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in association with
Redwood Community Action Agency



Eureka-to-Scotia Trail Corridor Assessment

PREPARED FOR HUMBOLDT COUNTY AND
HUMBOLDT COUNTY ASSOCIATION OF GOVERNMENTS

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On the cover: Proposed riverfront trail access along the Eel River in Rio Dell.

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1 Introduction

This report provides a preliminary evaluation of potential trail connections from the Eureka Waterfront Trail southward along the east side of Humboldt Bay into the Eel River Valley. The study was funded by the Humboldt County Association of Governments (HCAOG) to identify conceptual alignments for a network of rail-with-trail projects, alternative separated trails, and on-street bikeway facilities to serve the communities from Eureka to Scotia. The report offers a high-level overview of the corridor, defines logical study areas and segments, describes general existing conditions for each of the segments defined, and identifies the primary opportunities and challenges associated with the construction of individual segments along the corridor.

This study was commissioned to support ongoing efforts to develop a regional trail system connecting the cities of Trinidad, Arcata, Eureka, Fortuna, and Rio Dell and unincorporated communities south to Scotia and northeast to the City of Blue Lake. HCAOG envisions a regional trail system as part of a comprehensive, coordinated, and balanced multi-modal transportation system (HCAOG, 2014). Trails also enable highly valued recreational opportunities and provide many social, economic, and quality-of-life benefits. This report focuses on mainline trail segments that would provide a regional transportation function as part of their primary purpose. Future planning efforts can look for opportunities to create spur trails leading to recreational destinations. Future planning efforts can also look for opportunities to incorporate trail designs that accommodate equestrian use where desirable.

Project implementation is expected to occur in multiple phases over several years. This study will support HCAOG and its member agencies, federal and state agencies, and other entities in identifying discrete trail projects, performing additional feasibility analysis, and developing funding and project delivery strategies.

Hard surface trails that are separated from a roadway provide the highest level of safety, comfort, and recreational experience for bicyclists and pedestrians. Identifying opportunities for separated trails adjacent to the railroad or on other upland property was one of the top priorities of this study. Where separated trails are unlikely to be feasible due to existing infrastructure, development, or natural features, the second best option is to make improvements to existing roadways (e.g., widened shoulders or bike lanes) to accommodate non-motorized users. In some cases, on-street routes could be used on an interim basis until a separated trail facility can be developed.

2 Corridor Overview

The Eureka-to-Scotia planning area concept envisions an approximately 30- to 32-mile long contiguous network of separated trails and on-street facilities generally following the Northwestern Pacific (NWP)/North Coast Railroad Authority (NCRA) railroad corridor from Eureka to Scotia. The planning area concept presented here was developed based on previous planning efforts for the Humboldt Bay Trail (2001, 2007) and the Humboldt County Coastal Trail Implementation Strategy (2011). Humboldt County and City of Fortuna staff assisted with stakeholder engagement, targeted site visits, and preparation of this report. Stakeholders engaged during this study include City of Eureka, Pacific Gas & Electric Company (PG&E), City of Rio Dell, Town of Scotia, and the U.S. Fish & Wildlife Service. Public input was solicited during the open house portion of the June 4, 2016 Trail Summit event held in Eureka.

From Eureka south, the corridor passes through the communities of King Salmon, Fields Landing, Loleta, Fortuna, Rio Dell, and Scotia. Near King Salmon, connections could be made with the Humboldt Hill area. The corridor would provide access to several regional destinations such as the Humboldt Bay National Wildlife Refuge, College of the Redwoods, the Riverwalk Levee Trail along the Eel River in Fortuna, and other river access points.

The proposed route generally follows the NWP railroad and Highway 101 alignments, taking advantage of available space (where possible) within the right-of-way of existing transportation infrastructure. The proposed route includes segments where the trail corridor could follow surface street routes due to limited space and/or access within the NCRA right-of-way /Caltrans right-of-way, challenging terrain, potential environmental impacts, and opportunities for connections to residential areas. In some cases, both on-and off-street route options are proposed based on the above opportunities and challenges identified along each segment, with separated trails or Class I bike paths as the highest priority.

The proposed route consists of nine planning areas and 28 potential discrete segments. The segments can be developed over time, based on lead agency priorities, funding availability, partnerships, and opportunities to integrate with other projects. To allow for projects to be prioritized and phased for implementation, segments and specific project locations can be further evaluated to achieve immediate, independent utility along with longer-term, system-wide benefits. The full corridor and planning areas are illustrated in **Figure 1**. The planning areas and segment extents are listed below in **Table 1**.

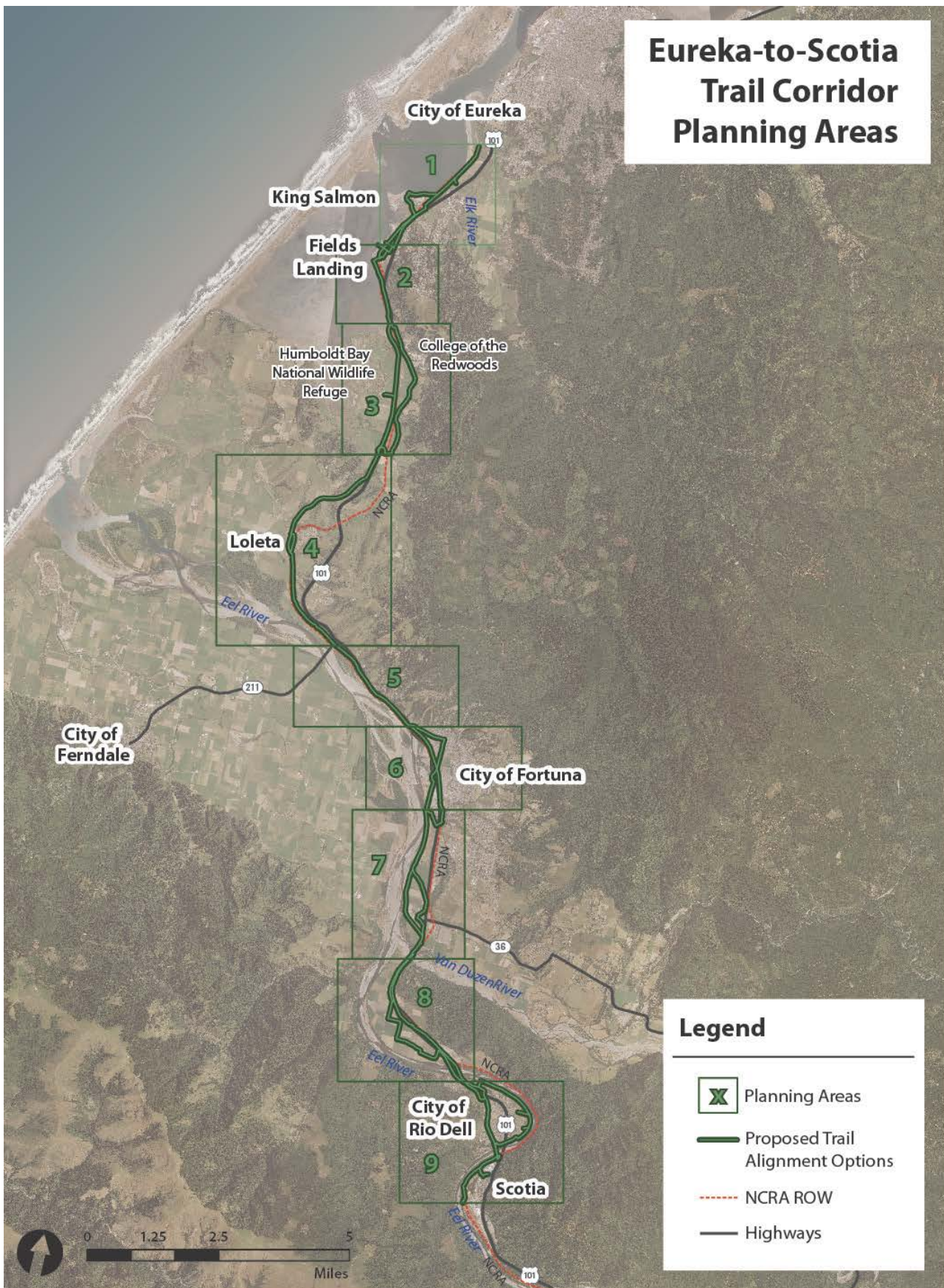


Figure 1. Trail Corridor Planning Areas

Table 1. Trail Planning Areas and Segment Extents

Planning Area	Segment #	Segment Name	Start	End
1. Eureka - King Salmon	1.1	Eureka - Hikshari South	Hikshari Trail	PG&E Property
1. Eureka - King Salmon	1.2.A	PG&E to King Salmon Ave (around Buhne Point)	PG&E Property	King Salmon Ave
1. Eureka - King Salmon	1.2.B	PG&E to King Salmon Ave (via NCRA ROW)	PG&E Property	King Salmon Ave
1. Eureka - King Salmon	1.2.C	PG&E to King Salmon Ave (via NCRA ROW and Hwy 101 ROW)	PG&E Property	King Salmon Ave
2. King Salmon - Fields Landing - HBNWR	2.1.A	King Salmon to Fields Landing (via Hwy 101 ROW)	King Salmon Ave	C St
2. King Salmon - Fields Landing - HBNWR	2.1.B	King Salmon to Fields Landing (via NCRA ROW)	King Salmon Ave	C St
2. King Salmon - Fields Landing - HBNWR	2.2.A	Fields Landing	C St	Depot Rd
2. King Salmon - Fields Landing - HBNWR	2.2.B	Fields Landing	C St	Depot Rd
2. King Salmon - Fields Landing - HBNWR	2.3	HBNWR (also Harbor District property at FL)	Depot Rd	Tompkins Hill Rd
3. College of the Redwoods/HBNWR	3.1.A	Tompkins Hill Rd	Hwy 101	Hookton Rd
3. College of the Redwoods/HBNWR	3.1.B	HBNWR	Tompkins Hill Rd	Hookton Rd
4. Loleta	4.1	Eel River Dr	Hookton Rd	Hwy 211
5. Fernbridge	5.1	Fernbridge Dr	Hwy 211	3rd St (Fortuna)
6. Fortuna (North)	6.1.A	Fortuna	3rd St	Newburg Rd
6. Fortuna (North)	6.1.B	Fortuna	3rd St	12th St
6. Fortuna (North)	6.2.A	Fortuna	12th St	Riverwalk Trail
6. Fortuna (North)	6.2.B	Fortuna	12th St	Riverwalk Trail
7. Fortuna (South)	7.1	Riverwalk Trail	Riverwalk Dr	Drake Hill Rd
7. Fortuna (South)	7.2.A	Sandy Prairie Rd	Drake Hill Rd	Hwy 101 Van Duzen River overcrossing
7. Fortuna (South)	7.2B	Sandy Prairie Levee	Drake Hill Rd	Hwy 101 Van Duzen River overcrossing
8. Van Duzen - Eel River	8.1.A	Van Duzen River - Eel River	Van Duzen River	Eel River

Planning Area	Segment #	Segment Name	Start	End
8. Van Duzen - Eel River	8.1.B	Van Duzen River - Eel River	Van Duzen River	Eel River
8. Van Duzen - Eel River	8.2.A	Eel River Crossing (North)	Northwestern Avenue	Eeloa Ave
8. Van Duzen - Eel River	8.2.B	Eel River Crossing (North)	Metropolitan Rd	Belleview Ave
9. Rio Dell - Scotia	9.1.A	Rio Dell - Hwy 101 Northbound landing	Eeloa Ave	Edwards Dr
9. Rio Dell - Scotia	9.1.B	Rio Dell - Hwy 101 Southbound landing	River St	Edwards Dr
9. Rio Dell - Scotia	9.2	River Front Trail	Eeloa Ave	Wildwood Ave
9. Rio Dell - Scotia	9.3	Scotia Rail with Trail	Edwards Dr (Rio Dell)	Scotia Fireman's Park

ROW = Right-of-Way

3 Existing Conditions

The planning area's physical geography presents significant challenges for a direct, continuous route easily navigated by foot and bicycle. The corridor crosses intertidal salt marshes and mud flats, freshwater wetlands, wave-battered shorelines, steep hillsides, and several large rivers and smaller channels. These landscape features will necessitate substantial financial investment, creative design solutions, a phased development approach, and close collaboration among the many public and private stakeholders in the region to achieve a continuous trail corridor. Where possible, the alignment segments selected reflect those options with the least environmental impact, and every effort was made to choose alignments in areas that minimize environmental impacts. Nevertheless, environmental impacts will be unavoidable in several areas, and projects will need to include mitigation for impacts to regulated wetlands and sensitive habitat areas.

South of Humboldt Bay, the corridor heads inland, generally following the Eel River, weaving between and along the NCRA and Highway 101 rights-of-way. Fortunately, this results in relatively flat grades away from wetlands and the bay shoreline. However, this also presents major challenges involving highway and rail crossings, and on-street routing on many high-speed, high-volume roadways. This will require significant bicycle and pedestrian crossing improvements and dedicated facilities to allow for safe, comfortable travel.

The NWP railway is owned and managed by the NCRA in coordination with its contract operator Northwestern Pacific Railroad Company (NWP Co). The railway north of the Eel River Canyon (in northern Mendocino County and southern Humboldt County) has been designated "out-of-service," meaning all freight service along the line has been discontinued. Over time, significant portions of the railway in the project area from Eureka to Scotia have fallen into a state of disrepair due to age, lack of maintenance, subsequent erosion of the railroad prism, and poor bridge conditions. In particular, the portion of Planning Area 1 between Eureka and King Salmon, situated directly across from the mouth of Humboldt Bay, is severely deteriorated due to wave action and erosion.

NCRA's policy is to preserve the railroad right-of-way for future freight service as its highest priority, ruling out the near-term possibility of rail-to-trail conversion. Therefore, at locations where locating a trail segment within

the NCRA right-of-way is the most feasible option, the trail concept presented in this report assumes a rail-with-trail approach. All proposed segments located within the NCRA right-of-way would need to adhere to NCRA policies and procedures for rail-with-trail development and be approved by the NCRA. Rail-with-trail segments will normally require widening of the railroad embankment to provide a foundation for the trail surface at the required setback distance from the rails.

Similarly, all trail alignment sections proposed within Caltrans right-of-way, including bridges, would need to obtain Caltrans approvals and adhere to Caltrans policies and procedures on bicycle and pedestrian improvements set forth in the Caltrans Highway Design Manual and Manual of Uniform Traffic Control Devices.

California Public Utilities Commission (CPUC) approvals are required at all locations where at-grade railroad crossings are proposed. The applicant whose jurisdiction the proposed crossing falls in, will need to coordinate with CPUC and NCRA on railroad protections at each location. The City of Eureka has obtained at-grade temporary crossing approvals from CPUC in the past, but would still need to seek approvals from CPUC for all additional proposed at-grade railroad crossings.

Table 2 below lists existing conditions for each of the segments including communities directly served, jurisdictions involved, general terrain type, alignment crossing types, and potential environmental issues.

Table 2. Trail Segment Conditions

Planning Area	Segment #	Segment Length (miles)	Communities Directly Served	Jurisdiction(s) Involved	Terrain	Crossing Types	Alignment Location
1. Eureka - King Salmon	1.1	1.33	Eureka, Spruce Point, Humboldt Hill	City of Eureka, Humboldt County, HBHRCD, NCRA	Flat, HB shoreline, intertidal marsh land, freshwater wetland	1 at-grade RR crossings, 1 major water crossing	Off-street
1. Eureka - King Salmon	1.2.A	1.06	Eureka, King Salmon	City of Eureka, PG&E, Humboldt County, HBHRCD, NCRA	Flat, HB shoreline, freshwater wetland	1 at-grade RR crossings	Off-street, On-Street
1. Eureka - King Salmon	1.2. B	0.57	Eureka, King Salmon	City of Eureka, PG&E, Humboldt County, HBHRCD, NCRA	Flat, HB shoreline, freshwater wetland	None	Off-Street
1. Eureka - King Salmon	1.2.C	0.61	Eureka, King Salmon	City of Eureka, PG&E, Humboldt County, HBHRCD, NCRA	Flat, HB shoreline, intertidal marsh land, freshwater wetland	None	Off-street
2. King Salmon - Fields Landing - HBNWR	2.1.A	0.75	King Salmon, Fields Landing	HBHRCD, Caltrans, Humboldt County	Flat, HB shoreline, intertidal marsh land, freshwater wetland	None	Off-street
2. King Salmon - Fields Landing - HBNWR	2.1.B	0.76	King Salmon, Fields Landing	HBHRCD, NCRA, Humboldt County	Flat, HB shoreline, intertidal marsh land, freshwater wetland	None	Off-street
2. King Salmon - Fields Landing - HBNWR	2.2.A	0.79	Fields Landing	HBHRCD, Humboldt County, Private	Flat, on-street	None	On-street

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Planning Area	Segment #	Segment Length (miles)	Communities Directly Served	Jurisdiction(s) Involved	Terrain	Crossing Types	Alignment Location
2. King Salmon - Fields Landing - HBNWR	2.2.B	0.33	Fields Landing	NCRA, HBHRCD, Humboldt County, Private	Flat, intertidal Marsh	None	Off-street
2. King Salmon - Fields Landing - HBNWR	2.3	1.36	Fields Landing	NCRA, HBHRCD, HBNWR, Caltrans, Humboldt County, Private	Flat, intertidal marsh	2 water minor crossings, 1 at-grade RR crossing	Off-street
3. College of the Redwoods/HBNWR	3.1.A	3.11	College of the Redwoods	Caltrans, HBNWR, Humboldt County	Flat, on-street	None	On-street
3. College of the Redwoods/HBNWR	3.1.B	2.77	HBNWR	HBNWR, Caltrans, Humboldt County,	Flat, intertidal marsh	Potential major water crossing(s)	TBD
4. Loleta	4.1	5.32	Loleta	Caltrans, NCRA, Humboldt County	Mostly Flat with some rolling hills	None	On-street
5. Fernbridge	5.1	2.38	Fernbridge, Fortuna	Caltrans, NCRA, Humboldt County	Flat	None	On-street, Off-street
6. Fortuna (North)	6.1.A	1.16	Fortuna	Fortuna, Caltrans	Flat, on-street	None	On-street
6. Fortuna (North)	6.1.B	0.91	Fortuna	NCRA, Fortuna	Flat	1 minor water crossing	Off-street
6. Fortuna (North)	6.2.A	0.87	Fortuna	Fortuna, Humboldt County	Flat	None	On-street
6. Fortuna (North)	6.2.B	1.53	Fortuna	NCRA, Fortuna, Humboldt County	Flat	1 minor water crossing	Off-street
7. Fortuna (South)	7.1	1.05	Fortuna	Fortuna, Humboldt County	Flat, River shoreline	None	Off-street
7. Fortuna (South)	7.2.A	2.16	Fortuna	Fortuna, Humboldt County, Caltrans, NCRA, Private	Flat	1 major water crossing	On-street
7. Fortuna (South)	7.2B	2.11	Fortuna	Fortuna, Humboldt County, Caltrans, NCRA, Private	Flat	1 major water crossing	Off-street
8. Van Duzen - Eel River	8.1.A	2.4	Fortuna, Rio Dell	NCRA, Caltrans, Fortuna, Humboldt County, Private	Flat, on-street	Potentially 2 at-grade highway crossings	Off-street
8. Van Duzen - Eel River	8.1.B	2.99	Fortuna, Rio Dell	NCRA, Caltrans, Fortuna, Humboldt County, Private	Flat, on-street	Potentially 2 at-grade highway crossings	Off-street
8. Van Duzen - Eel River	8.2.A	0.66	Fortuna, Rio Dell	NCRA, Caltrans, Fortuna, Rio Dell, Humboldt County	Slight Incline/Decline	1 major water crossing	Off-street, On-street
8. Van Duzen - Eel River	8.2.B	0.71	Fortuna, Rio Dell	NCRA, Caltrans, Fortuna, Rio Dell, Humboldt County	Slight Incline/Decline	1 major water crossing	Off-street

Planning Area	Segment #	Segment Length (miles)	Communities Directly Served	Jurisdiction(s) Involved	Terrain	Crossing Types	Alignment Location
g. Rio Dell - Scotia	9.1.A	1.42	Rio Dell	Rio Dell, Humboldt County	Flat, on-street	None	On-street
g. Rio Dell - Scotia	9.1.B	1.39	Rio Dell	Rio Dell, Humboldt County	Flat, on-street	None	On-street
g. Rio Dell - Scotia	9.2	2.71	Rio Dell	Rio Dell, Humboldt County	River shoreline	None	Off-street
g. Rio Dell - Scotia	9.3	1.92	Rio Dell, Scotia	Rio Dell, Scotia, Humboldt County, NCRA, Caltrans	Mostly flat, with intermittent elevation changes, on-street	1 major water crossing, 1 at-grade RR crossing	Off-street, On-street

4 Conceptual Trail Alignment and Opportunities and Constraints

The proposed trail segments outlined above vary in their degree of complexity, and present numerous opportunities and constraints at specific locations along the segment. In some cases, existing rights-of-way may be limited, whether the alignment is routed along NCRA right-of-way or Highway 101, or through areas where environmental impacts are unavoidable, including areas along or through intertidal marsh lands, wetlands or other ecologically sensitive areas, or across private property.

The following sections present “preferred” and “alternate” alignment concepts based on a preliminary evaluation of factors such as separation from roadways, connectivity with access points and destinations, land ownership, environmental impacts, overall technical feasibility, and cost. The distinction between “preferred” and “alternate” is a qualitative assessment using readily available information, and subject to change based on further analysis and new information. In some cases, such as near King Salmon, it is unclear which alignment option is likely to be preferred, and therefore each of the options is identified as “alternate.”

Mentioned earlier, priority was initially given to off-street alignments due to their physical separation and increased level of safety and comfort, opportunity to utilize existing rights-of-way, access roads and sidepaths, and/or offer the most direct connection between destinations. The Buhne Point public access way along the shoreline around the PG&E property in King Salmon, the existing gravel road south of Fields Landing, and the existing Riverwalk Levee Trail in Fortuna currently present great opportunities to provide safe and scenic off-street connections.

In some cases, an on-street route was identified because there was no viable off-street alternative. Examples of these selections included Eel River Drive, Fernbridge Drive and Tompkins Hill Road. These roadways currently

have narrow shoulders, poor sight-distances, and high speed traffic, and will require significant Complete Streets¹ improvements to better accommodate pedestrians and bicyclists. These segments offer the most direct and feasible option once improved. Conversely, an on-street option was often selected as a preferred alignment as a result of it offering a more direct route, opportunity to provide enhanced access and connectivity to local destinations, and/or because opportunities exist to utilize/improve existing bicycle and pedestrian facilities, or utilize comfortable low-speed, low-volume streets. This is the case with routes through Fields Landing, Fortuna and Rio Dell.

Waterway, railroad and highway crossings present perhaps the common challenges along the trail corridor. Major waterways requiring a new bridge or retrofitting an existing bridge include the Elk River, White Slough Unit, Humboldt Bay National Wildlife Refuge, Van Duzen River, and the Eel River. Though there are fewer at-grade rail and highway crossings, these crossings would still necessitate careful planning, design and coordination. An important point related to river crossings is that the selection of a trail segment for one crossing may affect the planning for nearby crossings to ensure connectivity. This is the case with the crossings for the Van Duzen River and Eel River. For example, if a crossing is established over the Van Duzen River on the east side of Highway 101, then that decision may drive the selection of a crossing over the Eel River on the east side of Highway 101 as well.

In all cases, close coordination with the respective agencies and property owners listed in **Table 2** will be necessary to secure a feasible alignment with respect to local, state and federal permitting and approvals, right-of-way acquisition and disposition, technical feasibility, project phasing, and funding. More than one alignment option is identified to consider these factors, where possible. **Figures 2 to 10** illustrate the Eureka-to-Scotia planning areas and segments.

¹ “Complete Streets” is a term referring to roadways that are safe, comfortable, and convenient for all users including all travel modes, ages, and abilities. Examples of features that serve Complete Streets purposes include bike lanes, widened shoulders, sidewalks, and enhanced cross-walks.



Figure 2. Planning Area 1 Segments

Segment 1.1: Eureka – Hikshari’ Trail to PG&E Property

The Eureka-to-Scotia planning area begins where the NCRA alignment intersects the Hikshari’ Trail just west of Pound Road on the southern extents of the City of Eureka.

Although undeveloped, this segment currently experiences significant use by residents seeking access to the Elk River spit and nearby beach areas. Due to right-of-way constraints with the existing sea wall and railroad prism embankment, the proposed trail would follow the east side of the railroad tracks for the entire length of the segment. The trail could be constructed through a combination of widening the existing railroad prism, utilizing existing access roads that parallel the railroad grade, and constructing a new fill prism.

A separate trail bridge or bridge extension utilizing the existing Elk River railroad bridge would be necessary at the Elk River. Another potential option may be to request temporary use of the existing rail bridge from NCRA. An at-grade temporary railroad crossing at the southern end of this bridge would provide beach access for trail users. Future planning along this segment requires close coordination with the City of Eureka’s intertidal salt marsh restoration project currently underway around the Elk River Wildlife Area.

South of the Elk River crossing, the trail alignment would continue to parallel the east side of the railroad tracks utilizing an existing access road to reach the PG&E Humboldt Bay Power Plant. Utilization of the access road provides the opportunity to reduce costs by avoiding widening of the railroad prism. Stabilization of portions of the existing railroad prism may be necessary along this stretch due to substantial deterioration caused by wave action and revetment erosion. An existing ranch access road along this stretch could be enhanced to provide a connection to Tooby Road and the Spruce Point interchange. Options could be explored to connect the Waterfront Trail and King Salmon community to the Spruce Point community east of Highway 101.



Existing NCRA Elk River crossing



Existing NCRA right-of-way along Humboldt Bay

Segment 1.2A: PG&E to King Salmon Ave (along Buhne Point shoreline)

At the southern end of the Segment 1.1, another at-grade temporary crossing could connect the trail to the existing public access pathway around the northern edge of the PG&E property to Buhne Point.

Improvements to this accessway would be necessary to bring it up to Class I bikepath standards. A future trailhead would provide trail users with a parking and recreational beach and trail access on Buhne Drive. Here, the alignment would head south on King Salmon Ave to the King Salmon/Highway 101 Interchange. At present, the shoulders on King Salmon Ave are narrow and not sufficiently wide enough to create Class II bike lanes or sidewalks, however, PG&E is



Existing public access path around PG&E property

currently planning a shoulder improvement project along King Salmon Ave to widen the roadway, presenting an opportunity to add Class II bike lanes or Class III shared streets, and sidewalks.

Providing a trail connection to the King Salmon community address important social equity objectives by providing residents with multimodal transportation options and critical access to other nearby destinations and services without having to use Highway 101.

A significant challenge for the Segment 1.2A option is the existing accessway's exposure to wave action and erosion due to its proximity to the mouth of Humboldt Bay; these conditions raise issues of public safety, resilience, and ongoing costs for maintenance and rehabilitation. Related to these conditions, the existing accessway does not appear to receive a high amount of public use and reportedly must be closed periodically during the winter. The existing accessway was developed by PG&E as a condition of a coastal development permit (E-05-001) from the Coastal Commission for improvements to the power plant. PG&E expressed interest in exploring an option of supporting the development of a new trail alignment such as Segment 1.2B or Segment 1.2C as a permanent alternative to replace the existing accessway around the power plant.

Segment 1.2B: PG&E to King Salmon Ave via NCRA right-of-way

An alternative to Segment 1.2A continues from the southern end of Segment 1.1 along the south side of the NCRA right-of-way directly to King Salmon Ave. This option would involve widening of the existing railroad prism, and wetland impact mitigation would be necessary in some constrained locations.

Segment 1.2C: PG&E to King Salmon Ave via NCRA right-of-way and southbound Highway 101 off-ramp

This option is similar to 1.2B. It also begins at the end of segment 1.1 and follows the NCRA right-of-way until it reaches an existing access road across the wetland toward Highway 101. At Highway 101, future shoulder improvements to the southbound Highway 101 off-ramp would route trial users to King Salmon Avenue. Space constraints along the railroad prism south of Segment 1 would require widening of the existing prism. Wetland impact mitigation would be necessary along the existing roadway leading from the NCRA right-of-way to Highway 101.

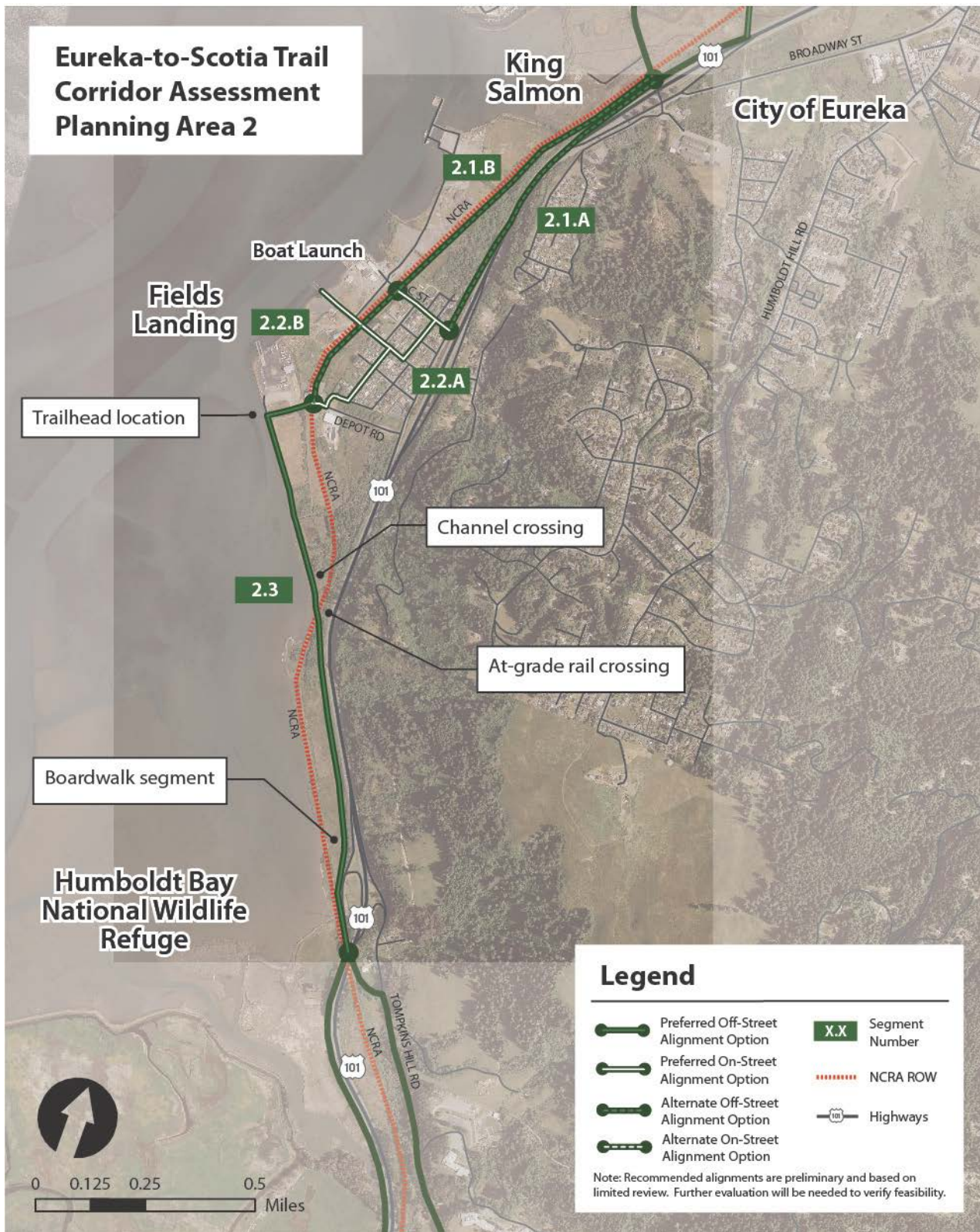


Figure 3. Planning Area 2 Segments

Segment 2.1A: King Salmon to Fields Landing via Highway 101 right-of-way

From the southbound Highway 101/King Salmon Ave interchange ramps, the proposed alignment would utilize the existing highway prism to parallel the western edge of Highway 101, from King Salmon to C Street in Fields Landing. Widening of the existing prism and/or shoulder improvements may be necessary depending on available right-of-way space and slopes.

Segment 2.1B: King Salmon to Fields Landing via NCRA right-of-way

From the King Salmon Ave/Highway 101 Interchange, the alignment could reconnect with the NCRA right-of-way, following the railroad prism south to Fields Landing at the intersection of C Street. The trail would likely run on the east side of the railroad as there is a channel on the west side for a portion of this segment. Widening of the existing railroad prism on the eastside of the railroad would be necessary to accommodate the trail. Wetland impact mitigation may be required.

Segment 2.2A: Fields Landing via on-street improvements

This segment utilizes the existing on-street network through Fields Landing. On-street bike and pedestrian improvements are proposed on C Street, 2nd and/or 3rd Streets, Railroad Avenue, West Avenue, Civic Avenue and Depot Road. Improvements may include Class II bike lanes, shared lane markings, speed humps, sidewalks and wayfinding. This segment includes a potential trailhead at the existing Public Boat Launch site at the end of Railroad Avenue, and/or a trailhead at the end of Depot Road on Humboldt Bay Harbor Recreation and Conservation District (HBHRCD) property.

Segment 2.2B: Fields Landing via NCRA right-of-way

This segment continues from Segment 2.1.b, utilizing the NCRA ROW south until Depot Road on HBHRCD Property. This alignment option may require right-of-way acquisition in addition to NCRA approvals.

Segment 2.3: Humboldt Bay National Wildlife Refuge via HBHRCD Property

Segment 2.3 involves a complicated series of transitions as it navigates through a complex mix of properties and land uses. It begins on HBHRCD property and utilizes an existing trail along the shoreline into the Humboldt Bay National Wildlife Refuge (HBNWR). The existing trail on HBHRCD property ends at the property line abutting the NCRA right-of-way. Immediately before the NCRA right-of-way (on HBHRCD property) is a small channel over which a future bike and pedestrian bridge is proposed. An at-grade temporary railroad crossing will also be needed at this location, to route the trail alignment back over to the east side of the railroad tracks. Here the



Existing trail from HBHRCD property to White Slough Unit

alignment enters private property and Caltrans right-of-way. Immediately after this, the alignment enters HBNWR lands, and follows a route parallel to Highway 101 south to the Tompkins Hill Road interchange. Near the beginning of the southbound Highway 101 off-ramp, a short boardwalk section would allow the trail to traverse lower-lying marshland with minimal impact, and connect to an existing ranch access road within NCRA/Caltrans right-of-way. The proposed trail alignment would continue under Highway 101 and connect to Tompkins Hill Road.



Marsh near the Highway 101 Interchange

Improvements in this area have strong potential for a joint wetland restoration and public access project concomitant with State Coastal Conservancy (SCC) interests. As an HBNWR project, it would proceed under the Federal Consistency Determination process instead of a Coastal Development Permit process. The project may also qualify for Federal Lands Access Program (FLAP) and US Fish and Wildlife Service Refuge Roads program funding.

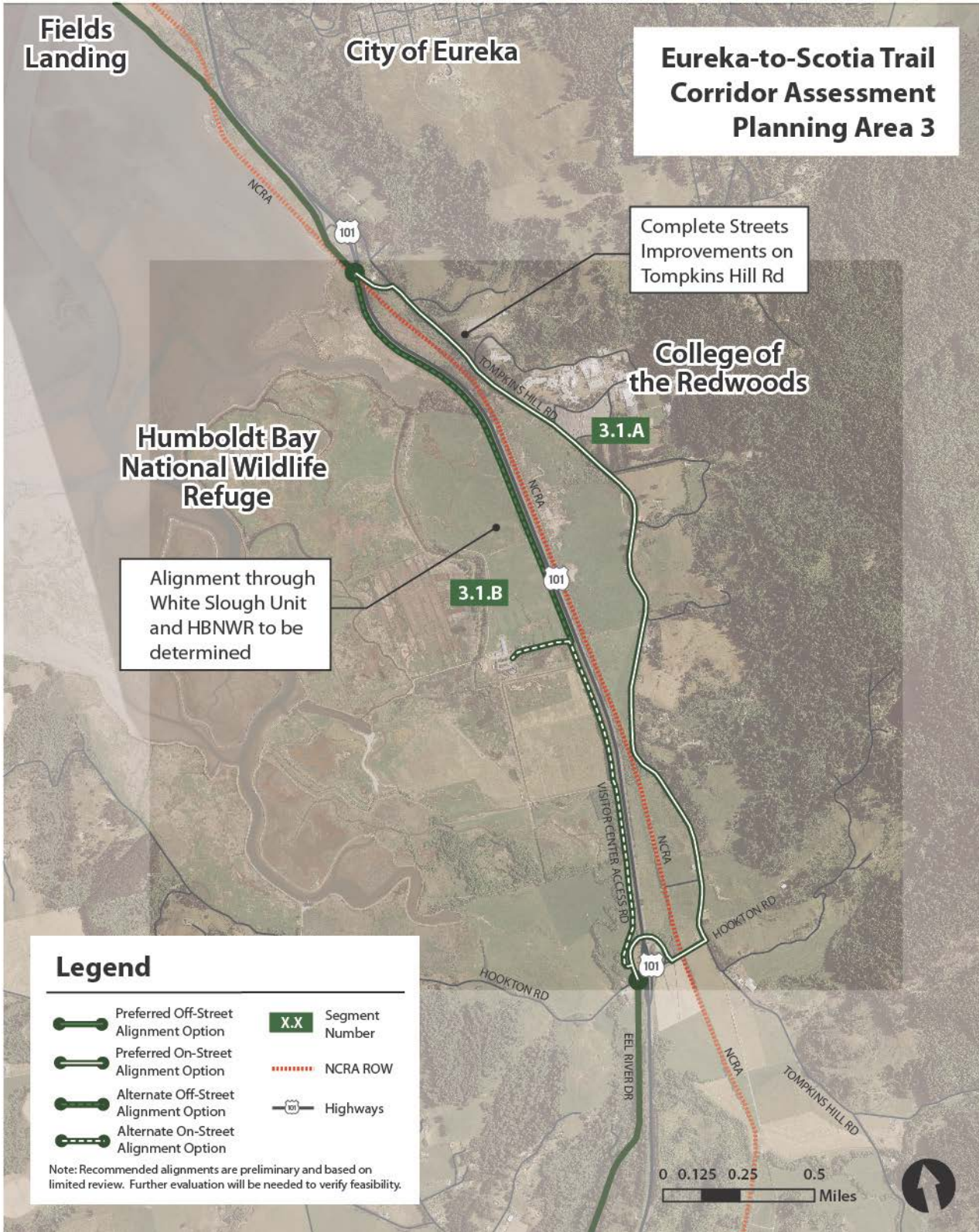


Figure 4. Planning Area 3 Segments

Segment 3.1.A: Tompkins Hill Road from Highway 101 Interchange to Hookton Road

This critical segment involves traffic calming and Complete Streets improvements along Tompkins Hill Road from the Highway 101 interchange to Hookton Road, establishing a direct on-street connection to the College of the Redwoods and providing students, faculty and staff from adjacent communities with an important low-speed, low-stress route to and from the College. At Hookton Road, the alignment would follow the highway overpass back to the west side of Highway 101, and connect to Eel River Drive. This project could apply for a Caltrans Transportation Planning Grant for improvements around Tompkins Hill Road and interchange areas.

Segment 3.1.B: HBNWR route via White Slough Unit and Visitor Center Access Road

Another alignment option through this segment would thread through the White Slough Unit and across HBNWR (south of the interchange and west of the Highway 101). Trail design and construction would need to follow HBNWR's Living Shorelines project which is currently constructing tidal ridges in the refuge through this area. There are two potential route options over/around the slough inlet that divides the White Slough Unit from the rest of the HBNWR lands to the south. 1) A new bike and pedestrian bridge could be built over the slough, or 2) it may be possible to construct the trail in the existing Highway 101 ROW. Option 1 will involve a complex and lengthy permitting process due to the potential impacts on sensitive areas. Option 2 may be even less feasible than Option 1 because space along the existing highway prism is very constrained.

From this point south, the trail alignment routing through HBNWR land and connecting to Hookton Road (Segment 4.1) has not been determined. As such, Segment 3.1.b is proposed as a longer-term option requiring further discussion with HBNWR management.

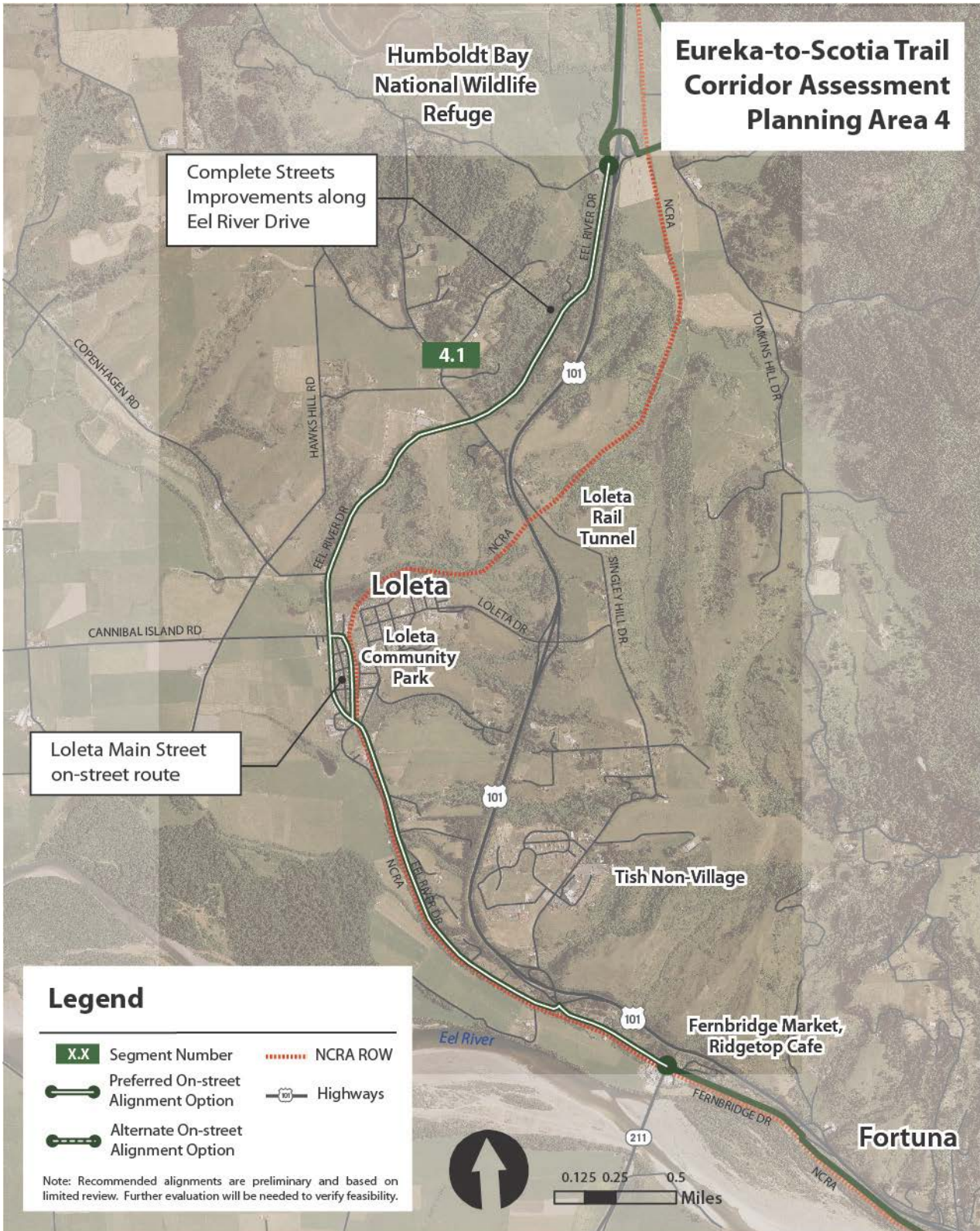


Figure 5. Planning Area 4 Segments

Segment 4.1: Loleta via Eel River Drive from Hookton Road to Highway 211

Following Segment 3.1, Segment 4.1 begins at Hookton Road and heads south via Eel River Drive. Complete Streets improvements are proposed along this on-street stretch from Hookton Road to Loleta, and continuing south to Fernbridge Drive at the intersection of Highway 211 (to Ferndale). Possible improvements include lane narrowing and/or shoulder widening for Class II bike lanes, horizontal and vertical deflection, and sidewalks. In Loleta, the alignment could include a route on Main Street. The public park on Main Street and along the NCRA right-of-way in the heart of Loleta provides an excellent central location for a Trailhead with ample parking, seating and play structures.



Loleta public park on Main Street

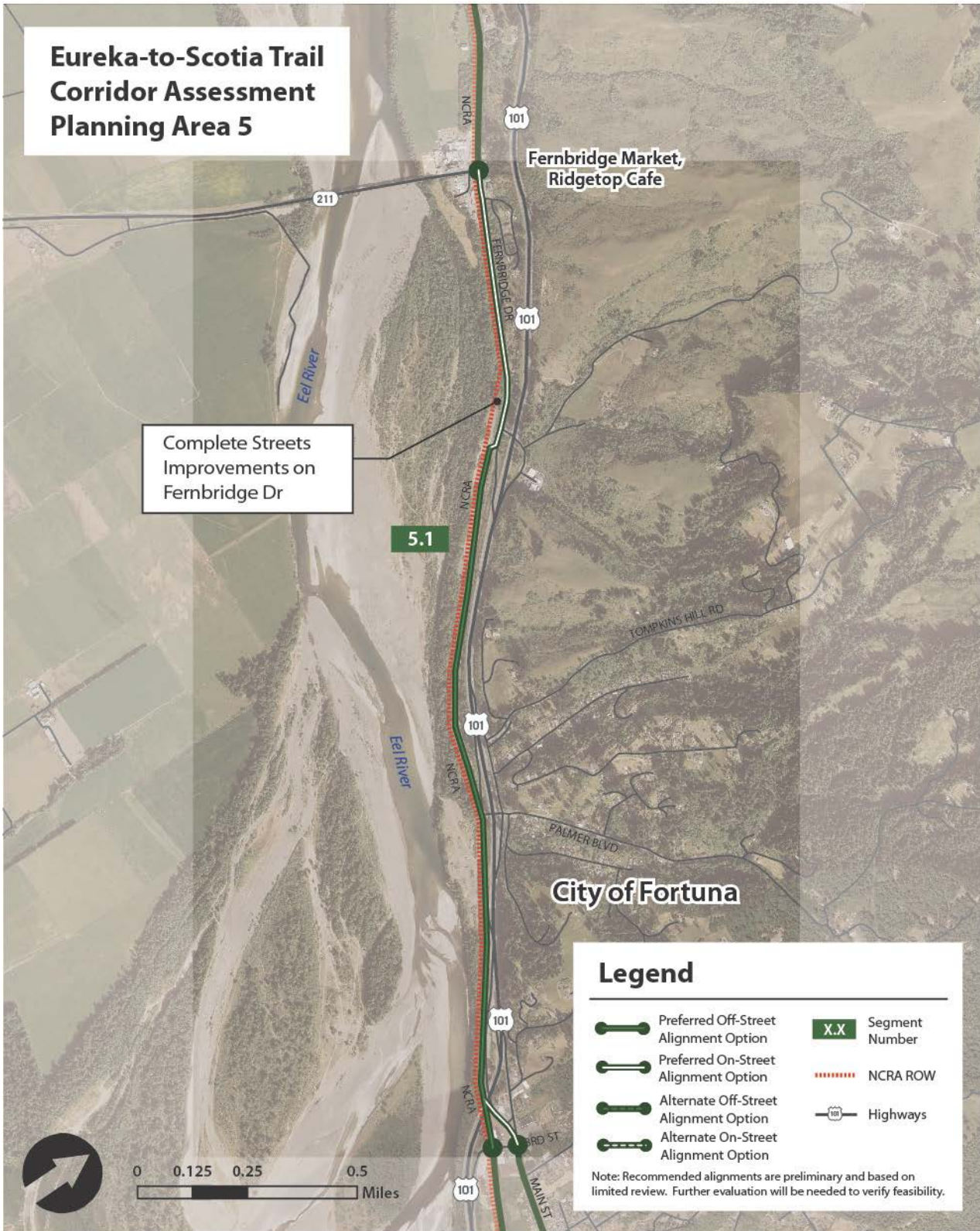


Figure 6. Planning Area 5 Segments

Segment 5.1: Fernbridge to Fortuna

The alignment here continues south on Fernbridge Drive from Highway 211 south. As it approaches the Highway 101 southbound on-ramp, it leaves the roadway and rejoins the adjacent NCRA/Highway 101 ROW. At this point, it follows the railroad/highway prism south, past Palmer Blvd, and under the Highway 101 overpass to 3rd Street in Fortuna. At Palmer Boulevard, there may be opportunities to utilize the lands formerly used for gravel extraction/storage.

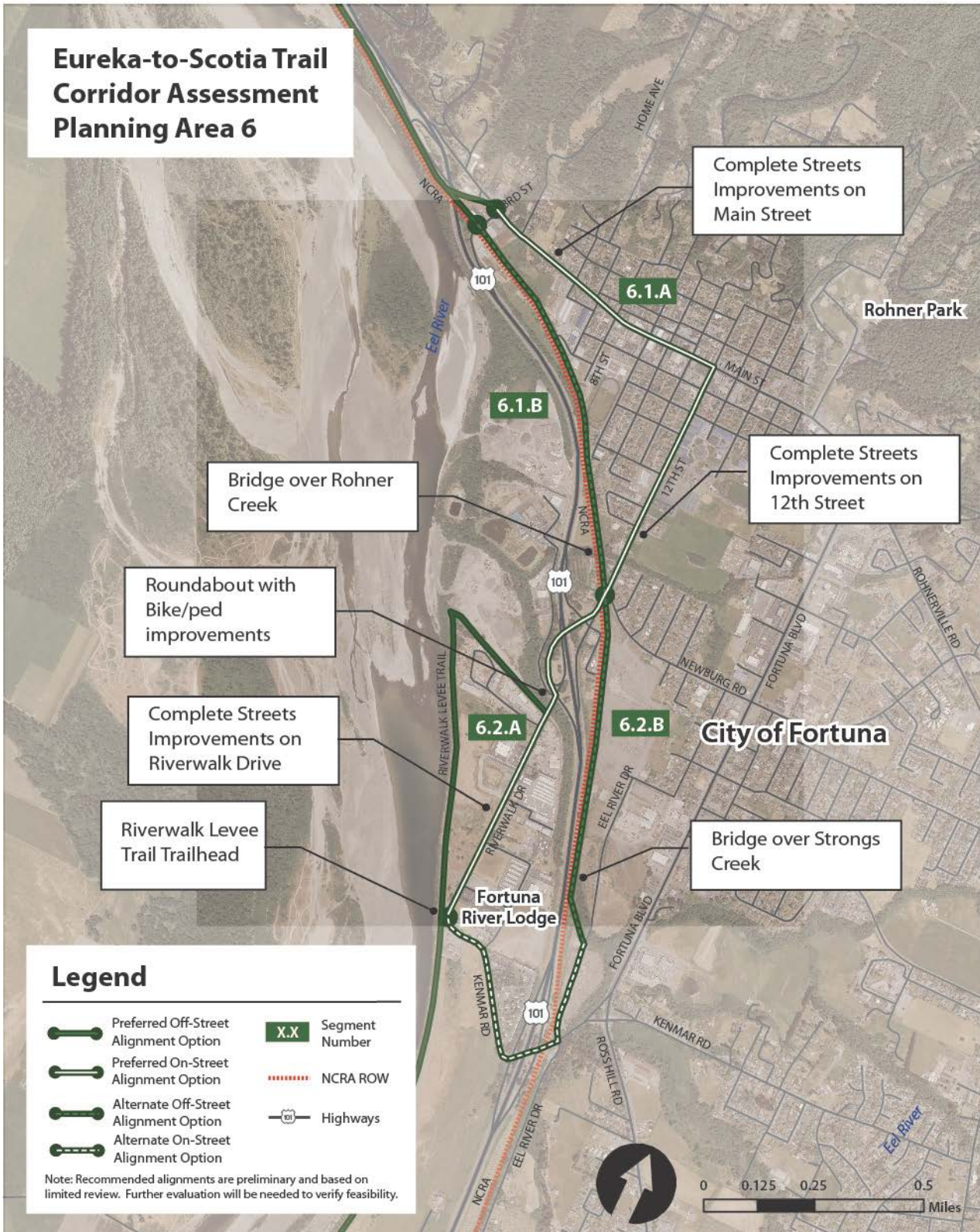


Figure 7. Planning Area 6 Segments

Segment 6.1.A: Fortuna - 3rd Street to Newburg Road via Main Street and 12th Street

An alternative on-street alignment routes trail users from 3rd Street up to Main Street, east to 12th Avenue, and south on 12th Avenue to Newburg Road. While Segment 6.1.B provides a more direct route to the next segment, routing trail users on to Main St and 12th Street provides the opportunity to utilize existing Class II bike lanes from 3rd Street to 8th Street, and the opportunity to extend bike and pedestrian improvements east on Main Street and south on 12th Street. This alternative would have the benefit of increasing access to the downtown core and Fortuna High School, and provide more foot and bike traffic to local businesses on these main thoroughfares.

Segment 6.1.B: Fortuna - 3rd Street to 12th Street via NCRA ROW

The proposed trail alignment option here continues along the north side of the NCRA right-of-way from 3rd Street to 12th Street, skirting behind local commercial/industrial properties and Fortuna Middle School on the southern end of downtown Fortuna. An extension of the existing railroad overcrossing or separate bike and pedestrian bridge over Rohner Creek near 12th Avenue would need to be constructed.

Segment 6.2.A: Fortuna - 12th Street to Riverwalk Levee Trail

From the intersection of 12th Street and Newburg Road, the alignment travels south on to the Riverwalk ramp over Highway 101 to the intersection of Riverwalk Drive and Dinsmore Drive. To support walking and bicycling, the Highway 101 overcrossing will need to be retrofitted for bike and pedestrian access or a separate overcrossing could be constructed along the existing flyover bridge for exclusive bike and pedestrian use. The City of Fortuna is planning to reconfigure the intersection of Dinsmore Drive and Riverwalk Drive as a roundabout in the near future, representing an important opportunity to incorporate safe and comfortable bike and pedestrian facilities into the design of the intersection. At this point, the alignment continues south along Riverwalk Drive/Kenmar Road to a proposed trailhead near the River Lodge Conference Center. From here trail users will be able to connect to the existing Riverwalk Levee Trail along the Eel River. Complete Streets improvements are proposed along the entire length of Riverwalk Drive/Kenmar Road.

Segment 6.2.B: Fortuna - 12th Street to Riverwalk Levee Trail

Another alternative segment would continue to follow the NCRA right-of-way at the intersection of 12th Street and Newburg Road, south along the east side of Highway 101 (along the east side of railroad tracks). As the NCRA right-of-way approaches Strongs Creek, the alignment would transition up to Eel River Drive to Kenmar Road. At Kenmar Road, the alignment would turn west under Highway 101 and follow Kenmar Road up to a proposed Riverwalk Levee Trailhead near the River Lodge Conference Center. Complete Streets treatments are proposed along Eel River Drive and Kenmar Road/Riverwalk Drive.

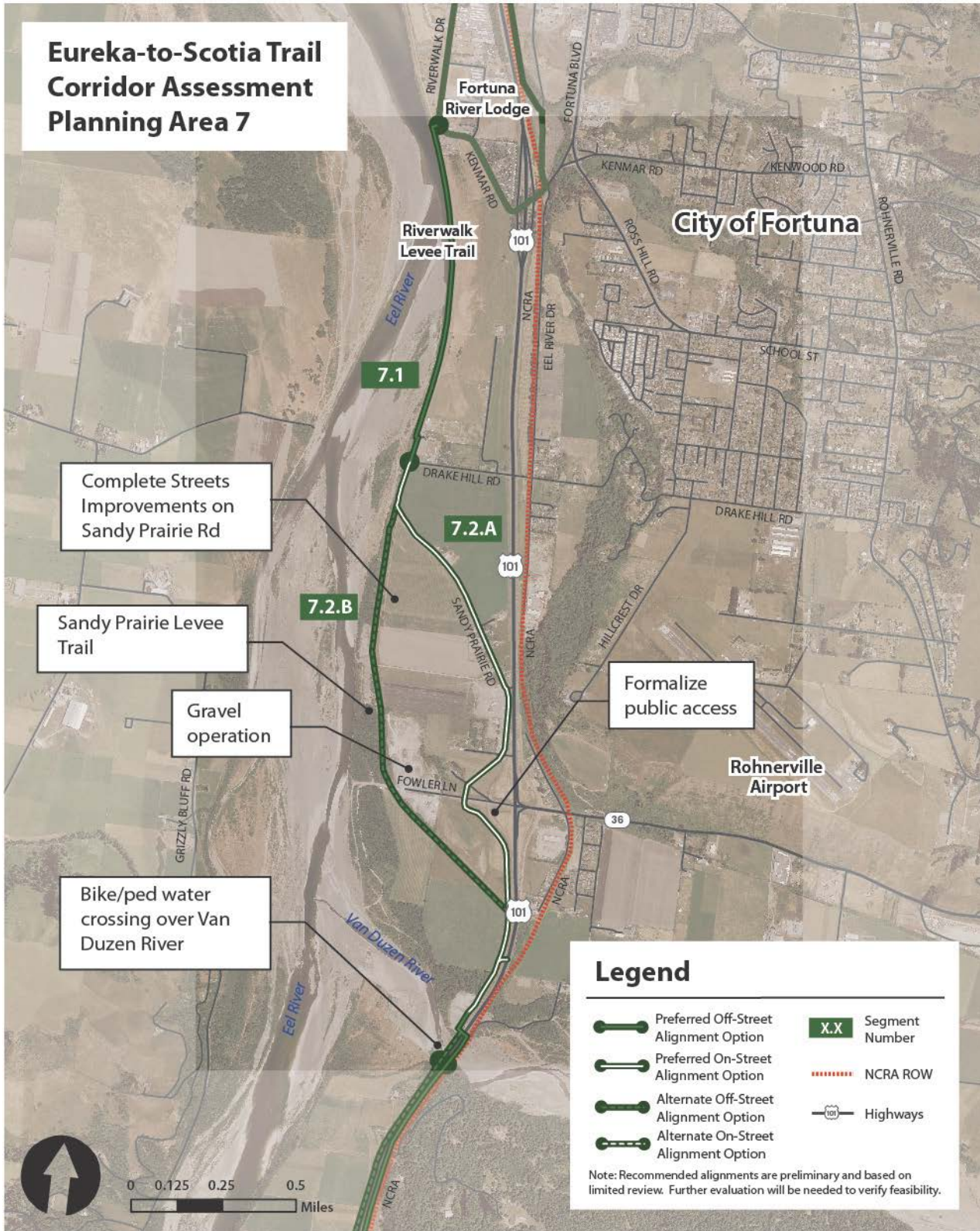


Figure 8. Planning Area 7 Segments

Segment 7.1: Riverwalk Levee Trail

From the proposed Riverwalk Levee Trailhead, trail users would follow the existing Riverwalk Levee Trail south along the eastern shore of the Eel River to its current terminus at the intersection of Sandy Prairie Road and Drake Hill Road.

Segment 7.2.A: Sandy Prairie Road to Van Duzen River Crossing

From the end of the Riverwalk Levee Trail, the alignment transitions to Sandy Prairie Road south, across Fowler Lane, and continues on to the gravel pit access road at the base of the Highway 101 Van Duzen River overcrossing. Complete Streets improvements are proposed for the entire length of this proposed shared street.

Five options are identified for the Van Duzen overcrossing:

- 1) A cantilevered bike/pedestrian bridge addition on the existing Highway 101 Bridge
- 2) A cantilevered bike/pedestrian bridge addition on the existing NCRA Bridge
- 3) Temporary occupancy of the existing NCRA Bridge
- 4) A new, exclusive bike/pedestrian bridge over the Van Duzen River
- 5) Incorporation of a separated bike path when the Highway 101 Bridge is replaced in the future



Highway 101 and NCRA bridges over Van Duzen River

It may be possible to plan for a short-term option (temporary occupancy of the railroad bridge) in advance of a long-term option which may not be feasible for several years. The type and location of the bridge crossing over the Van Duzen River south of Fortuna will need to be coordinated with the location of the bridge crossing over the Eel River north of Rio Dell. This will have an impact on the following Study Area 8 route, and vice versa. Bridge options 1 and 5 can be constructed on either the west or east side of Highway 101. Options 2 and 3 can only be constructed on the east side of Highway 101, due to the location of the existing NCRA overcrossing. Option 4 can be constructed on either the east or west sides of Highway 101. Close coordination with Caltrans and NCRA will be necessary on these respective options.

Segment 7.2.B: Sandy Prairie Levee Trail to Van Duzen River Crossing

An alternative alignment at the end of the Riverwalk Levee Trail would bring trail users onto Sandy Prairie Road for a short segment, but transition back onto the existing Sandy Prairie Levee, south across two gravel access roads, back to its intersection with Sandy Prairie Road. The proposed Sandy Prairie Levee Trail would offer a more direct, bike/pedestrian exclusive connection until it meets with Sandy Prairie Road south of Fowler Lane. The alignment would transition onto Sandy Prairie road, and similar to Segment 7.2.A, follow the road until it turns into the gravel pit access road at the base of the Highway 101 Van Duzen River overcrossing. Complete Streets improvements are proposed on Sandy Prairie Road. See Section 7.2.A above, for description of the proposed bridge options.

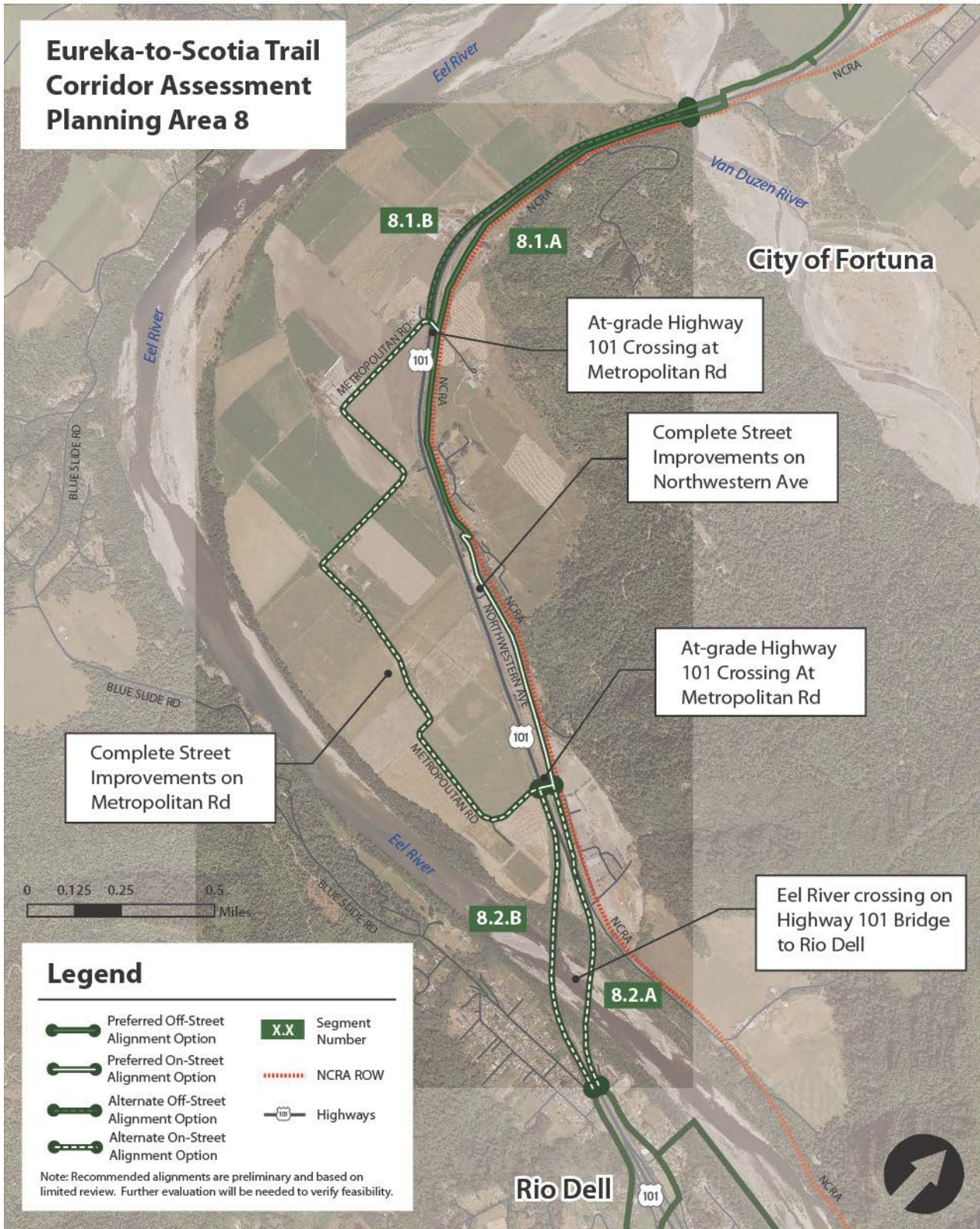


Figure 9. Planning Area 8 Segments

Segment 8.1.A: Van Duzen River to Eel River via Northwestern Avenue (East)

As proposed in both Segment 7.2 alignment options, the bike/pedestrian overcrossing over the Van Duzen River can be constructed on either side of Highway 101. If constructed on the east side of Highway 101, the proposed bridge options include 1) a cantilevered bike/pedestrian bridge option on the Highway 101 (northbound) bridge crossing, 2) a cantilevered bridge option on the NCRA overcrossing, 3) temporary occupancy of the existing NCRA bridge, 4) an exclusive bike/pedestrian bridge, or 5) a separated bike path when the Highway 101 Bridge is replaced in the future.

From this point south, the proposed alignment will follow the east side of Highway 101, either along the Highway right-of-way or NCRA right-of-way south on the east side of Highway 101 until it reaches Northwestern Avenue. The alignment would follow Northwestern Avenue on-street until it approaches the Highway 101 Eel River Crossing (northbound). Complete Streets improvements are recommended along the entire length of Northwestern Avenue. At-grade Highway 101 crossings may be necessary at each Metropolitan Road intersection with Highway 101, depending on the alignment chosen (See Segment 8.1.B), and/or the location/type of bridge selected for the Van Duzen and Eel River overcrossings.

Segment 8.1.B: Van Duzen River to Eel River via Metropolitan Road (West)

As proposed in both Segment 7.2 alignment options, the bike/pedestrian overcrossing over the Van Duzen River can be constructed on either side of Highway 101. If constructed on the west side of Highway 101, the proposed bridge options include 1) a cantilevered bike/ped bridge option on the Highway 101 (southbound) bridge crossing, 2) an exclusive bike/pedestrian bridge, or 3) a separated bike path when the Highway 101 Bridge is replaced in the future.

After the crossing the Van Duzen River, the proposed alignment would follow the Highway 101 right-of-way until it reaches Metropolitan Road intersection with Highway 101 near Chapman's Gem and Mineral Shop. This is a very constrained area with steeper slopes and little space along the Highway 101 prism and private property. Sufficient width in the Caltrans right-of-way through this section will need to be assessed closely. At this point, the alignment would turn on to Metropolitan Road and follow it until it approaches the Highway 101 Eel River Crossing (southbound). Complete Streets improvements are recommended along the entire length of Metropolitan Road. At-grade Highway 101 crossings may be necessary at each metropolitan road intersection with Highway 101, depending on the alignment chosen (See Segment 8.1.A), and/or the location/type of bridge selected for the Van Duzen and Eel River overcrossings.

Segment 8.2.A: Eel River Crossing to Belleview/Rio Dell (East)

Segment 8.2.A, picks up from Segment 8.1.A on Northwestern Ave. Here, the proposed alignment would transition onto the Highway 101 (northbound) bridge approach, and utilize the existing walkway/shoulder across the bridge. This is the older of the two bridges and current shoulder and sidewalk widths along the bridge and approaches do not appear to be sufficient for bike and pedestrian travel. Options for reallocating space on the bridge or constructing an extension for a bike/pedestrian travel way should be explored. On the south side of the bridge, the proposed alignment would transition down to Eeloa Avenue from Highway 101.

Segment 8.2.B: Eel River Crossing to Belleview/Rio Dell (West)

Segment 8.2.B, picks up from Segment 8.1.b at the intersection of Metropolitan Road and Highway 101. The proposed alignment would follow Highway 101 up the bridge approach and route trail users over the West (southbound) Highway 101 Bridge. This is the newer of the two bridges and sufficient shoulder widths along the bridge and approaches do not appear to be sufficient for bike and pedestrian travel. Options for reallocating space on the bridge or constructing an extension for bike/pedestrian travel way should be explored. On the south end of the bridge, the proposed alignment would transition down to Belleview Avenue from Highway 101.

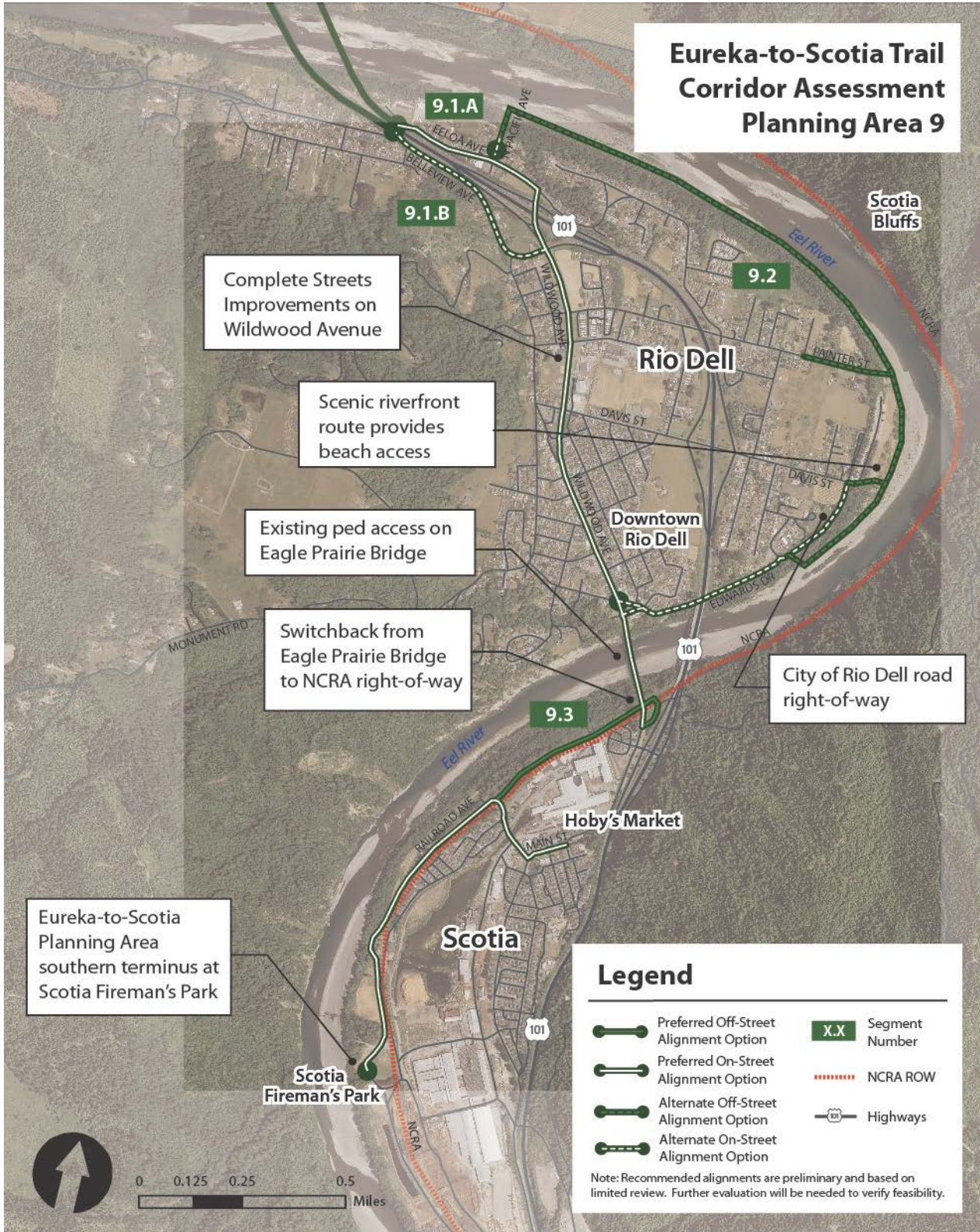


Figure 10. Planning Area 9 Segments

Segment 9.1.A: Rio Dell (East)

The proposed alignment continues south from Segment 8.2.A on Eeloa Road in Rio Dell to the intersection at Wildwood Avenue. Turning onto Wildwood Avenue, the alignment crosses under Highway 101, and follows Wildwood Avenue through downtown Rio Dell to Edwards Drive. Complete Streets improvements such as buffered bike lanes and pedestrian crossing enhancements are proposed along the entire length of this on-street segment.

Segment 9.1.B: Rio Dell (West)

The proposed alignment continues south from Segment 8.2.B on Belleview Avenue to the intersection of Wildwood Avenue. At this point, the proposed alignment follows Wildwood Avenue through downtown Rio Dell to Edwards Drive. The City of Rio Dell was awarded an Active Transportation Program grant to create Class II bike lanes along Belleview Avenue and Complete Streets improvements such as buffered bike lanes and pedestrian crossing enhancements along the rest of this on-street segment (construction is anticipated in 2019 or 2020).

Segment 9.2: Riverfront Trail

Segment 9.2 is a proposed scenic riverfront trail following the Rio Dell shoreline along the Eel River. Proposed trail connections include N Pacific Avenue, Painter Street, Davis Street and Edwards Drive. The southern end of this segment transitions back up to Edwards Drive, where it crosses under Highway 101 to Wildwood Avenue. The proposed trail would be constructed as an accessible beach path/boardwalk, and possibly feature overwater sections in the more constrained areas between N Pacific Avenue and Painter Street.



Rio Dell waterfront

Segment 9.3: Scotia

From the intersection of Wildwood Avenue and Edwards Drive, Segment 9.3 crosses over the Eel River via the Eagle Prairie Bridge. The Eagle Prairie Bridge to Scotia currently has sidewalks on both sides, but there is currently not sufficient width for separated bike facilities within the existing curb-to-curb width. Once over the bridge, the proposed alignment circles down around and under the bridge (on the east side) utilizing a short stretch of existing access road. At this point, the proposed alignment connects with the NCRA right-of-way once again. An at-grade temporary crossing is necessary here to bring the trail alignment over to the west side of the railroad tracks. The alignment then follows the NCRA right-of-way for about a half mile south, before connecting with Railroad Avenue. Once on Railroad Avenue, trail users can follow this on-street segment further south to Scotia Fireman's Park, the southern terminus of the Eureka-to-Scotia planning area, or connect to Bridge Street and Main Street to access downtown Scotia.

5 Recommended Next Steps

The proposed corridor outlined in this report were developed with an understanding that some trail segments would be more feasible than others with respect to technical complexity, environmental constraints, land ownership, user demand, political/stakeholder/community support, costs, permitting/approvals, impact mitigation, and right-of-way acquisition associated with each of these factors. This report provides an updated snapshot of alignment options, identifies those segments that may be more feasible based on the opportunities and constraints and existing conditions assessed, and supports the many public and private partners in Humboldt County to begin taking the next steps toward the projects that present near- and medium-term opportunities.

Key Findings

Key findings include:

1. The communities of King Salmon, Fields Landing, Humboldt Hill, Loleta, Fortuna, Rio Dell, and Scotia, along with College of the Redwoods and the Humboldt Bay National Wildlife Refuge, are largely isolated by highways that were designed exclusively for motorized vehicles and do not support non-motorized transportation.
2. The City of Eureka completed the Hikshari' Trail in 2012 and anticipates completion of the Eureka Waterfront Trail in 2017. The City of Fortuna, City of Rio Dell, and Town of Scotia each have projects current in progress within city (or town) limits related to trails or on-street improvements for cyclists and pedestrians. Based on these accomplishments, the logical next step is to move forward with planning and incremental projects to start building regional trail connectivity between Eureka and Scotia.
3. Development of a trail network between Eureka and Scotia will require a phased approach and collaboration between multiple partners. It's important to recognize that decisions affecting a proposed trail segment at one location may have direct implications for the location of other interconnected trail segments. Communication and coordination will be needed to ensure that decisions at one location do not preclude future trail connections at other locations.
4. The portion of the NCRA railroad located across from the mouth of Humboldt Bay, between Eureka and King Salmon, is in poor condition and will likely continue to deteriorate without intervention. Wave action has penetrated the revetment protecting the railroad and caused substantial erosion of the railroad fill prism in multiple areas. The preferred location for a trail at this location (Segment 1.1) appears to be an alignment situated east of the railroad grade. A large portion of this trail alignment could occupy an existing unpaved access road located on City of Eureka property.
5. The City of Eureka has initiated the planning phase of the Elk River Estuary and Tidal Wetlands Enhancement Project with support from the State Coastal Conservancy. Trails could be integrated into the City of Eureka's estuary enhancement project.
6. The proximity of wetlands to the railroad grade and Highway 101 along Humboldt Bay means there will be unavoidable wetland impacts associated with trail development projects that will require mitigation.
7. PG&E is a key stakeholder for trail planning near King Salmon.
8. The Humboldt Bay Harbor Recreation and Conservation District owns property south of Fields Landing with upland areas that present immediate opportunities for trail development.

9. The U.S. Fish & Wildlife Service is currently implementing a multi-year White Slough Unit Living Shorelines project with support from the State Coastal Conservancy. Trails could be integrated into future phases of the White Slough project.
10. A trail connection between Fields Landing and College of the Redwoods (Segment 2.3) utilizing property owned by the Harbor District and the U.S. Fish & Wildlife Service appears to be relatively feasible in the near-term.
11. Crossings of the Van Duzen River (south of Fortuna) and the Eel River (north of Rio Dell) will be major challenges. There is the possibility that development of routes across the Van Duzen River and Eel River designed for cyclists and pedestrians will only become feasible when Caltrans replaces or substantially upgrades the Highway 101 bridges at these locations.

Recommendations

Recommended next steps for trail development considering near-term opportunities and constraints include:

1. Encourage the City of Eureka, City of Fortuna, City of Rio Dell, Town of Scotia, Humboldt County, HCAOG, College of the Redwoods, Harbor District, Caltrans, NCRA, U.S. Fish & Wildlife Service, and PG&E to integrate trails into the planning processes for other projects situated within the study area for this report.
2. Engage the City of Eureka and Coastal Conservancy to explore the possibility of incorporating public trails into the Elk River estuary enhancement project. The Humboldt Community Services District has wastewater force mains in this area and will be an important stakeholder, along with NCRA and PG&E.
3. Engage the U.S. Fish and Wildlife Service and Coastal Conservancy to explore the possibility of incorporating public trails into future restoration work on the HBNWR in conjunction with the White Slough project.
4. Engage the Harbor District to explore opportunities for trail planning efforts south of Fields Landing.
5. Engage College of the Redwoods to explore opportunities for traffic calming on Tompkins Hill Road. Pursue funding through the Caltrans Sustainable Transportation Planning Grant Program or other sources to plan Complete Streets improvements along Tompkins Hill Road and access routes to College of the Redwoods.
6. Assist smaller municipalities such as the City of Rio Dell and Town of Scotia with funding and staffing resources to pursue next steps for certain key segments.
7. Initiate discussion with PG&E regarding their short-term and long-term interests related to the existing accessway around the Humboldt Bay Power Plant and opportunities for future collaboration on trail projects near King Salmon.
8. Contact NCRA to determine if there are any plans or near-term opportunities to rehabilitate the revetment protecting the railroad between Eureka and King Salmon.
9. Initiate discussion with NCRA regarding the possibility of establishing terms and conditions for temporary occupancy of portions of the railway where alternative alignments may not be feasible in the short-term (for example, bridge crossings over Elk River and the Van Duzen River).
10. Encourage Caltrans to incorporate bicycle/pedestrian access options and regional trail connectivity into long-term planning documents and asset management decisions on the State Highway System, especially with respect to bridges over the Van Duzen River and Eel River.
11. Collect and refine parcel and property line ownership data. Further assess property challenges, rights-of-way, title restrictions, and right-of-way acquisition strategies along public and private properties.

Develop budgetary cost estimates for logical, incremental projects with independent utility that could be competitive for grant funding.

12. Identify permitting and approval requirements for local jurisdictions, NCRA, Caltrans, Coastal Commission, and HBNWR.
13. Solicit input from stakeholders and the general public on trail use and demand, local destinations, and problem areas. Proactively engage landowners and businesses to understand their concerns regarding future trail development and identify measures to address them.
14. Perform further evaluation of trail segments where multiple alignment options are possible, in order to arrive at a preferred trail alignment.
15. Consider developing a more detailed Eureka-to-Scotia Planning Area Master Plan.

6 References

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