



CITY OF TRAILS

TRAILS FEASIBILITY STUDY



Prepared for:
City of Fort Bragg
Community Development Department
Marie Jones, Director
416 N. Franklin Street
Fort Bragg, CA 95437

June, 2016



Cover Photo: Old Mill Road traverses the slope above Noyo Beach.

Table of Contents

I. Executive Summary	1
II. Introduction and Background	2
III. Study Purpose, Goals and Evaluation Criteria.....	2
IV. Workshop Overview and Selection of Priority Trails.....	3
Methodology	3
Workshop Results	4
A&W Haul Road	4
V. Evaluation of Priority Trails.....	9
1. Redwood Avenue and Alder Street Trailhead	9
Trail Concept and Benefits	9
Related Trail Connection Opportunities.....	9
Ownership and Acquisition	10
Existing Conditions	10
Recommended Improvements.....	10
Environmental Impacts and Permitting.....	11
Maintenance Requirements.....	12
Potential Issues and Data Needs	12
2. Old Mill Road Multi-Use Trail to North Noyo Harbor.....	17
Trail Concept and Benefits	17
Related Trail Connection Opportunities.....	17
Ownership and Acquisition	17
Existing Conditions	18
Recommended Improvements.....	18
Grading and ADA Accessibility	24
Environmental Impacts, Permitting and Maintenance Requirements	25
Potential Issues and Data Needs	26
3. South Noyo Harbor Trail.....	29
Trail Concept and Benefits	29
Related Trail Connection Opportunities.....	29

Ownership and Acquisition 30

Recommended Improvements..... 32

Environmental Impacts, Permitting and Maintenance Requirements 33

Potential Issues and Data Needs 33

VI. Environmental Permitting and Cost Estimates 39

Trail Work in Environmentally Sensitive Habitat Areas (ESHAs) of the Coastal Zone 39

 Old Mill Road Multi Use Trail 39

 South Noyo Harbor Trail 39

 The Redwood Avenue Connection and Alder Street Parking Area 40

 Construction Phase Pollution Control 40

Cost Estimates 41

References..... 44

LIST OF TABLES

Table 1: City of Fort Bragg Existing and Approved Trails	5
Table 2: Public Voting Results for Potential and Selected* Trail Opportunities	6
Table 3: Old Mill Road - Trail Grading Recommendations	25
Table 4: Cost Estimate for the Redwood Avenue Connection.....	40
Table 5: Cost Estimate for the South Noyo Harbor Trail.....	41

LIST OF FIGURES

Figure 1: Existing Trails and Potential Opportunities (11 x17).....	7
Figure 2: Photos of Redwood Avenue and Chief Celery Drive	13
Figure 3: Concept Plan for Chief Celery Drive Pedestrian Way to Redwood Avenue	14
Figure 4: Alder Street Coastal Trailhead and Parking	15
Figure 4A: Middle Coastal Trail, Mill Site Parking Area	16
Figure 5: Photos of Old Mill Road	19
Figure 6: Old Mill Road Multi-Use Trail Concept (11x17)	21
Figure 7: Old Mill Road – Upper Segment Cross Section.....	27
Figure 8: Old Mill Road – Grading Concept at Dredge Pond.....	28
Figure 9: Photos of South Noyo Harbor Trail.....	35
Figure 10: South Noyo Trail Concept.....	36
Figure 11: South Noyo Trail – Typical Sections and Profile (11x17)	37

This page intentionally left blank

I. EXECUTIVE SUMMARY

This City of Trails Feasibility Study evaluates three potential new priority trails which could be developed to expand the existing trail network in Fort Bragg.

The purpose of the City of Trails Feasibility Study is to;

1. Identify trail opportunities that are beneficial and of interest to the community; and
2. Provide detailed feasibility and development cost information for the selected priority trails; and
3. Identify permitting requirements.

A dozen trails were considered and prioritized in a public workshop on October 29, 2015; and out of that workshop, and a follow up workshop with City Council, three trails were selected for further evaluation through this feasibility study. All three trails connect with the existing trail system and focus on making connections to downtown and/or Noyo Harbor from the Fort Bragg Coastal Trail. The three trails include:

1. **Redwood Avenue Connection to Downtown Fort Bragg** – Pedestrian improvements are proposed for Chief Celery Drive. Redwood Avenue improvements would include new wayfinding signs leading to/from Franklin Street and information about trails for visitors. A new parking area located on the GP Mill Site due west of Alder Streets would serve the middle section of the Coastal Trail (currently in design).
2. **Old Mill Road Redevelopment to North Noyo Harbor** – Old Mill Road is an abandoned road that drops from the southern section of the Coastal Trail (near the cemetery) down to Noyo Harbor and Noyo Beach. This report evaluates requirements for redeveloping this old road cut into a multi-use trail that would extend the Coastal Trail to the beach at Noyo Bay, and potentially beyond to North Noyo Harbor.
3. **South Noyo Harbor Trail** – An existing social trail on private property leads from Highway 1 down to South Noyo Harbor. Landowners on the alignment would like to reduce illegal activities there and employers at the Harbor have expressed interest in the trail. This report recommends installation of timber (or concrete timber) steps and surfacing with quarry fines on the inclined sections. Definition of a pedestrian easement through the private properties will also be required.

A fourth trail, the A&W haul Road, was also prioritized for further evaluation because the haul road offers considerable opportunity for public access. However, a recent change of ownership has made it difficult to analyze this route. In the future, a trail could be considered here if more direct route for logging trucks from the forest to Highway 20 is identified and opened.

Additionally, the much discussed and controversial Skunk Train Railroad trail alignment was not selected for evaluation primarily due to: 1) security concerns among east Fort Bragg residents; 2) the cost of constructing a cantilevered trail over a wetland; and 3) the required safety

separation distance of eight feet between trains tracks and a pedestrian trail cannot be accommodated within the alignment width.

The feasibility study was funded with a grant from the Mendocino Council of Governments.

II. INTRODUCTION AND BACKGROUND

Fort Bragg's General Plan (adopted in 2002) and Coastal General Plan (adopted in 2008) include policies and programs that address conservation, open space, and recreation. The General Plan policies include a vision for a comprehensive, multi-use trail system along the coast and through the town to provide recreation opportunities for residents and visitors and to accommodate bicycle and pedestrian commuting to City services, schools, recreational facilities, and employment centers. The following General Plan programs apply to the City of Trails project:

- Work with organizations and private property owners to enhance the City's watercourses for habitat preservation and recreation. (General Plan Program OS-3.1.3)
- Identify potential additions to the trail system with increased access to rivers and the coastline with cross linkages through to the eastern parts of Fort Bragg. Work with the MCRPD to seek funding and to acquire rights-of-way. (General Plan Program OS-13.1.1; Coastal General Plan Program OS-19.1.1)
- Establish an integrated trail system serving both inland hiking trail needs as well as the coastal trail programs shown on Map LC-1 utilizing existing rights-of-way, City streets, and riverfront property. (General Plan Program OS-13.1.2; Coastal General Plan Program OS- 19.1.2)

III. STUDY PURPOSE, GOALS AND EVALUATION CRITERIA

Trails benefit communities by providing healthy opportunities to walk and ride to daily destinations and recreational activities. The availability of trails can, over time, reduce a community's dependence on cars, total vehicle miles traveled (VMTs) and greenhouse gas emissions. New trails in Fort Bragg will also provide new destinations and activities for tourists and thereby increase opportunities for economic development, as illustrated by the recent opening of the Fort Bragg Coastal Trail and Noyo Headlands Park. Trails, combined with improved wayfinding signs, make it easier for tourists to find and access recreation opportunities that connect to important economic drivers in our community such as our downtown and Noyo Harbor.

The purpose of the City of Trails Feasibility Study is to;

1. Identify trail opportunities that are beneficial and of interest to the community; and
2. Provide detailed feasibility and development cost information for the selected priority trails.

The City of Fort Bragg established the following criteria to evaluate trail alignments:

- Potential recreational and economic development benefits;
- Community support for the alignment;
- City ownership of the property or a willing seller;
- Pedestrian and cyclist safety;
- Costs for site acquisition, design, construction and maintenance; and
- Permitting and resource conservation issues.

IV. WORKSHOP OVERVIEW AND SELECTION OF PRIORITY TRAILS

In order to facilitate the community planning process, City staff and the consultant team researched a variety of potential trail alignments by walking and cycling them. These potential trail alignments were consolidated on a single map with all the existing and approved trails within in the City of Fort Bragg. The consolidated map of trails included existing and potential multi-use pedestrian trails, bicycle paths, dirt walking paths, and designated on-street bicycle lanes¹. The team reviewed the existing and proposed trail map and identified additional opportunities to connect segments into a cohesive network of trails. The trail map and the illustrated trail opportunities were presented on October 29, 2015 in a community open house workshop format, which was organized specifically to collect feedback on and prioritize the trail concepts.

Methodology

The methodology used by the project team to develop and analyze the trail alternatives included:

1. Cycle and walk Fort Bragg to evaluate and identify potential walking, cycling and multi-use trail opportunities, especially as they relate to the City Surrounded by a Park concept, which is illustrated in the City's General Plan.
2. Map and number all existing and approved trails on a Master Aerial (See Attachment 1).
3. Map all potential walking, hiking, cycling and multi-use trail opportunities identified by staff and the consultants.
4. Review the existing and proposed mapped trails and add potential trail connections that connect or extend existing trails and ROWs.
5. Host an open house and public workshop to identify pros and cons of each opportunity and prioritize them for analysis in the feasibility study.
6. Meet with the City Council to evaluate public input and select top City Council priorities for inclusion in the feasibility study.
7. Develop top four priorities for feasibility evaluation.

¹ Bicycle Lanes are designated as Class I, II and III. A Class I Bicycle Path has an independent alignment separated from cars. Class II is a signed and striped bicycle lane on the street, and Class III is a bicycle route designated by signs only along city streets.

Workshop Results

The City of Fort Bragg has numerous potential trails from which to build a network. Table 1 shows eleven existing and approved trails, including Class I trails and pedestrian paths that are currently in use and/or approved for construction in Fort Bragg. These eleven numbered trails are also connected to the network of bike trails on the streets of Fort Bragg. Opportunities to extend and/or connect existing trails with identifiable destinations within the City of Fort Bragg were developed by the City's Community Development Department and the City's consultants, WRA Inc. Ultimately twelve trails were identified, labeled A – L for public consideration. Trails were placed on the map to show their relationship with the existing and approved numbered trails, as shown on Figure 1.

Workshop participants were asked to describe what they saw as the pros and the cons for developing each of these trails. They were asked to either recommend or discourage further consideration of the trail segment by placing a limited set of votes (red and green dots) either "for" (green) or "against" (red) each trail segment. The results of the trail prioritization are shown in Table 2. Following the public open house, the City Council held a public meeting to discuss the results of the open house. Four trails were selected for feasibility review from this outreach, as highlighted in Table 2.

After the workshop, staff also included a fifth trail for study, a pedestrian and cyclist trail along North Harbor Drive to the Harbor District, which is funded through a separate MCOG Grant. The results of the North Harbor Drive study will be provided as an addendum to this report. This fifth trail was identified as a priority through a community planning process in 2015.

A&W Haul Road

During the development of this report, the fourth trail which is known as the A&W Haul Road along with 194,000 acres of timberland in Mendocino County underwent a change of ownership from Cambell Hawthorne to Lyme Forestry, and discussions regarding the potential use of the trail for recreation stalled. Lyme Forestry indicated that it was too early in their process to begin consideration of a major public trail on their newly acquired forestlands. However, the A&W haul road is potentially an excellent addition to the City's trail network as it offers unparalleled mountain biking, hiking and running opportunities on dirt roads and trails in Lymm forestlands and Jackson State Forest. This trail alignment should continue to be pursued, as the City develops a relationship with Lyme Forestry. A trail alignment could be established along the old A&W haul road, which would provide very scenic walking, bike riding and access to the Noyo River. Additionally the old haul road also connects to a massive network of other trails throughout Jackson State Forest for the dedicated mountain biker. The potential for a continuous biking experience that includes forest, mountains and a coastal experience could be realized by connecting the A&W Haul Road to the Fort Bragg Coastal Trail at Cypress Street.

Safety concerns and potential conflicts between fast moving logging trucks and smaller/slower pedestrians and/or bicyclists could be problematic with the reuse of this old haul road for public

access. However this concern could be address through a variety of mechanisms including: 1) allowing public access on the weekends when logging trucks do not use the dirt road; 2) developing a separate path of travel for pedestrians and cyclists; or rerouting logging trucks to Highway 20 via a back road and thereby eliminating the logging truck traffic from the A&W Haul Road.

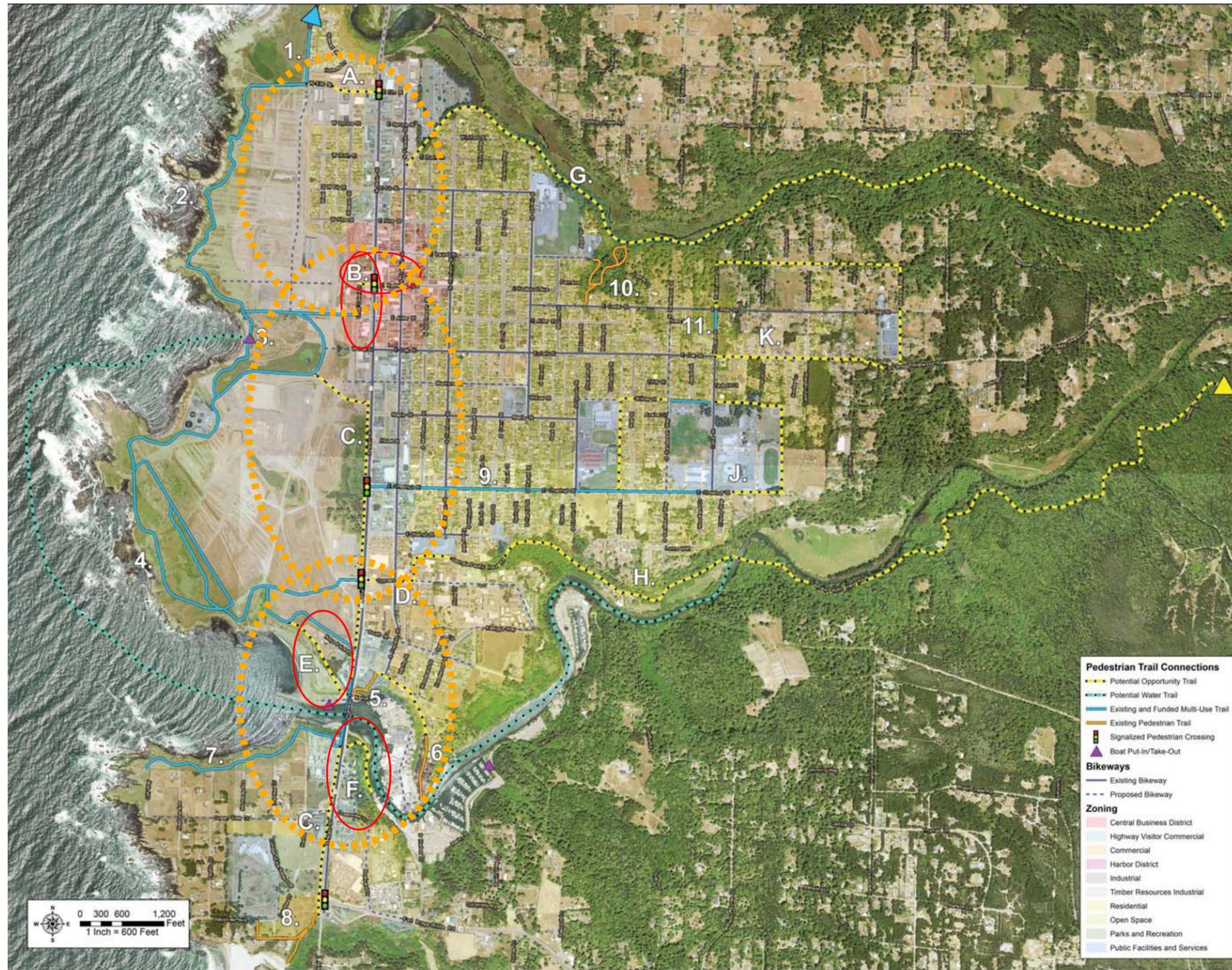
Table 1: City of Fort Bragg Existing and Approved Trails

Map #	Trail Name	Trail Status	Type	Concept
1	Haul Road to MacKerricher State Park	Existing	Multiuse 20'	Beachfront link northward to MacKerricher State Park
2	North Fort Bragg Coastal Trail	Completed 2014	Multiuse 12'	High quality coastal access with trailhead facilities at Elm St.
3	Middle Fort Bragg Coastal Trail - Phase II	2017 Construction	Multiuse 12'	Ties northern / southern coastal trails together. Trailhead / Parking at Alder St.
4	South Fort Bragg Coastal Trail	Completed 2015	Multiuse 12'	Coastal access trail links to town via Cypress Street.
5	Harbor Light Lodge Trail	Existing, needs maintenance	5' asphalt path / steps	Trail Link through Lodge from Upper to Lower N. Harbor Dr
6	Noyo Harbor Inn Trail	Reconstruction just completed	Dirt path / steps	Follows Casa Del Noyo Alignment for harbor access.
7	Pomo Bluffs Park Trail	Completed 2007	Multiuse 12'	Trailhead and Parking, links Todd Point with Noyo Bay overlooks to S. Main Street.
8	Hare Creek Trail	Completed 2012	Dirt path / steps	Nature walk with beach access from S. Main St. and College of the Redwoods
9	Chestnut Street Multiuse Trail	2016 Construction	Multiuse 12'	Widens narrow sidewalks to multi-use trail.
10	Otis Johnson Park Nature Trail	Completed 2010	Dirt Path / steps	Nature walk and forest access
11	Dana Street Multiuse Trail	Existing	8' asphalt, Class 1 link	250' Safe Routes to School link between Cedar and Oak

Table 2: Public Voting Results for Potential and Selected* Trail Opportunities

Map	Pro/Con Votes	Potential Trail Opportunities	Proposal	Concept
A	5/0	Elm Street Improvements	Existing on street Bike trail.	Strengthen northern pedestrian linkage to Coastal Trail from downtown, Main Street, and link to Franklin Street.
B*	41/0	Redwood Avenue - Coastal Trail Linkage	Multi-use 12' Signs, sidewalks, streetscape	Downtown linkage to Coastal Trail parking from Alder St. via Chief Celery Drive to Redwood Avenue, crossing Main Street at signalized intersection, to Franklin.
C	23/0	Main Street Multi-Use Trail	Multiuse 12' wide	Trail west of Main Street from Middle Coastal Trail to Highway 20. (subject to Owner's Permission)
C1	0/7	Main Street Alternative	Multiuse sidewalk	Use of Franklin or alleyways parallel to Main St as an alternative North South linkage.
D	11/3	Cypress Linkage	Multiuse 12' or Class II bike trail	Cross Main Street to Safeway at signalized intersection, ties to A&W Haul Road and Hospitals.
E*	28/1	Old Mill Road Noyo Harbor / Coastal Trail Connection	Multiuse	Improve existing Old Mill Road to multiuse trail, stabilize landslide area.
F*	26/4	South Noyo Harbor Trail	Currently 5' wide gravel path with stairs	Access to Harbor with views on short walking trail. Could use passage under Highway 1 to extend Pomo Bluffs trail eastward to Southern Harbor
G	31/15	Skunk Train Railroad Tracks Trail	Railroad is active. Uncertain trail use	1. Consider widening to include trail use, 2. Consider excursions to trail destinations 3. City consider purchase on availability (ALL Subject to Owner Approval)
H*	32/7	A&W Haul Road	Limited Multiuse No improvement needed	When logging trucks are not running, allow recreational use. (Subject to Owner Approval)
J	16/13	High school Multiuse Trail Loop	Multiuse	Connect soccer fields, ball fields, and stadium area in a loop to Chestnut Street Multi-Use trail. Use Minnesota Ave Alley to connect to CV Starr Center.
K	12/7	East Fort Bragg Recreational Loop	Multiuse	Utilize relatively quiet streets for a recreational loop. Willow St. connects CV Starr Center to playing fields
L	16/10	Soldier Point & Noyo River Water Trail	Canoes and Kayaks	Water put-ins at Middle Coastal Trail, River Access Road and boat ramp at Basin Street.

Existing Trails & Potential Opportunities



Existing Trails & Approved Trails

1. **Haul Road to MacKerricher State Park**
Beach-front link northward to MacKerricher State Park.
2. **North Fort Bragg Coastal Trail**
Allows direct coastal access and views, draws visitors.
3. **Middle Fort Bragg Coastal Trail - Phase II**
Ties northern and southern coastal trails together, with trail-head near Downtown and Parking at Alder Street.
4. **South Fort Bragg Coastal Trail**
High quality coastal access with loops and linkage to town via Cypress Street.
5. **Harbor Light Lodge Trail**
Trail Link through Lodge from Upper to Lower N. Harbor Drive for harbor access links to opportunity E.
6. **Noyo Harbor Inn Trail**
Follows Casa Del Noyo Alignment for harbor access.
7. **Pomo Bluffs Park Trail**
Trail-head and Parking. Trail from Todd Point overlooks Noyo Bay to S. Main Street
8. **Hare Creek Trail**
Nature walk with beach access from S. Main St. and College of the Redwoods.
9. **Chestnut Street Multi-use Trail**
Safe Routes to School, with ADA access. Widens narrow sidewalks to multi-use trail.
10. **Otis Johnson Park Nature Trail**
Nature walk and forest access.
11. **Dana Street Multi-use Trail**
250' Safe Routes to School link between Cedar and Oak on Dana St. alignment.

Potential Opportunities

- A. **Elm Street Improvements**
Strengthen northern pedestrian linkage to Coastal Trail from downtown, Signage at Main Street, Link to Franklin St.
- B. **Redwood Street - Coastal Trail Linkage**
Downtown linkage to Coastal Trail parking at Alder via Chief Celari Alley to Redwood and signalized crossing at Main Street.
- C. **Main Street Multi-Use Trail**
Trail west of Main Street from Middle Coastal Trail to Highway 20. (Subject to Owner's Permission).
- C1. **Main Street Alternative**
Use of Franklin or alleyways parallel to Main St as an alternative North South linkage.
- D. **Cypress Linkage**
Cross Main Street to Safeway at signalized intersection, ties to A&W Haul Road and Hospitals.
- E. **Noyo Harbor /Fort Bragg Coastal Trail Connection Trail**
Improve existing road cut to multi-use trail, requires stabilization of landslide area.
- F. **South Noyo Harbor Trail**
Access to Harbor with views on short walking trail. Could use passage under Highway 1 to extend Pomo Bluffs trail eastward to Southern Harbor.
- G. **Skunk Train Railroad Tracks Trail**
Consider widening to include trail use.
- H. **A&W Haul Road**
When logging trucks are not running, allow recreational use. (Subject to Owner Approval)
- J. **High school Multi-use Trail Loop**
Connect soccer fields, ball fields, and stadium area in a loop to Chestnut Street Multi-Use trail. Use Minnesota Ave Alley to connect to CV Starr Center.
- K. **East Fort Bragg Recreational Loop**
Utilize relatively quiet streets for a recreational loop. Willow St. connects CV Starr Center to playing fields.
- L. **Soldier Point- Noyo River Water Trail**
Water put-ins at Middle Coastal Trail, River Access Road and boat ramp at Basin Street.

-  **Trail Opportunity Selected for Feasibility Study**
-  **Conceptual Trail Loops**

Fort Bragg City of Trails



Figure 1: Existing Trails & Potential Opportunities, Presentation board used at public workshop on October 29, 2015

V. EVALUATION OF PRIORITY TRAILS

This section evaluates each of the three selected trails. Each trail concept is introduced and the benefits of developing the trail and related trail connections are described. Trail ownership and the existing conditions that affect trail development are described. Development proposals for each trail are presented and potential environmental impacts, permitting and maintenance requirements are described. Each of the three trail discussions ends with a summary of potential issues and additional data needs.

1. Redwood Avenue and Alder Street Trailhead

Trail Concept and Benefits

The concept for the Redwood Avenue link to the middle section of the Coastal Trail is to provide a short, easy and enjoyable trail connection to downtown that shifts the outdoor coastal trail hiking experience to an urban experience where visitors can access downtown restaurants and shops. From the downtown employment center, workers would also enjoy a short walk and fresh air by the coast by taking the same pathway. The connections would be made from the proposed Oak / Alder Street Coastal Trailhead (or potentially other preferred trailhead locations) and parking area(s) by improving Chief Celery Drive into a multi-use trail, though predominately a pedestrian way with sidewalks and landscaping, where possible. On Redwood Avenue, sidewalks, paving, landscaping and signage would provide wayfinding guidance to improve the visitor experience on both sides of Main Street. All pedestrians would be encouraged to cross Main Street at the Redwood Avenue crosswalk. Visual cues, such as paving or possibly murals or sidewalk painting and wayfinding signage, would lead visitors to Main Street and the Franklin Street shopping areas as well as describe other destinations and directions.

Related Trail Connection Opportunities

Recreation on the west side of Main Street could be connected to employment and business centers on the east side. Two loops incorporating both the northern and southern Coastal Trails and Franklin Street could be made by improving the other Main Street crossings and connections from Redwood at Elm Street to the north and Cypress Street to the south. Both loops could meet at the Redwood Avenue / Main Street crossing, as illustrated by the orange-dashed ovals in Figure 1. A third southern loop also could also provide linkages to both North and South Noyo Harbor and the Coastal Trail.

Additionally, Caltrans has proposed to add sidewalk on the west side of Main Street between Maple Street and Cypress Street, which could also be tied into the middle section of the Coastal Trail via an Oak Street linkage. This addition would connect businesses and motels on South Main Street with the Coastal Trail and provide additional alternatives for recreational loops on the west side of Main Street. Additionally, a tie in should be made to the proposed Chestnut Street multiuse trail, via the signalized intersection at Chestnut Street.

On Franklin Street, the extensive Class II on-street bicycle trail network can be accessed to ride a bike nearly anywhere in Fort Bragg. With a direct connection between downtown and the Coastal Trail, the recreation and transportation opportunities on both sides of Highway 1 would be linked and much more accessible.

Ownership and Acquisition

Chief Celery Drive is a twenty-foot wide public right of way, essentially an alley, a half a block west of Main Street that is owned by the City of Fort Bragg. Georgia Pacific (GP) and Lyme Timber own many properties on either side of this road and both use it to access their offices and parking. Many of the businesses facing Main Street have rear access and parking lots off of Chief Celery Drive. No additional property acquisition would be necessary for this component of the project. Installation of landscaping improvements on either side of Chief Celery Drive would, however, require participation by private land owners or the acquisition of a narrow easement along the pedestrian corridor.

The Alder Street trailhead would be located on lands that will soon be acquired by the City of Fort Bragg from Georgia-Pacific. In addition to the Alder Street trailhead, a large paved area within the lowland area of the former Mill Site has also been proposed for a parking lot.

Existing Conditions

Figure 2, illustrates the existing conditions along the proposed downtown link to the Coastal Trail with photos of Redwood Avenue and Chief Celery Drive. The top two photos show Redwood Avenue, the first of which is looking west from Franklin Street showing the storefronts and wide sidewalks on the both sides of the street with views towards the Pacific Ocean. The second photo looks east from Chief Celery Drive towards Main Street with its signalized intersection and pedestrian crosswalks. Signs and visual cues linking the Coastal Trail and downtown should be included along Redwood Avenue in order to guide visitors in downtown towards the Coastal Trail.

The third and fourth photos of Figure 2 illustrate Chief Celery Drive from the north and south respectively. The third photo is looking South down Chief Celery Drive from the intersection with Redwood Avenue. Campbell's headquarters is visible to the right and the parking lot is visible on the left. Alder Street is visible in the distance (at the stop sign) and the proposed Alder Street parking area would be located just beyond the last building to the right. The fourth photo is looking north, up Chief Celery Drive towards the Company Store. The 20-foot right of way includes two driving lanes and private properties on either side.

Recommended Improvements

Chief Celery Drive from the Alder Street parking area to Redwood Avenue should retain vehicular access for business access, but could also be transformed into a pedestrian oriented alleyway. The alleyway should be resurfaced with permeable paving, such as interlocking pavers, with some landscaping in narrow strips where possible, as illustrated in Figure 3, green

alley funding is a potential source of funds for this project. Pedestrian scale lighting, while not essential, would facilitate pedestrians walking to downtown after dusk. A 6-8' wide sidewalk on the west side of Chief Celery Drive should be added for additional pedestrian safety, and in order to accommodate the sidewalk within the right of way, the vehicular lane would have to be narrowed to 12-14' wide with one-way only access (from south to north).

The initial proposal directs pedestrians to the south side of Redwood Avenue to the intersection with Main Street. As the connection becomes more popular, most pedestrians from downtown would be on the north side of Redwood Avenue (the sunny side of the street) where the sidewalk is wider. Use of the northern sidewalk west of Main Street is currently complicated by the parking arrangement at the Company Store which causes conflicts with pedestrian use and crossing Redwood Avenue. If the parking for the Company Store could be resolved, that space is in a prime location to capitalize on future pedestrian traffic as it is a southwestern exposure with a view of the coast which would be well suited for a potential outdoor café serving visiting hikers.

A proposed temporary Coastal Trailhead and parking area between Alder and Oak is illustrated in Figure 4, and would include temporary parking for approximately 60 cars and six RVs, busses or other large vehicles with trailers. However this area will not be developed with permanent improvements.

Ultimately, the City anticipates developing an existing paved area further into the Old Mill property into permanent parking for the middle section of the Coastal Trail, as illustrated in Figure 4A. This location is preferred as it would be a relatively inexpensive location for a paved parking area. GP would prefer the parking lot to be located in this location, and the temporary lot is zoned Central Business District and could be developed at a future date.

Environmental Impacts and Permitting

The improvements on Chief Celery Drive and Redwood Avenue would not have any impacts on Environmentally Sensitive Habitat Area (ESHA). However, increased impervious surface area and stormwater runoff associated with the parking area would trigger a permit with the Regional Water Quality Control Board (RWQCB). Proposed permeable paving on Chief Celery Drive would reduce existing stormwater runoff. The paved parking area in the lowland area could include Low Impact Design (LID) features to capture stormwater runoff or direct runoff to retention basins for runoff control.

The temporary parking lot between Alder and Oak would create additional traffic as a new recreational destination. For the City of Fort Bragg, the additional visitors would help to fill motel rooms and restaurants, and generally improve the local economy. Additional information regarding permitting in the Coastal Zone is provided at the end of this report.

Maintenance Requirements

The new parking area and Redwood Avenue access would increase visitor activity in this area since access to the Coastal Trail and downtown would be very easy. Regular street cleaning, litter removal and lighting maintenance would be necessary to put the City's best foot forward to provide the most positive visitor experience possible. Permeable pavement must be kept clean, with at least quarterly street sweeping to retain its porosity. Catch basins and LID features are designed to accumulate water and with it accumulated sediment needs to be removed before and after seasonal rains.

Potential Issues and Data Needs

1. **Confirmation of the City's preferred parking area.** Two options currently exist: 1) the area between Oak and Alder, and 2) the paved area closer to the coast and inside the Old Mill site. From the perspective of drawing more visitors to both downtown Fort Bragg and the Coastal Trail, the closer the parking area is to the downtown area the better the chances to increase downtown business by attracting trail users.
2. **One-Way on Chief Celery Drive.** Reducing potential vehicular and pedestrian conflicts will help make Chief Celery Drive a safe and successful pedestrian linkage. Maintaining rear lot vehicular access is also important to the businesses along Main Street. Business access could be maintained by designating one-way only traffic, which would also reduce potential pedestrian conflicts on Chief Celery Drive. In addition, one-way traffic would allow some of the 20-foot right of way to be used for a sidewalk and landscaping.
3. **Identify driveways for vehicular access from Chief Celery Drive.** Recommend working with the landowners to confirm driveway locations from Chief Celery Drive, and locations for other potential improvements such as possible fencing and landscaping. Access and egress via the driveways from the alley must be maintained into the adjacent parcels. Ultimately, the driveways define where sight distances must be maintained, the location and height of planting adjacent to the alley and where pedestrian crossings must delineated. Pedestrian access could be kept to the west side, to avoid most driveways.
4. **Planting areas along Chief Celery Drive.** Planting areas will soften the existing 'back-door' character of the alleyway and make it more welcoming to pedestrians. Planting areas and fences would be located to avoid driveways and would be low enough to allow views to remain open for safety. Trees could be planted to provide an overhead canopy and wind protection in some areas. Trees would be carefully located to minimize view obstruction.
5. **Pedestrian Lighting.** Lighting would extend the period of parking for downtown uses to well after dark. Lighting would allow those who may have taken a late afternoon hike to go out for dinner afterwards in Downtown and return safely to their car. This would eliminate the need to drive to the downtown or relocate their car.



Figure 2: Photos of Redwood Avenue and Chief Celery Drive



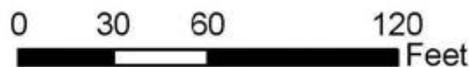
Figure 3: Concept Plan for Chief Celery Drive Pedestrian Way to Redwood Avenue



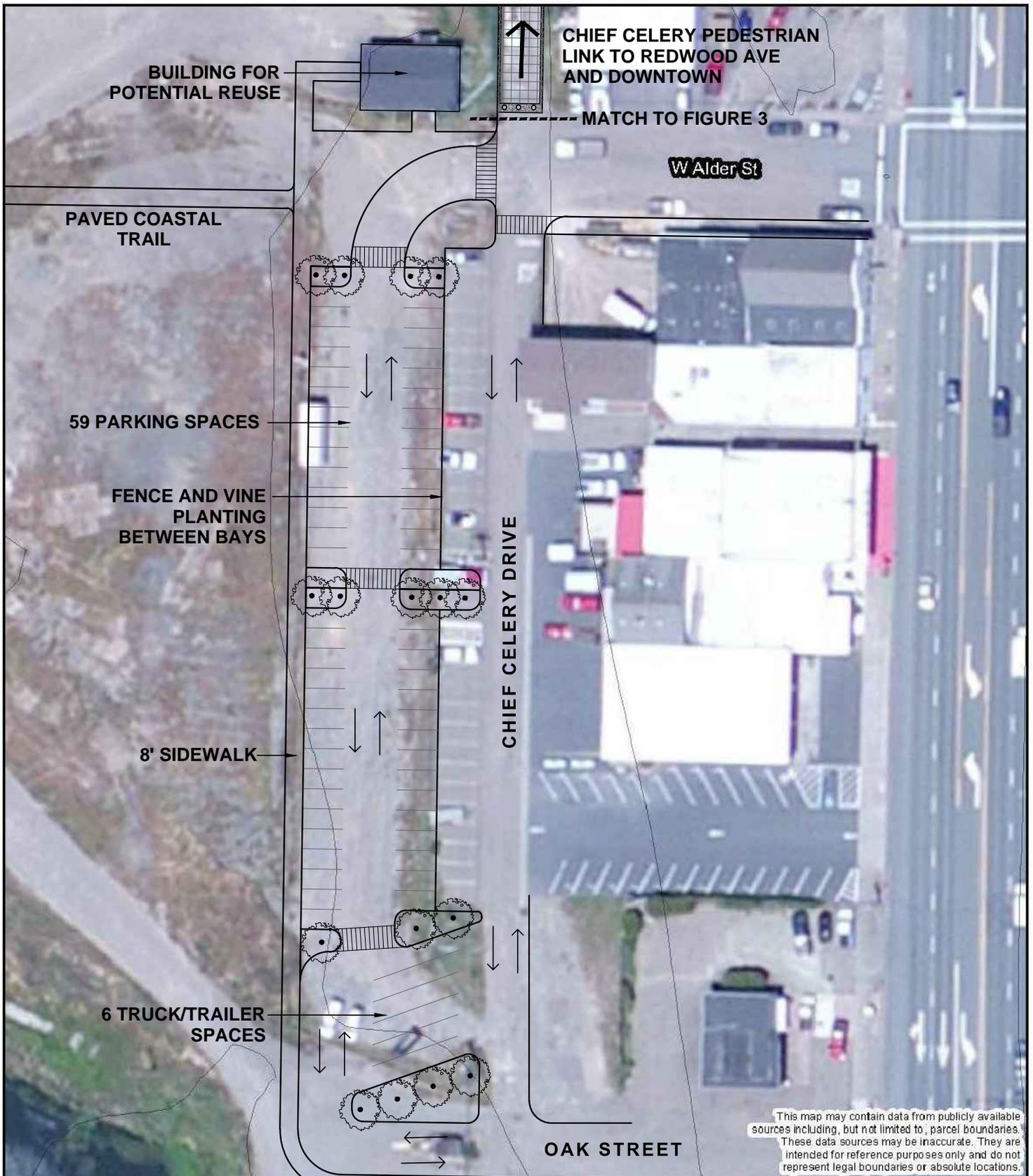
1 inch = 60 feet

ENVIRONMENTAL CONSULTANTS

City of Trails Feasability Study
Fort Bragg, California



Map Prepared Date: 12/29/2015
Map Prepared By:
Base Source: Esri Streaming - NAIP 2014
Data Source(s): WRA

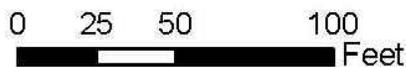


This map may contain data from publicly available sources including, but not limited to, parcel boundaries. These data sources may be inaccurate. They are intended for reference purposes only and do not represent legal boundaries or absolute locations.

Figure 4: Alder Street Coastal Trailhead and Parking



1 inch = 60 feet



City of Trails Feasibility Study
Fort Bragg, California



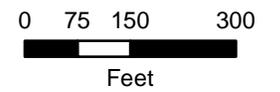
Map Prepared Date: 1/4/2016
Map Prepared By: pkobylarz
Base Source: Esri Streaming - NAIP 2014
Data Source(s): WRA

City of Trails
Feasibility Study

Fort Bragg,
California

Figure 4A.

Middle Coastal Trail
Mill Site Parking Area



Map Prepared Date: 6/28/2016
Map Prepared By: fhourigan
Base Source: Esri Streaming - NAIP 2014
Data Source(s): WRA

2. Old Mill Road Multi-Use Trail to North Noyo Harbor

Trail Concept and Benefits

The design concept for the Old Mill Road multi-use trail connection to North Noyo Harbor is to utilize the existing unimproved road cut that traverses the top of the bluff on the north side of Noyo Bay (adjacent to the old cemetery) down to the dredge sands location and the harbor just after the Noyo Bridge. This connection would extend the Coastal Trail southward to provide pedestrian and bicycle access directly to Noyo Harbor, allowing locals and tourists to visit an active working harbor. The existing road (Old Mill Road) is a former logging road, and could be improved with either a Class 1 multi-use paved trail or a less expensive gravel and crusher dust surface, similar to the trail surfaces on the new Coastal Trail project. Engineering evaluations of this trail alignment are (will be) provided as Addendum 1.

Related Trail Connection Opportunities

The final link to the Harbor District from the base of Old Mill Road would be via *lower* North Harbor Drive. In this location, just east of the Noyo Harbor Bridge crossing above, North Harbor Drive is narrow for about 200 feet, where the hill and the harbor pinch the road on both sides and limit shoulder width. Currently cyclists and pedestrians share the road with cars, and periodically with trucks hauling dredge spoils. Just west of the rowing club, there may be an opportunity to develop a cantilevered sidewalk for bicycles and pedestrians between the road and over the harbor edge. In the interim, installation of a 'Congested Area' sign would be helpful.

Recommended trail improvements on the *upper* portions of North Harbor Drive will be discussed in the addendum attached at the end of this report.

Recommendations:

- **Lower North Harbor Drive** – Install 'Share the Road' signs to provide a Class III link from the base of Old Mill Road to North Harbor businesses, restaurants and recreation. Identify independent alignments for Class I trail to Noyo Harbor Inn where possible. Wayfinding signage to/from Harbor District destinations and the Coastal Trail would be important.
- **Harbor Lite Lodge Trail** – This trail currently provides a pedestrian-only trail from the top of Noyo Harbor Drive to the bottom of North Harbor Drive. Older wood framing and asphalt steps would benefit from an overhaul. Suggested improvements include: installation of permanent concrete stairs, and reducing grades where possible by extending switchbacks further under the Noyo Harbor Bridge.

Ownership and Acquisition

The old haul road trail alignment is owned by the City of Fort Bragg and a portion of it is currently leased to the Harbor District. The 55-year lease for the parcel started in 1990 (Fort

Bragg 1990) and extends through 2045. The District operates the Dredge Spoils area on the southern portion of the parcel and has blocked the old access road with fill dirt. The Harbor District² is amenable to the concept of a trail on the property, though the District wants to ensure that any earthwork would not affect the stability of the berm and their ability to store and transfer dredge spoils at the site.

Existing Conditions

The Old Mill Road is an unimproved road of about 12-feet in width and about 2,000 feet in length with elevations that range from about 85 feet at the top of the coastal bluff down to about 6 feet near Noyo Harbor. The upper part of the unimproved road, at the top of the bluff, is not used and is overgrown. As it descends down the traverse across the coastal escarpment around Noyo Harbor there are a few trees and vegetation that is composed of mostly native coastal sage scrub and pampas grass. A seep from the hillside above drains into the upslope ditch, and has produced a small wetland. The informal ditch flows across the road and the fill slope below has failed below and the roadbed and is in need of repair as a result.

Photographs of the Old Mill Road are provided in Figure 5. The top photo shows the upper segment where it should connect with the Coastal Trail. The second photo provides an overview of the alignment above Noyo Beach. The third photo shows the two alternative routes of the middle segment around the pond and also the lower segment (to the right) which would lead from the pond to the parking area at Noyo Harbor. The fourth photo illustrates the fill that has been placed on the alternative alignment on the east side of the dredge spoils site.

Recommended Improvements

The trail linkage has three segments: 1) the upper segment, from the top of the bluff to the pond; 2) the middle segment on the berm around the pond; and 3) the lower segment from the berm to the lower North Harbor Drive. Each segment has a different set of requirements as discussed below. A conceptual design is provided as Figure 6 below, please refer to this figure for the following discussion.

² Personal conversation with Jere Kleinback, Noyo Harbor District, December 1, 2015

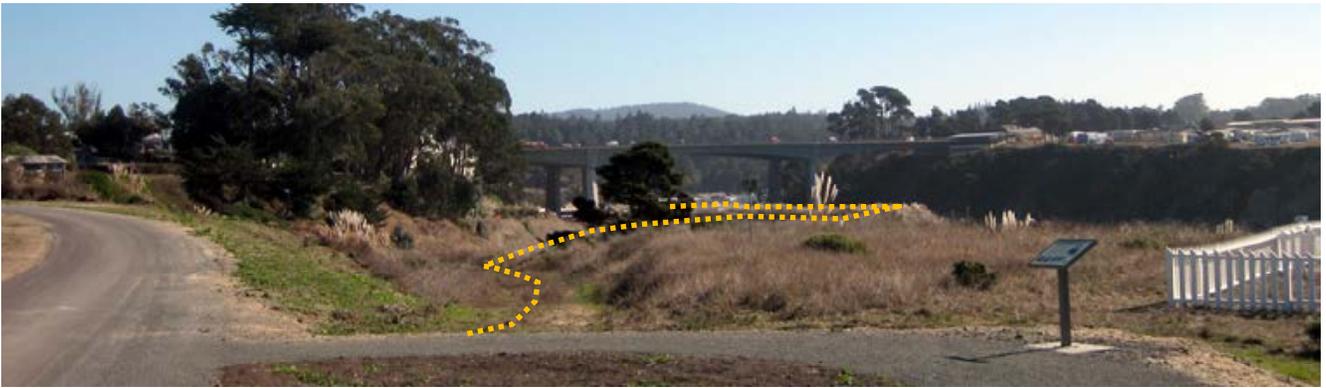


Figure 5: Photos of Old Mill Road

City of Trails Feasibility Study, Fort Bragg, California



This page intentionally left blank



Figure 6: Old Mill Road Multi-Use Trail Concept



Upper Segment - The top of bluff to the north side of the pond is about 750 linear feet. This upper segment requires surface grading, reconstruction of the inboard ditch and drainage, installation of sub-grade and repair of a small landslide on the fill slope.

Fill slope repairs near station 6+50 would require re-grading of an eroded fill slope and stabilization within the eroded area, which is approximately 30' wide by 12' deep (triangular) at the top by the road. The eroded area extends from near the beach level up to the road which is about 60-feet above the beach. There is a seep (and related wetland) on the trail alignment. Installation of a culvert or boardwalk approximately 25' long by 12' wide (or slightly arched bridge to avoid shading the wetland) is required to move water from the inboard to outboard sides. After trail work and slope stabilization are completed, the disturbed area (approximately 3,000 SF) should be revegetated and erosion control Best Management Practices (BMPs) should be installed. The Class 1 Coastal Trail improvements should include installation of benches overlooking Noyo Bay and interpretive signage where feasible, consistent with the Coastal Trail.

The middle and lower segments, near the dredge spoils pond, are actively used every three to five years by the Harbor District for dredging of the Noyo Harbor and/or the river bed. Dredged materials are pumped into the pond, where spoils are dewatered and eventually excavated and the materials are loaded and trucked away via the lower North Harbor Drive.

Middle Segment – The middle segment has two alignment alternatives; it could be located on either the east or west side of the dredge spoils area. At first blush the west side appeared to be the preferred alignment because: 1) it offers a relatively flat dirt road that could be fairly inexpensively developed into a trail; 2) the trail alignment would avoid conflicts with truck traffic during dredging episodes, and 3) it offers better views of the ocean and the beach below. However, the berm on the west side of the dredge pond is not precisely engineered and the toe of the slope is next to the beach where it is vulnerable to sea level rise. A simple pedestrian-only pathway on the berm (using the existing dirt road with no improvements), would be the best way to make use of this alignment at no cost.

A trail alignment on the east side of the pond could be reconstructed into the Old Mill Road Trail, and this is the most affordable alignment for an improved multi-use trail that also serves cyclists. However, an east side trail would be exposed to the Harbor District's dredging operations every three to five years. These episodes of dredging activities include slurry pumping, excavation and trucking of dredge spoils, which are typically focused in a level work area just below the North Cliff Hotel. The recreational trail would need to be closed during dredging episodes to avoid interfering with the dredging operations.

The eastern pond alignment would also require: 1) removal of approximately 200 CY of debris; 2) grading and installation of a railing along the pond, and; 3) the possible construction of a 100' long x 6' tall retaining wall to support the road cut in one area.

Lower Segment - From pond to North Harbor Drive. For approximately 300 horizontal feet above North Harbor Drive, trucks utilize a relatively steep (~15%) driveway and a separate, more gentle trail alignment, away from the driveway would be desirable.

A conceptual grading study for the lower segment to the Noyo Beach Parking area is provided as Figure 8, the Pond and Trailhead Grading Study. The grades next to the steep dredge sands entrance driveway in Figure 8 are reduced to 12%, by extending the trail into the southeastern corner of the dredge pond area. The concept of using the corner of the dredge pond to meet trail grade requirements was considered feasible by the Harbor District engineers.³ To reduce the slope further, and to be within ADA requirements, a 500-foot ramp would begin its descent eastward across the top of the dredge sands berm from the Southwest corner of the pond, utilizing fill in the southeast corner of the pond to initiate a 180 degree switchback turn to the west as it descends to the harbor parking area. The modified dredge pond would continue be large enough to support dredging operations after construction of the trail. This configuration would however incur the expense of required over-excavation of the berm area and re-compacting to achieve required soil densities beneath the trail. This construction is not complicated, but does require more earthmoving than a simple excavation. Costs would be minimized by containing the majority of earthmoving within a relatively small area at the southeastern end of the berm.

If the trail alignment to the east/north of the dredge sands pond is pursued a similar angled and sloped trail alignment would be needed to link the trail with North Harbor Drive. On the east side of the Dredge Sands area access driveway, the slopes are steeper but the ground is native soil.

Grading and ADA Accessibility

As described in Table 3, average grades at the top of the bluff for the first 350-feet of the trail are less than 5%. In this area, surface swales on the uphill side of the trail will be needed to keep water away from the trail bed. Between stations 3+50 and 7+50 (400 Linear Feet [LF]) the trail grades increase to about 8%, as the trail descends down the escarpment, losing about 30' in elevation between the two stations. With an 8% grade this section of the trail could meet American's with Disabilities Act (ADA) accessibility requirements by incorporating 5' long, generally level resting areas (the full width of the trail) into the final grading design. ADA resting areas would need to be less than 200 feet apart. Three resting areas could be incorporated starting with a natural leveling of the grade near station 3+50. Another resting area would be needed around station 5+00, and near station 6+50, where a boardwalk/bridge over the

³ Personal conversation with Eric Nielson at SHN Engineering, December 2, 2015

repaired fill slope could be constructed level to also serve as a resting area. If grades exceed 8% the trail would qualify for an exemption to ADA requirements because compliance would not be feasible due to terrain limitations (CDPR 2015).

From station 7+50 to 17+50 (1,000 LF) the trail would be generally level as it crosses the top of the western berm around the perimeter of the dredge spoils pond. From Station 17+50 to 20+00 (250 LF) the trail would move from the top of the berm down the eastern end of the berm as described above and illustrated in Figure 8. A signed and painted crosswalk would finish the connection to the Noyo Beach parking lot.

Table 3: Old Mill Road - Trail Grading Recommendations

Station and Elevation	Vertical (V) : Horizontal (H)	Grades	Recommended Grade/ Drainage Features	Surface and Subsurface
UPPER SEGMENT 0+00 @ 85' elev. 3+50 @ 75' elev.	10' V : 350' H	Level to 5%	Crowned and/or 2% outslope Rolling Dips on upslope Small drainage culvert under trail	8' wide Hot Mix Asphalt (HMA) + 3' wide Quarry Fines Trail 6" Class II aggregate subsurface
3+50 @ 75' elev. 7+50 @ 45' elev.	30' V : 400" H	7.5 %	2% inslope grade with 18-inch wide ditch matches existing grade condition.	7 ½' wide HMA + 18-inch inboard ditch drains to culvert under road at Sta. 7+50. 2' wide Quarry Fines Trail on outside edge with protective safety fence on outside.
MIDDLE SEGMENT 17+50 @ 45' elev.	0-5' V : 1,000 H	Generally Level	Crowned; minor surface swales direct drainage from top of berm.	8' HMA + 3' wide Quarry Fines Trail 6" Class II aggregate subsurface
LOWER SEGMENT 20+00 @ 20' elev.	25' V : 250 H	12%	Outslope, Catch basin and culvert at base of trail near N. Harbor Dr.	Excavate end of berm and fill SE corner of Pond to reduce grades. Compact and place aggregate

Environmental Impacts, Permitting and Maintenance Requirements

The rehabilitation of Old Mill Road into a portion of the Fort Bragg Coastal Trail requires compliance with CEQA. The City would be the lead agency for the CEQA document and the required Coastal Development permit. Environmental impacts would be relatively minor, since the roadbed is already in place. The project could impact a small seep and its associated wetland along the road bed. The road bed also needs repair where the seep drains down to the beach. The project could restore wetland habitat in the drainage swale, which is currently unstable and could be restored thereby creating new wetland habitat.

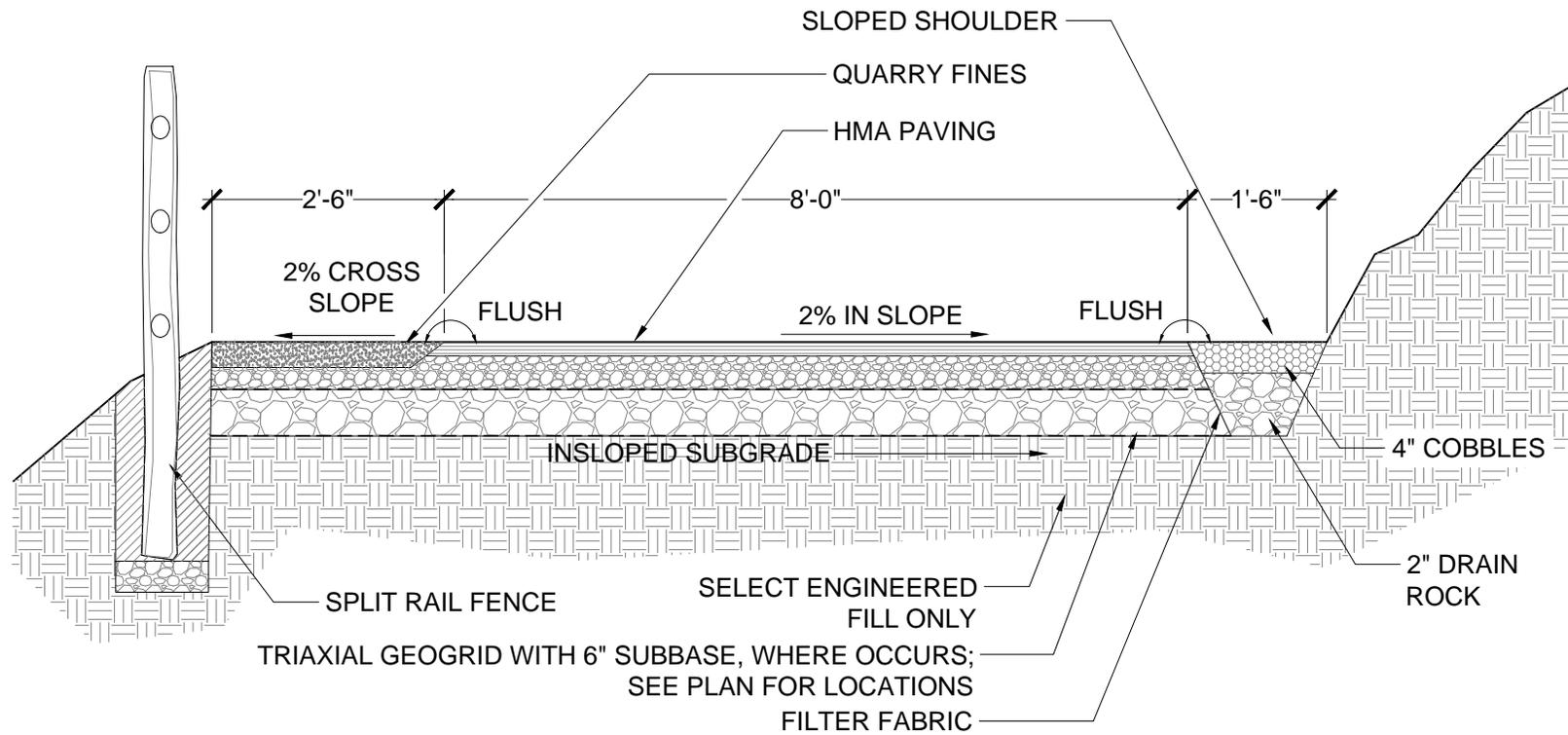
The wetland seep and eroded drainage below station 6+50 would require a wetland delineation and may require an Army Corps 404 permit to impact the wetlands and correct the erosion problem. The California Department of Fish and Wildlife (CDFW) may also require a 1602 Streambed Alteration Agreement. The Regional Water Quality Control Board (the Regional Board) would require a General Construction Permit and a Stormwater Pollution and Protection Plan (SWPPP) since more than one acre of land will be disturbed. The Regional Board will also

review the Corps 404 permit and provide a 401 certification once all other permits are approved. A Coastal Development Permit and grading permit would also be required.

Pampas grass, an invasive species, generally covers the hill slope and the dredge sands area. Resource agencies will be interested in programs to limit the spread of this invasive species. To their credit, the Harbor District did a one-time spray in 2014, however a more consistent program is needed to gain control of this invasive species.

Potential Issues and Data Needs

- **The City** owns Old Harbor Road and would be responsible for arranging funding, CEQA compliance, permitting, installation of improvements, and long-term maintenance.
- **The Harbor District** operates the Dredge Spoils Pond on property leased until 2045 from the City. The Harbor District is willing to participate in the trail project however the project must be compatible with dredging every three to five years.
- **Middle Segment Alternatives** - Two alternatives, one on the eastern side of the pond, and the other on the west side of the pond, are feasible. The west side initially looked more attractive as it is flat, has exceptional views and is relatively ease to develop, except for the final connection down to Noyo Beach. The east side however, is a more secure long-term investment for the coastal trail as it would be less vulnerable to structural stability issues of the berm, storm surges, and eventually higher wave run-ups associated with sea level rise.
- **The Wetland Seep** – On the upper segment water seeps out of the hillside onto the road where wetlands have formed. These wetlands would likely be reconfigured during construction which may require mitigation under CEQA. Wetland mitigation could be incorporated into the fill slope repairs needed below the road.
- **Repair of the Slope** – The fill slope failure at station 6+50 on the upper segment needs a more thorough geotechnical evaluation to determine if the slope should be reconstructed from the bottom up, or if another method is more cost effective. This geotechnical evaluation has been started and results will be provided in an addendum to this report.
- **Coastal Development Permit** – Old Mill Road is in the Coastal Zone and would require a Coastal Development Permit from the City of Fort Bragg.



SCALE: $\frac{1}{2}'' = 1'0''$

Figure 7: Old Mill Road - Upper Segment Cross Section

City of Trails Feasibility Study
Fort Bragg, California



Date: May 18, 2016

Old Mill Road
Noyo Beach Trailhead

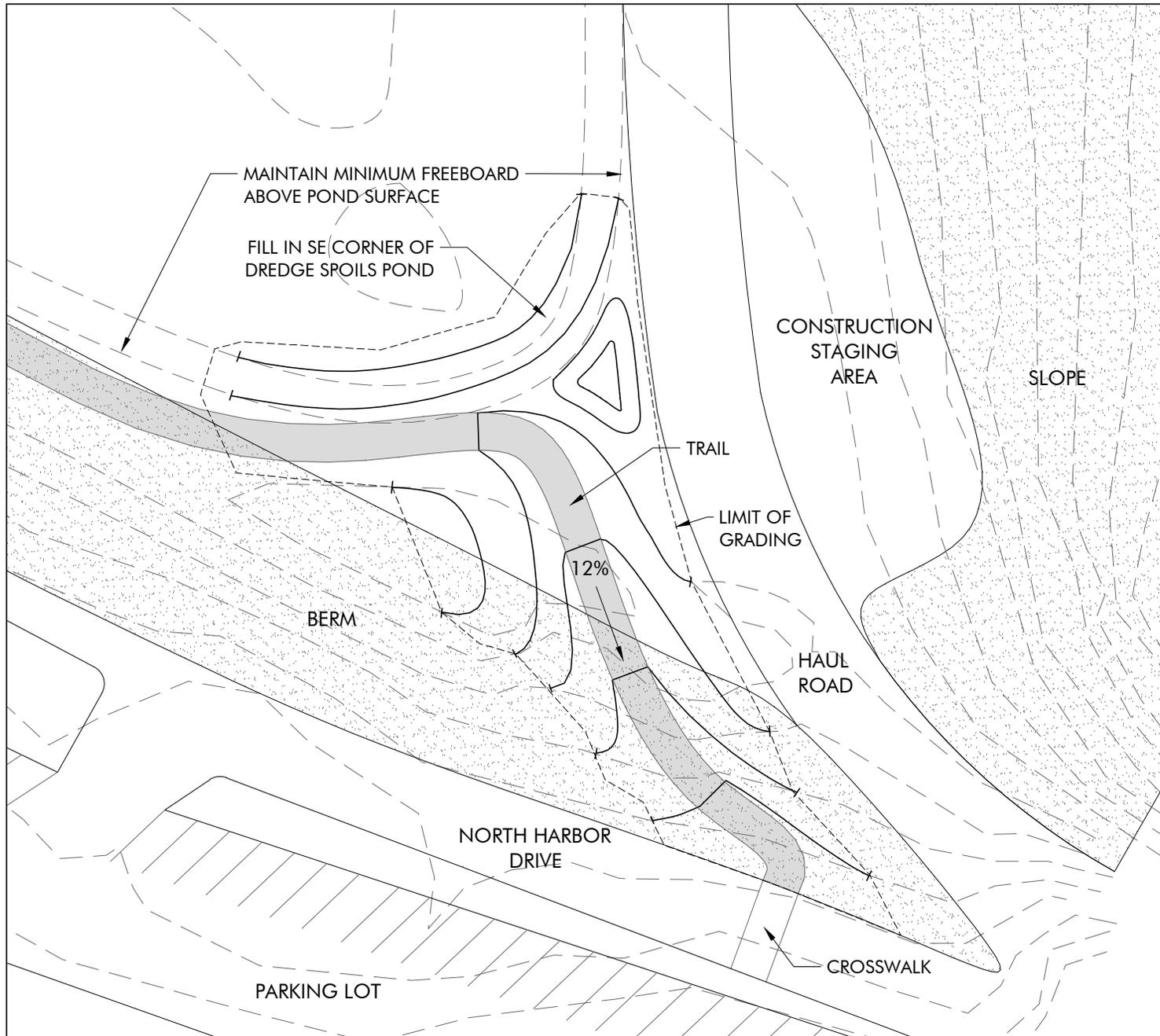
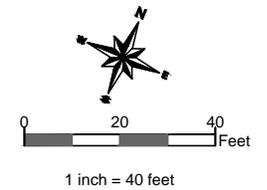


Figure 8:
Pond and Trailhead
Grading Study

City of Trails
Feasibility Study
Fort Bragg, California



Date: Jan 2016
Figure By: RFP

3. South Noyo Harbor Trail

South Noyo Harbor Trail, an existing social trail on private property, links the southeast side of Main Street to the South Harbor. Photos of the social trail are attached in Figure 9. The following discussion describes how the City could convert this social-trail/homeless encampment into a City asset. The social trail starts at Main Street on the South Side of the Noyo River Bridge as seen (just behind the fire hydrant) in the top photo of Figure 9. The trail uses the only available and somewhat gradual slope, as seen in the second photo of Figure 9, to descend from the coastal bluff down the river escarpment to the Noyo River, about 85-feet below. The steep trail has become heavily eroded and blocked by fallen trees. A number of Bishop pine trees that line the trail have reached the end of their lives and need to be removed. The switchbacks on the slope need to be reconstructed. The path along the river is in relatively good condition as seen in the third photo in Figure 9. Permission to cross private properties and a strategy to manage the pedestrian interface at the working Caito Fisheries dock, as seen in the bottom photo of Figure 9, are central to making this a viable trail for the City.

Trail Concept and Benefits

The purpose of the South Noyo Harbor Trail would be to provide better pedestrian access for workers and recreationists to get to South Noyo Harbor as illustrated in Figure 10. The working harbor is an employment destination with a marina, access to much of the fishing fleet, fisheries companies and the Coast Guard Station. Providing direct access with this trail will eliminate the need to walk nearly a mile to Highway 20 and then down South Harbor Drive. The 2,000-foot trail is less than half the distance and offers a scenic walk through the forest, overviews of the harbor, access to a riverfront beach, a controlled passage through a working fishing pier, and finally a back-road walk to the marina. Increasing active use of the trail by workers and visitors, would help to reduce transient use of the area.

Related Trail Connection Opportunities

Three trails converge at the south end of the Noyo Harbor Bridge. To the west is the Pomo Bluffs Trail, to the North is the Main Street Trail and to the East is the South Noyo Harbor Trail. Linking these trails together would be a significant step towards building the city-wide trail network. The existing Main Street Bridge offers an excellent opportunity to serve as a vertical separation. The Pomo Bluffs Trail and the South Noyo River Harbor Trail could be linked under the bridge and avoid interruption from vehicular traffic on the surface. .

The Pomo Bluffs Trail ends directly across Main Street from the start of the South Harbor Trail. A direct extension of this trail could be made under the Main Street Bridge and would eliminate any auto-pedestrian conflicts at Highway 1, on the surface. This 300-foot section of trail, under the Caltrans Highway 1 right of way, illustrated from Station 0 to -3 in Figure 10, would require construction of a 150-foot long, six to eight-foot high retaining wall, probably with cast in place soldier piles or concrete piers. This construction would be just beneath a storage area, and out of view from the Point Noyo Restaurant and above a steep slope some 85-feet down to the

river. The existing Pomo Trail on the west side of Highway 1 would provide convenient access for construction equipment, which would facilitate construction. There are however, numerous homeless encampments in the area, particularly down the South Noyo Harbor Trail and a passage under the bridge should wait until safe passage under the bridge can be assured. It is recommended that the South Noyo Harbor Trail be established first, to reclaim public access in the area, before perusing the linkage under the bridge to the Pomo Bluffs trail. When the trails are linked, lighting and security should be included. In the long-run the connection of multiple trails is an important concept for the success of the 'City of Trails.'

The remainder of this report focuses solely on the South Noyo Trail, on the east side of Main Street (Highway 1).

Ownership and Acquisition

The City will need coordination with landowners to acquire pedestrian easements in order to construct and operate this trail.. Some of this work has already been completed.

- The private property at the top of the bluff (Riverview LLC) has recorded an irrevocable offer to dedicate a 25-foot wide pedestrian easement.
- Discussions with owners of properties along the west-bank of the Noyo River (Haun Family and the Bassler Properties) have been positive and both property owners have expressed interest in pursuing this project, especially if the City helps to address homeless issues in this area.
- Caito Fisheries owns three properties and has expressed interest in the trail concept to provide safe access for their employees. The existing social trail currently crosses Caito Fisheries working fishing pier, and a City sanctioned trail in that location (the only feasible location) would need a pedestrian easement.
- A small dirt road provides access to and from Caito Fisheries on the northwestern end, across properties owned by the Katzeff's (and others) to South Harbor Drive. A pedestrian easement on this road could be used to complete the trail into the South Harbor Area including the public boat ramp and the Coast Guard Station. The northwestern end of this road is within City jurisdiction and the southeastern extent is within County jurisdiction.
- South Harbor Drive is within County jurisdiction and a parking area associated with the public boat ramp there may be a feasible location for a small trailhead with parking and information, depending on available space and public sentiment in the area. Coordination between the City and the County, and surrounding landowners, would be necessary to complete a trail in this location, but preliminary signals suggest it is possible.

Existing Conditions

Numerous homeless encampments currently diminish the overall environmental quality and undermine public safety in the area. Most of these encampments are at the northern end of the

proposed trail, near the river. The idea of a trail was welcomed in preliminary discussions with landowners in the area as a way to increase the visibility and security of the site while providing access to local employment destinations.

The trail has four potential segments, as described below, and generally follows the existing social trail alignment.

- **Upper Segment:** The upper segment links to the east side of Main Street (and potentially the Pomo Bluffs Trail, under the Bridge) and quickly descends the steep slope through the forest down about 85-feet to the Noyo River below. The Bishop pine trees in this area are even-aged mature trees with no recruitment in the understory. Many of the trees have fallen, suggesting the end of their life-span (WRA 2013). Final placement of the trail may need to consider removal of some trees and/or a potential trail alignment to avoid falling tree hazards.

The segment on the Riverview property has an irrevocable offer to dedicate a 25' wide pedestrian easement. The easement however does not follow the existing trail and should be adjusted to match the trail alignment. The switchbacks would need to be reconstructed, possibly with steps and eroded areas would need restoration.

- **Middle Segment:** Follows the South Bank of the Noyo River, with access to river beaches and views of the north harbor. The proposed trail alignment would follow the existing trail, which is flat and follows the river. An easement across the Haun Family property and the Bassler property would be needed.
- **Caito Fisheries Segment:** Caito Fisheries occupies the entirety of the south bank of the Noyo River and an easement across this property would be needed to connect with the southern harbor. No other access is available.
- **Private Road and County Interface:** A private dirt road connects Caito Fisheries through the Katzeff property to Coast Road and ultimately to South Harbor Drive which is outside the City limits. With permission for public access, the road could complete the trail connection to the southern Noyo Harbor area.

Soils are an important aspect of trail building and according to *The Soil Survey of Western Mendocino County* (USDA 2005) the area contains two soil types, Heeser sandy loam and Dystropepts, as briefly described below. Both soils are well drained which is positive for trail construction.

Heeser sandy loam, 2 to 15 percent slopes: Heeser sandy loam is mapped in the flatter portions of the area, generally at the top of the bluff. This series consists of very deep sandy loam soils of eolian sands derived from sandstone on marine terraces at elevations ranging from 20 to 240 feet. These soils are not considered hydric, and are somewhat excessively drained with very slow to medium runoff and moderately rapid permeability (USDA 2005).

Dystropepts, 30 to 75 percent slopes: These soils are young, maturing soils derived from sandstone on marine terraces. These soils are not considered hydric, excessively drained with very slow to medium runoff and moderately rapid permeability. Representative profiles are not described; however, these soils contain substantial bedrock (C-horizon) and a poorly developed or absent B-horizon. Dystropepts are mapped on the bluff face within the area.

Recommended Improvements

Primary improvements would include: removal of fallen and potentially dangerous standing trees within the ESHA; trail grading and construction of stairs in the upper trail segment; the addition of quarry fines on all dirt trail surfaces; installation of a trail intersection next to Main Street; and installation of trail and informational signage.

- **Upper Segment:** The gently sloping trail at the top of the bluff becomes progressively steeper until steps would begin at the trail switchbacks leading down the bluff between stations 2+00 and 4+00, as shown on Figure 10. The alignment shown keeps the trail grade to approximately 4:1 (horizontal to vertical) which equates to a 25% grade, a moderately steep grade for hikers. The trail steps could be constructed with 6x6" pressure treated timbers as steps, the installation of which would require gravel subgrades to drain moisture away from the timbers, as shown in Figure 11. In steeper alignments, rocks could also be placed to form steps and gravel used to armor steeper slopes. This approach would be the most durable in the upper trail segment.
- **Middle Segment:** The segment along the Noyo River would be marginally improved with minor surface drainage features and the addition of quarry fines over the existing dirt surface. Signs identifying private property would be included.
- **Caito Fisheries Segment:** Signs would be posted on either side of the Caito Fisheries facility identifying the private property and the permission to pass is subject to owner's approval. Warnings to wait until motioned by a dock worker to proceed during active unloading operations would also be provided.
- **Trailhead at Public Boat Ramp and access along private drive:** The trail would begin/end at the public boat ramp near the end of South Harbor Drive, which is County jurisdiction. Small discrete signs would identify the trail route along the dirt drive to Caito Fisheries. Coordination between the City and the County, and surrounding landowners, would be necessary to complete this trail section.

The South Noyo Harbor Trail could be ADA accessible from South Noyo Harbor, through Caito Fisheries and along the middle segment to the base of the hill before steps ascend to the top of the bluff. Surfacing of the middle segment for ADA accessibility would require installation of a

smooth surface - either stabilized decomposed granite or asphalt. Asphalt would best withstand potential flooding along the river.

Environmental Impacts, Permitting and Maintenance Requirements

Development of the South Noyo trail would require a Coastal Development Permit. The Bishop pines at the top of the bluff are in an ESHA. However, because the lower trail along the Noyo River already exists and no significant additional grading or tree removal would be needed in that area, impacts from the trail improvement project would be minimal and trail alignments through ESHA are permitted by the Coastal Land Use and Development Code. Implementation of BMPs for erosion control both during and after construction will be a requirement of the Coastal Development Permit. Additional information regarding permitting is provided in Section V, Environmental Permitting, near the end of the document.

Summary of Potential Issues and Data Needs

The South Noyo Trail is still in the planning stage, and permission from landowners and various agencies are needed to proceed with project permitting and construction. Some of the initial planning tasks are listed below.

- **Pedestrian Easements** for public access are needed to develop this trail. Identify conditions under which landowners and the City could effectively operate the trail, by addressing security, safety and clean up concerns.
- **Adjust the existing 25' easement** on the Riverview Property to follow the new trail alignment. Recommend seeking owner permission to adjust the easement after trail construction to establish an easement that follows the exact trail location.
- **Coordinate with the County** to establish the trailhead near the boat ramp with appropriate informational and directional signage.
- **Confirm ADA accessibility** needs on the middle segment along the river bank.

This page intentionally left blank



Figure 9: Photos of South Noyo Harbor Trail
City of Trails Feasibility Study, Fort Bragg, California

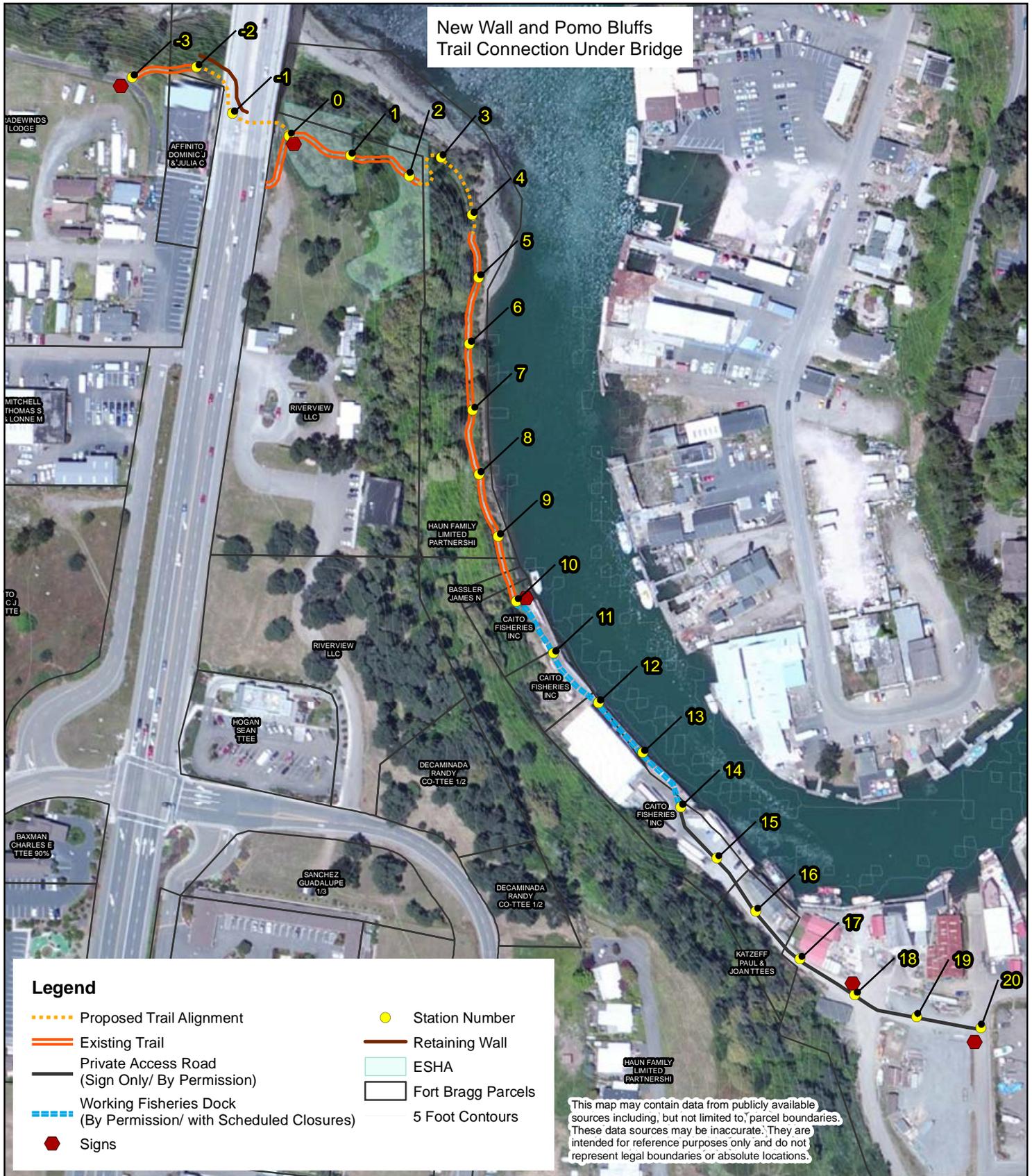


Figure 10. South Noyo Trail Concept

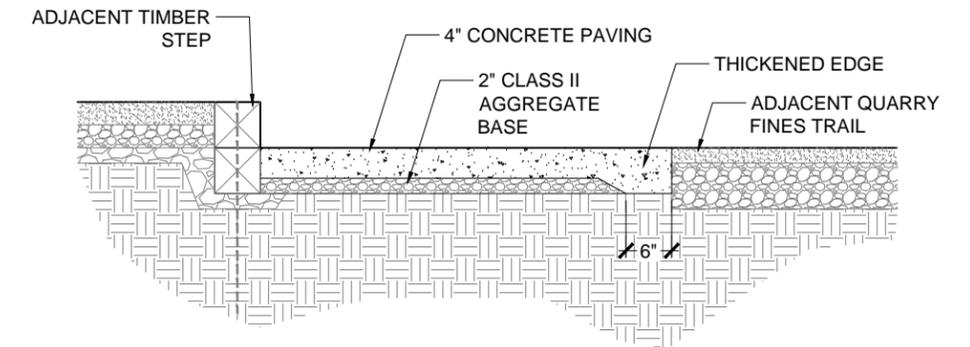
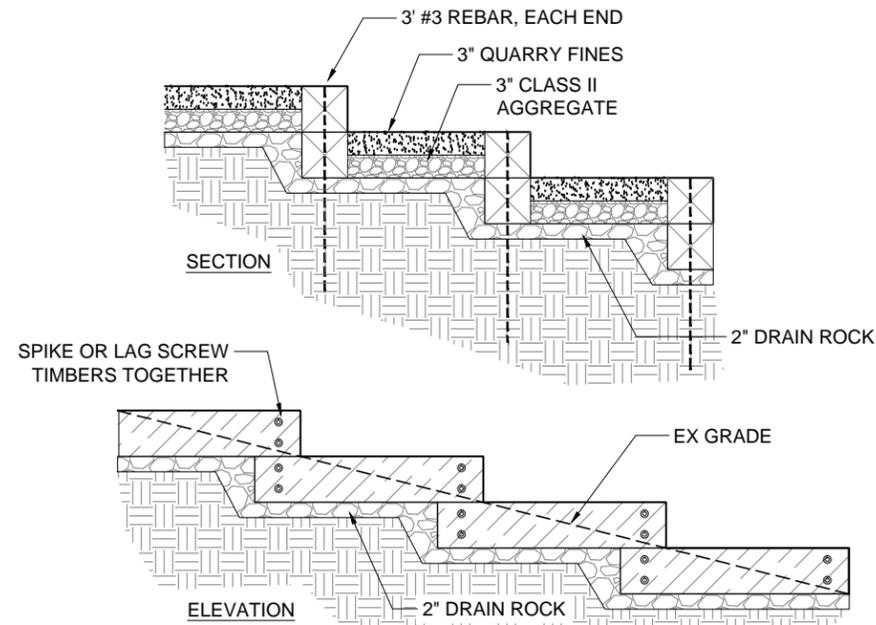
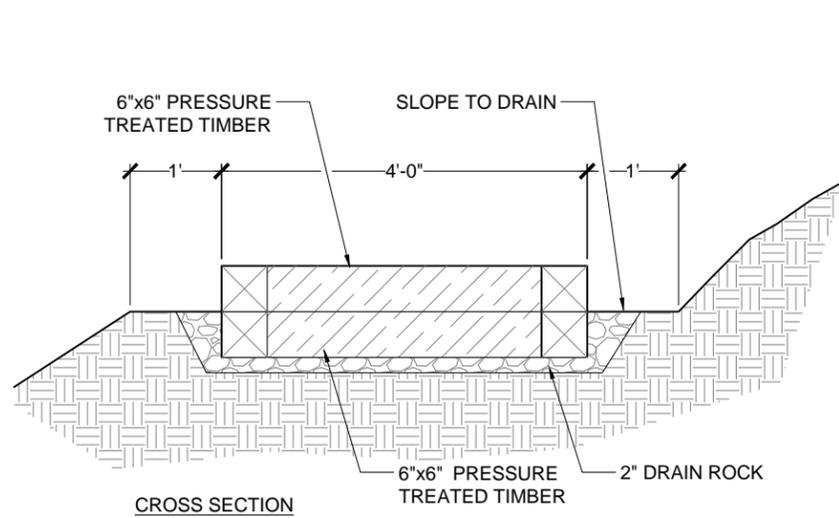
City of Trails Feasibility Study
Fort Bragg, California



1 inch = 200 feet



Map Prepared Date: 5/24/2016
Map Prepared By: fhourigan
Base Source: Esri Streaming - NAIP 2014
Data Source(s): WRA



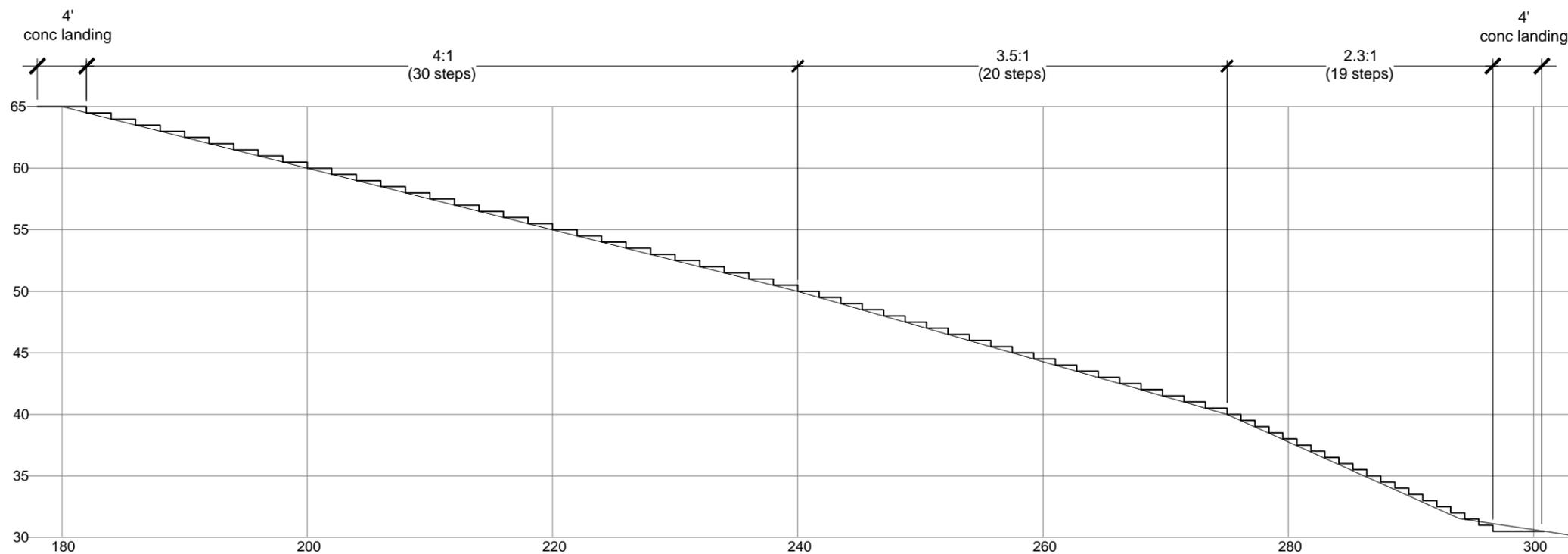
Timber Steps

SCALE: 1/2" = 1'-0"

Timber Steps Landings

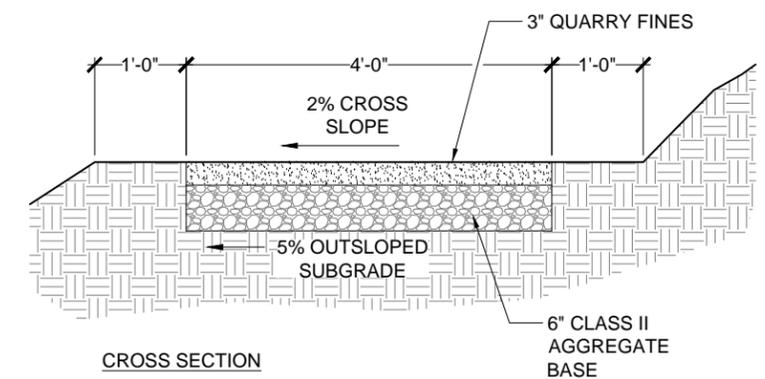
SCALE: 1/2" = 1'-0"

Note: Concrete timbers may be substituted for wooden timbers to reduce long term maintenance. 2" drain rock could be eliminated with concrete timbers.



Steps Profile

SCALE: N.T.S.



Quarry Fines Trail

SCALE: 1/2" = 1'-0"

Figure 11: South Noyo Trail - Typical Sections and Profile

VI. ENVIRONMENTAL PERMITTING AND COST ESTIMATES

Trail Work in Environmentally Sensitive Habitat Areas (ESHAs) of the Coastal Zone

Environmentally Sensitive Habitat Areas (ESHAs) are habitats of rare plants and/or animals. The Conservation, Open Space, Energy and Parks Element of the 2008 Fort Bragg Coastal General Plan includes multiple policies affecting development in ESHAs, which are reviewed here in relationship to the trails proposed. It is important to note that ESHAs in Fort Bragg have not all been mapped, though Map OS -1 does identify areas on or near the proposed trails as sensitive.

Old Mill Road Multi Use Trail

Where a proposed development affects ESHA *wetlands* specifically, Nature Study and Restoration are the few permitted uses (OS-1.3, e and f). This policy would affect the wetland seep on the proposed North Noyo Harbor Trail near Station 6+50. The seep has formed a wetland on the internal edge of the old road and the moisture from the seep appears to have also caused a bank failure below the old road. The project would rebuild the road for future trail use in this area, and restoration of the wetland or at least mitigation for its loss, would be a permitting requirement the US Army Corps of Engineers (the Corps), since they have jurisdiction over wetlands.

The paved portion of the Old Mill Road Multi-use Trail would be 10 feet wide by about 2,000 feet long. The least expensive paving alternative would be typical hot mix asphalt (HMA), and the 20,000 square feet of new impervious surface area would qualify it as a Development of Special Water Quality Concern, which would be subject to additional requirements (OS-12.1 and OS-12.2), such as a Water Quality Management Plan, consideration of structural treatment controls and others. However, at this coastal location and with the outslope design of the trail, the increased discharge rate would be distributed broadly across the coastal bluff escarpment and would not be concentrated in a way that would increase the potential for downstream erosion or other adverse habitat impacts. The use of pervious paving for the multi-use trail could also be considered, but construction costs would be higher.

Removal of invasive plants and incorporation of interpretive signs to inform the public about the value and need to protect sensitive resources is also viewed positively when incorporated into a project. The Old Mill Road Multi-Use Trail project could incorporate Pampas Grass removal from the slopes surrounding the trail and interpretive signs, and in keeping with other Coastal Trail information systems, could call attention to the wetland restoration, related improvements to protect water quality in the Bay, and the benefits of managing invasive species to protect sensitive habitats and protected species.

South Noyo Harbor Trail

In riparian corridors, resource dependent uses such as public nature trails are permitted (OS-1.6, a-d) with some special considerations, such as minimization of the disturbance area and

limited impacts to the riparian corridor. The lower portion of the proposed South Noyo Trail Improvement project follows the existing and relatively flat existing social trail that follows the Noyo River and is within the riparian corridor. Because the trail already exists and no additional grading or tree removal would be needed, impacts from the trail improvement project would be minimal and therefore consistent with the ESHA policy.

On the upper portion of the proposed South Noyo Trail an ESHA has been established on the upper bluff to protect the Bishop pines and surrounding habitat. The Bishop pines however are aging and multiple large trees have fallen across the existing social trail. In this protected area trail improvements would need to address the integrity of the Bishop pines and identify ways to protect or improve the habitat while minimizing potential safety risks to trail users. Recommended approaches incorporated into the concepts proposed in this plan, include:

- Use of the existing social trail as much as possible to avoid additional grading impacts,
- Restoring eroded areas where the social trails are too steep for trail improvements, and
- Identifying new alignments that provide an appropriate grade for walking while minimizing impacts to the Bishop pines and related habitats.

Vegetation removal within an ESHA is permitted for disease control and public safety purposes (OS-1.14) and would require **Coastal Development Permit** approval. Restoration in the ESHA should include replacement of any healthy Bishop pine trees that may be lost due to trail construction, probably at a 2: 1 ratio, and planting of native understory plants, to be obtained from local genetic stocks from within Mendocino County (OS-1.13).

The grade on the identified alignment is generally a 4:1 slope (25%), which is walkable with effort, but otherwise too steep for ADA access or multi-use bicycle trails. The trail surface should be graded to provide out-sloped drainage where possible to avoid concentrating stormwater runoff.

As part of the trail restoration project, a Drainage and Erosion Control Plan would be submitted to the City for approval (policy OS-1.12) and would incorporate sediment and erosion control requirements that meet Best Management Practices in the region.

The Redwood Avenue Connection and Alder Street Parking Area

Because of the urbanized nature of Chief Celery Drive and Redwood Avenue the connections between the Alder Street Parking area and Downtown are not expected to be part of an ESHA or require extra permitting such as a Coastal Development Permit.

Construction Phase Pollution Control

Construction Phase Pollution Control is an important consideration of trail development and is required under Policies OS-14.1-5. The policies address minimization of erosion, sedimentation and pollutant discharges, constraints on vegetation and land disturbance, prompt stabilization of disturbed soils and limitations on grading during the rainy season (from November 1 to March 30). Therefore, trail construction should be scheduled for the spring and summer months.

Cost Estimates

Tables 4 and 5, on the following pages are preliminary cost estimates for construction of the Redwood Avenue trail Connection to Downtown, and the South Noyo Harbor Trail, respectively.

The cost estimates include costs of preliminary and final design, environmental review and permitting, construction and construction management and maintenance elements. Old Mill Road to North Noyo Harbor is undergoing additional engineering and a cost estimate will be prepared, and attached as an addendum to this document, upon completion of that effort.

Table 4: Cost Estimate for the Redwood Avenue Connection

The Cost estimate below is for improvements to Chief Celery Drive and wayfinding signage along Redwood Avenue, as the trailhead and parking for the Middle Coastal Trail are under a separate contract.

CHIEF CELERY DRIVE - COST ESTIMATE							
Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price	Subtotal	TOTAL
I.				PRELIMINARY AND FINAL DESIGN			\$30,000
II.				ENVIRONMENTAL REVIEW AND PERMITTING			\$10,000
III.				CONSTRUCTION			
1	12	1	LS	Mobilization	\$7,500.00	\$7,500	
2	12.1.04	1	LS	Storm Water Pollution Prevention	\$6,000.00	\$6,000	
3	02110	1	LS	Remove Miscellaneous facilities	\$4,000.00	\$4,000	
4	02110	500	LF	Temporary Construction Fencing (TCF)	\$5.00	\$2,500	
5	02110	4	EA	Temporary Signs	\$250.00	\$1,000	
6	02200	1	LS	Paving Demolition - AC Cutting and Removal	\$30,000.00	\$30,000	
7	02212	100	LF	Concrete Curb	\$25.00	\$2,500	
8	02511	7,200	SF	Pervious Pavement - Concrete Pavers	\$15.00	\$108,000	
9	02550	150	CY	Aggregate Base - Class 2	\$85.00	\$12,750	
10	02850	850	SF	Concrete Paving	\$15.00	\$12,750	
11	02870	3	EA	Interpretive Signs and Map Panels and bases	\$1,500.00	\$4,500	
12	02870	6	EA	Small directional sign panels	\$500.00	\$3,000	
13	02870	200	CY	Imported Topsoil	\$40.00	\$8,000	
14	02934	20	EA	24" Box Tree	\$500.00	\$10,000	
15	02934	250	EA	Container Plant 1-gal	\$12.00	\$3,000	
16	02934	3,750	SF	Mulch	\$1.50	\$5,625	
17	02935	1	LS	Irrigation	\$20,000.00	\$20,000	
18	02935	12	MO	Guarantee / maintenance for planting	\$200.00	\$2,400	
				SUBTOTAL		\$243,525	
IV.				CONSTRUCTION CONTINGENCY (15%)		\$36,529	
V.				CONSTRUCTION MANAGEMENT (20%)		\$48,705	
				CONSTRUCTION TOTAL		\$328,759	\$328,759
				TOTAL DESIGN PERMITTING AND CONSTRUCTION			\$368,759
VI.				MAINTENANCE (\$500/ Mo.) for Five Years (60 Mos)	\$500.00	\$30,000	\$30,000
				TOTAL COST WITH FIVE YEARS MAINTENANCE			\$398,759

Table 5 Cost Estimate for the South Noyo Harbor Trail

The cost estimate below includes limited tree removal, construction of approximately 900 linear feet of timber stairs and use of quarry fines for trail surfacing. Use of asphalt surfacing for ADA accessibility on the middle segment, or use of stabilized decomposed granite would be extra. This estimate does not include access under Noyo Harbor Bridge or acquisition of public access easements.

SOUTH NOYO HARBOR TRAIL

Item No.	Section No.	Estimated Quantity	Unit of Measure	Item Description	Item Price	Subtotal	TOTAL
I.				PRELIMINARY AND FINAL DESIGN			\$13,500
II.				ENVIRONMENTAL REVIEW AND PERMITTING			\$9,000
III.				CONSTRUCTION			
1	12	1	LS	Mobilization	\$4,000.00	\$4,000	
2	12.1.04	1	LS	Storm Water Pollution Prevention, Plan / BMPs	\$2,500.00	\$2,500	
3	02110	1	LS	Site Clean Up	\$2,500.00	\$2,500	
4	02110	1.00	LS	Clearing and Grubbing / Tree Removal	\$9,500.00	\$9,500	
5	02110	500	LF	Temporary Construction Fencing (TCF)	\$5.00	\$2,500	
6	02110	4	EA	Temporary Signs	\$250.00	\$1,000	
7	02200	1,000	LF	Earthwork / Trail Grading	\$10.00	\$10,000	
8	02511	4,200	SF	Quarry Fines	\$1.80	\$7,560	
9	02550	80	CY	Aggregate Base - Class 2	\$75.00	\$6,000	
10	02850	32	SF	Concrete Paving	\$20.00	\$640	
11	02850	880	LF	Timber Stairs - 6x6 Pressure Treated Douglas Fir	\$20.00	\$17,600	
12	02873	5	CY	2" Drain Rock	\$75.00	\$375	
13	02870	4	EA	Interpretive Signs, Map panels and bases	\$1,500.00	\$6,000	
14	02870	4	EA	Small Sign bases	\$500.00	\$2,000	
15	02870	4	EA	Fishing Pier Safety sign panel	\$500.00	\$2,000	
16	02870	4	EA	Distance Sign panel	\$500.00	\$2,000	
17	02871	8,000	SF	Erosion Control Blanket	\$0.50	\$4,000	
18	02872	8,000	SF	Seeding	\$0.15	\$1,200	
SUBTOTAL						\$81,375	
IV.				CONSTRUCTION CONTINGENCY (15%)		\$12,206	
V.				CONSTRUCTION MANAGEMENT (20%)		\$16,275	
CONSTRUCTION TOTAL						\$109,856	\$109,856
<hr/>							
TOTAL DESIGN PERMITTING AND CONSTRUCTION							\$132,356
VI.				MAINTENANCE (\$200/ Mo.) for Five Years (60 Mos)	\$200.00	\$12,000	\$12,000
<hr/>							
TOTAL COST WITH FIVE YEARS MAINTENANCE							\$144,356

REFERENCES

2015 CDPR, State Parks Accessibility Guidelines 2015 Edition, California Department of Parks and Recreation. www.parks.ca.gov website accessed January 14, 2016

City of Fort Bragg Lease to the Harbor District 1990-2045, City of Fort Bragg 1990.

City of Fort Bragg, General Plan adopted 2002

City of Fort Bragg, Coastal Plan adopted 2008

City of Fort Bragg, Fort Bragg Wayfinding Plan, prepared by Marie Jones, April 2015

MRCA 2006 - Malibu Parks Public Access Enhancement Plan Accessibility Design Guidelines, Mountains Recreation and Conservation Authority, June 2006

WRA 2013, Coastal Act Compliance Report #21177, Fort Bragg, California

