Yurok Tribe Trails and Waterways Master Plan

January 10, 2014

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1.0 EXECUTIVE SUMMARY

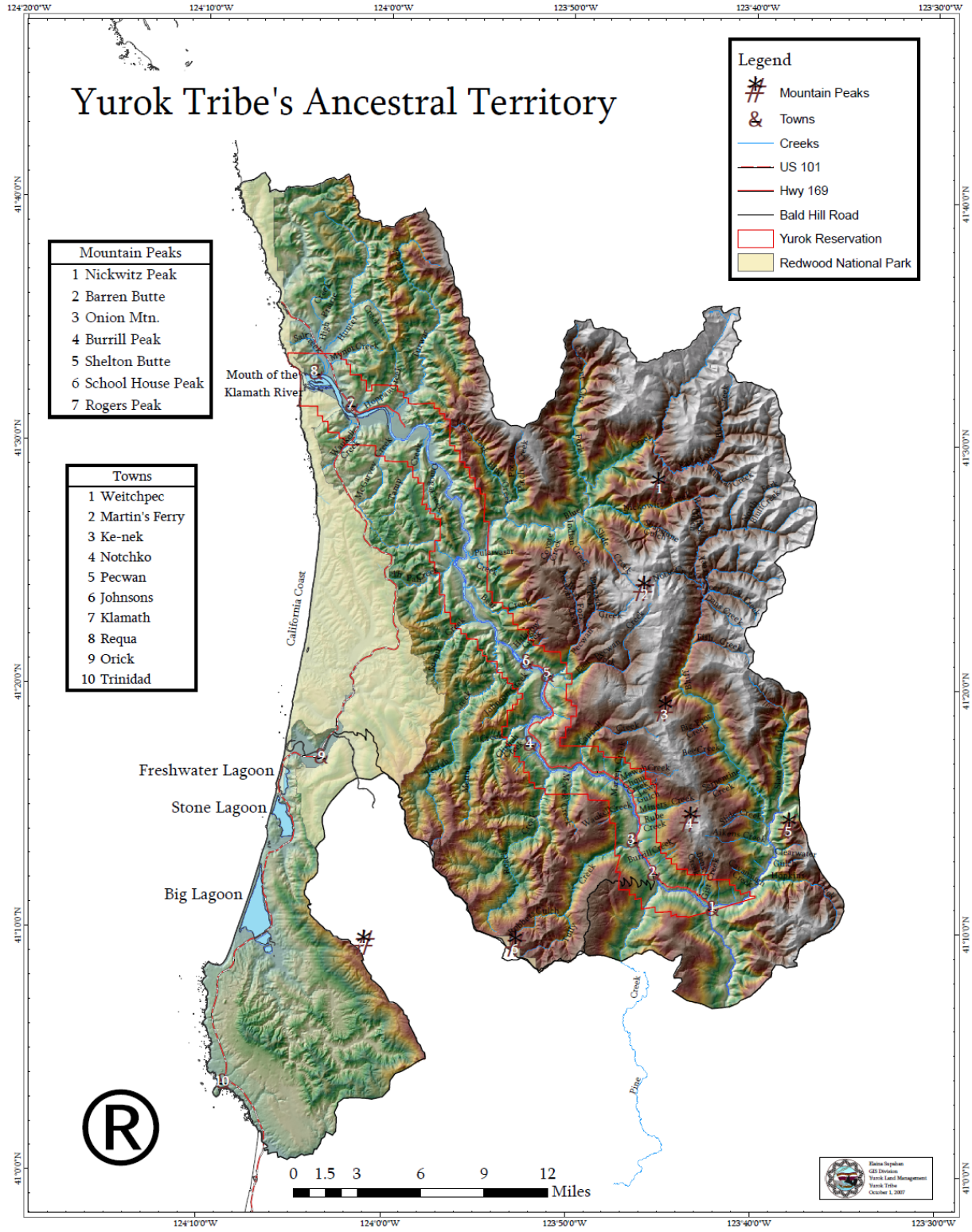
The home of the Yurok Tribe is located along the Lower Klamath River in Northern California, approximately 60 miles south of the Oregon border. This region is one of the most isolated, wild, undeveloped, rural areas of California, and has been home to the Yurok people since time immemorial.

The Yurok Ancestral Territory (YAT) is approximately 492,000 acres (770 square miles) and includes the Yurok Indian Reservation's lands which are approximately 56,200 acres (88 square miles) (Figure 1: Yurok Tribe's Ancestral Territory). The YAT and the Reservation boundaries each span both Humboldt and Del Norte Counties.

The Yurok Tribe was the recipient of a California Department of Transportation Environmental Justice Transportation Planning Grant. The grant was used to fund the Yurok Tribe Trails and Waterways Master Plan (YTWMP) project. According to the project's description, "The inventory of trails located on and near the Yurok Reservation will help identify the areas of trail disconnection. The planning study will establish how to safely connect trails, maintain and improve scenic, recreational, cultural, and health and safety features, while encouraging economic development and establishing trail guidelines and standards." The geographic scope for the YTWMP is the entire Yurok Ancestral Territory.

The Yurok Tribe Trails and Waterways Master Plan presented herein is a planning tool to assess, develop, and provide an implementation strategy for land and water trails in the Yurok Ancestral Territory. Managed access to the unique geographical, cultural, and interpretive opportunities associated with the land and water trails will help stimulate eco-tourism, increase awareness of the Yurok's age-old presence in the ancestral territory, and provide sustainable, multiuse transportation options.

Figure 1: Yurok Tribe's Ancestral Territory Map



2.0 MASTER PLAN PURPOSE AND VISION

The intended purpose and vision of the YTWMP is to guide current and future efforts related to trail design, acquisition, management, interpretation, and maintenance.

MISSION STATEMENT: To unite the Yurok Tribe's Ancestral Territory with a regional system of land and water trails that promotes stewardship of natural resources and enhances the livability of Yurok communities.

VISION: A system of land and water trails that connects Yurok communities, other Tribal lands, Redwood National and State Parks, U.S. Forest Service property, and private property; to provide opportunities for walking, biking, cultural gathering, safety, boating, observing wildlife, horseback riding, and non-motorized transportation; a regional trail system that boosts community pride, community connections, and the local tourism economy.

Why is the YTWMP important?

- Trails offer places to appreciate nature.
- Trails promote healthy lifestyles.
- Trails promote eco-tourism and sustainable economic development.
- Trails encourage innovative open-space planning.
- Trails highlight local points of interest and educational opportunities.
- Trails connect the Yurok reservation with other communities.
- Trails encourage broader use of alternative transportation.
- Trails promote safety by providing emergency evacuation routes.
- Trails increase public access to outdoor recreation options on the Klamath River.
- Trails allow the continued free expression of worship, healing, and prayer for the Yurok Tribe.

Development of the YTWMP will provide an important tool to help improve the livability and quality of life for the Yurok Tribe by identifying alternative transportation and recreation resources that will serve Tribal members, as well as those that can be used by visitors as part of an eco-tourism experience. The YTWMP will also help protect the Tribe's most important cultural resources, specifically the paths and trails that for millennia have provided the spiritual, social, and economic framework that connects the Yurok people.

> *Trails and waterways are uniquely important in Yurok culture and daily life. Ancient routes have been used since time immemorial, connecting people with food sources. Many current day roadway and river routes are in the same location as these ancient tribal routes. For the Yurok people, these ancient Tribal routes are "like people" to be treated with respect.*
> - Yurok Transportation Plan (2006-2026); "Taking Back a Traditional Trail"
> (Yurok Tribe with Winzler & Kelly, 2006)

Trails offer numerous benefits, such as accessing beautiful scenery.

The purpose of the YTWMP is to provide a tool to assess, develop, and provide an implementation strategy for land and waterways in the YAT. The plan describes the existing trails and waterways network and

provides guidance for adding to and maintaining that network. The plan is intended to guide decisions related to trails and waterways over a ten-year planning horizon. The YTWMP is also intended to compliment the Yurok Scenic Byways Program (YSBP) and other Tribal planning efforts, which are summarized in Section 3.4 and referenced throughout this document. As described in greater detail below, several other entities are also responsible for trails management within the YAT, such as Redwood National and State Parks. It is important that this plan aids in the coordination and collaboration between the Tribe and government agencies in a government-to-government context[1].

The plan is intended for use in improving and managing access to the unique geographical, cultural, recreational, and interpretive trail opportunities within the YAT. The plan envisions several potential benefits of improved and managed trail access to these opportunities, including increased eco-tourism, increased awareness of the Yurok's age-old presence in the YAT, and the establishment of sustainable, multiuse transportation options. The vision for trails and waterways embodied by this plan is robust and also includes increasing accessibility and safety by providing emergency evacuation routes. Although worthy projects are seemingly infinite, funding is not. Therefore, one of the most important purposes of this plan is to provide a framework for prioritizing projects.

2.1 Goals, Objectives, and Policy

Overall Goal: Community - Supported, Interconnected Network of Trails and Waterways within the Yurok Ancestral Territory

- Overall Objective a: Work with community leaders, local governments, private land owners and developers, community members, and Yurok neighbors to develop partnerships for creating an interconnected network of trails and waterways within the Yurok Ancestral Territory.
- Overall Objective b: Develop and use this Master Plan as a planning tool to assess, develop, and provide an implementation strategy for the creation and maintenance of the trails and waterways network.

Goal 1: Accessibility and Multiple User Types

- Objective 1a: Develop a trails and waterways system for people of all ages and abilities.
- Objective 1b: Increase the mileage of trails that are handicapped accessible.
- Objective 1c: Provide for multiple modes of travel to meet the needs of pedestrians, bicyclists, equestrians, boaters, and other non-motorized trail users.
- Objective 1d: Tailor improvements to benefit recreational trail users, as well as, utilitarian trail users traveling to work, school, or other non-recreational sites.
- Objective 1e: Address the needs of Tribal members, local residents, and others who live and work locally, as well as, the needs of visitors and tourists.
- Objective 1f: Encourage use of the trails and waterways system by providing multiple trail access points and safe, reasonably direct routes between destinations.
- Objective 1g: Create a new network of water trails that allow public access to shorelines by non-motorized boats.

[1] See Memorandum dated November 5, 2009 from President Barack Obama regarding strengthening the government-to-government relationship between the United States and Indian tribes.

Goal 2: Cultural Preservation

- Objective 2a: Design and manage culturally important trails with respect for cultural sensitivity and privacy.
- Objective 2b: Ensure safety and convenient access in areas with occasional sharp increases in pedestrian activity, such as near ceremonial sites.
- Objective 2c: Protect elders' convenient access to the beginning segments of gathering trails.

Wheelchair-accessible trail

Goal 3: Education, Interpretation, and Tourism

- Objective 3a: Establish routes, provide educational opportunities, and identify points of interest throughout the trail system that highlight the natural beauty of the region, cultural resources, working lands, local history, wildlife, and natural science.
- Objective 3b: Augment the visitor experience to the Yurok Scenic Byway, the Redwood National and State Parks, and the California Coastal Trail by providing opportunities to see and learn about Yurok heritage, natural resources, and other interpretive content.
- Objective 3c: Enhance the marketability of existing tourist amenities by providing additional trails and waterways assets.
- Objective 3d: Promote the Yurok trail system as an eco-tourism destination and enticement for economic development in association with the Yurok Scenic Byway experience.

Goal 4: Health, Safety, and Emergency Evacuation

- Objective 4a: Promote active recreational activities on trails and waterways as healthy choices.
- Objective 4b: Increase the safety of existing trails and build new trails to promote safety.
- Objective 4c: Promote safe practices while on the water.
- Objective 4d: Develop routes that can be used for evacuation in the event of a tsunami or other emergency.

Goal 5: Linkages

- Objective 5a: Provide trails and waterway routes that connect important destinations such as villages, schools, and commercial and employment centers
- Objective 5b: Provide regional trail connections

3.0 PLAN DEVELOPMENT

3.1 Process

Development of the YTWMP involved various public outreach, technical analysis, and planning tasks. These tasks were performed concurrently throughout the duration of the project so that findings from each could inform the others. Following project kick-off, existing information in the form of relevant planning studies and policy documents was gathered and reviewed. Trail maps, data layers, and classification schemes were collected from various sources, refined, and consolidated to establish a project Geographic Information System database.

Environmental education

Outreach was initiated to announce the YTWMP effort to Tribal members and regional trail planning partners. Public input activities were conducted to learn more about community priorities, issues, and preferences related to trails and waterways. This input was combined with information from Tribal departments about transportation, public safety, and other trail-related programs, to develop a list of prioritized recommendations for future implementation.

Finally, trail design guidelines and a maintenance strategy were developed to assist the Tribe in providing a consistent level of trail functionality for both new and renovated trails. Each of these tasks is described more fully in subsequent sections of this plan.

3.2 Scope

The focus of the YTWMP is to examine both existing, and potential, land and water trails within the YAT and to develop a prioritized strategy for making these trails a viable component of multi-modal transportation system and recreational opportunity network. The YTWMP also includes recommendations for addressing management and maintenance of existing trails, proposed new trails, and trail operations.

Given the size of the YAT and the variety of land uses, the types of trails under consideration are quite diverse, ranging from paved shared-use routes that support both bicycle and pedestrian access, to unpaved, single-track trails that are used only for private family or ceremonial uses. Water trails are yet another distinct class of trails within the YAT.

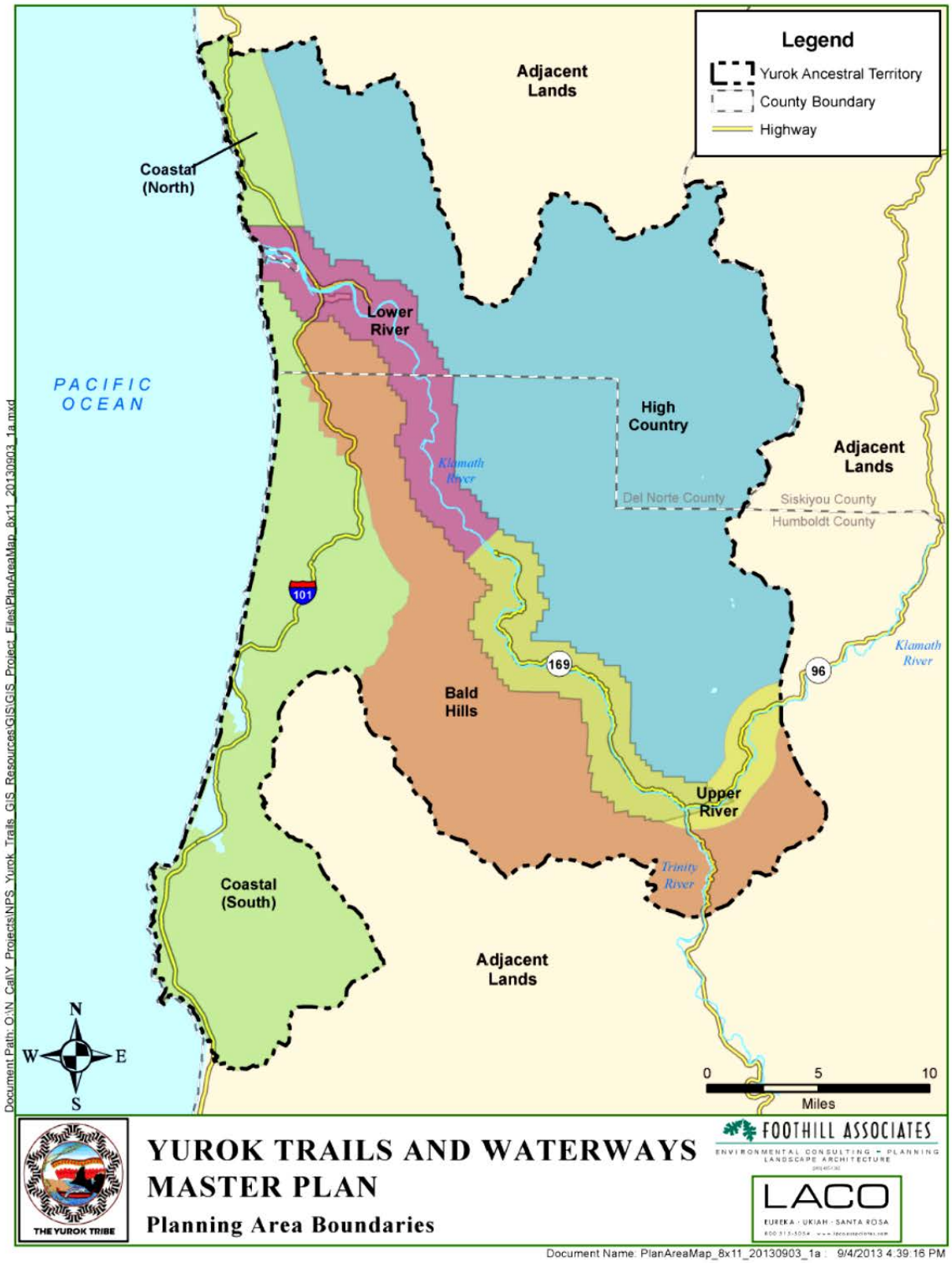
This plan does not attempt to map, describe, or evaluate the condition of every specific trail. Rather, it identifies a significant number of the trails that are generally known and provides strategic direction that will, over time, guide the further inventory, management, and enhancement of the land and water trail network. It is expected that the recommendations and priorities identified in the YTWMP will be periodically revisited and updated to reflect the current needs of the Yurok Tribe, changes in funding opportunities, evolving regional partnerships, and trends in trail design, management, and use.

3.3 Planning Areas

Six distinct planning areas have been defined in the YTWMP because of the differences in land form, transportation needs, and trail use within the project area (Figure 2: Planning Area Boundaries). Establishing these planning areas helps to organize and focus the recommendations in the YTWMP in a way that reflects the specific needs of the residents and potential trail users in each planning area. Five of the six planning areas fall within YAT. The remaining planning area encompasses lands adjacent to the YAT; many trails located in the YAT make meaningful connections beyond the YAT. A brief introduction to each of the planning areas is included below. Specific information for each planning area pertaining to the inventory of existing features and recommendations is provided in section 5.3. The six planning areas are as follows:

1. Coast Planning Area
2. Lower River Planning Area
3. Upper River Planning Area
4. Bald Hills Planning Area
5. High Country Planning Area
6. Adjacent Lands Planning Area

Figure 2: Planning Area Boundaries Map



3.3.1 Coast Planning Area

This area includes the lands within the YAT that are influenced by their proximity to the coast. The exception is the area associated with the Mouth of the Klamath River which is included in the Lower River Planning Area. The Coast Planning Area includes many recreational trails and important cultural trails. One of the challenges of trail planning in this area is the need to protect and preserve the cultural trails while recognizing the economic value of the recreational trails. There are many significant public trail destinations associated with national, state, and county parks within this planning area, with access points from U.S. Highway 101. Non-Tribal use may be heavy during the tourism season. The coastal land forms also present unique challenges for trail design and maintenance associated with steep cliffs, potentially erosive soils, and tsunami evacuation.

Mouth of the Klamath River

3.3.2 Lower River Planning Area

The lands within the Yurok Reservation below Wautec comprise the second planning area. The trail needs in this area include community transportation for residents of Requa, Klamath, and Klamath Glen, as well as some important cultural trails.

Tsunami evacuation, walkable/bikeable routes to schools and community and commercial destinations are important considerations in this area. The Klamath River is one of the main existing travel routes through this planning area. It is a significant transportation, recreation, and cultural resource providing access by boat to the Upper Reservation for both Tribal members and visitors. There is a need for trails in this planning area that will enable walkers and cyclist to travel to and from the Upper Reservation. Boat launch areas are a critical need in this planning area.

3.3.3 Upper River Planning Area

The Upper River Planning Area comprises the area within the Yurok Indian Reservation from Wautec to Weitchpec and along the Klamath River to the YAT boundary. There are many small villages located in this area connected by the river, Highway 169, and an informal network of cultural and family trails. In this planning area there is a critical need for pedestrian/bike trails that provide safe access between villages and to schools and Tribal facilities for services and employment. The land forms in the Upper River Planning Area pose challenges. The area includes steep topography that rises quickly from the river's edge in many areas and there are numerous small tributary streams that need to be protected from sedimentation and erosion. The dense vegetation also poses a challenge for keeping trails clear and maintaining visibility.

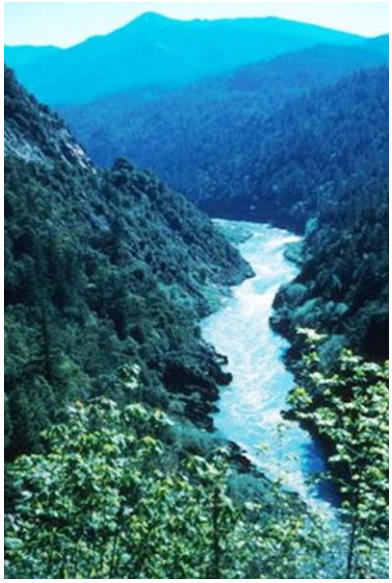
3.3.4 Bald Hills Planning Area

This planning area includes the lands between the Reservation and the Redwood National and State Park. There are many important cultural trails in this area which have been used for generations to connect the Klamath River villages with coastal villages, and for gathering. The topography of this area is characterized by rolling hills with valleys and many creeks. The vegetation may be forested and dense or open grassland depending on aspect and historic land use practices. Trail connections through this area make it possible to travel between the river and the coast without the need for long detours north or south along the Klamath River. Because of this area's proximity to Redwood National and State Parks, recreational opportunities are significant and management of public access is an important consideration especially where trails may pass near cultural sites.

Bald Hills

3.3.5 High Country Planning Area

The High Country Planning Area comprises the mountains east of the Klamath River valley. Unique considerations for trail planning in this area include the steep and rugged terrain, the remoteness and distance from services, forestry practices, and recreational uses associated with visitors to Six Rivers National Forest. There are many significant cultural trails in the High Country Planning Area associated with gathering and sacred practices. Over the years these trails have become less used and therefore sometimes difficult to find and traverse. Even though use of trails in this area is less frequent, the trails are nevertheless significant and appropriate standards for maintenance and wayfinding need to reflect this.



The High Country Planning Area is characterized by its steep and rugged terrain

3.3.6 Adjacent Lands Planning Area

There are many trails that traverse the boundary of the Yurok Ancestral Territory and continue into adjacent non-Tribal lands. Some of these trails were established long ago by the Yurok people. While this plan focuses primarily on trails and waterways within the Yurok Ancestral Territory, these trails on adjacent lands continue to have cultural significance and function as important elements of the regional trail network. Attention needs to be given to how cooperative practices for maintenance and management can be established to protect these trails. Important areas with trails that connect to YAT trails include Redwood National Park and Six Rivers National Forest.

Figure 3: Coastal North Planning Area

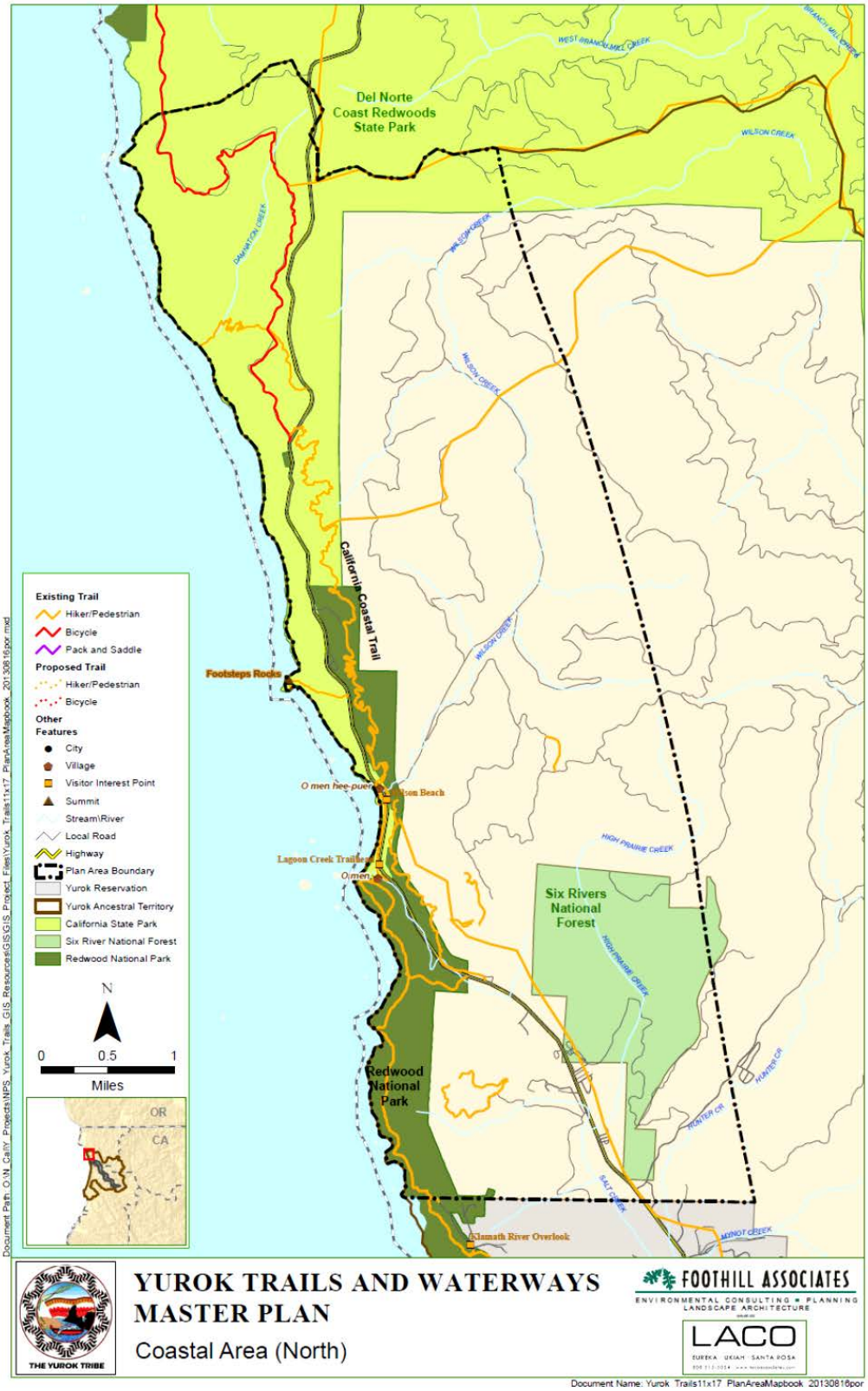


Figure 4: Coastal South Planning Area

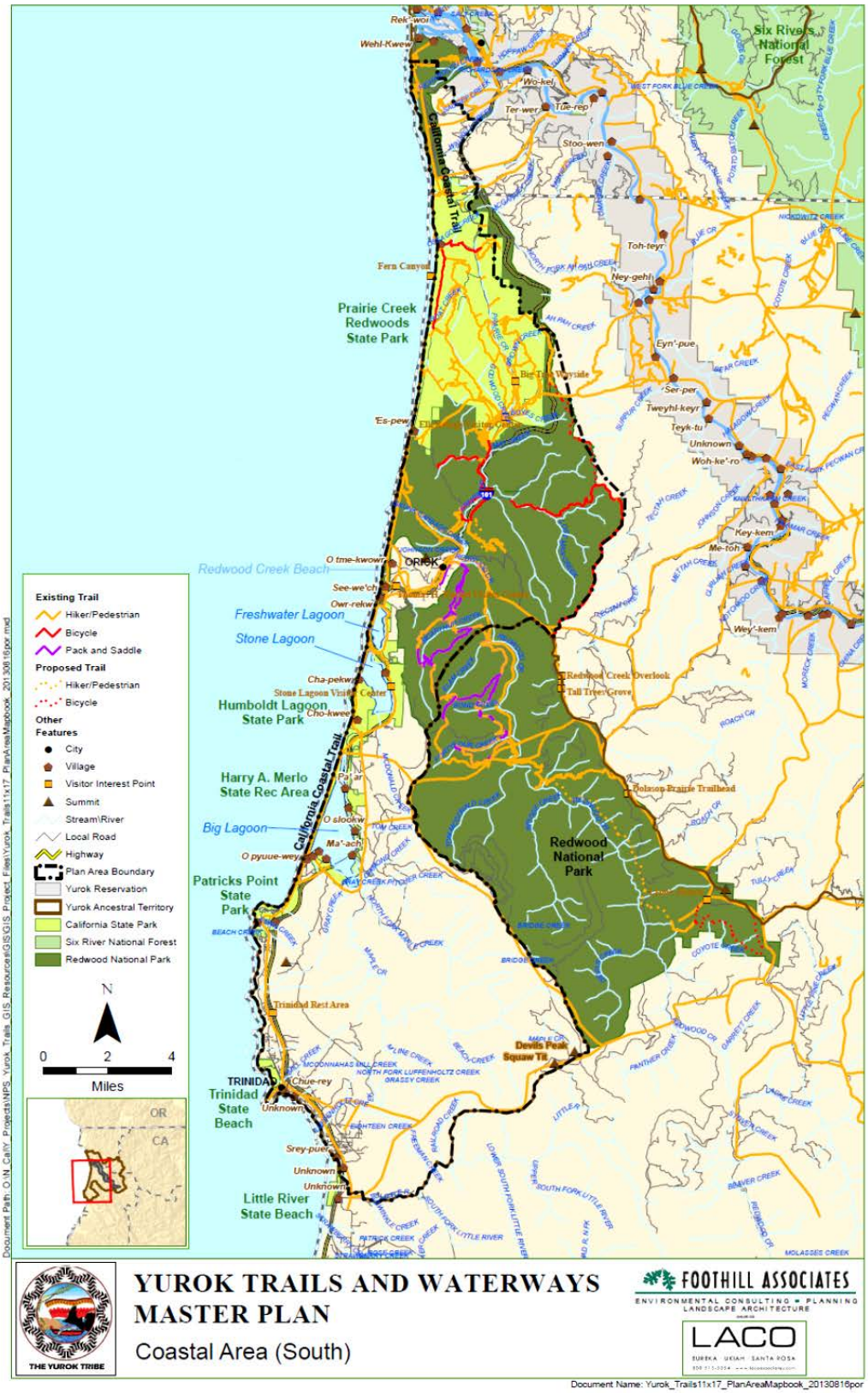


Figure 5: Lower River Planning Area

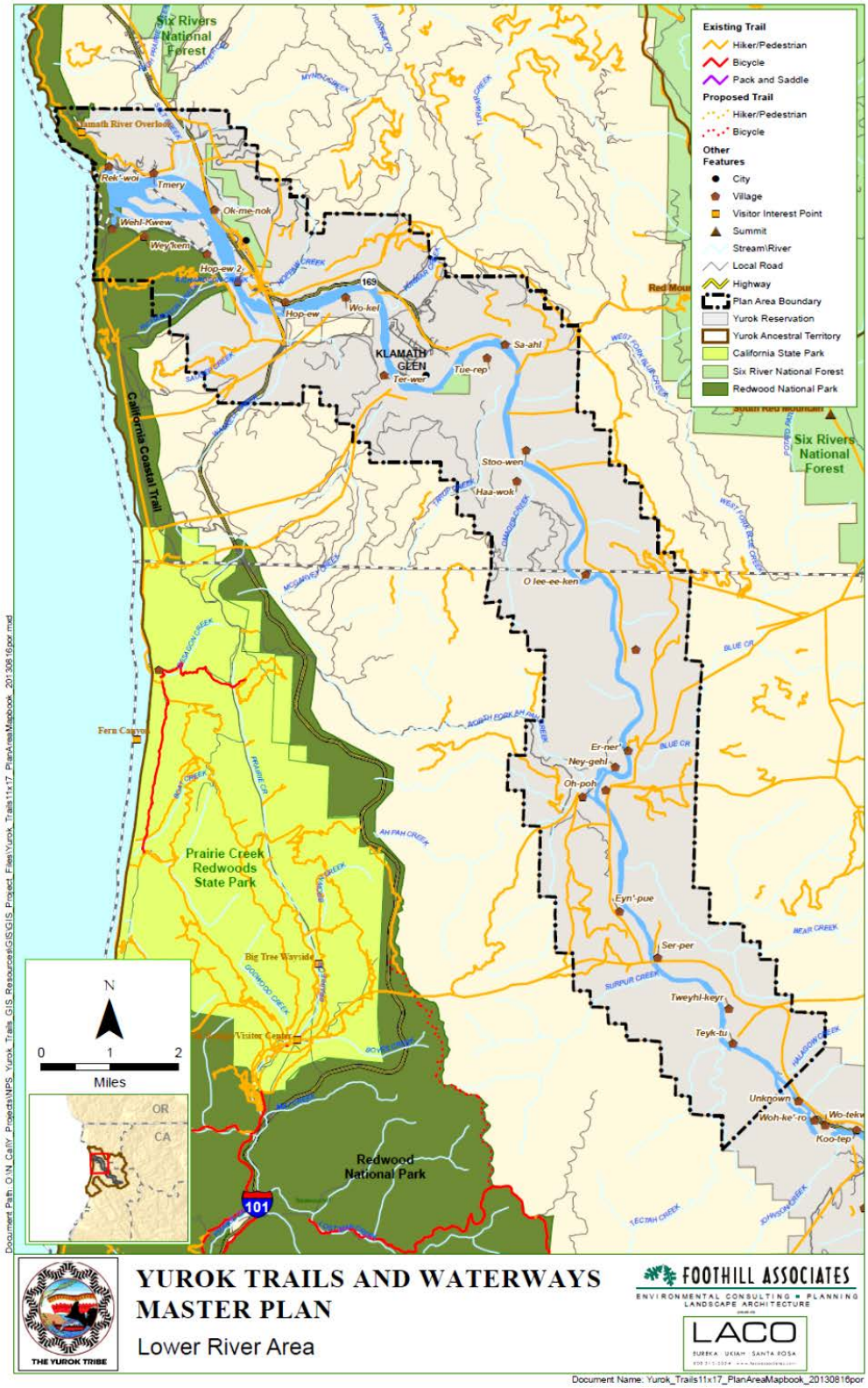


Figure 6: Upper River Planning Area

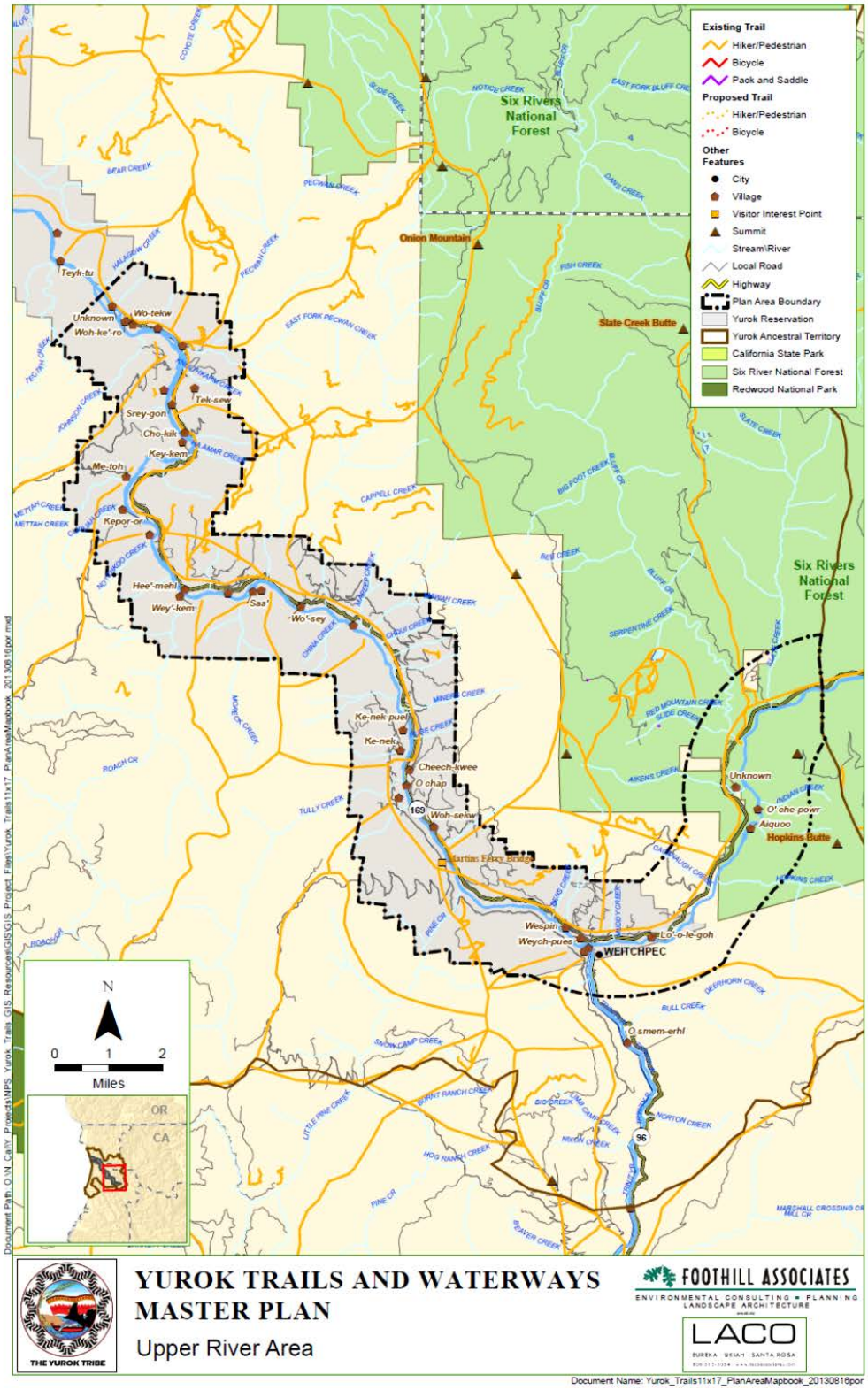


Figure 7: High Country Planning Area

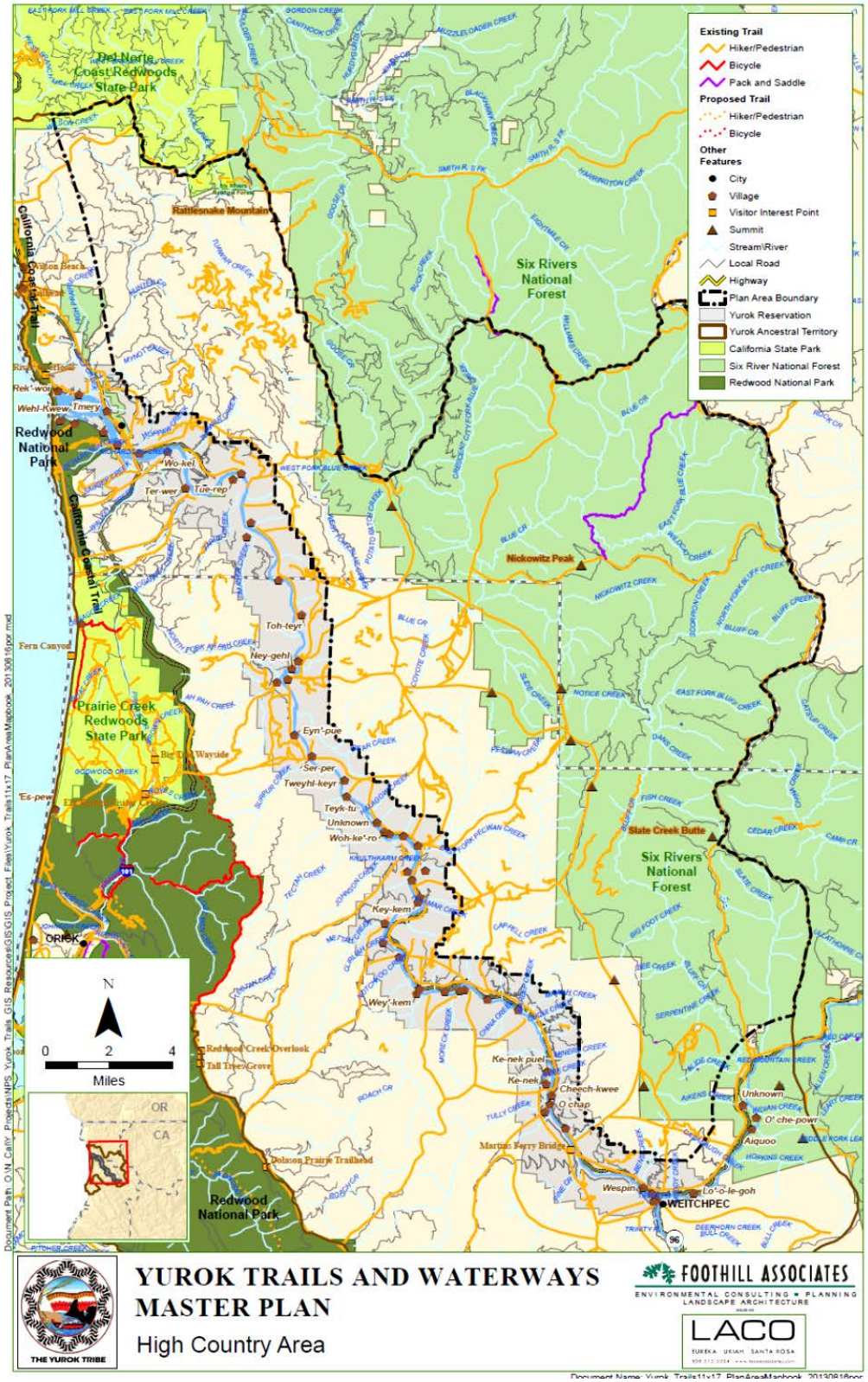
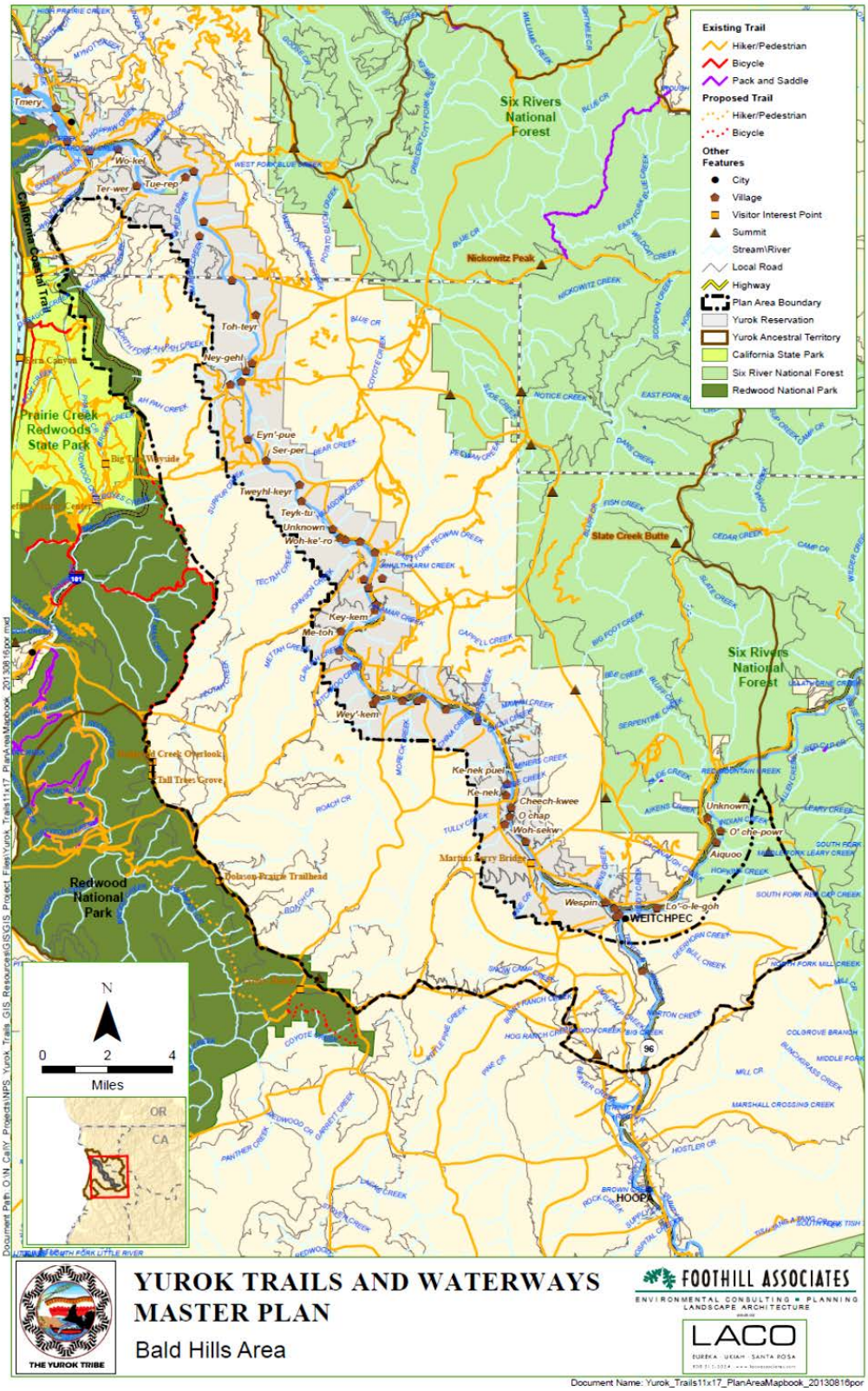


Figure 8: Bald Hills Planning Area



3.4 Public and Stakeholder Involvement

Public and stakeholder involvement is a crucial component in both the development of this Plan, as well as in its implementation. It is the Tribe's goal to provide opportunities for a grassroots community effort to share valuable information and to participate in the planning and development of trails and waterways. Local governments, other Tribes, federal and state agencies, advocates, the business community, Yurok Tribal members, and the general public were all invited to participate. Numerous stakeholders throughout the community have been identified, including the Yurok Cultural Committee, Redwood National and State Parks, California Department of Parks and Recreation, Six Rivers National Forest, U.S. Forest Service, Del Norte County, Del Norte Local Transportation Commission, Humboldt County, Humboldt County Association of Governments (HCOAG), Bureau of Indian Affairs (BIA), California Department of Transportation (Caltrans), Humboldt County Tourism and Visitors Bureau, and the Northern California Tribal Transportation Commission. These stakeholders and the public were invited to attend the series of events described in Table 1.

Participants at the first Open House provided feedback on the

Table 1: Public and Stakeholder Involvement Events

Date	Event	Location	Attendees	Outcomes
January 23, 2013	Community Open House #1	Klamath and Weitchpec	General public, Tribal members, and Yurok Tribe Planning Department staff	The project team shared information about the master plan process and displayed preliminary trail maps. Attendees provided input on opportunities, constraints, and priorities by completing a written survey, leaving comments on maps and flip charts, and participating in one-on-one dialogue with the project team. (See Appendix D for a summary of the input.)
June 6, 2013	Del Norte County Technical Advisory Committee (TAC) meeting	Crescent City	Del Norte County TAC members	The project team presented the master plan process and ways that it relates to several Del Norte planning documents. (See section 5.5.8 below for more information.)
June 13, 2013	Humboldt County Technical Advisory Committee (TAC) meeting	Eureka	Humboldt County TAC members	The project team presented the master plan process and ways that it relates to several Humboldt County planning documents. (See section 5.5.9 for more information.)
July 16, 2013	Walk the Trail Event	Klamath	Del Norte County Local Transportation Commission, HCAOG, Caltrans, National Park Service, Yurok Tribe, community members	The group toured the Flint Ridge Trail to experience how an existing trail within YAT could be enhanced by incorporating Yurok cultural elements. Lynn 'Erickson-Levi from the National Park Service shared tips for trail design and maintenance techniques that preserve and highlight natural features.
September 20, 2013	Yurok Tribe Culture Committee	Klamath	Culture Committee members	Members reviewed the trails maps and provided input for adding a discussion on cultural trails of importance
December 5, 2013	Community Open House #2	Klamath	General public, Tribal members and Yurok Tribe Planning Department staff	The Draft YTWMP was presented and comments received.

4.0 YUROK TRAILS AND WATERWAYS NETWORK

4.1 Brief History of Yurok Trail System

At the time European settlers first encountered the Yurok, there were approximately 70 villages along the Klamath River, coastal lagoons, and headlands. Largely due to the discovery of gold in 1849, the Native Americans were treated extremely harshly, and roughly half the Yurok people were killed. In 1855 the Klamath River Reservation, consisting of 25,000 acres on either side of the Lower Klamath River, was established for the Yurok. Over the following century, many Yurok lands were transferred out of Yurok ownership by various federal statutes. The Yurok people formally organized as the Yurok Tribe with adoption of its Constitution in 1991 and election of its Tribal Council (Jarvis, 2005). The objectives of the Constitution include "Preserve and promote our culture, language, and religious beliefs and practices, and pass them on to our children, our grandchildren, and to their children and grandchildren on, forever" and to "Restore, enhance and manage the tribal fishery, tribal water rights, tribal forests, and all other natural resources" (Jarvis, 2005). Today, owning less than 1 percent of its ancestral territory, the Tribe has been confronted with an enormous task to provide for the needs of its people (Jarvis, 2005). Part of this task is to ensure the preservation of its traditional trails network.

The Yurok Tribe is traditionally a water-faring people, and the Klamath River was the primary mode of transportation (Waterman, 1920 [184]). However, there was also a complex network of trails spanning approximately 269 miles (Gates, 1995) linking settlements and territories and serving many purposes, both spiritual and practical. The importance of these trails to the Yurok people has been well-documented in ethnographic literature (Jarvis, 2005). Because these trails served many purposes and have a variety of cultural values, there are many words and sayings in the Yurok language associated with different aspects of trails.

Some of the primary purposes of trails included those connecting villages, extending into hunting and gathering areas, pathways to ceremonial events, such as the Deerskin Dance, linkage into the underworld by disembodied souls, leading to prayer seats, and transportation into the High Country where one trains to become a medicine doctor, to prepare oneself for war, to acquire wealth and good luck, or to accomplish a superhuman feat (Gates, 1995).

Yurok trails that connected villages allowed for extensive communication and interaction with others, which facilitated spreading news and trade. According to a farmer living in Trinidad in the 1850s, "They get news of the doings of their people and of other important happenings by confidential agents or by sending couriers from tribe to tribe. These couriers can cover long distances in an amazingly short time by short routes known only to themselves. Thus, even in isolated places the Indians are constantly informed of all that happens" (Hunstinger, 1994).

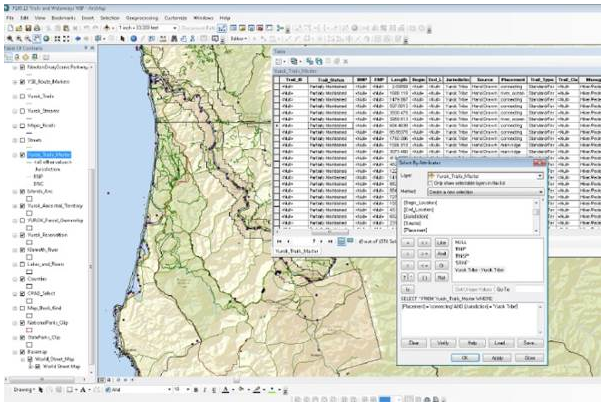
The Yurok people also had ideology governing maintenance of, and passage through their trail systems. Trails were "like people". For example, if one were to "step out of a trail and in again, and fail to preserve decorum, the trail becomes resentful" (Waterman, 1920 [185]). Also, along each important trail there are resting-places, invariably located in very pleasant spots. It was believed by the Yurok that is was best to move swiftly until one came upon a resting place. If they did differently, they were likely to have bad luck (Waterman, 1920 [185]). As another expression of luck, parties of travelers commonly shot arrows into trees "as an offering for good luck on the trail" (Waterman, 1920 [185]). The Yurok strongly believed in controlled

burning as the only means of trail maintenance, and burning was performed mainly to enhance regrowth (Hunstinger, 1994 [60]). They heavily disapprove of the use of herbicides, which they often blame for "serious illness among reservation inhabitant, loss of plant species, and declines in fish and wildlife populations" (Hunstinger, 1994)

4.2 Trail Classification System

The YAT is home to a rich and varied set of existing trails (both land-based and water-based), as well as numerous locations that present opportunities to develop additional trails. The YAT contains varied terrain which shapes many of the defining characteristics of trails, such as how steep the trail is, whether there are obstructions such as roots, rocks and logs, and which types of uses are appropriate for example, off-road-vehicle or horseback riding. Trails are used for a variety of purposes including transportation, exercise, gathering, and ceremonial. The unique characteristics of each trail influence the ways in which they are used, including transportation, exercise, gathering and ceremonial purposes.

The Yurok Trail Classification System (YTCS) is intended to provide a consistent way to describe the various types of trails, their uses, and physical characteristics, to support the planning, design, construction, and maintenance of existing and future trails. Developing an inventory of existing trails and classifying the segments of each trail will be a long-term process. As each proposed trail is developed, the inventory will need to be updated to include the trail's new status and classification(s). The Tribe will continue to add to the inventory over time in a prioritized manner.



The inventory of trails and waterways in the Yurok Ancestral Territory is stored in a database which can be analyzed, edited, mapped, and displayed in various ways using Geographic Information Systems (GIS) computer software made by ESRI. The Yurok Trail Classification System (YTCS) is applied to the inventory within this computer mapping system.

The structure of the YTCS takes into consideration the need to share information between agencies about trails that cross multiple jurisdictions, such as the Yurok Reservation, Six Rivers National Forest, and Redwood National and State Parks. The ability of the Tribe and other agencies to effectively describe trails and communicate with a common vocabulary will facilitate cooperative trail funding, maintenance, and planning activities. For this reason, the YTCS includes attributes that correspond to the National Trail Classification System (NTCS) adopted in 2008, together with other attributes that are unique to the Yurok Tribe's perspective and vision for trail management.

The Bureau of Indian Affairs (BIA) Division of Transportation (DOT) and the Federal Highways Administration's Federal Lands Highway Office (FLHO) jointly administer the Tribal Transportation Program (TTP) (formerly called the Indian Reservation Roads (IRR) Program) and the Indian Reservation Roads Bridge Program (IRRBP). To be eligible for TTP funds, some of which can be used for trails, Tribes must submit a plan and an inventory every March. Information in the YTCS will be applicable to the classification system used in the TTP inventory. Once high-priority projects have been identified by the Tribe, trail locations will be described

using the Coding Guide and Instructions for TTP Inventory (Appendix A). At that time, it is likely that additional information will need to be collected for categories that are in the TTP Inventory but not in the YTCS.

Table 2 provides a list of attributes included in the YTCS, with a definition for each attribute and potential values. The potential values reflect the Tribe's management objectives and anticipated uses for trail resources. Because segments within a trail may have very different characteristics, the YTCS uses trail segments as the basic mapping unit.

Table 2: Yurok Trail Classification System

Attribute	Definition	Values
Yurok Trail Name	Yurok Language Trail Name	Text
Other Trail Name	Non-Yurok Language Trail Name	Text
Trail ID	Trail Identifier unique to each trail, which may include multiple segments	Text
Trail Status	The operational status of the trail	Planned Fully Maintained Partially Maintained Decommissioned
BMP	Begin Mile Post	Decimal Number
EMP	End Mile Post	Decimal Number
Endpoint A Latitude	Segment End A Latitude DD	Decimal Number
Endpoint A Longitude	Segment End A Longitude DD	Decimal Number
Endpoint B Latitude	Segment End A Latitude DD	Decimal Number
Endpoint B Longitude	Segment End A Longitude DD	Decimal Number
Length	Length of trail in miles	Decimal Number
Begin Location	Description of place trail segment begins	Text
End Location	Description of place trail segment ends	Text
Jurisdiction	Governmental entity with primary trail jurisdiction	Defined domain of text values
Source	Source for geospatial data describing alignment location	Defined domain of text values
Placement	The primary placement relative to landforms or places in the landscape	Connecting Main ridge River/ocean
Trail Type	A category that reflects the predominant trail surface and general mode of travel accommodated by trail.	Standard/Terra Water

Attribute	Definition	Values
Trail Class	The prescribed scale of development for a trail, representing its intended design and management standards.	Class 1 – Minimal/Undeveloped Class 2 – Simple/Minor Development Class 3 – Developed/Improved Class 4 – Highly Developed Class 5 – Fully Developed
Managed Use	A mode of travel that is actively managed and appropriate on a trail, based on its design and management. More than one Managed Use per trail may be appropriate. Not every allowed use will necessarily be a Managed Use. For example, a trail may be managed for bicycle use but also allow pedestrian use.	Hiker/Pedestrian Pack and Saddle Bicycle Motorcycle All-Terrain Vehicle 4-Wheel Drive Vehicle > 50” Motorized Watercraft Non-Motorized Watercraft
Level of Difficulty	A category which indicates the optimal skill and ability level of trail users. See also ADA-compliance category below.	Class 1 – Highly-skilled users, comfortable off trail, possessing high-level orienteering skills and other high-level specialized skills, such as paddling and piloting for water trails. Class 2 – Mid- to highly-skilled users, capable of traveling over awkward conditions/ obstacles, possessing moderate- to high-level orienteering skills and other moderate- to high-level specialized skills such as paddling and piloting for water trails. Class 3 – Intermediately-skilled users, possessing intermediate orienteering skills and other intermediate-level specialized skills, such as paddling and piloting for water trails. Class 4 – Minimally-skilled users, possessing minimal to no orienteering skills and other basic-level specialized skills, such as paddling and piloting for water trails. May be or has the potential to be made ADA compliant. Class 5 – Users with limited trail skills and experience, trail typically meets ADA requirements.
Designed Use	The Managed Use of a trail that requires the most demanding design, construction, and maintenance parameters and that, in conjunction with the applicable Trail Class, determines which Design Parameters will apply to a trail. There is only one Designed Use for a trail.	Hiker/Pedestrian Pack and Saddle Bicycle Motorcycle All-Terrain Vehicle 4-Wheel Drive Vehicle Motorized Watercraft Non-Motorized Watercraft

Attribute	Definition	Values
Signs	The type and amount of signage present, as is appropriate to the trail's characteristics.	Class 1 – Minimum required; generally limited to regulation and resource protection; no destination signs. Class 2 – Minimum required for basic direction; generally limited to regulation and resource protection; destination signs are typically few to none. Class 3 – Regulation, resource protection, user reassurance; directional signs at junctions, or where confusion is likely; informational and interpretive signs may be present. Class 4 – Wide variety of signs likely and present, likely including informational and possibly including interpretive. Class 5 – Wide variety of signs present, likely including informational and interpretive.
Design Parameters (multiple attributes listed below by category)	Technical guidelines for the survey, design, construction, maintenance, and assessment of a trail, based on its Designed Use and Trail Class.	
Design Tread	Tread Width	Range from low to high expressed in inches such as: 24" – 48"
	Number of Lanes	Integer
	Shoulders	Yes/No
	Shoulder Width	Expressed in inches
Design Surface	Trail Surface Condition	Text describing condition relative to Designed Use and Trail Class. For example, for Hiking/Pedestrian use: Class 1 - Native, ungraded. Intermittent, rough Class 2 - Native with limited grading. Continuous, rough. Class 3 - Native with some on-site or borrow or imported materials. Class 4 - Imported materials or hardening is common. Class 5 – Uniform, firm, and stable.
	Trail Surface Material	Native Imported Compacted Material Sand Gravel Asphalt Concrete
	Shoulder Surface Material	Native Imported Compacted Material Sand Gravel Asphalt Concrete

Attribute	Definition	Values
	Obstructions	Text describing condition relative to Designed Use and Trail Class. For example, for Hiking/Pedestrian use: Class 1 – Roots, rocks, logs, steps to 24” Class 2 – Protrusions to 6”, steps to 14” Class 3 – Generally clear; protrusions to 3”, steps to 10” Class 4 – Smooth, few obstacles; protrusions 2-3”, steps to 8” Class 5 – Smooth, no obstacles; protrusions <2”
Design Grade	Maximum Target Grade (>90% of Trail)	Percentage
	Maximum Short Pitch Grade (Up to 200’ lengths)	Percentage
Design Cross Slope	Target Range	Range from low to high expressed in percentage slope such as: 0 – 5%
	Maximum	Percentage
Design Clearing	Width Outside of Tread	Range from low to high expressed in inches such as: 24” – 48”
	Minimum Height	Number of feet
Design Turns	Minimum Radius	Number of feet

Attribute	Definition	Values
Maintenance Indicators & Intensity	Maintenance indicators refer to criteria that guide the maintenance decisions. Intensity refers to the standard level of maintenance established for the trail.	Class 1 - Resource protection or safety commensurate with targeted recreational experience. Infrequent or no scheduled maintenance, usually in response to reports of unusual resource problems requiring repair. Class 2 - -Resource protection or safety commensurate with targeted recreational experience. Maintenance scheduled to preserve trail facility & route location or in response to reports of unusual resource problems. Class 3 -User convenience. Resource protection or safety commensurate with targeted recreational experience. Trail cleared to make available for use early in use season and to preserve trail integrity. Maintenance typically in response to trail or resource damage or significant obstacles to managed use type and experience level. Class 4 - User comfort and ease. Resource protection or safety commensurate with targeted recreational experience. Trail cleared to make available for use at earliest opportunity in use season. Maintenance typically performed at least annually Class 5 –User comfort and ease. Targeted high level of accessibility to key recreational opportunities. Safety commensurate with targeted recreational experience. Maintenance performed at least annually or as needed to meet posted conditions, major damage or safety concerns typically corrected or posted within 24 hours of notice.
ADA Compliance	Degree to which trail complies with ADA for Managed Use as applicable	Full Partial None Unknown
Cultural Trail	Indicator as to whether trail has cultural significance to the Yurok people	Yes/No
Access Limitations	What population has unrestricted access to the trail	Public Tribal Family
Access Period	Period of time when access is allowed	Text field, e.g., “Year round”, “Seasonal May – Sept”, etc.
Evacuation Trail	Description of trail’s potential use for emergency evacuation, including type of emergency the trail would be appropriately used for.	Text Field
Yurok Scenic Byways Program	Description of trail’s potential inclusion in the YSB Program.	Text Field

Attribute	Definition	Values
Other Classification Agency	The name of agency that has established another classification for the trail, such as Caltrans	Defined domain of text values
Other Classification	The classification applied by the other agency, such as "Class I Bike Trail"	Text Field

4.3 Inventory Methodology

4.3.1 Introduction

To review trail development for the YAT, a variety of data was collected and analyzed. This section describes the methodology used for collection and analysis of the data gathered and the subsequent inventory of the YAT trail system. Data elements include the following:

- Information describing trail planning, development, management, and maintenance roles and processes used at the federal, state, and county level
- Status of trail system as described in terms of total miles of existing trails, miles of planned and proposed trails, paved and unpaved mileage, mileage of trails adjacent to roadways, etc. within the YAT
- GIS data for trails

After all data was reviewed, a GIS dataset of YAT transportation trails was created.

This was accomplished using a two-step process as follows:

Step 1: Define Transportation Trails
Defining transportation trails means reducing the full network of trails in the YAT to a set that is of importance from a transportation perspective. The working definition of shared-use trails for transportation purposes is as follows: Shared-use trails are designed to be used by bicyclists and pedestrians, including runners and people with disabilities.

For the purposes of developing a meaningful transportation trails network in GIS format, trails were further defined as trails that 1) can be used for transportation purposes, 2) are important for cultural and/or economic development reasons, 3) are of a significant length, or 4) are, or will become, part of existing or emerging national and regional trail systems. Conditions such as surface type, trail layout, surrounding land use, proximity to population, and trail location were considered for inclusion in the GIS dataset.

Step 2: Identify a YAT Trail Network by Applying the Definition From Step 1
All collected data was filtered using the criteria established in Step 1, resulting in a unified dataset. Developing the GIS dataset included the following actions:

- All of the YAT and local trail data layers were merged into one GIS trail layer. Variations in attribute table fields of datasets were reviewed and reorganized in such a way that common data types were stored in a single field, but every unique attribute of any single dataset was preserved. All attribute information was formatted into a standard data structure and data management attributes were created and populated.
- Topographic data was corrected by removing or editing any incorrect features.

- Overlaps and duplication of line features were eliminated. Before deleting duplicate data, the line accuracy and attribute tables were studied and the most accurate and useful data from each source was preserved and merged into the final dataset.
- Trails within all layers that appeared likely to serve as transportation trails for pedestrians or cyclists were identified.
- Trails within all layers with any natural surface (hiking, equestrian, mountain biking, or water trails) were identified.
- Attribute data, staff knowledge, and other sources were used to populate and provide a consistent spelling and format for the entries in the trail name field for trails.
- Attribute data provided in the source files, staff knowledge, on-line aerial photography, and associated GIS data were used.
- Select trail lines were deleted in cases where it was determined that they added no value to the overall dataset.
- Public input from the open house and walk-the-trails event, and partnering agency and staff knowledge were used to fill known and obvious gaps in the trail data. Based on this additional information, attribute data identifying trail status (existing, planned, and proposed) was added or corrected.
- Information gathered from public input, existing data, and further analysis of the existing and proposed trail system was incorporated to add additional trail lines representing 1) missing links needed for system connectivity, 2) potential trails needed to serve population centers/communities, and 3) potential trails needed to link population centers/communities to the larger network or other key activity centers.

The task of developing an inventory of existing trails within the YAT is complicated by several factors: the diversity of routes that could potentially be defined as a trail, and the relative informality of a trail network that has been in use for thousands of years based primarily on the personal knowledge of individual tribal members.

As a result of the two-step process to create a GIS dataset of YAT transportation trails, a trail network began to take shape, as shown in Figure 2.

For purposes of the YTWMP, a trail is understood to be a linear route on land or water that is intended primarily for non-vehicular travel; logging roads, paved streets, and access drives may be used by walkers, cyclists, and/or equestrians, but they are not regarded as trails or included in the YTWMP inventory. Water trails are understood to be actual navigable waterways, not to be confused with land-based trails that may be adjacent to a creek or other waterway. At present, the only water trail in the YTWMP inventory is the Klamath River.

While a significant number of documented trails have been inventoried for the YTWMP geodatabase, it is readily acknowledged that there are many undocumented trails in remote or privately-owned areas of the YAT that have cultural, historical, or contemporary use. Though these trails are not formally recorded in the inventory, it is expected that the guidelines for design and management of comparable inventoried trails will also apply to these trails. These undocumented trails (land and water) may formally be added to the inventory in the future at the Tribe's discretion, taking into consideration cultural, transportation, safety, and economic values.

4.3.2 Feature Sources

The YTWMP inventory comprises a set of geospatial features and associated data about each feature within a geodatabase. Information about existing trails was gathered from several sources. In some cases, trail features appeared in more than one source. In these situations, the feature with the most detailed alignment was retained. The primary data sources were as follows:

USGS 7.5 Minute Quadrangle Maps
Features on the USGS quadrangle maps identified as trails (based on the map legend) within the YAT were digitized from the maps and stored in the GIS as linear features. In some cases trails appear to be discontinuous, but in reality connections are provided by roads that are not part of the trail inventory.

U.S. Forest Service - Six Rivers National Forest GIS Data
GIS feature data for trails within Six Rivers National Forest was provided along with attributes describing the trails. Portions of Six Rivers National Forest are outside of the YAT; only those trails within the YAT or within 2 miles of the YAT boundary were included in the inventory.

Redwood National and State Parks
GIS feature data for existing and proposed trails within Redwood National and State Parks was provided along with attributes describing the trails. Trails inside or within 2 miles of the YAT boundary were retained for the inventory. In addition, all trails in Redwood National Park were retained since they provide important connections for Tribal trails from the Klamath River to the coast through the Bald Hills area.

Yurok Integrated Resource Management Plan
The Yurok GIS Program has captured numerous trails within the YAT from historically-drawn maps and other resources. All of these trails were included in the inventory. Some individual segments were refined where more detailed mapping information was available.

4.3.3 Application of Trail Classification

Section 4.2 describes the YTWMP trail classification system and all the attributes that would ideally be known about any given segment in the inventory. None of the sources for the spatial trail features used to build the inventory included an identical classification scheme. In fact, the data describing the trail features was significantly less comprehensive than envisioned for the YTWMP classification. Therefore, it was necessary to link the YTWMP classification scheme to the trail features and then populate specific attributes by converting comparable data, when available, from the source files. Population of all classification attributes will be an ongoing process to be undertaken as part of the implementation of the YTWMP and in conjunction with trail maintenance and operations.

4.4 Existing Trails and Waterways Network

The focus of the YTWMP is the YAT, which is approximately 492,000 acres (770 square miles) and includes the Yurok Indian Reservation's lands which are approximately 56,200 acres (88 square miles). The area has been heavily logged for the last 70 years. Remaining stands of old-growth trees are concentrated on Tribal trust lands and within Redwood National Park. (Yurok Forestry Department, 2012)

As described in section 3.3, six distinct planning areas have been defined in the YTWMP because of the differences in land form, transportation needs, and trail use within the project area (Figure 2: Planning Area

Boundaries). Establishing these planning areas helps to organize and focus the recommendations in the YTWMP in a way that reflects the specific needs of the residents and potential trail users in each planning area. The existing trail network in the five planning areas within the YAT is represented in Figures 3 through 8. A brief description of the existing trail network, including trail types and uses, is provided for each area. The sixth planning area (Adjacent Lands Planning Area) encompasses lands adjacent to the YAT; many trails located in the YAT make meaningful connections beyond the YAT.

Many trails in the Coast Planning Area feature redwood trees and sword ferns

4.4.1 Coast Planning Area

The Coast Planning Area (Figures 3 and 4 is unique among the YTWMP planning areas in that much of the land is under public ownership. These lands include many named recreational trails available for public use in the national, state, and county parks with access points from U.S. Highway 101. Many of these trails overlap or closely parallel traditional Yurok trails that have been used for centuries for travel between villages and for travel related to activities such as ceremonial dances, trade, and gathering. Consequently, a collaborative approach that involves both the Yurok Tribe and the public agencies in trail management and maintenance is needed. Key considerations include identifying trail carrying capacities and appropriate protection of the environmental and cultural values. Following is information about some of the major trails from north to south:

California Coastal Trail (CCT)

The CCT is a collection of trails and roadways that are envisioned to be linked to provide trail access along the entire California coast. The State of California has been developing the vision for the CCT since the 1970's. The CCT alignment within the YAT begins at Damnation Creek in the north and traverses south through Del Norte Coast Redwoods State Park and Redwood National Park to the Yurok Reservation Boundary west of Requa at the mouth of the Klamath River. This section includes several access points from U.S. Highway 101, including those at Wilson Creek and Lagoon Creek. At Requa, the CCT alignment enters the Lower River Planning Area (see below). It re-enters the Coast Planning Area at the junction of Coastal Drive and the west terminus of the Flint Ridge Trail. It then follows Coastal Drive south through Prairie Creek Redwoods State Park and Redwood National Park where it veers east along Skunk Cabbage Creek until it meets Redwood Creek and heads west to the coast. Continuing south it follows the coast through Humboldt Lagoons State Park, Dry Lagoon State Park, and Patrick's Point State Park. The alignment then follows various roads and trails south until it exits the YAT at Little River State Beach.

Named sections of the CCT within the Coast Planning Area from north to south include the following:

- DeMartin Section - North access near U.S. Highway 101 mile marker 15.6; south access near mile marker 12.8
- Klamath Section (5.5 miles) - Wilson Creek Picnic Area to Klamath River Overlook at Requa
- Gold Bluffs Beach Section (4.8 miles) - North access at Coastal Drive; south access at Davison Road
- Skunk Cabbage Section (5.3 miles) - North access at Davison Road; south access at U.S. Highway 101 mile marker 122.69

The conditions along the CCT vary widely depending on terrain and surface. Much of the trail is suitable for hiking only. Some sections are quite difficult with narrow, natural-surface trail, steep terrain, switchbacks, and seasonally-inaccessible areas. There are numerous access points, and amenities at various locations including camping and picnic areas, overlooks, trailhead parking, and some restrooms.

Del Norte Coast Redwoods State Park

The southerly portion of Del Norte Redwoods State Park is located within the YAT. Public trails in this area are limited the CCT and the Damnation Creek Trail, which is 2.2 miles long and accessed from U.S. Highway 101 at mile marker 16. The Damnation Creek Trail is a steep, unpaved, hiking-only trail down to the Pacific Ocean and tide pools. The CCT segment within Del Norte Coast Redwoods State Park west of U.S. Highway 101 is one of the few segments approved for hiking and mountain bike use.

Prairie Creek Redwoods State Park

There is an extensive network of named trails throughout Prairie Creek Redwoods State Park totaling about 75 miles. The park, which includes the Murrelet State Wilderness area, is located entirely within the Coast Planning Area. Many of the trails connect to access points located along the Newton B. Drury Scenic Parkway or the CCT. While most of the trails are intended only for hiking, there are several trails located on rehabilitated logging roads that are approved for mountain bike use. Mountain bikes are also allowed on the CCT segment from Ossagon Camp to the Fern Canyon Day Use Area. Several trails in the vicinity of the Visitor Center at the south entrance to the park are also wheelchair accessible. Table 3 lists the named trails in Prairie Creek Redwoods State Park.

Table 3: Public Trails in Prairie Creek Redwoods State Park

Name	Length	Difficulty	Uses
Ah Pah Interpretive Trail	0.4	Easy	Hiking
Big Tree Trail	2	Easy	Hiking
Brown Creek Trail	1.2	Easy	Hiking
California Real Estate Assn (CREA)	1.9	Moderate	Hiking
Campfire Center Trail	0.7	Easy	Hiking, Accessible
Carruthers Cove Trail	1.0	Strenuous	Hiking
Cathedral Trees Trail	1.4	Moderate	Hiking
Circle Trail	0.3	Very easy	Hiking
Clintonia Trail	1.4	Moderate	Hiking
Coastal Trail	11.4	Easy	Hiking
Davison Trail	2.8	Moderate	Hiking, biking
Elk Prairie Trail	1.3	Easy	Hiking
Fern Canyon Loop	0.5	Easy	Hiking
5-minute Trail	0.1	Very easy	Hiking
Foothill Trail	2.2	Moderate	Hiking, Accessible
Friendship Ridge Trail	2.8	Moderate	Hiking

Hope Creek Trail	1.6	Moderate	Hiking
James Irvine Trail	4.5	Easy	Hiking
Little Creek Trail	1.0	Easy	Hiking
Miner's Ridge Trail	4.1	Moderate	Hiking
Moorman Pond Trail	0.3	Easy	Hiking
Nature Trail	0.3	Easy	Hiking
Ossagon Trail	1.6	Moderate	Hiking, biking
Prairie Creek Trail	4.3	Easy	Hiking, Accessible
Revelation Trail	0.3	Very easy	Hiking, Accessible
Rhododendron Trail	7.8	Moderate	Hiking
South Fork Trail	0.9	Strenuous	Hiking
Streelow Creek Trail	2.1	Easy	Hiking, biking
Ten Taypo Trail	2.0	Easy/Strenuous	Hiking
Trillium Falls Trail	2.3	Moderate	Hiking
West Ridge Trail	6.8	Moderate	Hiking
Zigzag 1 Trail	0.5	Strenuous	Hiking
Zigzag 2 Trail	0.5	Strenuous	Hiking

Redwood National Park

Portions of Redwood National Park are located in the Coast and Adjacent Lands planning areas. Following is a list of the trails within the Coast Planning Area from north to south:

- Hostel-Hidden Beach Trail (1.2 miles) - Unpaved trail with trailhead at Redwood Hostel on U.S. Highway 101, ending at beach. Hiking only.
- Yurok Look Trail (1 mile) - Unpaved loop trail accessed from trailhead north of Lagoon Creek. Hiking only.
- Carruthers Cove Trail (0.8 miles) - Unpaved hiking-only trail extending into Prairie Creek Redwoods State Park. Access from Coastal Drive; ends at beach.
- Lost Man Creek Trail (3.9 miles) - Unpaved former logging road for hiking and mountain biking. Access at Lost Man Creek Picnic Area. Trail ranges from easy to very strenuous, with two bridged creek crossings.
- Holter Ridge Bicycle Trail (6.9 miles) - Graveled former logging road connecting to east end of Lost Man Creek Trail and Bald Hills Road. Grade is easy to moderate.
- Trillium Falls Trail (2.5 miles) - Unpaved loop hiking trail of moderate difficulty with trailhead at Elk Meadow Day Use Area.
- Lady Bird Johnson Grove Trail (l.3 miles) – Unpaved loop hiking trail beginning at trailhead off Bald Hills Road. Easy hiking.
- Redwood Creek Trail (portion) - About 4 miles of this 14-mile, moderately-difficult hiking trail are within the Coast Planning Area. Access is from a trailhead on Bald Hills Road near the U.S. Highway 101 entrance to the park north of Orick.

  McArthur Creek Loop (14 miles) - Trail of moderate difficulty with hiking and equestrian uses allowed. Access is from the Orick Rodeo Grounds.

Yurok Tribal Trails

There are numerous others trails in the Coast Planning Area which were used by the Yurok Tribe as east-west connections with the coast for trading, gathering, and visiting. The alignments of some of these trails are in danger of being lost due to lack of use or unfamiliarity of recent generations with locations. Many of these trails are unmapped or very roughly mapped, and their existence is known primarily through memories of Yurok elders. In some cases, trails mentioned above correspond to traditional Yurok trail alignments that

were established as the most accessible and favorable routes along ridges and creeks. Some traditional Yurok trails have also been transformed into paved roads, such as Bald Hills Road.

4.4.2 Lower River Planning Area

The Lower River Planning Area comprises the Yurok Reservation below Wautec village (Figure 5). The land and water trails in this area include the lower Klamath River. a segment of the CCT, several public trails in the portion of Redwood National Park within the Yurok Reservation, several tsunami evacuation routes, and many Yurok tribal trails.

Lower Klamath River

The Lower Klamath River is the primary navigable water trail through the Lower River Planning Area, with numerous tributaries emptying into the river from the east and west slopes of the watershed. The major confluences are at Terwer Creek, located about 5 miles from the mouth of the river, and at Blue Creek, located another 10 miles upriver. The river is a defining cultural resource for the Yurok people, serving as the primary transportation route and source of sustenance. The Klamath River is a designated Wild and Scenic River and is visited by thousands of tourists each year who enjoy its unique beauty and dramatic setting.

The Lower River Planning Area includes the Mouth of the Klamath, an especially significant cultural location and an important fishing and eeling location for the Tribe. The lower reaches of the river include both riverine and estuarine habitat with great biological diversity. Upriver of the U.S. Highway 101 bridge, the river is characterized by great sweeping bends with broad flat gravel bars on the outside meander banks. Navigation on the river requires significant experience and knowledge of local eddies, rapids, and currents. Over the millennia, the Yurok people have come to know the character of this river throughout the seasons, and developed the skills to successfully travel the river in both their traditional redwood canoes and contemporary motorized boats. It is in this planning area that the Tribe owns and operates Klamath River Jet Boat Tours, a 40-mile eco-tourism tour that starts at Requa and travels upriver for 20 miles, allowing for photographic stops and a full narration. Tourists who travel the river are generally experienced paddlers or boaters, or participating in guided travel on commercial boats operated by more experienced individuals.

California Coastal Trail

The proposed CCT alignment in the Lower River Planning Area is largely unimplemented. From the Mouth of the Klamath Overlook it leaves Redwood National Park and follows Patrick J. Murphy Memorial Drive and Requa Road to U.S. Highway 101. It then heads south along U.S. Highway 101, into the town of Klamath along Klamath Boulevard, back onto U.S. Highway 101 to cross the Klamath River and Waukell Creek, and then follows Klamath Beach Road to the junction with Flint Ridge Trail. It re-enters Redwood National Park and heads west along Flint Ridge Trail to join Coastal Drive and turn south.

Public Trails

The Flint Ridge Trail section of the CCT is located within Redwood National Park. The trail section is 4.5 miles long, with east access at Alder Camp Road and west access at Coastal Drive. This section is a hiking-only trail of moderate difficulty, with switchbacks that climb over the ridge separating the Klamath River basin from the coast.

Tsunami Evacuation Trails

Vehicular tsunami evacuation routes for the Lower River Planning Area have been designated along existing roadways in Klamath, specifically Klamath Boulevard, Salmon Road, Ehlers Avenue, Klamath Mill Road, Chapman Street, and Alder Camp Road. These roads connect to U.S. Highway 101 which would be used to convey traffic away from the low lying areas. There are several unpaved trails that are at least partially signed as tsunami evacuation trails and that lead pedestrians to the signed roads. One such trail is located behind the Klamath Tribal Headquarters complex in Klamath, another is north of and roughly parallel to State Route 169, and a third connects from the beach at the Yurok Fish Processing Plant to Requa Road. These trails are not consistently marked or maintained.

Yurok Tribal Trails

The vast majority of trails in the Lower River Planning Area are those established by the Yurok people over millennia. These tribal trails range from narrow, unpaved tracks to dirt or partially-graveled trails that are wide enough to be small roads passable on ATV or 4WD vehicles. Non-vehicular usage includes pedestrian and equestrian use. Many of these trails have particular cultural significance associated with travel between villages, ceremonial sites, and family gathering lands. Some trails provide east-west access from the river valley out to the coast or to the high country trails. Several points in the river are traditionally recognized as good places to cross from one side to the other and include trail alignments that continue on both sides of the river.

4.4.3 Upper River Planning Area

The Upper River Planning Area includes the area adjacent to the Klamath River from Wautec to the terminus of the YAT about 1 mile beyond Slate Creek (Figure 6). Most of the land in this planning area is part of the Yurok Reservation, but part of the planning area, upriver from Weitchpec and outside the Reservation, is in private and public (Six Rivers National Forest) ownership. The land and water trails in this area include the Klamath River and many Yurok tribal trails.

Upper Klamath River

The Upper Klamath River is a designated Wild and Scenic River and is the primary navigable water trail through this area. The river is fed by numerous tributaries emptying into the river from the east and west slopes of the watershed: Pecwan Creek, Roach Creek, Mettah Creek, Cappell Creek, Mareep Creek, Waukell Creek, Tully Creek, and Pine Creek. The river is a defining cultural element for the Yurok people living along this section of the Klamath River who have relied on the river for millennia to provide food and transportation.

Recreational use of this section of the river is relatively limited due to the technical complexity, lack of public put-in/take-out facilities, private property, and the many important cultural sites located along the river. Some guided trips are available, including those provided by Yurok guides. Yurok Tribal employees use the river at times to travel via motorized launch between Klamath and the Tribal facilities upriver. The Tribe is also evaluating opportunities to implement river-based transit services, including potential locations for landings and access points, to enhance transportation into and out of the area.

Yurok Tribal Trails

Tribal trails are an important part of the transportation system in the Lower River Planning Area. There are few improved roads; many are narrow, steep, and winding. State Route 169 and State Route 96 are the major roads through the area, following the north/east side of the river. Both are two-lane roads without adequate shoulders for safe bicycle or pedestrian use. Lesser roads are often unpaved tracks indistinguishable from trails that provide limited access to the many villages and home sites located along both sides of the river. Consequently, travel through this area is challenging for residents.

Many of the trails in this area follow ridgelines or creek corridors. The terrain may be steep, uneven, and heavily wooded. Without regular maintenance of the trails, access, visibility, and trail stability are ongoing problems that threaten the safety of people using the trails. Few trails are appropriate for regular recreation and wellness use, especially for families with small children or people with disabilities.

Many of the children who attend the Ke'pel Head Start program, Jack Norton Elementary School in Pecwan, or Weitchpec Elementary School either walk to school on informal unpaved trails, or use unpaved trails to get to bus stops on State Route 169. The trails they use are not constructed to any specific design standard and are not regularly maintained. Parents who walk with their children to school may be pushing strollers or holding preschoolers by the hand and must be alert for their children's safety. Winter rains make travel on these trails difficult and create erosion hazards. Similar issues apply to the trails people use to get to other destinations in the area, such as the Community Center at Weitchpec, and to homes of friends and relatives.

Trails are also used to access important ceremonial sites, gathering areas, and the river. These trails have cultural significance due to their traditional use for millennia by generations of Yurok people. Some of these trails are well-known by residents because they are used on a regular basis for ceremonial events. Others have been classified as "adaptive conveyances" which are culturally determined to be historic properties contributing to the significance of the greater, complex Weitspus World Renewal Ceremonial District. These trails need periodic evaluation and maintenance to make sure they remain safe and able to accommodate the level of anticipated use. Others are less well-known and overgrown because the traditional uses are less frequent, limited to family uses, or associated with activities that are very rarely practiced. These trails are especially important to recognize and protect because they represent a valuable component of the Yurok culture that could otherwise be lost.

4.4.4 Bald Hills Planning Area

The Bald Hills Planning Area is located between the Yurok Reservation, Redwood National Park, and the Coast Planning Area (Figure 8). Most of the area is privately owned. There are no public trails in this area. A number of traditional Yurok trails pass through the area, providing connections between the Klamath River valley and the Redwood Creek, Pine Creek, and Trinity River watersheds. These trails generally follow ridgelines with spectacular vistas of the Bald Hills and creek valleys. They have been used for millennia as important transportation routes and to provide access to gathering areas or other cultural sites. As these practices have declined, the awareness and use of these alignments has also declined. As with other cultural trails, they are significant resources that need to be managed and protected as part of the Yurok heritage.

Most of these trails connect either to Bald Hills Road or U.S. Highway 101, both of which are designated routes in the Yurok Scenic Byway. Some trails continue into Redwood National Park where they become part of the named and managed park trail network. Consequently, there is potential for park visitors to venture out on these trails which are generally unmaintained and unmarked.

4.4.5 High Country Planning Area

The High Country Planning Area encompasses the YAT north and east of the Klamath River (Figure 7). Much of this land is part of Six Rivers National Forest or owned by private forestry interests. The trail network in this area derives from the cultural practices of the Yurok people who for millennia visited the high country for hunting, gathering, and spiritual practice. When mining and forestry operations came to the area some Yurok trails were converted to unpaved roads and new roads were added. The High Country Planning Area includes the culturally-sensitive area that was the subject of the infamous Lyng v. Northwest Indian Cemetery Protective Association case, adjudicated by the U.S. Supreme Court. This conflict ultimately created the need for the U.S. Forest Service to examine the access of Indian people to land under its management. Yurok people believe that some 13,500 acres in the Blue Creek Unit of Six Rivers National Forest, a span of about 6 miles in the middle of the proposed G-O Road corridor, are sacred places where they could engage in spiritual activity. There, approximately 140 elders meditated and guided adolescents through rites of passage, and tribal healers made medicine, gaining power to lead such rituals as the White Deerskin Dance of the World Renewal Ceremony. These rituals were meaningful only if leaders became empowered by visiting the sacred sites in solitude surrounded by unspoiled natural environment. These sacred trails are not included in the YTWMP.

Six Rivers National Forest

There are few named public trails in the High Country Planning Area. All are located within Six Rivers National Forest and have minimal improvements unless noted otherwise below:

- Bluff Creek Historical Trail: 1.3 mile hiking trail
- Red Mountain Lake Trail: 2.9 mile hiking trail
- Fish Lake Trail: 0.7 mile improved hiking trail
- Blue Lake Trail: 0.6 mile improved hiking trail
- Forks of Blue Creek Trail: 7.7 mile pack, saddle, and hiking trail
- East Fork Blue Creek Trail: 2.0 mile pack, saddle, and hiking trail
- Summit Valley Trail: 5.9 mile pack, saddle, and hiking trail
- Boundary Trail: 10.8 mile hiking trail

Most of these trails connect to traditional Yurok trails. There is the potential for public recreational trail users to venture onto these traditional trails with no awareness of cultural significance. Access management for these traditional trails is very important for safety reasons as well; they are in remote areas far removed from visitor services and at high risk for wildland fire.

Yurok Tribal Trails

There are many significant cultural trails associated with gathering and sacred practices in the High Country Planning Area. Over the years these trails have become less used and therefore sometimes difficult to find and traverse. The level of use for trails in this area is less frequent, but the trails are nevertheless significant; appropriate standards for maintenance and wayfinding need to be implemented.

4.4.6 Adjacent Lands Planning Area

Many of the trails identified in the other planning areas continue beyond the planning area boundaries into adjacent lands that are not part of the YAT. While the YTWMP does not specifically address trails in these areas, it is important to recognize the need for coordination between the Yurok Tribe and other regional trail managers. The coordination is necessary to provide trail users with safe, consistently maintained trails and to maximize the connectivity potential of the overall regional trail network.

5.0 PLANNING CONTEXT

5.1 Geography

The home of the Yurok Tribe is along the Lower Klamath River in Northern California, approximately 60 miles south of the Oregon border. This region is one of the most isolated, wild, undeveloped, rural areas of California, and has been home to the Yurok people since time immemorial. The YAT spans both Humboldt and Del Norte Counties, starting just above the confluence of Slate Creek and the Klamath River and extending downriver to the mouth of the Klamath River at the village of Requa on the Pacific Ocean (Figure 1: Yurok Tribe's Ancestral Territory).

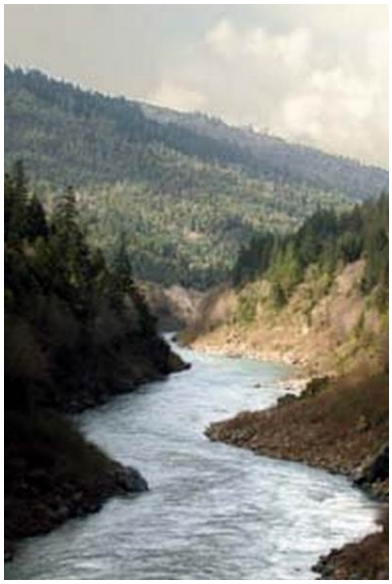
The YAT is approximately 492,000 acres (770 square miles) and includes the Yurok Indian Reservation's lands which are approximately 56,200 acres (88 square miles). The Yurok Indian Reservation boundaries were congressionally defined as the reservation extension under the Executive Order of October 16, 1891, but (excluding the Resighini Rancheria). [2]The Yurok Indian Reservation boundary spans both Humboldt and Del Norte Counties, extending from 1mile on each side from the mouth of the Klamath River and upriver for a distance of 44 miles.

The geographic scope for this plan is the entire YAT. The terrain of the YAT is quite varied. Those geographic distinctions (along with differences in transportation needs and trail use) were taken in to consideration when creating the planning areas used in the YTWMP. (See sections 4.3 .)

Since time immemorial, the Yurok resided in numerous village settlements within the varied terrain of the YAT. In coastal areas, settlements were situated primarily around lagoons and streams near the ocean. Historically, the largest Yurok populations were located in the villages along the Klamath River. The Yurok relied upon the Klamath River for sustenance, transportation, communication, and trade. The importance of the river to Yurok culture is illustrated in their terms for geography. Many Yurok terms and spatial concepts are expressed in relation to proximity to the river and flow direction. (Ulibarri, L. Robert, Winzler & Kelly Consulting Engineers, 2005).

[2] Hoopa-Yurok Settlement Act, 1988, Public Law 100-580, 102 Stat. 2924 (25 U.S.C. 1300i et seq.)

The Klamath River will continue to be an important transportation corridor. The river presents exciting opportunities for new types of visitor experiences that connect Redwood National and State Parks along the coast with extensive U.S. Forest Service lands inland. The Klamath River is designated as a National Wild and Scenic River (WSR).

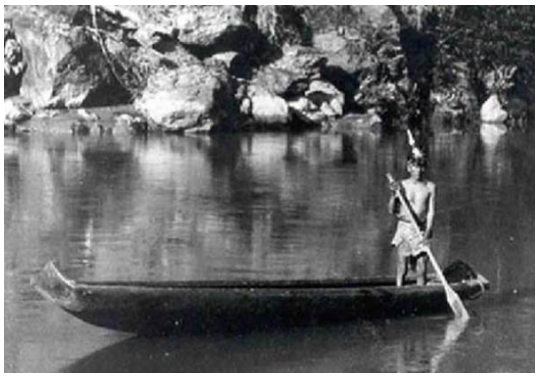


Klamath River

The Klamath WSR includes the Klamath River and its principal tributaries—the Scott and Salmon Rivers and Wooley Creek. The Klamath River reach begins 3,600 feet below Iron Gate Dam and ends at the Pacific Ocean. The upper 127 miles of the Klamath is administered by the U.S. Forest Service and Bureau of Land Management, and the remainder is administered by the State of California with support from the National Park Service and Native American tribes.

Klamath tributaries flow from the Mount Shasta, Marble Mountain, Siskiyou and Trinity Alps Wilderness areas. Elevations in the watershed vary from 14,162 feet to sea level. All tributaries, except one short segment of the Scott, are administered by the U.S. Forest Service.

The Klamath River's outstandingly remarkable value is its anadromous fishery. The river supports several anadromous species during most of their in-river life stages, including Chinook salmon (spring- and fall-runs), coho salmon, steelhead trout (summer- and winter-runs), coastal cutthroat trout, green and white sturgeon, and Pacific lamprey [locally known as eels]. The evolutionarily significant unit of coho salmon, the Southern Oregon/Northern California Coast coho, is federally listed as a threatened species under the Endangered Species Act; the Klamath River is designated critical habitat. The anadromous fishery supports the river's sport fishing guide and resort industry, Native American subsistence and ceremonial culture, and the ocean commercial and sport fishing industry.



Traditional Redwood Canoe

Other notable values include recreation and scenery. High spring-season flows support whitewater boating. Recreationists are attracted to the Klamath's long rafting season and whitewater. Whitewater classifications generally vary between Class II and Class V, with one instance of Class VI at Ishi Pishi Falls on the Klamath River. Angling is at its peak during the fall season's anadromous fish runs, although fishing activity is a year-round activity. Visitors also enjoy viewing salmonids, especially during migration seasons. The river is an important wildlife habitat corridor.

Gathering along a trail

The river also supports an abundance of raptors.
(U.S. Fish and Wildlife Service, 2013)

The Yurok Tribe has established an initiative to re-introduce the California condor with the primary purpose of determining if Yurok Ancestral Territory and the surrounding lands are suitable for the critically endangered California condor.

Projects such as these [condor re-introduction] are deeply tied to the holistic ecosystem approach the Tribe envisions for stewardship of all natural resources on the reservation. This relationship to the land and nature is rooted in our awareness that we are not outside the natural world looking in, but rather are a part of that world. The Tribe's commitment to improving the human relationship with the world is exemplified in our Constitution, which mandates the Tribe to "restore, enhance and manage natural resources" in Yurok Ancestral Territory.
- Website of the Yurok Tribe

5.2 Culture

This section provides information on the cultural context necessary for understanding the Yurok's approach to trails and waterways. A description of the history of Yurok trails and waterways is provided as Appendix B.

Because of the Yurok's robust relationship with trails and waterways, understanding how the Yurok people use these features is essential for the development and implementation of the YTWMP. Consistent with national trends, Yurok people walk on trails for the purposes of recreation, exercise, and enjoyment of nature and scenery. They also use trails for a variety of other purposes: travel to ceremonial sites, access to areas for fish and wildlife surveys, access to areas for gathering items for basketry and subsistence, access to bartering partners, or for other utilitarian purposes.

> Culturally, our people are known as great fishermen, eelers, basket weavers, canoe makers, storytellers, singers, dancers, healers and strong medicine people. Before we were given the name "Yurok" we referred to ourselves and others in our area using our Indian language. When we refer to ourselves we say Oohl, meaning Indian people. When we reference people from down river on the Klamath we call them Pue-lik-lo' (Down River Indian), those on the upper Klamath and Trinity are Pey-cheek-lo' (Up River Indian) and on the coast Ner-'er-ner' (Coast Indian). The Klamath-Trinity River is the lifeline of our people because the majority of the food supply, like ney-puy (salmon), Kaa-ka (sturgeon) and kwor-ror (candlefish) are offered to us from these rivers. Also, important to our people are the foods which are offered from the ocean and inland areas such as pee-ee (mussels), chey-gel' (seaweed), woo-mehl (acorns), puuek (deer), mey-weehl (elk), ley-chehl (berries), and wey-yok-seep (teas). These foods are essential to our people's health, wellness and religious ceremonies. Our way was never to over harvest and to always ensure sustainability of our food supply for future generations. *(Yurok Tribe, 2006)*

From the conventional, contemporary, American perspective, walking and biking on trails are generally for the purposes of recreation, exercise, and the enjoyment of nature and scenery (American Hiking Society, 2013) (Cuciti, 2001); whereas walking and biking for utilitarian purposes, such as for commuting to and from work or accessing other destinations (school, dining, shopping, etc.) is generally assumed to occur on sidewalks or bicycle paths. Within the field of transportation planning, the term *non-motorized transportation* (or *active transportation* or *human-powered transportation*) refers to walking and bicycling, and variants such as small-wheeled transport (skates, skateboards, push scooters and handcarts) and wheelchair travel (Victoria Transport Policy Institute, 2013). From the Yurok perspective, it also includes traveling in traditional redwood canoes and the more modern human-powered boats.

Commuting by bicycle on a paved surface
- www.pedbikeimages.org/ Carl Sundstrom

There is a large amount of available data on non-motorized travel activity and demand, from sources such as the National Highway Traffic Safety Administration National Survey of Bicyclist and Pedestrian Attitudes and Behavior, and the Federal Highways Administration National Household Travel Survey. However, the data tends to focus on factors such as trip frequency, travel time (duration, day of the week and time of day) and barriers to non-motorized travel, rather than whether the trips are taking place on a trail or another surface such as a sidewalk or bicycle path (U.S. Department of Transportation, National Highway Traffic Safety Administration, 2008) (U.S. Department of Transportation, Federal Highway Administration, 2009). There is relatively little data available on trail use for utilitarian purposes. This is important because transportation research data is used to set funding priorities. If the importance of trails for utilitarian trips were better understood then perhaps more funding would be allocated for trails projects.

5.3 Partnerships

The Yurok Tribe is the largest Tribe in California and has over 5,000 enrolled members. Departments and agencies within the Tribe are responsible for carrying out various governmental functions. Transportation planning (including the development of this plan) is conducted within the Tribe's Planning and Community Development Department. The efforts of other Yurok departments are interrelated with the work of the Planning and Community Development Department. Land and natural resource management activities are conducted by Tribal staff in the Fisheries, Wildlife, and Forestry Departments, as well as in the Tribe's Environmental Program (YTEP).

The Yurok Loop Trail is located just south of the mouth of the Klamath River; in Redwood National Park and is also part of the California Coastal Trail system
- National Park Service

The Yurok trails and waterways system that is described in this master plan is embedded in the larger vision for a

Tribal Park. Sustaining mutually beneficial partnerships between Tribal Departments, local government agencies and private land owners is a cornerstone to fulfilling this vision.

> *The Yurok tribal park vision is a manifestation of long-term Tribal goals and traditions of careful stewardship of ancestral lands. The vision of a Yurok tribal park, linked to neighboring federal and state lands through partnership and cooperative management agreements, will facilitate the reintroduction of tribal land management practices and traditional ecological knowledge into the ancestral lands of the Yurok Tribe (Tribe). The Tribe recognizes that public support, inter-agency cooperation, and federal legislation are all integral components of the vision for a Yurok tribal park.... The Yurok Tribal Park Vision proposes extensive cooperative partnerships with one state and three federal agencies: California Department of Parks and Recreation* (CDPR), the National Park Service (NPS), the USDA Forest Service (Forest Service), and the Bureau of Land Management (BLM).
> (Redwood Community Action Agency and Current Transportation Solutions, 2012)

> *For the National Park Service and California State Parks, a co-management agreement with the Yurok Tribe would be a significant expansion of existing agreements and joint activities that involve programs ranging from curation and cataloging of cultural artifacts to prescribed burning to maintain open meadows in the Bald Hills Region of the park. In particular, the Tribe would like to take an active lead in interpretation and education of park visitors on all aspects of Yurok culture, and would like to regain appropriate access to traditional ceremonial and gathering sites inside the parks.*
> (Jarvis, Destry T.; Outdoor Recreation & Park Services, LLC, 2005)

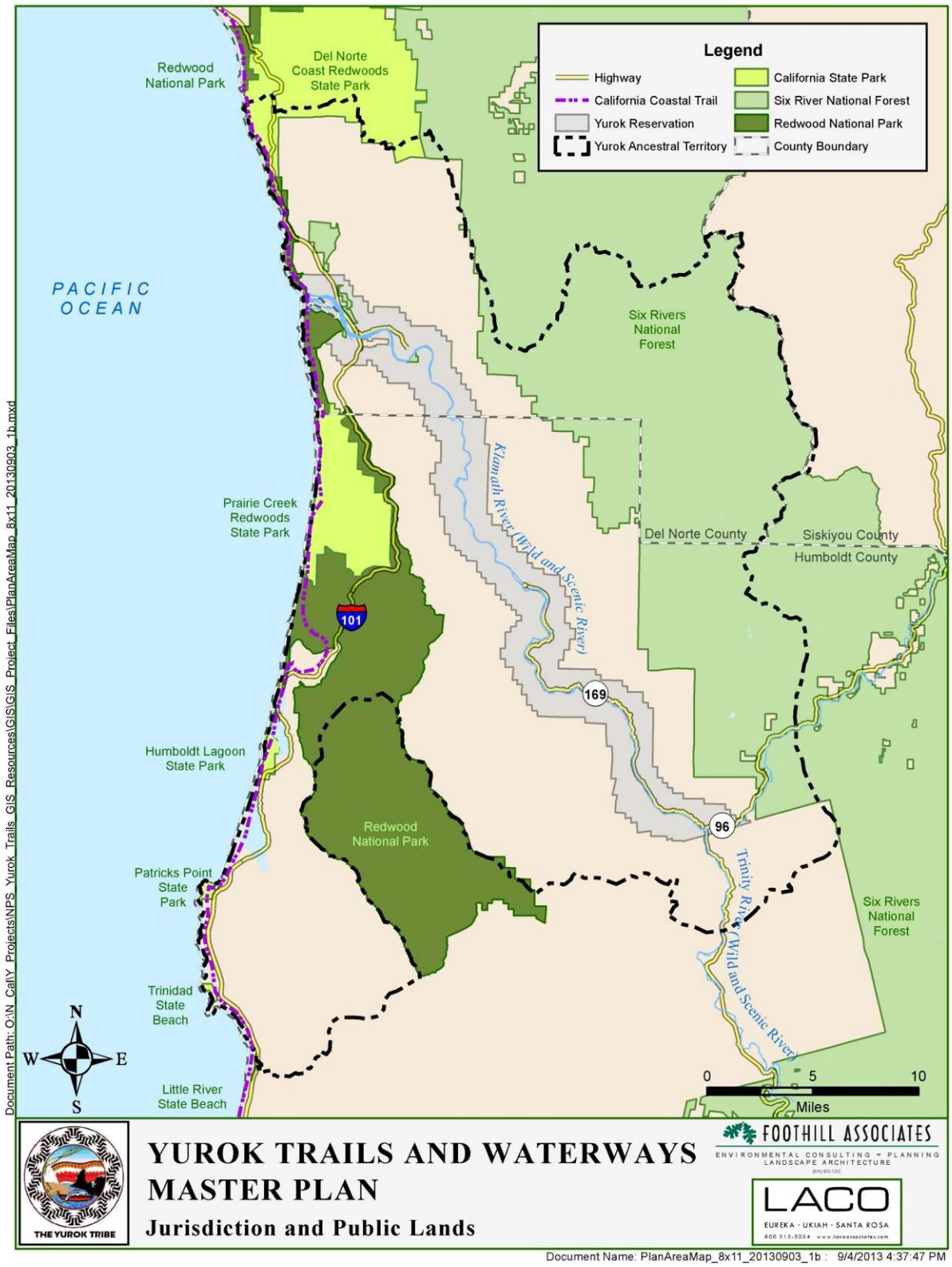
The 1988 Hoopa-Yurok Settlement Act promised more land to the Yurok Tribe. However, the Tribe did not receive the first land transfer until 2012, when 355 acres were transferred from Six Rivers National Forest. Around that time, the Tribe also purchased over 20,000 acres in the Pecwan area:

> *The land base the Tribe owns continues to expand. The Tribe purchased 22,237 acres from the Green Diamond Timber company in April, 2011. The purchase included three tributaries to the Klamath River: Pecwan, Ke'pel, and Weitchpec Creeks. In accordance with the Tribal park vision, the Tribe is working to restore watershed health to improve spawning grounds for salmonids and other Klamath River fish species. The Tribe will also be working to restore ecosystem health to the various meadows on the land that has traditionally been used for subsistence hunting and gathering. Currently, the Tribe is planning to seek acquisition of 25,000 additional acres of Green Diamond Timber company lands for additional restoration efforts and economic development in line with the Tribal park vision.*
> (Redwood Community Action Agency and Current Transportation Solutions, 2012)

The YAT overlaps with areas where other jurisdictions also have trail planning and management responsibilities. These entities are listed below; jurisdictions are reflected on Figure 9: Jurisdiction and Public Lands

- Humboldt County
- Del Norte County
- California Department of Parks and Recreation
- Redwood National and State Parks
- U.S. Forest Service (Six Rivers National Forest)
- California Department of Transportation (Caltrans)
- U.S. Fish and Wildlife Service

Figure 9: Jurisdiction and Public Lands



In addition to the aforementioned public land holders, it is important to consider private land holders within the YAT as they accommodate activities and services that enhance the Yurok trails experience, such as camping, fishing, boat launches, and interpretive programs and displays. Also many trails and old logging roads exist in which private landowners stand to benefit from this master plan.

Green Diamond Resource Company has been working with the Tribe on forest management and aquatic habitat issues. (Yurok Forestry Department, 2012)

> *The Tribe has been very proactive over the years in protecting its various watersheds, and has implemented many restoration projects to return the areas to their once pristine conditions. In an effort to maintain the health of the waterways on the Reservation, the Lower Klamath Restoration Partnership (LKRP), composed of representatives of the Yurok Tribe Natural Resources Department, Green Diamond/Simpson Timber Company, the California State Coastal Conservancy, and the Northern California Indian Development Council was formed in 1995. This Project Advisory Committee was formed in order to facilitate a coordinated approach to watershed restoration planning and to find innovative solutions to resource management issues between private landowners, Tribal interests, and public agencies.*
> (TETRA TECH, 2013)

As the Tribe continues to work on fulfilling the vision for a Tribal Park, additional lands with existing and potential trails and waterways assets will become part of the network described in this master plan. Those assets can be inventoried, developed, and managed in the manner described herein.

5.4 Related Plans and Background Documents

This section highlights the relationships between the YTWMP and the following plans and documents:

- Yurok Tribe
  - Yurok Tribe Transportation Plan (2006-2026), *Taking Back a Traditional Trail*
  - Yurok Transit in Parks
  - Yurok Scenic Byways Program
    - Policies and Procedures
    - Strategic Plan
    - Economic Impact Study and Tourism Opportunity Assessment
    - Environmental and Cultural Resources Interpretive Plan
  - Yurok Indian Sustained Yield Lands Forest Management Plan
  - Hazard Mitigation Plan, Draft 3
  - Yurok MLPA and Marine Resource Plan; Factual Record of Marine Resource Use
  - Tsurai Management Plan
- Del Norte County
  - Del Norte County Regional Transportation Plan
  - Overall Work Program
  - Bicycle Facilities Plan Update
  - Safe Routes to School Research and Policy Report
- Humboldt County
  - Humboldt County Regional Trails Master Plan
  - Humboldt Regional Bicycle Plan Update
  - Humboldt Regional Transportation Plan

  - Draft Trails Element (Humboldt Regional Transportation Plan Update)
  - Humboldt Regional Pedestrian Plan
  - Humboldt County Coastal Trail Implementation Strategy
- State and Federal
  - Trail & Backcountry Management Plan, Redwood National and State Parks
  - Land and Resource Management Plan, Six Rivers National Forest

5.5 Yurok Tribe

5.5.1 Yurok Tribe Transportation Plan (2006-2026), Taking Back a Traditional Trail

The Yurok Tribe Transportation Plan (YTTP) explains that trails and waterways are uniquely important in Yurok culture and daily life. Ancient routes have been used since time immemorial, connecting people with food sources. Many current-day roadway and river routes are in the same location as these ancient tribal routes. For the Yurok people, these ancient Tribal routes are "like people" to be treated with respect. If you stepped out of a trail, the Yurok believed that the trail would become resentful. Along each important trail there were resting places. Hundreds of these resting places were located along the Yurok trail routes and were usually located with pleasant vistas.

The YTTP includes the development of strategies for the design, construction, operation, and maintenance of transportation facilities for moving people and goods both on and off the Yurok Indian Reservation. It considers the various modes of transportation, such as driving, flying, and boating, and how to connect those modes. The process is linked to land use, culture and cultural preservation, social values, economic issues, environmental priorities, and quality of life goals of the Yurok Tribe.

Improving traditional trails and relevant facilities within, and to and from, the Yurok Reservation is one of the specific Tribal goals listed in the YTTP. Chapter 3.4.8 of the YTTP presents the goals, policies, and objectives related to trails (see Appendix C); much of this information is discussed in greater detail in this master plan. Policy 3.4.5 is specific to the establishment of a Yurok River Transit System and the development of a network of docks and launching facilities.
(Yurok Tribe with Winzler & Kelly, 2006)

5.5.2 Yurok Transit in Parks

The Yurok Transit in the Parks project was conducted in conjunction with Redwood National Park; the goal was to assess transportation needs and develop a plan to meet those needs. It was determined that the best way to meet the transportation needs of the community was by coordinating land transportation and adding river transportation. The project culminated with the report, *Yurok Transit in Parks* (RCAA, 2012). The proposals described in the report are compatible with the goals of the YTWMP.

The Klamath River, which runs between Klamath and Weitchpec within the YAT, is a long-established and significant waterway. The report suggests using the river to provide a connection between Redwood National and State Parks, located along the coast, and U.S. Forest Service lands and river systems, to the east, through links with an organized multi-modal transportation network.

The report states that adding a river transit service would provide significant time savings when compared to current travel time by road, as well as provide visitors and the local community with a scenic and unique

experience while reducing environmental and other negative impacts to the region. The report further states that the same infrastructure that provides transit service could also accommodate tours and other services for areas with no road access. This scenario also includes economic development opportunities for the Tribe and growth opportunities for the town of Klamath through establishing itself as the gateway community for Redwood National Park. The report is consistent with the Tribe's constitution which describes river transit:

> *The Klamath River was and remains our highway, and we from time beginning utilized the river and the ocean in dugout canoes, Althwayoch, carved from the redwood by Yurok craftsmen, masterpieces of efficiency and ingenuity and have always been sold or traded to others outside the tribe.*
> - Constitution of the Yurok Tribe
> (Yurok Tribe, 1993)

The report contains system design and vessel choice recommendations, and estimated costs and revenues for a Klamath River shuttle and tour service. The report also identifies priority projects which would be accomplished through regional partnerships and collaboration. Two of the priorities relate to the YTWMP:

1. Improve pedestrian and bicycle connectivity and safety along State Route 169, described as, "Improve safety of travel and crossing of roads in and around Highway 96 in Weitchpec and along the SR 169 corridor to Wautec."
2. Improvements to trails connecting Klamath [Townsite] to the river, described as, "Trails leading to the river would be improved and the improved trail network would be signed and mapped for better clarity of users."
   (Redwood Community Action Agency and Current Transportation Solutions, 2012)

5.5.3 Yurok Scenic Byways Program Documents

In April 2011, the Yurok Scenic Byway (YSB) was officially designated through action of the Yurok Tribal Council following three years of planning. This process included creating an inventory of the potential corridors, identifying intrinsic values, soliciting public input from Tribal members, and coordinating with other regional stakeholders. It is the first Tribal byway program in California and one of only several that have been established nationally. As of 2012, the Yurok Scenic Byways Program (YSBP) includes five major routes through the YAT, with the potential to add other routes in the future, including the Klamath River. (Figure 10: Yurok Scenic Byway Map) (Foothill Associates and Bucy Associates, 2013)

Figure 10: Yurok Scenic Byways Map

Four documents provide structure, vision, and background research for the Yurok Scenic Byways Program (YSBP. Each of these documents is summarized below, with emphasis on compatibility between the YSBP and the YTWMP.

1. Yurok Scenic Byways Program Policies and Procedures
2. Yurok Scenic Byways Program Strategic Plan
3. Yurok Scenic Byways Program Economic Impact Study and Tourism Opportunity Assessment
   Yurok Scenic Byways Program Environmental and Cultural Resources Interpretive Plan

5.5.4 Yurok Scenic Byways Program Policies and Procedures

According to Yurok Scenic Byways Program documents, the YSBP,

> *...exists to promote awareness of significant transportation routes and the surrounding landscapes within the boundaries of the Yurok Ancestral Territory. The Yurok Ancestral Territory is a place of unique and stunningly beautiful landscapes. It is also the setting for the age-old story of the Yurok people, whose history, culture, and identity are inseparable from the place itself. The Yurok people have traveled extensively throughout the area for millennia, in an intimate relationship with its rivers, forests, mountains, beaches, and the ocean. These ancient routes created by the Yurok people in their pursuit of sustenance, shelter, community, and knowledge continue to play a vital role for the Yurok Tribe and are the inspiration for the Yurok Scenic Byway.*

The YSBP goals are consistent with the goals of the YTWMP. There are trails and waterways identified in this master plan that may in the future be designated by the Tribe as scenic byways. The YSBP Policy and Procedures document provides guidance for implementation and management. The policies address criteria for scenic byway designation and should be referenced when considering additional trails and waterways for scenic byway designation. The procedures provide the detailed steps for securing scenic byway designation (Foothill Associates, 2011).

5.5.5 Yurok Scenic Byways Program Strategic Plan

The purpose of the Yurok Scenic Byway Strategic Plan is to provide direction and guidance to facilitate implementation of the YSBP as defined by the YSBP Policies and Procedures document. The Strategic Plan identifies eight major goals and prioritizes specific future actions and initiatives related to YSBP implementation to help coordinate activities of Tribal staff, support fiscal planning for YSBP projects, and establish a framework for coordination with non-Tribal byway partners in the region.

The Strategic Plan highlights the need to consider issues of access, interpretation, habitat protection, management, and safety for culturally-significant trails that potentially may be included in the YSBP. The Strategic Plan also highlights the potential for trails to provide opportunities for interpretation experiences for visitors that will educate them (in an enjoyable manner) on the importance of protecting sensitive natural and cultural resources. The Yurok Scenic Byway Program Environmental and Cultural Resources Interpretive Plan (see below) provides more details about specific interpretation strategies, messages, and approaches.

The Strategic Plan organizes initiatives by 3 tiers of implementation timelines and a group of ongoing marketing activities. Priority A initiatives are targeted to begin during year 1 of the program. Priority B initiatives are targeted to begin during years 2 and 3, and Priority C initiatives, which includes Trails Designation, are targeted to begin during years 4 and 5.
(Foothill Associates, 2011)

5.5.6 Yurok Scenic Byway Program Economic Impact Study and Tourism Opportunity Assessment

The YSBP and the YTWMP share compatible goals, including recreation- and tourism-based economic development. The YSBP Economic Impact Study and Tourism Opportunity Assessment report contains background research pertaining to market trends that may impact YSBP development and marketing, a review of comparable regional recreation destinations, and a series of planning, management, and marketing implications for the YSBP.

The report indicates that, overall, outdoor recreation activities (including hiking, mountain biking, and other types of trail uses) that are reachable via the YSB are likely to remain stable, with likely continued growth in motorized and non-motorized boating activities. The report also states that U.S. Forest Service data for the Klamath and Trinity National Forests show a relatively high level of interest in cultural heritage viewing and learning experiences, both of which are available in the YSBP region. Redwood National and State Parks serves as the primary visitor attraction to Northern California's Pacific Coast, attracting approximately 415,000 visitors each year. The beautiful trails are a special attraction and also serve as a circulation system providing visitors with access to other natural features such as redwood tree groves, waterfalls, river sites, and wildlife areas. The YTWMP will serve as an important document that will provide management guidelines for a trail system that is intended to increase use as tourism and recreation in the area increases as a result of YSBP implementation.

The YSBP Environmental and Cultural Resources Interpretive Plan proposes several interpretive publications, including a YSB Hiker's Guide to Trails (focused on public recreational trails that can be accessed from the YSB) and a Guide to Water Trails (focused on self-guided kayaking and canoeing trips within the YAT)

Community open-house events were held to solicit input from Yurok Tribal members and others in the region who are interested in tourism and recreation development along the YSB. Many suggestions related to improving access to existing amenities were offered. Other suggestions were geared toward the development of proposed projects, such as off-road-vehicle trails. Similar sentiments were expressed during the community and stakeholder participation segments of the YTWMP development process, as described later in this document.

The YSBP Economic Impact Study and Tourism Opportunity Assessment report discusses the economic impacts and tourism opportunities for potential projects, including lodging associated with trail use and guided Klamath River and trail experiences. To support projects that promote increased trail use and enjoyment of the Klamath River, trail maintenance and improvements, and improvements related to use of waterways will be needed. (Dean Runyan Associates, Nozicka Consulting, and Foothill Associates, 2012). Coordination of activities related to the mutual goals of the YSBP and the YTWMP has great potential to help the Tribe meet those goals.

5.5.7 Yurok Scenic Byway Program Environmental and Cultural Resources Interpretive Plan

The Environmental and Cultural Resources Interpretive Plan is intended to provide guidance for the implementation of the YSBP. It was developed to protect sensitive and important natural and cultural resources, provide visitor education about resource preservation, and enhance visitors' enjoyment as they travel the YSB. The interpretive portion of the YSBP is intended to complement interpretive opportunities already available to YSB travelers (such as those in Redwood National and State Parks and the other California State Parks) by providing interpretive experiences related to the YSB and presented from the Yurok perspective. The YSB interpretive network is designed to help visitors gain a greater understanding of the Yurok people and the places, events, and resources that are intrinsic to the Yurok culture.

When designing interpretive experiences for visitors using the trails and waterways identified in the YTWMP, the YSBP Environmental and Cultural Resources Interpretive Plan should be referenced for guidance on specific features to include and opportunities for linkage to other amenities. Numerous site-specific locations for YSB interpretive experiences, many of which are associated with trails or waterways, are discussed in the plan. Opportunities for both guided and self-guided tours are presented.

The YSBP Environmental and Cultural Resources Interpretive Plan proposes several interpretive publications, including two that are particularly relevant to the YTWMP: a YSB Hiker's Guide to Trails focused on public recreational trails that can be accessed from the YSB, and a Guide to Water Trails focused on self-guided kayaking and canoeing trips within the YAT.

New signage for trails and waterways associated with the YTWMP should be visually harmonious with interpretive signage created for the YSBP.
(Foothill Associates and Bucy Associates, 2013)

Yurok Indian Sustained Yield Lands Forest Management Plan
This plan covers management of all of the forested Yurok Tribal lands both inside and outside the reservation boundary. There are numerous trails and logging roads (sometimes used as trails) in this area. Making trails and waterways managers and users aware of certain forest management objectives is important for supporting those objectives wherever feasible. Interdepartmental coordination is also important for reducing possible conflicts related to road use and safety.

The Yurok Forestry Department is responsible for monitoring forest health and responding to issues that arise due to fire, insects, diseases, and trespass. Sudden Oak Death (SOD) is a disease of oak trees that affects numerous additional species of native plants. The disease is caused by an invasive plant pathogen, Phytophthora ramorum. Some plants that are susceptible to the disease do not die from it but are a factor in spreading it. Once SOD infects oak trees, there is no known way to cure them. The Forest Management Plan encourages anyone who travels to, works in, or lives in an area infested with Phytophthora ramorum to follow sanitation measures that reduce the chance of spreading the pathogens.

Because it possesses extraordinary scenic, recreational, fishery, and wildlife values, the Klamath River is a state- and federally-designated Wild and Scenic River. Certain forestry practices are required to protect the corridor of land along the entire length of the river, extending 200 feet on either side (Caltrans, 2013).

The Forest Management Plan describes the Tribe's intent to increase the amount of logging roads that are decommissioned. This provides an opportunity to convert some of these decommissioned logging roads to trails (Yurok Forestry Department, 2012).

Tsunami evacuation route sign

Hazard Mitigation Plan, Draft 3

This updated version of the Yurok Tribe Hazard Mitigation Plan is a continuation of the Tribe's efforts to reduce loss of life, personal injury, and property damage resulting from disasters. The plan focuses on long-term strategies such as planning, policy changes, programs, projects, and other activities that can mitigate the impacts of hazards on the Yurok Indian Tribe. The Hazard Mitigation Plan involves a wide variety of groups jointly responsible for hazard mitigation, including private property owners; business and industry; and Tribal, local, state, and federal governments.

The Hazard Mitigation Plan and the YTWMP both address the need for tsunami evacuation routes The Hazard Mitigation Plan has a section on tsunamis that details the physical characteristics of tsunamis, past occurrences, severity of damage, and warning time. Some of the information from the Hazard Mitigation Plan is summarized below.

The Pacific tsunami warning system is a cooperative effort involving 26 countries along with numerous seismic stations, water level stations and information distribution centers. The National Oceanic and Atmospheric Administration (NOAA) utilizes a Deep-ocean Assessment and Reporting of Tsunamis (DART) system to generate computer models which predict tsunami arrival and relays information to the Pacific Tsunami Warning Center for distribution. For communities close to a tsunami, such as Klamath, strong ground shaking would be an earlier warning of a potential tsunami because of the time required for data to be processed, analyzed, and distributed.

The Hazard Mitigation Plan notes the Yurok Tribe's accomplishments in tsunami preparedness:

> *The State of California has several communities which are TsunamiReady Communities. Proudly, the Yurok Tribe is one of two Native American Tribes in California which are also recognized as TsunamiReady by the National Weather Service.*
>
> After years of hard work by the Tribe's Planning and Public Safety Departments, NOAA deemed Klamath and surrounding communities Tsunami Ready. In order to become Tsunami Ready the Tribe purchased and installed warning sirens and educated residents about the impacts of a tsunamis and how to prepare for such a disaster. The Yurok Tribe also succeeded in accomplishing the largest tsunami evacuation drill ever conducted in California. The Tribe continues to build upon these past accomplishments by placing tsunami sirens and other measures. Tim Sanderson is the current Yurok Tribe's Emergency Services Specialist and continues to work collaboratively with NOAA and other agencies in continued placement of Tsunami Sirens.... **The Tribe also created evacuation routes, some of which are trails up into wooded hillsides**. The Tribe worked closely with the National Weather Service, National Oceanic and Atmospheric Administration, and Del Norte Office of Emergency Services to develop this comprehensive plan. *(TETRA TECH, 2013)*

As the Plan notes, young children, disabled persons, and the elderly are the most vulnerable to tsunami threats and the least able to quickly evacuate. In planning tsunami evacuation trails, it will be a significant challenge to design trails that gain elevation quickly to reach higher ground while still being accessible for everyone.

Another common point in the Hazard Mitigation Plan and the YTWMP concerns wildfire management. The Hazard Mitigation Plan describes the National Cohesive Wildland Fire Management Strategy (Cohesive Strategy) as a joint risk reduction planning and implementation approach, carried out by federal, state, and local agencies and communities. To participate, a community must have a Community Wildfire Protection Plan (CWPP). Chapter 13 of the Hazard Mitigation Plan (Community Wildfire Protection Plan) constitutes the Yurok Tribe's CWPP. Chapter 13 describes the causes and behavior of wildfires, Yurok traditional prescribed burn practices, risk, mitigation measures, interagency collaboration, past occurrences, severity of damage, and warning time. Methods for mitigating the impact of wildfires include using control features, such as ridges, ridge roads, and major streams, to modify fire behavior:

> *These fuel breaks are designed to be used as anchor points for prescribed fire as well as backfiring operations during wildfires. Not all fuel breaks will be connected to one another. The Klamath River and its tributaries, roads, ridges, trails, substrate/soil types, existing fire lines and creeks can be identified as potential control features.*
> - Hazard Management Plan, Draft 3
> (TETRA TECH, 2013)

Yurok MLPA and Marine Resource Plan: Factual Record of Marine Resource Use

The Yurok Indian Tribe wrote this document in response to the Marine Life Protection Act (MLPA) of 1999. The MLPA is a law designed to create a network of marine protected areas off the California Coast. An MLPA Initiative and MLPA Blue Ribbon Task Force were created to implement the law (in collaboration with the California Fish and Game Commission). The make-up of the Blue Ribbon Task Force (which included a big oil lobbyist, marina developer, real estate executive, and other individuals with numerous conflicts of interest) sparked criticism from Tribal members, fishermen, grassroots environmentalists, human rights advocates, and civil liberties activists. The MLPA failed to acknowledge tribal gathering rights in marine protected areas, sparking additional criticism. In response to the criticism, the California Fish and Game Commission approved language supporting tribal gathering rights for "federally-recognized tribes who, within sixty (60) days, submitted a factual record with sufficient documentation confirming current or historical use within the proposed [State Marine Conservation Areas] SMCAs." Thus, the *Yurok MLPA and Marine Resource Plan: Factual Record of Marine Resource Use* dated September 15, 2011, was presented to the California Fish & Game Commission (Yurok Tribe, 2011) (Bacher, 2011).

Tsurai Management Plan

The Tsurai Management Plan is the result of a three-year collaboration of representatives from the Coastal Conservancy, City of Trinidad, Tsurai Ancestral Society, and the Yurok Tribe to resolve areas of past and present conflict over the management of the Tsurai Study Area (TSA). The TSA is located within the ancestral lands of the Yurok Tribe and according to the Tsurai Management Plan, contains Tsurai Village, a cherished and irreplaceable cultural resource of the Yurok People and contemporary residents of Trinidad. "Within this village are not simply archeological resources, but the remains of one of the most significant traditional Yurok coastal villages, including the graves of those buried within the village over generations." (Yurok Tribe, 2007, p.ii) The TSA borders Trinidad Bay, an area designated as Critical Coastal Area (CCA)

(previously designated as an Area of Special Biological Significance [ASBS]) because of its unique coastal and marine resources. As stated in the plan's Executive Summary:

> *Additionally, recreational resources, specifically public beach access trails are considered an important public resource. Trails enable visitors and residents to experience the beauty and character of the Trinidad area and enjoy scenic vistas of the Trinidad Bay, coastal outcrops and geological formations, and the Pacific Ocean, as well as view the natural resources (flora and fauna) abundant in this area. Diverging stances have arisen over past management decisions regarding public beach access, enhanced visitor experience, the need to protect cultural and natural resources within the TSA, ensure user safety, and respect the privacy of local residents and adjacent landowners. Again, the Management Team has worked within the Trinidad community to identify possible solutions to conflicts over trails and recreational uses of the TSA.*
> (Yurok Tribe, 2007, pp ii - iii)

Trails in the TSA have increased public access to coastal areas and scenic views, resulting in an enhanced recreational value for residents and visitors. However, increased access has led to increased impacts and potential threats to irreplaceable cultural resources[4]. The Tsurai Management Plan discusses several trails individually, within the context of the priorities and concerns of each of the stakeholders groups. (Yurok Tribe, 2007)

5.5.8 Del Norte County

To identify the ways in which the Tribe's trails and waterways planning efforts relate to Del Norte County's planning efforts, the following plans were reviewed:

- Del Norte County Regional Transportation Plan
- Overall Work Program
- Bicycle Facilities Plan Update
- Safe Routes to School Research and Policy Report

The YTWMP project team made a presentation at the Del Norte County Technical Advisory Committee meeting on June 6, 2013, to highlight how Del Norte County's planning efforts relate to development of the YTWMP. The presentation organized the information by three themes:

- Common goals
- Areas of overlapping interests and opportunities for collaboration
- Opportunities for increased Tribal participation and visibility

These points are summarized below.

Del Norte County Regional Transportation Plan

Common goals

- Coordinated and balanced regional transportation system in Del Norte County
- Safe and accessible non-motorized transportation modes supported by improvements to transportation facilities that meet local, regional, and interregional transportation needs
- Safe, easy, and attractive recreational travel network for residents and visitors

[4] The recent arrest and conviction of an individual that dug Yurok artifacts from the Tsurai Village site have resulted in the need to eliminate access to the village site altogether.

Areas of overlapping interests and opportunities for collaboration

- Tsunami preparedness and emergency evacuation
- Public river ferry system
- Local road improvements for increased pedestrian and bicyclist safety
- California Coastal Trail (CCT)
- Tourism
  - Importance of Redwood National and State Parks trail projects
  - Importance of safe access, walkability, and overall appeal of areas adjacent to attractions

Opportunities for increased Tribal participation and visibility

- Yurok walk for non-recreational/non-commuting purposes (gathering for subsistence and bartering, travel to ceremonial sites).
- The YTWMP will result in prioritized trails projects that can be geared towards funding requirements and incorporate the priorities of the Del Norte Local Transportation Commission (DNLTC), the County, and other agencies.

Del Norte County and Crescent City 2010 Bicycle Facilities Plan Update

- Coordinate multi-use projects to leverage funding sources
- Create an interconnected multi-use regional trail network

Safe Routes to School Research and Policy Report

- Pursue projects that result in contiguous sidewalks or pathways from residential areas to schools.

5.5.9 Humboldt County

To identify the ways in which the Tribe's trails and waterways planning efforts relate to Humboldt County's planning efforts, the following plans were reviewed:

- Humboldt County Regional Trails Master Plan
- Humboldt Regional Bicycle Plan Update
- Humboldt Regional Transportation Plan
- Draft Trails Element (Humboldt Regional Transportation Plan Update)
- Humboldt Regional Pedestrian Plan
- Humboldt County Coastal Trail Implementation Strategy

The YTWMP project team made a presentation at the Humboldt County Technical Advisory Committee meeting on June 13, 2013 to highlight how Humboldt County's planning efforts relate to development of the YTWMP. The presentation organized the information by three themes:

- Common goals
- Areas of overlapping interests and opportunities for collaboration
- Opportunities for increased Tribal participation and visibility

These points are summarized below. A more in-depth description of relevant points for each plan is provided in Appendix D.

Common goals

Humboldt County Regional Trails Master Plan

- Envisions a safe, comprehensive, and interconnected active transportation system that makes accomplishing shorter trips by active modes of travel more appealing, and travel between communities safer and more feasible, for people of all ages, abilities, and financial means
- Encourages HCAOG member agencies to adopt trail design guidelines in local plans and to develop and implement long-term trail maintenance and operation strategies
- Promotes public-private-tribal partnerships

Humboldt County Regional Transportation Plan

- Pedestrian and bicycle route improvements will continue, leading to increased use of such facilities
- BP-2 Policy: Encourage an interconnected transportation network
- BP-2 Objective: Develop bicycle and pedestrian trail facilities in the region, through coordination with relevant entities
- BP-4 Policy: Encourage the pursuit of alternative non-motorized funding sources
- BP-4 Objectives: Secure alternative funding sources -- such as grants and public-private partnerships and develop alternative approaches for providing improvements

Humboldt County Regional Pedestrian Plan

- Make Humboldt County a pedestrian safe environment
- Improve pedestrian access
- Educate citizens about the benefits of walkable communities

Humboldt County Regional Bicycle Plan

- Create the safest conditions for bicyclists by providing bikeways and improving roadways to eliminate barriers to bicycle travel.

Areas of overlapping interests and opportunities for collaboration

Humboldt County Regional Trails Master Plan

This plan compiles existing trail and active (non-motorized) transportation planning information. Future updates could incorporate information from the YTWMP. Funding sought for implementation of the Humboldt County Regional Trails Master Plan could potentially cover projects under the YTWMP.

Humboldt County Regional Transportation Plan

This plan includes a "Tribal Transportation Element" which recognizes the special status of Native American tribes and outlines the purpose of the Humboldt County Tribal Transportation Commission (HCTTC), which includes, "to represent Humboldt County tribes' transportation issues and priority projects at federal, inter-tribal, tribal, state, and county levels" (Humboldt County Association of Governments, 2013). The Yurok Tribe's participation through the HCTTC can ensure the needs of the Tribe are identified in the Humboldt County Regional Transportation Plan. As stated in that plan, "due to the current structure of many funding programs, the Tribes cannot be direct recipients. A tribal project can, however, under many programs, be eligible for funds when another agency - such as a city or county, acts as the project sponsor" (HCAOG, 2013). By being a participant in the Humboldt County Regional Transportation Plan process, the Yurok Tribe will be better positioned to locate partnership funding opportunities to help implement the YTWMP.

Humboldt County Regional Pedestrian Plan

- California Coastal Trail
- Safe Routes to School

Humboldt County Regional Bicycle Plan

- Proposed bicycle routes within the YAT, including the Pacific Coast Bike Route (U.S. Highway 101), Bald Hills Road, State Route 96, and various routes in the City of Trinidad.

Opportunities for increased Tribal participation and visibility

Humboldt County Regional Trails Master Plan

- Participation by the Yurok Tribe in future stakeholder interviews could facilitate incorporation of Tribal goals into plan updates.
- Maps and descriptions at the community level lack a Yurok trails map; including this information in future updates will inform the community and other agencies about the potential opportunities presented by the Yurok trail network.

Humboldt County Regional Transportation Plan

- States that commuter walking is most likely to occur within communities (versus from one community to another). However, it is both an ancient and current day practice for Yurok to walk for non-recreational purposes (travel to ceremonial sites or walks to gather items for subsistence or for bartering). This presents an opportunity to recognize the importance of Yurok trails as a means for commuting.

Humboldt County Regional Pedestrian Plan

- States that the Tribe's engineer identified improved pedestrian access to services on Highway 96 and State Route 169 as top priorities.
- Consider pedestrian accommodation near cultural sites, such as the Brush and Jump Dance ceremonial sites along State Route 169.
- Recommends improvements on State Route 96: Downtown to Weitchpec Road with Bald Hills Road as an additional location for consideration.
- Recommends pedestrian crossing signs on State Route 169 at numerous locations.
- This presents an opportunity to evaluate the progress of those projects and propose new projects.

Humboldt County Regional Bicycle Plan

- Updates present opportunities for the Tribe to evaluate progress and to propose bicycle projects. Proposed projects throughout the region are ranked by HCAOG and some are designated for priority funding.
- The Tribe has the option of adopting the Plan at the local level to facilitate implementing projects within Tribal jurisdiction, as the Karuk Tribe has done.
- The county plan describes 8 Regional Priority Programs which have funding. 6 of the 8 have potential for Tribal participation:
    1. Regional Bikeway and Trails Signing Program
    2. Regional Bicycle Parking Program
    3. Regional Non-Motorized Education & Outreach Program
    4. Regional Bicycle Guide & Map
    5. Bicycle Facility Maintenance Program
    6. Regional Loop Detector Installation & Maintenance Program

Additional information on Humboldt County Association of Governments (HCAOG) plans

Draft Trails Element (Humboldt Regional Transportation Plan Update)

The *Humboldt Regional Transportation Plan (RTP)* is updated every five years. Initial review drafts of individual Plan Elements are posted on the Humboldt County Association of Governments (HCAOG) website and stakeholders are encouraged to provide input. The 2008 *RTP* did not contain a *Trails Element*. Trails were addressed in the *Bicycle and Pedestrian System Element*. However, it appears the 2013 update will include a *Trails Element*; a draft version was posted on the HCAOG website in May 2013. Notably, the 2013 *Draft Trails Element* includes an Action Plan project within the Yurok Ancestral Territory: the Orick Levee Coastal Trail, described as a "Multi-purpose trail on north Redwood Creek levee to the U.S. 101 bridge (0.69 miles), south levee to Redwood National Park Visitor Center (2.45 miles). The *Draft Trails Element* notes that this project is also in the *Humboldt County Coastal Trail Implementation Strategy*, which is another HCAOG Adopted Plan. (HCAOG, 2013).

Humboldt County Coastal Trail Implementation Strategy

This report was prepared to guide the project stakeholders as they realize the vision for Humboldt County's portion of the California Coastal Trail (CCT). The report states, "The California Coastal Trail (CCT) is envisioned as a continuous non-motorized recreation and transportation route spanning the length of the California coastline. The Humboldt County segment of the CCT will extend approximately 158 miles, encompassing more than twelve percent of the projected 1,300 mile length of the trail. With the incorporation of community connector trails, coastal access trails, and bicycle route alternatives recommended in the Implementation Strategy, the total Humboldt CCT network could exceed 400 miles."

The report identifies the Yurok Tribe as a stakeholder and later notes, "Trail development has the potential to benefit tribal goals of land protection, increasing awareness of local tribal significance, and by creating educational opportunities for trail users. A well designed trail can also reduce the impact to culturally significant sites by steering users away from those areas or by limiting access. In order to take advantage of these benefits, the trail will need to be developed in close consultation with the tribes."

The document identifies implementation actions specific to local governments, agencies, and community groups. The implementation Strategy recommends that Redwood National and State Parks and Caltrans coordinate with the Yurok Tribe regarding trail routing and potential cultural resource areas for the project referred to as, "Hiking trail along midslope contour of Gyon Bluffs above US 101 from south end of Freshwater Lagoon to Stone Lagoon access road" project. The implementation Strategy recommends that State Parks coordinate with the Yurok Tribe regarding trail routing and potential cultural resource areas for the project referred to as, "From the Stone Lagoon access road, along beach west of Stone Lagoon[5]. Continue around west side of lagoon to existing trail from the environmental camp to Dry Lagoon beach."

Following are the implementation actions specific to the Yurok Tribe:

- Support lead agencies in CCT development
- Coordinate with trail development agencies to ensure protection of cultural resources

[5] In 2012, the Yurok Tribe held a Jump Dance and Boat Dance on Stone Lagoon (Cha-pekw) for the first time in 135 years. The 10-day ceremony began at Cha-pekw with a Boat Dance across Stone Lagoon. The Dance moved to Hee-won ke-tah (above the lagoon), then traveled to Hee-won Ke-tuehL (above the lake) and the across two ridges finishing up at Sey–pue-loh (Gann's Prairie).

- Work with State Parks to determine Gyon Bluffs trail alignment that protects cultural resources
- Provide guidance to State Parks regarding potential cultural resource impacts along northern Stone Lagoon peninsula
- Pursue interpretative opportunities with trail development through ancestral lands

(Natural Resources Services Division of Redwood Community Action Agency, Alta Planning + Design, Planwest Partners, Streamline Planning Consultants, 2011)

6.0 IMPLEMENTATION

6.1 Prioritization

The intent of project prioritization is to identify achievable, priority projects for near-term implementation as well as projects for mid- and long-term implementation. The evaluation criteria presented in Table 4 are intended to give weight to those projects that best support the YTWMP goals and will therefore receive higher priority. On a scale of one to five, each project is rated separately for safety, environmental opportunity, connections, and public input. These scores are then added together, with 20 being the highest possible score, thus the greatest priority for the Yurok trail system.

Several factors are considered when prioritizing trails and waterways programs and projects.

- Step 1 considerations:
    - Compatibility of project with goals and objectives in the YTWMP
    - User demand (quantity and mode types)
    - Significance to the Tribe
    - Planning consistency
    - Phasing
    - Level of effort required to complete
    - Resource constraints/impacts
    - Long-term maintenance
- Step 2 considerations
    - Cost/funding availability
    - Political feasibility

Table 4: Evaluation Criteria

Criterion	Description	Rating	Rating Description
Safety	Projects that improve safety receive a higher score. Safety issues may include the presence of obstacles in the trail tread, trails or trail segments that are not wide enough for passing, vegetative obstacles within recommended lateral or vertical clearances, steep trail segments, and roadway crossings without vehicular controls or signage.	1 or 2	Minimal safety concerns
		3 or 4	Moderate safety concerns
		5	Significant safety concerns
Environmental Opportunities	Projects that improve environmental conditions receive a higher score. Environmental improvements may address erosion or braiding of the trail surface, sedimentation into nearby drainages, and disturbance to ecologically sensitive areas such as wetlands and riparian habitat.	1 or 2	Minimal environmental opportunity
		3 or 4	Moderate environmental opportunity
		5	Significant environmental opportunity
Connections	Projects that improve overall system connectivity or provide immediate value to trail system receive a higher score.	1 to 3	Not along a named trail, not along an equestrian loop, another nearby trail segment provides access to the same area or point of interest
		4 or 5	Fills a gap in the trail system, provides access to an otherwise inaccessible area or point of interest, along a named trail, or part of an equestrian loop
Public Input	Membership's priority projects receive a higher score.	1 to 5	Ranked highly by the membership
Maximum Score		**20**	

This Plan distinguishes major and minor projects by near- term, mid-term, and long- term phases. Phasing of trail system improvements is based on project priority and funding availability. Near-term projects could be carried out within the next five years. Mid-term projects would be carried out in a period 5 to 10 years from adoption of this Plan. Long-term project would be carried out in a period 10 to 20 years from adoption of this Plan. Table 5 presents the trail development priority of the Tribe for the next 10-years.

Table 5: Yurok Trails and Waterways Prioritization

Term	Trail Name	Planning Area	Trail Type	Connectivity	Jurisdiction	Potential Funding	Implementation Actions
Near	Coyote Creek Bike Trail	2	Bike	Lyons Ranch Trail	NPS	TTP, NPS, FLTP	Coordinate with NPS
Near	East Side Trail	2	Hike	Dolason Trail	NPS	TTP, NPS, FLTP	Coordinate with NPS
Near	Berry Glen Trail	2	Hike	Davison Trail	NPS	TTP, NPS, FLTP	Coordinate with NPS
Mid	B-Line Bike Trail	2	Bike	Lost Man Creek Trail	NPS	TTP, NPS, FLTP	Coordinate with NPS
Mid	Skunk Cabbage North	2	Hike	Trillium Falls Trail	NPS	TTP, NPS, FLTP	Coordinate with NPS
Mid	Redwood Creek Trail	2	Hike	Redwood Creek	NPS	TTP, NPS, FLTP	Coordinate with NPS
Near	Tribal Office Tsunami Trail	1	Hike	Mynot Creek Trail	Yurok	TTP	Planned and Developed
Near	Requa Tsunami Trail	1	Hike	N/A	Yurok	TTP	Planned and Developed
Near	Klamath Glenn Tsunami Trail	1	Hike	N/A	Yurok	TTP	Planned and Developed
Long	Klamath River Blueway	1,2,3,4	Boat	Trinity River	Yurok	TTP	Planned and Developed
Near	California Coastal Trail Interpretation	1	Hike	Coast Planning Area	State	CCC	Yurok Cultural Signage
Mid	Coastal Trail Implementation	1	Bike/ Hike	N/A	Del Norte	RTCA	Create trail on/near Requa Rd
Mid	Klamath Overlook to CCT	1	Hike	CCT to Flint Ridge	NPS	TTP, NPS, FLTP	Coordinate with NPS
Mid	Klamath Beach Road Bike Trail	1	Bike	CCT	NPS/Del Norte	RTCA	Coordinate with NPS & DN
Long	Wautec to Klamath Glen Trail	2,3	Bike/ Hike	Wautec to Klamath	Caltrans	STIP	Coordinate with Caltrans
Near	Margaret Keating Trails	1	Bike/ Hike	Margaret Keating School	Yurok	SRTS	Evaluate Trail Routes
Mid	River Transit Trails	1,2,3,4	Bike/ Hike	River Transit	Yurok	TTP	Evaluate potential trails
Near	Ke'Pel Head Start, Jack Norton, and Weitchpec School Trails	3,4	Bike/ Hike	River Schools	Yurok	SRTS	Evaluate potential trails
Near	Fitness Trail Network	1,2,3,4	Bike/ Hike	YAT	Yurok	TTP	Evaluate Fitness Trails
Long	Improve Pedestrian and Bicycle Connectivity and Safety along State Route 169	3,4	Bike/ Hike	Highway 169	Caltrans	STIP	Coordinate with Caltrans
Near	High Country Cultural Trail Preservation	5	Hike	YAT	All	N/A	Closure and signange

6.2 Capital Improvement Costs

Table 6 presents planning level unit costs used for the purpose of programming for trail maintenance and capital improvements. These unit costs (and the cost estimates based on them) are intended for planning purposes only and actual construction costs can be determined after each project has undergone more detailed feasibility and engineering design work.

Table 6: Unit Costs

No.	Item	Unit*	Cost
Trails			
1	Trail construction (natural surface)	MI	$26,400
2	Trail construction (paved)	MI	$300,000
3	Rolling dips	MI	$64,000
4	Turnpike	LF	$32
5	Climbing turns / switchbacks	MI	$47,520
6	Rock rake and regrade (reroute/rebuild)	MI	$32,400
Trailheads			
7	Major Trailhead (vehicular and bike parking, kiosk, garbage receptacles, pet waste station)	LS	$32,900
8	Minor Trailhead (includes kiosk, garbage receptacles, pet waste station)	LS	$2,500
9	Restroom EA	EA	$50,000
Crossings			
10	Ford	LF	$20
11	Culvert	EA	$15,000
12	Bridge - Wood short (8-14 ft span)	EA	$9,000
13	Bridge - Wood long (15-20 ft span)	EA	$16,000
14	Bridge - Fiberglass Composite (20-45 ft span)	LF	$1,800
15	Bridge - Concrete Deck/Steel Girder - Simple Span; 12 ft wide (45-150 ft span)	LF	$1,656
16	Bridge - Concrete Deck/Steel Box Girder; 12 ft wide (150-280 ft span)	LF	$1,920
17	Engineering study for roadway crossing improvements	LS	$2,000
18	Construct Natural Drainage Swale w/ Rock check dams	LF	$12
19	Inventory Trails for Potential Closure	LS	$350
20	Erosion Control	MI	$500
21	Trim Vegetation/Remove Trees	MI	$500
	*LS=lump sum, EA=each, LF=linear foot, MI=mile		

7.0 RECOMMENDATIONS

The recommendations described in this chapter fall into two categories:

- Operational, Planning, and Programmatic Recommendations: This category of recommendations includes those that are largely applicable to the broader Yurok Ancestral Territory, rather than solely to one of the Planning Areas. These recommendations may include approaches to ongoing management issues, strategies for encouraging trails- and waterways- based tourism and educational campaigns to promote safety and healthy living.
- Project Recommendations: These are recommendations for specific, physical projects. Recommended projects may include the development of new trails, the provision of new amenities (such as seating or signage) and maintenance activities for existing trails and amenities.

7.1 Operational, Planning, and Programmatic Recommendations

7.1.1 OP1 - Collaboration on Public Trail Management

Where public trails follow the same alignments as Yurok cultural trails or intersect with these trails, a collaborative approach that involves both the Yurok Tribe and the public agencies in trail management and maintenance is needed. Key considerations include identifying trail carrying capacities and appropriate protection of the environmental and cultural values.

7.1.2 OP2 - Cultural Trail Restoration and Management Plan

There are many cultural trails throughout the YAT that have been used for centuries for trading, transportation, ceremonies, gathering, and visiting. The alignments of some of these trails are in danger of being lost due to lack of use or unfamiliarity of recent generations with their locations. Many of these trails are unmapped or very roughly mapped, and their existence is known primarily through memories of Yurok elders. A focused restoration and management plan for these cultural resources needs to be developed before they are lost. The plan should be for Tribal use only and developed in close consultation with the Culture Committee and other Tribal elders. The planning process would include identifying alignments, verifying their cultural value and uses, prioritizing those that should be restored, and developing culturally appropriate strategies for restoration and maintenance.

7.1.3 OP3 - Trail Inventory GIS Management

The Yurok Trail GIS developed as part of the YTWMP is intended to be the foundation for on ongoing Tribal trail maintenance and development effort. As this effort proceeds, resources should be committed to continuously upgrade and refine the GIS because the information it contains will be critical for efficient trail management, effective planning, and obtaining funding. Specific tasks include field verifying trail alignments and conditions, consolidating features comprising single trails, adding new trails, and populating trail classification attribute.

7.1.4 OP4 – Klamath River Blueway (or Water Trail)

Kayaking is a popular way to enjoy rivers

The Klamath River has great potential for a blueway (or water trail). A blueway is a series of destinations (such as launch points, camping locations, trailheads, parking areas and other points of interest) linked by a route that is accessible to canoeists, paddle boarders and kayakers. Although typical blueways are geared towards non-motorized boaters, some sections of the Klamath may only be safely accessed with a motorized boat. The potential exists to create new models for river-based tourism that blend the idea of a conventional blueway with the Tribe's Klamath Jet Boat Tours business. Blueways encourage recreation, ecological education, preservation of wildlife resources and tourism. To establish a blueway, several steps would need to be taken, such as considering route options, river safety, the needs of the different user groups, what amenities to offer, where to locate them and how large to size them. Another important set of steps includes creating maps and guides and promoting use of the blueway.

7.1.5 OP5 - Subsistence Education

Sometimes there are pesticides sprayed near plants that Yurok people have traditionally gathered for food or for materials to make baskets and other items. Yurok Tribe Environmental Program YTEP educates Tribal members on ways to safely gather. "When gathering: look for signs of pesticide use for example; discolored or dead plants & unusual odors like kerosene or gasoline. Burnt looking leaves or a pinkish tint on plants, which is the residue of a dye added to herbicides before spraying. This dye lasts only a few days depending on sun exposure and will disperse completely with little rain. Look for pieces of trash that may be buried, which may indicate an old illegal dumpsite."

7.2 Project Recommendations

7.2.1 Coast Planning Area

C1 - Coastal Trail Interpretation

Much of the California Coastal Trail through the YAT coincides with culturally significant alignments that have been in use by the Yurok people for millennia. While this trail is a heavily-used recreation amenity attracting thousands of non-Yurok visitors every year, there are relatively few locations along the trail where visitors can learn more about the cultural significance of the trail. Sections of the trail are also remote, difficult to access, and potentially dangerous in high-water situations. Working in partnership with Redwood National Park, State Parks, Del Norte County, and Humboldt County identify significant access points to place integrated interpretive, safety, and wayfinding features that will help protect the cultural values of the trail and improve the recreation experience of users.

C2 - Coastal Trail Improvement Plan

Given the economic significance of the California Coastal Trail as an ecotourism destination, and the effects of weather and heavy use on the largely natural surface, a comprehensive strategy for regular inventory and maintenance of the trail needs to be developed in partnership with Redwood National Park, California State Parks, Del Norte County, and Humboldt County. The strategy should include an initial classification of trail segments according to the YTWMP Classification, periodic evaluation of segments on a multi-year cycle, and a prioritized list of trail maintenance projects to be implemented.

7.2.2 Lower River Planning Area

LR1 – Coastal Trail Implementation Plan

The proposed CCT alignment through the Lower River Planning Area is largely unimplemented from the Mouth of the Klamath Overlook to the junction with Flint Ridge Trail. Development of this section of the CCT could benefit recreationists, enhance the local tourism economy, and provide multi-modal transportation opportunities for local residents.

There are several challenges to constructing the CCT trail in this area. Patrick J. Murphy Memorial Drive and Requa Road are both narrow, winding roads with steep drop-offs to the river is some sections. Ideally, the trail would support both pedestrian and bicycle uses to provide walking/biking connections for Requa residents to Klamath. The bicycle and pedestrian use may need to be split, with bicycles remaining on the road as a Class II bike lane, and pedestrians on a separated trail below the road and above the river depending on geotechnical and flood considerations. There is room for the potential CCT alignment to be implemented as a shared use path along US 101 and Klamath Road through the town of Klamath, serving both recreationists and local residents. The existing US 101 bridges over the Klamath River and Waukell Creek would need to be widened to provide a separated shared-use lane. Such a modification should be designed to minimize costs and impacts to the environment. Once the CCT alignment reaches Klamath Beach Road, the trail could transition to a Class II bike lane and a separated pedestrian path. Efforts to implement the CCT segments as described will require long-term collaboration with Caltrans for design and funding of the US 101 sections.

LR2 - Tsunami Evacuation Trails for Lower River Communities

Tsunami evacuation trails connecting to the designated evacuation roads for the Requa, Klamath, and Klamath Glen communities need to be identified, evaluated, clearly signed, and maintained. In particular, the existing alignments need to be assessed for accessibility by persons in wheelchairs or with other mobility impairments. Staging areas (flat, open areas) along evacuation trails that can accommodate groups of people should be identified. Bear-proof lockers with first aid supplies, non-perishable food and water should be installed at the staging areas. They can be outfitted with combination locks and Tribal employees can be given the code in advance.

LR3 - Upper and Lower River Connector Trail

Because SR 169 was not completed between Wautec and Klamath Glen there is no efficient way for the Yurok people or visitors to travel between the upper and lower river villages other than by the Klamath River. The challenges associated with getting the state route completed are indeed significant including cost, environmental considerations, and Caltrans priorities. However, construction of a shared use path between Wautec and Klamath Glen would provide a pedestrian and bicycle connection between the Upper and Lower River villages in a much shorter timeframe and for less expense. Such a trail would not only facilitate transportation for the Tribe, but could also be a major draw for recreationists and used for

race events. There are existing trails that could become the base for portions of this trail in order to reduce environmental impacts. Issues to consider in connection with constructing such a trail include the need for numerous creek crossings, areas with challenging terrain, and location of culturally sensitive areas and resources.

LR4 - Margaret Keating Elementary School Trail
Evaluate travel routes for children attending the Margaret Keating Elementary School and identify appropriate alignment for a shared use path that would optimize potential for pedestrian/bicycle access. This trail could also be used as a recreational and wellness resource for the students and community at large. Tying this trail to the cultural village site at the school would cultivate an interpretive experience.

LR5 - Improvements to Trails Connecting Klamath Townsite to the River
Yurok Transit in Parks (Redwood Community Action Agency and Current Transportation Solutions, 2012) identifies this as a priority and describes project as, "Trails leading to the river would be improved and the improved trail network would be signed and mapped for better clarity of users."

7.2.3 Upper River Planning Area

UR1 - Trail Access to River Transit Stops
As the Yurok Tribe implements river-based transit services, it will be important to consider how transit users will get from their homes to the boat landings. Pedestrian and bicycle routes should be identified and developed to facilitate safe access to the transit services and prevent damage to sensitive environmental resources in the riparian area.

UR2 – Ke'Pel Head Start, Jack Norton, and Weitchpec School Trails
Evaluate travel routes for children attending the Ke'Pel Head Start, Jack Norton, and Weitchpec school sites and identify appropriate alignment for a shared use path that would optimize potential for pedestrian/bicycle access. These trails could also be used as a recreational and wellness resource for the students and community at large.

UR3 – Fitness Trail Network
Identify several locations where trails appropriate for exercise by people of all ages and abilities can be improved and/or established in proximity to the most populated villages. These networks could combine trail segments that also function for transportation.

UR4 – Improve Pedestrian and Bicycle Connectivity and Safety along State Route 169
Yurok Transit in Parks (Redwood Community Action Agency and Current Transportation Solutions, 2012) identifies this as a priority and describes project as, "Improve safety of travel and crossing of roads in and around Highway 96 in Weitchpec and along the SR 169 corridor to Wautec."

7.2.4 Bald Hills Planning Area

BH1 – Recreational Trail Improvements
Identify trail alignments that connect to Redwood National Park trails or Bald Hills Road for potential improvement as recreational trails. Any such projects would need to consider property ownership, cultural sites, sensitive natural resources, interpretation, and trailhead or staging areas. These trails could be an important feature of the Yurok Scenic Byway and help to control unregulated public recreation access into the area.

7.2.5 High Country Planning Area

HC-1 High Country Cultural Trail Preservation

Identify specific alignments associated with cultural practices and work with private owners and federal land managers on strategies to preserve and protect these trails. Strategies could include management practices including trail closures where appropriate, Tribal acquisition of lands, interpretive signage, and/or trail easements for Yurok Tribal use.

8.0 DESIGN GUIDELINES AND STANDARDS

This section of the report presents guidelines for trails, organized by primary user type and difficulty class, with class 1 being the most challenging and class 5 the least. Standards are presented for tread width, total width of the cleared area around the trail (including the trail), recommended surfacing, average and maximum longitudinal grade, cross-slope and turning radius (if applicable). These guidelines have been compiled from a number of different sources, such as community input, professional experience of the project team, and existing standards from various public agencies, including the following:

- Pedestrian and Bicycle Facilities in California (Alta Planning + Design, 2005),
- Humboldt County Regional Trails Master Plan (Planwest Partners, 2010),
- National Trails Classification System, (USDA, 2008)
- Pennsylvania Department of Conservation and Natural Resources Guidelines for Marking Recreational Trails (State of Pennsylvania, 2008),
- Interview with Lynn Erickson-Levi of the National Park Service (2013)

Guidelines are presented for shared-use, pedestrian/hiking, mountain biking, equestrian and ATV trails. On-street bike lanes (Class II & III under Caltrans Standards) should follow established Caltrans design guidelines. Paved, dedicated off-street bike routes greater than 8 feet in width, called Class I under Caltrans standards, are included under the shared-use trail Difficulty Classes 4 and 5 below.

ATV riders on a trail

8.1 Shared-Use Trails

Shared-Use Trails are utilized by several different types of users. Trails that are used by mountain bikes and pedestrians are fairly common, while sharing with equestrians occurs less frequently due to potential conflicts between horses and other trail users. ATV's and mountain bikes may be another set of uses that are compatible. Shared-use trails are typically wider than trails dedicated to one type of users to accommodate the needs of multiple user types and reduce conflicts, particularly on two-way trails. Separate trails for each use are usually more desirable than shared-use trails; however, they may not be as cost effective or feasible due to constraints posed by topography or sensitive resources. Table 7 lists design criteria for shared-use trails.

Table 7: Shared-Use Trail Standards

Difficulty Class	Tread width	Clear width	Surface	Average Grade	Maximum Grade	Cross slope	Turning radius
1	- No shared-use trails under Class 3 -						
2							
3	4' - 8'	8' - 12'	hard-packed	≤ 8%	12%	2 - 4%	4' - 6'
4	8' - 10'	12' - 14'	hard-packed, paved or partially paved	≤ 5%	10%	2 %	6' - 12'
5	≥10'	≥14'	paved	≤ 3%	8%	2 %	12' - 20'

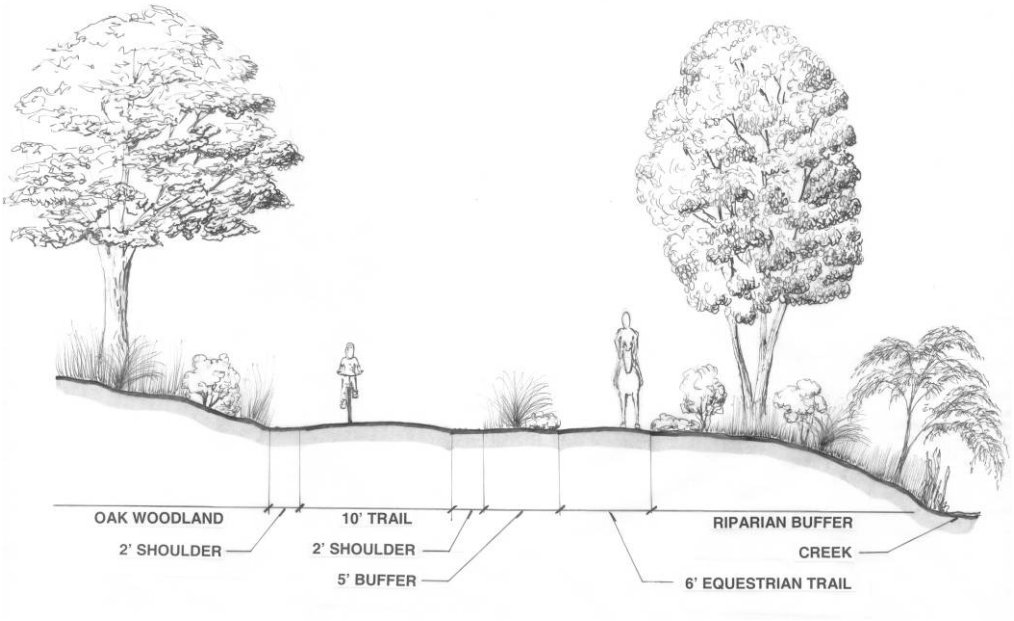
As can be seen from the table, Difficulty Class 1 and 2 shared-use trails should not be used. To reduce potentially serious user conflicts, Class 1 and 2 trails should be separated into dedicated-use paths.

Shared-use trails range from four to twelve feet wide. Trails less than 8' wide do not meet Caltrans standards for Class I bicycle routes and should be signed and managed accordingly. Shared-use trails should include 2' – 4' cleared shoulders to allow for recovery space in the event a bicycle or other fast-moving user strays off of the trail.

Surfacing may be hard-packed or paved. Paved shared-use trails meant to be used by equestrians will usually include an unpaved shoulder that is often separated from the other users by a planted strip to reduce conflicts. Grades can range from 0 to over 12%. Trails with grades under 5% are ADA accessible and may have short segments of 8% grade if handrails are present[6]. Turning radii vary depending upon usage and speed with larger radii accommodating greater bicycle speeds. Shared-use trails not meant for bicycle usage can have turning radii shorter than those indicated in Table 7. (Architectural and Transportation Compliance Board, 2011)

See discussion in Section 8.7 on U.S. Access Board draft rules for shared-use paths and trails.

Figure 11: Example of a Difficulty Class 3 Hiking Trail



8.2 Hiking Trails

Hiking trails vary widely, from 8' wide easily-negotiated paved routes to narrow challenging paths snaking between boulders, through rock fields or over tree roots. Design criteria, as shown in Table 8, includes widths of one foot to eight feet and grades under 3% to over 30%. Surfacing can vary widely. Class 1 difficulty trails are typically minimally improved with challenging obstacles such as boulders and logs and varied terrain. Class 4 and 5 difficulty routes may be surfaced with concrete, asphaltic concrete or other pavement or hard-packed native soil. Hiking trails with an ADA accessible surfacing, 48" widths and 5% grades, with segments up to 8% with handrails and landings (one landing per 30" of vertical rise), meet the standards of universal design[7]. (U.S. Department of Justice, 2010)

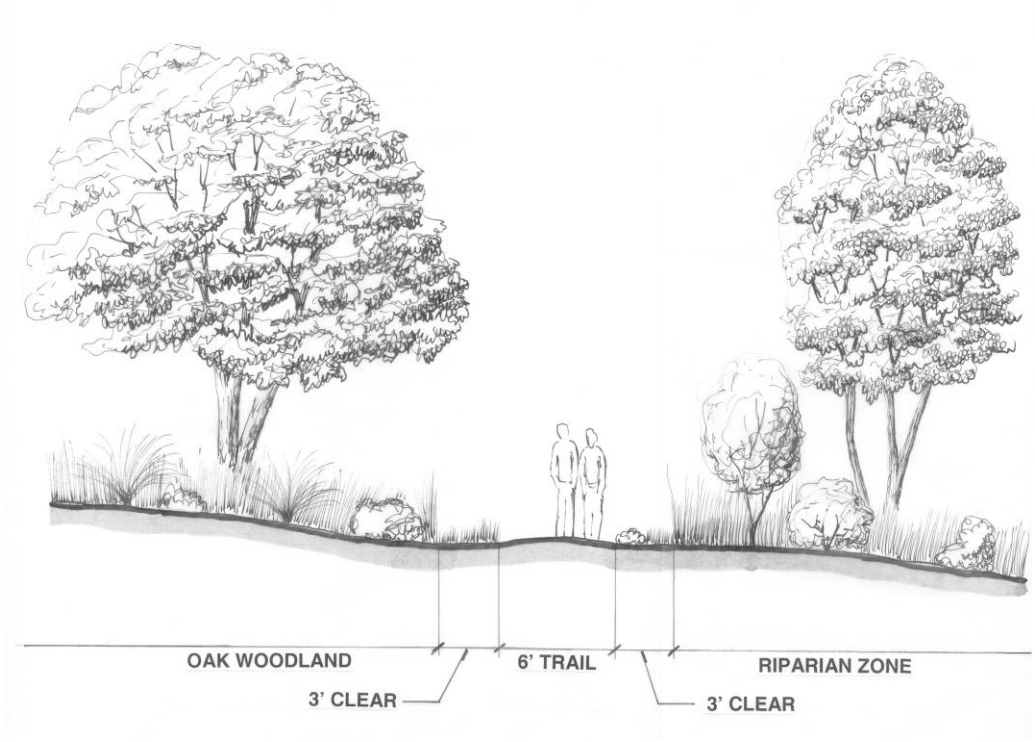
Table 8: Hiking Trail Standards

Difficulty Class	Tread width	Clear width	Surface	Average Grade	Maximum Grade	Cross slope	Turning radius
1	1' – 2'	2' – 3'	minimally improved & widely ranging	≤ 18%	30%	2 – 8%	-
2	1' – 2'	2' – 3'	variable	≤ 12%	30%	2 – 5%	-
3	2' – 4'	3' – 4'	hard-packed	≤ 8%	12%	2 – 5%	-
4	3' – 6'	5' – 12'	hard-packed or paved	≤ 5%	10%	2 – 4%	-
5	4' – 6'	6' – 12'	paved	≤ 3%	8%	2 – 4%	-

[7] See discussion in Section 8.7 on U.S. Access Board draft rules for accessible trails and shared-use paths.

Turning radii standards are typically not meaningful for hiking trails because pedestrians can pivot within the width of the trail and head off in a new direction.

Figure 12: Example of a Difficulty Class 4 Hiking Trail



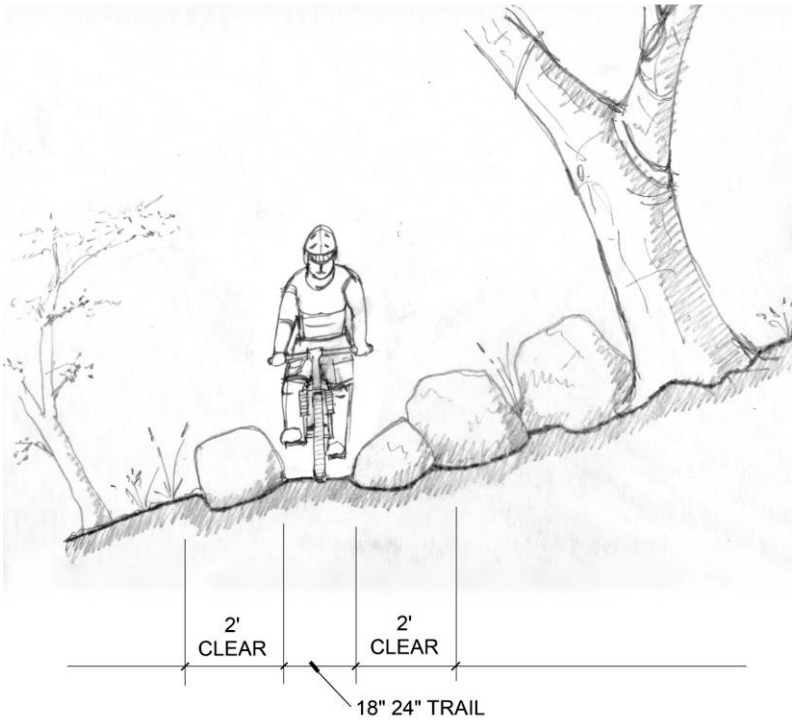
8.3 Mountain Biking Trails

As with hiking trails, mountain biking trails range widely from challenging very narrow and steep tracks to converted logging roads. Mountain bikers often have varying levels of ability and seek different levels of challenge, so creating a wide range of trail types will cater to their diverse needs. The highest difficulty trails are narrow, often 1 foot wide or even less; steep, with over 30% grades in short sections; have narrow turning radii and negotiate unpredictable, varied terrain. Moderately difficult routes are wider, up to 3 feet, with variable but more consistent surfacing, and are generally less steep overall. Tracks with a low level of difficulty are generally wide with low longitudinal gradients and may be paved. Standards can be found in Table 9.

Table 9: Mountain Biking Trail Standards

Difficulty Class	Tread width	Clear width	Surface	Average Grade	Maximum Grade	Cross slope	Turning radius
1	1' - 1-1/2'	2' - 3'	widely ranging & unpredictable	≤ 20%	30%	5 - 10%	2' - 4'
2	1' - 2'	3' - 4'	variable	≤ 15%	30%	5 - 8%	3' - 6'
3	1-1/2' - 3'	3' - 6'	mostly hard-packed with some variability	≤ 10%	30%	5%	3' - 6'
4	2' - 4'	4' - 8'	hard-packed or paved	≤ 5%	10%	2 - 4%	6' - 8'
5	≥ 8'	≥ 10'	hard-packed or paved	≤ 5%	10%	2 - 4%	8'+

Figure 13: Difficulty Class 2 Mountain Biking Trail



Surfacing for mountain biking trails will generally be unpaved, typically native soil or rock. To limit erosion, care must be taken in siting trails to avoid highly erosive soils and low areas prone to saturation. In some cases, soil amendments or import may be desirable to improve drainage in localized areas. Rock can also be utilized to protect local soils or improve drainage. While the majority of mountain bikers prefer a more rugged setting, concrete or asphaltic pavement may be utilized in Class 5 trails to create a surface appropriate for both road and mountain bikes.

8.4 Equestrian Trails

Equestrian trails usually need separation from other uses due to the potential for conflicts. As with other trail types, equestrian trail widths vary according to trail difficulty, but generally, 2 feet of width with clear space between 3 and 8 feet is sufficient for most riders. Grades can vary from less than 5% to over 30% for short stretches of up to 500-feet in length. Turning radius is not typically an issue for horse trails, though sharp turns should be avoided in steep areas. Surfacing can be variable. Hard-packed earth is common, but roots, rocks and logs (to 12" in diameter) may be present on Class 1 & 2 trails. Some import of material for drainage improvements may be needed in low lying areas. Avoid erosive soils or provide amendments or stabilization with appropriate drainage. Table 10 contains guidelines for equestrian trails.

Horseback riders on an equestrian trail

Table 10: Equestrian Trail Standards

Difficulty Class	Tread width	Clear width	Surface	Average Grade	Maximum Grade	Cross slope	Turning radius
1	18"	3' - 6'	variable	≤ 15%	30%	2 - 10%	-
2	18" - 24"	4' - 7'	variable	≤ 12%	30%	2 - 8%	-
3	2'	6' - 8'	hard-packed	≤ 10%	25%	2 - 5%	-
4	2'	8'	hard-packed	≤ 5%	15%	2%	-
5	2'+	8'+	hard-packed	≤ 5%	15%	2%	-

8.5 ATV Trails

ATV trails can vary in width and material, but must accommodate an average-sized ATV and must be durable and clearly marked. Soil erosion from off-road ATV use can become a major problem if not closely monitored and managed. Width of a typical ATV trail will be around 6-feet, with narrower trails usually found in more challenging routes and wider trails (to 8-feet) on easier routes. Widths over 6-feet can accommodate two-way traffic for difficulty classes 3 through 5. ATV trails that climb hills should typically do so at an angle that is oblique (not perpendicular) to the slope and include periodic water bars to disrupt stormwater runoff flowing down the trail. Paths that are perpendicular to the slope create vertical channels for water-born soil erosion, which may be exacerbated by churning from ATV tires.

Average grades range from 8% on easer trails to over 15% on the most difficult routes, with short sections of 25% maximum grade up to 500-feet in length. ATV trail standards can be seen in Table 11.

Table 11: ATV Trail Standards

Difficulty Class	Tread width	Clear width	Surface	Average Grade	Maximum Grade	Cross slope	Turning radius
1	4' - 6'	10' - 12'	variable	≤ 15%	25%	2 - 40%	6'
2	4' - 6'	10' - 12'	variable	≤ 12%	20%	2 - 30%	8'
3	4' - 8'	10' - 14'	hard-packed	≤ 12%	20%	2 - 30%	8'
4	4' - 8'	12' - 14'	hard-packed	≤ 8%	15%	2 - 20%	10'
5	6' - 8'	12' - 14'	hard-packed	≤ 8%	15%	2 - 20%	10'

8.6 Cultural Trails

Yurok cultural trails are a special category of trails that potentially includes many types of trail construction. The cultural designation indicates that the alignment is significant because the trail is associated with traditional Yurok practices such as hunting, collecting, access to significant sites, and/or is a traditional connecting route through the YAT. While the construction of trails that have cultural significance should generally follow the guidelines for the designed use, exceptions may be made as needed to preserve the cultural integrity of the trail.

8.7 Accessibility

Existing Americans with Disability Act (ADA) guidelines establish maximum grades for accessible routes of 8% or less (An exception exists for very short ramps that allows maximum slope up to 12% (1:8) for a maximum rise of 3 inches or up to 10% (1:10) for a maximum rise of 6 inches.). Routes with grades of ≤ 5% do

not require handrails or landings. A pathway with grade between 5% and 8% is considered a ramp and requires handrails on both sides as well as landings. A landing of 5' x 5' minimum dimensions is required for every 30" of rise, which equates to 30' of horizontal ramp distance at 8%. Minimum clear width for a pedestrian ramp is 36" (U.S. Dept. of Justice, 2010).

The U. S. Access Board has proposed rules for trails that may provide additional flexibility in accessible grades. The guidelines are not yet approved, but the final draft guidelines allow short segments of trail with slopes up to 10% for a maximum length of 30 feet. Additionally, the Board has proposed rules for shared-use paths that are also in draft form. These rules currently limit accessible shared-use paths to 5% slopes; however, the Board has indicated that it will provide "…exceptions where it may be difficult or impossible to meet the 5 percent grade." (Architectural and Transportation Barriers Compliance Board, 2011) (U.S. Access Board, 2009).

8.8 Emergency Evacuation

In a tsunami event there may not be time to spare in evacuating. Providing multiple routes for evacuation (one route that meets accessibility requirements and another that is as steep as is navigable) would of increase people's odds for survival.

Tsunami evacuation routes that are designed to start near populated areas and reach a high elevation as rapidly as possible will not be suitable for recreational trail use due to their steepness. With these types of features, call them a route instead of a trail, put signs up discouraging use of the route except in the case of an emergency and plan for a maintenance scheme that requires minimum effort. For example, instead of installing features such as switchbacks and stairs, install sections of rope hand rails which will require less maintenance. Use individual sections rather than long continuous sections to minimize impacts on wildlife.

Staging areas (flat, open areas) along evacuation trails that can accommodate groups of people should be identified. Bear-proof lockers with first aid supplies, non-perishable food and water should be installed at the staging areas. They can be outfitted with combination locks and Tribal employees (and other appropriate parties) can be given the code in advance. Site staging areas wherever possible adjacent to a road or highway for easier evacuation.

Install signs along the route with elevation information that identifies when the route has climbed above the tsunami run-up zone.

8.9 Parking and Trailheads

Designated parking lots should be provided whenever possible at trailheads, particularly at heavily-used trails and trailheads. Parking lots shall be of sufficient size to accommodate known or anticipated demand. Where parking lots are not provided at trailheads, sufficient on-street parking should be available that will not cause traffic congestion or interfere with parking for and access to adjoining land uses.

Parking lots should be designed to minimize disturbance of the natural environment. Grading and tree removal should be the minimum necessary. Appropriate measures should be employed to reduce air- and water-borne erosion both during construction and during subsequent use. Barriers should be used to prevent unauthorized motor vehicle access beyond designated parking areas. To the extent feasible, barriers should consist of natural materials such as native boulders and logs, but other materials such as bollard may be used as appropriate.

Barriers and signs should also be utilized at trailheads adjacent to camping facilities to discourage trail-blazing that may damage environmentally sensitive areas and create unsafe conditions. Similarly, barriers and signs should be placed at areas with evidence of trail-blazing to encourage use of the designated trail.

Where horses are permitted, trailheads should be designed to accommodate parking and turning movements of vehicles towing trailers. At a minimum, trailheads heavily used by equestrians should include hitching rails. Where practicable, corrals and a water spigot should also be provided.

Restrooms (permanent or portable) should be provided and maintained within all major trailhead parking lots. Trash receptacles should be provided and maintained in sufficient number and size to accommodate trailhead use. Trash receptacles should be vector, corvid and bear proof. Whenever practical, potable water should be provided at trailhead parking lots.

8.10 Signs

Signs should be placed at all trailheads, in clear view of parking lots or adjacent roads (where parking lots are not used), directing trail users to trails. Signs at trailheads should include the following information, at a minimum:

- Trail name and number, if applicable
- Destination(s) and distance to destination(s).
- Overall length and length of segments (where applicable).
- Types of users (i.e., pedestrians, equestrians, bicyclists) permitted.
- General level of difficulty
- Trail etiquette and safety considerations, including respect for private property, litter control, fire control, and protection of sensitive plants and animals.

Signs should be placed at various points along trails to identify junctions with other trails, water features, streets, and hazardous or sensitive areas. On shared-use trails, signs should be used to warn users of potential conflicts, instruct them of right-of-way rules, and inform bicyclists of speed limits.

Interpretive signs may be placed at environmentally-sensitive or culturally significant areas to educate trail users of the value of the natural resource. Culturally-sensitive sites on public use trails shall not be identified in order to discourage disruption, theft, and vandalism. Where appropriate, the Yurok name of a trail or feature should be used after consultation with the Yurok Culture Committee.

Signs located at trail heads and at forks in the trails should include the name of the trail and the distance to known locations or destinations. Degrees of difficulty, use limitations, and timing are additional desirable pieces of information. Trails which allow mountain bikes should clearly be marked, since mountain bike can significantly exacerbate soil erosion if used on trails not specifically designed for their use.

Where public trails cross from non-Tribal lands into the Reservation or other tribal lands, signage should be posted to alter visitors that they are entering a culturally sensitive area and provide guidelines for appropriate behavior.

Signs should be utilized to direct trail users to designated camping areas. These areas should also be included on trail maps.

8.11 Proximity to Developed Areas

Public trailheads and trails should be located away from noise- and privacy-sensitive uses, particularly residences, to the extent necessary to prevent intrusion. In addition to physical distance, earthen berms and plant materials may be utilized to further screen trailheads and trails from adjoining uses. Barriers and obstacles including boulders, logs, bollards, and stiles, may be erected outside of and adjacent to the path of travel where needed to discourage unauthorized motor vehicles access.

8.12 Sensitive Environmental or Cultural Areas

Trails and trailheads open to the general public should avoid environmentally and culturally sensitive areas, such as streambeds, wetlands, special-status plant and animal species areas, archaeological and cultural sites. Where trails must come in close proximity to environmentally or culturally-sensitive areas, barriers should be used, as appropriate, to discourage damage in these areas. To the extent practicable, barriers should utilize natural vegetation.

Culturally-sensitive sites and areas on public trails shall not be identified by signs or other means in order to prevent disturbance; however, where trails pass through culturally significant (but not sensitive) areas, interpretive signage could be used to inform the public to respect the resources and prevent environmental degradation.

Stream crossings shall be minimized whenever possible in sensitive areas. Where crossings occur, bridge and culvert designs should be used that result in the least disturbance of the watercourse. Trails shall be designed to avoid disruption of drainage patterns that contribute to seasonal wetland. Consideration should be given to the use of elevated pathways (i.e., boardwalks) in order to avoid soil disturbance and erosion impacts near environmentally sensitive areas.

8.13 Stream Crossings and Muddy Areas

Except in sensitive environmental habitats, rock crossings should be used wherever possible instead of bridges because the maintenance requirements are less intensive. Additionally, bridges may be damaged by falling trees, while rock crossings tend to be more sustainable.

Where trails are excessively muddy, rocks may be packed in and compacted to create a more stable surface. For extreme cases where sections of trails are very low laying it may be best to raise the grade with rock fill, add culverts and line either side with logs.

8.14 Grading and Erosion Control

Grading for trails and trailheads should be minimized to the extent feasible. Where trails traverse cross slopes, large upslope cuts and downslope fills should be avoided through the use of retaining walls.

The top image shows a bridge that was destroyed when a tree fell on it. The bottom image show the rock crossing that was built to replace the bridge

Where grading is required to construct trails on hillsides, all cuts and fills shall be the minimum necessary and shall be contoured to blend with the natural slope. Trail alignments should be selected that will result in the least impact on the existing topography and vegetation.

Trail design shall include effective measures to control or reduce erosion. Recommended measures include seeding (e.g., hydro-seeding) of disturbed ground with native grasses, use of shallow diversion ditches, water bars, and other mechanisms to reduce water velocity and volume on trails surfaces and adjoining areas.

Vegetation removal and grading should be the minimum necessary to meet the horizontal and vertical clearance requirements identified in this section.

Log cribbing may be used to hold a steep slope

8.15 Proximity to Hazardous Areas

To the extent practicable, trails should avoid proximity to potentially unsafe situations, such as busy roads, abandoned mines, and steep cliffs. Where trails must be in close proximity to such areas, fencing or other appropriate barriers shall be installed. Trail crossings of busy roads should be minimized. Where crossings are needed, a location with adequate sight distance shall be selected and appropriate signage and crossing treatments installed.

Trail intersections with other trails should be located and designed so that sight distance, grades, and other features enhance crossing safety.

Trails should not be constructed where cross slopes exceed 20 percent, unless appropriate downslope barriers are provided. In certain instances, upslope barriers may be necessary to intercept falling rocks. Barriers constructed of local trees and logs should be provided between trails and steep and hazardous areas. Trails located next to steep or other hazardous areas shall be at least four feet in width.

Trails located along ridgelines can function as shaded fuel breaks if constructed at least 10 feet wide.

8.16 Trail Design Details

In general, minimum vertical clearance standards are as follows; however, these heights can be reduced for Difficulty Class 1 & 2 trails:

- Hiking trail : 7 feet,
- Bicycling trail : 12 feet,
- Equestrian trail : 12 feet;

Where retaining walls are employed, natural materials, such as logs and native stone, should be used to the extent possible.

Vegetation grows more quickly in open areas, often necessitating more frequent mowing and brushing than areas with tree canopies. A propane-fueled weed burner is a fast and efficient way to eliminate weeds that grow up through gravel paths.

Hiking and equestrian trails located within a public right-of-way shall be at least 5 feet from the traveled way unless a barrier is constructed between the trail and the edge of the traveled way.

Regional connectors should ideally provide accessible facilities for pedestrian, bicycle, and equestrian users.

8.16.1 Filter Strips and Swales

Where feasible, stormwater runoff from trails should be directed to filter strips and swales prior to entering a creek or other water body. Filter strips are vegetated areas parallel to a trail through which runoff passes perpendicularly as sheet flow, depositing sediment within the strip. Filter strips should be between 5 and 50 feet wide, as appropriate given topography and adjacent features. A Swale is a vegetated shallow depression, running along a trail, road or parking lot, that captures and conveys runoff to a discharge point, often a creek or wetland. As with filter strips, sediment and other contaminants settle out in the swale prior to discharge to the down-slope water body. Swale widths and lengths vary as needed to handle the amount of runoff and sediment load, but are generally 3' – 6' in width and are planted with native grasses, forbs and seasonal wetland plants (on low gradient swales).

8.16.2 Decommissioning Roads

Before former logging roads are decommissioned, evaluate all areas that the road allows access to. Determine if there are any features (such as culverts) that may need to be maintained or removed before vehicular access is eliminated.

Although it may be advantageous in the short term to adapt a former logging road to a trail, the maintenance requirements for that trail may be more intensive over the long run than closing the logging road and constructing a trail per the requirements of its intended user groups.

8.16.3 Route Selection

When deciding where to route trails, consider the maintenance impacts of routing a trail in open areas versus under tree canopies. Open areas (especially newly cleared) may be quickly inundated with rapidly growing invasive species such as Himalayan blackberry. This could necessitate a maintenance regime that is more intensive than is desirable.

When this deep culvert failed, the trail crew had to remove it by hand because the road that previously accessed this area was closed

Trails that go through meadows should include weed cloth and several inches of gravel to prevent weeds from growing in the trail. These types of trails typically require mowing/brushing back four times per growing season. Therefore they are less appropriate for backcountry settings than they are for places accessible by vehicles.

When selecting routes in previously heavily logged, even-aged, second growth forests, consider the long-range goals for the trail. It may take many years of selective thinning to create the desired alignment and visual character.

Conduct as much reconnaissance as possible to ensure that the best route is selected. Look for interesting, beautiful or unique features to preserve, accentuate and route visitors towards. Clearly mark significant features to preserve so that trail crews do not accidentally eradicate them.

After a new route is selected, a trail crew should make a first pass at clearing the route and take conservative cuts. The trail designer should then evaluate the results and fine tune the design before the trail crew completes the vegetation removal.

8.17 Trails and Environmental Regulation/Permitting

A number of permits may be needed for a trail construction project, particularly if it includes proximity to or crossing of a creek or wetland on non-Tribal lands. The U.S. Army Corps of Engineers regulates fill in Waters of the U.S. through the Clean Water Act Section 404 and requires a 404 permit before fill can be placed within creeks or wetlands. The State Water Quality Control Board protects waters of the state from point-source and non-point source pollution, including sediment discharges, through the Clean Water Act Section 401. They require a Water Quality Certification for projects within a wetland or creek on non-Tribal lands. For Tribal lands a water quality certification would be required from the Yurok Tribe Environmental Program (YTEP).The U.S. Fish and Wildlife Service protects sensitive plant and animal species through the Endangered Species Act and requires consultation for any project likely to affect species on the federal Rare, Threatened or Endangered Species List. Similarly, the National Marine Fisheries Service requires consultation on any project likely to affect anadromous fishes, including all salmonids.

This trail was intentionally routed next to this burned out tree to highlight the special feature.

Additional permits that may be needed for a trail project include a Streambed Alteration Agreement from the California Department of Fish and Wildlife and those required by local agencies such as grading permits or native/oak tree removal permits. The California Department of Fish and Wildlife also regulates any activities within the riparian zone of creeks on non-Tribal lands and may require a riparian mitigation plan for impacts within that zone.

In 2012, the Yurok Tribe held a Jump Dance and Boat Dance on Stone Lagoon (Cha-pekw) for the first time in 135 years. According to the Tribe, the ceremony experienced 1,000 visitors. The Tribe had to obtain permits. The 10-day ceremony began at Cha-pekw with a Boat Dance across Stone Lagoon. The Dance moved to Hee-won ke-tah

(above the lagoon), then traveled to Hee-won Ke-tuehL (above the lake) and the across two ridges finishing up at Sey–pue-loh (Gann's Prairie). The Tribe is looking to strengthen this co-operative effort with the National and State Parks.

8.18 Operations and Maintenance

Development of a successful land and water trail network requires dedication of resources to continually monitor and maintain the trails, and periodic adjustment to trail plan priorities. The following are guidelines for implementing trail operations and maintenance practices.

Handy equipment: Motorized wheelbarrow and compacting plate.

8.18.1 Management Objectives

Each trail should be classified according to the intended level of improvement. Given limited resources and variations in level of use, some trails will be maintained at lesser stages of improvement than others. Refer to the Trail Class and Design Use attributes in the Yurok Trail Classification System to determine appropriate management objectives for each trail.

8.18.2 Trail Assessment

The condition of trails should be regularly evaluated based on the management objectives for the trail. Given the extent of the YAT and the number of separate trails, priorities will need to be developed to focus resources on the most important trails, especially those that are not being managed by another jurisdiction. Assessment practices include:

- Establish an assessment frequency for all trails. Trails with heavier use or providing connections that are critical to public safety will need to be monitored more frequently.
- Standardize monitoring procedures so that findings can be consistently compared over time.
- Make sure trail monitors are familiar with the assessment process and have appropriate equipment and training.
- If unsafe trail conditions are encountered, establish procedures to immediately notify trail managers and to close trail to public use.
- Link assessment results to the GIS to facilitate work orders, maintenance plans, etc.
- Assessments may identify specific repairs that are needed or may simply identify segments that need more comprehensive evaluation to identify repair strategies.

8.18.3 Trail Maintenance

Trail maintenance practices provide for public safety and protect sensitive resources. The objective of trail maintenance should be to keep the trail at the conditions identified in the Trail Class and Design Use attributes of the Yurok Trail Classification System. Develop maintenance cost worksheets for each trail type to standardize repair cost estimating and to project annual maintenance costs. Also include labor estimates and frequency for recurring tasks such as resurfacing, vegetation management, and debris removal. The worksheets should include all components of the trail structure including:

Handy equipment: Sweco trail dozer

- Bridges
- Boardwalks
- Puncheons
- Fords
- Stiles
- Waterbars
- Culverts
- Road Base
- Geotextiles
- Surfacing Material
- Steps
- Retaining Walls
- Safety Rails
- Signage
- Striping
- Vegetation management needed to preserve sight lines and keep the trail surface free from obstructions may include:
- Litter clean-up
- Mowing
- Leaf removal
- Invasive species removal
- Tree pruning or removal

Handy equipment: Mini excavator

It may be possible and efficient to combine assessment and maintenance activities for certain types and locations of trails. In these situations, maintenance workers who are performing routine activities can also assess the trail conditions and the need for further maintenance.

Since seasonal use patterns influence maintenance schedules, maintenance budgets may need to be more heavily weighted for certain times of the year. Following big storms or prior to or after public trail events supplemental assessment and maintenance may also be required.

8.18.4 Trail Safety

While appropriate trail design and maintenance is are important parts of trail user safety, education and information are also helpful. Signage regarding passing rights and speed limits for multi-use trails is essential. Signage should also post emergency contact information and any rules and regulations limiting hours or types of use. Many of the trails in the YAT are in undeveloped areas with few emergency support services. The use of solar-powered call boxes may be appropriate for some locations. Setting up Trail Watch groups or patrols can also help deter undesirable activities. Public notification of trail closures should be used to prevent people from attempting to access trail that are damaged or otherwise not accessible. Vandalized signs should be repaired/replaced as soon as possible.

8.19 Funding

At this point, the recommended projects are too conceptual to assign costs. As the Tribe selects specific recommendations to pursue, more detailed consideration will need to be given to define the specific scope of the effort and/or phases for implementation.

The implementation of the recommendations, programs and projects in this plan will require a variety of funding sources, as well as volunteer labor, donations and collaboration with regional partners. This chapter describes some of the federal, state, local and private funding opportunities available for trails and waterways programs and projects. There may be additional funding sources that are not identified in this plan. Additionally, there may be opportunities in the private sector for corporate volunteer groups, sponsorship opportunities, land donations, and grants from foundations or advocacy groups. Co-management situations bring another set of opportunities for seeking funding. Programs and projects that are identified in this plan which also have regional significance generally have a greater likelihood of becoming funded.

In many instances, funds that originate at the federal level are administered at the State level. For example funding from numerous programs of the Federal Highway Administration (FHWA) which were reauthorized under the MAP-21 Act are allocated via Caltrans or the California State Parks Office of Grants and Local Services (OGALS). Funds appropriated under FHWA's Office of Federal Lands Highway (FLH) which includes the TTP, also provide funding to national forests, national parks, national wildlife refuges, national recreation areas, and other Federal public lands. The FLH also operates the Federal Lands Transportation Program and the Federal Lands Access Program which provides funding for pedestrian and bicycle facilities and trails-related projects. (See Table 12: Funding Sources for more information on these programs, as well as several others.)

Personalized engraved bricks or tiles can be sold to donors and used for paved paths and landscape borders, or incorporated into a water fountain or kiosk design.
- Florida Oceanographic Society

Not all of the programs that are summarized in this section list Tribes as eligible applicants. However information is included here because, through co-management agreements or other partnerships with local government agencies that are eligible, projects may be funded that are within the Yurok Ancestral Territory and meet the Tribe's goals.

Typically there are different funding sources for different types of projects, such as:

- Land acquisition/conservation
- Trail construction and maintenance
- Safety and evacuation
- Education
- Planning

The *Humboldt Regional Bicycle Plan* Update 2012 recommends implementing six priority regional projects in the short-term (first five years, 2012-2017). Funds for projects that meet the eligibility criteria for the programs listed below may be readily available to HCAOG members such as the Yurok Tribe:

1. Regional Bikeway and Trails Signing Program
2. Regional Bicycle Parking Program
3. Regional Non-Motorized Education & Outreach Program
4. Regional Bicycle Guide & Map
5. Bicycle Facility Maintenance Program
6. Regional Loop Detector Installation & Maintenance Program

The U.S. Department of the Interior has recommended establishing a National Recreational Blueway Trails Initiative focusing on the development and protection of water trails across the country under existing authority of the National Trails System Act. Including water trails in the Master Plan may help position the Yurok Tribe for future funding and technical support.

The following table provides information about funding sources, organized in in two categories:

1. Local, Private, and Non-Profit Sources
2. Federal and State Grant Sources

Table 12: Funding Sources

Funding Sources	
Local, Private, and Non-Profit Sources	
Tribe's General Fund	The Tribe's General Fund is established annually and Represents the Tribe's operational budget for indirect costs associated with funding those programs and departments which do not rely on outside funding. Examples include the Finance Department, Human Resources and IT Under certain circumstances, limited funds can be appropriated from this resource if they are targeted as part of the budget process.
Bonds: - Tax exempt bonds under the Indian Governmental Tax Status Act - Tribal Economic Development Bonds	- The Indian Governmental Tax Status Act allows tribes to issue tribal tax-exempt bond proceeds for projects "customarily performed by state and local governments." In California, the state issued State recreation bonds including funding for the local coastal trail program. The Yurok Tribe has the same bonding authority of the state but would need to pledge future assets. - In 2008, as a part of a greater economic stimulus effort, Section 1402 of the American Recovery and Reinvestment Act temporarily amended the Indian Tax Status Act to permit a $2 billion allocation of "Tribal Economic Development Bonds" (TED bonds). TED bonds bypass the restrictive tax constraints and tribes are liberated to finance projects and facilities not strictly deemed essential governmental functions but nonetheless vital to economic development on tribal reservations.
Impact Fees and Developer Mitigation	Impact fees may be assessed on new development to pay for transportation projects, typically tied to vehicle trip generation rates and traffic impacts generated by a proposed project. A developer may reduce the number of trips (and hence impacts and cost) by paying for on- or off-site bikeway improvements that will encourage residents to bicycle rather than drive. Additional developer contributions to active transportation may be provision of amenities to facilitate cycling such as bicycle parking, shaded rest areas along trails, and showers/lockers in business developments.
Business Improvement Districts (BIDs) and bond referendums	Business Improvement Districts (BIDs) are self-taxing business districts. Business and property owners pay for capital improvements, maintenance, marketing, parking, and other items as jointly agreed to through systematic, periodic self-assessment. These districts may include provisions for bicycle improvements such as bicycle parking or shower and clothing locker amenities.
Timber sales	Timber sale proceeds can allow for a percentage of stumpage to be used for road betterment activities, road construction and maintenance Additionally, sedimentation control including road closure are allowable costs of a timber sale. Conceivably, road closure activities could allow a trail size width of the road to be maintained for monitoring and accessibility to cultural sites.
Leasing corridors to utilities	"A growing source of trail development funds is the leasing of subsurface rights for fiber-optic cables and other utilities. Compatible "joint uses" of a rail-trail corridor include sewer, water and natural gas. Occasionally, above-ground utilities such as telephone and overhead electric lines can successfully share a corridor with a rail-trail. Utility companies have also bought abandoned corridors and then donated the land to the state department of natural resources for trail use. Abandoned corridors can provide key links for utility use, so working cooperatively with local utilities can help pay for your trail." (Rails to Trails, 2013)
Trust Funds or Endowments	"These can be set up to aid funding for acquisition, construction or maintenance and can be administered by a nonprofit group or local commission. Funds can be contributed to a trust fund from government sources, private grants and gifts." (Rails to Trails, 2013)
Donor Programs	Plaques on benches and other amenities can be sold to donors. Personalized engraved bricks or tiles can be sold to donors and used for paved paths and landscape borders, or incorporated into a water fountain or kiosk design.
Volunteer groups	Volunteer groups can participate in trail clean up days and trail maintenance activities. A 'Friends of Yurok Trails' group and/or an Adopt-a-Trail" program may be effective at sustaining long-term volunteer participation.

Events (galas, festivals, wine tasting, races (bicyclists and/or runners)	Mountain bike races and trail runs have been popular on Tribal lands throughout the Country and some trails within the YAT are suited for these types of activities. The Hoopa Tribe for example sponsored the Tish Tang Tangle until 2004 until it was discontinued. Currently the Big Sandy Rancheria Run, a run at Barona and Cahuilla are popular venues that bring thousands of dollars into the local economy
Community and Other Foundations	Private Foundations are non-governmental, nonprofit organizations managed by trustees and directors, and established to maintain or aid charitable, educational, religious, or other activities serving the public good, primarily by making grants to other nonprofit organizations. The overwhelming majority of foundation grants are awarded to nonprofit organizations that qualify for "public charity" status under Section 501(c)(3) of the Internal Revenue Code.
American Greenways Dupont Awards Program	Administered by the Conservation Fund, in partnership with Dupont, and the National Geographic Society, this program provides grants of $500 to $2,500 to local greenways projects. These grants can be used for activities such as mapping, conducting ecological assessments, surveying land, hosting conferences, developing brochures, producing interpretive displays and audio-visual material, incorporating land trusts and building trails. Grants cannot be used for academic research, general institutional support, lobbying or political activities. The submission period for grant applications is September 1st to December 31st.
California Trails and Greenways Foundation	Projects must support the Mission of the California Trails and Greenways Foundation: "To create a united trails community promoting and supporting California's trails and greenways". Awards grants to 501(c)3 organizations that have not received a CTGF grant in the previous five (5) years. For 2013, a maximum of $5,000 is available for all grants, allocated in a number of smaller grants ($1,000 or less).
Federal and State Grant Programs	Funds for these programs are allocated to (or coordinated by) California's 43 Regional Transportation Planning Agencies (RTPAs). RTPAs are comprised of local government representatives (for example, City Mayors and County Supervisors). There are two types of RTPAs in California -Councils of Governments (COGS) and Local Transportation Commissions (LTCs). The northern portion of the Yurok Ancestral Territory is within the Del Norte Local Transportation Commission's (DNLTC's) area; while the southern portion is within the Humboldt County Association of Governments' (HCAOG's) area. Project sponsors must compete for funds.
Federal Grant Programs	
MAP-21	The "Moving Ahead for Progress in the 21st Century" (MAP-21) Act reauthorized federal funding for surface transportation projects for fiscal years 2013 and 2014. Map-21 is funded by the Highway Trust Fund and is administered by the Federal Highway Administration (FHWA). As of August 31, 2013 many details were not finalized.

Federal Lands Transportation program (FLTP)	It improves multi-modal access within national parks, forests, wildlife refuges, Bureau of Land Management (BLM) lands, and U.S. Army Corps of Engineers facilities. The FLTP complements the Federal Lands Access Program. (Access Program provides funds for State and local roads that access Federal lands, FLTP focuses on transportation infrastructure owned and maintained by Federal lands management agencies.) There are four program categories for funding: 1. Project Development, 2. Construction and Implementation, 3. Program Administration, and 4. Special Environmental Mitigation. Within those categories, funds may be used for: program administration, transportation planning, research, preventive maintenance, engineering, rehabilitation, restoration, construction, and reconstruction of Federal Lands Transportation Facilities (including trails), and adjacent vehicular parking areas; acquisition of necessary scenic easements and scenic or historic sites; provision for pedestrians and bicycles; environmental mitigation in or adjacent to Federal land open to the public to improve public safety and reduce vehicle-caused wildlife mortality while maintaining habitat connectivity; and to mitigate the damage to wildlife, aquatic organism passage, habitat, and ecosystem connectivity, including the costs of constructing, maintaining, replacing, or removing culverts and bridges, as appropriate; construction and reconstruction of roadside rest areas, including sanitary and water facilities; congestion mitigation; and other appropriate public road facilities, as determined by the Secretary; operation and maintenance of transit facilities; any transportation project eligible for assistance under title 23 that is on a public road within or adjacent to, or that provides access to, Federal lands open to the public; and not more than $10,000,000 of the amounts made available per fiscal year to carry out 23 U.S.C. 203 for activities eligible under section 203(a)(1)(A)(iv).
Federal Lands Access program (Access Program)	The goal of the Access Program is to improve transportation facilities that provide access to, are adjacent to, or are located within Federal lands. The Access Program supplements State and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on high-use recreation sites and economic generators. Funds made available under the Access Program shall be used to pay the cost of: transportation planning, research, engineering, preventive maintenance, rehabilitation, restoration, construction, and reconstruction of Federal Lands Access Transportation Facilities (including trails) located on or adjacent to, or that provide access to, Federal land, and- adjacent vehicular parking areas; acquisition of necessary scenic easements and scenic or historic sites; provisions for pedestrians and bicycles; environmental mitigation in or adjacent to Federal land to improve public safety and reduce vehicle-caused wildlife mortality while maintaining habitat connectivity; construction and reconstruction of roadside rest areas, including sanitary and water facilities; and other appropriate public road facilities, as determined by the Secretary; operation and maintenance of transit facilities; and any transportation project eligible for assistance under title 23 that is within or adjacent to, or that provides access to, Federal land.
Tribal Transportation Program (TTP)	The purpose of the program is to provide safe and adequate transportation and public road access to and within Indian reservations, Indian lands, and Alaska Native Village communities. A prime objective of the TTP is to contribute to the economic development, self-determination, and employment of Indians and Native Americans.

Congestion Mitigation and Air Quality (CMAQ) Program	The CMAQ program provides a flexible funding source to State and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards (NAAQS) for ozone, carbon monoxide, or particulate matter-nonattainment areas-and for areas that were out of compliance but have now met the standards-maintenance areas. CMAQ projects must demonstrate the three primary elements of eligibility: transportation identity, emissions reduction, and location in or benefitting a nonattainment or maintenance area. Projects must be included in a Metropolitan Planning Organization (MPO) transportation plan and transportation improvement program (TIP), or the current Statewide TIP in areas that are not part of an MPO. Eligible Activities Include (amongst other activities) Non-recreational bicycle transportation and pedestrian improvements that provide a reduction in single-occupant vehicle travel.
Transportation Alternatives Program (TAP)	The TAP provides funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, and environmental mitigation; recreational trail program projects; safe routes to school projects; and projects for planning, designing, or constructing boulevards and other roadways largely in the right-of-way of former Interstate System routes or other divided highways. Draft estimated Tribal shares for FY14-FY16 indicate that total allocation for the Yurok Tribe will be approximately $1.4 million each year. The Transportation Enhancement (TE) Activities will be replaced by the Transportation Alternatives Program (TAP). Current (August 2013) TE activities remain eligible for TE funds that were previously apportioned until the TE funds are obligated, rescinded, or lapsed.
Safe Routes to School (SRTS)	Map-21's predecessor, SAFETEA-LU, authorized funding for Safe Routes to Schools (SRTS) Programs. Under SAFETEA-LU, Statewide, over $40 million dollars annually were distributed for use in bicycle and pedestrian planning and infrastructure projects that improve access to schools. However, as of August 2013, set-aside funds have not been included in MAP-21, (the federal funding bill for transportation spending), or the proposed California's Governor's Budget 2013-14.
Recreational Trails Program (RTP)	The RTP provides funds to the States (in California by the Department of Parks and Recreation (DPR)) to develop and maintain recreational trails and trail-related facilities for both non-motorized and motorized recreational trail uses. Funds benefit recreation including hiking, bicycling, in-line skating, equestrian use, cross-country skiing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, four-wheel driving, or using other off-road motorized vehicles. Each State administers its own program. Program participants provide matching funds (minimum 12%, maximum 80%). California's RTP Eligible Applicants: Cities and Counties; Districts; State Agencies; Federal Agencies; Non-Profit Organizations with management responsibilities of public lands [does not list tribes]. Applicants are encouraged to develop cooperative agreements with qualified youth conservation or service corps (such as California Conservation Corps (CCC)) to perform trail construction and maintenance. RTP Application Filing Deadline: Unknown
National Park Service	Working with their partners the National Park Service has leveraged more than $55 billion in historic preservation investment through tax incentives; awarded more than $5 billion in preservation and outdoor recreation grants; listed more than 85,000 properties in the National Register of Historic Places; and designated more than 1,000 National Recreation Trails.

Rivers, Trails, and Conservation Assistance program (RTCA)	A program of the National Park Service whereby NPS staff with extensive experience in community-based outdoor recreation and conservation provides technical assistance for community-led natural resource conservation and outdoor recreation projects across the nation. The RTCA program does not award monetary grants or loans but if funding is necessary to achieve project goals, NPS can often assist partners in identifying and securing sources of financial assistance. The RTCA program provides technical assistance to its project partners by: building partner relationships; helping partners define goals through consensus; developing conceptual, strategic, and workable project plans; helping the public participate in defining community goals; identifying potential sources of funding for project implementation; and teaching "hands-on" conservation and other technical skills necessary to successfully realize conservation and outdoor recreation projects. Application deadlines are August 1st.
Land and Water Conservation Fund (LWCF)	Administered by the National Park Service and locally by the California State Parks, funds the acquisition and development of public outdoor recreation areas and facilities (as well as funding for shared federal land acquisition and conservation strategies). The program is intended to create and maintain a nationwide legacy of high quality recreation areas and facilities and to stimulate non-federal investments in the protection and maintenance of recreation resources across the United States. Eligible projects include: Acquisition or development of outdoor recreation areas and facilities. Priority development projects include trails, campgrounds, picnic areas, natural areas and cultural areas for recreational use. Property acquired or developed under the program must be maintained in perpetuity for public outdoor recreation use. The next Local Agency Competitive Application deadline will be February 3, 2014. Project partners may be non-profit organizations, community groups, tribes or tribal governments, and local, State, or federal government agencies. Federal agencies may be the lead partner only in collaboration with a nonfederal partner.
Federal Lands to Parks Program	While not a funding program per se, the Federal Lands to Parks Program conveys surplus federal land to communities, usually at no cost, for public park and recreation purposes. Over 1,550 properties, approximately 178,000 acres, have been transferred to state and local governments for parks and recreation areas since the program's inception in 1949. The Program also helps assure continued public access and stewardship of resources. When federal land becomes available for reuse, notices are often posted on military or General Services Administration web sites. A state or local government agency interested in property for parks or recreational areas should notify the Federal Lands to Parks Program regional office in writing of its interest. The office for the Pacific West Region is in San Francisco, CA.
State, Tribal, and Local Grants (STLPG)	The (STLPG) division manages several grant programs funded by the Historic Preservation Fund that assist with a variety of historic preservation and community projects focused on heritage preservation. Two of the programs are specifically applicable: Tribal Historic Preservation Office Grants (THPO) (to to protect and conserve important Tribal cultural and historic assets and sites) and Tribal Heritage Grants (to protect and promote unique cultural heritage and traditions).
HUD (Housing and Urban Development)	
Indian Community Development Block Grants	HUD Program provides eligible grantees with direct grants for use in developing viable Indian and Alaska Native Communities, including maintenance, repair, or construction of community facilities for physical activity such as a recreation center or gymnasium. Tribal communities often contain substantial low income housing. Trails as a means of ecotourism expand economic opportunities for the community. Trails fall under category of improving community facilities/services.

EPA/HUD/DOT (Environmental Protection Agency/Housing and Urban Development/Department of Transportation)	
Building Blocks for Sustainable Communities	The Yurok Tribe was one of 43 recipients selected from 121 applicants to participate in the EPA/HUD/DOT's Building Blocks for Sustainable Communities program.As a result, the Yurok Tribe gained Preferred Sustainability Status (PSS). PSS entitles the Tribe to more points on subsequent grant applications (the status is still active and will be as long as the grants remain open from 2011). Grant applications must be through HUD, DOT, EPA or one of the many other federal partners that recognize it. The Building Blocks for Sustainable Communities Program seeks to provide technical assistance to up to 44 communities on the use of various tools to help them achieve their goals for growth and successfully implement smart growth and sustainable approaches that protect the environment, improve public health, create jobs, expand economic opportunity, and improve overall quality of life.
NOAA Fisheries (National Oceanic and Atmospheric Administration)	
Species Recovery Grants to Tribes	The Species Recovery Grants to Tribes Program supports tribally led recovery efforts that directly benefit the following eligible species under NMFS or joint NMFS-U.S. Fish and Wildlife Service jurisdiction: species listed under the Endangered Species Act (ESA), (excluding Pacific salmonids, which may be supported through Pacific Coastal Salmon Recovery Fund); recently de-listed species; candidate species; and species proposed for listing under the ESA. Recovery efforts supported by the program may involve management, research, outreach activities, and any combination thereof.
USDA (U. S. Department of Agriculture)	
Conservation Reserve Program	While not a funding program per se, program provides payments to farm owners and operators to place highly erodible or environmentally sensitive landscapes into a 10-15 year conservation contract. The participant, in return for annual payments during this period, agrees to implement a conservation plan approved by the local conservation district for converting sensitive lands to less intensive uses. Individuals, associations, corporations, estates, trusts, cities, counties and other entities are eligible for this program. Funds from this program can be used to fund the maintenance of open space and non-public-use greenways, along bodies of water and ridgelines. Offered through USDA's Agricultural Stabilization and Conservation Service.

USFWS (U.S. Fish and Wildlife Service)	
Tribal Wildlife Grant Program	While this program is not geared towards trails projects specifically, it is aimed at habitat conservation. There may be future projects that have a trails and/or waterways component as well as a habitat conservation component (such as, trail development to access areas for wildlife count locations).Eligible for funding through this program: Activities may include, but are not limited to, planning for wildlife and habitat conservation, fish and wildlife conservation and management actions, fish and wildlife related laboratory and field research, natural history studies, habitat mapping, field surveys and population monitoring, habitat preservation, conservation easements, and public education that is relevant to the project. The funds may be used for salaries, equipment, consultant services, subcontracts, acquisitions and travel.
Cooperative Landscape Conservation and Adaptive Science	While this program is not geared towards trails projects specifically, it is aimed at habitat conservation. There may be future projects that have a trails and/or waterways component as well as a habitat conservation component (such as, trail development to access areas for wildlife count locations).Eligible for funding through this program: biological planning, conservation design and adaptive management projects to include: research; inventory design and implementation; monitoring; goal and priority setting associated with efficient and effective conservation; development of implementation strategies; and projects supporting all other FWS organizational efforts, including planning, establishment maintenance, and general business operations.
Habitat Conservation Plan (HCP) Land Acquisition Grants	Under this program, the Service provides grants to States for land acquisitions that are associated with approved HCPs. The HCP Land Acquisition program has three primary purposes: 1) to fund land acquisitions that complement, but do not replace, private mitigation responsibilities contained in HCPs, 2) to fund land acquisitions that have important benefits for listed, proposed, and candidate species, and 3) to fund land acquisitions that have important benefits for ecosystems that support listed, proposed and candidate species.
Conservation Grants	Provides financial assistance to States and Territories to implement conservation projects for listed and non-listed species, such as habitat restoration, species status surveys, public education and outreach, captive propagation and reintroduction, nesting surveys, genetic studies and development of management plans.
State Grant Programs	
Caltrans administration of Federal funds	California Transit Development Act (TDA) funds are almost entirely for public transportation needs and are allocated based on population, taxable sales and transit performance. Some counties have the option of using funds for local streets and roads projects, if they can show there are no unmet transit needs.
The Highway Safety Improvement Program (HSIP)	Aims to reduce traffic fatalities and serious injuries on any publicly owned roadway or bicycle/pedestrian pathway or trail. Caltrans administers the program in California; in its most recent grant cycle (July 2012), Caltrans awarded $111 million to 221 projects. HSIP funds can be used for projects such as bike lanes on local roadways, improvements to Class I multi-use paths, pedestrian safety improvements, or for traffic calming measures. Applications that identify a history of incidents and demonstrate their project's improvements to safety are most competitive for funding.
State Transportation Improvement Program (STIP)	The STIP is a multi-year capital improvement program of transportation projects on and off the State Highway System, funded with revenues from the Transportation Investment Fund and other funding sources. STIP programming generally occurs every two years. Local agencies should work through their Regional Transportation Planning Agency (RTPA), County Transportation Commission, or Metropolitan Planning Organization (MPO), as appropriate, to nominate projects for inclusion in the STIP.

State Highway Operation and Protection Plan (SHOPP)	The State Highway Operation and Protection Program (SHOPP), asestablished by the Department of Transportation pursuant to Section 14526.5 of the Government Code, provides transportation funds for major capital improvements that are necessary for the maintenance.
Local Assistance Program	Caltrans' Local Assistance Program oversees more than one billion dollars annually available to over 600 cities, counties and regional agencies for the purpose of improving their transportation infrastructure or providing transportation services. This funding comes from various Federal and State programs specifically designed to assist the transportation needs of local agencies. Annually, over 1,200 new projects are authorized through the Local Assistance Program of which approximately 700 are construction projects.
Caltrans and The California Natural Resources Agency Environmental Enhancement And Mitigation Grant Program	Federal Department of Transportation funds flow through Caltrans and the California Natural Resources Agency Annual program. The program funds Roadside Recreation projects which provide for the acquisition and/or development of roadside recreational opportunities, which includes bike paths, trails, trailheads, and outdoor amenities including restrooms, etc.). Preliminary project costs including construction plans, appraisals, acquisition negotiations, personnel and employee services/wages, consultant services, construction equipment, construction costs, trees, supplies, materials, acquisition costs, hazard and liability insurance, etc. Maximum funding request is $350,000 The project must be directly or indirectly related to the environmental impact of the modification of an existing Transportation Facility or the construction of a new Transportation Facility (such as, public streets, highways, mass transit and appurtenant features).
Bicycle Transportation Account (BTA)	Bicycle facilities can be funded through the California Bicycle Transportation Account (BTA). Annually, $7.2 million is available for projects through the BTA. For projects that improve safety and convenience for bicycle commuters. The program funds: new bikeways serving major transportation corridors, new bikeways removing travel barriers to bicycle commuters, secure bicycle parking at employment centers, park-and-ride lots, rail and transit terminals, etc., bicycle-carrying facilities on public transit vehicles, installation of traffic control devices; elimination of hazardous conditions on existing bikeways.; planning; improvement and maintenance of bikeways. Local Match: 10%. Must have an adopted Bicycle Transportation Plan (BTP) that complies with Caltrans Streets and Highways Code.
Caltrans Transportation Planning Grants	Available to jurisdictions and can be used for planning or feasibility studies. The maximum funding available per project is $300,000.
Caltrans Transportation, Community and System PreservationGrant Program	To plan and implement strategies which improve the efficiency of the transportation system, reduce environmental impacts of transportation, reduce the need for costly future public infrastructure investments, ensure efficient access to jobs, services and centers of trade, and examine development patterns and identify strategies to encourage private sector development patterns which achieve these goals. This program has very broadly defined goals and projects are selected based on livability which includes safety, complete streets strategies, state of good repair, project readiness, etc. There is no minimum or maximum funding limits. Past awards: High: $3,261,000; Average: $872,577; Low: $54,457. Local Match: 11.47%. A match of 20%-50% is recommended for the project to be competitive. In FY 2012, TCSP funded $52.1 million to 83 projects in 48 states. Federal funds that originate from the Department of Transportation. Caltrans requires applications to be submitted through them and Caltrans forwards to FHWA. FHWA conducts all evaluations and makes awards from the national office. TCSP is included in the new MAP-21 Transportation Alternative program. Its activities are still eligible for funding, but it is competing for scarcer funding.

CA State Parks administration of Federal funds	CA State Parks administers three Annual Grant Programs: Habitat Conservation Fund, Land and Water Conservation Fund and Recreational Trails Program (RTP funds might get transferred to Caltrans. The web site for the California Office of Grants and Local Services (OGALS) states, "Recreational Trails Program (RTP) Funding Update (Revised 8/19/2013): The current enacted State budget contains provisions that may shift RTP funding to Caltrans under the Active Transportation Program. Prior to a final decision being made, further discussions will occur through the end of August to determine the program's future.")
Habitat Conservation Fund (HCF) Program	Funds are from State General Funds. It is a competitive program. Statewide, $2 million available for 2013. Application deadline is October 1, 2013. Provides funds to local entities to protect threatened species, to address wildlife corridors, to create trails, and to provide for nature interpretation programs which bring urban residents into park and wildlife areas. Matching requirement is 1-to-1. Eligible Applicants: Cities and Counties; Districts; [does not list tribes].
Land and Water Conservation Fund (LWCF)	Note from above: Administered by the National Park Service and locally by the California State Parks, funds the acquisition and development of public outdoor recreation areas and facilities (as well as funding for shared federal land acquisition and conservation strategies). The program is intended to create and maintain a nationwide legacy of high quality recreation areas and facilities and to stimulate non-federal investments in the protection and maintenance of recreation resources across the United States. Eligible projects include: Acquisition or development of outdoor recreation areas and facilities. Priority development projects include trails, campgrounds, picnic areas, natural areas and cultural areas for recreational use. Property acquired or developed under the program must be maintained in perpetuity for public outdoor recreation use. The next Local Agency Competitive Application deadline will be February 3, 2014. Project partners may be non-profit organizations, community groups, tribes or tribal governments, and local, State, or federal government agencies. Federal agencies may be the lead partner only in collaboration with a nonfederal partner.
Recreational Trails Program (RTP)	Note from above: The RTP provides funds to the States (in California by the Department of Parks and Recreation (DPR)) to develop and maintain recreational trails and trail-related facilities for both nonmotorized and motorized recreational trail uses. Funds benefit recreation including hiking, bicycling, in-line skating, equestrian use, cross-country skiing, snowmobiling, off-road motorcycling, all-terrain vehicle riding, four-wheel driving, or using other off-road motorized vehicles. Each State administers its own program. Program participants provide matching funds (minimum 12%, maximum 80%). California's RTP Eligible Applicants: Cities and Counties; Districts; State Agencies; Federal Agencies; Non-Profit Organizations with management responsibilities of public lands [does not list tribes]. Applicants are encouraged to develop cooperative agreements with qualified youth conservation or service corps (such as California Conservation Corps (CCC)) to perform trail construction and maintenance. RTP Application Filing Deadline: Unknown
Project for Public Spaces; Funding Sources for Greenway Projects	http://www.pps.org/reference/funding-sources-for-greenway-projects/
American trails	http://www.americantrails.org/resources/fedfund/index.html
Private Grants (i.e. IMBA, REI7)	Private Grants (i.e. IMBA, REI7)
Active Transportation Program (CA)	Additional funding may become available through the Active Transportation Program in the proposed 2013-2014 California state budget. This program would consolidate federal and state Safe Routes to
Economic Development Administration (EDA)	Among the various programs administered by the Economic Development Administration of the US Department of Commerce is the Public Works and Economic Development (PWED) program. PWED provides funding with the goal of empowering "distressed communities to revitalize, expand, and upgrade their physical infrastructure." Among other uses, PWED funds can help redevelop brownfield sites and increase eco-industrial development. The EDA also offers limited local technical assistance to distressed areas in times of need.

Wetlands Restoration Funding Sources	Many railroads were built through environmentally sensitive areas that are now candidates for restoration. Administered by the U.S. Fish and Wildlife Service, the National Coastal Wetlands Conservation Grant Program is a matching grant program designed to assist states in the "acquisition, restoration, management or enhancement of coastal wetlands." The 25 states bordering the Atlantic, Pacific, Gulf of Mexico or Great Lakes are eligible. Although trails cannot be the primary beneficiary of these funds, the program has been used to work on trail infrastructure.
Foundation and Company Grants	Many foundations and companies provide grants for trail and greenway projects, open space preservation, community development and community health. To obtain larger contributions from foundations or corporations, you will need a full-fledged funding proposal that illustrates the community-wide value of the trail and describes how it will be developed and maintained. Here are just a few examples of grants from private sources that can be used for trail-building: • The Bikes Belong coalition makes grants to bike advocacy and facility-building projects. • The Conservation Fund's Kodak American Greenways Program provides grants for greenway planning and design. • The American Hiking Society awards grants from its National Trails Fund for the establishment, protection and maintenance of trails in the United States. • Outdoor goods store REI invites nonprofits nominated by its employees to submit proposals for funding. The company offers grants to support efforts "to care for public lands, natural areas, trails and waterways." A recent recipient of an REI grant was Friends of the Wissahickon's Sustainable Trails Initiative. • The Conservation Alliance, a group of more than 180 outdoor businesses including REI, Patagonia, The North Face, Kelty and Burt's Bees, disbursed $1.3 million worth of grants in 2012, with a focus on habitat conservation and recreation. • The Walmart Foundation provides grants to local communities and nonprofit organizations. These grants range from $250 to $5,000 and are awarded through each Walmart and Sam's Club store.
Urban and Community Forestry Challenge	http://www.fs.fed.us/ucf/supporting_docs/fy2014nucfac/2014USFSChallengeCostShareGrant_RFPandAppInstructions.pdf
Safe Routes to School funding portal	http://www.saferoutesinfo.org/funding-portal
Building Healthy Communities (BHC)	Del Norte County and Adjacent Tribal Lands http://www.bhcconnect.org/health-happens-here/bhcdnatl
CARB Funding Wizard	http://www.coolcalifornia.org/funding-wizard-home
National Fish and Wildlife Foundation	http://www.nfwf.org/Pages/default.aspx
Fundsnet Services.com's	http://www.fundsnetservices.com/
The Funders' Network	http://www.fundersnetwork.org/
Foundation Center	http://www.foundationcenter.org/
Funding Connections	http://www.bigdatabase.com/
California Office of Traffic Safety (OTS)	The California Office of Traffic Safety (OTS) strives to eliminate traffic deaths and injuries. It does this by making available grants to local and state public agencies for programs that help them enforce traffic laws, educate the public in traffic safety, and provide varied and effective means of reducing fatalities, injuries and economic losses from collisions.

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APPENDIX A

BIA Coding Guide and Instructions for IRR Inventory

Coding Guide and Instructions for IRR Inventory

(As of 10-21-2004)

FIELDS 1-3, Region, Agency, and Reservation, Display Only

Every section in RIFDS is associated to a region, agency, and reservation. All three codes taken together identify a reservation. In RIFDS, the reservation is always specified by selecting it from the Navigation Tree on the Main Form. RIFDS users are given row level access permissions that permit data to be retrieved for specific reservations. Permission may be given for any combination of reservations, but most commonly, permission is given for one reservation, agency, or region. RIFDS will not display section data for reservations a user is not configured to see.

FIELD 4, Route Number, Display Only

All routes are identified with a BIA route number. This is a numeric code of exactly four digits left-padded with zeros when necessary. In RIFDS, routes are created (and deleted) on the new route form.

BIA route numbers are used on sign posts, atlas maps, plans, programs, reports, and other bureau records requiring similar identification.

A spur to an existing route is always assigned its own route number.

Routes must be of a single class (except for overlap sections). RIFDS enforces this requirement when a route is submitted to the region.

FIELD 5, Section Number, Display Only

The section number identifies the section in a route. Sections are usually numbered 10, 20, 30 and so on in one of the orders that the sections would be traversed during travel. As the need arises for new sections, these may be inserted in the correct locations. In RIFDS, new sections are created on the new section form. (Process sections are deleted on the section detail form, and official sections are deleted using the resection request form.)

If it is necessary to change section numbers, RIFDS provides this capability through the resection request form. However, when a section is renumbered, the system does not remember a linkage to the old number. This means that trend analyses can only be performed on sections that have not been renumbered.

A section break occurs when it is necessary to accurately report the data. In particular, a section break is required whenever any of the following occur:

- The route crosses a state boundary.
- The route crosses a county boundary.
- The route crosses a reservation boundary.
- The route a congressional district boundary
- A bridge begins.
- A bridge ends.
- The surface type changes.
- The standard to which the road was constructed changes.
- There is a significant change to the condition of the road.

The main span of a bridge together with all its approach spans is a single section.

FIELD 6, Functional Class Code

This is the BIA functional classification of the route. Except for overlap sections, all sections in a route must have the same class. Functional classification assignments for new routes and changes in the functional classification for existing routes must be justified in the reservation long-range transportation plan. Relevant pages must be copied to a PDF or JPEG file and attached to the submission at the route level. Functional classification means an analysis of a specific transportation facility taking into account current and future traffic generators, and their relationship to connecting or adjacent BIA, state, county, Federal, and/or local roads and other intermodal facilities. Functional Classification is used to delineate the difference between the various road and/or intermodal transportation facility standards eligible for funding under the IRR program. As part of the IRR system management, all transportation facilities included on or added to the IRR inventory must be classified according to the following functional classifications.

Class	Description
1	Major arterial roads providing an integrated network with characteristics for serving traffic between large population centers, generally without stub connections and having average daily traffic volumes of 10,000 vehicles per day or more with more than two lanes of traffic.
2	Rural minor arterial roads providing an integrated network having the characteristics for serving traffic between large population centers, generally without stub connections. May also link smaller towns and communities to major resort areas that attract travel over long distances and generally provide for relatively high overall travel speeds with minimum interference to through traffic movement. Generally provide for at least inter-county or inter-state service and are spaced at intervals consistent with population density. This class of road will have less than 10,000 vehicles per day.
3	Streets that are located within communities serving residential areas.
4	Rural major collector road is collector to rural local roads.
5	Rural local road that is either a section line and/or stub type roads, make connections within the grid of the IRR system. This class of road may serve areas around villages, into farming areas, to schools, tourist attractions, or various small enterprises. Also included are roads and motorized trails for administration of forests, grazing, mining, oil, recreation, or other use purposes.
6	City minor arterial streets that are located within communities, and serve as access to major arterials.
7	City collector streets that are located within communities and serve as collectors to the city local streets.
8	This class encompasses all non-road projects such as paths, trails, walkways, or other designated types of routes for public use by foot traffic, bicycles, trail bikes, snowmobiles, all terrain vehicles, or other uses to provide for the general access of non-vehicular traffic.
9	This classification encompasses other transportation facilities such as public parking facilities adjacent to IRR routes and scenic byways, rest areas, and other scenic pullouts, ferry boat terminals, and transit terminals.
10	This classification encompasses airstrips that are within the boundaries of the IRR system grid and are open to the public. These airstrips are included for inventory and maintenance purposes only.
11	This classification indicates an overlapping or previously inventoried section or sections of a route and is used to indicate that it is not to be used for accumulating needs data. This class is used for reporting and identification purposes only.

FIELD 7, Length of Section

This field is the length, or for proposed road estimated length, of a road section to the nearest tenth of a mile.

FIELD 8, Bridge Number

For proposed or existing BIA owned bridges enter the 4 character BIA identifier. Do not pad the 4-character number at all; just enter the four characters. Observe the new BIA DOT convention of formatting bridge numbers for proposed bridges (i.e. 999A) differently from existing bridges (i.e. A999). RIFDS enforces that the bridge number must be unique. This means that in some regions where a single bridge number is used for several proposed bridges, new bridge numbers will be required for all bridges using the old number before any of the bridge records can be updated.

For all other bridges enter the NBIS owner identifier of the structure. See the Coding Instructions for the *Structure Inventory and Appraisal of Bureau of Indian Affairs Bridges,* Field 32A "Bridge Number" for more information.

> Definition of a bridge—A structure, including supports, erected over a depression or an obstruction, such as water, a highway, or a railway, having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet between undercopings of abutments or spring lines of arches, or extreme ends of the openings for multiple boxes; it may include multiple pipes where the clear distance between openings is less than half of the smaller continuous opening.

FIELD 9, Bridge Condition

For structures that are inventoried in the *Structure Inventory and Appraisal* (SI&A, AKA Bridge Inventory), report the SI&A bridge condition code translated into a number from 0 to 7 according to the following table. For all other existing or proposed bridges, use code 8 or 9.

Bridge Inventory Code	IRR Inventory Code	Bridge Condition
33 or 34	0	Widen existing bridge
31	1	Replacement of bridge because of condition
32	2	Replacement of bridge because of relocation of road
-	3	Construction of new bridge
-	4	Construction of pedestrian over or under crossing
38	5	Other structure work
-	6	Strengthening
35, 36 or 37	7	Rehabilitation
-	8	Non-existing Bridge but one is needed and/or proposed
-	9	Bridge excellent - no construction required

FIELD 10, Length of Bridge

For existing and proposed bridges only, enter the actual length, in feet to the nearest foot. For existing bridges, this value should agree with, Bridge Inspection and Inventory data. For proposed bridges, this length should be a conservative (i.e. short) estimate of the length required, and is subject to review. Unreasonably long estimates can delay acceptance of submitted data indefinitely.

FIELD 11, County

Enter the code for the county of the state in which the section of the route is located. The interface includes a button that provides a list of counties in each state providing the name and code for each.

FIELD 12, Congressional District

Enter the two-digit number indicating the congressional district in which the section of road_is located. This number is available from the current congressional directory. Code two digit numbers with a leading zero.

FIELD 13, State

Enter the code for the state in which the section of the route is located.

FIELD 14, Ownership

Enter the code that identifies the entity that owns the ROW and is responsible for the

maintenance of the section of road being inventoried.

Code	Ownership
1	BIA including offices in the BIA
2	Tribe
3	State
4	Urban (includes all Federal-aid urban and non-federal-aid urban or municipal forces).
5	County and Township.
7	Other Federal Government departments and/or agencies.
8	Other (includes Petroleum & Mining, utility company, or any other agencies, groups, or enterprises not included in one of the others)

Maintenance responsibility does not necessarily rest with the agency, group, or enterprise that is actually performing the work. Before completing this field, research may be necessary to determine the actual owner claimed for the specific section of road.

FIELD 15, Construction Need

All existing or proposed transportation facilities in the IRR must have a construction need (CN) which is used in the cost to construct calculations. These transportation facilities are assigned a CN by the tribe during the long-range transportation planning and inventory update process using certain guidelines which are: Ownership or responsibility of the facility, whether it is within or provides access to reservations, groups,, villages and communities in which the majority of the residents are Indian, and whether it is vital to economic development of Indian Tribes. As part of the IRR inventory management, all facilities included on or added to the IRR must be designated a CN which are defined as follows.

CN	Construction Need
0	Transportation facilities which have been improved to their acceptable standard or projects/facilities proposed to receive construction funds on an IRRTIP are not eligible for future inclusion in the calculation of the CTC potion of the formula for a period of 5 years thereafter.
1	Existing BIA Roads needing improvement.
2	Construction need other than BIA roads needing improvement.
3	Substandard or other roads for which no improvements are planned (maintenance only).
4	Roads that do not currently exist and need to be constructed, Proposed roads.

FIELD 16, Terrain

For existing and proposed class 2 or 4 roads only, enter the code that best represents the most significant or predominate terrain related to the section of road being inventoried. Selection of this code is very important since class, terrain, and future ADT determine the adequacy design standard.

Code	Description
1	**Flat** terrain is that condition where highway sight distances, as governed by both horizontal and vertical restrictions, are generally long or could be made to be so without construction difficulty or major expense.
2	**Rolling** terrain is that condition where the natural slopes consistently, rise above and fall below the highway grade line by about 10 feet and where occasional steep slopes offer some restriction to normal highway horizontal and vertical alignment.
3	**Mountainous** terrain is that condition where the longitudinal and transverse changes in the elevation of the ground with respect to the highway are abrupt and where the roadbed requires frequent benching or side hill excavation.

FIELD 17, Roadbed Condition

For existing roads only, enter the code that best describes of the roadbed condition of the section of road being inventoried.

Code	Foundation Condition
0	Proposed Road
1	Primitive Trail
2	Bladed unimproved road, poor drainage, poor alignment
3	Minimum built-up roadbed (shallow cuts and fills) with inadequate drainage and alignment that generally follows existing ground
4	A designed and constructed roadbed with some drainage and alignment improvements required
5	A roadbed constructed to the adequate standards with good horizontal and vertical alignment and proper drainage
6	A roadbed constructed to adequate standards – curd and gutter on one side
7	A roadbed constructed to adequate standards – curd and gutter on both sides

In this evaluation, *roadbed* is defined as the roadbed under the base and surface (wearing) courses. The condition is evaluated according to visual or other evidence that indicates poor support for the roadway surface structure (base and surface course) such as the following:

- Surface and base failure with poor sub-grade material evident in shoulders and side slopes.
- Side Slopes that are too steep or seriously gullied.
- Subsidence of a section of road below adjacent section.
- Grade evaluation is insufficient to prevent ground water from destroying surface stability or provide for adequate snow removal.

FIELD 18, Wearing Surface Condition/SCI

For existing roads only, if the surface is improved (gravel or paved) then consult Appendix A and enter the numeral value to the nearest tenth that provides the best rating of the wearing surface condition. If the road has no wearing surface, i.e. is unimproved, then enter zero.

Rating items that are found in a few isolated locations only should not contribute to the wearing surface rating, because small isolated locations of distress are considered normal maintenance. Rather, the wearing surface rating should b objectively indicative of the majority of the surface.

FIELD 19, Surface Width

For all existing and proposed roads, enter the actual (average) width, in feet to the nearest 1 foot, of the existing driving surfaces within shoulder striping. Do not include shoulder width. In the case of earth and gravel roads the surface width will be that dimension between the point of intersection of the in-slopes (side slopes) and the top of the surface of the roadway.

FIELD 20, Surface Type

For all existing and proposed roads, enter the code which best describes the existing surface type (wearing course) for the section being inventoried.

Code	Surface Type
0	Proposed roads not open to traffic.
1	Primitive (virtually no maintenance) two track Jeep or Wagon Trail
2	Earth Road
3	Gravel Surface
4	A bituminous material less than 2" thick (including chip seal over asphalt penetration).
5	Bituminous material 2" thick or more.
6	Concrete.

FIELD 21, Federal Aid Funding Category

Enter the code that represents the routes federal aid eligibility.

Code	Federal Aid Funding Category
1	Local roads—formerly Other
2	STP, Surface Transportation Program—formerly FAS
3	NHS, National Highway System—formerly FAP
4	IM, Interstate maintenance—formerly FAI
5	Obsolete, do not use this code—formerly FAU (FAU now combined with STP)

FIELD 22, ROW Status

Enter the numerical code that indicates if right-of-way has been acquired and recorded. Generally, the State & Federal Aid roads will have Code 3. *Remember a construction easement does not change the owner or status of ROW, in itself.*

Code	ROW Status
0	No ROW or easement or Tribal Resolution acquired yet
1	Tribal Resolution/Consent
2	Easement or ROW acquired but not recorded.
3	Recorded Easement or ROW.
4	Statutory Right of Way Obtained

FIELD 23, ROW Width

Enter the prevailing width of the right of way to the nearest foot. For example, if the ROW is set up as 50 feet left and right of centerline with an occasional change from 50, the enter 100.

If no easement has been obtained (Field 49a, ROW Status is coded 0 or 1), then enter the estimated or planned ROW width here.

If an easement has been obtained (Field 49a, ROW Status is coded 2, 3 or 4), then enter a positive ROW width here.

FIELD 24, CTC Percent Eligible

This field will be calculated based on the combination of construction need, ownership and federal aid funding category. If a value other then the default is required in accordance with 25 C.F.R 170, appendix C to subpart C, question 10(3)then the statement of inability to participate in funding will be required for the update.

FIELD 25, Percent of Additional Incidental Cost Required

The incidental construction items found below may or may not be associated with any particular project. In the calculation of CTC, 75% of the incidental cost required is

based on the roadbed condition. The other 25% is based on the items below. Add the percentage required (from 0% to 25%) based on the Regional recommendation with verification. If a number greater then 0 is provided then verification documentation must be provided based on an Engineers Estimate or Engineering Analysis with the update as an attachment. If there are no additional items use zero as the default.

Percent of total incidental construction costs	Additional incidental construction items.
1	Fencing
9	Landscaping
9	Structural Concrete
3	Traffic Signals
3	Utilities

FIELD 26, Shoulder Width

For all existing and proposed roads, enter the average width of left and right shoulders. Enter zero if there are no shoulders. If shoulder width varies significantly because of erosion or other deterioration, then use the width predominate for each shoulder in calculating the average.

FIELD 27, Shoulder Type

For all existing and proposed roads where the shoulder width is not zero, enter the code that indicates the existing shoulder type.

Code	Description
1	Earth shoulder (with or w/o turf)
2	Stabilized shoulder Gravel, asphalt treatment, etc.
3	Paved shoulder
4	Curb (Urban type)

FIELD 28, Existing ADT

This field is optional. If an actual count is available with documentation then enter the adt after all required adjustments have been applied. If a value is not entered then the default for that functional classification will be provided by RIFDS.

Whenever the ADT is changed or entered, an ADT backup document must be attached to the section.

class	Default ADT
1	NA must exist
2	100
3	25
4	50
5	50
6	50
7	50
8	20
9	NA
10	NA
11	NA

FIELD 29, ADT Year

Enter the last two digits of the calendar year in which the Existing ADT was estimated or obtained[1].

FIELD 30, % Trucks

Enter two digits representing the current percent of total annual traffic, which would be classed, as trucks. See the boxed text for an explanation. It is expected that the percent of trucks will remain constant. However, if there is an anticipated change in the percent of truck traffic annually, encode the figure that would best reflect overall percent of trucks before the next expected update.

[1] The next version of RIFDS will convert two-digit years to four digits and collect four digits thereafter.

Vehicles of different sizes and weights have different operating characteristics, which must be considered in highway design. Besides being heavier and causing more damage, trucks generally are slower and occupy more roadway space and consequently impose a greater traffic effect on the highway than passenger vehicles do. The overall effect on traffic operation of one truck is often equivalent to several passenger cars. The number of equivalent passenger cars depending upon the gradient and the passing sight distance available. Thus, the larger the proportion of trucks in a traffic stream, the greater the traffic load and the highway capacity required.

For uninterrupted traffic flow, as typically found in rural areas, the various sizes and weights of vehicles as they affect traffic operation can be grouped into two general classes:

1. Passenger cars--all passenger cars including light delivery trucks.
2. Trucks--all buses, single-unit trucks, and truck combinations except the light delivery trucks.

A light delivery truck is a single-unit truck, such as a panel or pickup, with size and operating characteristics similar to those of a passenger car and commonly used for short-haul, light delivery service.

Vehicles in the truck class are normally those having 9,000 lb. or greater gross vehicle weight (GHV) rating of the manufacturer and vehicles having dual tires on the rear axle. Recreational vehicles or passenger cars towing trailers can be included in either class depending on their size and operating characteristics.

FIELD 31, Owner Number/Identification

If the road is not owned by the BIA (ownership <> 1) then enter the number assigned by the non-BIA owner of the road section, e.g., the US, state, or county route number.

Enter the number right justified without leading zeros.

FIELD 32, Roadway Width, Display Only

The computer will calculate this value. It is always the surface width plus two shoulder widths.

FIELD 33, ADT EST Year + 20 (FADT), Display Only

This field is also referred to as the *Future ADT (FADT).* Either the system calculates this value from the existing ADT or it uses a default value based on class and future surface type. The system always uses the calculated value when deriving construction costs, vehicle miles traveled, and the adequacy design standard. The following formula is used whenever the existing ADT is not blank.

The formula represents 2% growth compounded annually for a 20 year period.

The following table is used whenever the existing ADT is BLANK

class	Default Future ADT
1	NA must exist
2	149
3	37
4	74
5	74
6	74
7	74
8	30
9	NA
10	NA
11	NA

FIELD 34, Adequacy Design Standard, Display Only

The system calculates the adequacy design standard (ADS) from the class, terrain, and future ADT. The ADS, prescribing minimum standards for such things as surface type, shoulder width, maximum grades, speeds, passing sight distance, and others, effects the cost to construct calculation in many places. All the adequacy design standards are documented in Appendix B.

FIELD 35, Future Surface Type, Display Only

The system calculates the future surface type based on functional classification and future ADT below are the possible future surface types. Refer to Appendix D for documentation of the Future Surface Type Calculation.

FIELDS 36-40, Five Adjusted Construction Costs, Display Only

These fields display the adjusted cost estimates ($1,000/mile) for four categories of construction cost. These values are calculated by the system. These calculated results depend on cost data updates and can change as updates happen. The Bridge cost field for bridges only displays the cost of the bridge ($1,000). The full bridge cost is displayed, not the per foot cost.

FIELD 41, Drainage Condition

For existing roads only, enter the code that best describes the condition of drainage structures, ditches, dikes, etc., for the section of road being inventoried.

Code	Drainage Condition
0	Unimproved road
1	Severe drainage problems, (roadway pipes, etc., are poor)
2	Drainage problems for short periods during or following storms that are normal to the area.
3	Drainage excellent (roadway pipes good and generally the drainage features are adequate).

FIELD 42, Shoulder Condition

For existing roads only, enter the code that best represents the condition of shoulders for the section of road being inventoried. Enter zero for a road with no shoulders.

Code	Shoulder Condition
0	No shoulders.
1	Shoulder Condition critical, not repairable by normal maintenance procedures, reconstruction eminent for safety of users and protection of traffic lanes.
2	Shoulder condition tolerable with no critical condition apparent.
3	Shoulder condition excellent and adequate as regards regularity, uniformity, width, and uniformity of cross section and usable by drivers if required.

FIELD 43, Number of Railroad Crossings

Enter the actual number of railroad crossings (0-9) encountered in the road section being inventoried. RIFDS will eventually accept a two-digit number in this field. Until then, enter nine when there are 10 or more railroad crossings in the section.

FIELD 44, Type of Railroad Crossings

Enter the code that best describes the railroad crossings encountered in the road section being inventoried. When two or more codes apply, select the code that is representative of the worst type or condition. If there are no railroad crossings in this section, then leave this field blank.

Code	Type of Railroad Crossing
1	Single track with gates
2	Single track with automatic signals
3	Single track with watchman
4	Single track with cross-bucks
5	Multiple tracks with gate
6	Multiple tracks with automatic gate
7	Multiple tracks with watchman
8	Multiple tracks with cross-bucks
9	Other

FIELD 45, ROW Utility

Enter the numerical code that indicates the type of utility within the ROW or anticipated ROW.

Code	ROW Utility
0	None
1	Underground utility.
2	Surface or above ground utility.
3	Both

FIELD 46, Right-Of-Way Cost

Enter the estimated right of way cost in units of$1,000/mile.

FIELD 47, Level of Maintenance

Enter the code that represents the maintenance level intended for the road section being inventoried. If further guidance is needed, see *Road Maintenance Manual 58 BIAM 1.3G.*

Code	Level of maintenance
1	Little or none 0 to 9%
2	Occasional 10% to 49%
3	Limited 50% to 89%
4	Optimum 90% to 100%

FIELD 48, Snow and Ice Control

If the road is proposed or not BIA owned (ownership = 1), this field is optional.

When the section is BIA-owned, enter the code that best represents the anticipated general snow conditions and surface bare maintenance operations carried out to combat these conditions on the section of road being inventoried, including Class 3 (streets). The code selected for a given section should be determined objectively based upon the snow conditions generally prevailing on the section.

Using the table below, cross-reference the maintenance category with the description of winter weather severity to determine the snow-ice removal code.

Keep these facts in mind:

The **Surface Bare** maintenance category should be considered for Class 2 or major Class 3 village streets with Type 1 surfacing (Mat or Plant Mix).

The **Center Bare** maintenance category should be considered for Class 2 or major Class 3 village streets with Bituminous Surface Treatments (Prime or Penetration) and for Major Class 4 graveled roads.

The **Snow Packed** maintenance category should be considered for all classes of gravel-surfaced roads with minor traffic. It should also be considered for all earth type surfaced roads, regardless of class, in order to prevent loss of grade or gravel surface material.

Maintenance category or description	Frequent and Heavy Snow (More than 5 storms/season greater than 8 inches snow depth or blizzard conditions normal).	Infrequent and /or medium to Heavy snowfall (Less than 5 storms/season, not generally more than 8 inches snowfall per storm).	Light snows either frequent or infrequent (Generally less than 3 inches snowfall each storm).
Surface Bare	6	5	1
Center Bare	4	3	0
Snow Pack	3	2	0
Special or Emergency only	2	1	0
No Snow and Ice removal	0	0	0

FIELD 49, Beginning and Ending Latitude and Longitude

49a, Begin Latitude

The latitude in degrees of the centerline at the start of the section.

49b, Begin Longitude

The longitude in degrees of the centerline at the start of the section.

49c, New Field, End Latitude

The latitude in degrees of the centerline at the end of the section.

49d, New Field, End Longitude

The longitude in degrees of the centerline at the end of the section.

FIELD 50, Atlas Map No.

Enter number of the atlas map on which all or the predominate part of this section appears or, for proposed roads, would appear. Each set of atlas maps has its own set of sheet numbers. Use the sheet number that appears in the margin in the lower right corner. This field required leading zeros. For example, a sheet shown as SHEET 2 of 7 is entered as "02".

FIELD 51, Maximum Grade Condition (Grade Deficiencies)

For existing roads only, enter the code representing the percent (%) of section length having grades greater than the maximum allowable grade reflected in the assigned adequacy design standard.

Code	Description
1	Over 50% than maximum allowable
2	41-50% than maximum allowable
3	31-40% than maximum allowable
4	21-30% than maximum allowable
5	11-20% than maximum allowable
6	1-10% than maximum allowable
7	None greater than maximum allowable

FIELD 52, P.S.D. Allowable (Sight Deficiencies)

For existing roads only, enter the code representing the percent (by length) of the section being inventoried that meets the passing sight distance requirements set out in the assigned adequacy designed standard. In other words, if L is the length of the section, and P is the length of the section that meets PSD requirements, then calculate 100*P/L and determine the code to report from the following table.

Code	PSD Allowable
0	0-9% of section meets or exceeds requirements
1	10-29% of section meets or exceeds requirements
2	30-49% of section meets or exceeds requirements
3	50-69% of section meets or exceeds requirements
4	70-89% of section meets or exceeds requirements
5	90-100% of section meets or exceeds requirements

FIELD 53, No. Of Curves > Max. Allowable (Curve Deficiencies)

For existing roads only, enter the actual number curves, in the section being inventoried, with a degree of curvature sharper than allowable as set out in the assigned adequacy design standard.

FIELD 54, No. Of Stopping Restrictions (Stopping Deficiencies)

For existing roads only, enter the actual number of instances where stopping sight distances, in the section being inventoried, are less than the minimums allowed under the assigned adequacy design standard.

FIELD 55, Safety Study

For existing roads only, enter the code that represents the described safety deficiencies, or absence thereof, encountered in the road section being inventoried.

Code	Safety Study
0	No unsafe conditions occur.
1	Structure that restricts roadway width (bridges less than 20' long).
2	Bad bridge approach alignment.
3	Unexpected sharp curves.
4	Abrupt or severe grade changes.
5	Blind railroad crossings.
6	Blind intersections.
7	Combination of above.
8	Any other condition.
9	Primitive or unimproved road.

FIELD 56, Road Purpose Code

Enter the code that best represents the purpose of section of road.

Code	Road Purpose Code
A	General (regular roads)
B	Forest-Logging
C	Administrative
D	Fire Controls
E	Recreational-Annual
F	Recreational-seasonal
G	Irrigation-Administrative
H	Irrigation-Field Access
J	Administrative-Compound
K	Administrative-Utility
L	Resource-Gravel
M	Resource-Coal
N	Resource-Oil
P	Resource-Mineral
R	Cemetery
S	Dump Ground
T	Land Use (Ranching or farming)
U	Inter-community
V	HUD Housing Access
W	Others
other	A number of other codes are being employed for special purposes. Do not use any of these other codes with new updates.

FIELD 57, Date of Construction Change

Enter the actual calendar year in which the construction change occurred. Only those construction changes that affect the structural strength of the section or the constructed sub-grade will be considered. A seal coat does not affect the structural strength enough to be considered a construction change. If the actual date is not known and is before 1960, enter 1959. Leave this field blank if the road has never been graded or drained.

FIELD 58, Date of Update, Display Only

This field is misnamed. It contains only the year of update and it is maintained automatically by the system. The computer will set the Date of Update to the fiscal year of the data when an update is approved at the BIA DOT.

FIELD 59, Field Remarks

The remark field can hold up to 2000 characters. It is used for communication between the field, the region, and the BIA DOT. Whenever a section is returned to the region or the field, a remark is entered here. The remark is prepended to whatever contents may already have been in the field, so eventually, old remarks will fall off the end of the field. In other words, this field can be used to hold general field remarks,

but after several cycles of update, there is a danger that such remarks will be lost.

FIELD 59, BIADOT Remarks

The remark field can hold up to 2000 characters. It is used for communication between BIADOT and the Region. Whenever a section is returned to the region or the field, a remark is entered here. This field can only be accessed by BIADOT personnel.

Appendix A. BIA Methodology for Rating Wearing Surfaces

There are several nationally acceptable methods of assigning values of 0 to 5 to the surface condition. If the necessary equipment is not available to use one of these methods, then use the method as detailed in the *BIA Maintenance Handbook.* A brief description of this method follows.

There is one method for gravel roads and another method for paved (asphalt) roads. In each case, use the worksheet that matches the pavement for the section being inventoried. Rate all items on the worksheet, except possibly "other." See the boxed text if using the "other" item. An item is rated by entering a number from 0.0 to 5.0 that s determined from the Severe, Moderate, and Slight guidelines on the next several pages. After all the items are rated calculate the average. This is the number to be reported as the wearing surface rating.

Both sets have a criterion called "Other" which may be defined as any item that causes a loss of structural ability or riding surface. Examples of such items are drainage structure failures, drainage ditches and sub-grade failure. When using the item "Other," define the factors in determining severity under Remarks, Forms BIA-5806 and BIA-5807 April 1983.

GRAVEL WORKSHEET

ITEMS RATED	RATING
LOSS OF GRAVEL	
RUTTING	
CORRUGATIONS	
GRADE DEPRESSION AND UPHEAVAL	
INCLEMENT WEATHER	
OTHER	
AVERAGE	

PAVEMENT WORKSHEET

ITEMS RATED	RATING
LONGITUDINAL CRACKING	
TRANSVERSE CRACKING	
ALLIGATOR CRACKING	
GRADE DEPRESSION	
RUTTING	
CORRUGATIONS	
RAVELING	
BLEEDING	
PATCHING	
OTHER	
AVERAGE	

FACTORS USED IN THE GRAVEL RATING

Loss of Gravel—A loss of gravel from the original thickness due primarily to traffic and erosion.

Slight	A loss of less than 20% of the original thickness, but never less than 4-inch remaining.
Moderate	A loss of 20% to 40% of the original thickness, but never less than 3-inch remaining.
Severe	A loss over 40% of the original thickness, but never less than 2-inch remaining

Rutting—An obvious depression in the aggregate surface or sub-grade normally found in the wheel paths parallel to the side of the road.

Slight	Depression measures less than 1-inch deep.
Moderate	Depression measures more than 1-inch deep but not deep enough to prevent easy steering of a vehicle.
Severe	Depression is deep enough to prevent easy steering of a vehicle.

Corrugations—Ripples is visible in the aggregate surface perpendicular to the direction of traffic.

Slight	Ripples are visible.
Moderate	Ripples create a bumpy ride, but do not require the vehicle to reduce speed.
Severe	Ripples are prevalent enough to require the vehicle to reduce speed.

Grade Depression and Upheaval (Holes and Freeze-Thaw Action)—Depression (holes) in the gravel surface that vary in size and depth, which are created by a loss of surface material or shrinkage of the sub-grade. Upheaval (Freeze-Thaw Action) is the localized upward displacement of the gravel due to the swelling of the sub-grade or some portion of the gravel structure.

Slight	Holes or hump measure 1-inch or less.
Moderate	Holes or hump measure over 1-inch, but are not enough to prevent easy steering of a vehicle.
Severe	Holes or hump is enough to prevent easy steering of a vehicle.

Inclement Weather—During periods of wet weather a road may become hazardous or impassable due to soil mixed with the gravel surface.

Slight	Road becomes muddy but there is no loss of steering of a vehicle.
Moderate	Road becomes muddy and vehicle must reduce speed to steer safely.
Severe	Road becomes muddy, hazardous and possibly impassable.

FACTORS USED IN THE PAVEMENT RATING

Longitudinal Cracking—Cracks are in the pavement parallel to the direction of traffic.

Slight	Cracks are barely visible.
Moderate	Cracks are more than 1/2-inch wide in some places, but the sides of the cracks are not fully separated.
Severe	Cracks are wide enough that the sides are fully separated.

Transverse Cracking—Cracks are in the pavement perpendicular to the direction of traffic.

Slight	Cracks are barely visible.
Moderate	Cracks are more than 1/4-inch wide in some places, but the sides of the cracks are not fully separated.
Severe	Cracks are wide enough that the sides are fully separated.

Alligator Cracking—Cracks are in the pavement in a pattern similar to an alligator's skin or chicken wire.

Slight	Cracks barely visible.
Moderate	Cracks more than 1/4-inch wide in some places, but the sides of the crack are not fully separated.
Severe	Cracks wide enough that the sides are fully separated, and there may be a loss of pavement.

Grade Depression (Upheaval and Faulting)—Upheaval is the localized upward displacement of a pavement due to swelling of the sub-grade or some portion of the pavement structure. Faulting is a localized low area of limited size, which may or may not be accompanied by cracking.

Slight	Depression and hump measures less than 1/2-inch.
Moderate	Depression and hump measures approximately 1/2 to 1-inch but not enough to prevent easy steering of a vehicle.
Severe	Depression and hump deviation is enough to prevent easy steering of a vehicle.

Rutting—An obvious depression in the pavement normally found in the wheel paths parallel to the side of the road.

Slight	Depression measures less than 1/2-inch deep.
Moderate	Depression measures less than 1/2 to 1-inch deep but not deep enough to prevent easy steering of a vehicle.
Severe	Depression is deep enough to prevent easy steering of a vehicle.

Corrugations—Ripples is visible in the pavement perpendicular to the direction of traffic.

Slight	Ripples are visible.
Moderate	Ripples are visible but do not require the vehicle to reduce speed.
Severe	Ripples are prevalent enough to require the vehicle to reduce speed.

Raveling—A breaking of the surface with visibly loose pieces of aggregate.

Slight	A few pieces of aggregate are visibly dislodged from the pavement surface and are loosely sitting above the road surface.
Moderate	Pieces of loose aggregate are present enough to cover wide areas of the road's surface.
Severe	Pieces of loose aggregate are so prevalent that they cause the road's surface to be rough enough to be noticeable when driving a vehicle over the road.

Bleeding—Bleeding is the upward movement of asphalt in the asphalt pavement resulting in the information of a film of asphalt covering the surface aggregates?

Slight	Liquid asphalt is barely noticeable in its covering of the aggregates.
Moderate	Asphalt is covering large areas of the aggregate and is sticky in hot weather.
Severe	Liquid asphalt is totally covering the aggregate and tire tracks can be seen in the asphalt surface during hot weather.

Surface Deterioration (Patching)—Potholes, utility cuts, or other major failures in the road surface, which have been repaired.

Slight	Patch is level with the pavement and shows no sign of deterioration.
Moderate	Patch is somewhat deteriorated but not enough to require a vehicle to reduce speed.
Severe	Patch is deteriorated enough to reduce a vehicle's speed or a new pothole that has not been repaired.

TABLE 1 - ADEQUATE STANDARD CHARACTERISTICS

The cost to construct of a particular transportation facility is defined as the cost required to improve the transportation facility from its existing condition to a condition that would meet the Adequate Standard Characteristics. Table 1 presents the Adequate Standard Characteristics.

ADEQUATE STANDARD NUMBER	1 2 3	4 5 6	7 8 9	10 11 12	13 14 15	16	17	18	19	20	21	
TERRAIN***	(1) (2) (3)	(1) (2) (3)	(1) (2) (3)	(1) (2) (3)	(1) (2) (3)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FUTURE ADT used in ADS assignment	N/A	FADT>=400	FADT<400	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BIA CLASS	1 MAJOR ARTERIAL	2 RURAL MINOR ARTERIALS		4 RURAL MAJOR COLLECTOR	5 RURAL LOCAL	6 CITY MINOR ARTERIAL	7 CITY COLLECTOR	3* CITY LOCAL	8 MOTORIZED/ NON-MOTORIZED TRAILS	9 OTHER TRANSPOR-TATION FACILITIES	10 AIRSTRIPS	11 Overlapping Routes
CALCULATED VALUES												
FUTURE SURFACE TYPE (EXISTING)	PAVED	PAVED	FAVED	FADT UNDER 50 -EARTH FADT 50-250 - GRAVEL FADT OVER 250 - PAVED		FADT UNDER 50 -EARTH FADT 50-250 - GRAVEL FADT OVER 250 - PAVED			DEPENDS ON FACILITY	N/A	N/A	N/A
FUTURE SURFACE TYPE (PROPOSED)	PAVED	PAVED	FAVED	FADT UNDER 50 -EARTH FADT 50-250 - GRAVEL FADT OVER 250 - PAVED	FADT UNDER 50 - EARTH FADT 50-400 – GRAVEL FADT OVER 400 - PAVED	FADT UNDER 50 -EARTH FADT 50-250 - GRAVEL FADT OVER 250 - PAVED			DEPENDS ON FACILITY	N/A	N/A	N/A
DEFAULT CURRENT ADT /DEFAULT FUTURE ADT**	must exist	ADT 100 FADT 149		ADT 50 FADT 74	ADT 50 FADT 74	ADT 50 FADT 74	ADT 50 FADT 74	ADT 25 FADT 37	ADT 20 FADT 30	N/A	N/A	N/A
RECOMMENDED DESIGN												
MINIMUM ROADWAY WIDTH (INCLUDING SHOULDERS)	66'	36'	32'	32'	28'	50' TOTAL PARKING 7' TURNING 12'	21' TO 38' DEPENDING ON TURNING LANES AND PARKING		DEPENDS ON FACILITY	N/A	N/A	N/A
SHOULDER WIDTH	6' MINIMUM	6'	4'	4'	2'	N/A			N/A	N/A	N/A	N/A
SHOULDER TYPE	PAVED	PAVED	FAVED	PAVED/GRAVEL/EARTH		N/A			N/A	N/A	N/A	N/A

* Local Class 3 roads may be earth, gravel or paved, depending on tribal customs, economics, or environmental considerations.

** Use default future ADT for proposed roads or where impractical to acquire ADT or ADT does not exist. (See Table 2 Default ADT and Default Future ADT). Where current ADT is practical to acquire, it should be acquired and projected to a future ADT at 2 per cent per year for 20 years.

*** (1)=Flat; (2)=Rolling; (3)=Mountainous

Appendix C Future Surface Type Calculation.

TABLE 3.—FUTURE SURFACE TYPE

Const. need	IRR class No.	Future ADT	Future surface type
0,1,2,3	1	Any	Paved
0,1,2,3	2	Any	Paved
0,1,2,3	3,6,7	< 50	Earth
		50 – 250	Gravel
		> 250	Paved
0,1,2,3	4,5	< 50	Earth
		50 – 250	Gravel
		> 250	Paved
0,1,2,3,4	8	N/A	N/A*
0,1,2,3,4	9	N/A	N/A**
0,1,2,3,4	10	N/A	N/A***
4***	1	N/A****	N/A****
4	2	ANY	Paved
4	3,6,7	< 50	Earth
		50 – 250	Gravel
		> 250	Paved
4	4	< 50	Earth
		50 – 250	Gravel
		> 250	Paved
4	5	< 50	Earth
		50 – 250	Gravel
		> 250	Paved

*Class 8 does not have a future surface type. Per mile costs are applied independent of future surface type.
**Class 9 does not have a future surface type. Costs are independent of future surface type.
***Class 10 does not have a future surface type. These are airstrips and is used for identification purposed only.
**** Class 1 with Construction Need of 4 does not apply. Class 1 roads must exist.

Appendix D Required, Optional, Derived and Forbidden Fields

	Class	1,2,4,5		3,6,7		8,9		10	Bridges		11
	Construction Need	0,1,2,3	4	0,1,2,3	4	0,1,2,3	4	All	0,1,2,3	4	All
1-3	Region, Agency, Reservation	R	R	R	R	R	R	R	R	R	R
4	Route Number	R	R	R	R	R	R	R	R	R	R
5	Section Number	R	R	R	R	R	R	R	R	R	R
6	Class	R	R	R	R	R	R	R	R	R	R
7	Length	R	R	R	R	R	R	R	F	F	R
8	Bridge Number	F	F	F	F	F	F	F	R	R	F
9	Bridge Condition	F	F	F	F	F	F	F	R	R	F
10	Bridge Length	F	F	F	F	F	F	F	R	R	F
11	County	R	R	R	R	R	R	R	R	R	F
12	Congressional District	R	R	R	R	R	R	R	R	R	F
13	State	R	R	R	R	R	R	R	R	R	F
14	Ownership	R	R	R	R	R	R	R	R	R	F
15	Construction Need	R	R	R	R	R	R	R	R	R	F
16	Terrain	R	R	F	F	F	F	F	F	F	F
17	Foundation/Roadbed Condition	R	R	R	R	F	F	F	F	F	F
18	Wearing Surface Condition/SCI	R	R	R	R	F	F	F	F	F	F
19	Surface Width	R	R	R	R	R	R	O	F	F	F
20	Surface Type	R	R	R	R	R	R	O	F	F	F
21	Federal Aid Category	R	R	R	R	R	R	F	F	F	F
22	ROW Status Code	R	R	R	R	R	R	F	F	F	F
23	ROW Width	R	R	R	R	R	R	F	F	F	F
24	CTC Percent Eligible	C1	C1	C1	C1	C1	C1	F	C1	C1	F
25	% Incidental Cost	C2	C2	C2	C2	C2	C2	F	F	F	F
26	Shoulder Width	R	R	R	R	F	F	F	F	F	F
27	Shoulder Type	C3	C3	C3	C3	F	F	F	F	F	F
28	ADT	C4	C4	C4	C4	C4	C4	F	F	F	F
29	ADT Year	C5	C5	C5	C5	C5	C5	F	F	F	F
30	% Trucks	C6	C6	C6	C6	F	F	F	F	F	F
31	Owner Number	C7	C7	C7	C7	C7	F	F	F	F	F
32	Roadway Width	D	D	D	D	D	D	D	F	F	F
33	ADT EST Year + 20 (FADT)	D	D	D	D	D	D	F	F	F	F
34	Adequate Design Standard ADS	D	D	D	D	D	D	D	F	F	F
35	Future Surface Type	D	D	D	D	F	F	F	F	F	F
36-40	Five Adj. Construction Costs	D	D	D	D	D	D	D	F	F	F
41	Drainage Condition	O	F	O	F	O	F	F	F	F	F
42	Shoulder Condition	O	F	O	F	O	F	F	F	F	F
43	# RR Xing	O	F	O	F	O	F	F	F	F	F
44	RR Xing Type	C8	F	C8	F	C8	F	F	F	F	F
45	ROW Utility Code	O	F	O	F	O	F	F	F	F	F
46	ROW Cost	O	F	O	F	O	F	F	F	F	F
47	Level of Maintenance	O	F	O	F	O	F	F	F	F	F
48	Snow and Ice Control	O	F	O	F	O	F	F	F	F	F
49	Beg and End Lat & Long	O	O	O	O	O	O	O	O	O	F
50	Atlas Map Number	O	O	O	O	O	O	O	O	O	O
51	Grade Deficiencies	O	F	O	F	O	F	F	F	F	F
52	Sight Deficiencies	O	F	O	F	O	F	F	F	F	F
53	Curve Deficiencies	O	F	O	F	O	F	F	F	F	F
54	Stopping Deficiencies	O	F	O	F	O	F	F	F	F	F
55	Safety Study	O	F	O	F	O	F	F	F	F	F
56	Road Purpose Code	O	F	O	F	O	F	F	F	F	F
57	Date of Construction Change	R	F	R	F	R	F	F	F	F	F
58	Date of Update	D	D	D	D	D	D	D	D	D	D
59	Field Remarks	O	O	O	O	O	O	O	O	O	O
60	BIADOT Remarks (BIADOT USE ONLY)	F	F	F	F	F	F	F	F	F	F

Optional fields are maintained by the field and reviewed by the Regions for applicability and correctness. It is the responsibility of the Regions to maintain these fields for management purposes. Updates to these fields will be saved to the database at the field level and do not require submission and subsequent approval by BIADOT.

C1 Defaults will be assigned. If a value other than the default is required then the update will require the statement of Inability to Provide Funding attachment.

C2 The Default of zero will be assigned. If a value greater than zero is entered then the update will require the Incidental Cost Verification attachment.

C3 Required if shoulder width is greater than zero.

C4 Required if update requires other than default value, forbidden for class 9.

C5 Required if ADT is greater than zero and is not the default.

C6 Required if ADT is greater than zero and is not the default.

C7 Required if owner is other than BIA

C8 Required if # of RR Xing is greater than zero.

	REQUIRED
	FORBIDDEN
	OPTIONAL
	DERIVED
	CONDITIONALLY REQUIRED

APPENDIX B

Yurok Transportation History

Table of Contents

Figures

A History of Transportation on the Yurok Indian Reservation
Humboldt and Del Norte Counties, California

I. Yurok Transportation History Pre-Contact Era

The traditional names for the Yurok people living on the upper region of the Klamath River, lower region of the Klamath River, and the coast within Yurok Ancestral Territory are the Petch-ik-lah, Pohlik-la, and Nr'r'nr, respectively. However, they have come to be known as the Yurok, which is the Karuk name meaning "downriver." The ancestral territory of the Yurok people is comprised of a narrow strip along the Pacific Ocean stretching north from the village on the Little River (*me'tsko* or *srepor*) in Humboldt County to the mouth of Damnation Creek in Del Norte County. In addition to the Yurok coastal lands, Yurok ancestral territory extends inland along the Klamath River from the mouth of the river at Requa (*re'kwoi*) to the confluence of Slate Creek and the Klamath River (Constitution of the Yurok Tribe Art. 1, Sec. 1). Within this ancestral territory there are approximately seventy-four known villages, which are situated along the banks of the Klamath or along the ocean streams and lagoons (Kroeber 1925:8, Waterman 1920, Pilling 1978). Many of these villages were permanent settlements, particularly the villages where ceremonial dances were held, while others were only temporarily inhabited. Each village had its own geographical boundaries, as well as its own leaders who governed various sites and activities within the village. These sites included fishing and hunting spots, permanent home sites, seasonal sites, gathering areas, training grounds, and spiritual power sites.

Although all the villages within Yurok Ancestral Territory are culturally and jurisdictionally Yurok, there is a distinction between those Yuroks residing within river villages and those along the coast. Coastal Yuroks living south of the mouth of Redwood Creek (*orekw*) are commonly referred to as Nr'r'nr, which describes a slight difference in dialect extending from Redwood Creek in the north to *tsurai* and *me'tsko* in the south. The villages on the coast are primarily concentrated around lagoons and ocean streams. A prime example of such a concentration is the many villages that are located around Big Lagoon. Prehistorically, the largest concentration of occupants were located in the villages along the river, while the total number of houses in the coast villages were approximately one-third the number in river villages (Waterman 1920: 184). Therefore, the Klamath River plays a vital role in Yurok culture, providing sustenance, in the form of salmon, sturgeon, eels and steelhead; in defining proper methods for treating the deceased; for ceremonies, such as the Boat Dance; in communication and trade; for providing some of the necessary plant products for the manufacture of Yurok material culture; and in maintaining the central transportation route between the villages lining the riverbanks, as well as to the ocean.

The significance of the Klamath River to Yurok culture and thought is illustrated in Yurok geography. The Yurok had no cardinal directions (north, south, east or west), but instead oriented themselves in terms of the River and flow of water. *Pul* means downriver or downstream, *pets* means upriver or upstream, *hiko* means across the stream, *won* means away from the stream, *wohpe* means across the ocean (Kroeber 1925:15), *he'Lqau* means away from the water, and when on the sea, *he'Lqau* means ashore (Waterman 1920: 194). All features in villages, Yurok homes, and landscape are described in terms of their relationship to the River. For instance, a house would not have its door on the western corner, but rather the downriver corner. In the village *yoxtr,*

the three house names that Waterman (1920) obtained were *wogi, hipur,* and *pets,* meaning in the middle, downriver, and upriver respectively (244). This relationship between the river and directionality is further illustrated in that it has been reported that an elderly Yurok woman referred to her stove burners and knobs as the upriver and downriver burners, effectively aligning the cook, stove, and house in relation to the directional flow of the river (Hinton 1994).

As the Yurok people lived along the rivers and ocean, canoes were one of the principle modes of transportation. Redwood dugout canoes were used for fishing and travel, and they also play a role in the world renewal ceremonies. Because they are made only of Redwood, which was restricted to the coast, canoes were produced only by the Yurok, Tolowa, and Wiyot and traded primarily to the upriver Hupa and Karuk. However, Yurok canoes were traded as far south as Cape Mendocino and as far north as Port Orford (Gibbs 1853: 9).

Figure 10 - Traditional Redwood Canoe

Although their length varied, the dimensions of a river canoe seem to have been standardized between sixteen to twenty feet long, three to four feet wide, and ten to twenty inches deep. A canoe of this size can carry about five or six adults (See Thompson 1916: 33-35 for the construction and tools used on building a Yurok canoe). In addition to the usual riverine version, Tolowa and coastal Yurok made large seagoing dugout canoes, thirty to forty feet long, six to eight feet in beam, and three feet deep. These ocean-going canoes could haul up to five tons of cargo and were customarily paddled by five to twenty paddlers and an oarsman who steered the boat from the back. The oarsman was also the headman or, *poyweson,* who had the financial and persuasive background to coordinate ocean-going expeditions. Ocean canoes were primarily used along the coast and in the Klamath, Little River, and Redwood Creek estuaries to harvest mussels, coastal shellfish, salmon, lingcod, seals, otter, and sea lions, as well as for coastal trading (Beasely and Mount (n.d.)). Although the Yurok primarily stay away from open water, there are historic accounts of expeditions traveling 180 miles along the coast (Powers 1871).

The use of dentalia shells as currency among the Yurok are indicative of such travel, as well as of wide trade and exchange along the coast because these shells originated offshore of Vancouver Island far to the north. Moreover, the use of dentalia as currency along the Klamath River far upriver from Yurok territory indicates that intertribal trade along the river was quite extensive (Davis 1963:7). Such intertribal riverine trade with the Karuk and Shasta is also evident in the trade of goods, such as obsidian, coastal shells such as Olivella, clam, mussel and abalone, tobacco seeds, juniper beads, white deerskins, woodpecker scalps, sugar pin nuts, elk antler, baskets, redwood canoes,

acorns, salt, and seaweed (Davis 1963:49-50).

There is a Yurok story about the origin of the canoe, told to Anthropologist A.L. Kroeber by Captain Robert Spott of *re'kwoi* during ethnological interviews Kroeber conducted among the Yurok from 1900 to 1908. The story reveals a discussion between *Pulekukwerek* and *Wohpekumeu*, two principal figures in Yurok mythology that inhabited the earth during the time of the *woge*, humanoid beings that reluctantly yielded the earth to humans (See "Departure of the Woge", Kroeber 1976: 445-446). This "Origin of Boats" has been captured in *Yurok Myths* (1976).

> Sky-Owner, Pulekukwerek, and Wohpekumeu did not know how the river would be crossed. Pulekukwerek said, "What shall we do that persons may cross? How will they live? I do not know." Wohpekumeu did not know. They had no wood. Then suddenly someone grew up quickly there. He said, "That is what I came for. I can be used for boats. They will make boats of me and cross the river." Pulekukwerek said, "What is your name?" He said, "Do you know my name?" Pulekukwerek said, "No, but I would like to know." He said, "I am called Redwood." Pulekukwerek said, "It is good that you grew so quickly. Now persons will live (properly)." Redwood said, "I want them to put pitch on my head. I want them also to put pitch on my stern, and I want a withe around my neck. That is the way I like it." Then Pulekukwerek told him, "Yes, that is good. That is how they will use you" (Kroeber 1976: 427-428).

Thus, Redwood gave himself to be used for the construction of Yurok canoes. As such, all Yurok dugout canoes are considered to have a living spirit. They are carved to reflect the human body, and have eyes, a nose, lungs, a heart, a belly, and kidneys. A traditional Yurok canoe has these physical elements in it, reflecting the belief that it is a living being (Ortiz 1991:15). If the boat is without a heart it is said to be lifeless and would surely sink or be involved in a disaster, that is why no Yurok would traditionally enter into a canoe that did not have a heart (Thompson 1916: 94). In addition, boats are highly regarded in spiritual terms and there are many taboos and rules associated with boat etiquette. For example, if a person carelessly lands their boat, or allows it to bump into rocks, it was believed that person would not live long. Furthermore, the procurement of redwood for boats to be used for ceremonial purposes required specific formulas. Selected redwood logs were not carved in their original location, but rather were transported downriver and built into a ceremonial structure at a specific location (Heffner 1986: 25-26).

In dangerous waters, canoes were asked for help and encouraged to make a safe trip. Songs and formulas were known for keeping a canoe out of danger, especially on the ocean (Waterman 1920:186). Captain Spott tells a story of *Pulekukwerek* singing a song at *re'kwoi* to calm the waters (See "Pulekukwerek at Rekwoi," Kroeber 1976: 423-424). There is also a taboo against human beings going in a canoe downriver or across-river abreast. Only when they wear feathers and dance, such as in the Boat Dance, may people travel in boats abreast. And this may only be done when the *woge* are not doing it (See "Ten Boats," Spott and Kroeber 1942: 217-218). Another taboo in relationship to the river is that the dead are to be transported upriver in a canoe with their head downstream until they arrive at the village of *erner,* located at the mouth of Blue Creek. After arriving at *erner*, the head of the dead is to face upstream as the canoe continues upriver (Kroeber 1976: 290). In addition, there are eighteen rocks along the river where

one transporting the dead must stop and perform certain acts (See “Origin of Death” and “Death Purification”, Kroeber 1976: 289-291 and 305-307).

The significance of the River and the role of the canoe are further illustrated in the Yurok belief of traveling to the afterlife. As Thompson reveals,

> On the shore of this mysterious River of Death awaits a young man, Pa-ga-rick, in his canoe; he is always ready to receive the soul from the old woman as she hands it into his care. His canoe is similar in shape and size to the earthly Indian canoes, with the exception that, one may note carefully all the [earthly] canoes contain in the bow a knob in the center, some three feet back form the bow, which is the heart; and they say it is the life of the boat. Also, the canoe the Indians use is burned inside and out, and polished smooth. The canoe that Pa-ga-rick uses for the crossing of the souls is neither burned or polished and has no heart; therefore it is called the dead boat, Merm-ma (Thompson 1916: 94).

Merriam (1967), expands on this story of where the dead travel saying the Yurok believe that the dead travel across the river of the dead in a half-canoe before arriving at *Cher-rik-kuk*. At the opposite shore, the spirit is met by the other spirits of the dead who check to see if the spirit belongs with them. If the spirit is recognized, it is accepted in *Cher-rik-kuk* (Merriam 1967:176). A man from the village of *turip* once broke the boat that leads people across the river of the dead in anger that his sweetheart had passed. For ten years no one died because there was no boat to ferry them across (See “Visit to the Dead”, Kroeber 1925: 422).

Although the river was a primary means of transportation, an elaborate trail system was also heavily utilized. These trails were more than a way of getting from point A to point B. Rather they were a way of “going around”, of conversing, and as a way of being Yurok (Gates 1995: 7). Yurok also consider these footpaths “like people” and must be treated with respect. If you stepped out of a trail, the Yurok believe that the trail will become resentful. Medicinal formulas are said to exist for lightening the traveler’s burden, making them feel “light” so they could walk far without fatigue (Waterman 1920:185). However, heavily utilized trails or trails deemed important did have many resting spots where one may stop and catch their breath. Hundreds of these resting places were located along the Yurok trail routes and were usually located in pleasant vistas, as well as near trees in which parties of travelers shot arrows as an offering for good luck on the trail. Such resting places located along trails, as noted by Waterman (1920) include:

- wo’:mots – (234);
- woksē’ï – “large open space with grass,” a resting place on the coast trail (268); and
- pr’grL-o-le’go – “black-walnut where they-rest” (242).

If a traveler stopped somewhere along the trail other than the resting place, they could bring themselves bad luck. Tobacco was also smoked at resting places, which would protect oneself from approaching enemies (Graves 1934), as well as from rattlesnakes (Gates 1995: 389). Another aspect of trail etiquette involved those born of high marriages, which Yurok, Lucy Thompson (Che-Na-Wah Weitch-Ah-Wah) called *Talth*.

Thompson states that when girls born of high marriages met any children of other births along the trail, the latter would always have to get off the trail in order to let the *Talth* pass (Thompson 1916: 24). Lastly, trail etiquette forbad the transport of dead bodies along certain trails, while other trails were designated for such mobility.

Trails travel throughout Yurok ancestral territory, as well as extend into the territories of neighboring Tribes. There are several types of trails, as well as particular words or sayings associated with aspects of trails. For example, *eme'Lnok* is a term used to describe "where trails meet," meaning that these were places where both trails and people met (Waterman 1920: 194). "Where [a] trail goes over" is referred to as *oke'ge* (*Ibid*.) and "where people always pass downward," thus where a trail descends, is referred to as *o-slegoi'ts* (Waterman 1920: 198). Similarly, the term *la'yeqw* refers to a place "by the trail" (Waterman 1920: 211) and *ye'wome'* describes a place in the trail where "he disappears," meaning a place where the trail enters into the forest (Waterman 1920: 242). It is in the dark forest where one should be aware of possible enemies lurking along the trail (Gates 1995: 390).

Beyond terms used to describe particular aspects of Yurok trails, there are particular types of trails as well. These types of trails include those connecting villages, which allows for extensive interaction, communication, intermarriage, trade, and participation in ceremonies. In addition, there are trails extending into hunting and gathering areas, as well as hunting trails utilized by both animals and hunters. Meeting both enemies and lovers along trails was also common (Gates 1995: 399-402). An example of the latter is a place called *wri'L-ego,* meaning "with wife stop," where the implication here is seemingly sexual (Waterman 1920: 245). Trails also play an important role in ceremonial matters, such as in the Deerskin Dance (See Thompson 1916: 134-144); into the High Country where one trains to be a medicine doctor, to prepare oneself for war, to acquire wealth and good luck, or to accomplish a superhuman feat (Gates 1995: 402); as well as trails leading to *tsektsels*, or prayer seats (See Wylie 1976). Trails crisscrossing the High Country include those connecting *wautec* (Johnsons) and *pekwan* with the High Country; Blue Creek to Red Mountain; Stevens Prairie to Starwein Flat; and Blue Creek to Starwein Ridge and Thompson Prairie. Other trails specifically in the High Country connect Doctor Rock, Flint Valley, Elk Valley, Summit Valley, as well as other significant sacred sites to Yurok People (Theodoratus *et al* 1980: 87). There is also a certain path used by beings that have passed from this world. This path is called "Trail of the Dead" and it is the trail taken by disembodied souls on their way to the underworld. Waterman writes, "The place where they "go down" is differently located by different informants, but the entire tribe agrees that the dead go up the hillside at this place. The trail is a geological formation leading up the steep hillside, which a living person could not possibly follow" (Waterman 1920: 235). Although Waterman is not sure about the location of the entrance to the underworld, the trail is located near the village of *turip*. Similarly, Gates discusses another trail of the dead near a lagoon along the coast within Yurok territory (Gates 1995: 407).

The geographic location of Yurok trails is predominately atop ridgelines. In addition, Yurok trails are entrenched into the landscape, are sometimes marked by trailside features, seldom have switchbacks, connect cultural sites, tend to go around spiritual sites, usually are not named (except "The Golden Stairs" and "Trail of the Dead"), may have named trail places, are sentient beings (Gates 1995: 384), and have resting places. Trails and the associated resting areas were designed to flow between various villages, subsistence areas, and ceremonial areas throughout Yurok Ancestral Territory

and beyond. Waterman depicted many of these trails in *Yurok Geography,* however, many of the trails extend outside his map extant, particularly those into the High Country. Moreover, Waterman mapped many trails according to oral Yurok sources and did not travel most of the trails he included. Despite these limitations, nowhere else are Yurok trails mapped so extensively. The following includes all trails within Yurok territory that have been mapped by Waterman (1920) according to the Map Rectangle, beginning at the northern section of Yurok territory, continuing south along the coast, and finally moving inland along the Klamath River. Additionally, it should be noted that *wroi'* is the Yurok word for stream or creek, as it is repeated often.

Rectangle A:

The village of *re'kwoi* (town site of Requa) included a northern trail extending along the coast to the villages of *omen*, near False Klamath Cove and *omen-hipur*, at the mouth of Wilson Creek. This northerly trail continued beyond *omen-hipur* up the coast, with a trail spur extending to the beach. A second trail is also depicted from *omen-hipur* southeast, crossing *ume'gwo* creek, *pu'lik sr'nri* (Hunters) creek, and *he'Lku sr* (Maynot) creek. Just past Maynot Creek approximately a quarter of a mile, the trail forks. The spur leads to the Klamath River and the trail continues in a southerly direction. There is also a trail segment included in Rectangle A from the village of *weL kwa*, which is located on the south side of the mouth of the Klamath River and extends south along the coast.

Rectangle B:

The trail segment that begins at *weL kwa* continues south along the coast, crossing the following creeks; *me'leg wroi', smerkitu'r wroi', ä'monek wroi', o'segen wroi', osrpr' wroi'* (Antler or Butler Creek), and *Lkē'lik wroi'*. According to villages, this trail extends from *weL kwa* to *osegen* and then continues south. At the point *wo':mots*, which is an open hillside directly past *smerkitu'r wroi'* the trail forks, with a spur heading inland to yo'xwtr wroi' (McGarvey Creek) and then following this creek to the Klamath River. In addition, the trail extending from *omen* southeasterly across Maynot Creek, continues to the village of *ho'paw,* crossing *hopäw wroi'* (Hoppow Creek), *omeno'k wroi'*, and *hopäw-pul wroi'* in Rectangle B. Today, Highway 101 generally follows this Yurok trail from *omen* to *ho'paw.* From *hopäw* the trail continues before leaving the map extent at *oloi'L wroi'*. This trail may extend easterly across Turwer Creek and continue east, but the map does not concretely affirm this. There is a separate trail, however, from Turwer Creek east to the village of sä'äL, which then continues off the map in an easterly fashion. The final trail evident in this Rectangle is the Trail of the Dead, which extends away from the Klamath River easterly, between two creeks, *sä''äL-hipe'ts wroi'* and *haägorū-ū-wore"L wroi'*.

Rectangle H:

The trail along the coast continues in this Rectangle, however, it moves slightly inland as it crosses *erkē' wroi'* and *qwo'san wroi'* (Squash Ann Creek). After crossing Squash Ann Creek, the trail continues inland southeasterly, arriving on a ridge top where the trail splits. One fork continues easterly, assumingly to the Klamath River (see Rectangle C). The other branch loops back around in a westerly fashion, before arriving on the coast at the village of *espä*. This coastal trail continues from *espä,* crossing *poiyura' wroi'* and *tohtrme'qw* (Redwood Creek). After crossing Redwood Creek the trail forks again with one spur heading to the village of *oreqw* and the other spur crossing Redwood Creek

again, before heading inland on the north side of Redwood Creek. This inland heading spur, presumably extends to the Klamath River (See Rectangle D). There is also no depiction of a trail across the mountains connecting *espä* and *hoopaw* directly, however, there is discussion of it and, therefore, should be included (Waterman 1920: 261).

Rectangle I:

The trail from *oreqw* continues south along Freshwater Lagoon Spit, which is covered today by Highway 101. This trail continues down the coast along Stone Lagoon Spit to the village of *tsahpek* before meandering near the village of *tsotskwi.* Approximately one-half mile south of *tsotskwi* there is a junction in the trail at the "rock where Thunder lives." One path leads south along the eastern edge of Big Lagoon, before converging at the village of *opyuweg* with the other trail, which continues south on the western spit of Big Lagoon. Although the inland, eastern trail near Big Lagoon passes by the villages of *pä'är, osloqw, ke''xkem,* and *mä''äts*, the trail never enters or passes through these villages. Therefore, it is assumed that there were other trails between these villages, as well as from these villages that extended throughout Yurok territory, however, Waterman does not include these. There is, however, a spur that Waterman does include to the village of *piNpa*, which is located near *opyuweg* at the southern end of Big Lagoon. From *opyweg*, the trail continues south along the coast.

Rectangle J:

The southerly trail along the coast from *opyweg* continues approximately one-half a mile inland along the coast through this Rectangle extant. This trail crosses several creeks, including *neke'L wroi', o-prmr'g wroi', knū'Lkem wroi', Lke'lekep wroi'*, and Mill Creek.

Rectangle K:

This southerly trail continues across Mill Creek to the village of *tsurai*, and continues south through Yurok territory across *he':woli* (creek), *so'xtsin wroi'*, and Luffenholtz Creek to the village of *srepor*. From *srepor* the trail continues across the Little River and heads into Wiyot territory.

Rectangle C:

Moving away from the coast and heading inland along the Klamath River, Waterman's maps begin just northwest of the village of *rliiken-pets*. Trails in this Rectangle include a trail extending from *r'nr wroi'* (Blue Creek) easterly into the High Country with a fork in the trail leading back to the river at the village of *srpr*. Another trail segment is evident approximately one-half a mile south of Ah Pah Creek, which extends from the east, presumably from the village of *espa* on the coast, crossing *rLkr'gr-pets wroi'* and continuing east to the Klamath River.

Rectangle D:

The only trail on the west side of the river in this Rectangle extends, presumably from the coastal village of *oreqw* (See Rectangle H), moving west before arriving at the Klamath River opposite the village of *qootep*. There are many trails on the eastern side of the River, primarily extending into the High Country. The trail extending east from Blue

Creek forks to go south, looping back to the village of *srpr* as previously mentioned, but also forks to head along the river to and between the villages of *woxhero, woxtek, qootep,* and *pekwan*. At *pekwan*, a trail continues along the river, passing through the village of *sregon,* before continuing along the rivercourse. Another trail extends into the High Country from *pekwan* along *srnr'* (the Middle Fork of Pecwan Creek). Additionally, a trail goes from *wr'grs* (acorn-grounds) at the confluence of *pe'tskū-srnr'i* (the South Fork of Pecwan Creek) and the Middle Fork into the High Country. There is a fork in this trail, as well at the top of a hill at *pe'kwan-eme'L-nok* (where trails meet).

Rectangle E:

The trail along the rivercourse continues on the north(east) side of the Klamath through the villages of *himeL, murek, waase, merip, aukweya, tsetskwi,* and *otsap*. The current Highway 169 follows this rivercourse trail from *woxtek* to *tsetskwi*. On the south side of the river there are two trails evident in this Rectangle. The first begins near the *kepel* fish dam and extends into the hills, past *qe'nek-wone'w-o-we''iqūn* (acorn grounds), into an unmarked destination. The second trail goes from *he'sir* (a fishing place), located across the river from the village of *merip*, into several acorn grounds, before merging with the trail traveling from the *kepel* fish dam. Waterman also includes a discussion about trail etiquette when coming to the village of *qe'nek*. *Qe'nek* is the center of the Yurok world and,

> Ordinary people do not dare step around in qe'nek. Visitors used to come as far as the place where the trail crosses Tuley creek (oke'go wroi') and call. Then the people who belonged here would come down and get them, and show them around, so that they might not inadvertently step on some supernatural being's "place" and get into trouble (252 n. 137)

Rectangle F:

This Rectangle depicts a trail from the Klamath River near the confluence of Tuley Creek, extending southwest, presumably into Hupa territory. A second trail moves along the south side of the river, connecting several fishing spots and continuing upriver. This trail is shown to fork near *o-were'qw* (fishing place), just upriver from Martins Ferry, with the spur continuing across the river. It is not certain whether this was a traditional crossing location, however, the map seems to indicate that it was.

Rectangle G:

The final Map of Yurok territory depicted by Waterman includes the confluence of the Klamath and Trinity Rivers. There is one trail extending on the north side of the Klamath River through the villages of *weitspus* and *loolego*, before continuing upriver across *tsi'poi wroi'* (Bluff Creek), Slate Creek, and into Karuk territory. A second trail extends from the village of *rLrgr*, located on the south side of the confluence of the two rivers, along the Trinity River and into Hupa territory.

A mosaic of Waterman's maps that include the current jurisdiction of the Yurok Tribe is included in Appendix A. This mosaic does not, however, include all of Yurok Ancestral Territory as discussed above.

An extensive discussion of Yurok trails has been developed by Gates (1995), including an analysis of Waterman's ethno-geographical data. Gates (1995) found that there is an

estimated 269 linear miles of traditional Yurok trails indicated by Waterman (1920). This does not include an unknown number of miles in trails that Waterman did not discuss. Of those trails indicated by Waterman, Gates analysis found that trails connect 78 villages, settlements, and camps; 159 named rocks, crags, promontories, and seastacks; 101 named landscape features, such as hillsides, cliffs, flats, and points of land; 208 subsistence sites; and 53 other miscellaneous places (Gates 1995: 368). Many of these Yurok trails are now roads, which may first have been developed as military roads, then postal routes, and later improved roads for wagons, and automobile traffic (Davis 1963:8). Of the 269 linear miles of traditional Yurok trails that Waterman discusses, Gates estimates that 52% have been covered with modern gravel and paved roads, of which State and County roads account for 41%; Simpson Timber Company roads for 37%; Six Rivers National Forest Service for 11%; and Redwood National and State Park comprises 11 % (Gates 1995: 368).

II. The Gold Rush of 1848 and Trail Development

During the gold rush period (1848-1853), the principal mining districts in northwestern California were grouped in two areas—the Trinity River mines, of which Weaverville was the center, and the Klamath and Salmon River diggings, of which Orleans Bar was the focal point. It was from the mining on the Trinity that the Gregg party started on the expedition resulting in the re-sighting of Trinidad and Humboldt Bays. Had the towns of the Humboldt Coast been dependent solely upon the trade with the Trinity River mines, they would have been far less prosperous in the 1850's. However, prospectors in June 1850 discovered gold on the Salmon River and two months later made a strike on the Klamath. The coastal towns were ideally situated to exploit this trade.

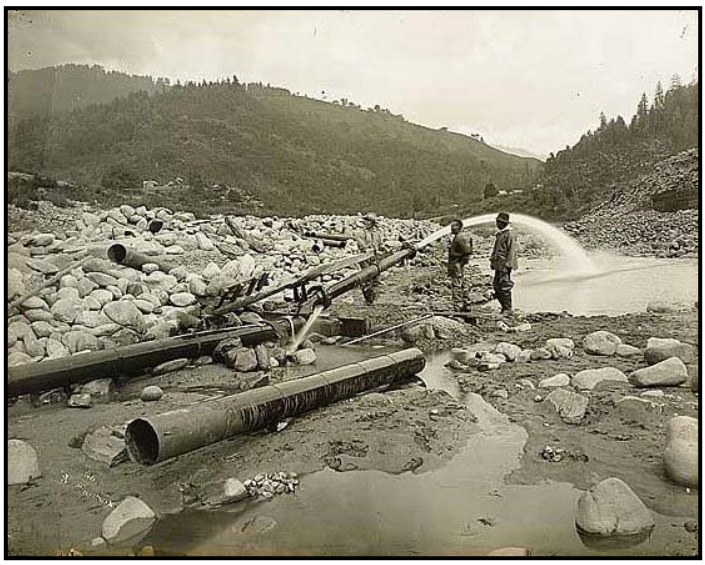

Figure 2 - Hydraulic gold mine near Weitchpec

Within weeks after the establishment of the towns on the Humboldt Coast, trails were cut through the redwoods and across the mountains to the mining regions, oftentimes utilizing preexisting Yurok trails. Trinidad and Uniontown (Arcata) took the lead, as both were well situated geographically as supply stations for the mining of the Klamath and Salmon River districts. Trinidad, the first town established on this reach of the coast, was for a few years the leader in the packing trade, because it was located closer to the Klamath diggings than the others. During the summer of 1850, the packers, utilizing old Yurok trails, opened a route from Trinidad up the coast by Big Lagoon before turning east to the Klamath River and continuing along the river to the mining districts. A shorter trail was later established in July of 1871, which headed more directly to the confluence of the Trinity and Klamath Rivers (Coy 1929: 68-69). This shorter trail, which was to save

between 10-12 miles, was located by the authority of the Board of Supervisors of Klamath County by Captain J.F. Martin, proprietor of Martin's Ferry (Wooden 2005: 6). This trail went northeast from Trinidad, ascending through the Bald Hills to Elk Camp before continuing to the river. This trail continued along the Klamath River for a short distance before crossing. On the other side, the trail continued northeast until it crossed the big bend of the Klamath River where it converged with an old trail at Orleans (Theodoratus *et al.* 1980: 13). The Trinidad trail followed a route dictated by topography, and intersected the route leading up the Klamath from Klamath City to Martins Ferry. From Uniontown two other trails headed east, one to the Klamath mines and one to the Trinity mines. The former led to Orleans Bar via the Bald Hills intersecting the Trinidad trail near the mouth of the Trinity (Coy 1929: 68-69).

High prices were asked and paid for transporting freight to the mining camps. Two dollars a pound was charged for the trip from Trinidad to the Salmon River mines. This raised the price of all imported items to an all-but-prohibitive figure, but the miners had no choice but to pay those exorbitant prices. In November 1851 Indian Agent McKee paid $20 for a hundredweight (112 pounds) of flour at Durkee's Ferry and reported that that was ten dollars under the market price (Coy 1929: 69).

Mule pack trains played a key role in transporting goods from the coast to the inland mining areas. "Gilkeys Express" left Union (previously Uniontown, presently Arcata) every Monday morning, running via Trinidad to Orleans Bar and on to the north fork of the Salmon River (Wright 1986: 19). A loaded pack train took approximately seven days to travel the seventy-eight miles from Union to Orleans. The return trip took over five days (Wright 1986: 13). Another important pack train was owned and operated by Alexander Brizard, who established several stores in Northern California, including three within Yurok territory at Weitchpec, Johnsons, and Requa. Brizard's Stores provided goods to both Indians and non-Indians, as well as purchased or traded for Yurok goods, such as baskets. Brizard's Stores were supplied by mule pack trains until acceptable roads replaced trails. Goods were first brought by train to Blue Lake where they were transported by pack train to the Bald Mountain House, a way station that was located atop the first ridge inland from the coast. From here, goods continued by pack train to the outlying inland stores.

During the Red Cap War of 1855 with the Karuk, pack trains were attacked and traffic over the trail was cut. Supplies at the Klamath and Salmon River mining camps ran short. When peace with the Karuk was restored, traffic improved. To guard the Trinidad trail and to protect the ranches that had been established on the Bald Hills, troops were posted at Elk Camp in 1862 and 1863. These soldiers were supplied by pack trains from Trinidad. The section of the Trinidad trail leading from Big Lagoon, crossing Redwood Creek and ascending the Bald Hills to Elk Camp was abandoned after the construction of the Bald Hills road in the 1890's, connecting Orick with the Bald Hills.

III. Trail from Trinidad to the Mouth of the Klamath

A Yurok trail extending from Trinidad to the mouth of the Klamath River was utilized by early settlers in the spring of 1850. This route allowed communications between the short-lived boomtown of Klamath City and Trinidad. It was the route over which most of the miners reached the Gold Bluffs. In 1862 the Postmaster-General established a mail route from Arcata to Crescent City, via Trinidad and Gold Bluffs and J. F. Denny was awarded the contract as mail carrier.

The Trinidad-Klamath Trail paralleled the beach from Stone Lagoon to Lower Gold Bluff where it forked. While one branch continued up the beach fronting the bluffs, the main trail ascended the ridge north of Major Creek and led eastward to Boyes' Prairie on Prairie Creek, then swinging to the west, where it rejoined the other trail at Upper Gold Bluff. The trail then paralleled the Pacific as far as the mouth of the Klamath River.

IV. Crescent City-Klamath Trail

Even before the establishment of Crescent City in 1853, there was a trail leading down the coast from Pebble Beach to the mouth of the Klamath that was used by Tolowa and Yurok peoples. Jed Smith and his mountain men followed portions of it in 1828. Ehernberg and his companions in 1850 had advanced down this same trail. This route followed the beach where ever feasible, however, travelers had to wait for a low tide. Today's Endert's Beach could be reached without difficulty, provided the traveler watched the tides. From there the trail led up over Ragged Ass Hill, coming out at Last Chance. The Yurok and whites traveling afoot often went from Damnation Creek to Wilson Creek by way of the beach, when the tide was out, but the jagged rocks made this route impassable to horsemen. When Peter Louis DeMartin settled on Wilson Creek in 1877, he was compelled to pack in by mules. If he had any produce to market or needed supplies in large quantities he rented Jim Isle's big boat. This craft manned by six Indians was used for trips to and from DeMartin's place on the False Klamath and Crescent City.

With the establishment of the Klamath River Reservation in 1855, Subagent Whipple turned out an Indian crew to improve the existing Indian trail to Crescent City. When Lieutenant Crook’s men of Company D, 4th Infantry, marched from Crescent City to the Reservation in October 1857, they traveled via this trail as far as *re’kwoi*. Crook in the fall of 1859 organized and sent fatigue parties to improve and extend the preexisting Yurok trail from Fort Ter-Waw to the False Klamath. In June 1862 when Company G, 2d California, abandoned Fort Ter-Waw, the soldiers marched from *re'kwoi* to Smith River via this route.

Travel to coastal points was usually by boat, but when high seas prevented steamers and schooners from landing or taking on passengers at Crescent City, persons in a hurry to reach San Francisco would secure horses and ride down the trail to Eureka, where their chances of securing passage south were more favorable. The *Crescent City Herald* in May 1858 reported, "Quite a fleet of canoes, manned by forty Indians, arrived from the Klamath on May 22nd. They came for the purpose of taking down provisions for their use on the reservation." In August 1860 the *Herald* observed, "The tugboat *Maryann* came to the Klamath with freight for the reservation, but it was unable to enter for want of water, so most of the freight was landed in canoes; the rest was thrown overboard to float ashore."

V. Ah Pah Trail

By 1882 a trail had been opened from Boyes' Prairie to the Klamath. Near the southeast corner of Section 32, Township 12 North, Range 2 East, the trail forked, one branch reaching the Klamath at the mouth of Ah Pah Creek and the other striking the river opposite the Yurok village of *serper*.

VI. Durkee's (Weitchpec) Ferry

Prior to the establishment of ferries, crossing the river could only be done by canoe and this posed some difficulties for the mule pack trains. Oscar Lord, an early mining settler of the Weitchpec area made the following account of the Klamath River crossing at Weitchpec, prior to the establishment of a ferry. "Since there was no ferry boat there, it was necessary to unload the mules and swim them across the Trinity and Klamath Rivers, take the packs across the rivers in Indian canoes, hewn out of logs and then reload the mules. Since all the mules were not expert swimmers, about all you would see of some of them was their noses and ears, but none of them drowned!" (Wright 1986: 13). Due to the difficulties posed by river crossings, several ferries were established. However, even after the establishment of ferries, Yurok help was still utilized. "They knew every mule in the trains and mules who could not swim well were singled out and a special halter placed around their neck and head and they were swam across with their heads resting on the back of the boats (Wright 1986: 14). Therefore, Yurok knowledge of the river, as well as how to maneuver on the river were relied upon by early non-Indian settlers.

One of the first ferries to be established across the Klamath was located at the confluence of the Trinity and Klamath Rivers at Weitchpec. Although it is sometimes referred to as the "Weitchpec Ferry", it is more commonly referred to as Durkee's Ferry, named for the owner and operator, C.W. Durkee. As a friend to local Yurok, Durkee played an important role in the treaty negotiation that occurred at the confluence in 1851. Posting at his ferry he "advis[ed] whom it might concern that…[he] was at peace with his neighbors, and requesting that they therefore should not be killed without just provocation" (Gibbs 1853: 37). Durkee's peaceful relationship with his indigenous neighbors aided Indian Agent Redick McKee in negotiating a treaty with the Yurok (as well as the Hoopa and Karuk), known as the Treaty with the Pohlik or "Lower Klamath" Indians. Durkee played a role in negotiations as interpreter, as well as distributor of goods promised by the U.S. government in the signed treaty. This treaty negotiated at the confluence established reservation lands for the Yurok in exchange for peace and land for non-Indian settlement. However, like the other seventeen treaties negotiated with California Tribes between 1851 and 1852, this treaty was never ratified by the U.S. Congress, and therefore, never had legal standing.

This ferry at Weitchpec continued into the early 1900s, but by 1900 it was no longer in the hands of Durkee. Operator John C. Gist had a new ferryboat built in 1900 and operated the boat until 1915. Gist hired Yuroks to operate the ferry as evident in the account of Mary Ellicott Arnold, a schoolteacher that was hired to teach in Somes Bar in 1908. Arnold's account begins with her travels to Yurok and Karuk territory by boat from San Francisco to Eureka, then by train to Korbel. From Korbel, Arnold and her companion, travel by a pack train, led by the mail carrier, through the Bald Hills to Somes Bar. Upon reaching the river at Weitchpec,

> The trail came to an end. We stood for a long time watching the water, not quite certain what we ought to do. There was no bridge, and no house in any direction where we could ask. We sat on our horses and looked down at the water. Then we heard a little sound behind us and we turned to see an Indian coming along the trail.
> "You cross river?" he asked.

> We nodded. He stepped to the edge of the bank and gave a long, musical cry. Then another. After that he stood quietly. The three of us watched the river. Then I noticed a dark spot near the opposite shore. Now it was in the center of the stream. We could see a paddle rise and fall. The dark blur became a boat with two men in it. It landed just before us. We slid down the bank as one of the men came to meet us.
>
> "You can leave your horses here," he said. "Gist will have 'em looked out for" (Arnold 1957: 26-27).

By 1915, the new ferryboat Gist had built was no longer in service as it was reportedly sent to Hoopa for use, since two bridges were proposed for construction at the confluence, one over the Trinity River and one over the Klamath River. Although two bridges were proposed, by March of 1919 there was still no bridge across the confluence, nor was there a ferry and people had to once again rely on dugout canoes to transverse the rivers here. However, by 1920 there was a bridge at Weitchpec, which was later replaced in 1949 with a new bridge located approximately 100 feet upstream from the older one (Fountain 1967 (42): 41).

VII. Martin's Ferry

A second ferry that was established to cross the mighty Klamath was located just three miles downriver from Weitchpec at Martin's Ferry, near the Yurok village of *wahsek*. This ferry was named for John Frederick Martin, a settler who was born in Pennsylvania and had traveled to the Klamath in search of mining prospects. Access to the ferry posed some difficulties, therefore, on the eastern side of the river; a rock was blasted, making a cut that was wide enough to provide access for wagons. The western side of the river was not as rocky and, therefore, the wagon road was graded to the entrance of the Tuley-Bald Hills Road (Wooden 2005: 5).

Martin soon replaced this ferry in September of 1861, with a wire suspension bridge at the cost of $4,000. It was constructed with a two hundred and ninety-eight feet of clear span, a width of eight feet, and hung ninety-one feet above the water. It was 500 feet long and was supported by two 2-¼ inch cables (Humboldt Times 1861). This suspension bridge was short-lived, however, as it was swept away in the floods of 1861-1862 (Wright 1986: 19). After the destruction of the suspension bridge, the ferry was reinstated.

In 1903, the Pitt family moved to Martin's Ferry and agreed to build the Martin's Ferry Hotel for the owners of the property, I. Cullberg and James Kirk, as well as operated the ferry. Mr. Pitt built a new ferryboat, similar in size to the old one, which had been in operation for years. In constructing the new ferryboat, Mr. Pitt realized that there was a better way of using the ferry to transverse the river than by a windlass, which has to be turned. Therefore, Pitt devised a system by which he created a pulleys and rope combination, which he installed on the new ferryboat.

> This [new] system used the flowing river to propel the ferry across by letting out rope on the stern as the ferry crossed the river, and on the return, tightening the rope and letting out slack on the rope that was the stern" (Wooden 2005: 5).

The ferry system continued for many years until a bridge was constructed, which washed away in the great flood of 1964. A third bridge was constructed after 1964 in the hopes that this one would stand the test of the floodwaters of the Klamath. This bridge still stands today and provides reservation access for Yurok people.

VIII. The Requa Ferry

Figure 3- Ferry at Requa

The first white man to operate a toll ferry across the Klamath at Requa was Morgan G. Tucker in 1876. The Yurok opposed the undertaking, because it would deprive them of the revenue they had formerly received for passing travelers across the river in their big redwood canoes.

Tucker's Ferry caused the Yurok to protest its presence to the agent in charge of the Hoopa Valley Reservation. At first, the Office of Indian Affairs was willing to let matters drift. On April 11, 1878, Tucker wrote the Commissioner of Indian Affairs "for permission to continue the ferry franchise" now held at Requa. To strengthen his position, he pointed out that "the mail from Crescent City to Eureka crosses at this point, and the maintenance of the ferry is a public benefit." The Secretary of the Interior was agreeable to granting Tucker the franchise, provided he posted a bond, and signified his willingness to observe such rules and regulations as established by the Office of Indian Affairs. Tucker continued to operate his ferry until June 1879, when, along with the other squatters, he was evicted from the Klamath River Reservation. By the following June, the well-known Yurok, Captain Robert Spott (*Haaganors*), was operating the ferry.

It was 1895, three years after the Reservation had been discontinued, before Captain Spott was squeezed out. In December of that year Bailey and Fortain signed an agreement with the Del Norte Board of Supervisors to operate a ferry near the mouth of the Klamath. W. T. Bailey proposed to run a cable across the river, 1,700 feet in length. The cable would be similar to the one used at Peacock's crossing of Smith River, and the current would be employed to drive the ferry across. The cable, after several failures, was finally stretched across the river, and continued in operation for a number of years. By 1919, however, it had seen better days. On May 9, 1919, the editor of the *Del Norte Triplicate* complained that the ferry at Requa, because of the low stage of the river, might have to be relocated and new equipment provided, "if the present regular mail, passenger and tourist service is maintained." Traffic during ebb tide was delayed as much as six hours.

In June 1919 the *Triplicate* announced that the Del Norte County Board of Supervisors had allowed a new contract for the Klamath ferry. Dave Ball was to receive $1,402.13 for building a new boat, while Stacey Fisher was to be paid $2,580 a year for operating the

ferry. Subsequently, Frank Bosch ran the ferry until it went out of business when the Douglas Bridge was opened for traffic in 1926.

IX. Early Freight and Stage Transport

Figure 4 - Freighting Tan Oak Bark in Bald Hills

Before the automobile the roads were atrocious. They were steep, dangerous, and rough. In the summer, dust was ankle deep, while in the winter the mud all but put a stop to freighting. In building roads, little thought was given to making easy grades, and no effort at all was made to eliminate hairpin turns. The grades were narrow with few turnouts. Repair work in the spring consisted of filling in the worst mud-holes with small rocks, cedar bark, and brush. There was no gravel, because of the primitive equipment. Here and there were toll roads, which were kept in fair condition.

At first, the teamsters hauled their own beds and camping equipment, and pulled out of the road whenever night overtook them. A good free-walking team would average about 1,200 pounds to the horse, though the pointers and wheelers were usually a little heavier. As the years rolled by, ranchers along the different freight roads began to cater to teamsters, building corrals and feed sheds and boarding drivers. The "stopping places," as they were called, that put out the best meals got most of the teamsters, and it was not uncommon to find six or eight big outfits stopping for the night at a popular station.

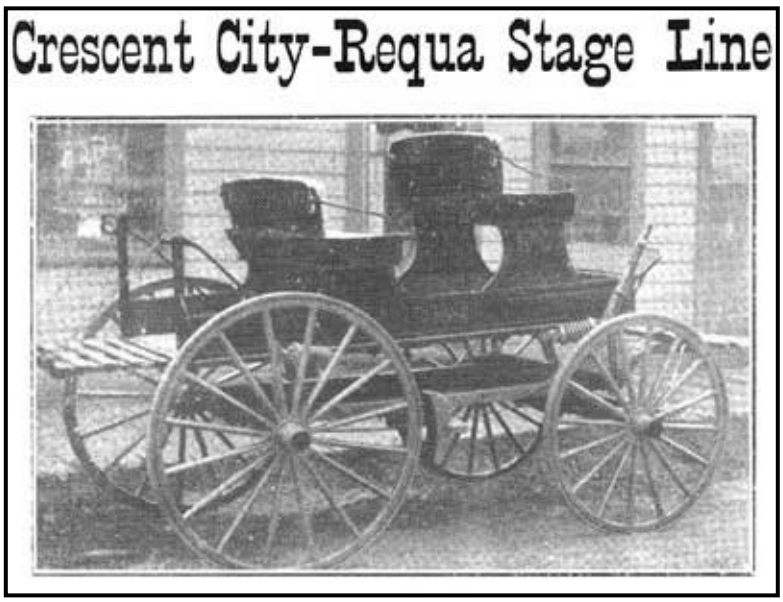

Figure 5- Ad and Schedule for Requa Stage

The average rate of travel for a team loaded to capacity (on the down-grade trip) was about two miles an hour, and the load (generally lumber, tan-oak bark or concentrate from small mines) was a ton to a horse. From the seaport or railhead up to the mountains, the average load for a ten-horse team was 16,000 pounds.

The mountain haul for the first two days inland from the coast was the hardest, as one had not yet climbed

out of the searing heat. A good driver would "save his team in every possible way." If he came to shade, he would stop and rest his horses, pulling the collars away from their necks to permit the air to cool them. When he came to a steep grade, he would give them plenty of time, pulling not more than a few feet at a time. On reaching camp in the evening, the welfare of the team came first. A wagon breakdown was bad, and could take half or all the profit out of a trip.

X. The Klamath River Bridge

Figure 6 - Douglas Memorial Bridge Circa 1960

Bids for the Klamath River Bridge were received May 26, 1924, and the contract awarded to F. Rolandi of San Francisco on June 19. Work was commenced in July. The bridge was dedicated May 17, 1926, with appropriate addresses by Governor Friend W. Richardson of California and Walter M. Pierce, Governor of Oregon. It was not opened to traffic, however, until the late fall of 1926. The bridge was named the Douglas Memorial Bridge in honor of the late Dr. Gustave H. Douglas. Dr. Douglas had spearheaded the campaign to secure construction of a highway bridge across the Lower Klamath, which would link Del Norte with the improved highway system of Humboldt County and other areas to the south.

During the flood of December 1964, two spans at the south end of the Douglas Bridge were washed out, a third span left "wobbly," and the north approach swept away. The golden bears were left standing guard over a ruined structure. Until a new bridge could be built one-half mile upstream, a Bailey Bridge, a portable pre-fabricated structure built by the Army Engineers, carried U.S. 101 traffic across the Klamath.

XI. Logging and Canning on the Klamath

The first commercial sawmill on the Klamath was one of the ventures undertaken by the Klamath Commercial Co., which had been incorporated by R. D. Hume for the "purpose of lumbering and fishing at or near the mouth of the Klamath River." Martin Van Buren Jones was named general superintendent. On August 27, 1881, it was reported in the *Del Norte Record* that Jones had been on the ground for several weeks with a crew of workers, and "has the mill and building sites all ready and timber cut for the frames." Jones planned to saw cedar, laurel, and oak, which would be shipped to Crescent City on small schooners and then sent to the San Francisco market on steamers.

About the close of World War I, Bull & Dunn began logging the Klamath Bluff area. To get their logs out, it was necessary to float them down the Klamath to its mouth, where they would be made into rafts. G. G. Davis had rafted logs during World War I in Alaska and Canada. An ingenious plan for putting together ocean-going rafts had been developed by Davis. These rafts, called swifters were held together by cables laced in a

fashion designed to hold the raft together and keep it from breaking up when towed to sea. A huge swifter raft would hold up to several million feet of timber. The Davis rafts were towed out to sea and down the coast from the Klamath to Eureka. There they were broken up, and the cedar exported to Japan.

Figure 7 - Jackson Ames circa 1920's

One of the problems encountered by Davis, in rafting logs out of the Klamath, was shallow water found over the Klamath Bar, during prolonged droughts. On September 25, 1926, it was reported that Bull & Dunn Cedar Co. had experienced difficulty in getting out their rafts, because of "unseasonably low water and the deplorable condition of the mouth of the river. It was known that enough additional logs were coming down the Klamath for Davis and his boys to build two more rafts. To get the logs over shoals Yurok Tribal members Jackson Ames and Frank Ryerson were out with their motorboats.

Martin V. Jones and George Richardson in the autumn of 1876 established the first commercial fishery at the mouth of the Klamath. The Yurok protested their presence, and in 1877 they sought to force them to vacate their claim and fishery. Jones and Richardson refused to move until Captain Savage and his soldiers evicted them from their property in June 1879, and the first commercial fishery on the Klamath was closed down.

With the opposition of the Indians mollified, Jones incorporated the Klamath Commercial Co. for the "purpose of lumbering and fishing at or near the mouth of the Klamath." The cannery was to be erected on Hunter Creek, more than a mile from the river and off the Reservation. The Indians would catch and deliver the salmon for so much a head. The scow *Ester Cobos,* drawing six feet of water, would be employed to trade between the Klamath and Crescent City. As the cannery was off the Reservation and the Indians were benefited by its presence, the military took no action to interfere with its operation.

With the success of the Klamath Commercial Co. other canneries were established. John Bomhoff in 1886 received permission from the Indian Agent to build a saltery near the mouth of the Klamath. R. D. Hume of Gold Beach, Oregon, likewise decided to get into the business. In 1887 he sent down a scow, on which quarters were built, equipped to carry on the business of general merchandising and salting salmon. A U. S. Marshal seized the craft during the winter of 1887-88. After extensive litigation, the case was decided in favor of Hume, and he proceeded to build a cannery on the right bank of the Klamath, about one-half mile from the one constructed the previous year by John

Bomhoff & Co. Hume's cannery was wrecked by the flood of 1890, and the two companies merged under the name of Klamath Packing & Trading Co.

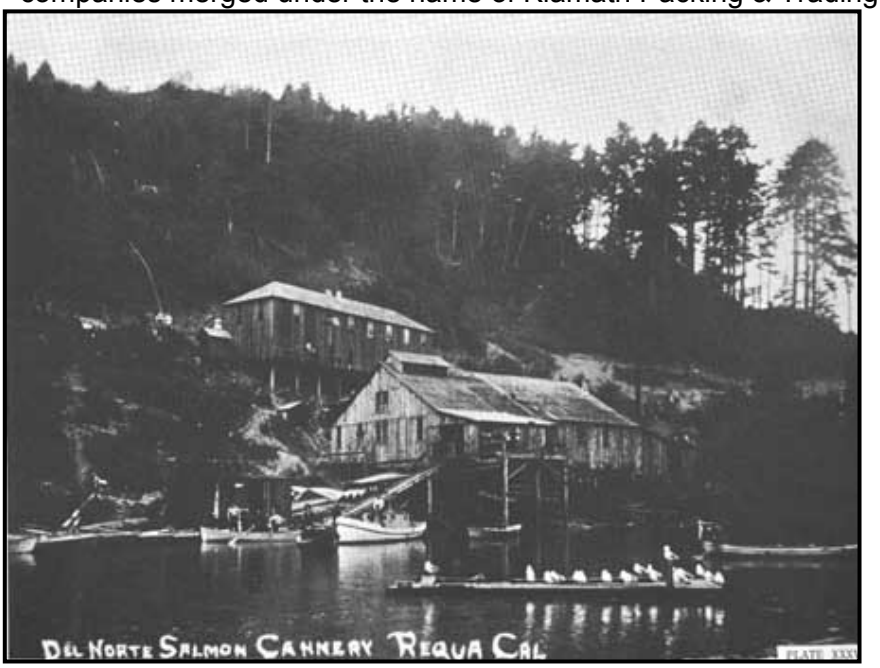

Figure 8 - 1915 Requa Cannery

These early fisheries salted most of their catch. In 1887 Bomhoff packed 700 barrels of salmon, and R. D. Hume 500. The schooners *Requa* and *Geo. Harley* made frequent runs to the Klamath, bringing in tin, salt, and other materials for the canneries, and taking out barrels of fish.

The Klamath Packing & Trading Co. found the years between 1894 and 1909 profitable. In the latter year, it was reported that Klamath River salmon bring the "top-notch in the market, as their reputation for superiority is far-famed." The plant in that year was owned by the R. D. Hume Estate and W. T. Bailey. For a number of years, Bailey had been plant superintendent. During the calendar year 1908, there were 6,500 cases of salmon shipped from the cannery aboard its gasoline-powered craft. This vessel made the run from Requa to Humboldt Bay, during favorable weather, with cases of fish, which were transshipped to San Francisco. On her return, the vessel brought in items needed by the cannery and supplies for the area.

In the heyday of commercial salmon fishing on the Klamath, it was not uncommon during a good run for the netters, Indian and white, to bring 7,000 to 10,000 fish daily to the canneries. Seventeen thousand was the record catch in 1912. When several canneries were in operation, as many as 100 nets were in use. These nets, with buoys and weights, were about 20 feet deep, and usually of 7-1/2-inch mesh to permit the smaller fish to escape upstream to spawn. Old Timers recalled that it was quite a feat to haul in a net of fighting fish and not lose any of the catch. When the canneries had all the salmon they could handle for the day, a signal was given for the netters to cease operations. For over 50 years commercial fishing on the Klamath flourished. Many Yurok found employment in the industry for several months each year. Fish were caught, salted or canned, and shipped out in small schooners. Commercial fishing was declared illegal on the Klamath and Smith rivers in January 1934, and the Klamath Packing & Trading Co. closed.

XII. California and Yurok Transportation History (1850 - 1900)

The first roads in California were Indian trails, horse trails, and wagon roads; some developed by people coming to California during the Gold Rush of 1848. After statehood

was granted in 1850, Californians began to pressure for improved roads. As a result, in 1850, the state created the Office of Surveyor General, with the duty to suggest roads.

In 1895, the Bureau of Highways was created by the State Legislature. Three newly appointed officials, Marsden Manson of San Francisco, R. C. Irvine of Sacramento, and J. L. Maude of Riverside, purchased a buckboard and visited each county in 1895-1897 to form recommendations for a state highway system. Their first report indicated that "The conditions of highways in California today are the result of generations of neglect and apathy". The commission inventoried the existing road system, logging in excess of 16,500 miles. When they completed their survey, they issued a report to the Governor. This report, submitted November 25, 1896, recommended a system of state highways made up of 28 distinct routes, of approximately 4,500 miles, using existing roads when possible, connecting all county seats. (See Figure 10).

XIII. California and Yurok Transportation History (1900 - 1920)

In 1902, the state constitution was amended to give the Legislature the power to establish a system of state highways, and to pass the laws necessary for highway construction. It also permitted state aid to be provided to counties for road construction.

In 1909, the Legislature authorized the first State Highway Bond Act, for $18,000,000 (approved by the voters in 1910). This act established a State Highway system and authorized construction of 3,052 mi of highways. It required that the Department of Engineering acquire the necessary land, and construct a continuous and connected highway system. The funding allowed a significant quantity of highways to start construction. The first portion of U.S. Highway 101, which consisted of 363 miles between the Golden Gate Bridge to Crescent City, was authorized by this first bond act. An additional 42 miles was authorized by the third bond act in 1919, which extended from near Crescent City to the Oregon border. This was the first State roads action involving Yurok lands as the original Route 101 transversed by the village of Requa.

The Redwood Highway was created as a State Highway by a bond issue in 1909. It was October 19, 1917, before any action to expedite its construction was taken in Del Norte. At that time the Board of Supervisors announced plans to secure the right-of-way for the Redwood Highway between Wilson Creek and Crescent City. A contract was let in July 1919 for construction between Cushing and Wilson creeks.

Figure 9 - Redwood Highway near Crescent City

In 1923 the section from the head of Richardson Creek

to Hunter Creek was built by prison labor and a camp for the prisoners was established on the Del Ponte place.

In 1911, the Legislature passed the Chandler Act, which authorized the appointment of a three-member board to advise the Department of Engineering. This board was to become the first Highway Commission. It also created the position of State Highway Engineer, serving at the pleasure of the Governor. The first State Highway Engineer was Austin B. Fletcher. Mr. Fletcher and the highway commissioners took a 6,800-mile tour of the state highways in 1911, and as a result of the recommendations from that tour, adopted the state highway system. Mr. Fletcher also recommended dividing the state into seven divisions (now "districts"), each in charge of an experienced engineer. The Highway Commission also recommended that road be "permanent in character" and provide a "continuous and connected state highway system".

In 1916, the voters passed the 1915 bond act. More significantly, in 1916, Congress passed the Bankhead Act, which created the Federal Aid Program. Under this program, federal funds were provided for roads that would improve rural mail delivery ("post roads"). This program required the state to come up with one half of the costs of the road. California received $151,063.92 in Federal Aid funds for the fiscal year ending June 30, 1917.

More significantly, in the special election of July 1, 1919, the voters approved a third highway bond issue for $40,000,000. This act authorized creation or extension of 1,853 mi of highways. This act extended the funds for the completion of the highways contemplates under the two preceding acts by the addition of $20,000,000 to the highway funds for this purpose, and an additional $20,000,000 for the construction of some additional routes.

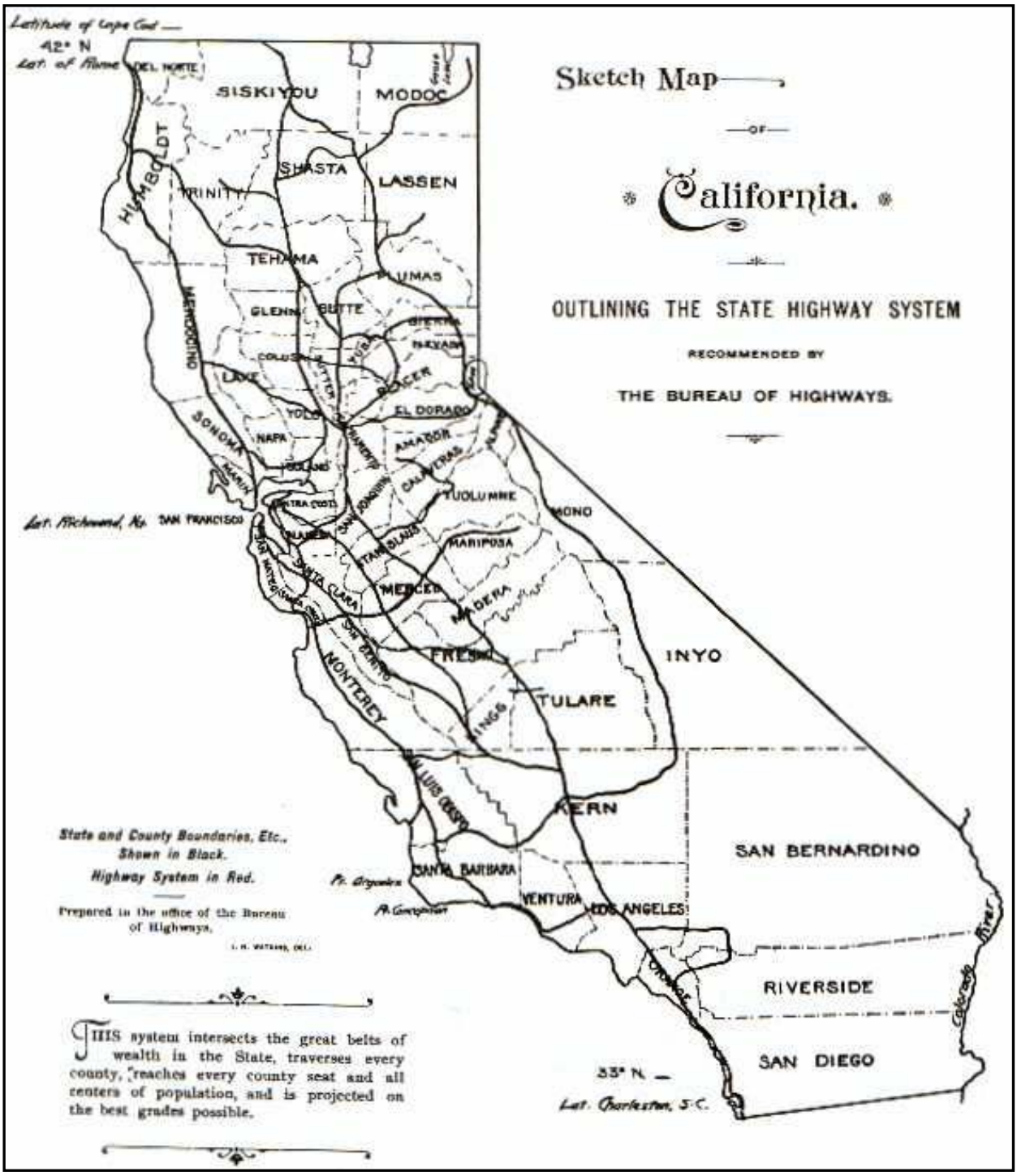

Figure 10 –1896 Map of California State Highways

XIV. California Transportation History (1920 - 1975)

By the end of 1923 the Redwood Highway, except for the bridge across the Klamath, had been completed and opened to through traffic in Del Norte and Humboldt counties. Between Crescent City and Cushing Creek, the Redwood Highway and the old road followed the same alignment. South of Cushing Creek, the Redwood Highway clung for three miles to the cliffs, providing the motorists a spectacular view of Crescent City and the Pacific. The new highway then skirted the headwaters of Damnation Creek, descending Damnation Ridge to Wilson Creek. Its alignment here was parallel to and a few hundred yards west of the old road. Wilson Creek was crossed several hundred yards above the False Klamath. Between Wilson and Hunter creeks, the Redwood Highway followed the same general alignment as the old road. From Hunter Creek, the Redwood Highway, instead of sweeping toward Requa, continued southeastward and struck the Klamath at the mouth of Hoppaw Creek. The roadway on the south side of the Klamath ascended Richardson Creek and intersected the old road near High Bluff. From High Bluff to Orick the alignments were identical, except at two points: between Elk Grove and May Creek, the new road was located east of the old, while at Orick the Redwood Highway crossed Redwood Creek about one-half mile farther south.

Costly slides compelled the State of California to relocate six miles of the Redwood Highway in Del Norte County. This was done in the early 1930's. South of Crescent City the new highway, on entering Section 35, Township 16 North, Range 1 West, ascended the ridge and passed around the head of Cushing Creek. From this point for the next four miles it paralleled a wagon road constructed in 1887-1894. It then descended Damnation Ridge to a junction with the cliffside road in Section 31, Township 15 North, Range 1 East.

On April 3, 1933, President Roosevelt signed Executive Order No. 6101 that officially established the CCC also known as Emergency Conservation Work Act. The Emergency Conservation Work Act extended enlistment coverage to about 14,000 American Indians whose economic straits were deplorable and had been largely ignored. Before the CCC was terminated, Native Americans were paid to help reclaim the land that had once been their exclusive domain including the building of roads, telephone lines, and public facilities. The Office of Indian Affairs participated in the CCC program, and more than 88,000 Indian men enrolled nation wide. The work performed under this program was generally carried out on Indian reservations. CCC regulations were changed according to the realities of reservation life. The War Department was not involved in camp administration on reservations. On the Yurok Indian Reservation, the Indian Conservation Corps Camps was located in Klamath and was known as the Oak Knoll Acorn camp. This camp also was responsible for some of the road improvements along Route 169 and 96. It is also believed that the Weitchpec Bridge was built or strengthened by a CCC crew.

Route 96 was signed as part of the original signage of state highways in 1934. Its original routing ran along present-day Route 169, and then along the present-day Route 96 routing to US 99 (I-5) 9 miles north of Yreka. This was LRN 46, defined in 1919. The routing was later changed to start at Route 299 near Willow Creek. The portion from Willow Creek to Weitchpec was LRN 84[1], defined in 1933.

[1] LRN" refers to the Pre-1964 Legislative Route Number

State Route 169 was formally established during this time and was defined as the Route 101 near Klamath to Route 96 near Weitchpec. The legislative definition of Route 169 explicitly allows Caltrans to maintain a traversable highway located in portions of the area between the termini of and approximately on this route even though the highway is not continuous. This route is explicitly allowed to be non-continuous and unconstructed from Klamath Glen to Johnson's.

In 1939, the "Freeway Law," sponsored by state senator Arthur H. Breed, Jr., is passed by the state legislature. This act allows the construction of highways along which adjacent property owners do not have rights of access, and gives the state broad powers of land acquisition for the construction of freeways. It also requires the state to reach an agreement with local governments before streets can be closed for the construction of a freeway. This clause gives cities and counties considerable leverage regarding freeway design and location.

In 1947, in response to the recommendations of the Joint Interim Commission on Highways, Roads, Streets, and Bridges, the Legislature passed the Collier-Burns Act. This act:

- Added 67 miles of city streets to the state highway system.
- Consolidated county road administration.
- Required that the state maintain highways in cities. This was a significant shift for the previously rural-oriented Division of Highways.
- Raised the gasoline and diesel fuel tax to 4.5 cents per gallon.
- Increased automobile registration fees from $3 to $6, with a proportionate increase in the weight taxes on trucks.
- Created a fund for all highway revenues and motor vehicle taxes.
- Revised apportionment of revenues from fuel taxes to cities, counties, and the state.
- Directed gasoline tax and registration fee revenues toward construction of freeways in urban areas and highways in rural areas of the state.
- Divided state highway construction funds with 55% allocated to the southern half of the state, and 45% to the northern half of the state. This was a significant shift from the previous 49%/51% allocation. This also provided minimum funding for each county.

Gasoline fees were again increased in 1953, 1963, 1983, 1989, 1990, 1992, 1993, and 1994, to the current state tax of eighteen cents per gallon.

Before the new bridge across the Klamath was opened in 1965, two sections of U.S. 101 were relocated. South of the Klamath, the road was aligned to ascend the valley of Waukell Creek. North of the river, one-half mile of road was repositioned to facilitate the approach to the new bridge.

XV. California Transportation History (1975 - Present)

The 1975 Draft Caltrans Transportation Plan was published. This Plan laid out the premises and objectives underlying future state transportation policy and planning and presented legislators with the choice of four future transportation policy directions. In

particular, it enumerated some fundamental premises that reshaped the highway system:

- Land use and transportation decisions must be more closely tied together.
- An increase in population will put greater demands on transportation
- Additional funding is vital because funding levels for State and local roads are not sufficient to preserve the public's investment
- The funding sources and allocation process should be brought in line with today's needs and priorities.
- The Streets and Highways Code should be revised to minimize allocation inequities among counties and between counties and their cities.
- The state should eliminate north-south split and county and transportation district minimums, and substitute a control formula under the California Transportation Plan for county groupings (similar in principle to the district minimums).
- The public transportation needs of non-auto users are acute and require immediate state attention and financial assistance.
- Peak period congestion on urban highways, roads, and streets and major airports will continue to worsen regardless of the emphasis placed on other modes of travel.
- Transportation facilities should be planned to minimize consumption of prime agricultural land and facilitate the movement of agricultural products.
- Air quality in California will be dramatically improved in the next 20 years primarily due to emission control standards for automobiles.
- If transportation energy consumption were to be substantially reduced within the next five years, the most effective action would be in the area of implementing strong disincentives to auto traveling.

It was also about this time that drastic reductions in the buying power of highway revenues (due to inflation, increasing vehicle fuel efficiency, and legislative reluctance to increase taxes), escalating highway construction costs, and increased opposition to new highway construction by local politicians, activists, residents, and environmental groups led the state to began to eliminate controversial segments of the freeway plan. By the late 1970's, any remaining pretense that the remaining routes could be built was abandoned.

In 1978, the Legislature created the State Transportation Commission, assigning it fiscal control of the planning functions of the California Highway Commission and State Transportation Board. A budging process was adopted requiring a five year State Transportation Improvement Program (STIP) with input from local and regional government entities. This program was to be updated biennially.

In 1998, SB 45 was passed. This bill introduced new changes in the structure of the state transportation program. The overall theme of the legislation was the need to increase local and regional flexibility over the use of transportation resources and greater local and regional control in project selection and design. It resulted in the development of a Transportation Strategic Plan. This plan included an in-depth discussion of issues related to state highways and brief discussions of issues related to intercity passenger rail, interregional highway system grade separations, and mass transit guideways. It expressed the following key principles:

- California's transportation process relies on open communication and an ongoing

cooperative relationship between all members of the transportation community.

- Caltrans has primary responsibility for the interregional mobility of people and goods. Regional and local agencies have primary responsibilities for regional and local mobility and for actions to manage commute and other congestion in their areas. Larger metropolitan areas are responsible for managing interregional commute congestion within the Transportation Management Area.
- The rural areas of the state contribute to the state's economic well-being and quality of life.
- Connecting people and goods to growing urban centers, urbanized areas and major gateways is vital to the economy and quality of life in California.
- Movement of goods and service into and through urbanized areas and gateways and to intermodal facilities is a critical component of the interregional program.
- The designated interstate system is the backbone of the state's transportation system for interregional, interstate and international goods movement, access to seaports, air cargo terminals and other intermodal transfer facilities. Improvements within major gateways in urbanized areas will often involve interstate routes.
- Key segments of the state highway system are incomplete or underdeveloped. These will be developed to minimum facility standards as programming priorities allow, considering a range of qualitative and quantitative planning and operations factors.
- Intercity rail is an important component of the state's interregional transportation system.

XVI. History of Federal Transportation Funding and Tribes

In 1921, the Federal Government called for the States, in order to receive Federal funding for highways, to perform a highway planning survey. In 1962, the Federal Government called for (as a condition for Federal funding expenditure in urban areas) a continuing, cooperative, and comprehensive transportation planning process to be performed in all urbanized areas of more than 50,000 in population. Then, in the Intermodal Surface Transportation and Efficiency Act of 1991 (ISTEA), again as a condition for expenditure of Federal funds, the Federal Government called for a statewide transportation planning process that would be continuing, cooperative, and comprehensive. The ISTEA placed special emphasis and the Transportation Equity Act of the 21st Century (TEA-21) continues the emphasis on considering the concerns of Indian Tribal Governments in the statewide and metropolitan planning processes.

With specific reference to Indian Reservation Roads (IRR) funding, a requirement for transportation planning, as a condition for funding expenditure, has been in place since the May 22, 1983, with the Memorandum of Agreement between the Bureau of Indian Affairs (BIA) and Federal Highway Administration (FHWA).

During ISTEA deliberations, Congress recognized the need for Indian tribal transportation planning. As a result, the ISTEA authorized: *"Up to 2 percent of funds made available for the IRR program*...." exclusively for "... *those Indian Tribal Governments applying for transportation planning pursuant to the provisions of the Indian Self-Determination and Education Assistance Act," as amended (P.L. 93-638). TEA-21 reinforces the intent of Congress contained in the P.L. 93-638. These funds are*

available under Title I, Indian Self-Determination Act, and Title IV, Tribal Self-Governance, of P.L. 93-638.

IRR Program Funds are funds allocated to the BIA Regional offices for the construction and improvement of roads, bridges, and transit facilities leading to, and within, Indian reservations or other Indian lands. *An Indian Tribal Government may use up to 100 percent of their share of these funds, for transportation planning activities* outlined in this chapter through the establishment of a transportation planning project on the IRR Transportation Improvement Program (TIP). A proposal for the use of IRR Program funds for transportation planning should be submitted in advance of the fiscal year (FY) for which the funds are being requested, in accordance with the deadline established for the inclusion of projects in the area office's IRR TIP. *Any IRR Program funds set-aside by the BIA, Division of Transportation (BIADOT) for transportation planning purposes shall be available for contracting/compacting under the provision of Indian Self-Determination and Education Assistance Act (P.L. 93-638 as amended).*

XVII. Environmental Justice and Transportation Planning

Yurok Tribal creation legends and traditions exemplify the use of trails and waterways. These trail and waterway routes were necessary for the survival of all Indian people as they traveled from village to village or traded with neighboring tribes. The history of Yurok transportation creates a starting point for the merging of "*what has been*" to "*where we want to be*" in an environmental justice context. Transportation planning should support a community's vision for its future. This process should consider visions of what the Tribal transportation system would be like at the end of the plan period given the historical context of the Tribe.

The Yurok Tribe has been awarded a grant from Caltrans to promote Environmental Justice as context-sensitive planning for the Yurok Indian Reservation. The objective of this project is to produce a comprehensive Tribal Transportation plan for the Yurok Tribe with an Environmental Justice (EJ) component. The context-sensitive approach will incorporate Yurok cultural elements and transportation/circulation inequities on the Yurok Indian Reservation with contemporary transportation planning methods.

The Yurok project is intended to provide a historically under-served and underrepresented tribal community with an opportunity and forum for the development of a culturally and community sensitive comprehensive tribal transportation plan.

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APPENDIX C

Yurok Tribal Transportation Plan, Chapter 3.4.8

Appendix C

Excerpt from: Yurok Tribal Transportation Plan 2006-2026, "Taking Back a Traditional Trail", Policy Element, Chapter 3.4.8 Trails

Yurok Tribe with Winzler & Kelly. (2006). *Yurok Tribal Transportation Plan 2006-2026, "Taking Back a Traditional Trail".* Klamath, California: Yurok Tribe.

3.4.8 Trails

Goal: Create a culturally appropriate multi-route interconnected trail system network throughout the Reservation and nearby lands that: (1) provides intercommunity and intra-community non-motorized trail system travel for Tribal members and (2) provides conditional access for non-Tribal eco-tourists and travelers.

8.01 Policy: A Project Study Report shall be developed for the creation of a Yurok Trail System Plan that will include a (1) statement of need, purpose, and description of project; (2) estimated costs; and (3) project timeline goals.

Objective: Utilize the August 2005 report "Tribal Park Concept Plan" *to develop a Yurok Trail System Plan Project Study Report.*

Objective: Identify needs, currently held assets, and extent of potential functions of the Yurok Trail System to be included in the report.

Objective: Research similar programs and divisions to serve as models in the Project Study Report.

Objective: Identify specific trail routes Yurok Trail System. Objective: Investigate all right of way issues, land acquisitions, and transfers of Federal lands critical to the establishment of the Yurok Trail System.

Objective: Coordinate appropriate agencies, land owners, and other stake holders to complete a Yurok Trail System Project Study Report by the end of 2006.

8.02 Policy: The Yurok Tribal Council, in an effort to fulfill the intent of its Constitution, seeks public support, inter-agency cooperation, and federal legislation to re-establish its traditional role in the management of its ancestral territory, which can partially be fulfilled through the actions of designing, restoring, and establishing an integrated network trail system linking high mountains, stream and river valleys, and coastal beaches.

Objective: Facilitate the development of an integrated network of circuit trails that will provide scenic diversity, variable lengths, and natural and cultural resource education opportunities, while protecting cultural and traditional values.

Objective: Appoint special designations for each trail, such as "Tribal Heritage Trail," "National Recreational Trail," and others (see also Objective below).

Objective: Designate select trails as culturally sensitive conditional use

trails and require a tribal certified interpretive guide to accompany visitors on these designated trails to: (1) ensure that the Tribe's values are respected by all visitors to culturally sensitive trails, (2) to protect especially sensitive cultural areas, (3) to avoid exposure of critical areas at critical spiritual times, and (4) to enhance the visitor experience through added educational value from the guide.

8.03 Policy: Coordinate creation and maintenance of Tribal Trail System. *Objective: Encourage coordination of all agencies and stakeholders, including: the Forest Service, the National Park Service, Humboldt County, Del Norte County, the BIA, the State, the California Department of Parks*
and Recreation, the Bureau of Land Management, private land owners, private consultants, and others.
Objective: Coordinate with entities responsible for the following trails: Pacific Crest Trail, California Coastal Trail, The Kelsey Trail, Yurok Tribal Park Trails, Redwood National and State Parks Trails, Six Rivers National Forest Trails, Smith River National Recreation Area Trails.

8.04 Policy: Eliminate barriers to Trail System travel.
Objective: Periodically evaluate the Trail system and signage facilities to identify barriers to Trail System travel. Prioritize trail improvements that will eliminate those barriers.

8.05 Seek compatible management of adjacent federal and state lands through co-management agreements.
Objective: Establish a co-management agreement with the Forest Service including restrictions on public use near Doctor Rock and development of alternative trail routes into the high country, including connector trails to the Pacific Crest Trail and loop trails into the Smith River National Recreation Area.
Objective: Establish a co-management agreement with the Bureau of Land Management, the National Park Service, and the California Department of Parks and Recreation.
Objective: Seek construction grants and contracts from appropriate federal/state agencies in co-management agreements.

8.06 Policy: Maintain Trail System facilities.
Objective: Design an educational, informative, and practical signage infrastructure throughout the trail system.
Objective: Ensure the success of Policy 2.4 to make possible the establishment of a Yurok Road Maintenance Division, which will directly address maintenance issues of bicycle and pedestrian facilities.
Objective: Program funds as available to maintain trail system facilities in a condition favorable to use by the intended mode.
Objective: When necessary, coordinate with governmental agencies and other consultants to identify funding and operation needs for the Trail System.

8.07 Establish programs related to the Yurok Trail System.
Objective: Found a tribal Student Conservation Association (SCA) program.
Objective: Seek to be partners with the associations involved in the Pacific Crest (PCT) and California Coastal Trails (CCT).
Objective: Establish annual education programs through the Tribal Office and local area schools associated with the Trail System.

8.08 Policy: Encourage interconnectivity of the transportation network. *Objective: Periodically update this transportation plan to include an interconnected, well-planned, and efficient regional transportation network that includes a Tribal Trail System.*

8.09 Policy: Promote safety on the Trail System.
Objective: Develop and advertise annual programs at area schools and Tribal Offices that promote safety awareness among trail users. Objective: Design an educational, informative, and practical signage infrastructure throughout the trail system.

APPENDIX D

Related Del Norte and Humboldt County Planning Efforts

Appendix D: Related Del Norte and Humboldt County Planning Efforts

Del Norte County Plans

To identify the ways in which the Tribe's trails and waterways planning efforts relate to Del Norte County's planning efforts, the following four plans were reviewed:

- *Del Norte County Regional Transportation Plan*
- *Overall Work Program*
- *Bicycle Facilities Plan Update*
- *Safe Routes to School Research and Policy Report*

The project team completed a presentation on this topic at a Del Norte County Technical Advisory Committee meeting on June 6, 2013. The presentation organized the information by three themes:

- Common goals
- Areas of overlapping interests and opportunities for collaboration
- Opportunities for increased Tribal participation and visibility

A summary organized by the three themes listed above is included in the *Yurok Trails and Waterways Master Plan*. A more in-depth description of relevant points for each plan follows here:

Del Norte County Regional Transportation Plan

The 2011 *Del Norte County Regional Transportation Plan* provides a coordinated, 20-year vision of the regionally significant transportation improvements and policies needed to efficiently move goods and people in the region. The Plan presents general policies, guidelines, and lists of capital improvement projects for various transportation modes. It includes sections on the four Tribal entities with native lands in the Del Norte region.

The *Yurok Trails and Waterways Master Plan* will contribute towards the realization of the following goals, policies and objectives of the *Del Norte County Regional Transportation Plan* (and where noted, of the *Del Norte County General Plan*).

- Overall Goal: Promote a coordinated and balanced regional transportation system in Del Norte County, considering all transportation modes and available funding.
- Non-Motorized Transportation (Pedestrian and Bicycle) Goal: Safe and accessible non-motorized transportation modes, supported by improvements to transportation facilities.
    - Policy: Support the construction of both pedestrian and bicycle facilities that improve accessibility, connectivity, and circulation.
        - Objective: Support the development of sidewalks, walkways, and bike and pedestrian trails that lead to and through outdoor recreational areas such as parks and schools, as well as commercial areas (supports County General Plan Policy 8.E.3).
    - Policy: Promote convenient and safe non-motorized facility improvements.
        - Objective: Plan for the extension of sidewalks, trails, and walking facilities to facilitate convenient and safe pedestrian movement.
        - Objective: Plan for separate and safe pedestrian walkways, protected from automobile traffic (supports County General Plan Policy 8.E.2).

        - Objective: Coordinate, with interested agencies, to pursue available sources of funding for non-motorized trail development (supports County General Plan Policy 8.E.8).
    - Policy: Promote non-motorized facility improvements that meet the needs of seniors, children, people with low-income, and people with disabilities.
        - Objective: Coordinate with local school districts to assure that safe routes to schools are available to all students (supports County General Plan Policy 8.E.4).
        - Policy: Assess recreational needs as part of a strategy to secure non-motorized recreational facilities funding.
        - Objective: Conduct periodic recreational travel demand surveys. Identify non-motorized recreational facilities which serve recreational travelers, especially those linking population and recreational areas, and state and federal funding sources to finance them.
        - Objective: Support trail development in Del Norte County which provide connections to other regional trail systems in other counties.
- Highways/Streets/Roads Goal: Support highway, roadway, and street system maintenance and improvements that meet local, regional and interregional transportation needs. Determine ways to redirect gas tax money toward local governments, to provide funding for street maintenance.
    - Policy: Support highway and intermodal corridor preservation for bikeways and pedestrian trails.
        - Objective: Review potential corridors (as identified) and comment on regional and statewide long-term right-of-way protection priorities, to the County, City, and Caltrans as appropriate.
        - Objective: Pursue the use of Rural Planning Assistance funds, Regional Improvement Program funds and other available funding sources, to complete corridor studies.
- Recreational Travel Goal: Make recreational travel safe, easy and attractive for residents and visitors.
    - Policy: Develop a system of interconnected pedestrian, equestrian, and bicycling trails, and public transit suitable for active recreation, transportation, and circulation (supports County General Plan Goal 5.C).
        - Objective: Work with agencies and tribal governments to develop a recreational access trail system for resident and visiting pedestrians, bicyclists and equestrians (supports County General Plan Policy 5.C.1).
        - Objective: Participate in development of pedestrian and bicycle trail connections to National Forest and National Park recreation areas lands (supports County General Plan Policy 3.J.2 and 5.B.36).
        - Objective: Support the provision of safe parking near trailheads (supports County GP Policy 8.E.11).
- Climate Change Goal: Reduce GHG emissions from transportation related activities within the Del Norte County boundaries to support the state's efforts under AB-32 and to mitigate the impact of climate change.
    - Policy: Pursue projects with positive GHG impacts and that are realistic given the very rural nature of the Del Norte region, including transit programs, ridesharing programs, bicycle and pedestrian improvements, Intelligent Transportation Systems strategies, and maintenance of existing roadways to reduce vehicle emissions.

- Objective: Participate in a community action plan that includes measures to reduce GHG emissions to target levels.
- Objective: Reduce GHG emissions from transportation related sources in Del Norte County from "business as usual" levels by 2020.

A section in the *Del Norte County Regional Transportation Plan* Policy Element is Yurok-specific. It gives an overview of the Gateway Treatment/Traffic Calming project which is currently in the design phase (as of June 1, 2013). In this project overview, the *Del Norte County Regional Transportation Plan* states "although there is signage along US 101 cautioning drivers about the presence of elk, there are no pedestrian warning signs." Presently adding pedestrian warning signs on US 101 is not a part of the Gateway Project. This presents an opportunity to identify alternate methods and funding sources for achieving this objective.

The Policy Element describes opportunities to improve local roads and river transportation:

- Local road improvement opportunities would increase pedestrian safety on SR 169, PJ Murphy Road and Mouth of Klamath Road (BIA responsibility).
- Citing the priorities of the *Yurok Tribal Transportation Plan* and noting that travel time by jet boat between the two ends of the reservation is less than the travel time on roadways, The *Del Norte County Regional Transportation Plan* highlights the benefits of a Public River Ferry System.

This presents an opportunity to evaluate progress on those projects and collaborate to see them fully realized.

The Policy Element notes that the isolated community of Klamath does not have many services and is located in and near the Tsunami Hazard Zone. "If US 101 or the Klamath River Bridge were to become impassible, tribal members would need alternate routes to evacuate the community. Pedestrian trails and logging roads could become important evacuation routes." A goal of the Tribe's *Trails and Waterways Master Plan* is to complete trails projects that will provide routes for emergency evacuation. This points to the opportunity to pursue projects that achieve these mutually beneficial goals.

The *Del Norte County Regional Transportation Plan* includes a section about non-motorized facilities in the Existing Conditions and Modal Discussion. The section discusses desired improvements to bicycle routes and potential sources of funding. The Plan cites 2008 US Census information for Del Norte County, reporting that only 1 percent of Del Norte workers biked to work while nearly 5 percent walked to work. The report states that this indicates that an improved bicycle network could encourage bicycle use. While this may be true, it perhaps also indicates that Del Norte County workers may prefer to walk to work rather than bike. Perhaps this indicates that an improved pedestrian network could encourage more walking. The *Del Norte County Regional Transportation Plan* non-motorized facilities section states that, "the majority of existing non-motorized facilities in Del Norte County is Class III bikeways (shared use with pedestrians or motor vehicle traffic)." The Del Norte County Regional Transportation Plan describes efforts to build and upgrade several Class I and Class II bikeways. Although 14 different bikeway routes are discussed, only the California Coastal Trail (CCT) is specifically described as available to non-motorized users other than bicyclists. This perspective seems to indicate a bias towards bicycling as a form of transportation versus walking. For the Yurok, it is both an ancient and current day practice to walk for non-recreational purposes such as travel to ceremonial sites or for gathering items for subsistence or for bartering. If the importance of walking on trails as means for transportation was better recognized, perhaps trails projects would be prioritized and funded differently. This points to an opportunity for the Tribe to educate the Del Norte Local Transportation Commission and other relevant entities on the importance of trails as means for transportation.

The *Del Norte County Regional Transportation Plan* Existing Conditions and Modal Discussion describes the California Coastal Trail (CCT). "Per the RTP Guidelines, RTPAs must address the CCT in their RTPs. In the Del Norte region, the Coastal Trail (a small portion of the CCT) is a joint project between Del Norte, Crescent City and the Harbor District and will have four segments." The four segments are either in or immediately adjacent to Crescent City. This points to an opportunity for the Tribe to collaborate with the RTPA to focus on California Coastal Trail (CCT) projects in other areas of the county.

The Policy Element discusses the importance of tourism to create jobs and boost the local economy. Primary visitor attractions are Redwood State and National Parks, which highlights the importance of trails projects in those locations, as well as the importance of improving "the infrastructure, walkability of communities and overall appeal so as to create an environment that makes visitors want to stay in the region. The *Del Norte County Regional Transportation Plan* notes that creating safer pedestrian access to visitor attractions can assist the Del Norte region with achieving the goal of increased tourism. Goals of the Tribe's *Trails and Waterways Master Plan* include tourism-based economic development and safety. This points to an opportunity to collaboratively pursue projects that achieve these goals.

The Action Element of the *Del Norte County Regional Transportation Plan* presents projects and programs related to the plan's goals, objectives and policies. Tsunami preparedness is one of the action items for transportation security/emergency preparedness, "Near the communities of Klamath and Klamath Glen, the Tsunami Hazard Zone borders the coastline and the Klamath River. The majority of the section of US 101 from Resighini Road north to Wilson Creek is located within the Hazard Zone. SR 169 dips in and out of the Hazard Zone as it winds around the Klamath River. As there are limited roadways in this area, evacuation sites have been established on high ground just above the Tsunami Hazard Zone. The Tribe feels there is a need to establish better evacuation routes in the Klamath community. Pedestrian trails and old logging roads may be options." This points to an opportunity for the Tribe to collaborate with the DNLTC and other relevant districts and agencies to increase tsunami preparedness.

The proposed financially-constrained RTP bicycle/pedestrian projects throughout the county include a wide variety of improvements including construction of Class I bike paths, Class II bike lanes, Class III bike routes, bicycle racks, and sidewalks. "The emphasis of the short-term and long-term non-motorized facility projects is to promote alternative transportation modes and increase connectivity for residents and visitors through safety improvements to the regional transportation system. Non-motorized facility projects are anticipated to total $29.7 million over the first ten years of the planning period and another $27.8 million over the latter half of the planning period. Bicycle and pedestrian projects can be partially or fully funded through a wide variety of transportation revenue sources, as discussed in the Financial Element, particularly if a non-motorized facility is part of a larger roadway project. The primary funding sources for bicycle and pedestrian projects in Del Norte County will be Transportation Enhancement, Regional Surface Transportation Program, Transportation Development Act and Safe Routes to Schools programs. Bicycle Transportation Account funding is also available for bicycle projects; however these funds are quite competitive. These sources are described in greater detail in Chapter 5." "As demonstrated throughout this RTP, the Native American tribes in the Del Norte region have a significant interest in transportation projects both on the state highway system and on other roadways. There are roadway and transit funding sources available to the tribes that are not available to Caltrans, DNLTC, County of Del Norte, or Crescent City. Although there appears to be good coordination between these entities, a good financial strategy is to maintain or improve coordination with the Tribes and discuss potential fund pooling arrangements for projects which benefit the Tribes. For example, the Yurok Tribe has an agreement with Humboldt County to use IRR funds to rehabilitate county maintained IRR roads. The Yurok Tribe has indicated the potential for a

similar agreement with the County of Del Norte." This points to an opportunity for the Tribe to seek funding for applicable projects identified by the *Yurok Trails and Waterways Master Plan*.

As explained in the Top Priority Projects Chapter of the *Del Norte County Regional Transportation Plan* top priority projects are not limited to roadway improvements. A list of 5 funded and 6 unfunded top priority transportation improvement projects are described. Only one of the eleven projects is a trail project and only one of the eleven projects is located in the Yurok Ancestral Territory, the Caltrans Klamath TE project, which was recently completed. This points to the opportunity to consider seeking high priority status for the most important project(s) that will be identified by the *Yurok Trails and Waterways Master Plan*. It also presents an opportunity to propose new projects for the next version of the *Del Norte County Regional Transportation Plan*.
(LSC Transportation Consultants, Inc., 2011)

Overall Work Program

The 2012/2013 work program mentions the FY 2011/12 Yurok Tribe Environmental Justice Grant and the project it is funding, the Yurok Tribe Trails Master Plan. This points to an opportunity for the Tribe to seek funding for other applicable projects.
(Del Norte Local Transportation Commission, 2012)

Bicycle Facilities Plan Update

The 2010 Update does not include any projects located in the Yurok Ancestral Territory.

- "Bicycle facilities that improve access, safety, and the convenience of bicycle travel increase the attractiveness of bicycle use. Facilities may include infrastructure improvements such as paved roadways, trails, bike lanes, and road shoulders, with uniform signing and road striping."…"The DNLTC encourages all agencies to work towards connecting all bicycle trail systems within the area." This points to an opportunity to identify Yurok trails and waterways projects that also serve to connect bicycle trail systems and collaborate with the DNLTC to complete the projects.
- The authors of the *Bicycle Facilities Plan Update* assessed bicycle facilities and needs and considered opportunities for projects that were part of a multi-use regional trail system that benefits bicyclists, pedestrians, hikers, and equestrians. This points to an opportunity to identify Yurok trails and waterways projects that serve multiple uses and collaborate with the DNLTC to complete the projects.

The *Yurok Trails and Waterways Master Plan* will contribute towards the realization of the following goals, policies and objectives of the Bicycle Facilities Plan Update:

- Policy: support bicycle planning as an integral part of community planning, including land use and regional transportation planning.
  - Objective: Continue to assess the adequacy of multi-use trail facilities, and identify multi-use trail opportunities throughout the County.
  - Objective: Make bikeway projects consistent with this Plan, for funding opportunities.

The Bicycle Facilities Plan Update references the 1998 Federal Highway Administration (FHWA) report, *Implementing Bicycle Improvements at the Local Level*, noting that the report recommends several facility

improvements designed to increase bicycle safety that would improve pedestrian safety conditions as well. One of these types of facility improvements is trail networks. Typical concerns are, "Trails are popular facilities among the bicycling public but they may be rare or discontinuous. In addition, some are poorly designed, constructed, or maintained." Possible projects are, "Provide new trails where possible throughout the community, connect existing trail segments, and encourage developers to include trails in their developments. Make sure designers and operations staff-use current literature." This highlights the opportunity to pursue particular funding sources for these types of projects when the case can be made that the project will address the aforementioned concerns.
(Del Norte Local Transportation Commission, 2010)

Safe Routes to School Research and Policy Report

The report recommends ensuring that streets are safe and accessible for all modes of travel (Complete Streets Policy, Bicycle/Pedestrian Plans, Walking/Biking Corridors). Del Norte County and the adjacent tribal lands (DNATL) is one of fourteen places in California participating in Building Healthy Communities (BHC), a ten-year initiative of The California Endowment (TCE).The goal of BHC is to "support the development of communities where kids and youth are healthy, safe and ready to learn"

- In October 2012, The Del Norte Local Transportation Commission coordinated an effort to assess travel to and from school among a sample of six schools in Del Norte County. All six schools are located in Crescent City. This points to an opportunity to conduct a similar assessment of schools attended by Yurok.
- The report cites lack of sidewalks or pathways as an issue that affects parents' decisions to allow or not allow walking or biking to school. This highlights the opportunity to pursue projects that will result in contiguous sidewalks or pathways from residential areas to schools to support the Safe Routes to School movement.

(Van Arsdale, J. and Yandell, N., 2013)

Humboldt County Plans

To identify the ways in which the Tribe's trails and waterways planning efforts relate to Humboldt County's planning efforts, the following four plans were reviewed:

- *Humboldt County Regional Trails Master Plan*
- *Humboldt Regional Bicycle Plan Update*
- *Humboldt Regional Transportation Plan*
- *Humboldt Regional Pedestrian Plan*

The project team completed a presentation on this topic at a Humboldt County Technical Advisory Committee meeting on June 13, 2013. The presentation organized the information by three themes:

- Common goals
- Areas of overlapping interests and opportunities for collaboration
- Opportunities for increased Tribal participation and visibility

A summary organized by the three themes listed above is included in the *Yurok Trails and Waterways Master Plan*. A more in-depth description of relevant points for each plan follows here:

Humboldt County Regional Trails Master Plan

The 2010 *Humboldt County Regional Trails Master Plan* is a long-range coordinating and resource document which promotes the development of a regional active ("non-motorized") transportation system. This plan was not an effort to document previously unidentified trail needs, but rather to compile existing trail and active transportation planning information. This points to the opportunity to incorporated previously unidentified trail needs that are identified thorough the Yurok *Trails and Waterways Master Plan* process into future updates to the Humboldt County Regional Trails Master Plan. "Integral to the Regional Trails Master Plan is the development of a regional trails vision, an outline of the existing and proposed active transportation system, tools to strengthen regional coordination and trail implementation, and the codification of 'Humboldt People Powered Pathways'."

The Regional Trails Vision described in the *Humboldt County Regional Trails Master Plan* includes a safe, comprehensive, and interconnected active transportation system that makes accomplishing shorter trips by active modes of travel more appealing, and travel between communities safer and more feasible, for people of all ages, abilities and financial means. The Yurok *Trails and Waterways Master Plan* supports that vision by providing a framework for the prioritized maintenance and development of trails and waterways within the Yurok Ancestral Territory.

The Yurok *Trails and Waterways Master Plan* will contribute towards the realization of each of the goals described in chapter 2 of the *Humboldt County Regional Trails Master Plan.* For example, policies include encouraging HCAOG member agencies to adopt the trail design guidelines into local plans and to develop and implement long-term trail maintenance and operation strategies. Another policy of the *Humboldt County Regional Trails Master Plan* is to promote public-private-tribal partnerships for trail development, operations, and maintenance.

The *Regional Trails Master Plan* consolidates the previous trails and bikeway planning efforts developed by independent entities and HCAOG members with a localized project focus. Chapter 4, Active Transportation System includes maps and descriptions for Humboldt County's trail network, beginning with regional trails that provide for continuous travel between communities, often crossing through multiple jurisdictions. Following are maps and descriptions for local networks, including the Cities of Arcata, Blue Lake, Eureka, Ferndale, Fortuna, Rio Dell and Trinidad. Next is the County of Humboldt, with the focus areas King Salmon, McKinleyville, Samoa Peninsula, Southern Humboldt, and Willow Creek. Next is a section with brief overviews of the Tribal trail networks of the eight Humboldt County Reservations and Rancherias. Of those eight, only the Hoopa Valley Tribe has a trail map in the report. It is important that the Yurok *Trails and Waterways Master Plan* process results in maps that can be incorporated into future updates to the Humboldt County Regional Trails Master Plan. The Yurok *Trails and Waterways Master Plan* encompasses all of the Yurok Ancestral Territory (YAT), meaning that some of the trails and waterways in the plan have overlapping jurisdictions. For example the City of Trinidad, Trinidad Rancheria, the regional California Coastal Trail, and areas of unincorporated Humboldt County, including the community of Orick all are included in the YAT. An opportunity exists for coordination between the Yurok Tribe and other jurisdictions regarding trails in these areas.
(Planwest Partners In association with: Natural Resources Services Division Redwood Community Action Agency and Alta Planning + Design, 2010)

Humboldt Regional Bicycle Plan Update

The purpose of the 2012 *Humboldt Regional Bicycle Plan* is to support the development of fully integrated active transportation network. The Regional Bicycle Plan recommends projects and programs that will help build a bikeway system that makes bicycling throughout Humboldt County a safe, convenient, and practical means of transportation for all residents and visitors. The plan will be updated every five years. Each update presents an opportunity for the Tribe to share information with the HCAOG about what is getting better, what is getting worse and to propose bicycle projects. Other communities will also propose bicycle projects. HCAOG will rank the projects and the resulting Bike Plan priority projects will have priority for State and Federal funding sources that are programmed through HCAOG. The Tribe also has the option of adopting the Plan at the local level to facilitate implementing projects within Tribal jurisdiction, as the Karuk Tribe has done.

The primary countywide system calls for implementing approximately 515 miles of bikeways to connect all cities and unincorporated areas in Humboldt, as well as adjacent counties. The estimated cost is approximately $27.26 million over the Bike Plan's 20-year life (2012 to 2032). Within this system, there are proposed routes in the City of Trinidad as well as three other routes that are within the YAT, the Pacific Coast Bike Route (Rt. 101), Bald Hills Road and Rt. 96.

The Bike Plan Update 2012 recommends implementing six priority regional projects in the short-term (first five years, 2012-2017):

1. Regional Bikeway and Trails Signing Program
2. Regional Bicycle Parking Program
3. Regional Non-Motorized Education & Outreach Program
4. Regional Bicycle Guide & Map
5. Bicycle Facility Maintenance Program
6. Regional Loop Detector Installation & Maintenance Program

(Humboldt County Association of Governments, 2012)

Humboldt Regional Transportation Plan

The overall goal of the 2008 *Regional Transportation Plan* is to develop, operate, and maintain a well-coordinated, balanced, countywide multimodal transportation system that is safe, efficient, and provides good access to all cities, communities, and recreational facilities in Humboldt County, and into adjoining regions. A balanced multimodal transportation includes, but is not limited to highways and local roads, public transit and paratransit, aviation facilities, marine transport, railroads, bicycle facilities and pedestrian facilities.

Local Tribes, including the Yurok, were consulted as part of the 2008 RTP update process, via the Humboldt County Tribal Transportation Commission (HCTTC) meetings, HCAOG TAC meetings and direct correspondence via email and phone. The plan notes that, "Most roadways on the Yurok reservation are incomplete, underdeveloped or falling seriously behind acceptable standards for public roads."

- During 2008 RTP Update preparation, recently completed plans, policy documents and studies addressing transportation and environmental issues in Humboldt County were reviewed and incorporated. Future updates could include a review of the Tribe's plan, when complete.

- The RTP states several assumptions, one of which is that, "Non-motorized facilities will continue to improve and become better connected with other modal systems. These improvements will result in an increase in use of non-motorized (pedestrian and bicycle) transportation modes. This indicates that trail use is predicted to increase which highlights the need to secure funding for maintenance and other trails projects.

The Bicycle and Pedestrian System Element pertains to walking and cycling for the purposes of:

1. Commuting (non-recreational trips to specific destinations),
2. Recreation (for fun or fitness), and
3. Bicycle touring (longer distance and/or travel cycling, whether by local riders or non-residents visiting and riding through the county).

The RTP Bicycle and Pedestrian System Element explains that commuter walking is most likely to occur within communities (as opposed to travelling from one community to another). The authors cite distance, a lack of connective corridors that can safely accommodate either foot or bicycle traffic and varied topography. Given the traditional uses of trails by Yurok people, the assertion that commuter walking is most likely to occur within communities may be less true for them than it is for the general Humboldt County population. For the Yurok, it is both an ancient and current day practice to walk for non-recreational purposes such as travel to ceremonial sites or for gathering items for subsistence or for bartering. If the importance of trails as means for commuting was better recognized, perhaps trails projects would be prioritized and funded differently. This points to an opportunity for the Tribe to educate HCAOG and other relevant entities on the importance of trails as means for commuting.

It is in the Tribe's interest to encourage the attainment of the following Guiding Goals, Policies, and Objectives from the RTP Bicycle and Pedestrian System Element:

- "BP-2 Policy: Encourage an interconnected transportation network", with the objective, "Develop bicycle and pedestrian trail facilities in the region, through coordination among Humboldt County (Humboldt County General Plan), Caltrans, cities, non-profits, and other entities with planning responsibilities."
- "BP-4 Policy: Encourage the pursuit of alternative non-motorized funding sources to the maximum degree plausible", with the objectives, "Secure alternative funding source -- such as grants and public-private partnerships--to finance pedestrian and bicycle facility improvements", and "Develop alternative approaches for providing improvements to pedestrian and bicycle facilities."

The RTP Bicycle and Pedestrian System Element discusses the 1998 Federal Highway Administration (FHWA) report, *Implementing Bicycle Improvements at the Local Level*, noting that the report recommends several facility improvements designed to increase bicycle safety that would improve pedestrian safety conditions as well. One of these types of facility improvements is trail networks. Typical concerns are, "Trails are popular facilities among the bicycling public but they may be rare or discontinuous. In addition, some are poorly designed, constructed, or maintained." Possible projects are, "Provide new trails where possible throughout the community, connect existing trail segments, and encourage developers to include trails in their developments. Make sure designers and operations staff-use current literature." This highlights the opportunity to pursue particular funding sources for these types of projects when the case can be made that the project will address the aforementioned concerns.
(Planwest Partners, Inc., 2008)

Humboldt Regional Pedestrian Plan

The *Humboldt County Pedestrian Plan* guides future development and pedestrian infrastructure in the county. The Plan aims to make walking an integral transportation mode in Humboldt County by proposing improvements to the pedestrian network.

The three goals of the plan are:

1. Make Humboldt County a pedestrian safe environment.
2. Improve pedestrian access.
3. Educate Humboldt County citizens about the benefits of walkable communities.

The *Yurok Trails and Waterways Master Plan* will contribute towards the realization of each of the goals.
The *Humboldt County Pedestrian Plan* notes that the *Yurok Tribal Transportation Plan* contains a recommendation specifically related to pedestrian transportation, which are for pedestrian paths in the Klamath & Klamath Glen areas along HWY 101 and 169 in Del Norte. However, it does not establish any specific connection between this recommendation and the County's Pedestrian Plan. This presents an opportunity to identify whether or not these paths were satisfactorily developed and to create more of a connection between the Tribe's goals and the County's goals.

The *Humboldt County Pedestrian Plan* includes recommendations for the California Coastal Trail. This trail runs the length of the Yurok Ancestral Territory. This presents an opportunity to collaborate.

The *Humboldt County Pedestrian Plan* states, "The County, HCAOG, and local jurisdictions should assist school districts and interested schools in developing comprehensive Safe Routes to Schools programs." A check of the National SRTS State Project List on May 3, 2013 showed that none have occurred in Del Norte County and one project has occurred in Humboldt County (crossing guard program at Eureka schools). This presents an opportunity to collaborate.

A section on Weitchpec in the *Humboldt County Pedestrian Plan* states that the Tribe's Engineer identified improved pedestrian access to services on HWY 96 and SR 169 as top priorities. Significant consideration should also be given to accommodate pedestrians near special cultural sites, such as the Brush and Jump Dance ceremonial sites along SR 169. These sites can draw hundreds of people to gathering points along SR 169." The project recommended by the plan is various improvements on SR 96: Downtown to Weitchpec Road with Bald Hills Road as an additional location for consideration. The plan also recommends pedestrian crossing signs on SR 169 at the following locations:

- Near Weitchpec volunteer fire station at PM 31.14
- High School and Elementary bus stops from PM 13.20 to PM 33.48
- Johnson's Village Road near Wautec
- Cultural Sites (not posted) at PM 14.46,15.5 and 32.75
- Driveway to Jack Norton School
- 169 and McKinnon Hill – near MorekWan Community Center and Head Start

This presents an opportunity to evaluate the progress of those projects, ensure that they were completed satisfactorily and propose new projects for the next version of the Humboldt County Pedestrian Plan.

The *Humboldt County Pedestrian Plan* includes a section on pedestrian programs that promote safety and walking as a mode of travel. The plan has many good ideas but is not targeting any jurisdictions in particular. This presents an opportunity for the Tribe to raise any safety concerns or program approach ideas that are specific to Yurok needs.

(Alta Planning + Design, Redwood Community Action Agency and SHN Consultant Engineers, 2008)

Note: Please see the bibliography at the end of the *Trails and Waterways Master Plan* for the sources referenced in this appendix.