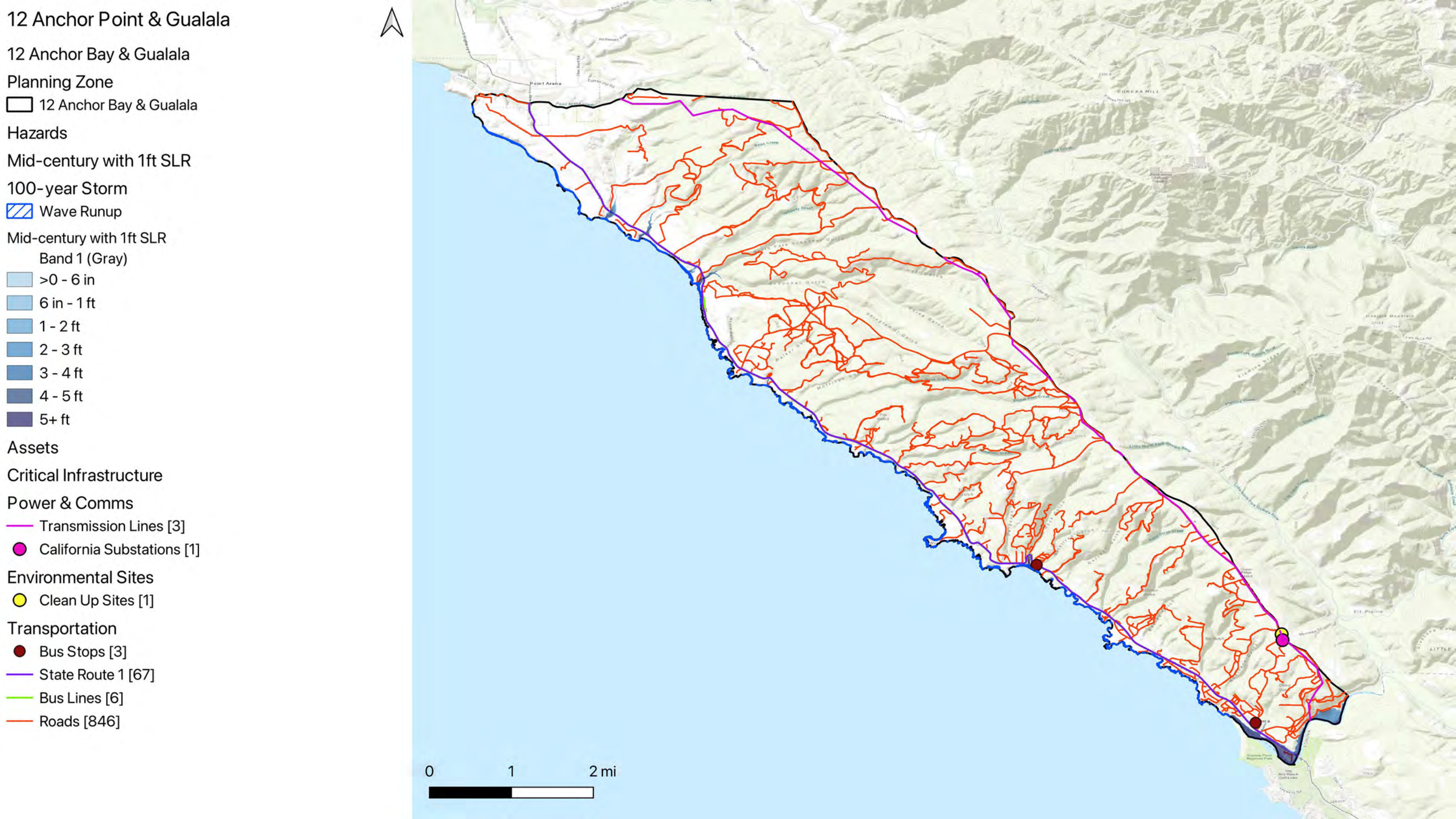
Commercial Buildings [70]
Public Facilities [2]
Coastal Armoring
Coastal Armoring [9]
Point Arena
EUREKA HILL
0
1
2 mi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2 mi


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Beaches [34]
Bluffs [118]
Streams and Rivers [269]
Estuaries [1]
Wetlands and ESHA [484]
Habitat
Endangered and Threatened Species Habitats [12]
Marine Protected Areas [1]
Areas of Special Biological Significance [1]
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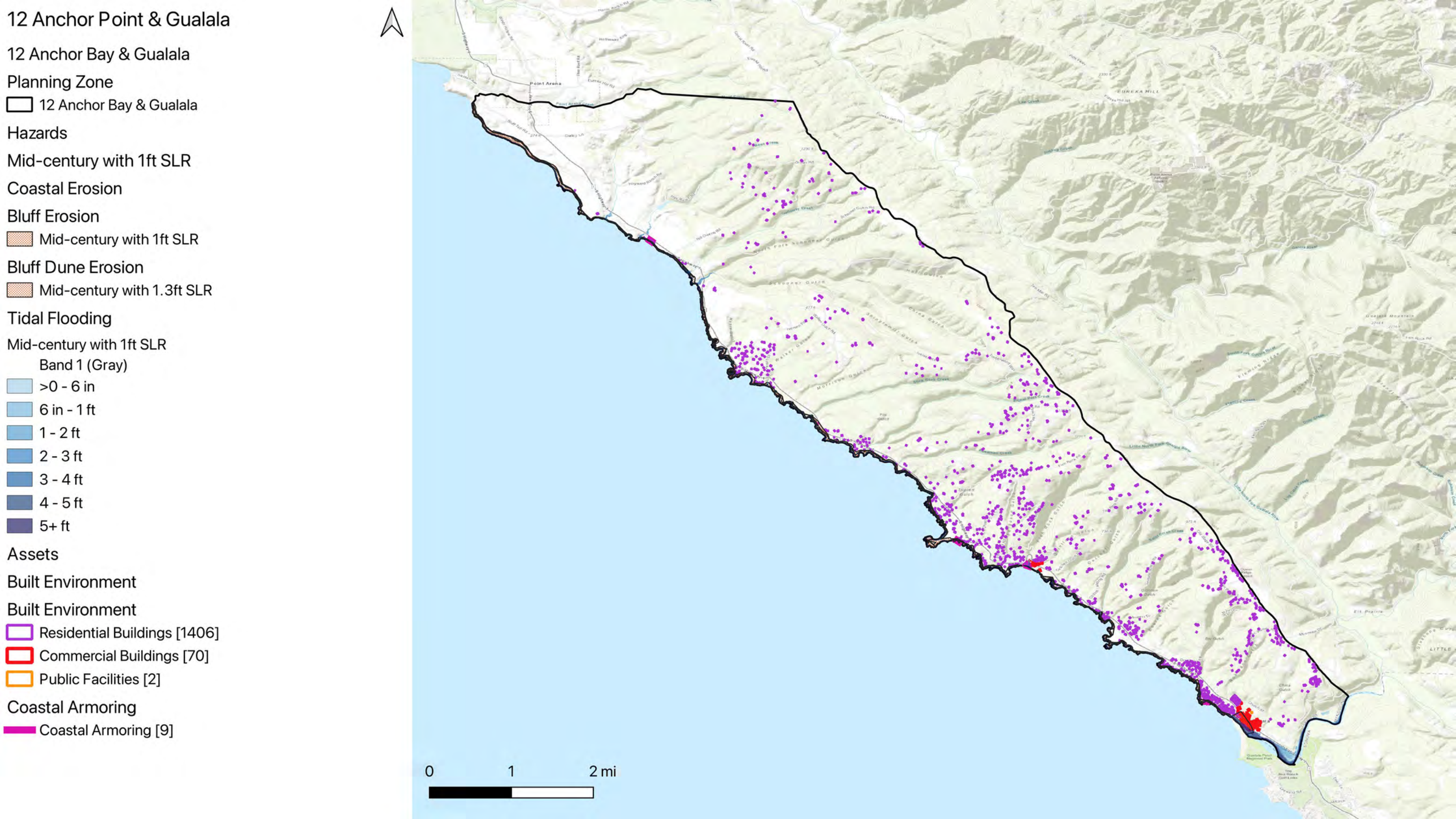
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Tidal Flooding
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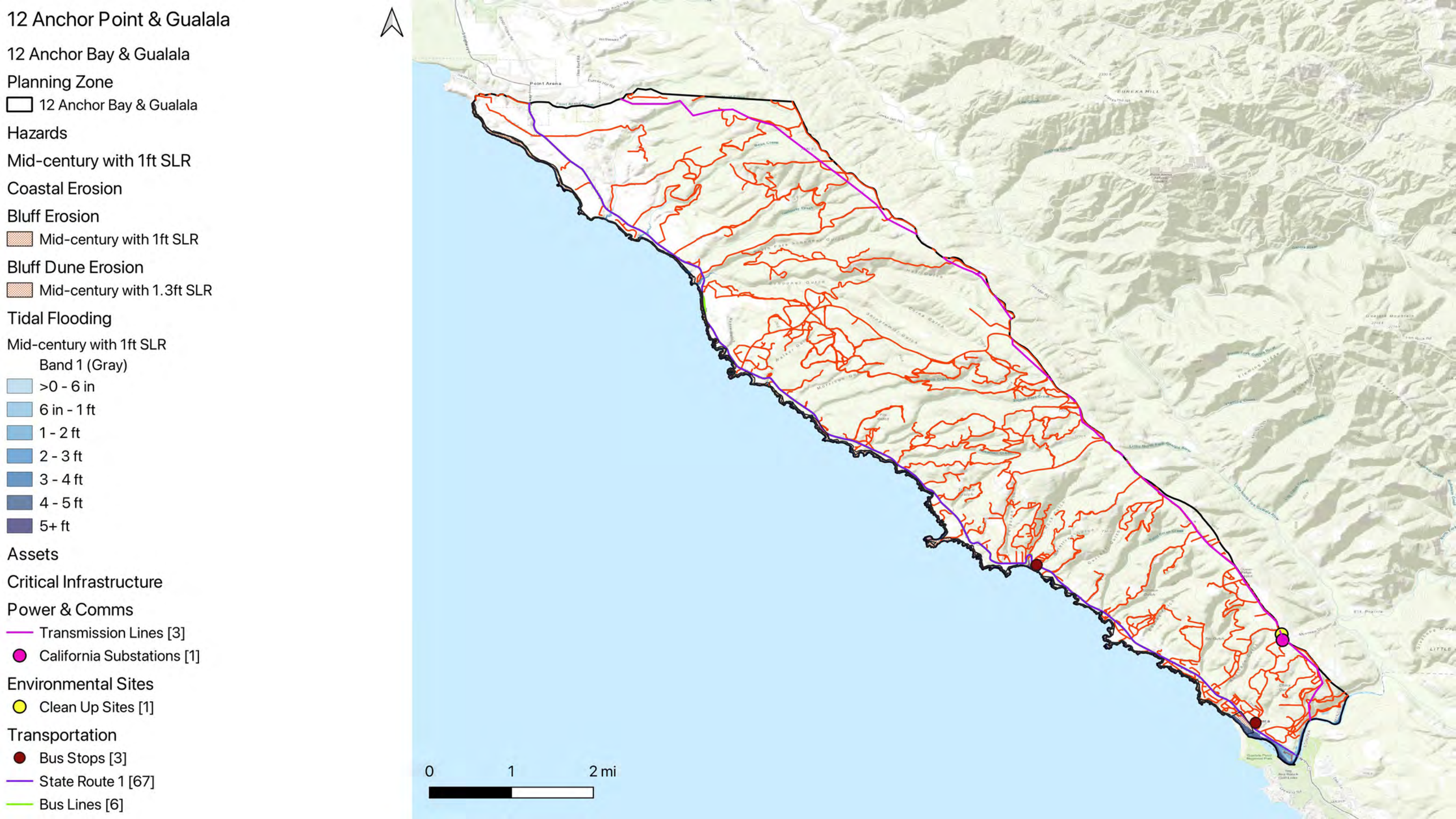
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Transportation
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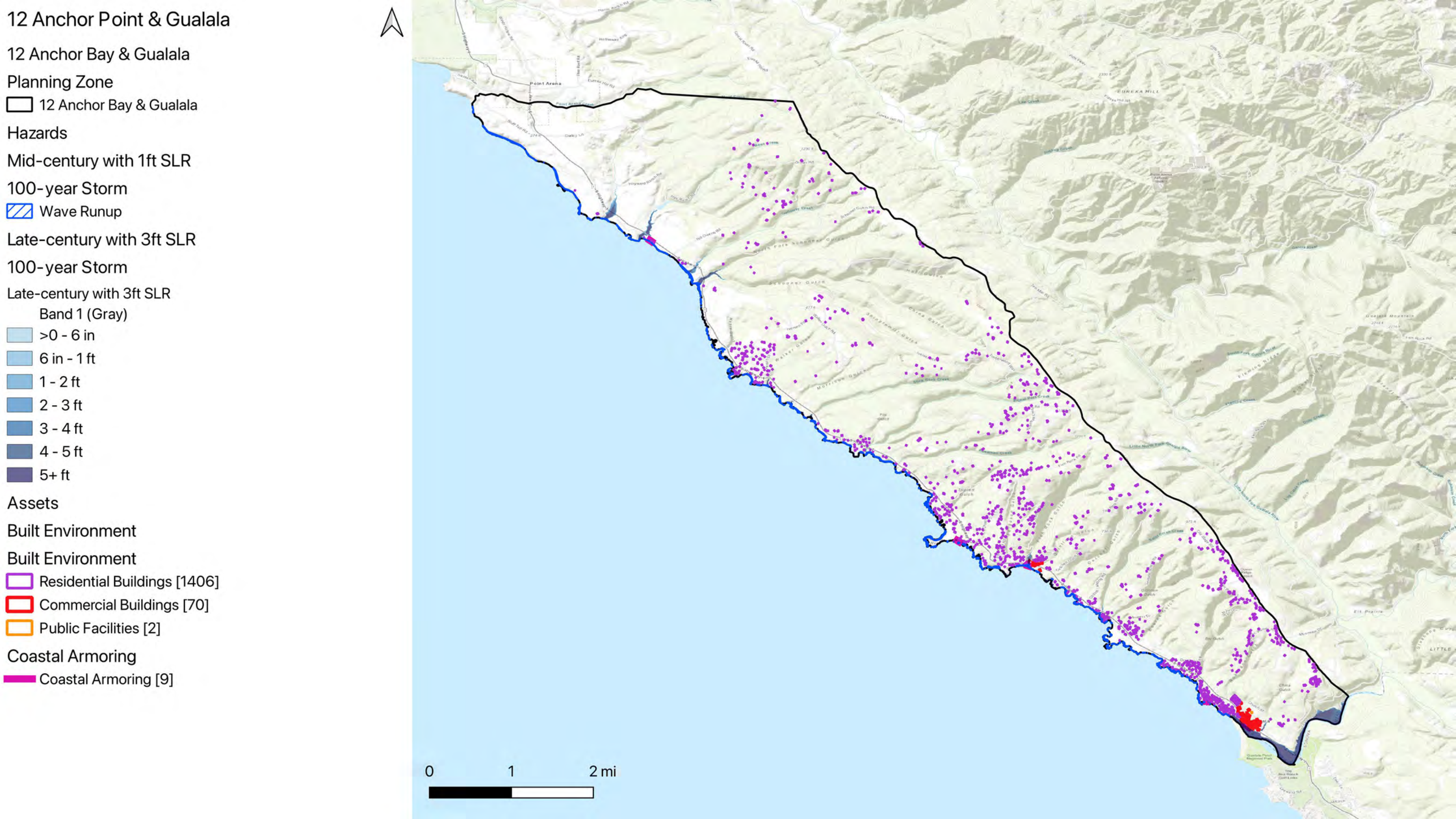
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Wave Runup
Late-century with 3ft SLR
100-year Storm
Late-century with 3ft SLR
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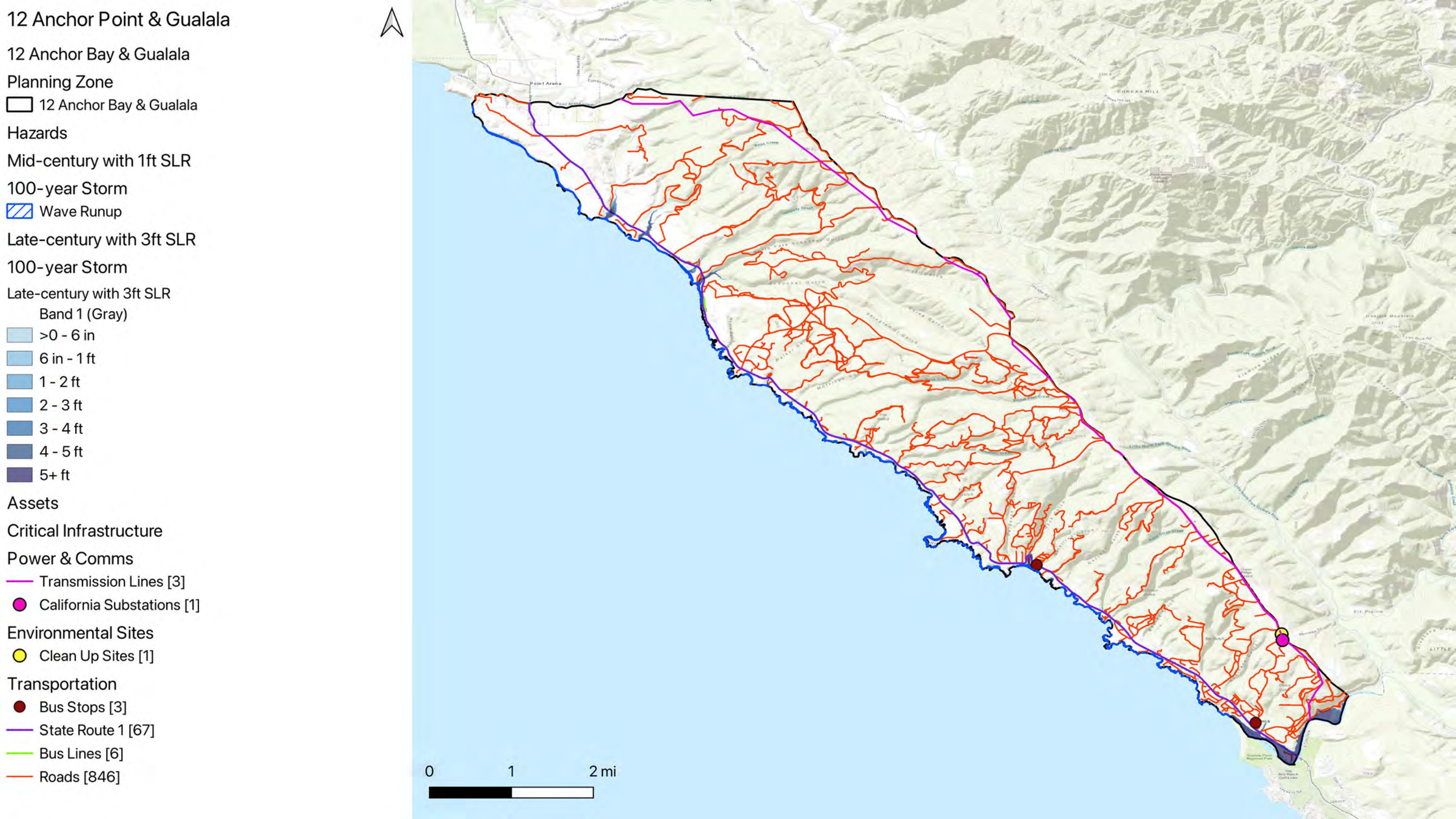
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State Route 1 [67]
Bus Lines [6]
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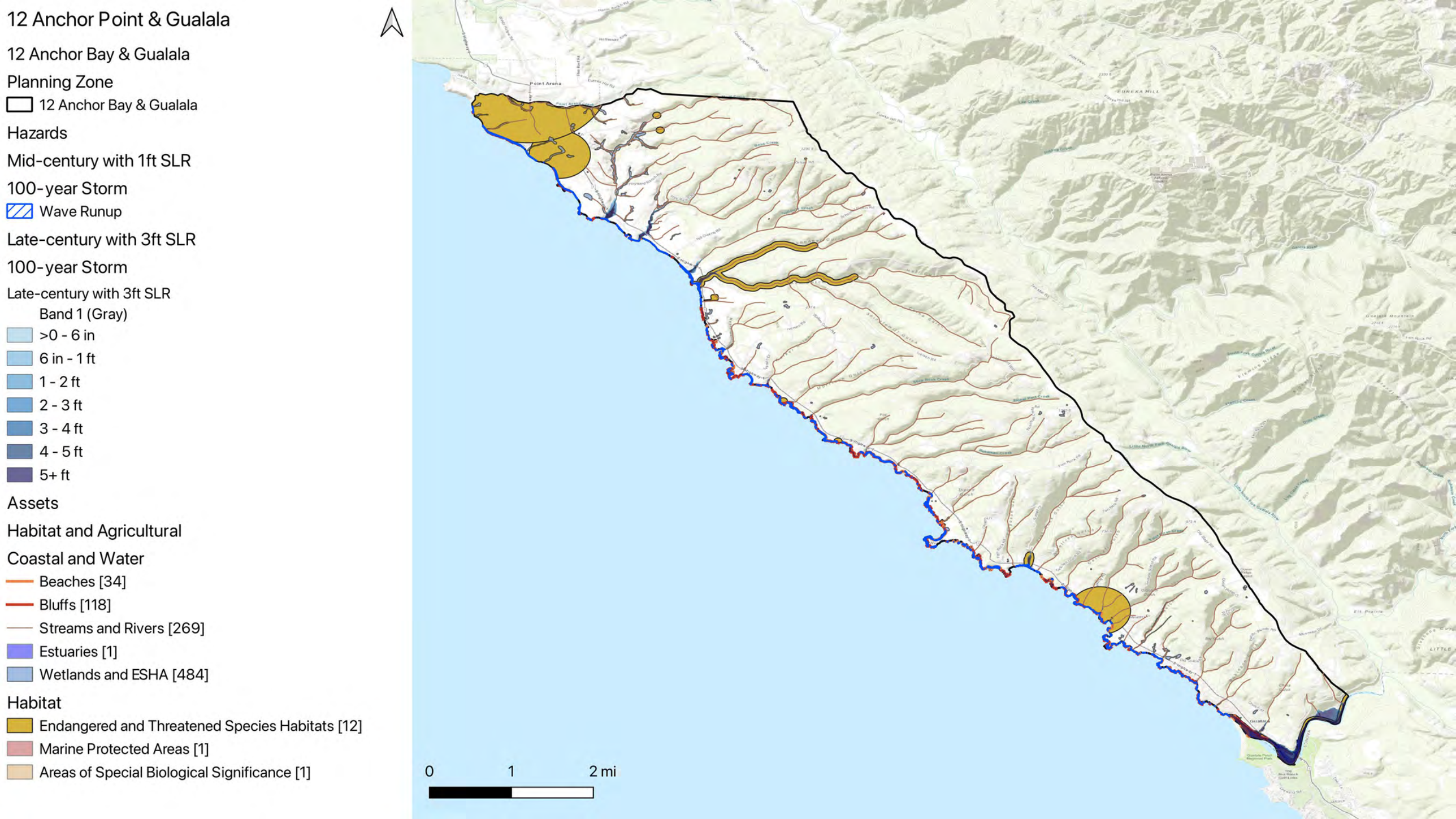
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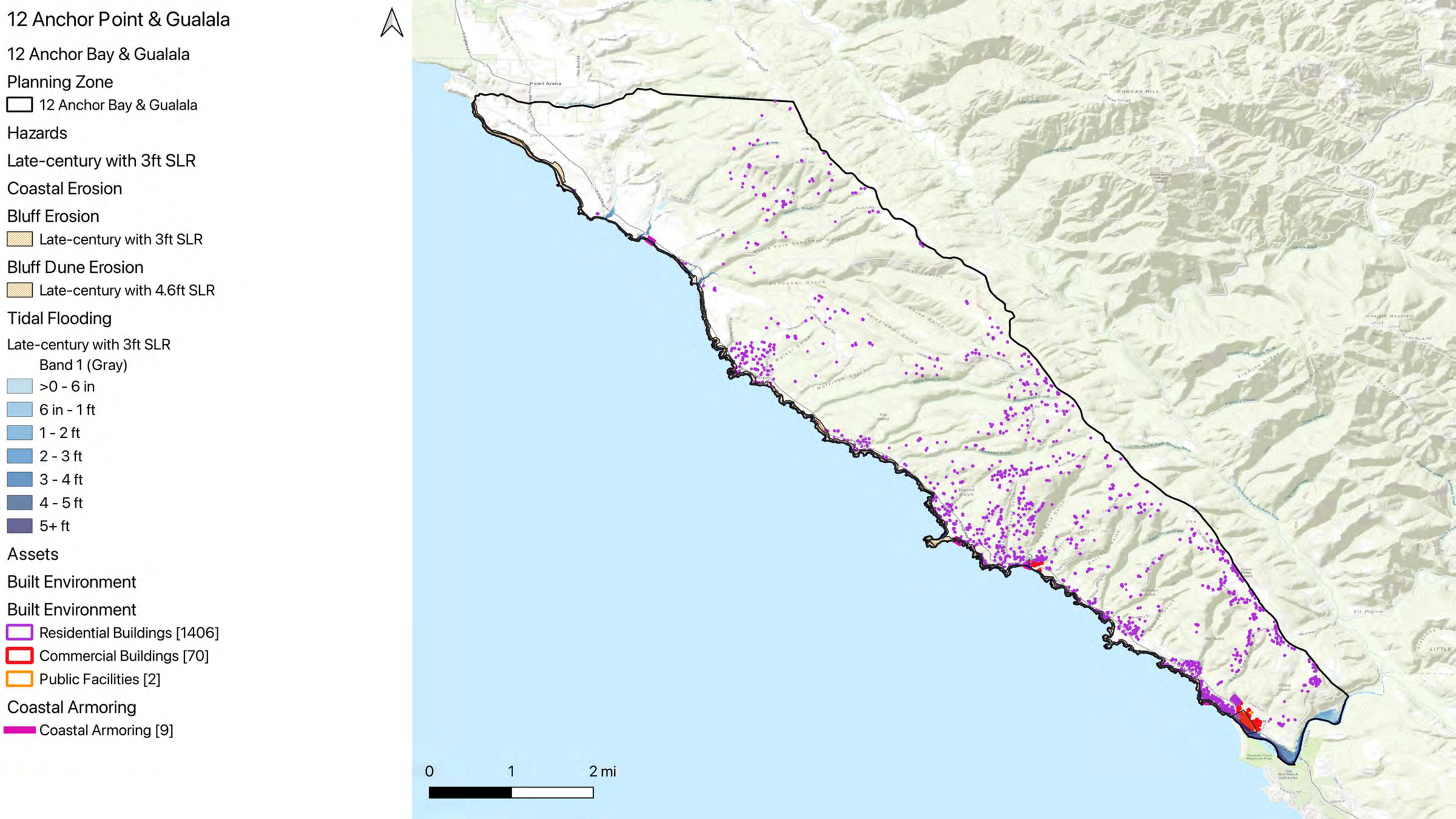
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Bluff Dune Erosion
Late-century with 4.6ft SLR
Tidal Flooding
Late-century with 3ft SLR
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Coastal Armoring [9]
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12 Anchor Point & Gualala

12 Anchor Bay & Gualala

Planning Zone

- 12 Anchor Bay & Gualala

Hazards

Late-century with 3ft SLR

Coastal Erosion

Bluff Erosion

- Late-century with 3ft SLR

Bluff Dune Erosion

- Late-century with 4.6ft SLR

Tidal Flooding

Late-century with 3ft SLR

Band 1 (Gray)

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Assets

Critical Infrastructure

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- California Substations [1]

Environmental Sites

- Clean Up Sites [1]

Transportation

- Bus Stops [3]
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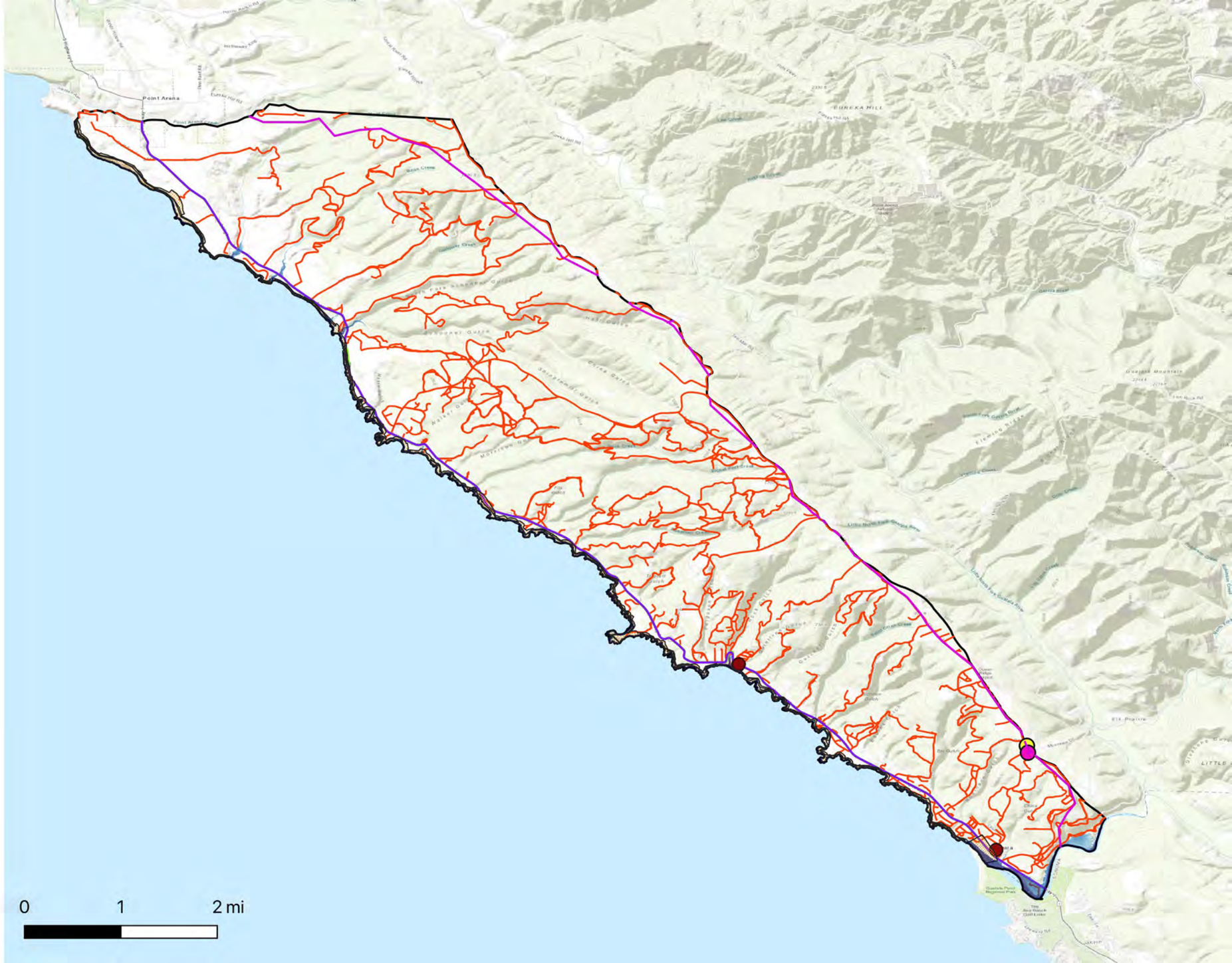

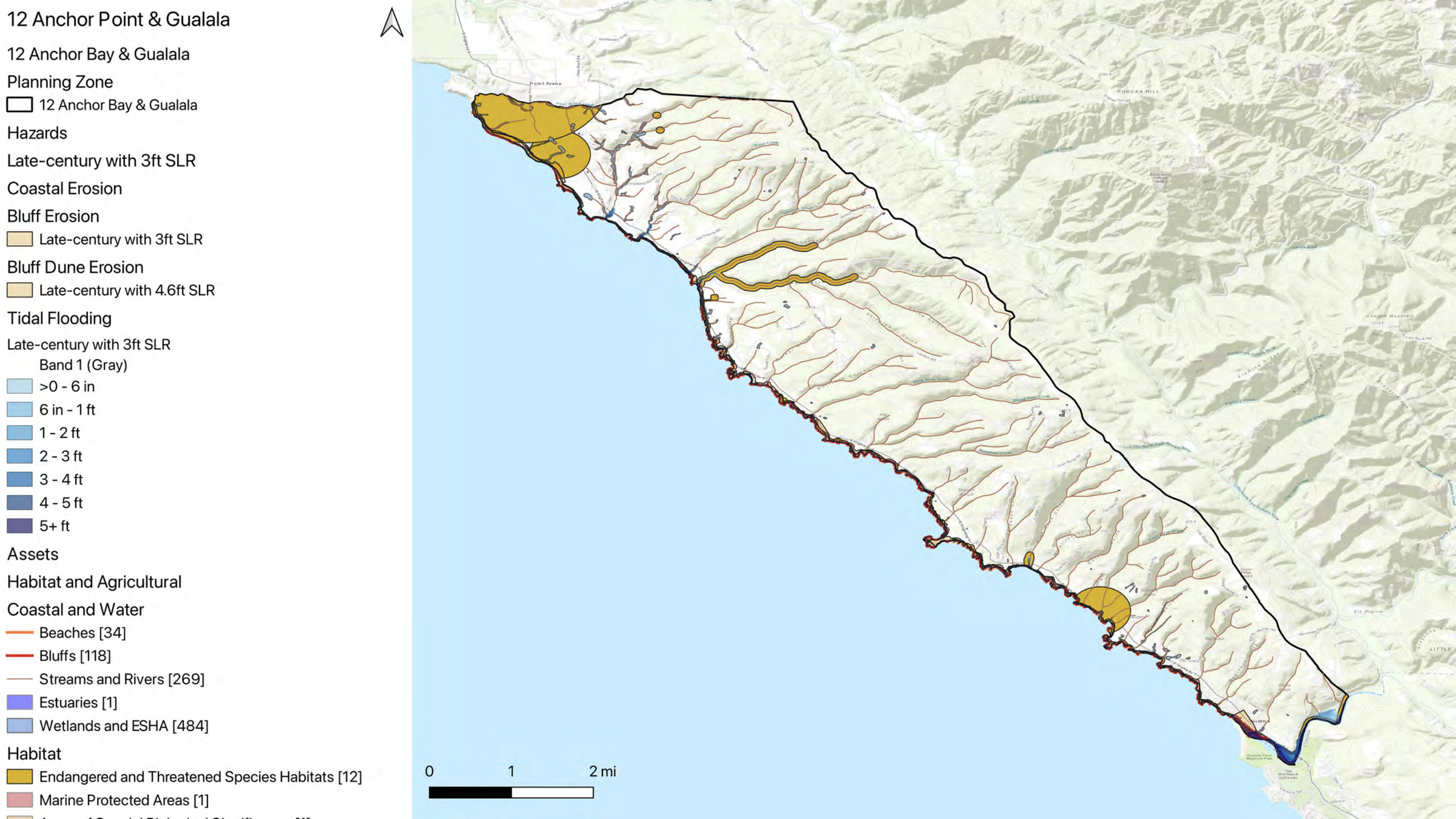
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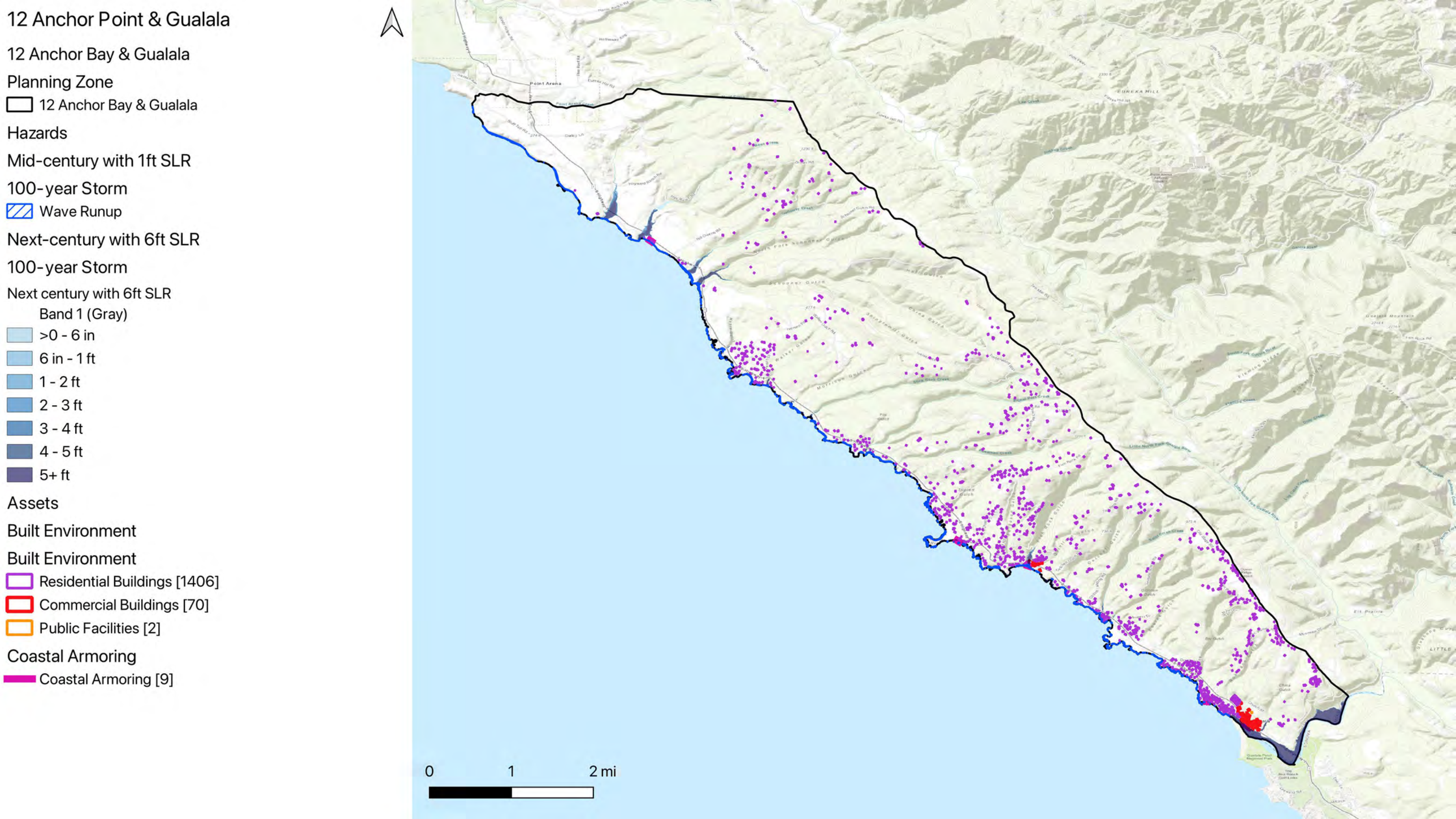
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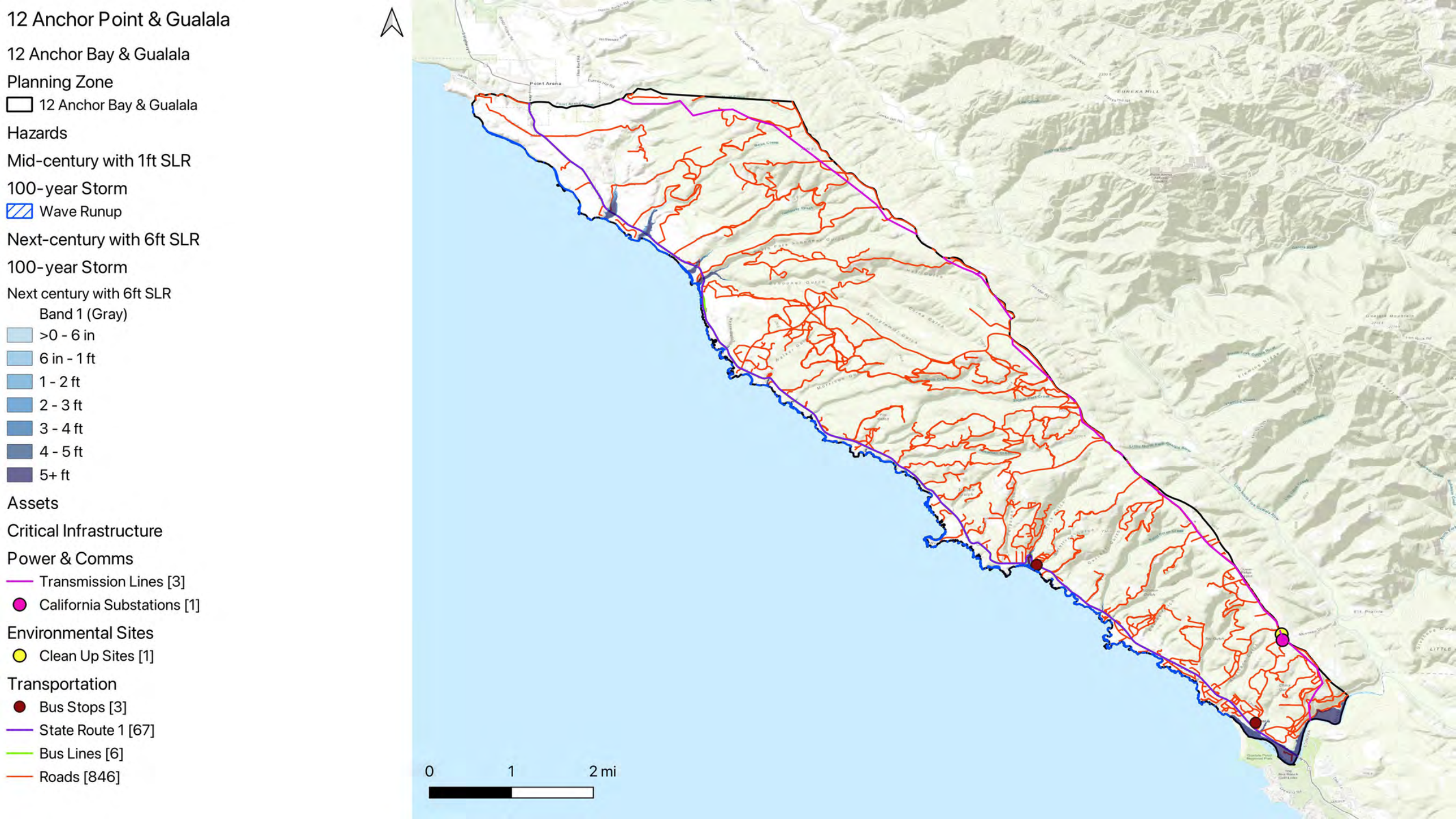
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Assets
Critical Infrastructure
Power & Comms
Transmission Lines [3]
California Substations [1]
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Clean Up Sites [1]
Transportation
Bus Stops [3]
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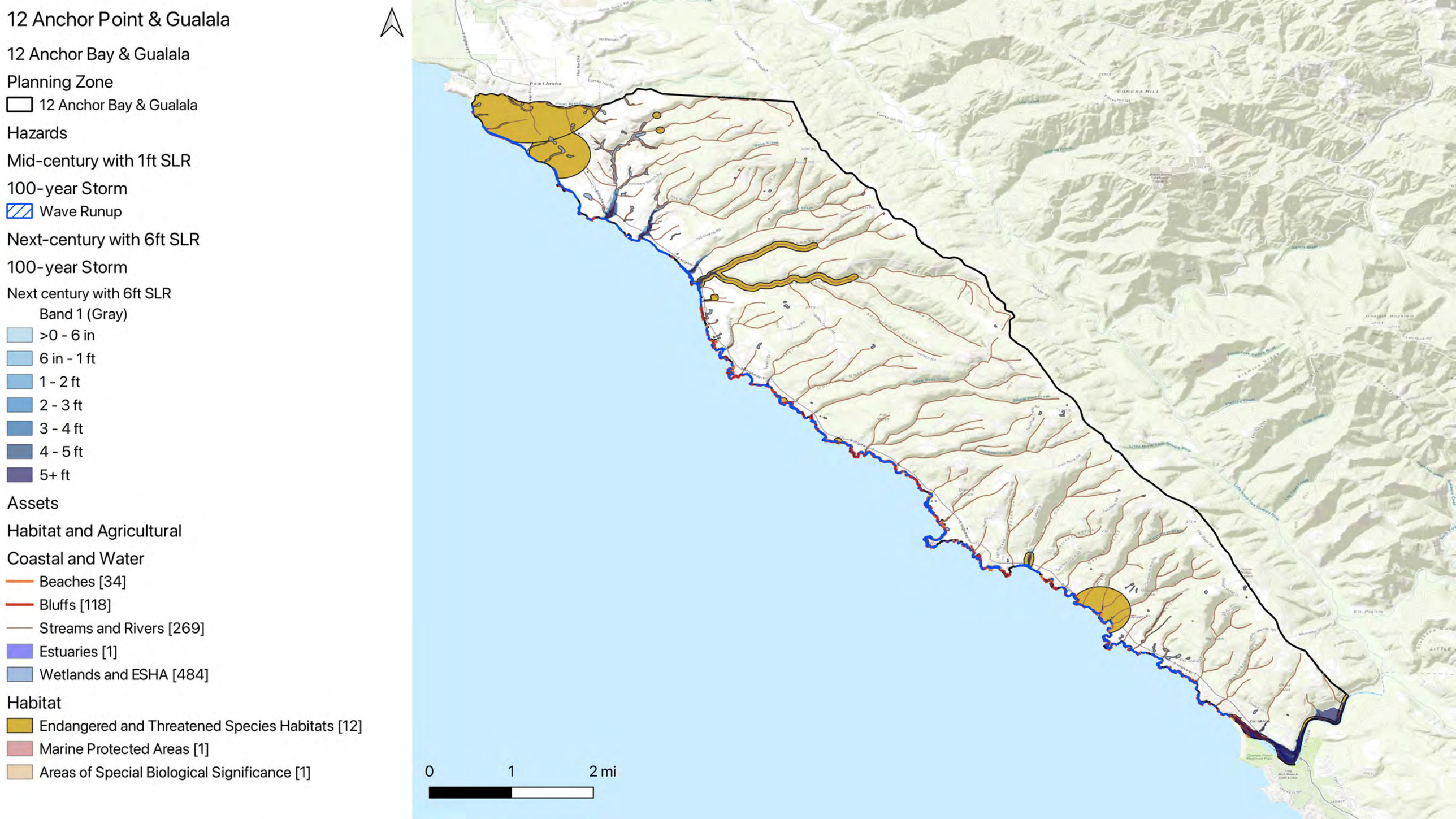
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12 Anchor Point & Gualala

12 Anchor Bay & Gualala

Planning Zone

- 12 Anchor Bay & Gualala

Hazards

Next-century with 6ft SLR

Coastal Erosion

Bluff Erosion

- Next century with 6ft SLR

Tidal Flooding

Next century with 6ft SLR

Band 1 (Gray)

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Assets

Built Environment

Built Environment

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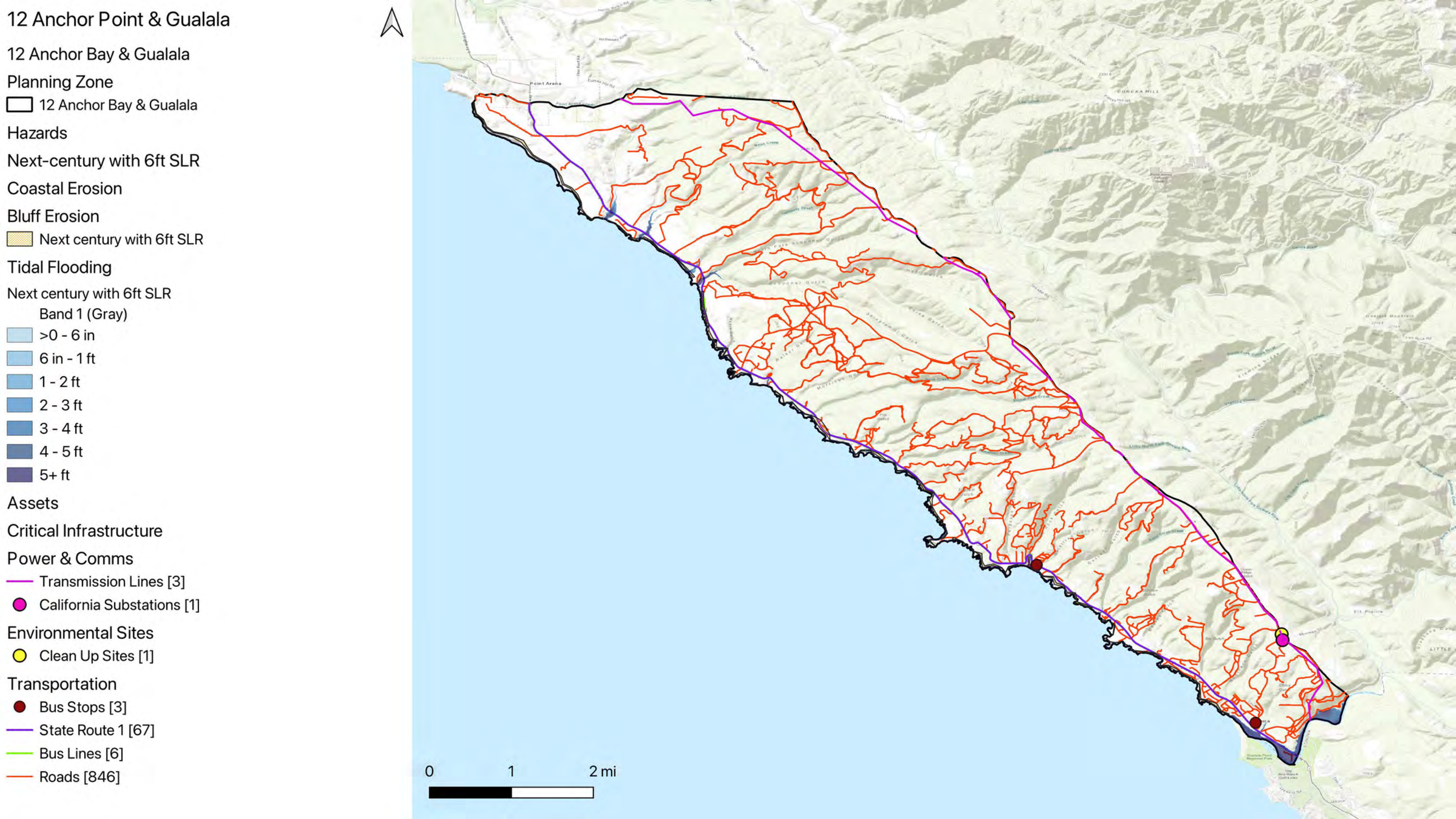
Coastal Armoring

- Coastal Armoring [9]

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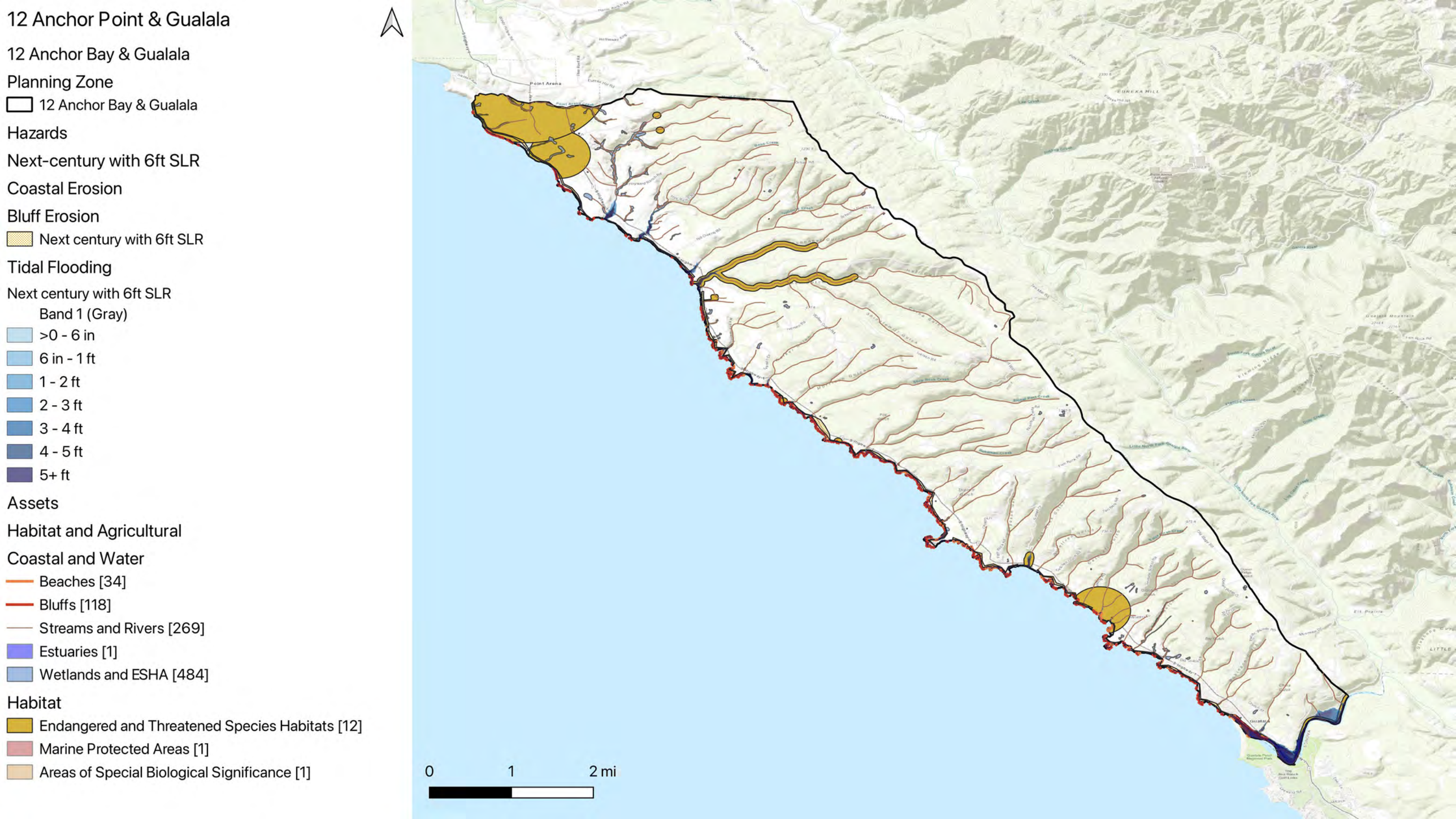
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Appendix D. Existing Conditions Memorandum

775 Baywood Drive
Suite 100
Petaluma, CA 94954
707.795.0900 phone
707.795.0902 fax

esassoc.com

memorandum

date	July 14, 2025
to	Julia Krog, Mendocino County
cc	Nash Gonzalez, Mendocino County
from	Shannon Fiala, Elizabeth Felter, ESA
subject	FINAL Existing Conditions Analysis for County of Mendocino Sea Level Rise Resilience Strategy (ESA Ref. D202300556.00)

1 Introduction

This memo summarizes and presents the existing conditions analysis for the County of Mendocino Sea Level Rise Resilience Strategy, to describe baseline risks and known vulnerabilities. This technical memo documents the work conducted under Task 1 of the project scope. This memo reviews relevant resources to inventory assets, summarizes impacts of hazards on those assets to date, and describes existing conditions and functions of the Mendocino County coastline to establish the baseline risks. The baseline condition will inform the subsequent sea level rise analysis and asset risk assessment. This memo is not an exhaustive technical report but is rather a summary of existing data, information, and studies necessary to identify existing assets and to review prior analysis. New analysis will be conducted in the subsequent vulnerability assessment task.

1.1 Relevant Documents and Resources

- **Mendocino County Community Wildfire Protection Plan**, 2025. Contains information about the fire environment, wildfire hazard assessment and community values, and mitigation strategies, as well as monitoring and evaluation.

- **Mendocino County Drought Resilience Plan**, 2025. Contains information regarding drought and water shortage risk assessment and existing drought response actions, as well as short- and long-term response actions, and implementation considerations.

- **Multi-Jurisdictional Hazard Mitigation Plan (HMP)**, 2021. Contains information about assets and hazard exposure in Mendocino County, Fort Bragg, and Point Arena. The SLR strategy will build on the analysis in the HMP, which identifies flooding as a high-priority hazard.

- **Climate Vulnerability Assessment Report**, Mendocino County Safety Element Update, 2021. Information about sea level rise and climate change-driven shoreline flooding and erosion, including a ranking of asset vulnerability.

- **Mendocino County General Plan Coastal Element**, 2021. This is Mendocino County's certified Local Coastal Program, which contains information about land use policies for coastal development.
- **Caltrans District 1 Adaptation Priorities Report** and **Active Transportation Plan**, 2021. Includes information about roadway segments, bridges, small and large culverts that are vulnerable to coastal hazards and identifies which assets are priorities for adaptation in Caltrans District 1, which includes Del Norte, Humboldt and Mendocino Counties.
- **Municipal Service Reviews:** Conducted by the Mendocino County Local Agency Formation Commission (LAFCo) for coastal special districts.
- **Geographic Information Systems (GIS) Mapping Data**: Includes topography, existing infrastructure, and habitat areas.
- **Historical Information**: Includes photographs documenting changes in the Mendocino County coastline over time.
- **Coastal Hazard and Sea-Level Rise Data**: Includes existing coastal hazard information such as from Federal Emergency Management Agency (FEMA), Pacific Institute, United States Geological Survey's (USGS) Coastal Storm Modeling System (CoSMoS), and other relevant sources (additional coastal data will be gathered and analyzed under Task 3, the Sea Level Rise Analysis and Risk Assessment).

2 Setting

2.1 Project Location

This project includes the entire Mendocino County coast including the open coast portions of the incorporated city of Fort Bragg. Assessment of inland areas in Fort Bragg surrounding Noyo Harbor is presented in the *Sea Level Rise, Tsunami Hazards, and Resilience Strategy for Noyo Harbor* prepared for Fort Bragg. This project follows the 13 planning areas designated in the County of Mendocino Coastal Element described in Table 1 and shown in Figure 1 below.

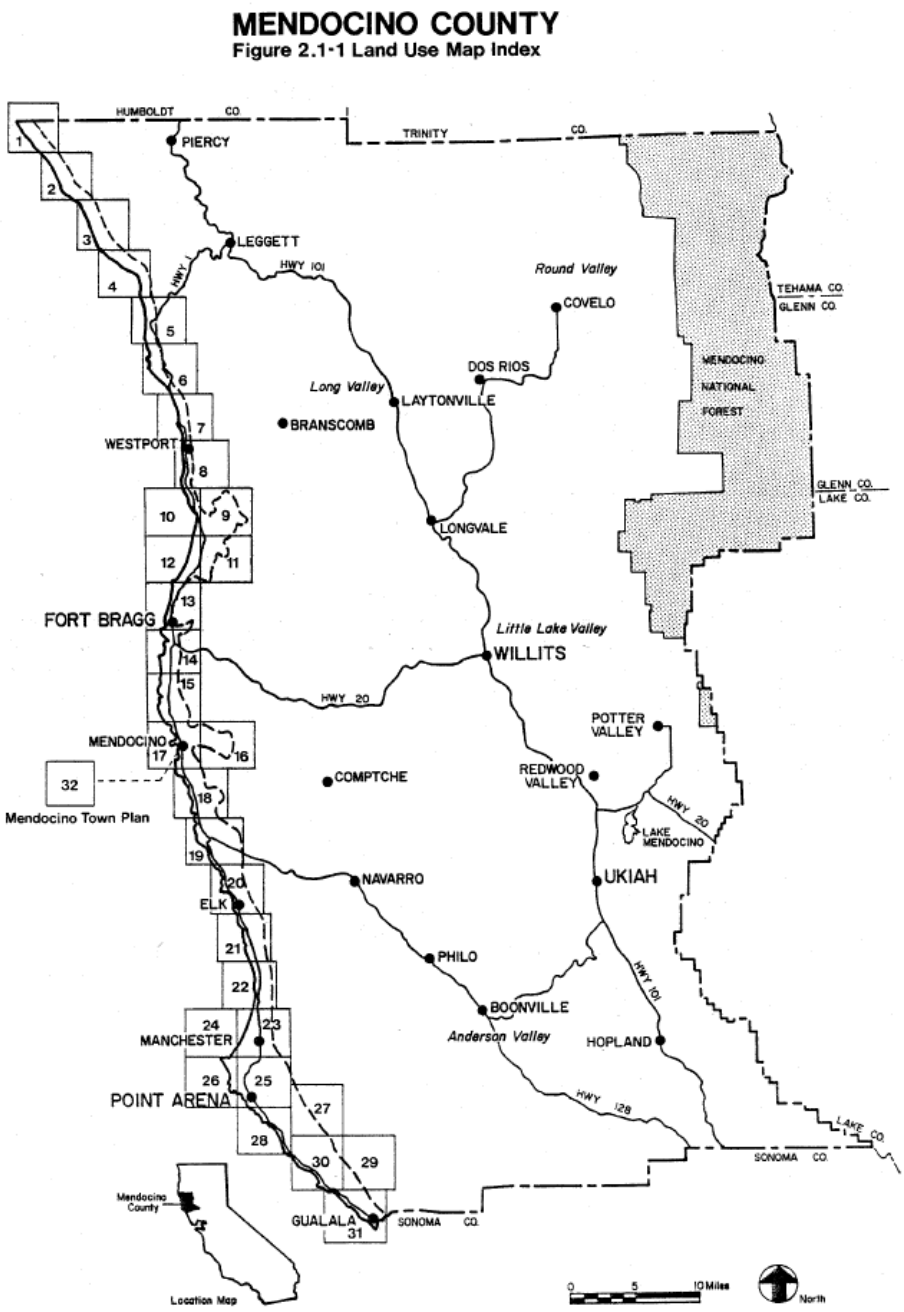
TABLE 1
PROJECT PLANNING ZONES

	Land Use Plan: Description of 13 Areas	Planning Area	Communities Described	Land Use Maps
1	Humbolt County Line to North of Rockport	Lost Coast	none	1, 2, 3, 4, 5
2	Rockport to Little Valley Road	Rockport to Little Valley Road	Westport	6, 7, 8, 9, 10, 11, 12
3	Little Valley Road to Fort Bragg City Limits	North Fort Bragg	Cleone	11, 12, 13
4	Fort Bragg City Limits to Hare Creek	South Fort Bragg Area	Noyo	13, 14
5	Hare Creek to Jug Handle Creek	[blank]	South Fort Bragg	14
6	Jug Handle Creek to Russian Gulch	Jug Handle Creek	Caspar	14, 15
7	Russian Gulch to Van Damme State Park	Big River	Mendocino Town	15, 16, 17
8	Van Damme State Park to Dark Gulch	Little River	Little River	17, 18

	Land Use Plan: Description of 13 Areas	Planning Area	Communities Described	Land Use Maps
9	Dark Gulch to Navarro River	Albion	Albion Village	18, 19
10	Navarro River to Mallo Pass Creek	Greenwood/Elk	Elk	19, 20, 21, 22
11	Mallo Pass Creek to Iverson Road	Iverson Road	Irish Beach, Manchester, Point Arena	22, 23, 24, 25, 26, 27, 28
12	Iverson Road to Sonoma County Line	Anchor Bay - Gualala Iverson Road South	Anchor Bay, Gualala	27, 28, 29, 30, 31
13	Mendocino Town Plan (1" = 200'+)	Big River	Mendocino Town	32
14	Gualala Town Plan	Gualala and vicinity	Gualala	31

SOURCE: Mendocino County General Plan Coastal Element 2021

FIGURE 1
PROJECT PLANNING ZONES



2.2 History and Demographics

For approximately 10,000 years, the Pomo people inhabited the coastal areas of what is today known as Mendocino County. They were hunter-gatherers who established seasonal villages along the coast, and permanent settlements inland. The arrival of European settlers in the 19th century disrupted their subsistence practices and ways of life, leading to forced relocations to the Mendocino Indian Reservation, near the Noyo River, in 1865—which then closed two years later. There are 11 federally recognized tribal nations in the county: Cahto Tribe, Coyote Valley Band of Pomo Indians, Guidiville Indian Rancheria, Hopland Band of Pomo Indians, Manchester Band of Pomo Indians, Pinoleville Pomo Nation, Potter Valley Tribe, Redwood Valley Little River Band of Rancheria of Pomo Indians, Round Valley Reservation, and Sherwood Valley Rancheria. There are dozens of tribal cultural sites scattered throughout the county.

The county has over 40 cultural and historic sites in different subregions. These sites include schoolhouses, cemeteries, cottages and homes, hotels, and train depots scattered throughout the county's landscape.[1] Coastal tribes include the Kashaya Pomo and Manchester Band of Pomo Indians; inland tribes with ancestral ties to coastal areas include the Sherwood Valley Rancheria of Pomo Indians and the Round Valley Indian Tribes (including Pomo and Coast Yuki peoples).[2] [3]

Modern development began in the mid-19th century, with the town of Mendocino founded in 1852 as a logging settlement. The coastline was modified with the creation of docks and chutes. The region's forest became central to California's timber industry, and the coastal towns of Albion, Caspar, Little River, and Fort Bragg also emerged around mills and harbors. Mill towns included hotels, homes, stores, and restaurants, and would move as forest resources were depleted. The town of Mendocino has the most buildings still standing from the mill town era in present day and is a historic preservation district.[4] The timber industry significantly shaped Mendocino County from the mid-19th century until the mid-20th century, when developers took an interest in the area following increased tourism interests.

The 20th century also saw federal and military interest in the Mendocino coast. Roads were constructed, and by the 1930s, the alignment of what would become State Route 1 was carved along coastal bluffs, connecting previously isolated towns. Following World War II, the State expanded State Route 1, allowing greater automobile access and enabling coastal tourism. During the war, the U.S. Navy established radar installations and lookout towers along the bluffs, further altering the coastal landscape. Environmentalists and tribal leaders opposed a number of development proposals, including subdivisions of vacation homes throughout the 1960's and a nuclear power plant proposed for Point Arena in 1970. The town of Mendocino reinvented itself as an artists' enclave and historic district.[5] These conservation and environmentalist efforts led to the establishment of state parks, such as Mendocino Headlands State Park in 1974, the establishment of the Mendocino Land Trust in 1976, and the establishment of the statewide California Coastal Commission in 1976. The decline of the timber

[1] https://www.mendocinocounty.gov/home/showpublisheddocument/54483.
[2] https://libguides.sdsu.edu/AmericanIndianStudies/ ;
[3] https://www.doi.gov/sites/doi.gov/files/uploads/12_bia_regions.pdf
[4] https://savingplaces.org/stories/pacific-time-mendocino-county-california?utm_source=chatgpt.com
[5] https://www.mendocinoartcenter.org/

industry led to economic stagnation in many former logging towns, and tourism now drives much of the county's current economy.

Mendocino County has a population of just over 90,000. One quarter of the county's population is 65 years or older, notably higher than the older adult population composition throughout the state (16%). Hispanic or Latino-identifying populations are lower than those statewide (28% vs. 40%), as are populations who are foreign-born (14% vs. 27%), populations identifying as Asian (2% vs. 15%) and Black or African American (1% vs. 5%). Concentrations of populations who identify as American Indian or Alaskan Native are higher in Mendocino County than throughout the entire state (4% vs. 0.4%). Median household income in Mendocino County is $67,454, which is substantially lower than California's median household income of $96,334. The employment rate in Fort Bragg (52%) is also lower than the state's (60%). The older population in the county may contribute to its relatively lower income and employment rates, as these populations may be retirees. Sixty-two percent of residents in Fort Bragg are homeowners, compared to 56% statewide. Eighteen percent of the population identifies as having a disability, which is also substantially higher than the 12% statewide rate.[6]

As measured by CalEnviroScreen, coastal Mendocino County has a relatively low environmental justice burden, with most census tracts below 30th percentile (**Figure 2**). However, a few notable impacts are present. Two tracts in the City of Fort Bragg area are somewhat burdened, with a total score in the 47th (6045010500) and 49th (6045010400) percentiles; these two tracts, and one more tract in the Fort Bragg vicinity (6045010300), have high incidences of asthma—in the 79th percentile. Four tracts at the north and south end of the coastal county have higher groundwater threats, with percentiles between 84-92. The three southernmost census tracts along the coast (6045011102, 6045011002, 6045011001), as well as the northernmost tract (6045010200), have solid waste environmental burdens in the 89th percentile or above. All tracts along Mendocino's coast are over 70% white, apart from one tract in the City of Fort Bragg (6045010500), which is 54% white and 41% Hispanic or Latino. In the southernmost census tract in coastal Mendocino (6045011102), which contains Point Arena and Gualala, 6% of the population identifies as American Indian or Alaskan Native; and the northernmost tract (6045010200) is comprised of 11% American Indian or Alaskan Native—both tracts are markedly higher than the statewide composition of 0.4%.

FIGURE 2
CALENVIROSCREEN 4.0 FOR MENDOCINO COUNTY[7]
SOURCE: CALENVIROSCREEN 4.0 2025

[6] US Census Bureau (2020-2023)
[7] https://experience.arcgis.com/experience/11d2f52282a54ceebcac7428e6184203/page/CalEnviroScreen-4_0

A model for the Mendocino Coast Recreation and Park District (MCRPD) shows that between 850,000 and 900,000 people visit this region each year. Most head to the North Coast (about 720,000 or 77-80%) while the South Coast sees around 170,000. Summer draws 40% of visitors, spring 25%, fall 20%, and winter 20%, and about half a million find a place to stay in local lodgings.[8]

Low-impact and environmentally responsible tourism has been promoted, but concerns over increased demand, as well as housing shortages, persist. Modeling conducted by Caltrans does not indicate significant population growth in future decades.[9] However, Mendocino County could see an increase in climate change-driven migrants, particularly in its coastal areas, which are considered a climate haven.[10] Providing sufficient housing and infrastructure for future residents has been raised as a concern in public forums.[11]

2.3 Existing Shoreline Types

2.3.1 Beaches / Dunes

Beaches along Mendocino County's coastline are characterized by a mix of sandy stretches and rocky intertidal zones. These beaches are dynamic environments, shaped by the interplay of ocean currents, wave action, sediment supply from rivers, and littoral drift. They serve as critical habitats for various species and are popular recreational areas. They are vulnerable to erosion, especially during storm events and periods of high wave energy. Due to a combination of high wave energy and relatively steep coastal topography, Mendocino's beaches are narrower, and steeper compared to southern California beaches. Erosion is significant: models from the California Coastal Commission project up to 623 feet of dune retreat along these beaches by 2100 under high sea level rise scenarios (80 inches).[12]

The dune fields at MacKerricher State Park are the largest coastal dune system on the Mendocino coast, stretching inland up to one mile from Ten Mile Beach. Unlike the region's dominant rocky cliffs, these dunes were formed by riverine and wind-driven sediment processes. The dune fields support a diverse array of habitats and species, including critical habitat for several rare and threatened species, such as the western snowy plover and Menzies' wallflower. Over the last 20 years, ongoing restoration efforts led by California State Parks and the Mendocino Land Trust have included removal of invasive species, reintroduction of native dune plants, restoration of natural sand movement and topography, and protection of snowy plover nesting zones.[13] Similarly, the dune fields at Stoneboro Beach provide critical habitat for endangered species, and the area includes a unique mix of grasslands, wetlands, and sandy beachfront.

2.3.2 Coastal Bluffs

The county's coastal bluffs are steep landforms composed of sedimentary rocks and soils. These bluffs are subject to natural erosional processes, which will be exacerbated by sea level rise and increased storm intensity. Bluffs erode at an average rate of -1.3 feet per year, with hotspots like Rockport Bay experiencing rates as high as -10.2

[8] https://www.mendolafco.org/files/713e19d0a/mcrpd_msr.pdf

[9] https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/new-state-planning/transportation-economics/socioeconomic-forecasts/2022/mendocino-2022-a11y.pdf

[10] Lustgarten 2023 study, in New America; https://www.newamerica.org/the-thread/climate-change-human-migration/

[11] https://www.advocate-news.com/2024/10/10/local-agencies-collaborate-to-address-sea-level-rise-and-climate-migration/

[12] 2021 Mendocino County Climate Vulnerability Assessment Report

[13] https://www.parks.ca.gov/pages/734/files/GeoGems%20FINAL%20WEB.pdf

feet per year.[14] Some areas have experienced retreat, threatening infrastructure and habitats atop these bluffs, such as loss of the coastal trail in Fort Bragg. Bluff failures are primarily driven by wave undercutting, groundwater seepage, and seismic activity. Sea caves at the base of bluffs can accelerate bluff erosion. Vegetation plays a role in stabilization, but development and human activity can undermine this natural protection. With rising seas, bluff retreat is expected to accelerate, threatening coastal access, infrastructure (such as State Route 1), and historic development such as downtown Mendocino.

2.3.3 Bluff-backed Beaches

Bluff-backed beaches are narrow coastal habitats where sandy or rocky beaches are directly adjacent to coastal bluffs. These areas occur throughout Mendocino County, such as from Westport to Ten Mile River and from the Big River to Manchester State Park, are particularly susceptible to "coastal squeeze," where rising sea levels and fixed landward boundaries (like cliffs or development) prevent the natural landward migration of the beach, leading to habitat loss.[15] With 6.6 ft of sea level rise, bluff-backed beaches in Mendocino County could experience complete or near-complete loss, significantly reducing recreation opportunities and coastal habitat.[16]

2.3.4 Rivers and Estuaries

Mendocino County's rivers and estuaries, including the Navarro River Estuary and the Big River Estuary, are vital ecological zones where freshwater mixes with seawater, creating rich habitats for diverse flora and fauna. These estuaries are dynamic, influenced by seasonal river flows, tidal actions, and sediment deposition. They serve as nurseries for fish species and support migratory birds. However, they are sensitive to changes in freshwater inflow, sediment supply, and sea level rise, which can alter salinity gradients and habitat structures. With sea level rise, saltwater intrusion is expected to significantly alter freshwater systems.[17] At Big River Estuary, for example, tidal marshes are projected to migrate inland, but where development or topography constrains movement, ecosystem loss is anticipated.[18]

2.3.5 Armored Shorelines

Armored areas—sections of the shoreline protected by seawalls, revetments, riprap, and other hard structures—are relatively limited in Mendocino County compared to urbanized counties, but they are present near critical infrastructure, such as sections of State Route 1 near Hardy and Juan Creeks north of Westport, at Westport Landing, near Lake Cleone in MacKerricker State Park, certain harbor facilities at Fort Bragg's Noyo Harbor, at Caspar Headlands State Beach, at the Little River, at Arena Cove, and in Gualala .[19] Armoring can temporarily protect specific assets in the short term, but often worsens beach and bluff erosion by reflecting wave energy onto adjacent areas.[20] In Mendocino, armored stretches are already showing evidence of flanking erosion, and future sea level rise is expected to render many existing protections insufficient.

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[14] 2009 California Coastal Erosion and Shoreline Change Study, California Coastal Commission

[15] Griggs, G. (2017). Coastal Squeeze: The Land Loss Crisis Along the Shores of California.

[16] 2021 Mendocino County Climate Vulnerability Assessment Report

[17] California Climate Change Center (2009). The Impacts of Sea-Level Rise on the California Coast.

[18] 2021 Mendocino County Climate Vulnerability Assessment Report

[19] Coastal Commission Armor Structure Locations: https://coastal-commission-open-data-site-coastalcomm.hub.arcgis.com/datasets/armor-structure-locations-2/explore, updated February 27, 2025

[20] Griggs, G., Patsch, K., & Savoy, L. (2005). Living with the Changing California Coast. University of California Press.

2.4 Historical Storms and Documented Impacts

TABLE 2
HISTORICAL STORMS AND DOCUMENTED IMPACTS

Date	FEMA Disaster Number	Significant Impacts
December 1964	DR-183	Christmas Flood of 1964. Intense rainfall led to widespread flooding across Northern California. In Mendocino County, major rivers such as the Eel and Russian Rivers overflowed, causing extensive damage to infrastructure, including the destruction of bridges and roads. The flooding resulted in significant economic losses and disrupted transportation and communication networks.
1974	DR-432 and DR-412	Two flooding events, severe rainstorms and widespread flooding closed roads and damaged infrastructure.
January 1983	DR-677	The 1982-83 El Niño storms brought high winds, heavy rain, and significant flooding throughout all of California. January 26, 1983 storm destroyed the pier at Point Arena, in the southern part of Mendocino County.
1994	DR-1038	Economic disaster due to El Niño-related disruptions in the local salmon fishery.
January 1997	DR-1155	1997 New Year's Floods. A series of winter storms, fueled by an atmospheric river, brought heavy rainfall and snowmelt, leading to severe flooding in Northern California. The Russian River in Mendocino County reached flood stages, inundating communities, damaging homes and businesses, and causing widespread power outages.
January 2017	DR-4305 and DR-4301	Northern California experienced its wettest winter in nearly a century, resulting in significant flooding. In Mendocino County, the Russian River rose above flood stage, inundating approximately 500 homes. The flooding caused extensive damage to roads, bridges, homes, agriculture, and led to evacuations in affected areas.
February 2019	DR-4434 and DR-4431	Series of intense atmospheric river events brought prolonged heavy rainfall and strong winds. The storms caused widespread flooding, road closures, slope failures, and damage to water infrastructure and emergency access routes. Numerous communities were isolated due to debris flows and landslides, prompting evacuation orders and emergency shelter operations. The disaster underscored vulnerabilities in rural transportation networks and stormwater systems.
November 2024	N/A	An atmospheric river brought heavy rainfall to Mendocino County, causing flooding and widespread power outages. Rivers such as the Garcia, Navarro, and Russian Rivers rose significantly, leading to road closures, including State Route 1 at Point Arena. The storm toppled trees and downed power lines, impacting thousands of residents.

SOURCE: FEMA 2025

2.5 Coastal Hydrology

2.5.1 Tides and Water Levels

Mendocino County experiences mixed semidiurnal tides, or two daily high tides and two daily low tides of differing elevations. These daily tides also vary with the spring-neap tidal cycles, which occur approximately twice a month.

Coastal engineers use vertical datums, or defined reference surfaces, to estimate the relative elevation of the tides and water levels to the land around it. Measuring the water levels over prolonged periods provides a baseline for understanding typical water levels and how they may change over time. For this study, ESA used the NOAA tide gauge, Arena Cove (Station #9416841) in Mendocino County. Tidal datums for the gauge are shown in **Table 3**.

TABLE 3
TIDAL DATUMS AT ARENA COVE (#9416841), APPLICABLE TO MENDOCINO COUNTY

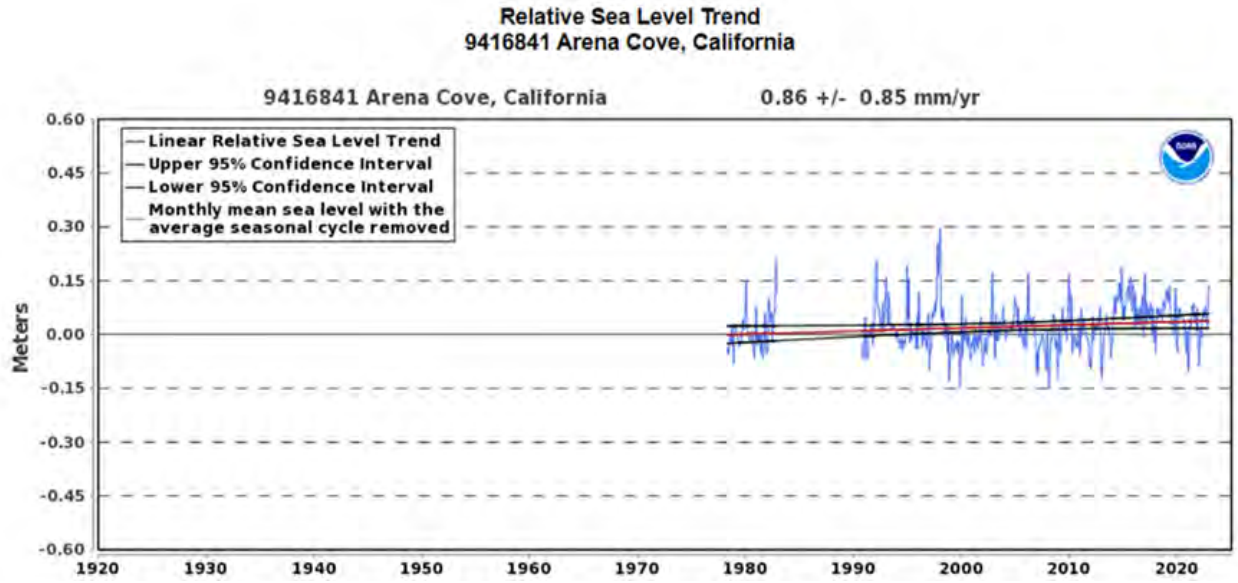
Tidal datum[a]	Abbreviation	ft NAVD[b]
Maximum Observed Tide (observed on February 6, 1998)	MOT	8.53
Highest Astronomical Tide	HAT	7.48
Mean Higher High Water	MHHW	5.73
Mean High Water	MHW	5.06
Mean Tide Level	MTL	3.04
Mean Sea Level	MSL	3.00
Mean Low Water	MLW	1.01
Mean Lower Low Water	MLLW	-0.14

NOTES: [a] The tidal datums listed above are from the most recent tidal epoch: 1983-2001.
[b] NAVD = North American Vertical Datum of 1988

SOURCE: NOAA Tides and Currents 2020

The record for the Arena Cove tide gauge dates back to 1978. The relative sea level trend recorded over this period (**Figure 3**) is 0.86 mm/year, which is equivalent to 0.28 ft over 100 years.

FIGURE 3
RELATIVE SEA LEVEL TREND AT ARENA COVE TIDE GAUGE



SOURCE: NOAA 2024.[21]

The City of Point Arena's *Sea Level Rise Analysis and Vulnerability Assessment for Arena Cove* (ESA 2023) analyzed measured water levels and waves to assess the magnitude and frequency of coastal flooding. Some of the findings, such as how water levels fluctuate due to waves (i.e., dynamic wave setup associated with

[21] https://tidesandcurrents.noaa.gov/sltrends/sltrends_station.shtml?id=9416841

infragravity waves), provide information broadly applicable to the project area. Comparison of the measurements at Arena Cove to local water level measurements and observations across the County will be part of the technical analysis in this project.

2.5.2 Wave Climate

The study area is exposed to large swell and large storm seas. Most of the wave exposure comes from waves generated in the north Pacific with predominant swell directions from the west and northwest (ESA 2023). Episodic storms also generate strong winds and seas. Storm-generated waves can vary in direction depending on the season, with spring and summer winds (March through July) typically generating wind swells from the northwest, and winter storms typically generating swell from the southwest. Long-period south swells also reach the study area in summer months from large storms in the Southern hemisphere off the coast of New Zealand, but these typically are not associated with extreme coastal conditions. Based on input from local community members, the most damaging storms are winter storms from the west-southwesterly direction. The Arena Cove Vulnerability Assessment provides additional analysis of water levels and waves based on NOAA water level observations.

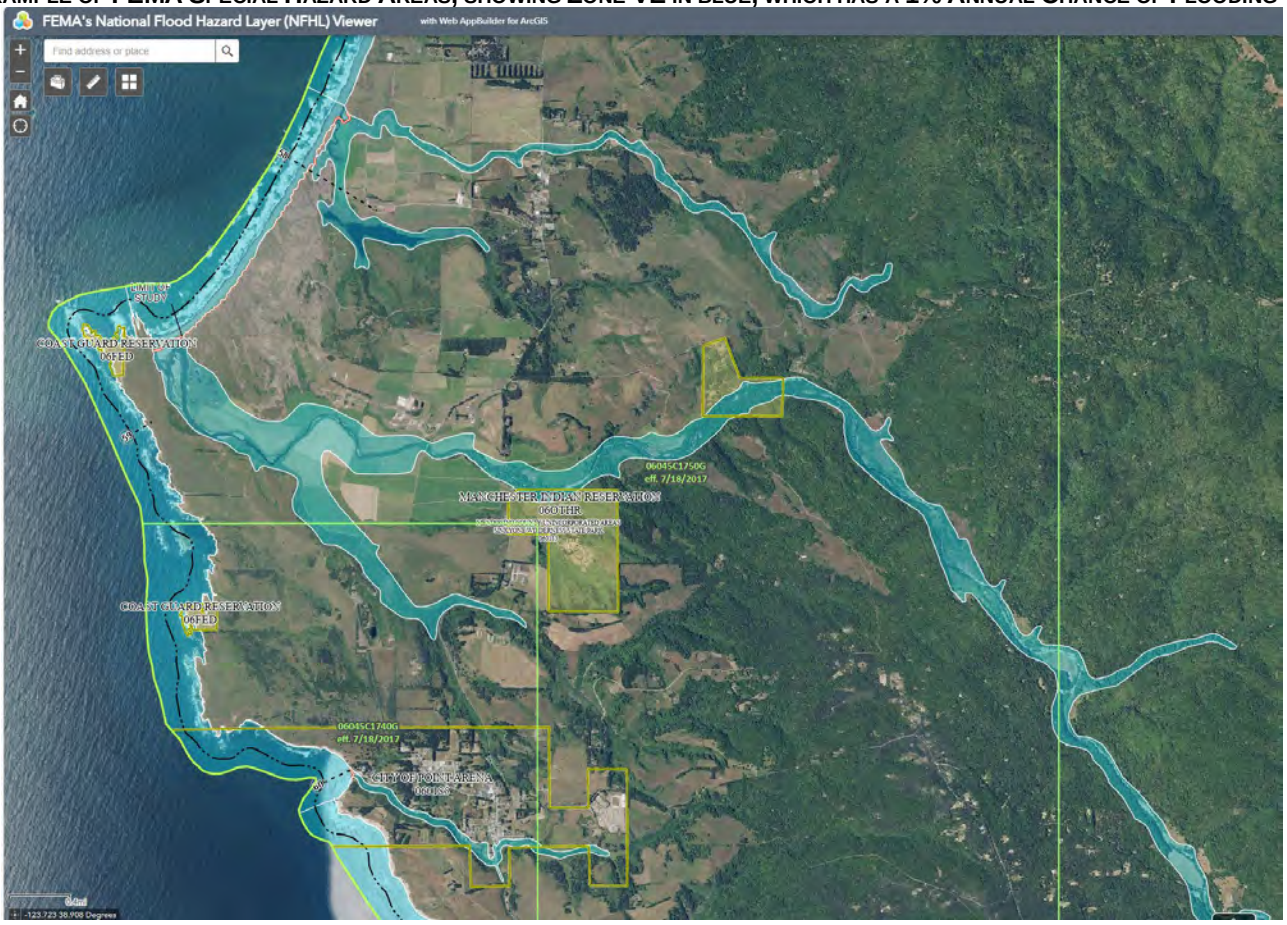
2.5.3 Coastal Flooding and Wave Runup Hazards

2.5.3.1 FEMA Flood Zones

FEMA develops Flood Insurance Studies (FISs) and Flood Insurance Rate Maps (FIRMs) for the purpose of informing the public of flood risks. FEMA maps typically show the water levels (Base Flood Elevations) and extents of the 1% (100-year) and 0.2% (500-year) annual chance flood events. These events can happen as a result of flooding from coastal flood sources (ocean water levels and waves), precipitation flood sources (high freshwater runoff), or a combination of both. It is important to note that FEMA considers only existing conditions and does not account for long-term coastal erosion or sea level rise in its mapping.

The FEMA special flood hazard areas for a small portion of the project area are shown in **Figure 4**. Along the Mendocino County coast, areas denoted Zone VE indicate that waves are a main contributor to the base flood elevations (BFEs). Coastal areas denoted Zone AE indicate that while waves may be present, they are significantly lower in elevation. Fluvial flooding dominates the upstream reaches of most coastal rivers.

FIGURE 4
EXAMPLE OF FEMA SPECIAL HAZARD AREAS, SHOWING ZONE VE IN BLUE, WHICH HAS A 1% ANNUAL CHANCE OF FLOODING [22]



SOURCE: FEMA 2025

2.5.3.2 USGS Coastal Storm Modelling System (CoSMoS)

The USGS's Coastal Storm Modeling System (CoSMoS) (Barnard 2019) provides storm-induced coastal flood and erosion hazard mapping for current conditions, sea level rise scenarios, and a range of storm scenarios (i.e., return periods) for much of the California coast. Currently, however, the flood and beach erosion mapping extends only as far north as Point Arena, so is not available for the majority of Mendocino County. Mapping of bluff erosion is available (see Erosion Hazards below). The USGS anticipates releasing CoSMoS updates for the Mendocino Coast in approximately the fall of 2025.

2.5.4 Erosion Hazards

Erosion is a widespread issue within Mendocino County. Future sea level rise will shift the water's edge landward and upward, resulting in larger waves that break closer to shore and higher wave run up. In general, these processes are expected to increase beach and bluff erosion and result in narrower beaches depending on sand supply. Beaches are likely to shift landward and upward as waves erode the ocean-ward shore and deposit

[22] https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd

sediments in the surf zone. The extent to which beaches persist will depend on sediment supply and backshore conditions. Increased sediment loads from the rivers (i.e., if rainfall frequency or intensity increases) or localized erosion of bluffs will increase sediment supply. Depending on the rates of sea level rise and erosion of the backshore, sediment delivery may or may not be enough to keep pace with rising seas. Areas with erosion-resistant barriers (like seawalls and the bluffs) will not erode fast enough to provide space for landward migration of fronting beaches.

The county's Climate Vulnerability Assessment Report indicates an average of over 600 feet of dune retreat, and an average of over 100 feet of cliff retreat by end of century, citing a study by the California Climate Change Center (2009).[23] A study by the Pacific Institute (2009) maps bluff erosion hazards for Mendocino County (**Figure 5**) for 4.6 feet of sea level rise by 2100. This map view is based on ESA's (formerly Philip Williams & Associates') modeling and mapping of flood and coastal erosion response to SLR along the coast of California. As noted above (Section 2.5.3), USGS CoSMoS provides bluff and cliff erosion data, including cliff retreat for various sea level rise scenarios (Barnard et al. 2023). The 5.7 ft sea level rise scenario is shown in **Figure 6**.

[23] California Climate Change Center. 2009. *The Impacts of Sea-Level Rise on The California Coast*. CEC-500-2009-024-F

FIGURE 5
PROJECTED COASTAL BLUFF EROSION WITH 4.6 FEET (1.4 M) OF SEA LEVEL RISE BY 2100



SOURCE: PWA 2009

FIGURE 6
USGS CoSMoS CLIFF EROSION MAP



SOURCE: Barnard et al. 2023

Information on cliff and beach erosion with sea level rise will be assessed in later tasks as a part of this project using data from the 2021 USGS study *Modeled Extreme Total Water Levels Along the U.S. West Coast* (Shope et al. 2021).

2.6 Sea Level Rise

The State of California Sea Level Rise Guidance document (OPC 2024) provides a synthesis of the best available science on sea level rise in California. The State Guidance gives a range of sea level rise projections by region for low- to high-emissions scenarios (the low being if emissions are greatly reduced in coming years and the high being if emissions continue as they have since the early 21st century). Sea level rise scenarios for Arena Cove are shown in **Table 4**. Scenarios for California are plotted in **Figure 7.**

To support resilience planning, hazards will be assessed using 1, 3, and 6 feet of sea level rise. These water levels provide for analysis of several OPC 2024 scenarios. One foot of sea level rise generally corresponds with near-term projections (2050) for the intermediate-high and high scenarios. Three feet of sea level rise generally corresponds with projections for the years 2070 (high scenario), 2080 (intermediate-high scenario), and 2100 (intermediate scenario). Six feet of sea level rise generally corresponds with projections for the years 2100 (high scenario), 2120 (intermediate-high scenario), and 2150 (intermediate scenario). **Figures 8, 9, and 10** provide a preview of the coastal hazards analysis that will be conducted in later tasks for the County of Mendocino Sea Level Rise Resilience Strategy Project.

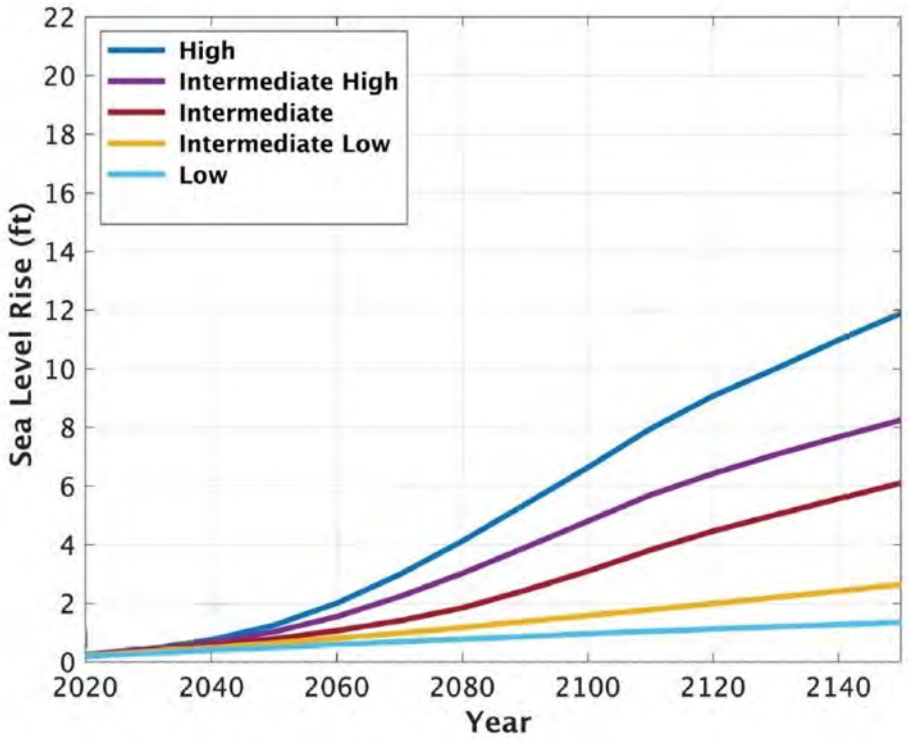
TABLE 4
SEA LEVEL SCENARIOS FOR ARENA COVE (FEET)

YEAR	LOW	INTERMEDIATE-LOW	INTERMEDIATE	INTERMEDIATE-HIGH	HIGH
2020	0.1	0.2	0.2	0.2	0.2
2030	0.2	0.3	0.3	0.4	0.4
2040	0.3	0.4	0.5	0.6	0.7
2050	0.4	0.5	0.7	0.9	1.1
2060	0.5	0.7	0.9	1.4	1.8
2070	0.5	0.8	1.2	2.1	2.8
2080	0.6	1.0	1.7	2.8	3.9
2090	0.7	1.2	2.2	3.6	5.1
2100	**0.8**	**1.4**	**2.9**	**4.5**	**6.4**
2110	0.8	1.6	3.6	5.4	7.6
2120	0.9	1.7	4.1	6.1	8.7
2130	0.9	1.9	4.6	6.7	9.6
2140	1.0	2.1	5.1	7.3	10.5
2150	1.0	2.3	5.6	7.8	11.4

Note: Median values of sea level scenarios with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion.

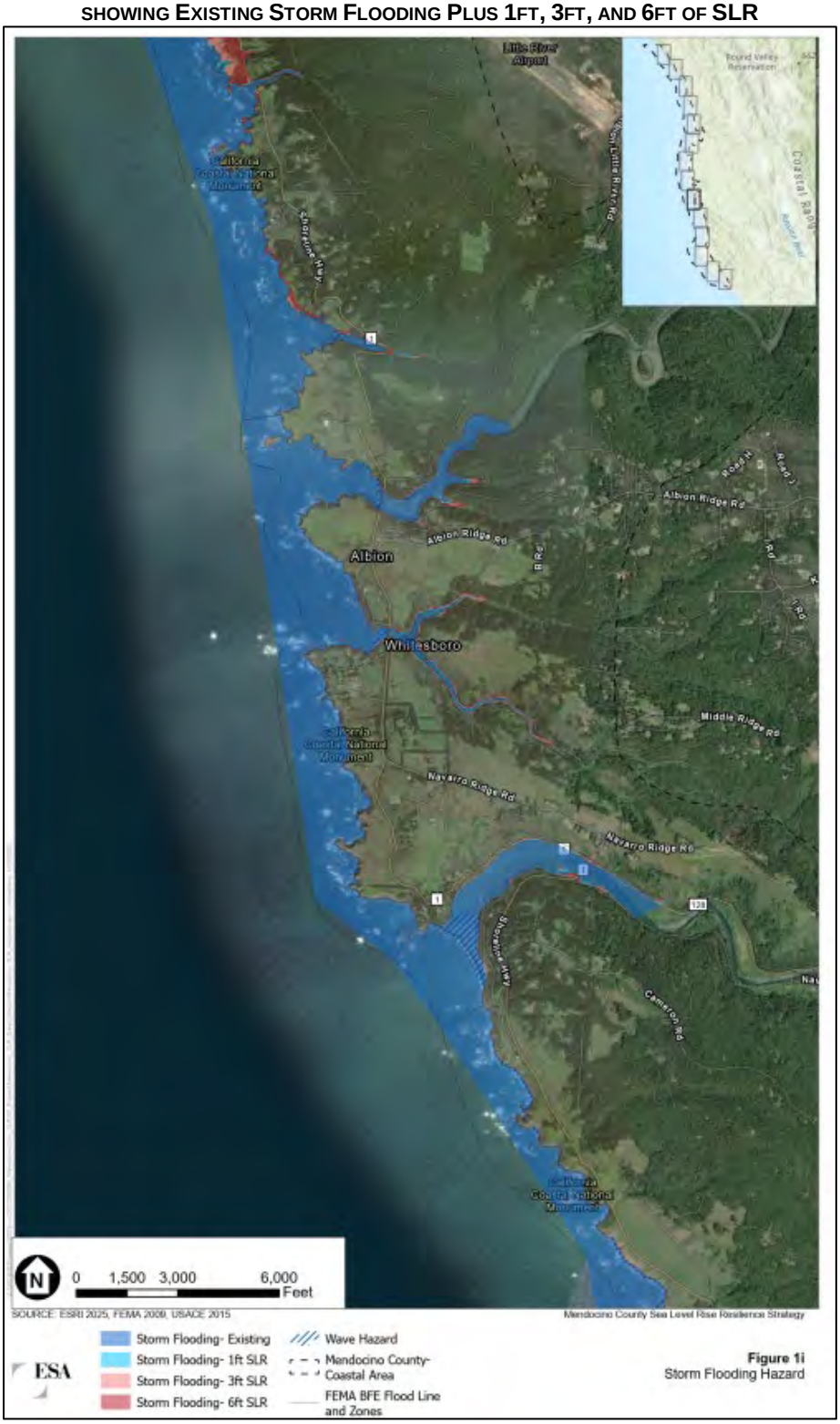
SOURCE: OPC 2024

FIGURE 7
SEA LEVEL RISE PROJECTIONS FOR ARENA COVE, 2020 TO 2150



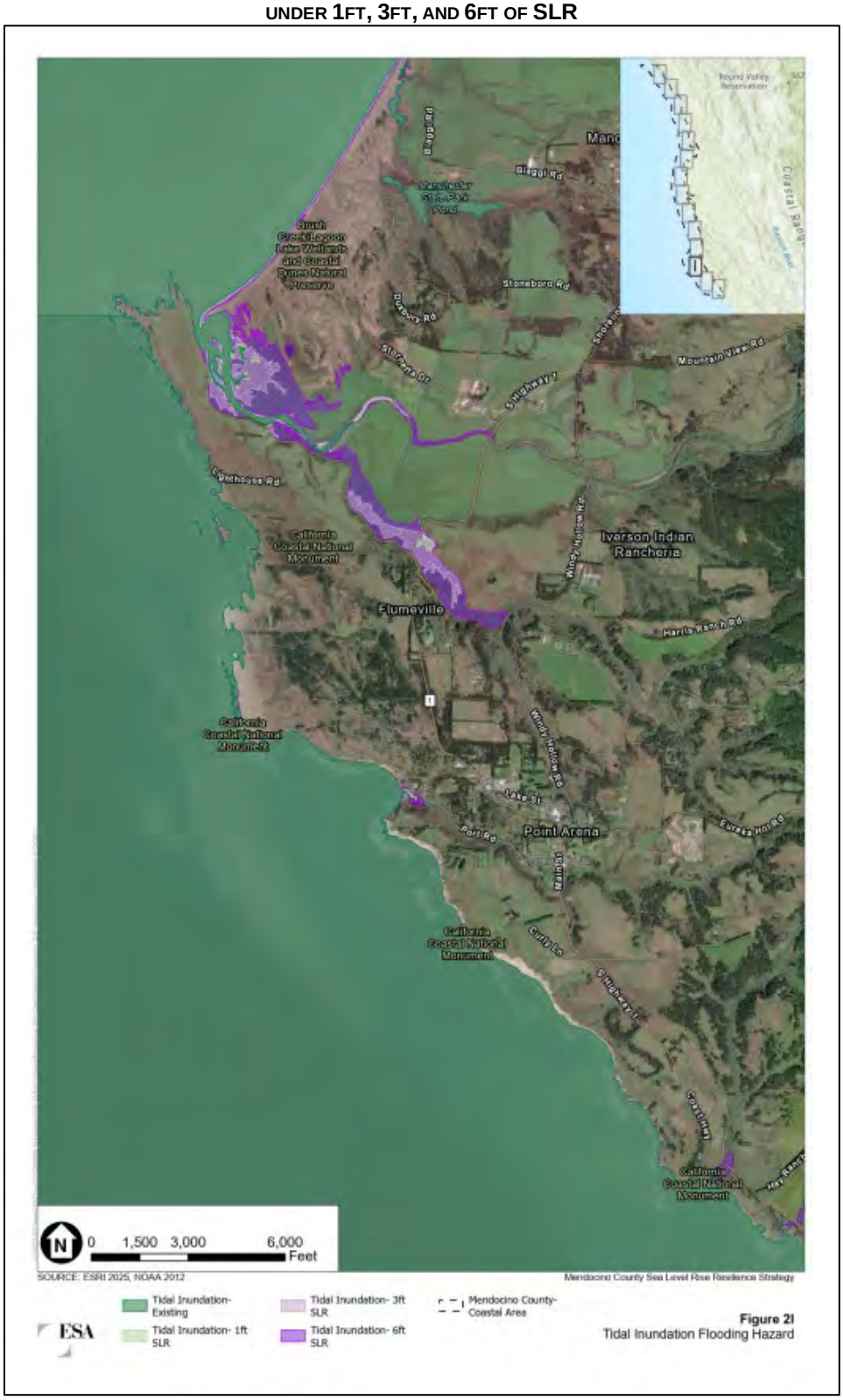
SOURCE: CA OPC 2024

FIGURE 8
EXAMPLE OF STORM FLOODING HAZARDS FOR MENDOCINO COAST, SHOWING EXISTING STORM FLOODING PLUS 1FT, 3FT, AND 6FT OF SLR



SOURCE: ESA 2025

FIGURE 9
EXAMPLE OF POTENTIAL FOR TIDAL INUNDATION FOR MENDOCINO COAST, UNDER 1FT, 3FT, AND 6FT OF SLR



SOURCE: ESA 2025

FIGURE 10
EXAMPLE OF POTENTIAL FOR CLIFF EROSION AT 1FT, 3FT, AND 6FT OF SLR, AS WELL AS CLIFF AND DUNE EROSION AT 1 FT, 3FT, AND 6FT OF SLR IN MENDOCINO COUNTY



SOURCE: ESA 2025

3 Inventory of Assets

3.1 Preliminary List of Assets

Existing coastal assets were collected from documents and data provided by Mendocino County GIS and other sources. The preliminary list of assets in this document will inform the final asset list that will be used in the vulnerability assessment, and to inform a qualitative ranking of each asset's importance. Assets were preliminarily categorized as critical infrastructure, public access and recreation, habitat resources, historical and cultural resources, and built environment assets.

TABLE 5
PRELIMINARY LIST OF ASSETS

Asset	Description
Critical Infrastructure, including water supply, wastewater, energy and transportation assets	
Manchester Trans-Pacific Cable Landing	Internet cable
Mendocino Wastewater Treatment Facility	Serving the town of Mendocino
Fort Bragg Wastewater Treatment Facility	Serving the town of Fort Bragg
Gualala Community Services District (GCSD) Wastewater Treatment Facility	Receives wastewater from the town of Gualala and from the Sea Ranch North pumping facility—which is owned and operated by Sonoma Water
Mendocino County Waterworks District 2	Serving the unincorporated community of Anchor Bay
Power plants and other energy transmission infrastructure	Transmission lines along the Mendocino coast, including 115 kV and 60 kV circuits; Substations in Gualala, Point Arena, Elk, Big River, Fort Bragg
Communications infrastructure	Including cell phone towers, weather stations, radio towers
State Route 1 and State Route 128	Caltrans facilities, including numerous roadway segments, culverts and bridges that are known to be vulnerable
Local Roads	Managed by Mendocino County Public Works Department; including Pt. Cabrillo Drive, near the town of Caspar, locations on Old Coast Highway, Light House Road, Alder Creek Beach Road, Navarro Bluff Road, Spring Grove Road, Brewery Gulch Road, Ocean Drive, North Harbor Drive, South Harbor Drive, Ward Avenue, Omega Drive, Usal Road, and Briceland Road.
Public Access and Recreation assets	
Federal lands	Including King Range National Conservation Area and the California Coastal National Monument
Tribal lands	Including Blues Beach
State Parks	Including trails, campgrounds and other recreational facilities, such as Sinkyone Wilderness, Westport, Russian Gulch, Jughandle, Mendocino Headlands, Manchester, MacKerricher, Greenwood Creek, Schooner Gulch, Navarro Beach, Van Damme, Caspar Headlands and Inglenook Fen-Ten Mile Beach
City Parks	Including trails and parking facilities, such as Glass Beach, Noyo Headlands and Pomo Bluffs
Private Campgrounds	Including Anchor Bay Campground, Westport Beach RV Park and Campground, and Albion River Campground
Land Trust lands	Including Hare Creek Beach, Navarro Point, Old Smith Ranch, Pelican Bluffs and Seaside Beach
California Coastal Trail	Managed primarily by State Parks and other partners
California Western Railroad / Mendocino Railway	Managed by Sierra Railroad Company

Asset	Description
Habitat and agricultural assets	
Wetlands and environmentally sensitive habitat area (ESHA)	As defined by the California Coastal Act
Beaches	Located primarily on public lands
Bluffs	Located throughout the county
Rivers and estuaries	Located throughout the county
Sensitive species populations and their habitats	Including marbled murrelet, tidewater goby, western snowy plover and California red-legged frog
Marine Protected Areas (MPAs)	Including Double Cone Rock State Marine Conservation Area, Ten Mile State Marine Reserve, Ten Mile State Marine Conservation Area, MacKerricker State Marine Conservation Area, Point Cabrillo State Marine Reserve, Russian Gulch State Marine Conservation Area, Big River State Marine Conservation Area, Van Damme State Marine Conservation Area, Navarro River Estuary State Marine Conservation Area, Point Arena State Marine Reserve, Sea Lion Cove State Marine Conservation Area, and Saunders Reef State Marine Conservation Area,
Areas of Special Biological Significance (ASBS)	Including the King Range ASBS and Jughandle Cove ASBS
Critical Coastal Areas	Including MPAs and ASBS
Agricultural lands	Specifically those located seaward of State Route 1, including wineries
Historical and cultural resources	
Navarro-by-the-Sea Center	Historic property managed by a non-profit
Point Cabrillo Lighthouse	Managed by State Parks
Point Arena Lighthouse	Managed by State Parks
Westport Cemetery	
Albion River Bridge	Managed by Caltrans
Built Environment, including residential and commercial	
Existing Commercial / Residential Development	Including commercial areas, residential areas, vacation home rentals and hotels seaward of State Route 1 in Westport, Arena Cove, Gualala and other locations, such as Ocean Lake Adult Mobile Homes
Public Services facilities, such as police stations, fire stations, hospitals, elder care facilities, daycare facilities, schools, churches and government buildings	Specifically those located seaward of State Route 1
Coastal-dependent development	Including wharfs, ports, marinas, and commercial and recreational fishing areas and facilities
Contaminated lands	Including Department of Toxic Substances Control Cleanup Site 5812
Coastal armoring	As documented in the Coastal Commission's coastal armoring database