CASCADE TO MEEKS

CASCADE TO MEEKS TRAIL STUDY

WEST SHORE TAHOE TRAIL

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TABLE OF CONTEXT

CHAPTER 1: INTRODUCTION AND BACKGROUND

A NEW TRAIL: CASCADE TO MEEKS

The southwest shore of Lake Tahoe rewards visitors and residents with access to some of the most breathtaking portions of the Lake Tahoe basin. These include several of the most popular beaches, parks, recreation sites, and overlooks, such as Emerald Bay State Park, D.L. Bliss State Park, and Meeks Bay. The area is also home to several west-shore residential communities, US Forest Service (USFS) Lake Tahoe Basin Management Unit lands, and important tribal sites for the Washoe Tribe of Nevada and California.

Nearly 1.8 million visitors travel to this area annually, most via State Route 89 [a]. The State Route 89 (SR 89) corridor is blessed with an abundance of allure yet burdened by an excess of attention. Current infrastructure, staffing, and operational capacity is unable to keep pace with visitation rates. These following statistics highlight the challenges:

- One recreation parking space for every 813 annual vehicle entries[a] (Based on 2014 data)
- Up to 30-minute delays due to traffic congestion
- Over 500 vehicles parked along the highway near Emerald Bay on a peak summer day
- No bike and pedestrian facilities between Spring Creek and Meeks Bay (11-mile gap)

Figure 1.1: Looking west across Emerald Bay (photo by Drone Promotions)

[a] Linking Tahoe: Corridor Connection Plan, Tahoe Transportation District, September 2017

Figure 1.2: Emerald Bay on a busy summer day (photo by NCE)

To address the needs of the area's diverse users, and protect environmental resources, regional and corridor level planning efforts have identified a variety of necessary transit, parking, roadway safety, and recreation infrastructure within the corridor. This document presents the feasibility study conducted for one of these improvements: a multi-use trail between Spring Creek Road (near Tallac Creek) and Meeks Bay. The new trail, the Cascade to Meeks Trail, would fill a critical gap in the West Shore Tahoe Trail, which runs from Tahoe City to Camp Richardson and is integral to realizing the envisioned Tahoe Trail, a complete multi-use path around the entirety of Lake Tahoe.

The feasibility study outlined in this document is not intended nor does it address other improvements including transit, parking, and roadway safety. Should a feasible trail be identified and moved forward, it will integrate with other infrastructure improvement planning efforts within the corridor.

Figure 1.3: Parked vehicles along the SR 89 shoulder near Eagle Creek (photo by Tahoe Daily Tribune)

All parties involved in the development of this feasibility study acknowledge that constructing a new multi-use trail within the SR 89 corridor will require trade offs. For example, constructing a new trail will result in land disturbance and changes to the type and extent of infrastructure along the SR 89 corridor (e.g., new paved paths, retaining structures, creek crossings, boardwalks, etc.). These new improvements may visible from SR 89, the surrounding forests, and Lake Tahoe. However, the addition of a multi-use trail will provide an alternative means of travel through the corridor, thus reducing congestion, improving safety by moving pedestrians off the highway, and increasing access to the corridor's amenities. The goal is for the trade offs associated with the trail to result in an overall benefit for the corridor, its users, and resources.

SR-89 CORRIDOR MANAGEMENT PLAN (CMP)

WHAT IS IT?

In 2019, the Tahoe Regional Planning Agency (TRPA), Tahoe Transportation District (TTD), and USFS, supported by a consultant team, produced an Existing Conditions report. This report summarized 10 years of research findings and identified the key issues affecting transportation and the visitor experience along the SR 89 corridor.

Building on the Existing Conditions report, the same team produced the SR 89 CMP in 2020. The document presented the negative impacts of the extremely high and growing visitation levels on natural resources, infrastructure, operations, and enforcement. To protect resources, effectively manage operations, and improve the overall visitor travel experience, the CMP concluded that new strategies were necessary to transform how visitors arrive at their recreation destinations and move through the SR 89 corridor.

WHY IS IT RELEVANT?

Key issues identified in the CMP include:

- "Lack of shared-use path facilities for off-highway bicycle and pedestrian circulation and access."
- "High volumes of pedestrians walk along and in the roadway."
- "Lack of pedestrian crossing facilities to cross SR 89."
- "Vehicles traveling at speeds not conducive for pedestrian crossings and volumes during peak season and roadway curves with short sight distance."

HOW DOES IT RELATE TO THIS CURRENT EFFORT?

The need for a new trail was identified as a priority project in the CMP and a feasibility study evaluating a new recreation resource was recommended. Currently, the West Shore Tahoe Trail ends at Spring Creek Road, west of Camp

Figure 1.4: Emerald Bay along SR 89 on a busy summer day (photo by TRPA/Design Workshop)

Richardson. Not until reaching Meeks Bay, 11 miles north of Spring Creek Road, does the West Shore Tahoe Trail start again. The new Cascade to Meeks Trail would fill this gap.

CASCADE TO MEEKS TRAIL STUDY

The Cascade to Meeks Trail Study was launched in 2021. The study was led by TRPA, supported by a consultant team, and overseen by a Steering Committee composed of implementing agencies, land and resource managers, and the Washoe Tribe of Nevada and California. The purpose of this Cascade to Meeks Trail Study is to identify a preferred alignment that achieves the vision for the corridor, obtains broad support, and assesses the feasibility of designing, permitting, and constructing that alignment.

VISION STATEMENT

"Provide a safe and seamless travel experience that inspires every visitor and resident to walk, bike or use transit to access the corridor's diverse recreation offerings to better manage congestion, enhance environmental resiliency, and allow people to focus on enjoying the special nature of Lake Tahoe's southwest shoreline."

CASCADE TO MEEKS TRAIL STUDY

Figure 1.5: Project logo

PROJECT GOALS

- **Identify feasible alignments and amenities.** Define a trail alignment, and associated amenities, that is broadly supported and is feasible to design, permit, construct, operate, and maintain.
- **Provide a trail experience for all.** Create a trail that allows users of all abilities to access, recreate, and enjoy the southwest shore of Lake Tahoe.
- **Improve user experience.** Create a trail with amenities that encourages users of all abilities to get out of their cars, reduces congestion, reduces parking impacts, and improves public safety.
- **Sensitive to the environment.** Build a trail that minimizes impacts to resources, creates opportunities to enhance environmental conditions, and provides cultural and interpretive opportunities.
- **Focused on sustainable design.** Identify and develop a trail that reduces greenhouse gas emissions, capitalizes on renewable materials, and is durable to future climate change impacts in the Tahoe Basin.
- **Improve connectivity.** Create a trail to fill the gap between Cascade and Meeks Bay and connect to key access points in the Corridor.

OUTREACH AND ENGAGEMENT

Agency and public involvement have been a cornerstone of this trail study since its initiation, including the TRPA, USFS, El Dorado County, Caltrans, California State Parks, and the Washoe Tribe of Nevada and California. A robust outreach and engagement approach was implemented to foster a spirit of collaboration with sponsor agencies, the Steering Committee, key stakeholders, and engaged members of the public. Specific activities included an initial community workshop, surveys, several focused meetings with nearby homeowners' associations, a series of information sessions, mailers, press releases, individual email and phone communications, a website, and an interactive web map. For the Steering Committee, a kickoff workshop and numerous work sessions were held, a series of one-on-one meetings were facilitated, and a field tour was conducted.

Input received during these activities was integral in defining evaluation criteria, arriving at the preferred trail alignment, and conducting the feasibility analysis. Input was received from permanent and part-time residents; homeowners associations; recreationists, environmental and conservation groups; chambers of commerce; tourism groups; resort associations; cities and counties; fire departments; transportation districts; law enforcement agencies, and visitors.

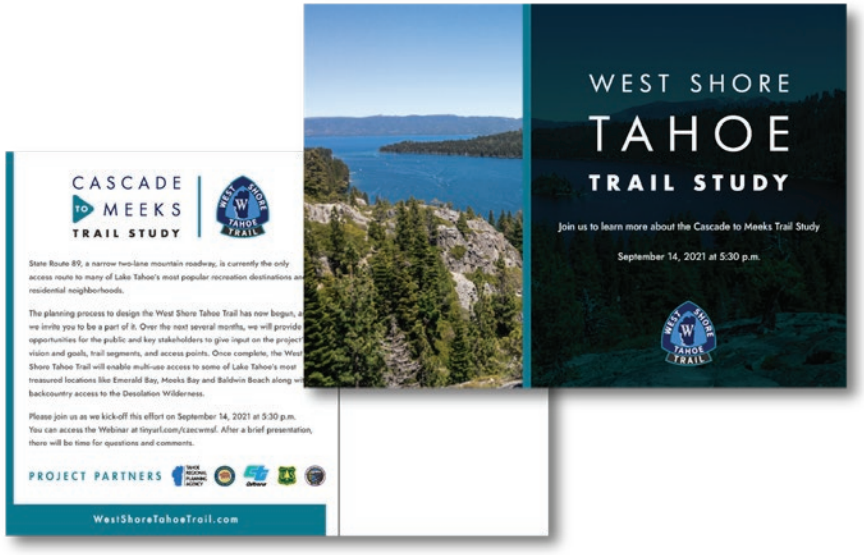


Figure 1.6: Project direct mailer

Figure 1.7: Most common themes from survey following initial community workshop

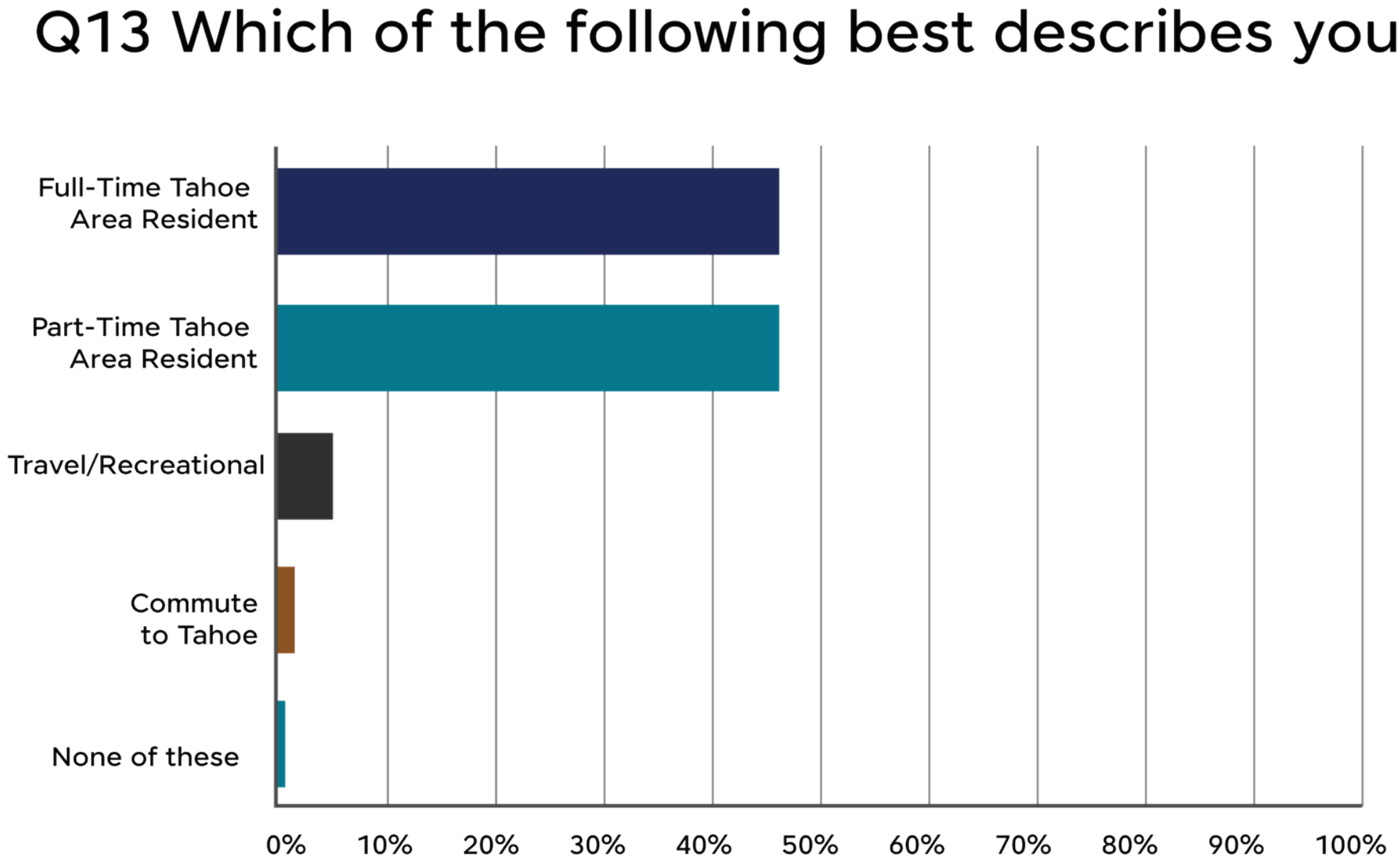


Figure 1.8: How respondents identified themselves in a survey following the initial community workshop

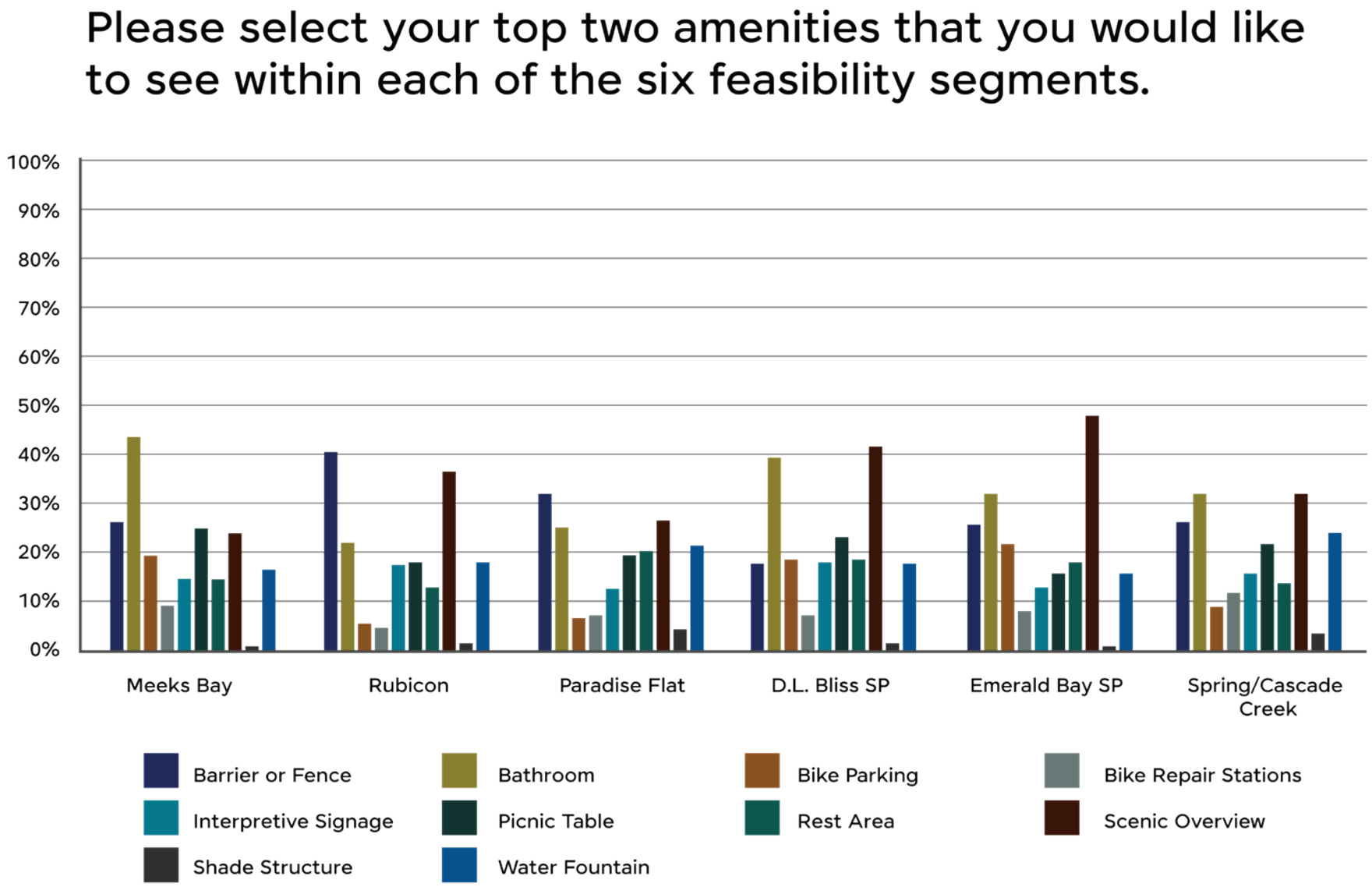


Figure 1.9: Amenity preferences from survey following initial community workshop

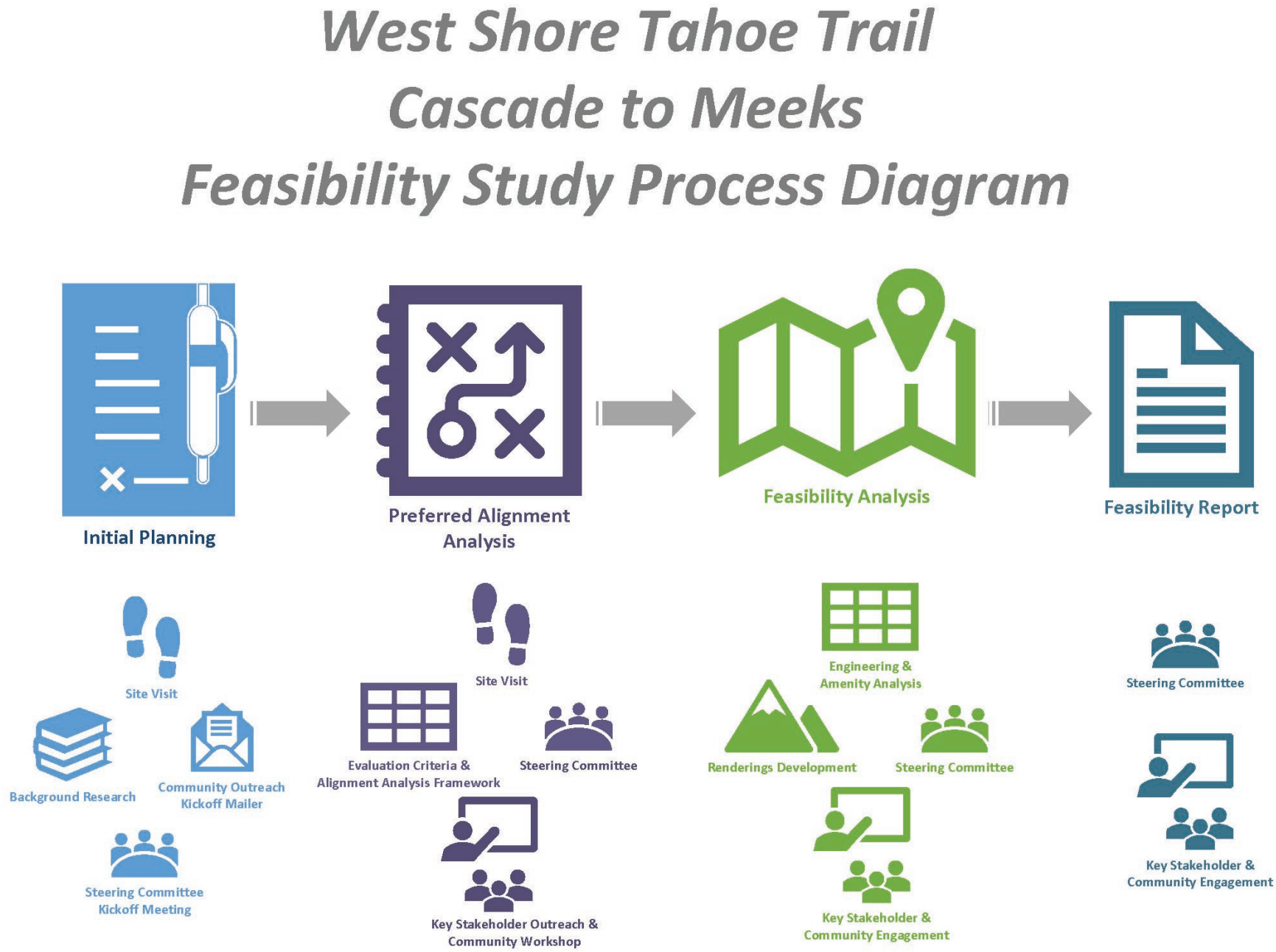


Figure 1.10: Feasibility Study Process

CASCADE TO MEEKS TRAIL STUDY PROCESS

- Initial Planning – The study was initiated by gathering relevant background resource information, alignments, pre-screening, considering potential user amenities, and then refining the alignments based on the initial field and research efforts from the CMP (Chapter 2).
- Preferred Alignment – Once a final set of trail alignments was identified, the Alignment Analysis began with the development of evaluation categories and criteria. Appendix A presents the methodology. In locations where more than one alignment was identified, the criteria were applied to determine the highest scoring alignment (see Appendix A for scoring). Next, potential amenities were identified along the trail, including lookouts, crossings, and opportunities for interpretive signage. Finally, a three-step process was used to determine the preferred Cascade to Meeks Trail alignment (Chapter 2).
- Feasibility Analysis – Planning, engineering, environmental resource, and landscape design considerations were applied to the preferred alignment to determine its feasibility. The process required developing schematic-level plans, profiles, and cross-sections of the trail and structures; creating visuals of amenities; and determining implementation priorities and preliminary cost estimates.
  - Opportunities and Amenities – Building on the work completed to date, the consultant team developed a conceptual trail layout that presents minimum and maximum slopes, retaining structure heights, elevation gains/losses, anticipated tree removal, and the locations of key infrastructure and amenities including overlooks, road undercrossings, creek crossings, and typical trail profiles. The conceptual trail layout is complemented by a series of graphics and visuals to offer examples of the look and feel of the trail (Chapter 3).
  - Trail Feasibility and Buildout – Planning and environmental review may be conducted at a programmatic-scale for the entire 11-mile corridor or at the project-scale for each buildable project. Design, permitting, and construction are likely to occur at the project-scale. To support this likely outcome, Chapter 4 presents opportunities and constraints within each buildable project that would inform the design and construction. Tasks are prioritized based on an "ease to construct" determination along with planning-level cost estimates. This final chapter sets the stage for making the Cascade to Meeks Trail a reality.
- Feasibility Study – The compilation of the chapters above result in this Cascade to Meeks Trail Study.

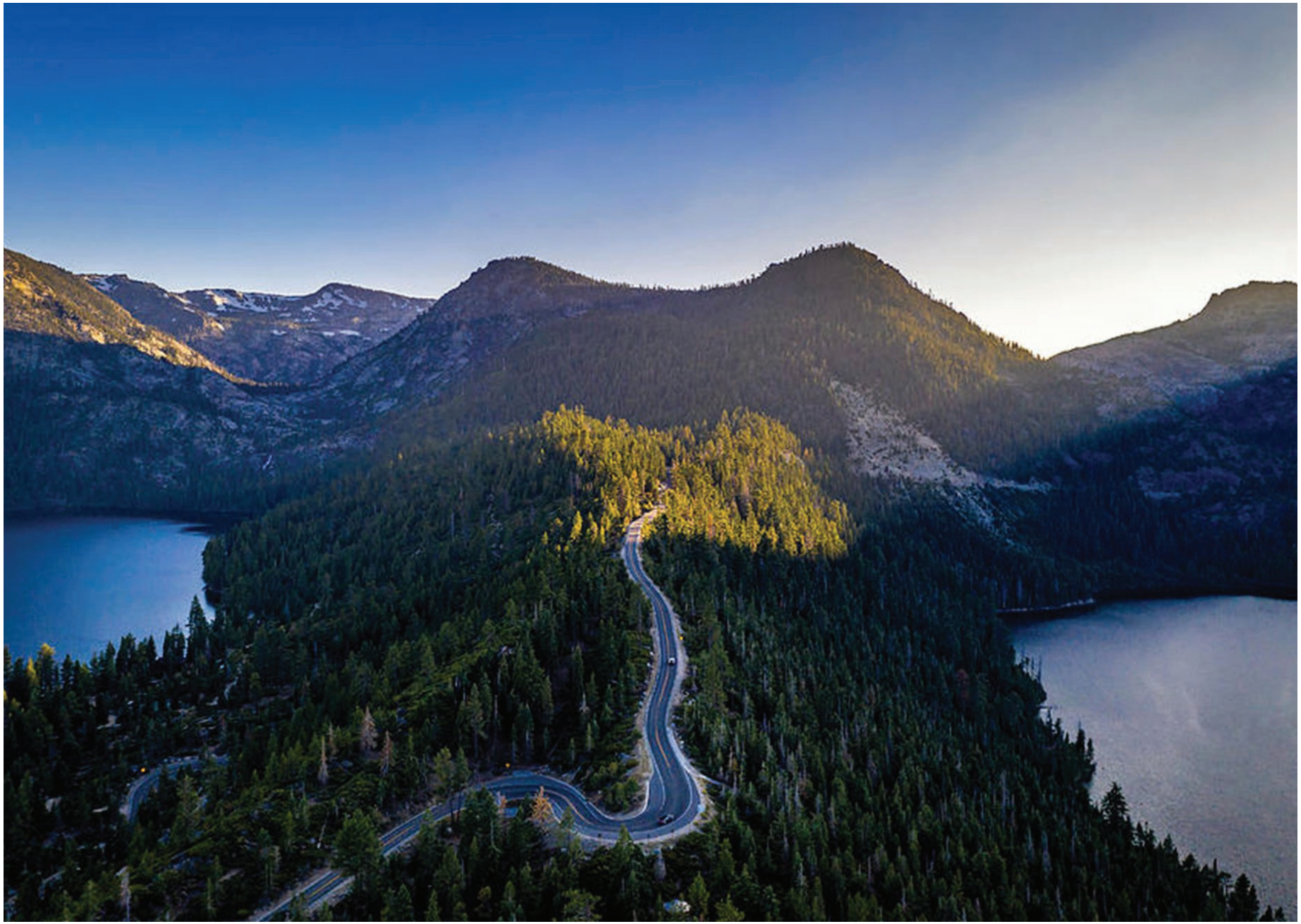


Figure 1.11: (photo by Clinton Ward)

CHAPTER 2: PREFERRED ALIGNMENT

This Chapter presents the process undertaken to identify and select a preferred trail alignment. This involved conducting background research, site visits, pre-screening, developing evaluation criteria and an alignment analysis framework, conducting a data-based and human analysis, and selecting the preferred alignment.

BACKGROUND RESEARCH

A foundational component of the Alignment Analysis was building on the wealth of existing information available for the corridor. Planning documents, technical reports, geospatial data, natural resource databases, schematic designs, operational information, and recommendations from the CMP were all reviewed during the background research phase. Based on this research, and leveraging the existing geospatial data, a geographic information system (GIS) was developed to inform analysis, stakeholder engagement, and decision-making throughout the study.

Background information obtained and reviewed:

- Potential Tahoe Trail alignments
- Existing parking
- Overhead utilities
- Recreation facilities
- Land capability districts
- Scenic road corridor and shoreline units
- Homeowner and property owner association boundaries
- Aquatic resources (lakes, streams, and wetlands)
- Known biological resource management areas
- Historical or current avian nest sites and buffers
- California Natural Diversity Database occurrences
- Caltrans existing bridge information
- Caltrans right-of-way limits
- Caltrans maintenance/avalanche information
- Land ownership
- Undercrossing locations
- Existing trails and roads
- Cultural resources record search information
- Corridor-wide LiDAR data
- California State Parks Vikingsholm parking lot conceptual design
- USFS Bayview conceptual design information
- USFS existing trails information
- Meeks Bay Restoration Project design information

Figure 2.1: Alignment analysis flow diagram

SITE VISITS

The technical team conducted several site visits to ground-truth trail alignments, assess physical constraints, and identify potential amenity locations. The team also assessed environmental, geologic, infrastructure, recreation, parking, neighborhood, and operational aspects of the corridor. Partner agencies, Steering Committee members, and stakeholders also conducted site visits of the corridor or select locations.

PRE-SCREENING

During early stages of the study, it was determined that not all of the CMP-proposed potential alignments were consistent with the stated goals (Chapter 1). As a result, only the most feasible and practical trail alignments within the corridor, determined through a pre-screening process, were proposed to be evaluated as part of the Alignment Analysis.

The pre-screening effort included four high-level criteria: user experience, constructability, cost, and resource impacts. The results presented a refined set of trail alignments, approved by the Steering Committee, for inclusion in the Alignment Analysis.

Figure 2.2: Field observations by the technical team informed report recommendations (photo by D. Rios)

EVALUATION CRITERIA & ANALYSIS FRAMEWORK

After the pre-screening effort, the Alignment Analysis was initiated. A unique set of evaluation criteria were developed based on the study goals, along with cost, constructability, operational, environmental, user, and land ownership considerations. These criteria were presented to the Steering Committee and stakeholders during a series of workshops. Based on feedback from these workshops, two new criteria were added to specifically address landowner considerations. The final set of evaluation criteria approved by the Steering Committee included 22 criteria within six categories.

Next, an analysis framework was designed that defined the

Figure 2.3: Evaluation Criteria and Categories

process to evaluate, score, rank, and select the preferred alignment. This framework aimed to 1) include a repeatable and defensible process and 2) capture the diverse perspectives of users, landowners, and stakeholders. As part of the framework, the Steering Committee held final decision-making authority.

The framework included a three-step process:

1) Data-Based Analysis
2) Human (Qualitative) Analysis
3) Decision-Making

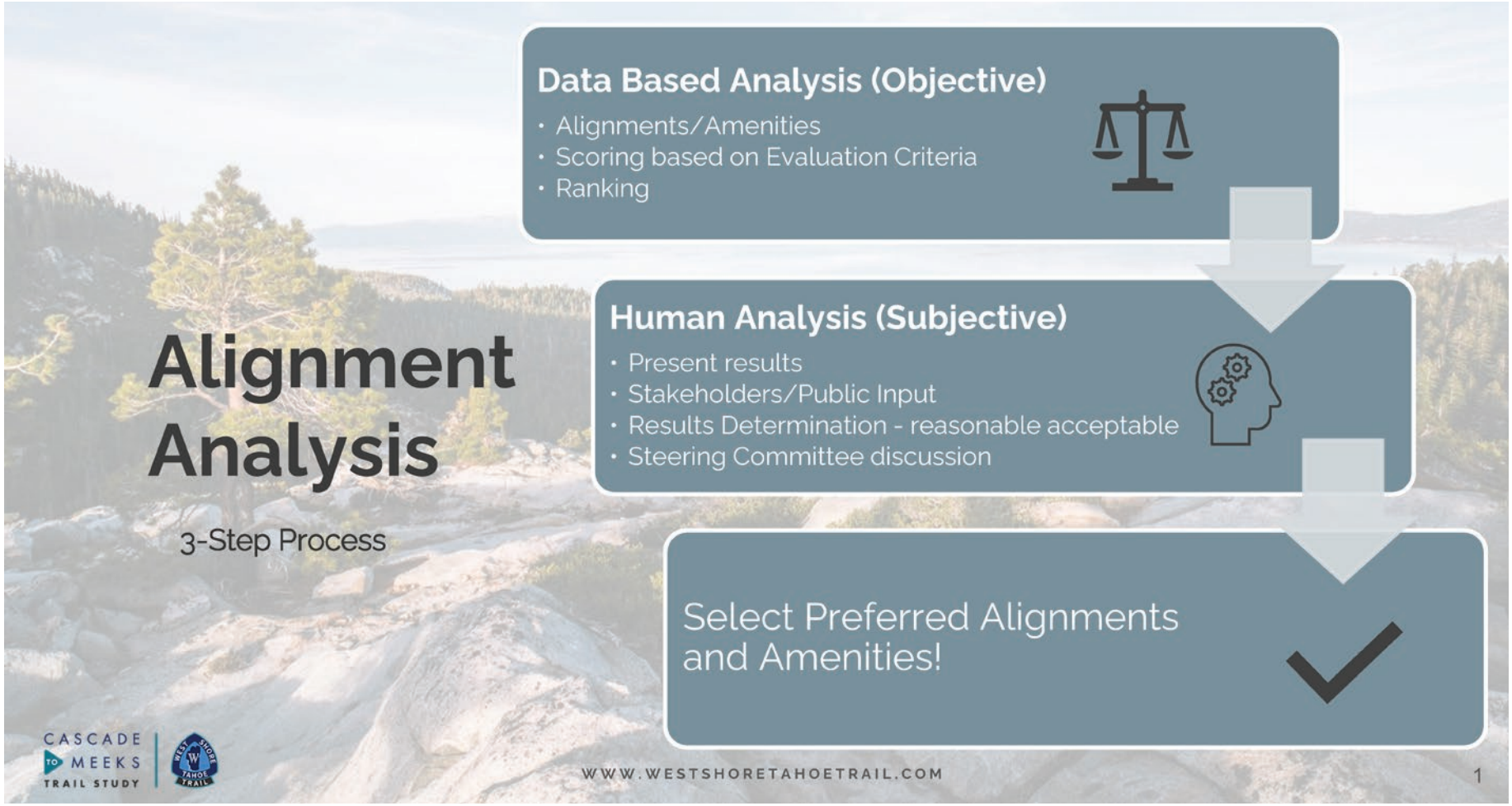


Figure 2.4: Alignment Analysis 3-step process

DATA-BASED ANALYSIS

This effort was applied to each location within the corridor where two or more alignments existed. Using the evaluation criteria presented above, each alignment was given a score for each criterion and those scores were summed to create a ranking. Each criterion was scored on a three-point scale (1, 3, or 5) with 1 being the least desirable, 3 being neutral, and 5 being most desirable. The values for the scale were selected to provide adequate separation between conditions, and to create substantial enough scores for observers to compare alternatives.

Depending on the evaluation category and criterion, the process for assigning scores involved one of several methods, including a GIS visual comparison, a slope analysis, a Google Street View visual evaluation, or calculations using the output from a preliminary engineering analysis and the LiDAR data.

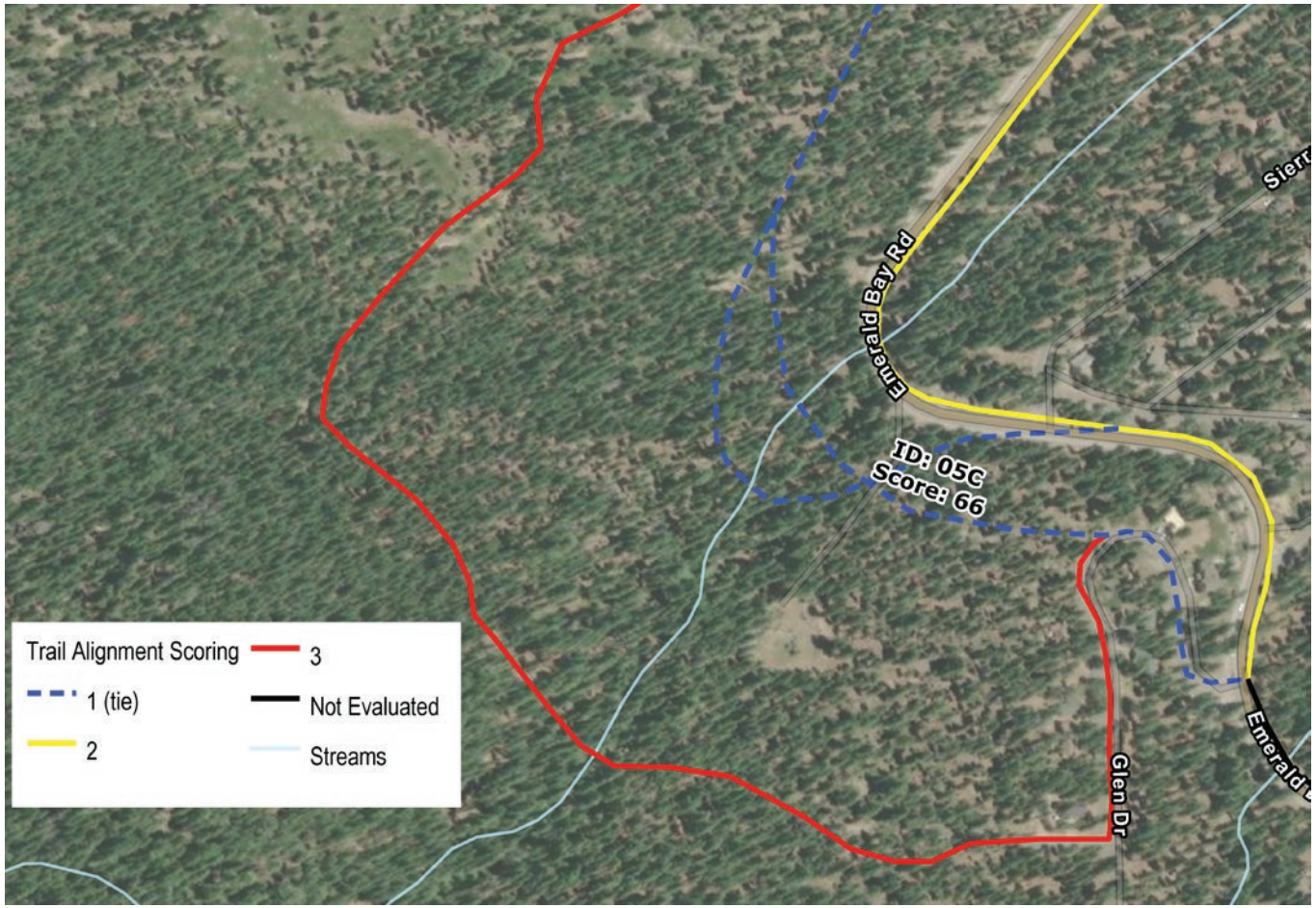


Figure 2.5: Data-based analysis results near Rubicon Segment

The preliminary engineering analysis resulted in cut-and-fill slope locations and lengths, retaining-wall lengths, bridge requirements, and potential drainage-crossing locations (Figure 2.6 and 2.7). Preliminary engineering analysis and the slope analysis informed the constructability, cost, and access and operations categories, while environmental, landowner considerations, and user experience relied on the GIS visual comparison and Google Street View evaluations.

Alignments that scored low would generally have higher capital costs, be more difficult to access, have higher maintenance requirements, create more significant environmental impacts, have greater impacts to private landowners, and provide a worse user experience than comparable alternatives. The evaluation criteria scores for each alignment were tallied and compared in order to rank each alignment set.

The analysis resulted in top-ranked alignments (shown in blue) having a mixture of locations; mountain-side versus lake-side and near SR 89 versus away from SR 89. As an example, the top-ranked alignment within Meeks Bay was on the lake side of SR 89, within the Caltrans right-of-way (Figure 2.8). In D.L. Bliss State Park, the highest-ranked alignments were also on the lake side but were separated from SR 89 (Figure 2.9).

The ranked results from the analysis were presented to the Steering Committee, stakeholders, and the public during a series of information sessions. The information sessions were broken in to three geographic areas: North (Meeks to Rubicon), Central (Paradise Flat to D.L. Bliss State Park) and South (Emerald Bay to Spring Creek). Following the information sessions, an online survey was conducted to obtain feedback on the public's preferred alignment.

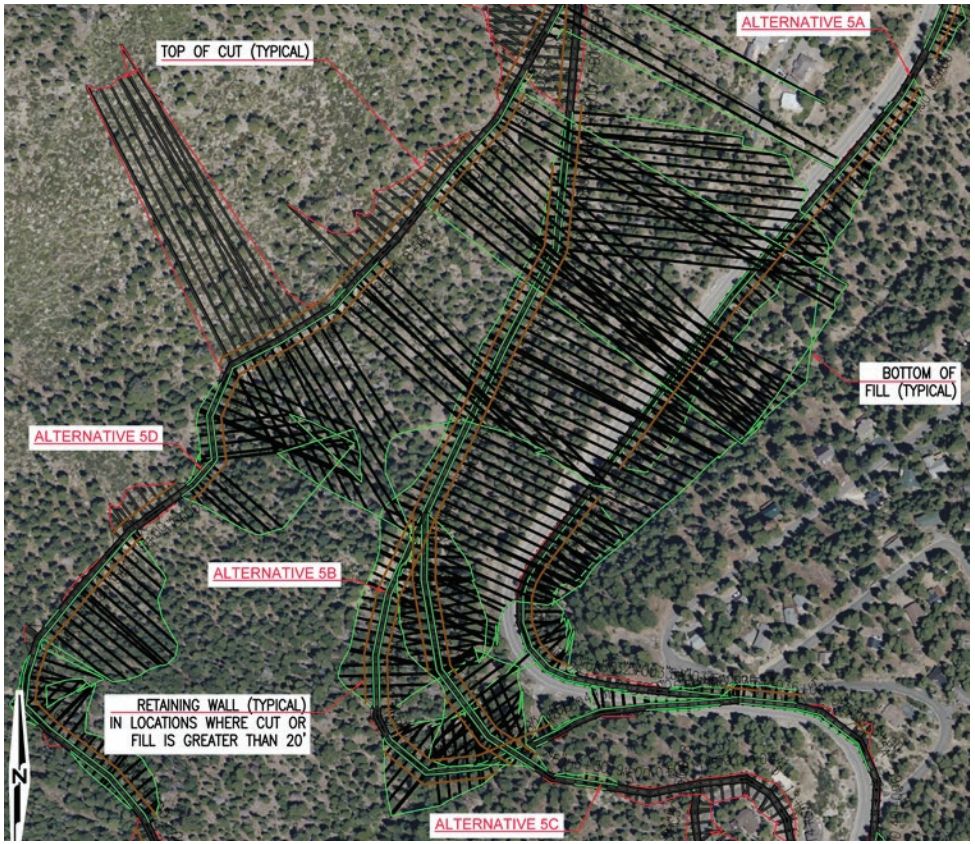


Figure 2.6: Preliminary engineering analysis exhibit near Rubicon Segment

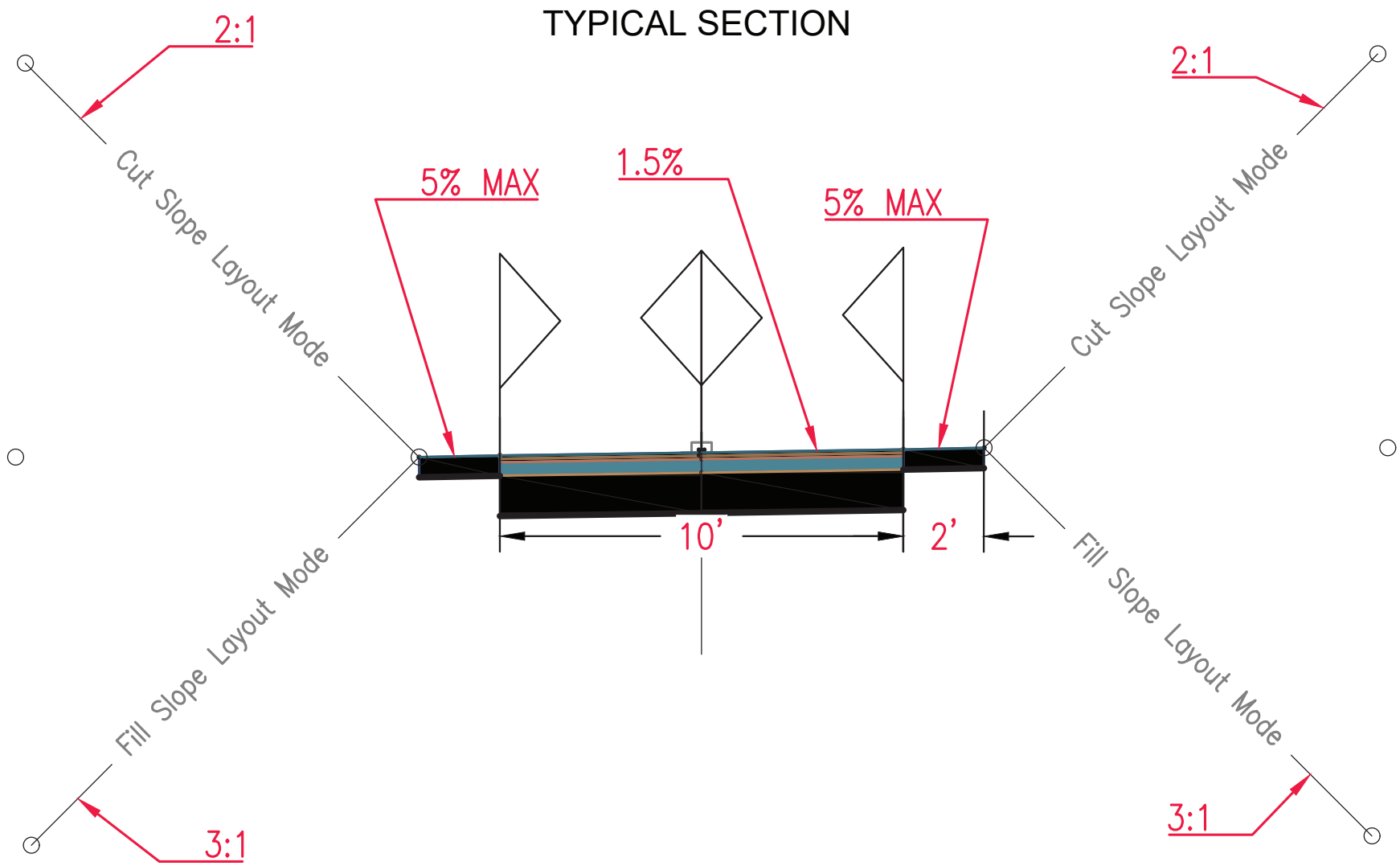


Figure 2.7: Typical Section (exhibit by S. Teeter)

Figure 2.8: Meeks Bay data-based ranked results

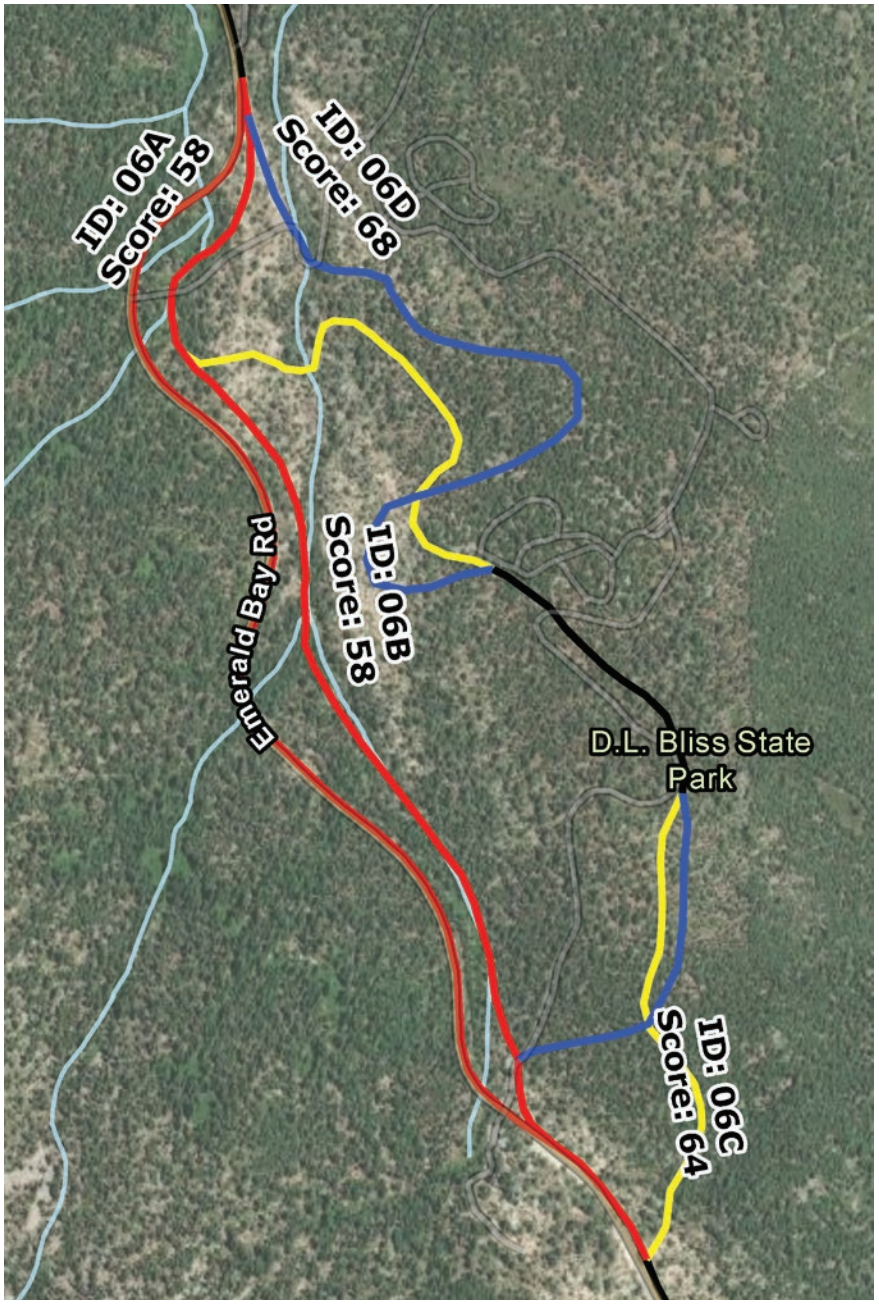


Figure 2.9: D.L. Bliss SP. data-based ranked results

HUMAN ANALYSIS

This step in the process focused on qualitative considerations by incorporating community, stakeholder, and Steering Committee perspectives (beyond the quantitative evaluation criteria). Input from stakeholder workshops, informational sessions, surveys, and other communications were reviewed and considered by the Steering Committee. Community, organizational, and political priorities, and constraints were shared and discussed, allowing the Steering Committee to weigh qualitative and quantitative factors in selecting a preferred alignment.

Figure 2.10: Considering the possibilities in Emerald Bay (photo by J. Drew)

Figure 2.11: Steering Committee Site Visit (photo by J. Drew)

PREFERRED ALIGNMENT

The preferred alignment selected by the Steering Committee is presented in Figure 2.12. Moving north to south, the alignment begins on the north side of Meeks Bay with a connection to the existing West Shore Tahoe Trail and terminates at its connection to the South Shore Tahoe Trail near Spring Creek. To allow for easier communication of the locations through the 11-mile corridor, six corridor segments were created which are presented on figure 2.12.

Meeks Bay: From its connection to the West Shore Tahoe Trail, the alignment transitions from the lake side of SR 89 to the mountain side, continues south through Meeks Meadow, and continues on towards the Tahoe Hills neighborhood. Primary drivers for selection of a mountain-side alignment in this area included utility conflicts and safety concerns at the entrances to the resort, campground, and fire station, along with the desire to include a meadow experience for trail users.

Rubicon North/Tahoe Hills: The study included two alignments in this area: one along the Caltrans right-of-way and a second utilizing residential streets upslope. Both are included in the feasibility analysis (Chapter 3) due to significant constraints, primarily physical limitations within the SR 89 right-of-way and landowner concerns within the neighborhood. Both alignments converge at the old Lakeview Drive roadbed, where the trail heads south towards the Rubicon neighborhood. This location provides one of the most scenic views and spectacular experiences along the trail.

Rubicon South: Heading south from Lakeview Drive, the trail heads above the Rubicon neighborhood into a forested area, returning to the mountain side of SR 89 just south of Glen Drive. This section of trail would provide a unique forested experience for users and improve safety by keeping users away from SR 89. From Glen Drive to Paradise Flats, the trail would generally be within the mountain side of the SR 89 right-of-way.

Paradise Flat: The trail would remain on the mountain side of SR 89 and generally within the right-of-way. This portion of the trail would be used to move people between Meeks Bay and D.L. Bliss State Park so the length and slope would be minimized to the extent feasible. Due to topographical and land-ownership constraints, no other options are viable in this segment.

D.L. Bliss State Park: The trail would transition from the mountain side to the lake side of SR 89 somewhere south of D.L. Bliss State Park. Within the park, the trail would follow existing user trails to the extent feasible and focus on allowing users to experience the natural features and landscape. Topographical, environmental, and existing trails would drive the location of the trail within the Park.

Emerald Bay from D.L. Bliss to Eagle Falls: From D.L. Bliss State Park, the trail would continue south into Emerald Bay. Due to slopes, safety concerns, and physical constraints, the trail would be situated mid-slope, below SR 89 and Lower Emerald Bay Cabins and above the existing maintenance road as it moves towards the Vikingsholm parking lot. From the parking lot, the trail would follow existing paths to Eagle Falls.

Emerald Bay from Eagle Falls to Eagle Point: There are numerous physical constraints and hazards within Emerald Bay. To the extent feasible, the trail would remain below SR 89 (mid-slope) as it moves from Eagle Falls towards Eagle Point Campground. A connection to Inspiration Point upslope would be critical. The trail would employ existing user trails and abandoned roadbeds as it moves through Eagle Point towards Cascade Creek.

Cascade: From Cascade Creek, the trail would remain generally on the lake side of the SR 89 right-of-way. This trail section would provide spectacular views of Lake Tahoe and would improve safety by removing pedestrians and cyclists from the existing narrow roadway.

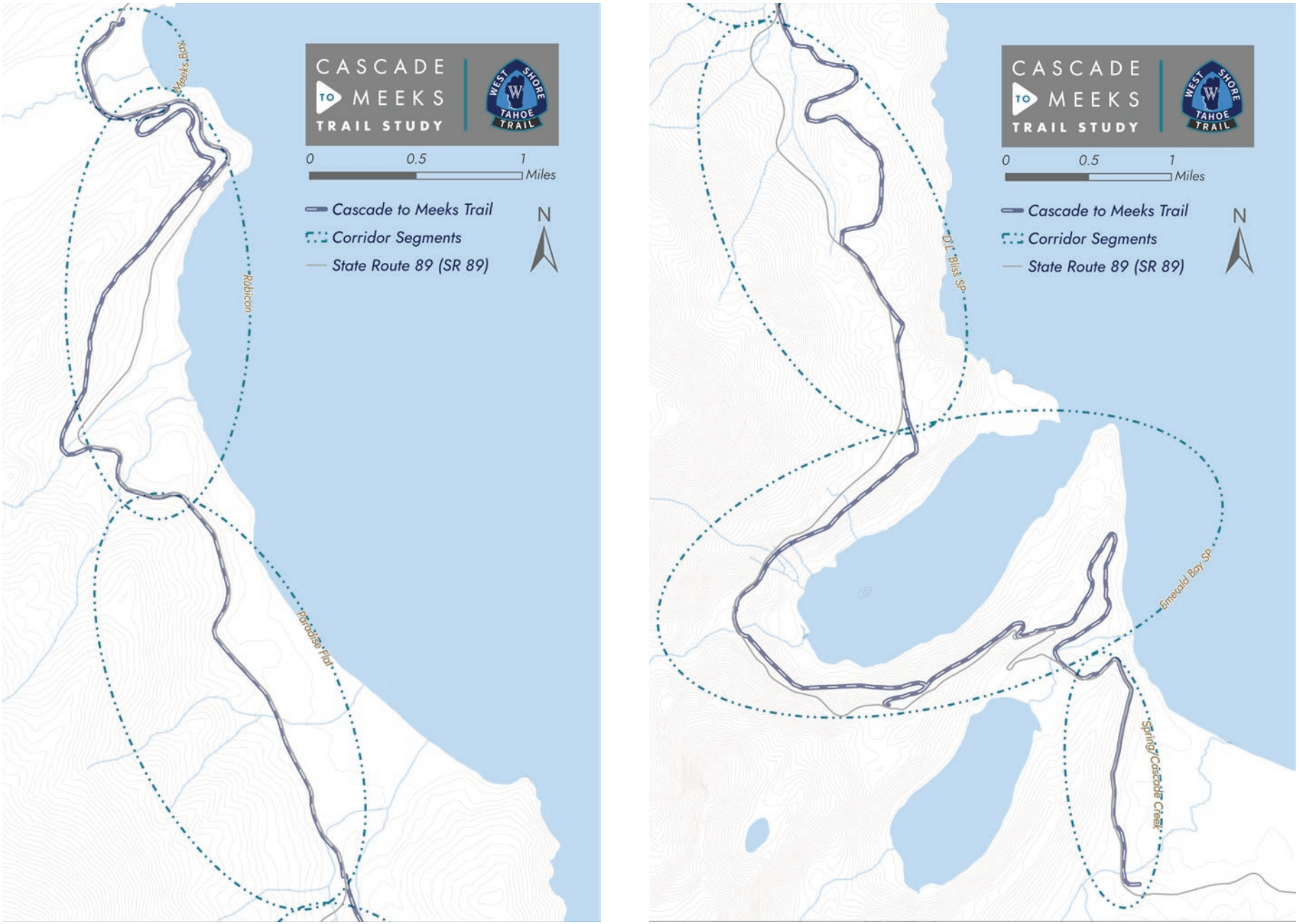


Figure 2.12: Preferred Cascade to Meeks Trail Alignment

CHAPTER 3: OPPORTUNITIES AND AMENITIES

INTRODUCTION

Tremendous opportunity exists within the corridor to connect users with its natural environment, scenic beauty, and recreational assets. The intent of this chapter is to bring the trail to life by presenting visualizations, images, and descriptions that showcase the look and feel of the new trail. Additionally, the chapter provides a sense of how the trail would connect with existing points of interest, neighborhoods, the built environment, and scenic or interpretive sites. This information is presented in three sections focused on examples of a) trail form b) trail amenities and c) trail structures. In addition, existing trail examples are presented in Appendix C.

TRAIL FORM

Trail form varies across the corridor. Topography, location character, available space, existing infrastructure, roads, and social trails or informal trails drive trail form. There are three primary trail forms proposed a) roadway b) forested and c) lakeview. The following visualizations and descriptions present details about each form.

ROADWAY

There are two variations of roadway trail form. The first is screened trails at-grade with adjacent roadways, and the other is steep slope trails adjacent to roadways on cut or fill slopes. Each are described in more detail below.

SCREENED AT-GRADE TRAILS

- Typically, at the same elevation as adjacent roads and within the right-of-way.
- Minimize impacts to public or private lands outside the right-of-way.
- Accessibility is high.
- Depending on available space the 10-foot trail and 2-foot shoulder widths may not be accommodated.
- Screening from adjacent properties and the roadway is an important landscape feature.
- Maximizing separation from SR 89 is critical for improving user experience.

Figure 3.1: At-grade trail in Rubicon neighborhood - potential condition (visualization by I. Avila)

- This trail form would be found south of Meeks Bay near the Tahoe Hills neighborhood, through the Rubicon community, where the trail is adjacent to SR 89, along the Paradise Flat area, and near Cascade Properties.

STEEP SLOPE TRAILS

- Constructed within or close to the public right-of-way on steep slopes (often >20%).
- Structures would be required to stabilize surrounding soils.
- Screening may be necessary depending on separation from roadway and adjacent development.
- Accessibility is high.
- Depending on available space the 10-foot trail and 2-foot shoulder widths may not be accommodated.
- Vertical separation from adjacent roadway improves safety and user experience.
- Additional safety features such as railings or crash guards may be required.
- This trail form can be found in the Rubicon area and Paradise Flat.

Figure 3.2: Cascade to Meeks Trail would hug the mountain side of SR 89 through the Rubicon Segment - existing condition (photo by D. Rios)

Figure 3.3: Cascade to Meeks Trail would hug the mountain side of SR 89 through the Rubicon Segment - potential condition (visualization by M. Gaber)

FORESTED TRAILS

- Constructed in forested areas away from roadway and neighborhood development.
- Accessibility is less direct.
- Full 10-foot trail and 2-foot shoulder widths typically accommodated; however, trail width may vary depending on location or safety considerations.
- Potential space exists to separate cyclists from pedestrians.
- Emphasizes connecting with natural forested environments.
- Provide direct connections to existing recreation sites or user trails near D.L. Bliss State Park and Eagle Point.
- Potential for interpretive opportunities is high.
- Forested trail form is located between Saturn Drive and Glen Drive, through D.L. Bliss State Park, within Emerald Bay State Park, and near Tallac Creek.

Figure 3.4: Cascade to Meeks Trail would head south from Lester Beach Road along the lake side of SR 89 - potential condition (visualization by I. Avila)

Figure 3.5: Balancing Rock in D.L. Bliss State Park (photo by FlyingDawnMarie)

LAKEVIEW TRAILS

- Typically constructed below road grade on lakeside of roadway.
- Often present unobstructed views of the Lake and surrounding forests.
- Present significant opportunities for scenic viewpoints and overlooks.
- Trail form found in Emerald Bay State Park, Eagle Point, and south of Cascade Creek.
- Two options for Lakeview Trail forms are shown here. For application within this feasibility study, please see Engineering Design Approach section within Chapter 4.

Figure 3.6: Cross section of trail, showcasing terraced slope though forest - potential condition (visualization by I. Avila)

Figure 3.7: Cross section of trail, showcasing a pier-supported trail, which minimizes scenic impacts and ground disturbance (visualization by I. Avila)

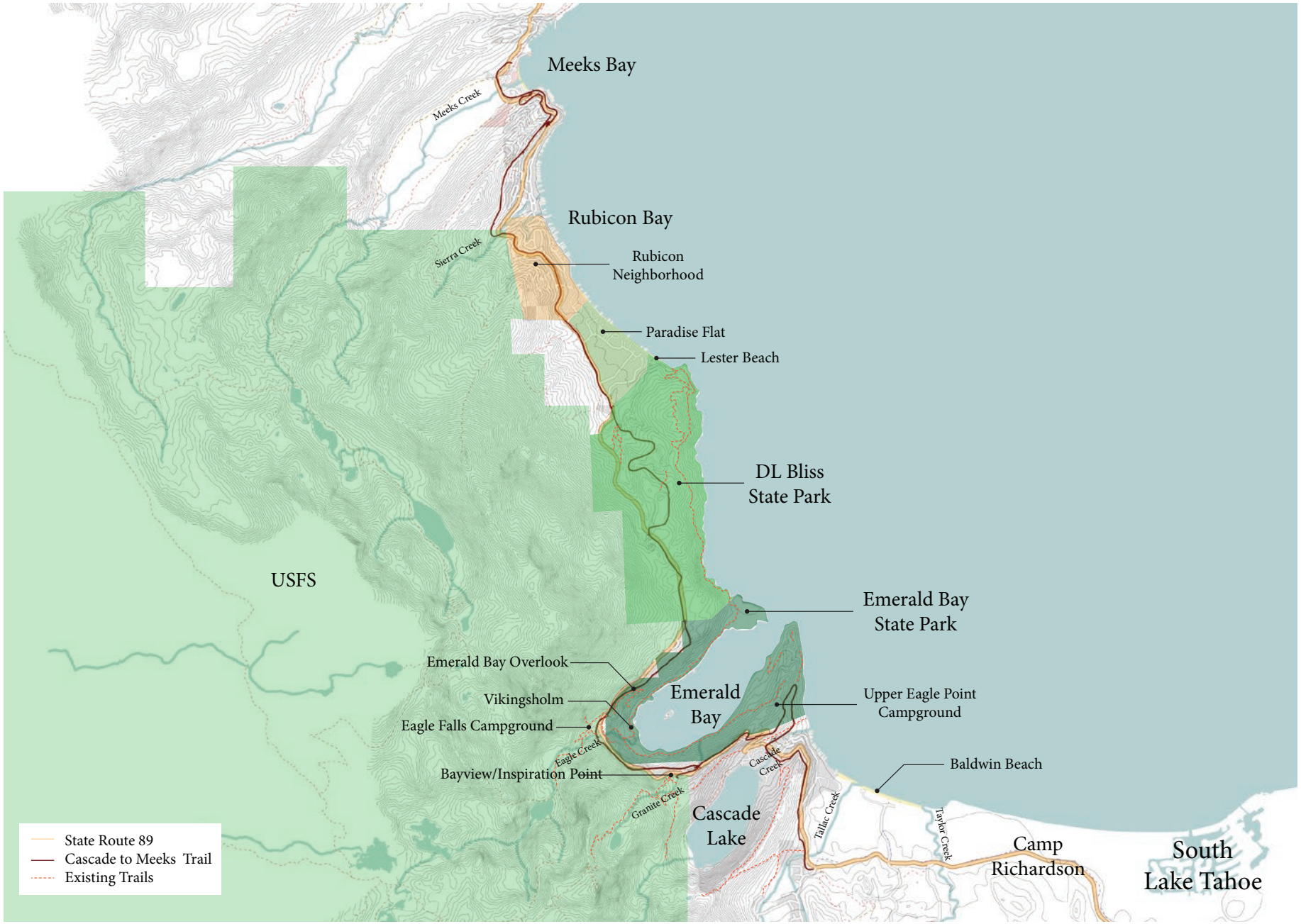


Figure 3.8: Key Map With Proposed Trail

TRAIL AMENITIES

SCENIC VIEWPOINTS

- Numerous locations along this section of trail provide opportunities for stunning views of Lake Tahoe, alpine forests, creeks, and beaches.
- Scenic viewpoints would allow users to take a break from pedaling or walking and capture a photograph or simply take in the view. Scenic viewpoints celebrate the beauty of this corridor and would undoubtedly serve as key points of interest along the trail.
- Visualizations of three potential scenic viewpoints located at Lakeview Drive, a historic foundation near Cascade Creek, and a stunning panorama near the 2016 Emerald Fire are presented here.

Figure 3.9: Lakeview Drive presents an opportunity for an overlook - potential condition (visualization by M. Gaber)

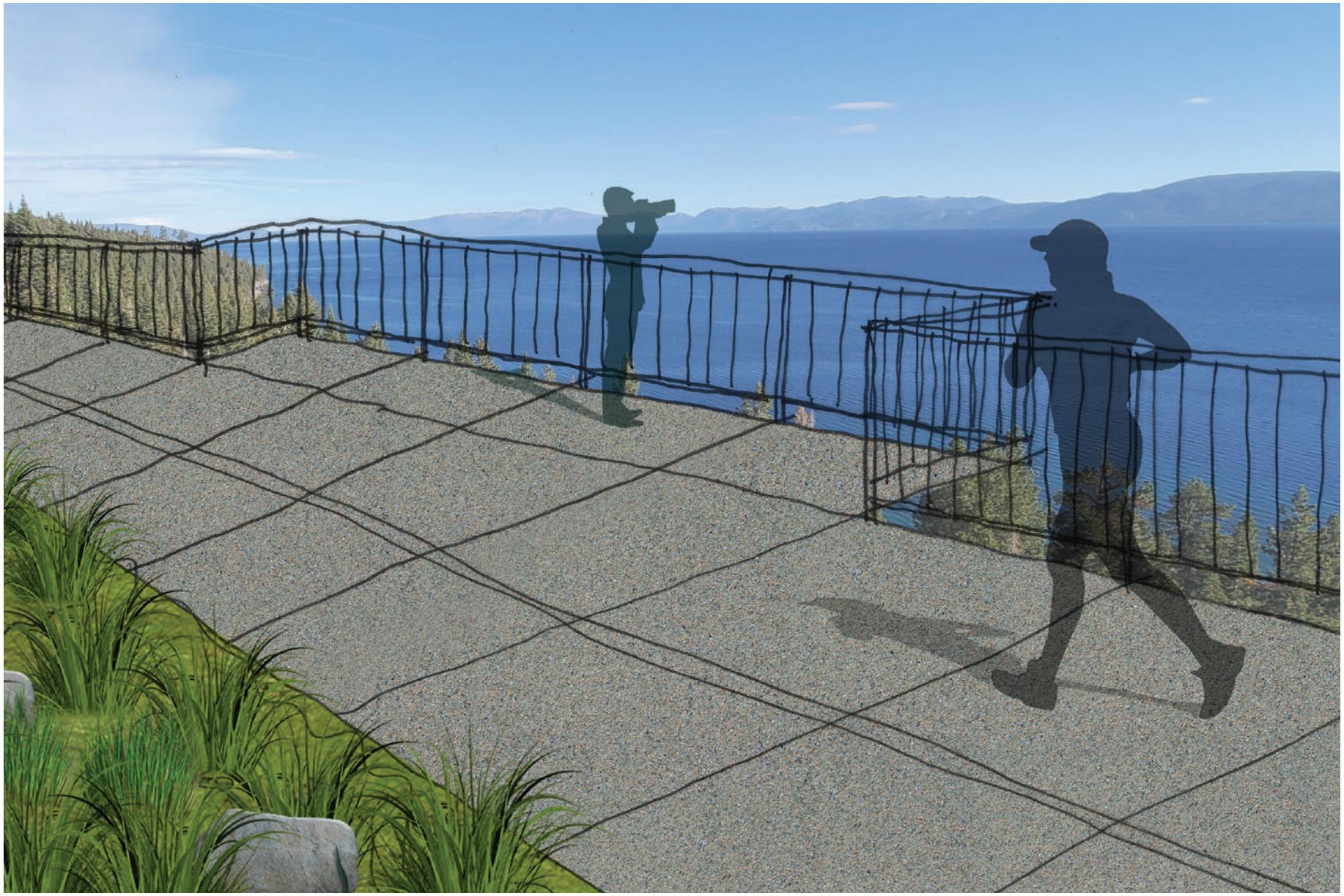


Figure 3.10: Scenic viewpoint near 2016 Emerald fire - potential condition (visualization by I. Avila)

Figure 3.11: Historic foundation near Cascade Creek - potential condition (visualization by M. Gaber)

REST AREAS

- Rest areas would be essential to ensuring a positive user experience. This is particularly important in areas with significant climbs or descents, and locations where there are long distances between other trail amenities.
- Interpretive opportunities are recommended in combination with rest areas. Signage, art, and other educational boards that educate users about the environmental, cultural, or historic aspects of the area encourage users to take a break and creates a more fulfilling experience.
- Additional pull-outs and rest areas may be identified during future phases of this project, including within Emerald Bay, D.L. Bliss, Rubicon, and Paradise Flat. Within this report, one location that could encourage users to take a break is near an old growth incense cedar along Cascade Creek.

Figure 3.12: Rest area along Cascade Creek with Cedar tree providing shade - potential condition (visualization by M. Gaber)

TRAIL STRUCTURES

UNDERCROSSINGS

- At-grade trail crossings were deemed inconsistent with the goals of this project. Therefore, undercrossings are proposed for locations where the trail alignment crosses SR 89.
- Separating cyclists and pedestrians from the heavy traffic of roads within the corridor improves safety and creates a more enjoyable experience for users.
- Undercrossings also provide the potential indirect benefit of safe passage by wildlife.
- Undercrossings are recommended in several locations along the Cascade to Meeks Trail. We highlight one area in particular, near Meeks Bay Resort, where users desire access to the lake side as well as the mountain side of SR 89. Other locations where undercrossings are recommended include the south side of Meeks Bay, north of D.L. Bliss State Park, Eagle Creek, and Inspiration Point.

Figure 3.13: Meeks Bay undercrossing - potential condition (visualization by I. Avila)

BRIDGE CROSSINGS

- The trail would cross seven named and ten unnamed creeks during its journey through the corridor.
- Each one of these crossings would require use of an existing or construction of a new bridge.
- Bridges provide a unique opportunity to move users through natural riparian corridors, which improves the user experience, but also minimize trail length with direct alignments over creeks.
- New bridge crossings would be required for Meeks, Sierra, Rubicon, Cascade, and Tallac Creeks.

Figure 3.14: SR 89 crosses Tallac Creek near the south start of the Cascade to Meeks Trail - potential condition (visualization by I. Avila)

Figure 3.15: Exisitng Eagle Creek bridge in Emerald Bay (photo by M. Gaber)

ROCK SHED

- Moving users through the historic landslide area in Emerald Bay would be challenging, but presents an exciting experience not often provided to trail users.
- Successfully navigating this zone would require a unique structural solution in the form of a rock shed or tunnel.

Figure 3.16: Emerald Bay landslide circa 1956 (photo by S. Gennerich)

Figure 3.17: Flat rockshed example (photo by www.larimit.com)

Figure 3.18: Tunnel along abandoned railroad above Donner Lake, California (photo by Josh McNair from Californiathroughmylens.com)

BOARDWALKS

- The Cascade to Meeks Trail includes several sections that cross sensitive habitats including stream environment zones (SEZ), meadows, and riparian areas. The preferred alignment would minimize these impacts through the use of boardwalks.
- The boardwalk sections would be constructed atop piers, piles, or similar foundational structures. These structures would allow the trail to float above ground and minimize impacts riparian habitat and creek channels.
- Boardwalks may be located along the Meeks Bay segment, near the D.L. Bliss undercrossing, near Cascade Creek, and near Tallac Creek.

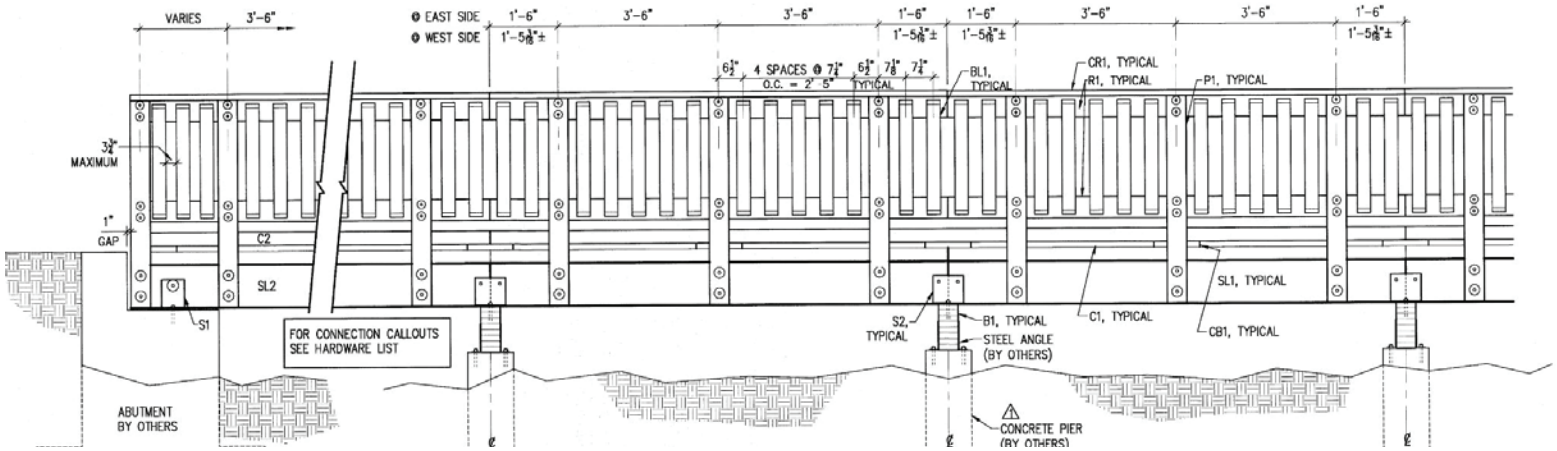


Figure 3.19: Boardwalk cross section detail (exhibit by J. Bui and M. Gaber)

Figure 3.20: Example of boardwalk through a stream environment zone in South Lake Tahoe (Photo by C. Carney)

CHAPTER 4: TRAIL FEASIBILITY AND BUILDOUT

Bringing the Cascade to Meeks Trail to life would require transitioning from this Feasibility Study into implementation. With an 11-mile-long corridor this would require breaking the Trail into practical sections that can be delivered within the funding, construction, and approval dynamics of the Lake Tahoe basin. Given the unique conditions of the corridor and variety of challenges presented in this study, it is likely to take multiple years to complete design, environmental, permitting, and construction of each section.

To assist in transitioning to implementation, this Trail Feasibility and Buildout chapter presents a series of standalone, buildable projects and their design, engineering, environmental, and construction-related considerations. Each project summary includes information about the length of the trail, average and maximum slopes, new impervious area, estimated tree removal, land capability that overlaps the trail alignment, and cost estimates.

Finally, this chapter presents guidance on priority and sequencing of project implementation through a proposed phasing approach. The approach considered individual project cost, constructability, regulatory requirements, practical constraints, future project sponsors, and connectivity to existing trails and points of interest.

Figure 4.1: Looking toward South Lake Tahoe from the Cascade to Meeks Trail (photo by D. Rios)

It is fully anticipated that each project would evolve as more detailed information is gathered during design and environmental review. As an example, the environmental review may occur at a programmatic-level (entire Cascade to Meeks Trail) or project-level (each buildable project considered separately). The intent of this chapter is to provide a solid foundation for future planning, environmental review, design, and construction.

BUILDABLE PROJECTS

Recognizing the full length of the Cascade to Meeks Trail is not practical to implement as a single project, individual buildable projects have been identified as part of this Feasibility Study. These buildable projects were created based on proximity and connectivity to the existing trails, points of interest, and recreation assets, along with considerations for trail length, construction access, and land ownership. The start and end for each buildable project is presented in Figures 4.2 and 4.3. These figures provide the visual context for nearby points of interest, the Trail, and residential areas.

- Meeks
- Rubicon Forest
- Paradise Flat
- D.L. Bliss North
- D.L. Bliss South
- Emerald Bay Vikingsholm
- Emerald Bay Inspiration Point
- Emerald Bay Eagle Point
- Eagle Point
- Cascade

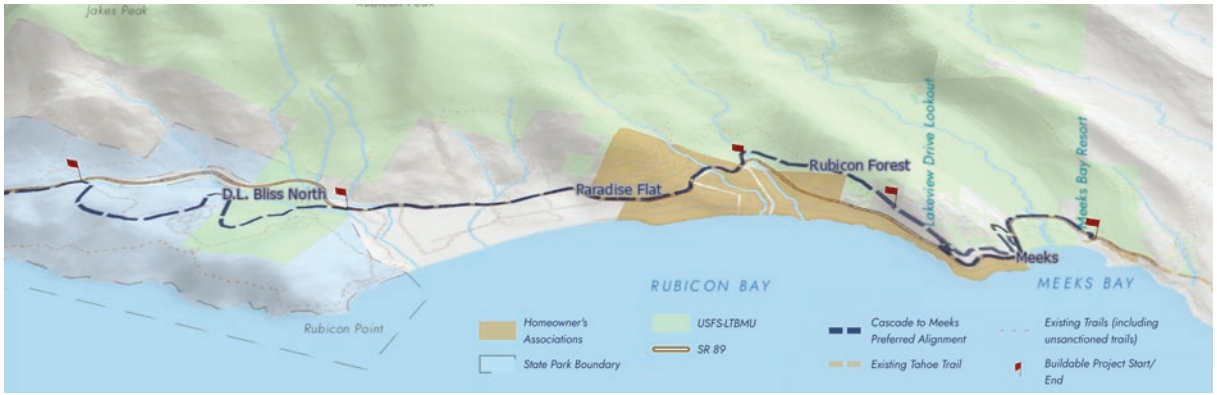


Figure 4.2: Meeks Bay to D.L. Bliss North Buildable Project Map

Figure 4.3: D.L. Bliss South to Cascade Buildable Project Map

PROJECT CONSIDERATIONS

Key considerations for each buildable project are presented on the following pages and include information related to design, engineering, environmental, and construction. Supporting these buildable projects are the conceptual plans (Appendix B), existing bike trail examples (Appendix C), and the preliminary cost estimate for each buildable project (Appendix D). Important assumptions associated with these considerations are described in more detail immediately below.

ENGINEERING DESIGN APPROACH

To allow for a reliable evaluation of trail feasibility across the corridor and to prepare comparable cost estimates, the development of conceptual engineering plans required the application of consistent design methodologies. This resulted in conceptual trail dimensions, slopes, and structures that although feasible may not represent the desired final trail design in any given location. For example, retaining structures included within the conceptual design and noted in this report may have significant heights (e.g. retaining structures within Emerald Bay). These retaining structures represents only one feasible option out of many for the trail. There are likely to be innovative technologies or construction methods identified and deployed within sensitive or constrained sections of the corridor like Emerald Bay, Cascade, or the Caltrans right-of-way. These technologies or methods will likely improve upon the structures or trail slopes described within this document. As a result, this report neither recommends, nor is it likely that excessive retaining structure heights or overly steep trail slopes are preferred design elements for any given location.

COST ESTIMATE ASSUMPTIONS

A summary of preliminary costs are presented within each buildable project narrative. Additional preliminary cost details are presented in Appendix D. For each project, the "2022 Cost" represent construction costs (mobilization, clearing and grubbing, grading, paving, structures, tree removal, etc). "2022 Cost with 30% contingency" is presented to account for unanticipated costs during construction. The "2022 Soft Costs" represent non-construction items including engineering design, geotechnical investigations, hydrologic studies, topographic survey, regulatory compliance and permitting, and construction management. Please note, future cost increases due to inflation or the rise in material or contractor costs are not reflected in these preliminary cost estimates.

TREE REMOVAL ASSUMPTIONS

Tree removal estimates are based on the average number of trees counted from an aerial image across four representative 500-foot segments. Tree removal for each segment was estimated by multiplying the average number of trees by the trail length. Trail locations with limited to no visible trees were accounted for in these estimates.

MEEKS

PROJECT LOCATION

- This section of trail lies between the Meeks Bay Resort (connection to existing trail) and the hairpin turn where Saturn Drive, Lakeview Avenue, and Lakeview Drive intersect (Figure 4.4).
- There are two options for the trail as it leaves Meeks Bay, one that would follow SR 89 and the other which climbs into the residential area. Both trails would take advantage of Lakeview Drive, an unpaved road bed (County and USFS land) that connects to Saturn Drive.

PHYSICAL CHARACTERISTICS

- The Meeks Project that follows SR 89 is approximately 8,225 feet in length. The 10-foot-wide trail would cover a paved area of about 1.9 acres. The average longitudinal slope would be about 2% with a maximum slope of about 17%. The alternative that uses existing roads and right-of-way within the Tahoe Hills residential neighborhood is approximately 9,000 feet long and would cover approximately 2.1 acres of newly paved area.
- The Meeks Project features an undercrossing where the trail crosses SR 89 at the Meeks Bay Resort, it then is located adjacent to the southbound direction of SR 89, crosses Meeks Creek using the Caltrans bridge and goes further along southbound SR 89 until it climbs up to Lakeview Drive and reaches the described end of the project (Appendix B Sheets 1 and 2).

Figure 4.4: Meeks Buildable Project Map

- An alternative alignment is considered for the trail segment that veers off into the Tahoe Hills neighborhood at the southern undercrossing under SR 89. This alternative uses an existing right of way to climb up to Bayview Drive to then use existing county right of way to connect the trail at Lakeview Drive. Approximately 3,000 feet of retaining walls with a height of 4 feet and greater would be required to build the trail from SR 89 to Bayview Drive.

PLANNING-LEVEL COST ESTIMATE

- Construction cost for the project following SR 89 in 2022 dollars is in the order of $12.5 million; design costs including survey, geologic and geotechnical investigations, design, regulatory compliance, and construction management of approximately $3.8 million.
- Construction cost for the alternative through the Tahoe Hills neighborhood in 2022 dollars is in the order of $9.5 million; design costs including survey, geologic and geotechnical investigations, design, regulatory compliance, and construction management of approximately $2.8 million.

DESIGN AND ENGINEERING CONSIDERATIONS (FOR BOTH ALTERNATIVES)

DESIGN STANDARDS

- There are a variety of trail design standards that would apply to this Project depending on jurisdiction authority under El Dorado County, USFS, Caltrans and the American Association of State Highway and Transportation Officials (AASHTO). Adjustments or exceptions may be required due to topography and

Parameter	Meeks - SR 89	Meeks - Residential
Length	1.56 miles (8,225 feet)	1.7 miles (8,998 feet)
Average Slope	2%	1%
Maximum Slope	17%	13%
New Impervious Area	82,249 SF (1.9 acres)	89,978 SF (2.1 acres)
Estimated Tree Removal	200	100
Land Capability	1A, 1B, 3	1A,1B,3

Figure 4.5: Meeks Project Summary

Project	2022 Cost	2022 Cost (with 30% contingency)	2022 Soft Cost	2022 Total Cost
Meeks - SR 89	$ 9,765,834	$ 12,695,584	$ 3,808,675	$ 16,504,259
Meeks - Residential	$ 7,353,797	$ 9,559,936	$ 2,867,981	$ 12,427,916

Figure 4.6: Meeks Cost Summary

site constraints. Project sponsors would need to work with agency partners to determine applicable standards.

DATA NEEDS

- A detailed topographic survey of the trail corridor would be required to prepare a base map showing existing conditions, topography, right-of-way, utilities, and property boundaries. The width of the survey corridor would vary taking the topography and proposed alignment into account. Revisions to the trail alignment may be necessary based on the data collection at the design stage. A geological review, soil mapping, geophysics and geotechnical investigations would provide the soil parameters, including depth to bedrock and groundwater, required for the design and construction of the trail, in particular of the structural design elements, foundations, and pavement section design. Information on above- and below-ground utilities would be compiled to support the design and identify constraints and the need for potential utility relocations.

Figure 4.8: Proposed undercrossing location slope is steep and would require deep excavations to achieve profile grade (Photo by J. Hall)

Figure 4.7: Existing informal trail near location of proposed undercrossing on south side of Meeks Bay (photo by D. Rios)

Figure 4.9: Meeks Creek and Meeks meadow west of SR 89 (photo by C. Davis)

STRUCTURES

- The major structural design elements for the Meeks Project include an undercrossing under SR 89 adjacent to the entrance to the Meeks Bay Resort and an undercrossing of SR 89 at the southern end of Meeks Bay to provide for a future connection to the Meeks Bay Resort. Unforeseen conditions during construction are common when constructing underground facilities.
- The challenges related to the undercrossings under SR 89 are related to the embankment slopes on both sides of the road (Figures 4.7 and 4.8). Deep excavations would be required to achieve profile grade. Due to the soil surcharge load, earth retaining structures would be special design walls. Conventional gravity systems would likely not work. Achieving the structural clearance below the roadbed would be a key design consideration and the transition lengths are anticipated to be long, likely requiring switchbacks. Relocation of power poles may be required.
- Upslope and downslope retaining walls of about 5,700 feet in length and 5 feet in height or more would be required mainly where the trail would be located adjacent to the southbound side of SR 89, at the foot of the Tahoe Hills neighborhood. There are constraints related to the available right-of-way and the retaining walls would have considerable height. A two-tier wall system (Figure 4.10) with tiebacks should be considered to provide a buffer for bicyclists and cars. The potential encroachment of the tiebacks into the adjacent parcels and required easements needs to be considered.

TREE REMOVAL

- Based on preliminary estimates, tree removal would be average compared with other project segments along the Cascade to Meeks Trail. Tree removal along SR 89 may require a lane closure and special equipment to safeguard nearby homes.

ENVIRONMENTAL & PERMITTING CONSIDERATIONS

- Sensitive aquatic resources exist within the trail alignment including portion of Meeks Meadow and Meeks Creek. Due to these factors regulatory permits would be required from the TRPA, Lahontan Regional Water Quality Control Board (Lahontan RWQCB), California Department of Fish and

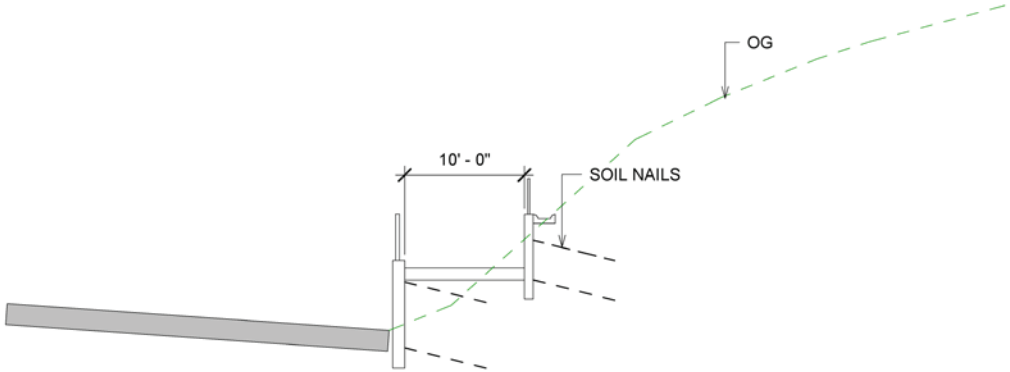


Figure 4.10: Two-tier wall system with tie backs schematic (exhibit from P. Preston)

Figure 4.11: Historic barn just west of SR 89 within Meeks Meadow (photo by D. Rios)

Wildlife (CDFW), and the US Army Corps of Engineers (USACE). A formal aquatic resource delineation should be performed prior to initiating design.

- An abundance of sensitive habitat exists near the project alignment that supports sensitive species including Tahoe yellow cress, Sierra Nevada yellow-legged frog (Figure 4.12), willow flycatcher (Figure 4.13), northern goshawk, and other species.
- The project would be subject to the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and Tahoe Regional Planning Agency (TRPA) environmental review procedures. Resource impacts will determine the level of environmental review. Lead agencies, type of document, and schedule details would be driven by implementing agency, funding, and land ownership
- This portion of trail would be visible from a TRPA Scenic Resource Area and Lake Tahoe. Scenic impacts and mitigation would be critical during planning and design.
- There is potential for a portion of the trail to reside in the Caltrans right-of-way or for federal funding to support implementation. Either of these would subject the project to the Caltrans Local Assistance Program and the Local Assistance Procedures Manual (LAPM), a detailed and prescriptive process for delivering federally funded local assistance projects.
- Additional regulatory permits likely to be required include a TRPA Environmental Improvement Program or EIP permit, Caltrans encroachment permit, USFS special use permit, and local grading, site improvement, or building permits.
- The USFS, Lahontan RWQCB, and TRPA are implementing the Meeks Bay Restoration Project, which will include restoring Meeks Creek and the lagoon ecosystem, improving educational and interpretive opportunities, enhancing fish and wildlife habitat, providing sustainable recreation opportunities and access, and controlling and eradicating aquatic invasive species. The environmental review of this project, under a joint EIS/EIS/EIR, is underway.
- Caltrans is planning to replace the existing bridge over Meeks Creek. Planning and design details are in the early stages and are not finalized.

Figure 4.12: Sierra Nevada yellow-legged frog (photo by www.californiaherps.com)

Figure 4.13: Willow flycatcher (photo by Larry Bond)

- The Meeks Bat Restoration Project of the Cascade to Meeks Trail may include a bridge, separate from the propose Caltrans bridge. The details for this project are not finalized.
- The Washoe Tribe of Nevada and California is implementing the Máyala Wáta Restoration Project at Meeks Meadow, a cultural important location for the Washoe Tribe. The project will include the removal of encroaching pine trees; culturally guided prescribed burning; and Tribal elders, youth, and crews planting culturally significant vegetation, removing invasive species, and protecting culturally significant plants.
- Other sensitive cultural resources are present near the project alignment (Figure 4.11) including the historic SR 89 bridge across Meeks Creek and pre-historic sites. A formal cultural resources investigation and report will be required to support the environmental documents and regulatory permitting.

CONSTRUCTION CONSIDERATIONS

ACCESS

- A large portion of the Meeks Project would be constructed alongside SR 89 within Caltrans right-of-way and on Lakeview Drive which is a County owned right-of-way with no adjacent homes. The Lakeview Drive portion of the trail can be accessed from Lakeview Avenue and from Lakeview Drive in the Tahoe Hills residential neighborhood. The connection from SR 89 to Lakeview Drive negotiates steeper wooded terrain and would include tree removal, rock excavation, and grading of switchbacks and retaining walls. This segment of the trail can be accessed from SR 89.
- Lakeview Drive within county right-of-way features old, deteriorated asphalt concrete pavement and gravel. Reclamation of the in-situ roadbed materials can provide an appropriate subgrade for the asphalt concrete pavement for the new trail in this section.

STAGING AND STOCKPILING

- Construction staging areas would be negotiated with stakeholders and would likely include area within County and Caltrans right-of-way and USFS properties.

SEQUENCING

- Temporary road closures are not anticipated at this point; the construction of the undercrossings would be undertaken in two stages with single lane traffic and intermittent full closures. It is anticipated that the Meeks Project would be completed over two construction seasons.
- Construction for the portion of the trail through Meeks Meadow may need to occur in late summer when groundwater levels have subsided and soils are no longer saturated.

TRAFFIC MANAGEMENT AND ROAD CLOSURES

- Construction staging and a traffic management plan for the duration of the project would address traffic control and public safety.
- Emphasis on traffic control in the Tahoe Hill residential neighborhood.

SPECIAL EQUIPMENT

- Commonly used construction equipment would be used to construct the trail and its structural elements.

RUBICON FOREST

PROJECT LOCATION

· The Rubicon Forest trail is located from Saturn Drive to just north of Glen Drive (Figure 4.15).

PHYSICAL CHARACTERISTICS

· This section of trail is the continuation of the Meeks Project and lies between the hairpin turn where Saturn Drive, Lakeview Avenue and Lakeview Drive intersect and Glen Drive. This project (Rubicon Forest) is approximately 5,000 feet in length (Figure 4.15). The 10-foot-wide trail would cover a paved area of about 1.19 acres. The average longitudinal slope would be about 2% with a maximum slope of about 13%. The Rubicon Forest Project utilizes the right-of-way of Saturn Drive for about 750 feet where it enters the Rubicon Forest until it reaches SR 89 right-of-way approximately 1,200 feet north of where SR 89 intersects with Glenn Drive (Appendix B Sheet 2).

Parameter	Rubicon Forest
Length	0.94 miles (4,945 feet)
Average Slope	2%
Maximum Slope	13%
New Impervious Area	49,453 SF (1.1 acres)
Estimated Tree Removal	300
Land Capability	1A

Figure 4.14: Rubicon Forest Project Summary

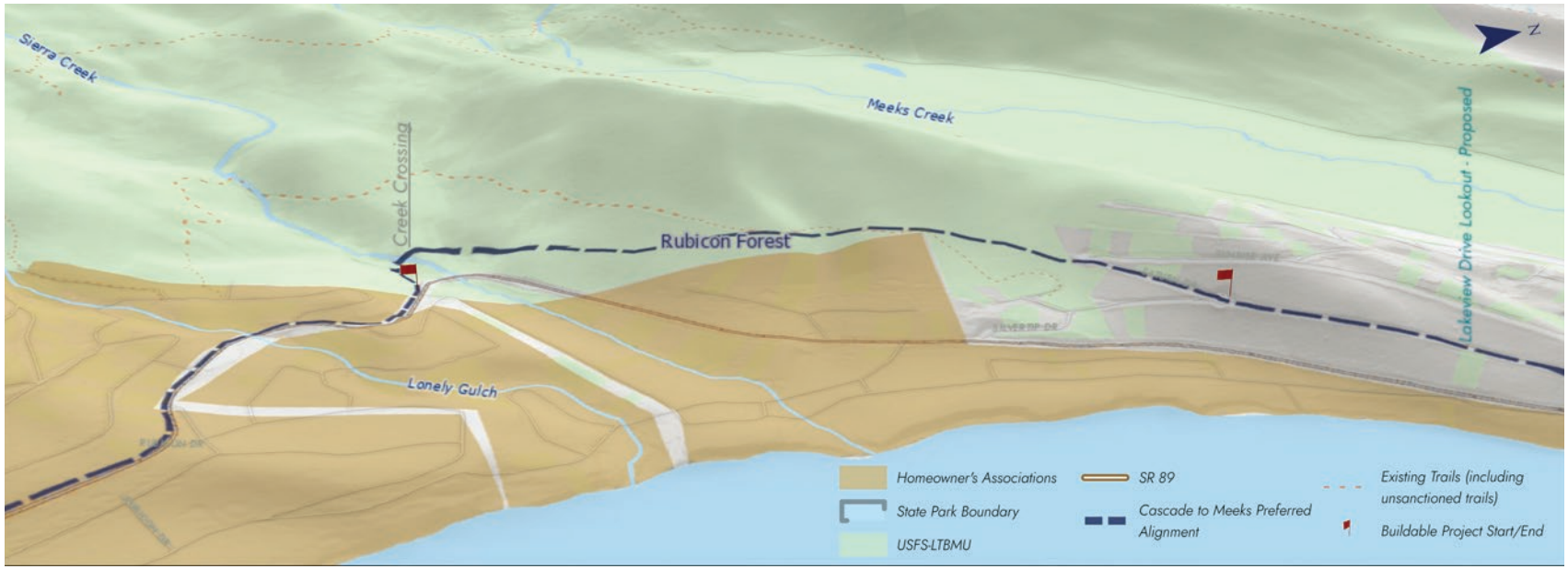


Figure 4.15: Rubicon Forest Project Map

PLANNING-LEVEL COST ESTIMATE

- Budgetary construction cost for this project in 2022 dollars is in the order of $10 million in addition to soft cost including survey, geologic and geotechnical investigations, design, regulatory compliance, and construction management of approximately $3 million.

DESIGN AND ENGINEERING CONSIDERATIONS

DESIGN STANDARDS

- There are a variety of trail design standards that would apply to this Project depending on jurisdiction authority under El Dorado County, USFS, Caltrans and AASHTO. Adjustments or exceptions may be required due to topography and site constraints. Project sponsors would need to work with agency partners to determine applicable standards.

DATA NEEDS

- A detailed topographic survey of the trail corridor would be required to prepare a base map showing existing conditions, topography, trees, right-of-way, utilities, and property boundaries. The width of the survey corridor would vary taking the topography and proposed alignment into account. Revisions to the trail alignment may be necessary based on the data collection at the design stage. A geological review, soil mapping, geophysics and geotechnical investigations would provide the soil parameters, including depth to bedrock and groundwater, required for the design and construction of the trail, in particular of the structural design elements, foundations, and pavement section design. Utility relocations are not anticipated for this section.

STRUCTURES

- The major structural design elements for the Rubicon Forest Project includes the Sierra Creek crossing. A standard bridge with an 80-foot-long span (due to a widened creek bed at the crossing location) likely to be founded on spread footings, (Figure 4.16), is anticipated. Based on the data of an existing nearby bridge structure, large boulders and a cobbly sandy soil

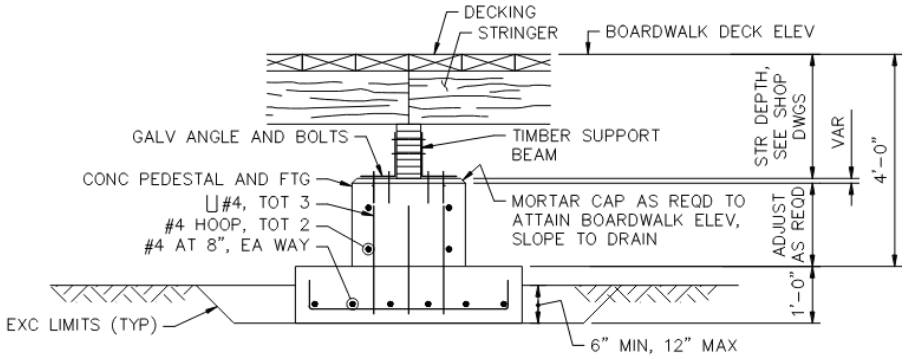


Figure 4.16: Spread footings are shallow footings founded on competent soil with adequate bearing capacities like well graded granular soils and bedrock. The excavation depth is based on the anticipated loads and usually in the order of a few feet (exhibit by CE&G).

Project	2022 Cost	2022 Cost (with 30% contingency)	2022 Soft Cost	2022 Total Cost
Rubicon Forest	$ 7,847,240	$ 10,201,412	$ 3,060,424	$ 13,261,835

Figure 4.17: Rubicon Forest Cost Summary

matrix are anticipated. Diversion of the creek during peak flows and control of water during construction would be required. A hydrologic and hydraulic analysis of the creek and the anticipated flows and water surface elevations would be determined for the design of the bridge. It is assumed that the design storm for the bridge design is the 100-year, 24-hour storm event.

- The project includes clearing and a significant amount of tree removal, rock excavation, earthwork, and grading to establish the desired grades, and up- and downslope retaining walls with heights up to 6 feet, founded on spread footings, totaling about 7,500 feet.

TREE REMOVAL

- Tree removal for path projects is typical; however, the Rubicon Forest Project will require more than average tree removal, which could be accomplished prior to the construction of the trail as a standalone effort by the USFS.

ENVIRONMENTAL & PERMITTING CONSIDERATIONS

- Sierra Creek, an aquatic resource (e.g., stream, pond, lake, wetland, marsh, riparian area, etc.), intersects the trail alignment and would require regulatory permits from the TRPA, Lahontan RWQCB, CDFW, and the USACE. A formal aquatic resource delineation should be performed prior to initiating design.
- The trail would cross undeveloped forest habitat that supports sensitive species including a northern goshawk protected activity center and northern goshawk TRPA threshold zone that are within one-quarter mile of the trail alignment. There are also California spotted owl observations approximately one-quarter mile west of the preferred alignment.
- Known cultural resource pre historic sites are present near the project alignment. A formal cultural resources investigation and report would be required to support the environmental documents and regulatory permitting.
- The project would be subject to CEQA, NEPA, and TRPA environmental review procedures. Lead agencies, type of document, and schedule details would be driven by implementing agency, funding, and land ownership.
- The trail would connect into Caltrans right-of-way at its southern location. This would subject the project to the Caltrans Local Assistance Program and LAPM, a detailed

Figure 4.18: Northern goshawk (photo by www.fws.gov)

and prescriptive process for delivering federally funded local assistance projects.

- Additional regulatory permits likely to be required include a TRPA EIP permit, Caltrans encroachment permit, USFS special use permit, tree removal permit, and local grading, site improvement, or building permits.

CONSTRUCTION CONSIDERATIONS

ACCESS

- A large portion of the Rubicon Forest Project would be constructed alongside the forested hillside with a smaller portion located on Saturn Drive. Construction can be advanced from both ends of the segment and the construction site would be limited to the width of the grading limits.

STAGING AND STOCKPILING

- Construction staging areas would be negotiated with stakeholders and would likely include area within County and Caltrans right-of-way and USFS properties.

SEQUENCING

- The construction of this segment could be completed in one construction season, especially if construction starts at both ends of the segment simultaneously. Construction of the bridge across Sierra Creek would take place in late summer/fall to take advantage of drier conditions.

TRAFFIC MANAGEMENT AND ROAD CLOSURES

- Construction staging and a traffic management plan for the duration of the project would address traffic control and public safety.
- Temporary road closures are not anticipated at this point.
- Commonly used construction equipment would be used to construct the trail and its structural elements.

PARADISE FLAT (GLEN DRIVE TO DL BLISS NORTH)

PROJECT LOCATION

- This section of trail is the continuation of the Rubicon Forest Project and lies between Glen Drive and the intersection of 1 Ring Road and SR 89 (Figure 4.20).

PHYSICAL CHARACTERISTICS

- Paradise Flat is approximately 10,800 feet in length (Figure 4.19). The 10-foot-wide trail would cover a paved area of about 2.5 acres. The average longitudinal slope would be about 1% with a maximum slope of about 5%. The Paradise Flat Project utilizes the Caltrans SR 89 right-of-way over the entire length of the segment. The Paradise Flat trail segment would parallel the southbound lane of SR 89 until its southern terminus where the trail crosses under SR 89 to enter D.L. Bliss State Park (Appendix B Sheets 2, 3, and 4).

Parameter	Paradise Flat
Length	2.05 miles (10,802 feet)
Average Slope	1%
Maximum Slope	5%
New Impervious Area	108,015 SF (2.5 acres)
Estimated Tree Removal	378
Land Capability	1A, 2, 3, 4, 5, 6

Figure 4.19: Paradise Flat Project Summary

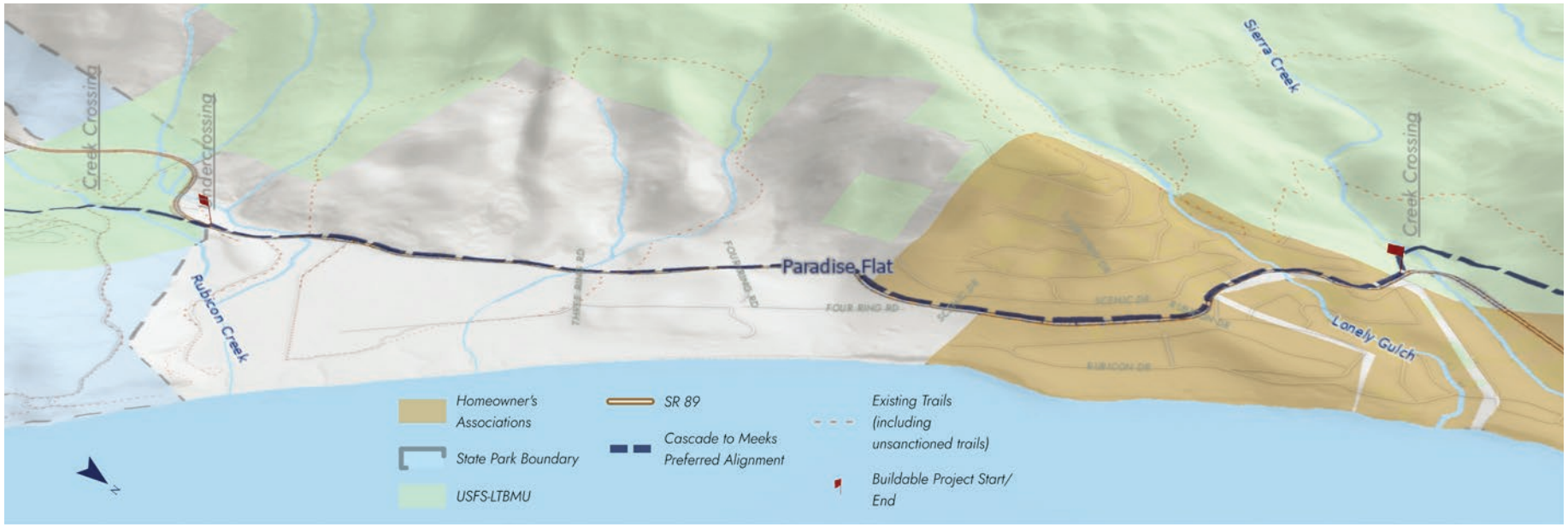


Figure 4.20: Paradise Flat Project Map

PLANNING-LEVEL COST ESTIMATE

- Budgetary construction cost for this project in 2022 dollars is in the order of $12 million in addition to soft cost including survey, geologic and geotechnical investigations, design, regulatory compliance, and construction management of approximately $3.6 million (Figure 4.21).

DESIGN AND ENGINEERING CONSIDERATIONS

DESIGN STANDARDS

- The geometric trail design would follow Caltrans and AASHTO standards. Adjustments or exceptions may be required due to topography and site constraints. Project sponsors would need to work with agency partners to determine applicable standards.

DATA NEEDS

- A detailed topographic survey of the trail corridor would be required to prepare a base map showing existing conditions, topography, trees, right-of-way, utilities, and property boundaries. The width of the survey corridor would vary taking the topography and proposed alignment into account. Revisions to the trail alignment may be necessary based on the data collection at the design stage. A geological review, soil mapping, geophysics and geotechnical investigations would provide the soil parameters, including depth to bedrock and groundwater, required for the design and construction of the trail, in particular of the structural design elements, foundations, and pavement section design. Utility pole relocations relocations or undergrounding may may need to be considered for this section.

STRUCTURES

- The major structural design elements for the Paradise Flat Project includes up- and downslope retaining walls to separate the trail from SR 89 and a crossing over a tributary to Rubicon Creek. One option for accomplishing this separation is a boardwalk founded on micropiles to mitigate the impacts to an environmental sensitive area reducing impacts by using top-down construction.
- Top down construction is a common application for earth retaining systems using ground anchors, including walls with soil nails, tieback walls and soldier pile walls with anchors. This approach can be both cost effective and reduce traffic impacts.

Project	2022 Cost	2022 Cost (with 30% contingency)	2022 Soft Cost	2022 Total Cost
Paradise Flat	$ 9,323,306	$ 12,120,297	$ 3,636,089	$ 15,756,386

Figure 4.21: Paradise Flat Cost Summary

- Micropiles are small diameter drilled and grouted non-displacement piles. Micropiles can withstand relatively significant axial loads and moderate lateral loads, and may be considered a substitute for conventional driven piles or drilled shafts. A micropile is constructed by drilling a borehole, placing steel reinforcement, and grouting the hole (Figure 4.22). This foundation type is ideal for construction in the Sierra Nevada given the difficult terrain and large granite formations. This approach reduces time, costs and potential construction claims.
- In addition, the project includes clearing and a significant amount of tree removal, rock excavation, earthwork, and grading to establish the desired grades, and up- and downslope retaining walls averaging about 4 feet in height, founded on spread footings, totaling about 4,700 feet.

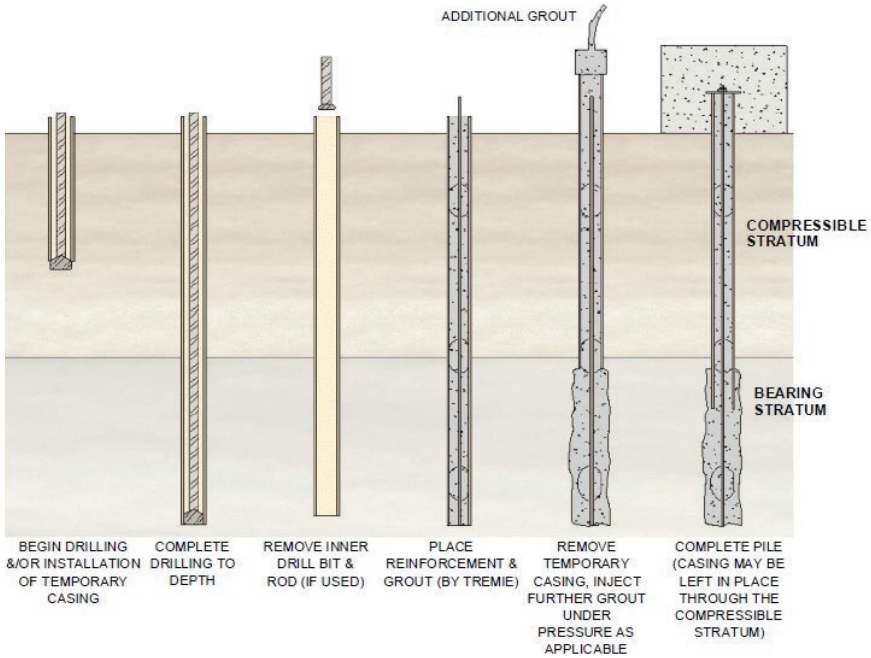


Figure 4.22: Micropile installation for boardwalk through sensitive riparian habitat (exhibit by P. Preston).

TREE REMOVAL

- Based on preliminary estimates, tree removal would be high compared with other project segments along the Cascade to Meeks Trail which could be accomplished prior to the construction of the trail as a standalone project.

ENVIROMENTAL & PERMITTING CONSIDERATIONS

- An unnamed SEZ would intersect the trail alignment and would require regulatory permits from the TRPA, Lahontan RWQCB, CDFW, and the USACE. A formal aquatic resource delineation should be performed prior to initiating design.
- A norther goshawk threshold zone and protected activity center and California spotted owl observations are located approximately one-half mile west of the trail alignment.
- Cultural resource historic sites are present along the project alignment. A formal cultural resources investigation and report

Figure 4.23: Micropyle installation for boardwalk through sensitive riparian habitat (photo by P. Preston).

would be required to support the environmental documents and regulatory permitting.

- This portion of trail would be visible from a TRPA Scenic Resource Area. Scenic impacts and mitigation would be critical during planning and design.
- The project would be subject to CEQA, NEPA, and TRPA environmental review procedures. Lead agencies, type of document, and schedule details would be driven by implementing agency, funding, and land ownership.
- The trail would primarily be in Caltrans right-of-way. This would subject the project to the Caltrans Local Assistance Program and the LAPM, a detailed and prescriptive process for delivering federally funded local assistance projects.
- Additional regulatory permits likely to be required include a TRPA EIP permit, Caltrans encroachment permit, and local grading, site improvement, or building permits.

Figure 4.24: California spotted owl (photo by www.ndow.org)

CONSTRUCTION CONSIDERATIONS

ACCESS

- The Paradise Flat Project would be constructed alongside southbound SR 89.

STAGING AND STOCKPILING

- Construction staging areas would be negotiated with stakeholders and would likely include areas within County and Caltrans right-of-way.

SEQUENCING

- The construction of this segment could be completed in one construction season.
- The construction of the boardwalk across the tributary Rubicon Creek may require diversion of the creek depending on the time of construction.

TRAFFIC MANAGEMENT AND ROAD CLOSURES

- Construction staging, with one-lane traffic on SR 89, and a traffic management plan for the duration of the project would address traffic control and public safety. Temporary road closures are not anticipated at this point.

SPECIAL EQUIPMENT

- Commonly used construction equipment would be used to construct the trail and its structural elements.

D.L. BLISS NORTH

PROJECT LOCATION

- This section of trail is the continuation of the Paradise Flat Project and lies between the intersection of 1 Ring Road and SR 89 to where Lester Beach Road intersects with SR 89 (Figure 4.25).

PHYSICAL CHARACTERISTICS

- This project (D.L. Bliss North) is approximately 9,900 feet in length (Figure 4.26). The 10-foot-wide trail would cover a paved area of about 2.3 acres. The average longitudinal slope would be about 3% with a maximum slope of about 14%. The D.L. Bliss North Project is located on State Parks and USFS property. The northern and southern ends of the segment are located within Caltrans right-of-way (Appendix B Sheet 4).

PLANNING-LEVEL COST ESTIMATE

- Budgetary construction cost for this project in 2022 dollars is in the order of $29 million in addition to soft cost including survey, geologic and geotechnical investigations, design, regulatory compliance, and construction management of approximately $8.8 million (Figure 4.27).

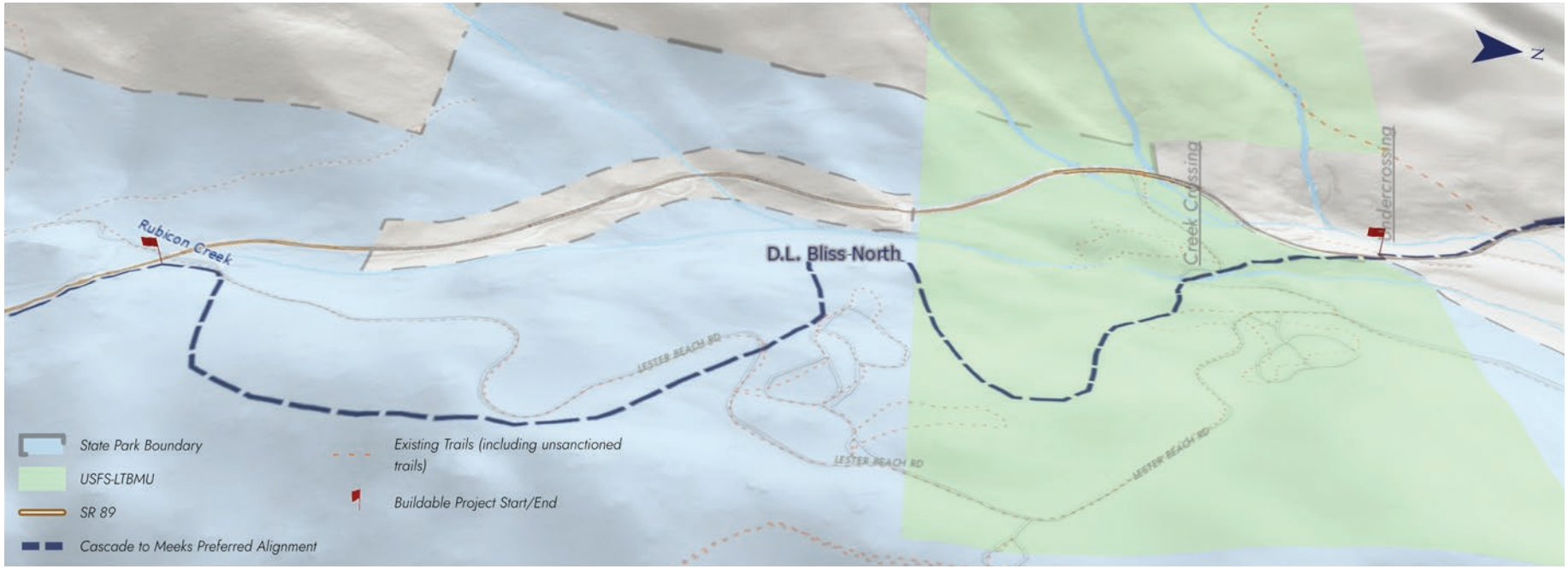


Figure 4.25: D.L. Bliss North Project Map

DESIGN AND ENGINEERING CONSIDERATIONS

DESIGN STANDARDS

- The geometric trail design would follow Caltrans, USFS, and AASHTO standards potentially with adjustments to the design parameters as topography and site constraints dictate. Project sponsors would need to work with agency partners to determine applicable standards.

DATA NEEDS

- A detailed topographic survey of the trail corridor would be required to prepare a base map showing existing conditions, topography, trees, right-of-way, utilities, and property boundaries. The width of the survey corridor would vary taking the topography and proposed alignment into account. Revisions to the trail alignment may be necessary based on the data collection at the design stage. A geological review, soil mapping, geophysics and geotechnical investigations would provide the soil parameters, including depth to bedrock and groundwater, required for the design and construction of the trail, in particular of the structural design elements, foundations, and pavement section design. Utility relocations are not anticipated for this section.

STRUCTURES

- The major structural design elements for the D.L. Bliss North Project includes up- and downslope retaining walls and an undercrossing at SR 89 at its northern terminus. The undercrossing could be accomplished with a precast jacked culvert box to minimize construction impacts to SR 89.
- In addition, the project includes clearing and a significant amount of tree removal, rock excavation, earthwork, and grading to establish the desired grades, and up- and downslope retaining walls averaging about 6.5 feet in height, founded on spread footings, totaling about 17,400 feet.

Parameter	D.L. Bliss North
Length	1.88 miles (9,901 feet)
Average Slope	3%
Maximum Slope	14%
New Impervious Area	99,013 SF (2.3 acres)
Estimated Tree Removal	400
Land Capability	1A, 2

Figure 4.26: D.L. Bliss North Project Summary

Project	2022 Cost	2022 Cost (with 30% contingency)	2022 Soft Cost	2022 Total Cost
D.L. Bliss North	$ 22,562,886	$ 29,331,752	$ 8,799,525	$ 38,131,277

Figure 4.27: D.L. Bliss North Cost Summary

TREE REMOVAL

- Based on preliminary estimates, tree removal, and harvesting would be high compared with other segments which could be accomplished prior to the construction of the trail as a standalone project.

ENVIRONMENTAL & PERMITTING CONSIDERATIONS

- This portion of trail is primarily in an alignment away from existing paved roads within D.L. Bliss State Park. Therefore, the potential for sensitive species or habitats increases significantly.
- Rubicon Creek exist within the trail alignment and would require regulatory permits from the TRPA, Lahontan RWQCB, CDFW, and the USACE. A formal aquatic resource delineation should be performed prior to initiating design.
- Tree removal would be significant to accommodate the proposed alignment. A formal tree survey to identify total number and size of trees to be removed should occur early in design.
- Cultural resources are present near the project alignment including historic sites and the historic alignment for SR 89. A formal cultural resources investigation and report would be required to support the environmental documents and regulatory permitting.
- Osprey nest buffers exist within 0.1 miles of the trail alignment (Figure 4.28).
- Several unique geologic formations exist along the project alignment. Special attention should be given to rock outcrops and other features subject to subject to environmental review and approval.
- The project would be subject to CEQA, NEPA, and TRPA environmental review procedures. Lead agencies, type of document, and schedule details would be driven by implementing agency, funding, and land ownership.
- The trail will primarily be on California State Park and USFS land. However, because the northern and southern sections may include Caltrans right-of-way, the project may be subject to the Caltrans Local Assistance Program and the LAPM, a detailed and prescriptive process for delivering federally funded local assistance projects.

Figure 4.28: Osprey nest (photo by www.saatchiart.com)

- Additional regulatory permits likely to be required include a TRPA EIP permit, USFS Special Use Permit, State Parks approvals, Caltrans encroachment permit, and local encroachment, site improvement, or building permits.

CONSTRUCTION CONSIDERATIONS

ACCESS

- The D.L. Bliss North Project would be constructed mainly on California State Park property and within SR 89 right-of-way at its northern and southern terminus.

STAGING AND STOCKPILING

- Construction staging areas would be negotiated with stakeholders and would likely include areas within California State Parks lands.

SEQUENCING

- The construction of this segment could be completed in one construction season.
- The creek crossing of Rubicon Creek may require diversion of the creek depending on the time and nature of construction.

TRAFFIC MANAGEMENT AND ROAD CLOSURES

- Construction staging and a traffic management plan for the duration of the project would address traffic control and public safety. Temporary road closures are not anticipated at this point.

SPECIAL EQUIPMENT

- Commonly used construction equipment would be used to construct the trail and its structural elements.

Figure 4.29: Culvert jacking may be an option for undercrossing construction (photo by tunnelcorp.com/au)

Figure 4.30: Unique surface geology near D.L. Bliss State Park (photo by M. Gaber)

D.L. BLISS SOUTH (LESTER BEACH ROAD TO EMERALD BAY CORNER)

PROJECT LOCATION

- This section of trail is the continuation of the D.L. Bliss North Project and lies between the intersection of Lester Beach Road the Emerald Bay Corner (Figure 4.32).

PHYSICAL CHARACTERISTICS

- This project (D.L. Bliss South) is approximately 4,700 feet in length (Figure 4.31). The 10-foot-wide trail would cover a paved area of about 1.1 acres. The average longitudinal slope would be about 4% with a maximum slope of about 7%. The D.L. Bliss South Project is located mainly on the State Parks property with portions within SR 89 right-of-way (Appendix B Sheets 4 and 5).

PLANNING-LEVEL COST ESTIMATE

- Budgetary construction cost for this project in 2022 dollars is in the order of $6 million in addition to soft cost including survey, geologic and geotechnical investigations, design, regulatory

Parameter	D.L. Bliss South
Length	0.88 miles (4,648 feet)
Average Slope	4%
Maximum Slope	7%
New Impervious Area	46,480 SF (1.1 acres)
Estimated Tree Removal	100
Land Capability	1A, 2

Figure 4.31: D.L. Bliss South Project Summary

Figure 4.32: D.L. Bliss South Project Map

compliance, and construction management of approximately $1.8 million (Figure 4.33).

DESIGN AND ENGINEERING CONSIDERATIONS

DESIGN STANDARDS

- The geometric trail design would follow Caltrans and AASHTO standards potentially with adjustments to the design parameters as topography and site constraints dictate. Project sponsors would need to work with agency partners to determine applicable standards.
- The design plans would be developed alongside of project specifications and the construction cost estimate at defined milestones with review and comment period by stakeholders.

DATA NEEDS

- A detailed topographic survey of the trail corridor would be required to prepare a base map showing existing conditions, topography, trees, right-of-way, utilities, and property boundaries. The width of the survey corridor would vary taking the topography and proposed alignment into account. Revisions to the trail alignment may be necessary based on the data collection at the design stage. A geological review, soil mapping, geophysics and geotechnical investigations would provide the soil parameters, including depth to bedrock and groundwater, required for the design and construction of the trail, in particular of the structural design elements, foundations, and pavement section design. Undergrounding of existing overhead utilities should be explored to improve scenic quality along SR 89.

STRUCTURES

- The major structural design elements for the D.L. Bliss South Project includes up- and downslope retaining walls with heights up to 50 feet or more. In addition, the project includes clearing and tree removal, rock excavation, earthwork, and grading to establish the desired grades, and up- and downslope retaining walls averaging about 4 feet in height, founded on spread footings, totaling about 5,700 feet.

TREE REMOVAL

- Based on preliminary estimates, tree removal and harvesting would be low compared with other segments which could be accomplished prior to the construction of the trail as a standalone project.

ENVIRONMENTAL & PERMITTING CONSIDERATIONS

- No formal creeks or channels were noted along the alignment in this area. Ephemeral or intermittent drainages may exist and the alignment should be evaluated for drainages prior to design.

Project	2022 Cost	2022 Cost (with 30% contingency)	2022 Soft Cost	2022 Total Cost
D.L. Bliss South	$ 4,821,320	$ 6,267,716	$ 1,880,315	$ 8,148,031

Figure 4.33: D.L. Bliss South Cost Summary

- Cultural resources are present along and near the project alignment including the historic SR 89 alignment, historic ditches, and other recorded resources. A formal cultural resources investigation and report would be required to support the environmental documents and regulatory permitting.
- There is also an osprey nest buffer within 0.2 miles of the project alignment.
- This portion of trail would be visible from a TRPA Scenic Resource Area and Lake Tahoe. Scenic impacts and mitigation would be critical during planning and design.
- The project would be subject to CEQA, NEPA, and TRPA environmental review procedures. Lead agencies, type of document, and schedule details would be driven by implementing agency, funding, and land ownership.
- A portion of the trail would be in Caltrans right-of-way. This would subject the project to the Caltrans Local Assistance Program and the LAPM, a detailed and prescriptive process for delivering federally funded local assistance projects.
- Additional regulatory permits likely to be required include a TRPA EIP permit, Caltrans encroachment, State Parks approval, and local grading, site improvement, or building permits.

CONSTRUCTION CONSIDERATIONS

ACCESS

- The D.L. Bliss South Project would be constructed mainly on California State Park lands and within SR 89 right-of-way.

STAGING AND STOCKPILING

- Construction staging areas would be negotiated with stakeholders and would likely include areas within California State Parks lands.

SEQUENCING

- The construction of this segment could be completed in one construction season, especially if construction starts at both ends of the segment simultaneously.

TRAFFIC MANAGEMENT AND ROAD CLOSURES

- Construction staging and a traffic management plan for the duration of the project would address traffic control and public safety. Temporary road closures are not anticipated at this point.

SPECIAL EQUIPMENT

- Commonly used construction equipment would be used to construct the trail and its structural elements.

EMERALD BAY VIKINGSHOLM

PROJECT LOCATION

- This trail is the continuation of the D.L. Bliss South Project and lies between the northern end of Emerald Bay and the Vikingsholm parking lot (Figures 4.34 and 4.36). The project will include land managed by the USFS and California State Parks, in addition to Caltrans right of way.

PHYSICAL CHARACTERISTICS

- This project (Emerald Bay Vikingsholm) is approximately 6,400 feet in length (Figure 4.35). The 10-foot-wide trail would cover a paved area of about 1.5 acres. The average

Figure 4.34: Oblique winter view of Emerald Bay Vikingsholm (photo by www.google.com)

longitudinal slope would be about 4% with a maximum slope of about 7%. The Emerald Bay Vikingsholm Project is located mainly on the State Parks property (Appendix B Sheet 5).

PLANNING-LEVEL COST ESTIMATE

- Budgetary construction cost for this project in 2022 dollars is in the order of $27 million in addition to soft cost including survey, geologic and geotechnical investigations, design, regulatory compliance, and construction management of approximately $8 million (Figure 4.38).

DESIGN AND ENGINEERING CONSIDERATIONS

DESIGN STANDARDS

- The geometric trail design would follow Caltrans, USFS, and AASHTO standards potentially with adjustments to the design parameters as topography and site constraints dictate. Project sponsors would need to work with agency partners to determine applicable standards.
- Coordination with California State Parks and sharing of past experience with the maintenance of existing trails along this segment would provide valuable information for the design.

Parameter	Emerald Bay Vikingsholm
Length	1.21 miles (6,363 feet)
Average Slope	4%
Maximum Slope	7%
New Impervious Area	63,629 SF (1.5 acres)
Estimated Tree Removal	180
Land Capability	1A, 3

Figure 4.35: Emerald Bay Vikingsholm Project Summary

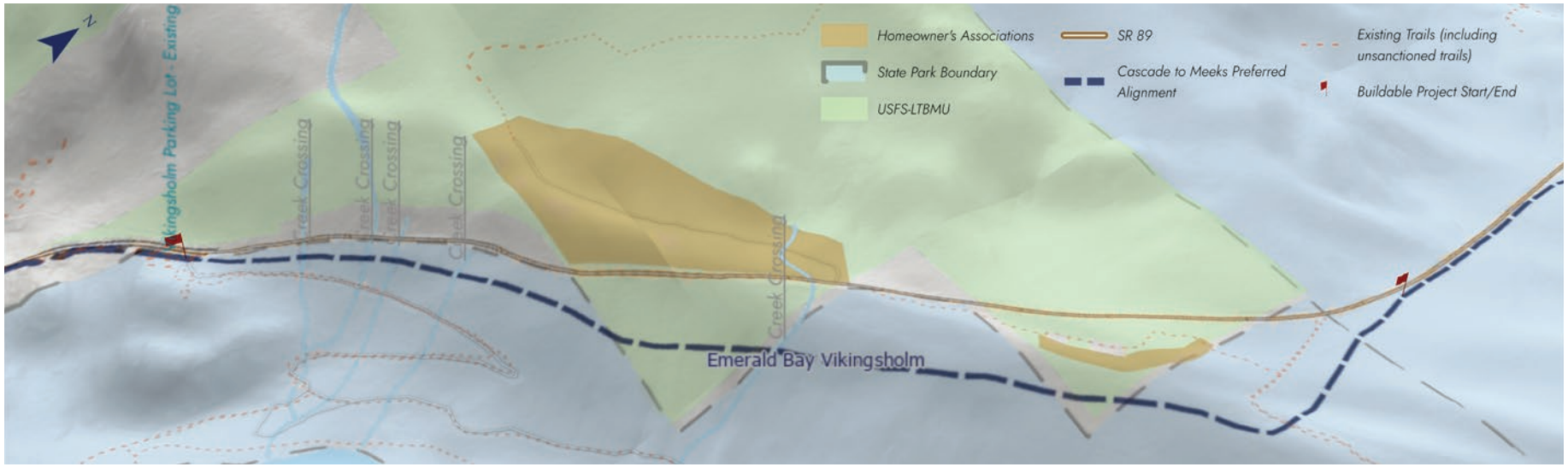


Figure 4.36: Emerald Bay Vikingsholm Project Map

DATA NEEDS

- A detailed topographic survey of the trail corridor would be required to prepare a base map showing existing conditions, topography, trees, right-of-way, utilities, and property boundaries. The width of the survey corridor would vary taking the topography and proposed alignment into account. Revisions to the trail alignment may be necessary based on the data collection at the design stage. A geological review, soil mapping, geophysics and geotechnical investigations would provide the soil parameters, including depth to bedrock and groundwater, required for the design and construction of the trail, in particular of the structural design elements, foundations, and pavement section design. Utility relocations are not anticipated for this section.

STRUCTURES

- The major structural design elements for the Emerald Bay Vikingsholm Project includes up- and downslope retaining walls with heights up to 39 feet or more. Retaining walls would likely require tie-backs (Figure 4.37) and deep foundations using heavy steel column cages due to the steepness of the terrain.
- In addition, the project includes clearing and tree removal, rock excavation or blasting, earthwork, and grading to establish the desired grades, culverts for crossing of water courses, and up- and downslope retaining walls averaging about 6 feet or more in height totaling about 11,000 feet.

TREE REMOVAL

- Based on preliminary estimates, tree removal and harvesting would be average and could be accomplished prior to the construction of the trail as a standalone project.

ENVIRONMENTAL & PERMITTING CONSIDERATIONS

- Several unnamed drainages exist along this trail alignment and may require regulatory permits from the TRPA, Lahontan RWQCB, CDFW, and the USACE. A formal aquatic resource delineation should be performed prior to initiating design.

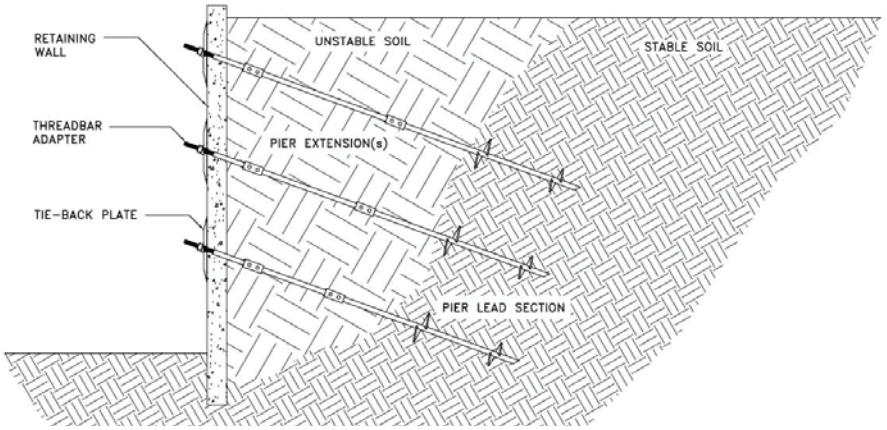


Figure 4.37: Retaining walls with tie backs (photo by www.google.com)

Buildable Project	2022 Cost	2022 Cost (with 30% contingency)	2022 Soft Cost	2022 Total Cost
Emerald Bay Vikingsholm	$ 20,746,854	$ 26,970,910	$ 8,091,273	$ 35,062,182

Figure 4.38: Emerald Bay Vikingsholm Cost Summary

- Cultural resources are present along and near the project alignment including historic sites and portions of the Vikingsholm Historic District. A formal cultural resources investigation and report would be required to support the environmental documents and regulatory permitting.
- Biological resources within this area include a bald eagle nest buffer less than 0.1 miles from the trail alignment (Figure 4.39) and several osprey nest buffers within approximately 0.5 miles of the trail alignment.
- This portion of trail would be visible from a TRPA Scenic Resource Area and Lake Tahoe. Scenic impacts and mitigation would be critical during planning and design.
- The project would be subject to CEQA, NEPA, and TRPA environmental review procedures. Lead agencies, type of document, and schedule details would be driven by implementing agency, funding, and land ownership.
- Additional regulatory permits likely to be required include a TRPA EIP permit, Caltrans encroachment permit, State Parks approval, USFS Special Use Permit, and local grading, site improvement, or building permits.

Figure 4.39: Bald eagle over Lake Tahoe (photo by www.mtdemocrat.com)

CONSTRUCTION CONSIDERATIONS

ACCESS

- The Emerald Bay Vikingsholm Project would be constructed mainly on California State Park property. The steepness of the terrain makes this segment very challenging to construct.
- This section of trail is located downslope from the SR 89 viaduct in challenging steep terrain, prone to slides, avalanche chutes, and several water courses. Construction access would be difficult due to steep slopes varying from 30% to 70%.

STAGING AND STOCKPILING

- Construction staging areas would be negotiated with stakeholders and would likely include areas within California State Parks lands.

SEQUENCING

- The construction of this segment would likely span two construction seasons. It is possible to construct this segment from both ends simultaneously. The impacts of construction to the Vikingsholm parking lot and access to the Lake would need to be considered.

Figure 4.40: Spider excavator on steep slope (photo by www.dozr.com)

TRAFFIC MANAGEMENT AND ROAD CLOSURES

- A traffic management plan would be required to provide safe access from the Vikingsholm parking lot. Temporary road closures are not anticipated at this point.

SPECIAL EQUIPMENT

- Special equipment like spider excavators (Figure 4.40) may have to be deployed to construct this section of trail.

EMERALD BAY INSPIRATION POINT

PROJECT LOCATION

- This section of trail is the continuation of the Emerald Bay Vikingsholm Project and lies between the Vikingsholm parking lot and Inspiration Point (Figure 4.41). The project will include land managed by the USFS and California State Parks, in addition to Caltrans right of way.

PHYSICAL CHARACTERISTICS

- This project (Emerald Bay Inspiration Point) is approximately 8,000 feet in length (Figure 4.42). The 10-foot-wide trail would cover a paved area of about 1.8 acres. The average longitudinal slope would be about 6% with a maximum slope of about 10%. The Emerald

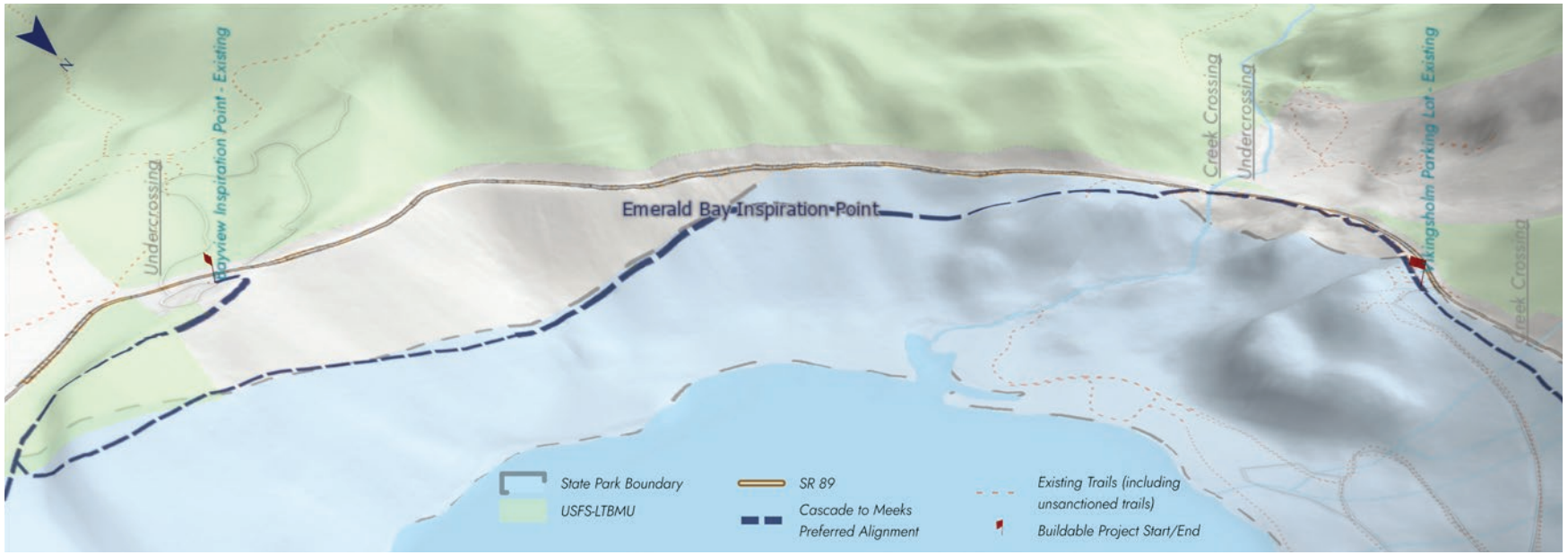


Figure 4.41: Emerald Bay Inspiration Point Project Map

Bay Inspiration Point Project features an undercrossing under SR 89 at the Eagle Creek Falls parking area and at Inspiration Point. The Emerald Bay Inspiration Point Project is located mainly on the State Parks property (Appendix B Sheet 6).

PLANNING-LEVEL COST ESTIMATE

- Budgetary construction cost for this project in 2022 dollars is in the order of $27 million in addition to soft cost including survey, geologic and geotechnical investigations, design, regulatory compliance, and construction management of approximately $8 million (Figure 4.43).

DESIGN AND ENGINEERING CONSIDERATIONS

DESIGN STANDARDS

- The geometric trail design would follow Caltrans, USFS, and AASHTO standards potentially with adjustments to the design parameters as topography and site constraints dictate. Project sponsors would need to work with agency partners to determine applicable standards.
- Coordination with California State Parks and sharing of past experience with the maintenance of existing trails along this segment would provide valuable information for the design.

DATA NEEDS

- A detailed topographic survey of the trail corridor would be required to prepare a base map showing existing conditions, topography, trees, right-of-way, utilities, and property boundaries. The width of the survey corridor would vary taking the topography and proposed alignment into account. Revisions to the trail alignment may be necessary based on the data collection at the design stage. A geological review, soil mapping, geophysics and geotechnical investigations would provide the soil parameters, including depth to bedrock and groundwater, required for the design and construction of the

Parameter	Emerald Bay Inspiration Point
Length	1.51 miles (7,959 feet)
Average Slope	6%
Maximum Slope	10%
New Impervious Area	79,586 SF (1.8 acres)
Estimated Tree Removal	250
Land Capability	1A, 1C, 3

Figure 4.42: Emerald Bay Inspiration Point Project Summary

Buildable Project	2022 Cost	2022 Cost (with 30% contingency)	2022 Soft Cost	2022 Total Cost
Emerald Bay Inspiration Point	$ 20,920,610	$ 27,196,793	$ 8,159,038	$ 35,355,831

Figure 4.43: Emerald Bay Inspiration Point Cost Summary

trail, in particular of the structural design elements, foundations, and pavement section design. In particular the slide area would require a detailed assessment and investigation to provide a basis for design. Utility relocations are not anticipated for this section.

STRUCTURES

- The major structural design elements for the Emerald Bay Inspiration Point Project includes the Eagle Falls Trail Connection that would have to negotiate large rock outcroppings west of SR 89 making the crossing of the highway at this location challenging. An arch culvert under SR 89 could be an option for this crossing. Retaining walls with tie-backs would build out the trail adjacent to the east side of SR 89. The section includes a significant amount of up- and downslope retaining wall with heights up to 129 feet or more using shotcrete with micropiles (Figure 4.42). At Inspiration Point an undercrossing would connect the trail to the parking lot south of SR 89 which would be coordinated with the US Forest Service.
- In addition, the project includes clearing and a significant amount of tree removal, rock excavation or blasting, earthwork, and grading to establish the desired grades, culverts for crossing of water courses, and up- and downslope retaining walls averaging about 15 feet or more in height totaling about 16,500 feet. For the rock slide location, geological and geotechnical analyses will be needed to determine the type and location of the proposed structure (e.g., rock shed, tunnel, etc.) and the proposed location of the trail.

TREE REMOVAL

- Based on preliminary estimates, tree removal and harvesting would be above average, which could be accomplished prior to the construction of the trail as a standalone project.

ENVIRONMENTAL & PERMITTING CONSIDERATIONS

- Eagle Creek and several unnamed drainages exist along this trail alignment and may require regulatory permits from the TRPA, Lahontan RWQCB, CDFW, and the USACE. A formal aquatic resource delineation should be performed prior to initiating design.
- Cultural resources are present along or near the project alignment including historic sites and the historic SR 89 Bridge over Eagle Creek. A formal cultural resources investigation and report would be required to support the environmental documents and regulatory permitting.
- Geologic hazards including rock slides exist in this area.
- Several osprey nest buffers overlap the trail alignment.
- This portion of trail would be visible from a TRPA Scenic Resource Area and Lake Tahoe. Scenic impacts and mitigation would be critical during planning and design.

Figure 4.44: Historic landslide location within Emerald Bay Inspiration Point (photo by D. Rios)

- The project would be subject to CEQA, NEPA, and TRPA environmental review procedures. Lead agencies, type of document, and schedule details would be driven by implementing agency, funding, and land ownership.
- A portion of the trail would be in Caltrans right-of-way. This would subject the project to LAPM, a detailed and prescriptive process for delivering federally funded local assistance projects.
- The USFS is planning to convert the existing Bayview Campground, across from Inspiration Point, into a parking and day-use area. The project is currently being designed with constructed anticipated for 2024.
- Additional regulatory permits likely to be required include a TRPA EIP permit, Caltrans encroachment permit, USFS Special Use Permit, State Parks approval, and local grading, site improvement, or building permits.

CONSTRUCTION CONSIDERATIONS

ACCESS

- The Emerald Bay Inspiration Point Project would be constructed mainly on California State Park lands.

STAGING AND STOCKPILING

- Construction staging areas would be negotiated with stakeholders and would likely include areas within California State Parks lands and within Caltrans right-of-way.

SEQUENCING

- The construction of this segment would likely span two construction seasons. It is possible to construct this segment from both ends simultaneously, however access to Inspiration Point would be impacted.

TRAFFIC MANAGEMENT AND ROAD CLOSURES

- A traffic management plan would be required to provide safe access from the Vikingsholm parking lot and Inspiration Point as well as at the Eagle Falls parking area. This segment of trail sees a larger number of traffic and visitors throughout the year. Temporary road closures are not anticipated at this point.

SPECIAL EQUIPMENT

- The steepness of the terrain makes this segment very challenging to construct. Special equipment like spider excavators may have to be deployed to construct this section of trail.

EMERALD BAY EAGLE POINT

PROJECT LOCATION

- This section of trail is the continuation of the Emerald Bay Inspiration Point Project and lies between the Inspiration Point and the Eagle Point campground (Figure 4.45 and 4.47). The project will include land managed by the USFS and California State Parks.

PHYSICAL CHARACTERISTICS

- This project (Emerald Bay Eagle Point) is approximately 3,700 feet in length (Figure 4.46). The 10-foot-wide trail would cover a paved area of about 0.9 acres. The average longitudinal slope would be about 5% with a maximum slope of about 10%. The Emerald Bay Eagle Point

Figure 4.45: Oblique view of Eagle Point (photo by www.google.com)

Project is located mainly on California State Parks and US Forest service property (Appendix B Sheet).

PLANNING-LEVEL COST ESTIMATE

- Budgetary construction cost for this project in 2022 dollars is in the order of $80 million in addition to soft cost including survey, geologic and geotechnical investigations, design, regulatory compliance, and construction management of approximately $24 million (Figure 4.48).

DESIGN AND ENGINEERING CONSIDERATIONS

DESIGN STANDARDS

- The geometric trail design would follow Caltrans and AASHTO standards potentially with adjustments to the design parameters as topography and site constraints dictate. Project sponsors would need to work with agency partners to determine applicable standards.

Parameter	Emerald Bay Eagle Point
Length	0.71 miles (3,728 feet)
Average Slope	5%
Maximum Slope	10%
New Impervious Area	37,280 SF (0.9 acres)
Estimated Tree Removal	100
Land Capability	1A, 3

Figure 4.46: Emerald Bay Eagle Point Project Summary

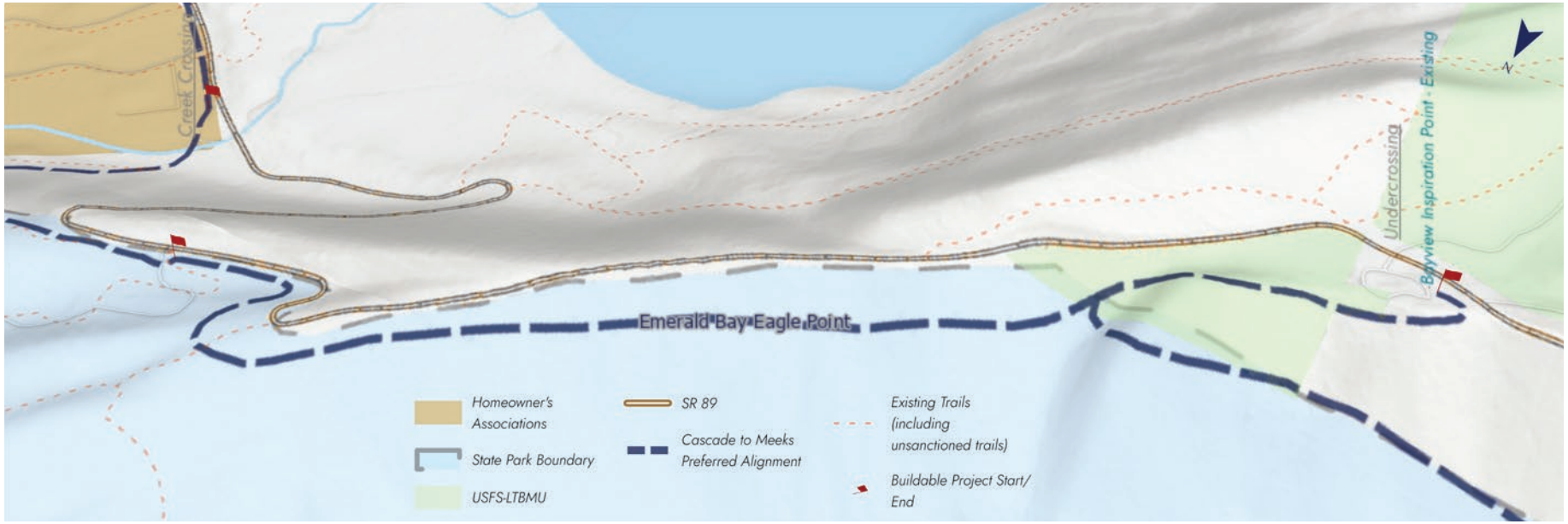


Figure 4.47: Emerald Bay Eagle Point Project Map

DATA NEEDS

- A detailed topographic survey of the trail corridor would be required to prepare a base map showing existing conditions, topography, trees, right-of-way, utilities, and property boundaries. The width of the survey corridor would vary taking the topography and proposed alignment into account. Revisions to the trail alignment may be necessary based on the data collection at the design stage. A geological review, soil mapping, geophysics and geotechnical investigations would provide the soil parameters, including depth to bedrock and groundwater, required for the design and construction of the trail, in particular of the structural design elements, foundations, and pavement section design. Utility relocations are not anticipated for this section.

STRUCTURES

- The major structural design elements for the Emerald Bay Eagle Point Project include retaining walls likely with tie-backs. The section includes a significant amount of up- and downslope retaining walls with heights potentially up to 30 feet due to the steep terrain.
- In addition, the project includes clearing and tree removal, rock excavation or blasting, earthwork, and grading to establish the desired grades, culverts for crossing of water courses, and up- and downslope retaining walls averaging about 3 feet or more in height totaling about 5,500 feet.
- The major structural design element for the Emerald Bay Eagle Point Project will include an undercrossing at SR 89 connecting Inspiration Point and the Bay View Day Use area. Staging is anticipated to occur on USFS-managed lands and the undercrossing may alleviate impacts along SR 89, during construction of the proposed trail. Unforeseen conditions during construction are common when constructing underground facilities.
- The challenges related to the undercrossing in this location will include steep embankment slopes on both sides of the road. Deep excavations likely in bedrock will be required to achieve profile grade. Achieving the structural clearance below the roadbed will be a key design consideration and the transition lengths are anticipated to be long, likely requiring switchbacks.

TREE REMOVAL

- Based on preliminary estimates tree removal and harvesting would be low compared with other segments which could be accomplished prior to the construction of the trail as a standalone project.

ENVIRONMENTAL & PERMITTING CONSIDERATIONS

- Several osprey nest buffers overlap the trail alignment.
- Cultural resources are present along or near the project alignment including pre historic and historic sites. A formal

Buildable Project	2022 Cost	2022 Cost (with 30% contingency)	2022 Soft Cost	2022 Total Cost
Emerald Bay Eagle Point	$ 61,925,776	$ 80,503,509	$ 24,151,053	$ 104,654,562

Figure 4.48: Emerald Bay Eagle Point Cost Summary

cultural resources investigation and report would be required to support the environmental documents and regulatory permitting.

- This portion of trail would be visible from a TRPA Scenic Resource Area and Lake Tahoe. Scenic impacts and mitigation would be critical during planning and design.
- The project would be subject to CEQA, NEPA, and TRPA environmental review procedures. Lead agencies, type of document, and schedule details would be driven by implementing agency, funding, and land ownership.
- A portion of the trail would be in Caltrans right-of-way. This would subject the project to the Caltrans Local Assistance Program and the LAPM, a detailed and prescriptive process for delivering federally funded local assistance projects.
- Additional regulatory permits likely to be required include a TRPA EIP permit, Caltrans encroachment, State Parks approval, USFS special use permit, and local grading, site improvement, or building permits.

CONSTRUCTION CONSIDERATIONS

ACCESS

- The Emerald Bay East Project would be constructed mainly on California State Park lands.
- The steepness of the terrain makes this segment very challenging to construct.

STAGING AND STOCKPILING

- Construction staging areas would be negotiated with stakeholders and would likely include areas within California State Parks lands and within Caltrans right-of-way.

SEQUENCING

- Construction of this segment would likely span two construction seasons. It is possible to construct this segment from both ends simultaneously.

TRAFFIC MANAGEMENT AND ROAD CLOSURES

- A traffic management plan would be required to provide safe access to Inspiration Point. Temporary closure of Inspiration Point might be required. This segment of trail sees a larger number of traffic and visitors throughout the year. Temporary road closures are not anticipated at this point.

SPECIAL EQUIPMENT

- Special equipment like spider excavators may have to be deployed to construct this section of trail.

EAGLE POINT

PROJECT LOCATION

- This section of trail is the continuation of the Emerald Bay East Project and lies between the Eagle Point campground and Cascade Creek (Figure 4.50).

PHYSICAL CHARACTERISTICS

- This project (Eagle Point) is approximately 7,500 feet in length (Figure 4.49). The 10-foot-wide trail would cover a paved area of about 1.7 acres. The average longitudinal slope would be about 5% with a maximum slope of about 10%. The Eagle Point Project is located mainly on State Parks lands (Appendix B Sheet 7).

PLANNING-LEVEL COST ESTIMATE

- Budgetary construction cost for this project in 2022 dollars is in the order of $27 million in addition to soft cost including survey, geologic and geotechnical investigations, design, regulatory

Parameter	Eagle Point
Length	1.41 miles (7,454 feet)
Average Slope	5%
Maximum Slope	10%
New Impervious Area	74,538 SF (1.7 acres)
Estimated Tree Removal	180
Land Capability	1A, 3

Figure 4.49: Eagle Point Project Summary

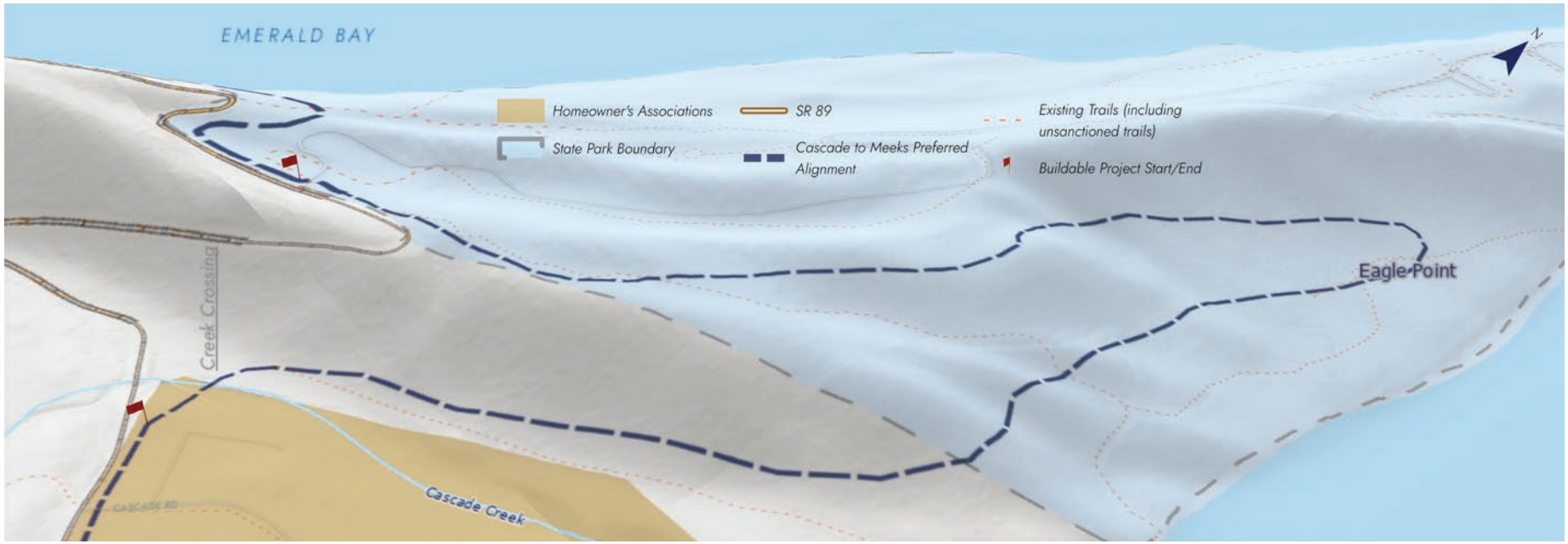


Figure 4.50: Eagle Point Project Map

compliance, and construction management of approximately $8 million (Figure 4.52).

DESIGN AND ENGINEERING CONSIDERATIONS

DESIGN STANDARDS

- The geometric trail design would follow Caltrans and AASHTO standards potentially with adjustments to the design parameters as topography and site constraints dictate. Project sponsors would need to work with agency partners to determine applicable standards.

DATA NEEDS

- A detailed topographic survey of the trail corridor would be required to prepare a base map showing existing conditions, topography, trees, right-of-way, utilities, and property boundaries. The width of the survey corridor would vary taking the topography and proposed alignment into account. Revisions to the trail alignment may be necessary based on the data collection at the design stage. A geological review, soil mapping, geophysics and geotechnical investigations would provide the soil parameters, including depth to bedrock and groundwater, required for the design and construction of the trail, in particular of the structural design elements, foundations, and pavement section design. Utility relocations are not anticipated for this section.

STRUCTURES

- The major structural design elements for the Eagle Point Project includes the Cascade Creek bridge crossing. A standard steel bridge with approximately 80-foot-long span founded on spread footings is anticipated. Based on the data of an existing nearby bridge structure, large boulders and a cobbly

Figure 4.51: Existing trail near Cascade Creek (photo by M. Gaber)

Buildable Project	2022 Cost	2022 Cost (with 30% contingency)	2022 Soft Cost	2022 Total Cost
Eagle Point	$ 20,820,373	$ 27,066,485	$ 8,119,945	$ 35,186,430

Figure 4.52: Eagle Point Cost Summary

sandy soil matrix are anticipated at this location. Diversion of the creek during peak flows and control of water during construction would be required. A hydrologic and hydraulic analysis of the watershed and the creek and the anticipated flows and water surface elevations would be prepared for the design of the bridge. It is assumed that the design storm for the bridge design is the 100-year, 24-hour storm event.

- In addition, the project includes clearing tree removal, rock excavation or blasting, earthwork, and grading to establish the desired grades, and up- and downslope retaining walls averaging about 5 feet or more in height, totaling about 11,000 feet in length.

TREE REMOVAL

- Based on preliminary estimates, tree removal and harvesting would be low compared with other segments, which, could be accomplished prior to the construction of the trail as a standalone project.

ENVIRONMENTAL & PERMITTING CONSIDERATIONS

- Several osprey nest buffers overlap the trail alignment.
- Cultural resources are present along or near the project alignment including three known prehistoric sites. A formal cultural resources investigation and report would be required to support the environmental documents and regulatory permitting.
- This portion of trail would be visible from a TRPA Scenic Resource Area and Lake Tahoe. Scenic impacts and mitigation would be critical during planning and design.
- The project would be subject to CEQA, NEPA, and TRPA environmental review procedures. Lead agencies, type of document, and schedule details would be driven by implementing agency, funding, and land ownership.
- A portion of the trail would be in Caltrans right-of-way. This would subject the project to the Caltrans Local Assistance Program and the LAPM, a detailed and prescriptive process for delivering federally funded local assistance projects.
- Additional regulatory permits likely to be required include a TRPA EIP permit, Caltrans encroachment permit, State Parks approval, and local grading, site improvement, or building permits.

CONSTRUCTION CONSIDERATIONS

ACCESS

- The Eagle Point Project would be constructed mainly on California State Park property.

STAGING AND STOCKPILING

- Construction staging areas would be negotiated with stakeholders and would likely include areas within California State Parks property and within Caltrans right-of-way.

SEQUENCING

- Construction would likely be completed in two construction seasons. The construction of the bridge over Cascade Creek would likely take place in late summer/early fall. It is possible to construct this segment from both ends simultaneously.

TRAFFIC MANAGEMENT AND ROAD CLOSURES

- Temporary road closures are not anticipated at this point.

CASCADE

PROJECT LOCATION

- This section of trail is the continuation of the Eagle Point Project and lies between the Cascade Creek and the Pope Baldwin Bike Path (Figure 4.53). Significant private property exists along the Cascade Project.

PHYSICAL CHARACTERISTICS

- This project (Cascade) is approximately 7,900 feet in length (Figure 4.54). The 10-foot-wide trail would cover a paved area of about 1.8 acres. The average longitudinal slope would be about 3% with a maximum slope of about 5%. The Cascade Project is located mainly on US Forest Service property and Caltrans right of way. Large areas of private property also exist adjacent to the Cascade Project (Appendix B Sheet 7).

PLANNING-LEVEL COST ESTIMATE

- Budgetary construction cost for this project in 2022 dollars is in the order of $15 million in addition to soft cost including survey, geologic and geotechnical investigations, design, regulatory compliance, and construction management of approximately $4.5 million (Figure 4.55).

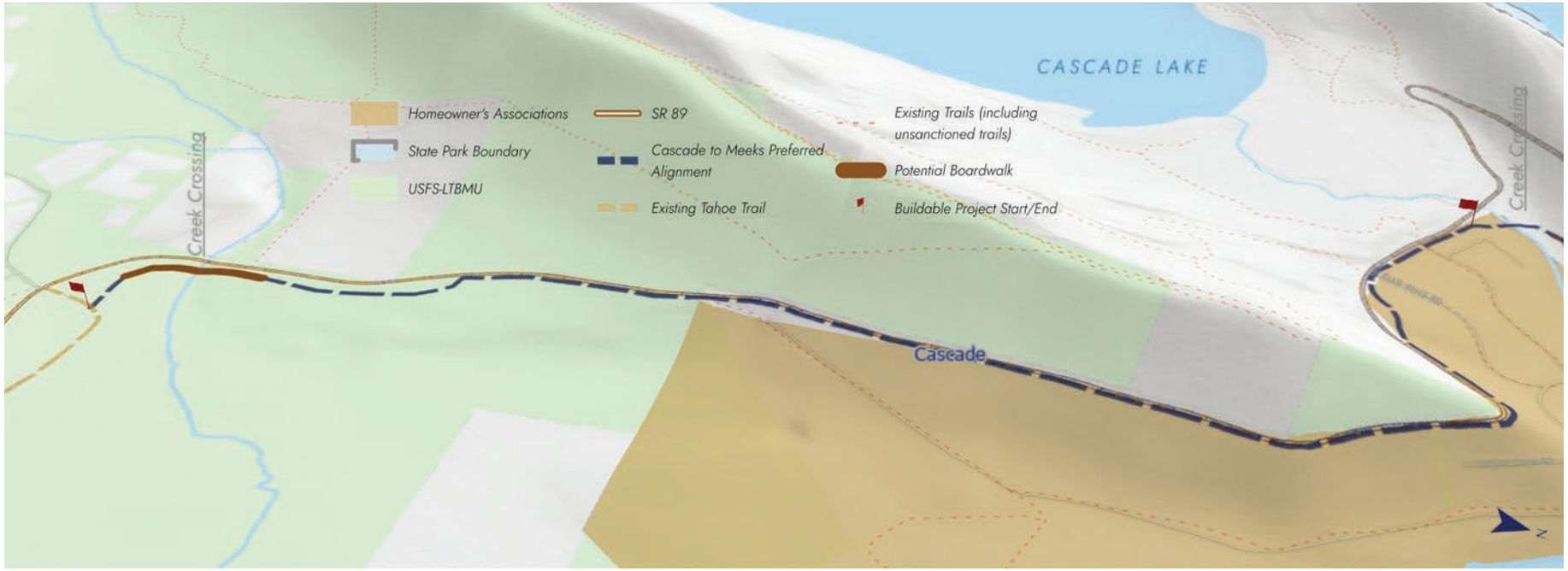


Figure 4.53: Cascade Project Map

DESIGN AND ENGINEERING CONSIDERATIONS

DESIGN STANDARDS

- The geometric trail design would follow Caltrans and AASHTO standards potentially with adjustments to the design parameters as topography and site constraints dictate. Project sponsors would need to work with agency partners to determine applicable standards.
- The design plans would be developed alongside of project specifications and the construction cost estimate at defined milestones with review and comment period by stakeholders.

DATA NEEDS

- A detailed topographic survey of the trail corridor would be required to prepare a base map showing existing conditions, topography, trees, right-of-way, utilities, and property boundaries. The width of the survey corridor would vary taking the topography and proposed alignment into account. Revisions to the trail alignment may be necessary based on the data collection at the design stage. A geological review, soil mapping, geophysics and geotechnical investigations would provide the soil parameters, including depth to bedrock and groundwater, required for the design and construction of the trail, in particular of the structural design elements, foundations, and pavement section design. Utility relocations are not anticipated for this section.

STRUCTURES

- The major structural design elements for the Cascade Project are up- and downslope retaining walls and or an elevated structure adjacent but disconnected from SR 89 placed along the northbound lane of SR 89. The challenges are related to

Parameter	Cascade
Length	1.49 miles (7,877 feet)
Average Slope	3%
Maximum Slope	5%
New Impervious Area	78,769 SF (1.8 acres)
Estimated Tree Removal	120
Land Capability	1A, 1B, 3, 4, 5

Figure 4.54: Cascade Project Summary

Buildable Project	2022 Cost	2022 Cost (with 30% contingency)	2022 Soft Cost	2022 Total Cost
Cascade	$ 11,638,727	$ 15,130,345	$ 4,539,104	$ 19,669,449

Figure 4.55: Cascade Cost Summary

the steep terrain combined with the fire scarred slopes that prevent the placement of an at-grade trail (Figure 4.56). Subgrade soil conditions are anticipated to be extremely bouldery. Where the Cascade Projects connects to the existing Pope Baldwin bike path boardwalks to travers environmental sensitive areas would be considered.

- In addition, the project includes clearing tree removal, rock excavation, earthwork, and grading to establish the desired grades, and up- and downslope retaining walls averaging about 1.8 feet or more in height totaling about 9,500 feet in length. Environmental protection measures that are consistent with requirements by regulatory and permitting agencies would be included in the design documents.

TREE REMOVAL

- Based on preliminary estimates, tree removal and harvesting would be low compared with other segments, which could be accomplished prior to the construction of the trail as a standalone project.

ENVIRONMENTAL & PERMITTING CONSIDERATIONS

- Cascade Creek is along this trail alignment and may require regulatory permits from the TRPA, Lahontan RWQCB, CDFW, and the USACE. A formal aquatic resource delineation should be performed prior to initiating design.
- Cultural resources are present along or near the project alignment including historic roads and a known pre historic sites. A formal cultural resources investigation and report would be required to support the environmental documents and regulatory permitting.
- Several osprey nest buffers are within 0.2 miles of the project alignment.
- This portion of trail would be visible from a TRPA Scenic Resource Area and Lake Tahoe. Scenic impacts and mitigation would be critical during planning and design.

Figure 4.56: Emerald Fire burn area (photo by C. Davis)

- The project would be subject to CEQA, NEPA, and TRPA environmental review procedures. Lead agencies, type of document, and schedule details would be driven by implementing agency, funding, and land ownership.
- A portion of the trail would be in Caltrans right-of-way. This would subject the project to the Caltrans Local Assistance Program and the LAPM, a detailed and prescriptive process for delivering federally funded local assistance projects.
- Additional regulatory permits likely to be required include a TRPA EIP permit, Caltrans encroachment permit, USFS special use permit, and local grading, site improvement, or building permits.

CONSTRUCTION CONSIDERATIONS

ACCESS

- The Cascade Project would be constructed mainly on US forest Service property and within Caltrans right-of-way.

STAGING AND STOCKPILING

- Construction staging areas would be negotiated with stakeholders and would likely include areas within US Forest Service property and within Caltrans right-of-way requiring a Caltrans encroachment permit.

SEQUENCING

- Construction may be completed in one construction season with the most southern portion to be constructed in the fall to take advantage of drier soil conditions in the flat low-lying area.

TRAFFIC MANAGEMENT AND ROAD CLOSURES

- Temporary road closures are not anticipated at this point, however temporary one-way traffic with flaggers or temporary traffic signals at the various contraction stages might be required.

SPECIAL EQUIPMENT

- Construction equipment that can negotiate steep terrain like spider excavators would likely be required.

PROJECT IMPLEMENTATION

ENVIRONMENTAL REVIEW

The environmental review at the federal (NEPA), state (CEQA), and local (TRPA) level for the Cascade to Meeks Trail project(s) would involve the analysis and documentation of the environmental effects of the proposed project(s) (e.g., federal, state, or local actions). Whether the project is reviewed through a programmatic joint environmental document or a series of project-level joint environmental documents would be determined by the implementing agencies.

PROJECT FUNDING

Funding for the Cascade to Meeks Trail buidable projects design, environmental, permitting, and construction has not been determined. However, there are various funding sources that are being considered including the following:

FEDERAL

- Lake Tahoe Restoration Act (LTRA)
- Carbon Reduction Program (CRP)
- Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT)
- Capital Improvement and Maintenance Funds
- Great America Outdoors ACT
- Legacy Roads and Trails
- Federal Lands Transportation Program
- Federal Lands Access Program (FLAP)
- Infrastructure Investment and Jobs Act Funding
  - Surface Transportation Block Grant Program (STBG)
  - Rebuilding American Infrastructure with Sustainability and Equity (RAISE)
  - Safe Streets and Roads for All Grant Program
  - Bridge Formula Program
  - Congestion Mitigation and Air Quality Improvement Program (CMAQ)
  - Bridge Investment Program

STATE (CALIFORNIA)

- Active Transportation Program (ATP)
- Integrated Climate Adaptation and Resiliency Program (ICARP)
- Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT CA)
- Clean California Local Grant Program (CCLGP)
- Sustainable Transportation Planning Grants (STPG)
- Recreation Trails Program (RTP)
- California Department of Parks and Recreation Office of Grants and Local Services (OGALS)

LOCAL/OTHER

- El Dorado Transient Occupancy Tax
- Tahoe Fund

PROJECT SEQUENCE

Numerous options exist for sequencing the implementation of the Projects presented above. Factors including connectivity, project cost, available funding, willing project sponsors, political and community support, and environmental impacts would all influence the selection and timing of implementation of specific Projects. To assist regional partners and future project sponsors, Table 4.57 presents a phasing strategy based on five factors: 1) connectivity to existing trails and recreation assets within the corridor 2) relative constructability (e.g., access, staging, etc.) 3) anticipated environmental impacts and regulatory requirements (e.g., likelihood of impacts, intensity of environmental review), 4) estimated costs (based on the conceptual design), and 5) Practical implementation factors like land ownership, project sponsors, and community support.

Buildable Projects	Considerations	Implementation Rank
Meeks - SR89/Residential	Direct connectivity to existing trail and recreation assets. Direct construction access from existing roads. Construction complex, complicated structures. Regulatory requirements high, resource permits required. Cost is low when compared to other projects.	1
Rubicon Forest	No direct connectivity to existing trails or recreation assets. Direct construction access from existing roads for a portion of the trail. Construction complicated, complex structures. Regulatory requirements low, resource permits may be needed. Cost is moderate when compared to other projects.	2
Cascade	Direct connectivity to existing trail. No direct connectivity to recreation assets. Direct construction access from existing roads. Construction complex, complicated structures. Regulatory requirements high, resource permits required. Cost is moderate when compared to other projects.	3
Eagle Point	Direct connectivity to recreation assets. No direct connectivity to existing trails. No direct construction access from existing roads. Construction complex, due to amount and complexity of structures. Regulatory requirements modest, resource permits may be needed. Cost is high when compared to other projects.	4
Paradise Flat	No direct connectivity to existing trails or recreation assets. Direct construction access from existing roads. Construction uncomplicated, no complex structures. Regulatory requirements low, resource permits may be needed. Cost is low when compared to other projects.	5
D.L. Bliss North	Direct connectivity to recreation assets. No direct connectivity to existing trails. No direct construction access from existing roads. Construction complex, due to amount of structures. Regulatory requirements modest, resource permits may be needed. Cost is high when compared to other projects.	6
D.L. Bliss South	Direct connectivity to recreation assets. No direct connectivity to existing trails. Direct construction access from existing roads. Construction uncomplicated, no complex structures. Regulatory requirements modest, resource permits may be needed. Cost is low when compared to other projects.	7
Emerald Bay Inspiration Point	Direct connectivity to recreation assets. No direct connectivity to existing trails. Direct construction access from existing roads for a portion of the trail. Construction complex, due to amount and complexity of structures. Regulatory requirements high, resource permits required. Cost is high when compared to other projects.	8
Emerald Bay Eagle Point	Direct connectivity to recreation assets. No direct connectivity to existing trails. Direct construction access from existing roads for a portion of the trail. Construction complex due to amount and complexity of structures. Regulatory requirements high, resource permits required. Cost is high when compared to other projects.	9
Emerald Bay Vikingsholm	Direct connectivity to recreation assets and existing trails. No direct construction access from existing roads. Construction complex, amount and complexity of structures. Regulatory requirements high, resource permits required. Cost is moderate when compared to other projects.	10

Figure 4.57: Project Phasing Strategy

Figure 4.58: Sunrise over Emerald Bay (Photo by D. Rios)

APPENDICES

APPENDIX A:
FEASIBILITY METHODOLOGY AND SCORES

Evaluation Criteria		Quantitative Measures			Scoring Methodology			
Criteria Title	**Criteria Definition**	**1 (Low)**	**3 (Neutral)**	**5 (High)**	**What**	**How**	**Data Sources**	**Considerations**
Access and Operations								
Emergency Access and Response	The alignment can be accessed by safety and/or emergency response personnel	More difficult than comparable alternatives	Same as comparable alternatives	Less difficult than comparable alternatives	Proximity to 89 or paved side streets (closer scores higher)	GIS visual comparison	Roads layer (TRPA Open Data)	Alignments situated along arterial streets are considered easily accessible
Maintenance requirements	Requirements for maintenance staff and equipment	More than comparable alternatives	Same as comparable alternatives	Less than comparable alternatives	Trail location (off highway scores higher), bridges (fewer or no bridges scores higher)	Comparison of trail location, number and length of bridges, amount of trail in ROW	Estimates based on preliminary engineering analysis	Preliminary engineering analysis Involved developing a typical cross section for each trail alignment Anticipated cut and fill volumes were estimated Walls, bridges, crossings locations were identified and dimensions were estimated (LF bridge, LF of wall, etc.) Maintenance Requirements On-highway - snow removal, sweeping sand, special broom needed, more trash Off-highway - snow will melt sooner, no additional maintenance required Bridges - will require fresh paint/stain/sand (if wood) every 1-2 years; minor influence Undercrossings - graffiti cleanup 2 times/year; minor influence Avalanche Areas - no significant difference between on/off highway; spring cleanup debris removal; minor influence Walls - sediment removal to maintain 1' freeboard
Constructability								
Existing Area Slopes	Existing area slopes in the vicinity of the trail alignment	Steeper than comparable alternatives	Same as comparable alternatives	Less steep than comparable alternatives	LiDAR slope calculation along alignment (lower slopes score higher)	GIS slope analysis	Tahoe Basin LiDAR	
Equipment Requirements	Trail alignment construction will require special equipment (cranes, self leveling excavators, etc.)	Will require special construction equipment	Same as comparable alternatives	Will not require special construction equipment	Number of bridges (no or fewer bridges scores higher)	GIS visual comparison	Bridge locations developed based on prelminary engineering analysis	
Structures/Facilities	Trail alignment construction will require structures (e.g., retaining walls, piers, or bridges)	More than comparable alternatives	Same as comparable alternatives	Less than comparable alternatives	Number of bridges, LF of walls, and crossings (less of each scores higher)	GIS visual comparison	Bridge, wall, and crossing locations developed based on preliminary engineering analysis, CMP, and feasibility analysis	
Roadway Crossings	Trail alignment construction will require roadway crossings (below-grade, at-grade, or above-grade)	More than comparable alternatives	Same as comparable alternatives	Less than comparable alternatives	Number of crossings (none or fewer scores higher)	GIS visual comparison	Crossing locations from CMP and feasibility analysis	
Cost								
Capital Cost	Capital costs including construction materials and labor	Higher capital costs than comparable alternatives	Same as comparable alternatives	Lower capital costs than comparable alternatives	Unit costs applied to number of bridges, LF of walls, crossings, and trail location (less costly scores higher)	GIS visual comparison and calculation	Preliminary Engineering Analysis	Construction cost Off-highway construction costs will be twice the cost of on-highway construction due to trucking requirements
Maintenance Cost	The costs to maintain the trail including routine maintenance, repairs, resurfacing, litter, etc.	More than comparable alternatives	Same as comparable alternatives	Less than comparable alternatives	Maintenance costs will be greater along the ROW (less LF of ROW scores higher	GIS visual comparison and calculation	Preliminary Engineering Analysis	Maintenance Cost On-highway - snow removal, sweeping sand, special broom needed, more trash Off-highway - snow will melt sooner, maintenance costs will be lower

Evaluation Criteria, Quantitative Measures, and Scoring Methodology

(Access and Operations, Constructibility, and Cost)

Evaluation Criteria		Quantitative Measures			Scoring Methodology			
Criteria Title	**Criteria Definition**	**1 (Low)**	**3 (Neutral)**	**5 (High)**	**What**	**How**	**Data Sources**	**Considerations**
Environmental								
Biological Resources	Intersections with SSS wildlife resource occurrences, known nest sites, or management areas	More than comparable alternatives	Same as comparable alternatives	Less than comparable alternatives	Count number of SSS wildlife intersections with alignment (no or fewer intersections scores higher)/Scores for alignments outside of ROW may be adjusted (new disturbance)	GIS visual comparison	CNDDB (filtered for Fauna), Bald Eagle nests, deer fauning habitat, goshawk PAC, NOGO threshold zone, osprey nest, SNYLF suitable habitat, spotted owl, Spotted Owl PAC, willow flycatcher habitat (TRPA Open Data)	
Aquatic Resources	Intersections with aquatic resources (e.g., drainages or Land Capability 1b [SEZ])	More than comparable alternatives	Same as comparable alternatives	Less than comparable alternatives	Length of alignment in 1b and number of drainage crossings (shorter segments and/or fewer drainage crossings scores higher)/Scores for alignments outside of ROW may be adjusted (new disturbance)	GIS visual comparison	TRPA land capability districts (filtered to 1b), streams (TRPA Open Data); NWI	
Cultural Resources	Intersections with known cultural or tribal resources	More than comparable alternatives	Same as comparable alternatives	Less than comparable alternatives	Count number of intersections with existing resources (no or fewer intersections scores higher)	GIS visual comparison	NCIC cultural resources record search	
Botanical Resources	Intersections with botanical resource occurrences	More than comparable alternatives	Same as comparable alternatives	Less than comparable alternatives	Count number of SSS botanical intersections with alignment (no or fewer intersections scores higher)/Scores for alignments outside of ROW may be adjusted (new disturbance)	GIS visual comparison	CNDDB (filtered for flora)	
Scenic Resources	Trail alignment visible from lakeshore or roadway scenic units	More than comparable alternatives	Same as comparable alternatives	Less than comparable alternatives	Trail visible from roadway or lakeshore scenic units (alignments not visible from road or lake score higher)	Google Streetview	TRPA Scenic units	
Landowner Considerations								
Parking	Trail alignment coincides with public roads with available parking	More than comparable alternatives	Same as comparable alternatives	Less than comparable alternatives	Available parking along public roads (alignments away from SR89 scores higher)	GIS visual comparison	Parking layer provided by TRPA	Readily available, public, non SR 89 road parking is possible = 1; SR 89 - speeds will deter parking = 3; midslope/forest = 5
Maintains Segment Character	Amount of trail within existing neighborhoods	More than comparable alternatives	Same as comparable alternatives	Less than comparable alternatives	LF of trail along or near neighborhood roads (alignments not within neighborhoods score higher)	GIS visual comparison	Roads (TRPA Open Data) and HOA layers (TRPA Provided)	
Safety	Number of driveway crossings	More than comparable alternatives	Same as comparable alternatives	Less than comparable alternatives	Number of driveway or street crossings (no or fewer crossings score higher)	GIS visual comparison	basemap and roads (NCE digitized crossings)	
Land Ownership	Percent of trail on publicly owned lands (federal, state, local, public rights of way, etc.)	Less than comparable alternatives	Same as comparable alternatives	More than comparable alternatives	LF of trail on public lands (alignments within ROW or public lands score higher)	GIS visual comparison	land ownership layer (TRPA Open Data)	
User Experience								
Safety and Enjoyment	Proximity to State Route 89	Closer to SR 89 than comparable alternatives	Generally same distance to SR 89 than comparable alternatives	Farther from SR 89 than comparable alternatives	Proximity to SR 89 (further from SR 89 scores higher)	GIS visual comparison	Roads layer (TRPA Open Data)	
Connectivity to recreation centers and points of interest	The trail alignment will connect to points of interest, user trails, and recreation centers	Less than comparable alternatives	Same as comparable alternatives	More than comparable alternatives	Connections to points of interest (more POIs scores higher)	GIS visual comparison	Data derived from corridor management plan, field visits, and corridor knowledge (NCE digitized)	When points are between alignments, count for both; when points are on a single line or confluence of alignments, count only for those alignments
Interpretive Opportunities	The alignment contains interpretive opportunities (points of interest - historic, natural resources, etc.)	Less than comparable alternatives	Same as comparable alternatives	More than comparable alternatives	Number of interpretive opportunities (interpretive opportunities score higher)	GIS visual comparison	Data derived from corridor management plan, field visits, and corridor knowledge (NCE digitized)	When points are between alignments, count for both; when points are on a single line or confluence of alignments, count only for those alignments
Scenic Overlook Opportunities	The alignment has scenic overlook opportunities	Less than comparable alternatives	Same as comparable alternatives	More than comparable alternatives	Number of scenic overlook opportunities (more scenic opportunities score higher)	GIS visual comparison	Data derived from corridor management plan, field visits, and corridor knowledge (NCE digitized)	When points are between alignments, count for both; when points are on a single line or confluence of alignments, count only for those alignments
Rest Stop Opportunities	The alignment contains rest stop opportunities (water refill, bike maintenance stations, benches, etc.)	Less than comparable alternatives	Same as comparable alternatives	More than comparable alternatives	Number of rest stop opportunities (more rest stops scores higher)	GIS visual comparison	Data derived from corridor management plan, field visits, and corridor knowledge (NCE digitized)	When points are between alignments, count for both; when points are on a single line or confluence of alignments, count only for those alignments

Evaluation Criteria, Quantitative Measures, and Scoring Methodology (Environmental, Landowner Considerations, and User Experience)

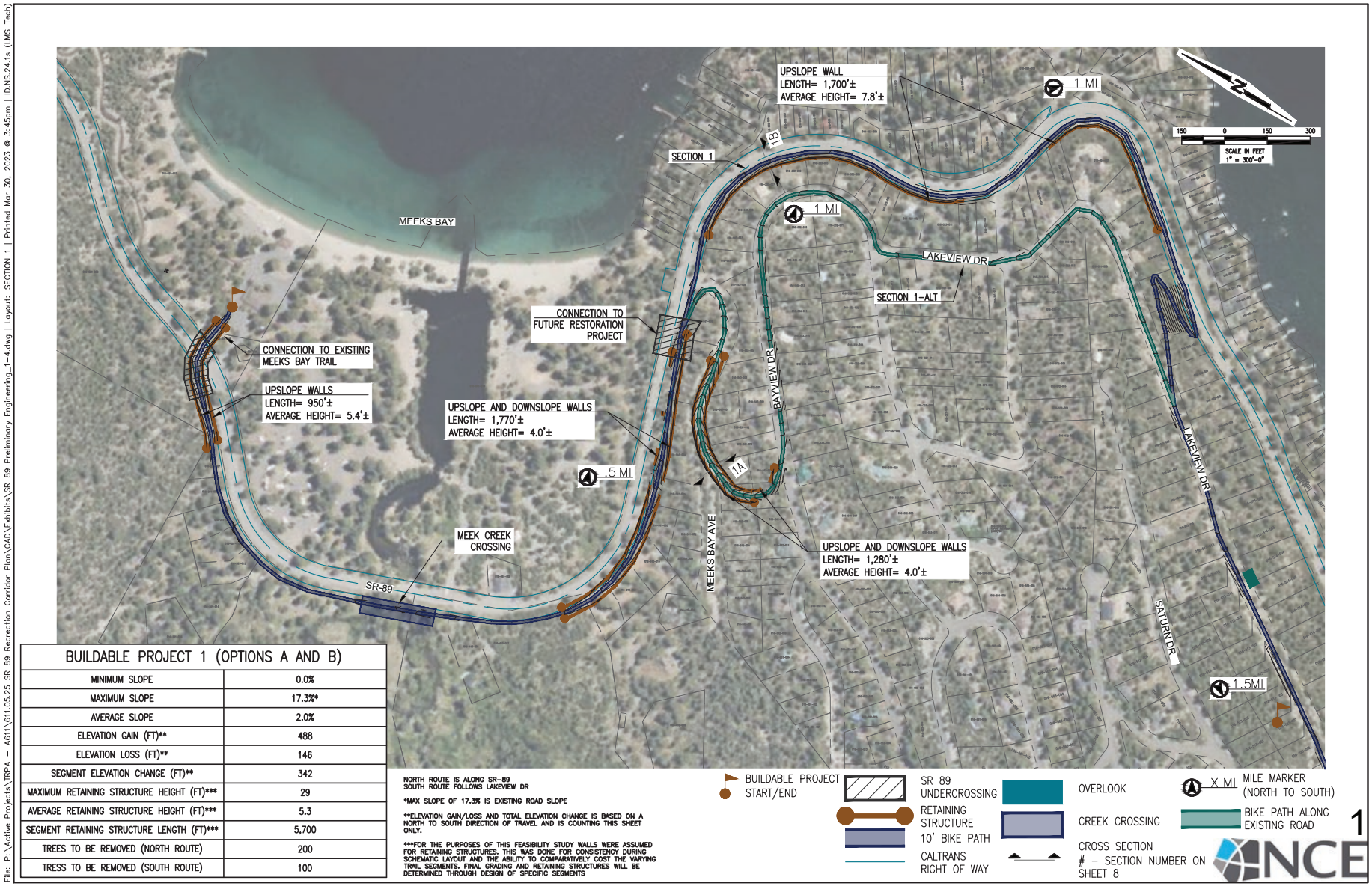
		Raw Score	RANK	Access & Operations		Constructibility				Cost	
Feasibility Segment	Alignment_ID	Alignment Score	Alignment Rank	Emergency Access	Maintenance Requirements	Slope	Equipment Requirements	Structures and Facilities	Crossings	Capital Cost	Maintenance Cost
Meeks	1A	66	1	5	1	3	3	5	5	5	1
Meeks	1B	62	2	1	5	3	3	1	1	1	5
Meeks	2A	54	2	3	1	3	3	1	3	1	1
Meeks	2B	74	1	3	5	3	3	5	3	5	5
Rubicon	3A	58	2	3	1	3	3	1	3	1	1
Rubicon	3B	72	1	3	5	3	3	5	3	5	5
Rubicon	4A	64	1	5	1	5	3	5	5	3	1
Rubicon	4B	62	3	1	3	3	3	1	1	1	3
Rubicon	4C	64	1	1	5	3	3	3	1	3	5
	4	0		0	0	0	0	0	0	0	0
Rubicon	5A	64	3	5	1	5	3	5	5	3	1
Rubicon	5B	66	1	3	3	3	3	3	1	1	3
Rubicon	5C	66	1	3	5	3	3	5	1	3	5
Rubicon	5D	62	4	1	5	3	3	3	1	1	5
	5-6 only choice	0		0	0	0	0	0	0	0	0
D.L. Bliss	6A	58	3	5	1	3	3	3	5	5	1
D.L. Bliss	6B	58	3	3	3	3	3	1	1	3	3
D.L. Bliss	6C	64	2	1	5	3	3	1	1	1	5
D.L. Bliss	6D	68	1	1	5	3	3	1	1	1	5
	6	0		0	0	0	0	0	0	0	0
	6-7 only choice	0		0	0	0	0	0	0	0	0
Emerald Bay	7A	54	3	5	1	3	1	1	3	3	1
Emerald Bay	7B	70	1	1	5	3	5	3	3	1	3
Emerald Bay	7C	68	2	1	5	3	5	5	3	5	3
	7-8 only choice	0		0	0	0	0	0	0	0	0
Emerald Bay	8A	66	1	5	1	5	1	3	1	5	1
Emerald Bay	8B	66	1	1	3	3	3	1	5	1	3
Emerald Bay	8C	62	3	3	5	3	3	3	1	3	5
	8	0		0	0	0	0	0	0	0	0
Emerald Bay	9A	70	1	3	3	1	3	5	3	5	5
Emerald Bay	9B	64	2	3	3	5	3	1	3	1	1
	9	0		0	0	0	0	0	0	0	0
Emerald Bay	10A	62	2	3	3	3	3	3	1	3	1
Emerald Bay	10B	64	1	3	3	3	1	1	5	3	5
Spring/Cascade Creek	11A	72	1	5	1	3	3	5	5	5	5
Spring/Cascade Creek	11B	62	2	1	5	3	3	1	1	1	1
	south only choice	0		0	0	0	0	0	0	0	0

Feasibility Scores and Rank for Access and Operations, Constructibility, and Cost

		Raw Score	RANK	Environmental					Landowner Considerations				User Experience				
Feasibility Segment	Alignment_ID	Alignment Score	Alignment Rank	Biological	Aquatic	Cultural	Botanical	Scenic	Parking	Segment Character	Safety	Land Ownership	Enjoyment	Connectivity	Interpretive Ops	Scenic Ops	Rest Stop Ops
Meeks	1A	66	1	3	3	3	3	3	3	3	1	5	1	1	3	3	3
Meeks	1B	62	2	1	1	3	3	3	3	3	5	1	5	5	3	3	3
Meeks	2A	54	2	3	3	3	3	3	1	1	1	3	3	3	3	5	3
Meeks	2B	74	1	3	3	3	3	3	1	5	5	3	3	3	3	1	3
Rubicon	3A	58	2	3	3	3	3	1	3	5	5	3	1	3	3	3	3
Rubicon	3B	72	1	3	3	3	3	5	1	1	1	3	5	3	3	3	3
Rubicon	4A	64	1	3	3	3	3	1	3	5	3	3	1	3	3	1	1
Rubicon	4B	62	3	1	3	3	3	5	5	1	3	3	5	3	3	3	5
Rubicon	4C	64	1	3	3	3	3	5	1	1	3	3	5	3	3	3	1
	4	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rubicon	5A	64	3	5	3	3	3	1	3	5	1	3	1	1	3	3	1
Rubicon	5B	66	1	3	1	3	3	3	5	1	5	3	5	3	3	3	5
Rubicon	5C	66	1	3	1	3	3	3	5	1	3	3	5	1	3	3	1
Rubicon	5D	62	4	1	1	3	1	5	5	1	1	3	5	5	3	3	3
	5-6 only choice	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
D.L. Bliss	6A	58	3	3	3	3	3	1	3	3	3	3	1	1	3	1	1
D.L. Bliss	6B	58	3	3	1	1	1	3	5	3	3	3	5	5	3	1	1
D.L. Bliss	6C	64	2	3	1	1	1	5	5	3	3	3	5	3	3	5	3
D.L. Bliss	6D	68	1	3	3	5	1	5	5	3	3	3	5	5	3	1	3
	6	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6-7 only choice	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Emerald Bay	7A	54	3	3	3	3	3	3	3	3	3	3	1	3	1	1	3
Emerald Bay	7B	70	1	1	1	3	3	3	5	3	3	3	5	5	3	5	3
Emerald Bay	7C	68	2	1	1	3	3	3	5	3	3	3	5	1	3	1	3
	7-8 only choice	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Emerald Bay	8A	66	1	3	3	3	3	3	3	3	3	5	1	5	3	1	5
Emerald Bay	8B	66	1	1	1	5	3	3	5	3	3	5	5	3	3	3	3
Emerald Bay	8C	62	3	3	1	1	3	3	5	3	3	1	5	1	3	3	1
	8	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Emerald Bay	9A	70	1	3	3	5	3	5	3	3	3	3	3	1	3	1	3
Emerald Bay	9B	64	2	3	3	1	3	1	5	3	3	3	3	5	3	5	3
	9	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0
Emerald Bay	10A	62	2	3	3	3	3	1	3	5	3	5	1	3	3	3	3
Emerald Bay	10B	64	1	1	1	3	3	5	5	1	3	1	5	3	3	3	3
Spring/Cascade Creek	11A	72	1	5	3	1	3	3	3	3	1	5	1	3	3	3	3
Spring/Cascade Creek	11B	62	2	1	3	5	3	3	5	3	5	1	5	3	3	3	3
	south only choice	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0

Feasibility Scores and Rank for Environmental, Landowner Considerations, and User Experience

APPENDIX B:
CASCADE TO MEEKS CONCEPTUAL PLANS



BUILDABLE PROJECT 1 (OPTIONS A AND B)	
MINIMUM SLOPE	0.0%
MAXIMUM SLOPE	17.3%*
AVERAGE SLOPE	2.0%
ELEVATION GAIN (FT)**	488
ELEVATION LOSS (FT)**	146
SEGMENT ELEVATION CHANGE (FT)**	342
MAXIMUM RETAINING STRUCTURE HEIGHT (FT)***	29
AVERAGE RETAINING STRUCTURE HEIGHT (FT)***	5.3
SEGMENT RETAINING STRUCTURE LENGTH (FT)***	5,700
TREES TO BE REMOVED (NORTH ROUTE)	200
TRESS TO BE REMOVED (SOUTH ROUTE)	100

NORTH ROUTE IS ALONG SR-89
SOUTH ROUTE FOLLOWS LAKEVIEW DR

*MAX SLOPE OF 17.3% IS EXISTING ROAD SLOPE

**ELEVATION GAIN/LOSS AND TOTAL ELEVATION CHANGE IS BASED ON A NORTH TO SOUTH DIRECTION OF TRAVEL AND IS COUNTING THIS SHEET ONLY.

***FOR THE PURPOSES OF THIS FEASIBILITY STUDY WALLS WERE ASSUMED FOR RETAINING STRUCTURES. THIS WAS DONE FOR CONSISTENCY DURING SCHEMATIC LAYOUT AND THE ABILITY TO COMPARATIVELY COST THE VARYING TRAIL SEGMENTS. FINAL GRADING AND RETAINING STRUCTURES WILL BE DETERMINED THROUGH DESIGN OF SPECIFIC SEGMENTS

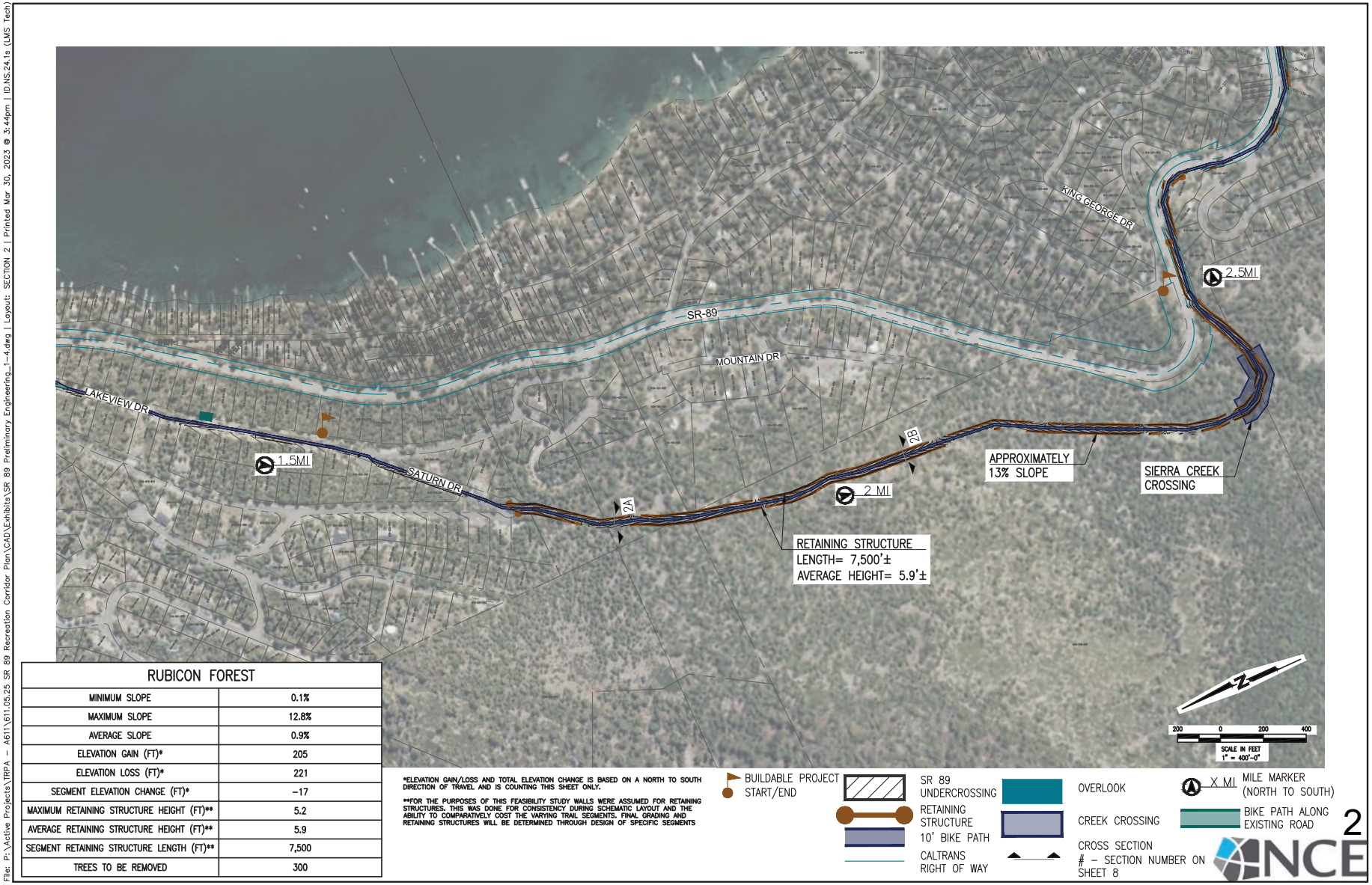
BUILDABLE PROJECT START/END
SR 89 UNDERCROSSING
RETAINING STRUCTURE
10' BIKE PATH
CALTRANS RIGHT OF WAY
OVERLOOK
CREEK CROSSING
CROSS SECTION
- SECTION NUMBER ON SHEET 8
X MI MILE MARKER (NORTH TO SOUTH)
BIKE PATH ALONG EXISTING ROAD

1

NCE

File: P:\Active Projects\TRPA - A611\611.05.25 SR 89 Recreation Corridor Plan\CAD\Exhibits\SR 89 Preliminary Engineering_1-4.dwg | Layout: SECTION 1 | Printed Mar 30, 2023 @ 3:45pm | ID.NS.24-1s (LMS Tech)

Conceptual Plans: Meeks - SR 89 and Residential Projects



RUBICON FOREST	
MINIMUM SLOPE	0.1%
MAXIMUM SLOPE	12.8%
AVERAGE SLOPE	0.9%
ELEVATION GAIN (FT)*	205
ELEVATION LOSS (FT)*	221
SEGMENT ELEVATION CHANGE (FT)*	–17
MAXIMUM RETAINING STRUCTURE HEIGHT (FT)**	5.2
AVERAGE RETAINING STRUCTURE HEIGHT (FT)**	5.9
SEGMENT RETAINING STRUCTURE LENGTH (FT)**	7,500
TREES TO BE REMOVED	300

*ELEVATION GAIN/LOSS AND TOTAL ELEVATION CHANGE IS BASED ON A NORTH TO SOUTH DIRECTION OF TRAVEL AND IS COUNTING THIS SHEET ONLY.

**FOR THE PURPOSES OF THIS FEASIBILITY STUDY WALLS WERE ASSUMED FOR RETAINING STRUCTURES. THIS WAS DONE FOR CONSISTENCY DURING SCHEMATIC LAYOUT AND THE ABILITY TO COMPARATIVELY COST THE VARYING TRAIL SEGMENTS. FINAL GRADING AND RETAINING STRUCTURES WILL BE DETERMINED THROUGH DESIGN OF SPECIFIC SEGMENTS

2

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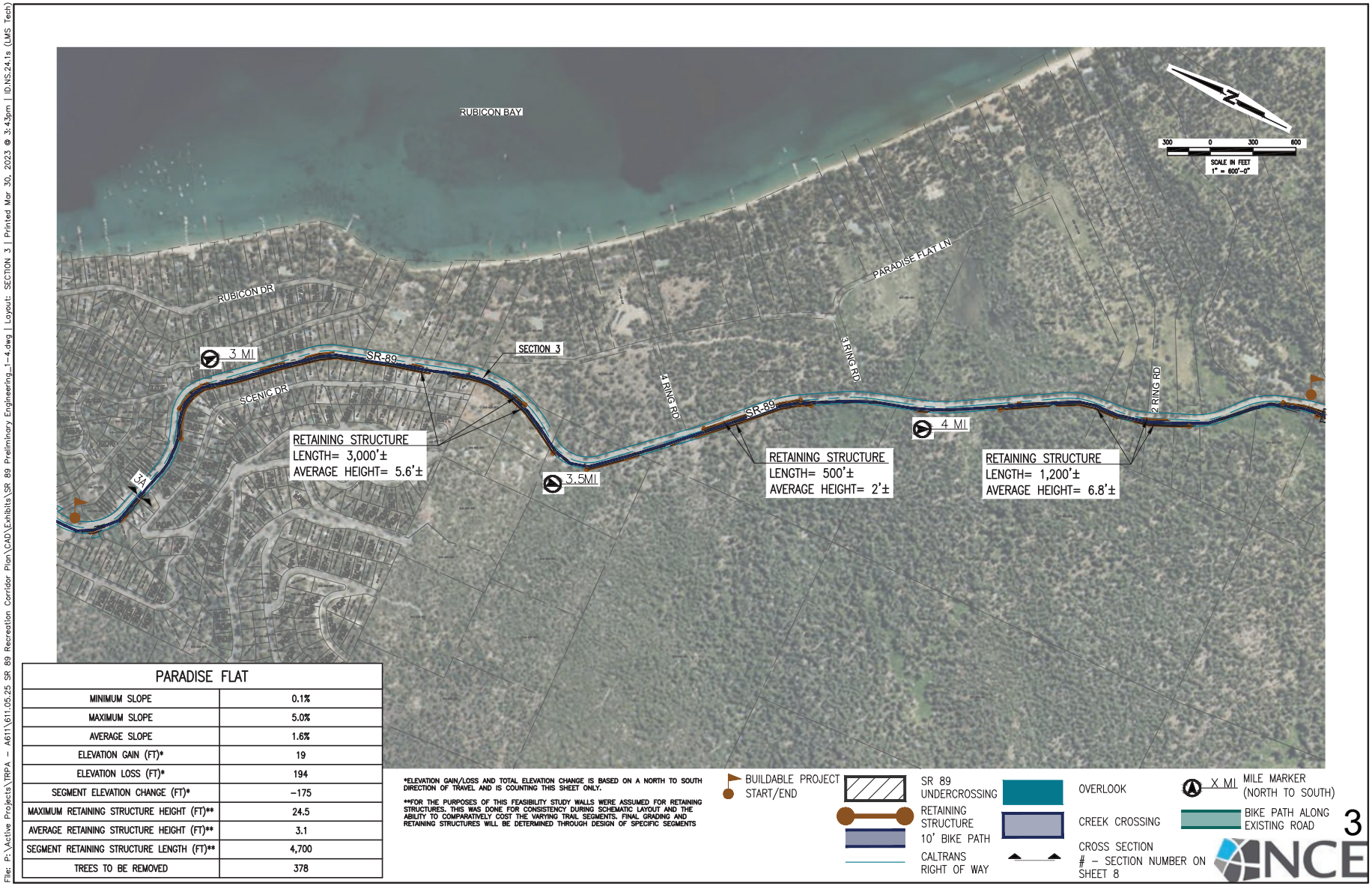
Conceptual Plans: Rubicon Forest Project



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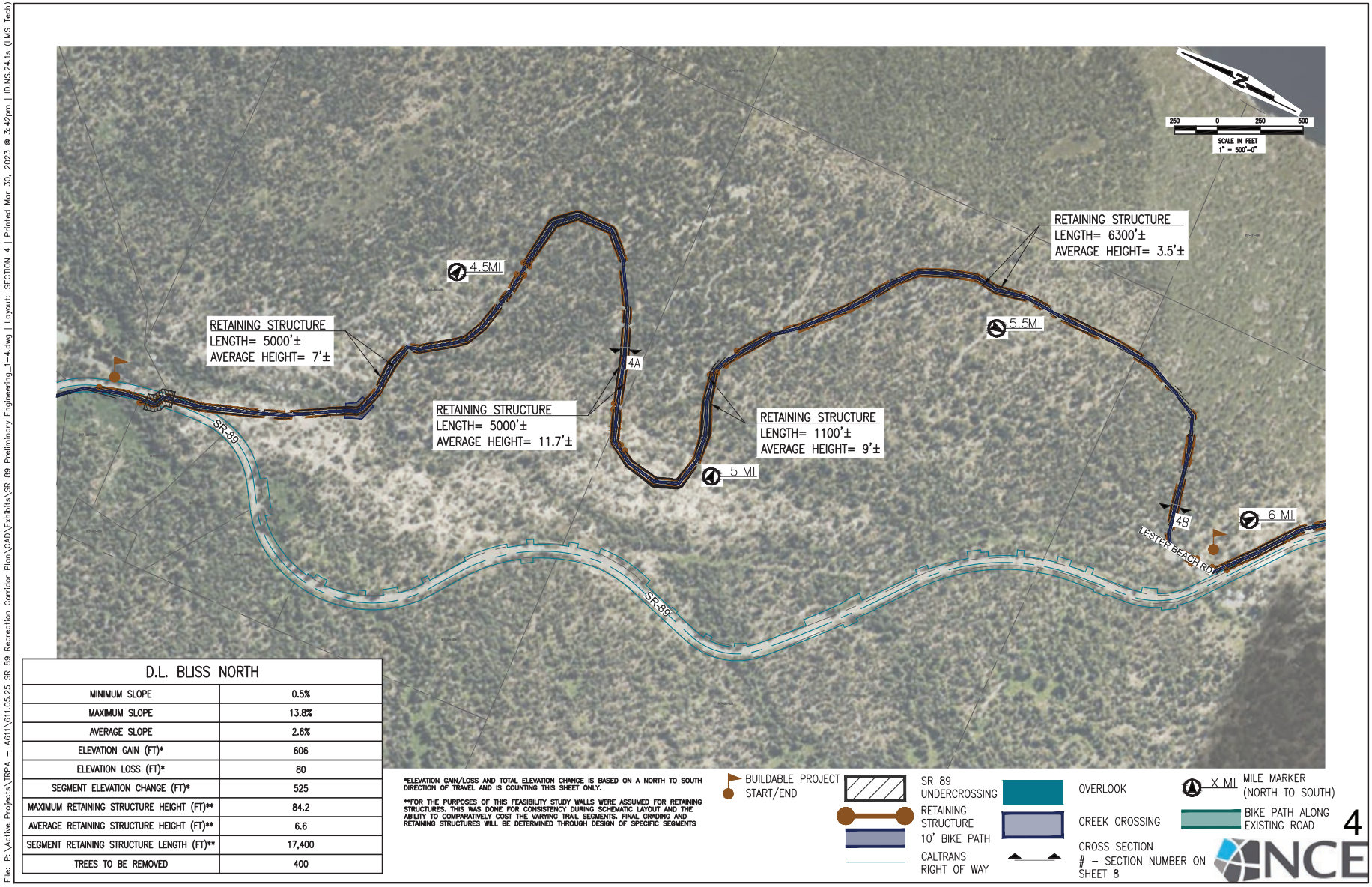
Conceptual Plans: Paradise Flat Project

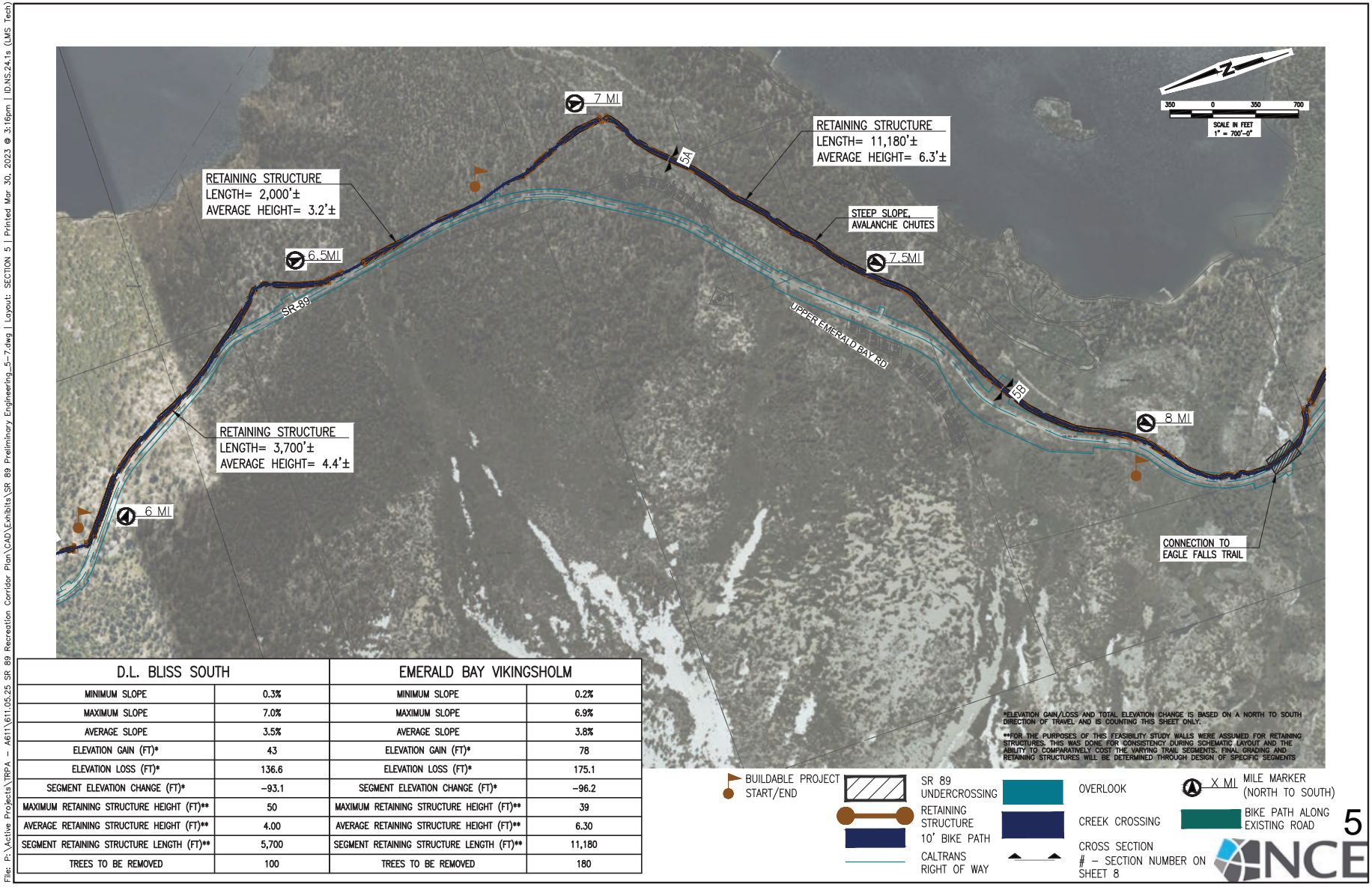


D.L. BLISS NORTH	
MINIMUM SLOPE	0.5%
MAXIMUM SLOPE	13.8%
AVERAGE SLOPE	2.6%
ELEVATION GAIN (FT)*	606
ELEVATION LOSS (FT)*	80
SEGMENT ELEVATION CHANGE (FT)*	525
MAXIMUM RETAINING STRUCTURE HEIGHT (FT)**	84.2
AVERAGE RETAINING STRUCTURE HEIGHT (FT)**	6.6
SEGMENT RETAINING STRUCTURE LENGTH (FT)**	17,400
TREES TO BE REMOVED	400

*ELEVATION GAIN/LOSS AND TOTAL ELEVATION CHANGE IS BASED ON A NORTH TO SOUTH DIRECTION OF TRAVEL AND IS COUNTING THIS SHEET ONLY.

**FOR THE PURPOSES OF THIS FEASIBILITY STUDY WALLS WERE ASSUMED FOR RETAINING STRUCTURES. THIS WAS DONE FOR CONSISTENCY DURING SCHEMATIC LAYOUT AND THE ABILITY TO COMPARATIVELY COST THE VARYING TRAIL SEGMENTS. FINAL GRADING AND RETAINING STRUCTURES WILL BE DETERMINED THROUGH DESIGN OF SPECIFIC SEGMENTS

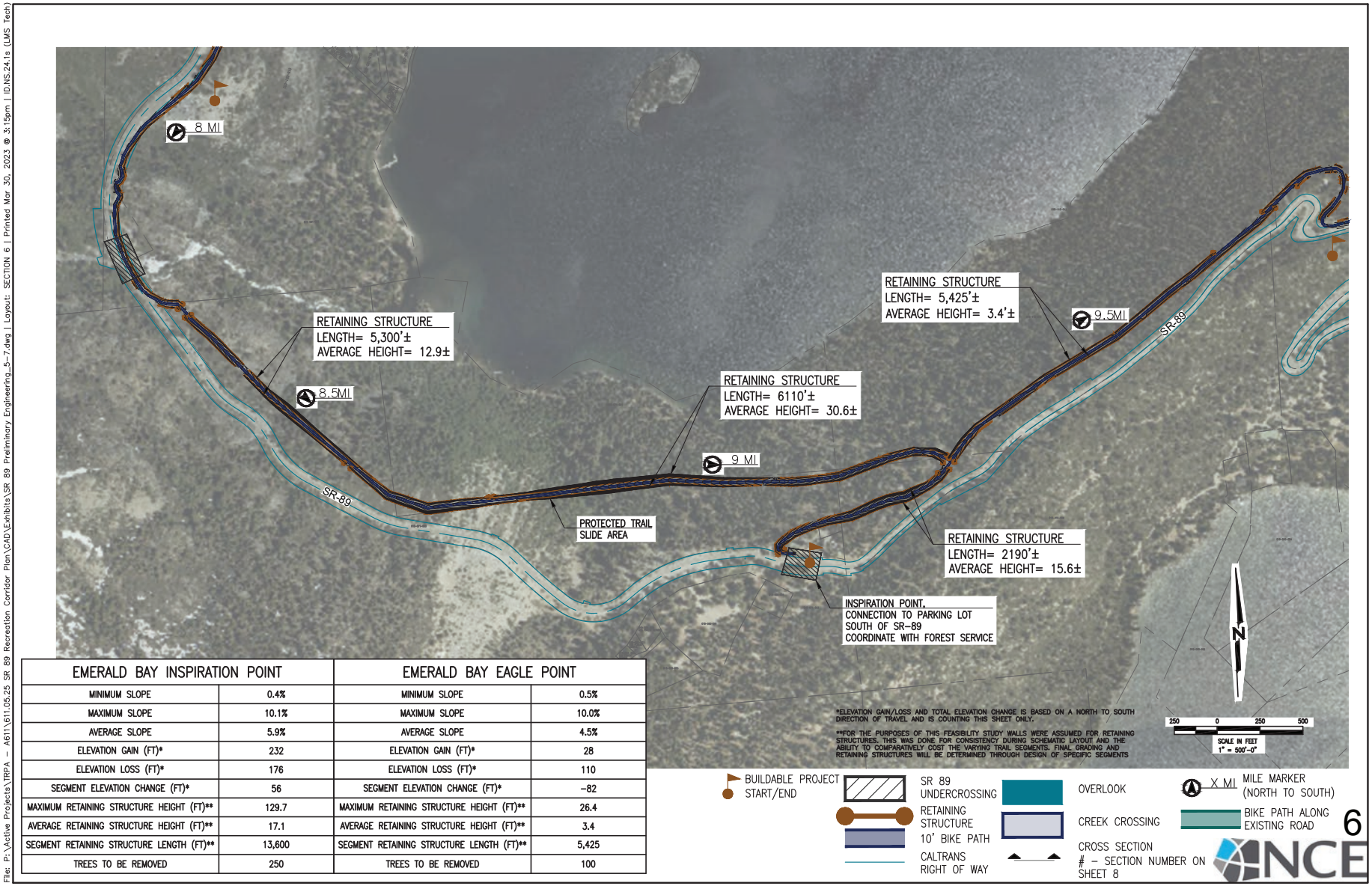
Conceptual Plans: D.L. Bliss North Project



D.L. BLISS SOUTH	
MINIMUM SLOPE	0.3%
MAXIMUM SLOPE	7.0%
AVERAGE SLOPE	3.5%
ELEVATION GAIN (FT)*	43
ELEVATION LOSS (FT)*	136.6
SEGMENT ELEVATION CHANGE (FT)*	-93.1
MAXIMUM RETAINING STRUCTURE HEIGHT (FT)**	50
AVERAGE RETAINING STRUCTURE HEIGHT (FT)**	4.00
SEGMENT RETAINING STRUCTURE LENGTH (FT)**	5,700
TREES TO BE REMOVED	100

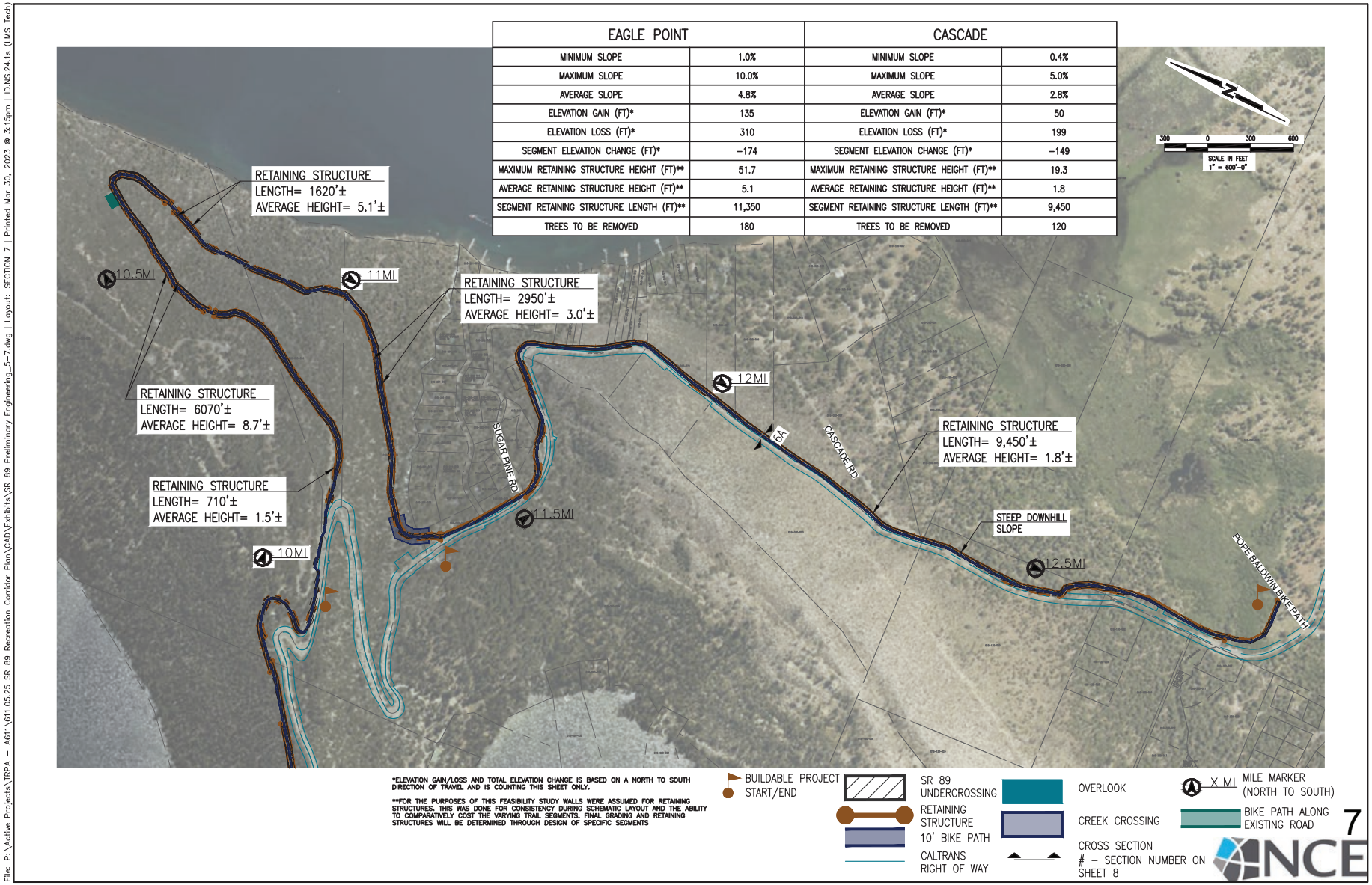
EMERALD BAY VIKINGSHOLM	
MINIMUM SLOPE	0.2%
MAXIMUM SLOPE	6.9%
AVERAGE SLOPE	3.8%
ELEVATION GAIN (FT)*	78
ELEVATION LOSS (FT)*	175.1
SEGMENT ELEVATION CHANGE (FT)*	-96.2
MAXIMUM RETAINING STRUCTURE HEIGHT (FT)**	39
AVERAGE RETAINING STRUCTURE HEIGHT (FT)**	6.30
SEGMENT RETAINING STRUCTURE LENGTH (FT)**	11,180
TREES TO BE REMOVED	180

Conceptual Plans: D.L. Bliss South and Emerald Bay Vikingsholm Projects

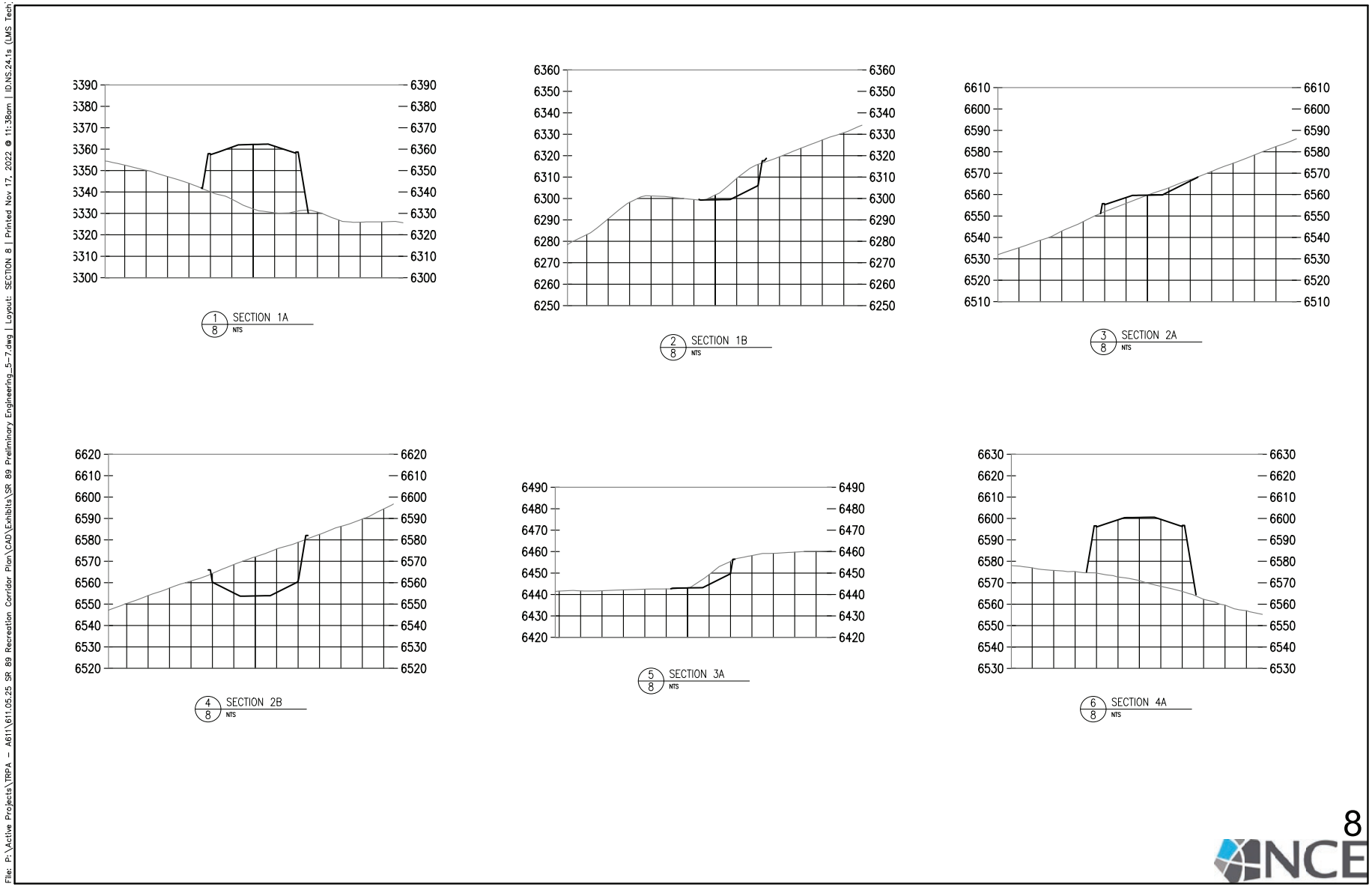


EMERALD BAY INSPIRATION POINT		EMERALD BAY EAGLE POINT	
MINIMUM SLOPE	0.4%	MINIMUM SLOPE	0.5%
MAXIMUM SLOPE	10.1%	MAXIMUM SLOPE	10.0%
AVERAGE SLOPE	5.9%	AVERAGE SLOPE	4.5%
ELEVATION GAIN (FT)*	232	ELEVATION GAIN (FT)*	28
ELEVATION LOSS (FT)*	176	ELEVATION LOSS (FT)*	110
SEGMENT ELEVATION CHANGE (FT)*	56	SEGMENT ELEVATION CHANGE (FT)*	–82
MAXIMUM RETAINING STRUCTURE HEIGHT (FT)**	129.7	MAXIMUM RETAINING STRUCTURE HEIGHT (FT)**	26.4
AVERAGE RETAINING STRUCTURE HEIGHT (FT)**	17.1	AVERAGE RETAINING STRUCTURE HEIGHT (FT)**	3.4
SEGMENT RETAINING STRUCTURE LENGTH (FT)**	13,600	SEGMENT RETAINING STRUCTURE LENGTH (FT)**	5,425
TREES TO BE REMOVED	250	TREES TO BE REMOVED	100

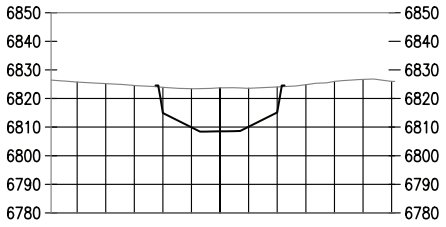
Conceptual Plans: Emerald Bay Vikingsholm and Emerald Bay Inspiration Point Projects



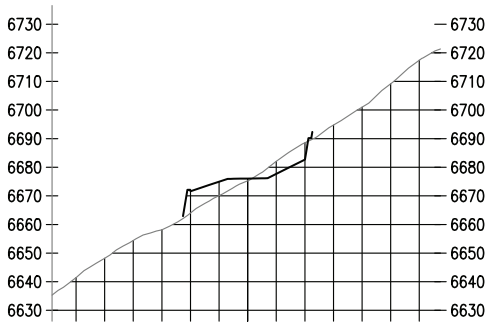
Conceptual Plans: Eagle Point and Cascade Projects



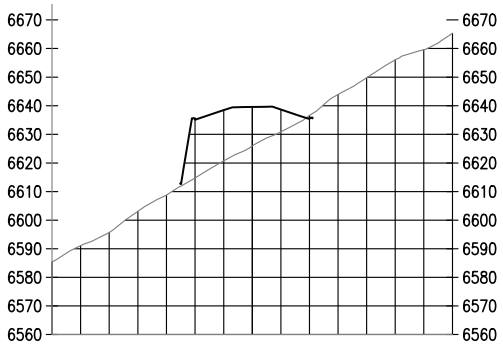
Conceptual Plan Cross Sections (1A - 4A)



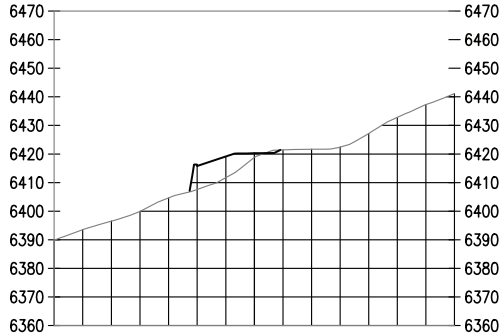
1/9 SECTION 4B
NTS



2/9 SECTION 5A
NTS



3/9 SECTION 5B
NTS



4/9 SECTION 6A
NTS

9

NCE

Conceptual Plan Cross Sections (4B - 6A)

APPENDIX C:
EXISTING BIKE TRAIL EXAMPLES

At-grade bike trail in South Lake Tahoe (photo by: tahoebike.org)

At-grade screened bike trail along west shore of Lake Tahoe (photo by D. Rios)

At-grade bike trail in Meyers (photo by: D. Rios)

Forest bike trail near Camp Richardson (photo by D. Rios)

Tahoe East Shore Trail on steep slope (photo by nevadasportsnet.com)

Tahoe East Shore Trail on steep slope (photo by Jason Bean from Reno Gazette Journal)

Tahoe East Shore Trail rest area (photo by Jason Bean from Reno Gazette Journal)

Rest area along Tahoe East Shore Trail (photo by Dominic Gentilcore from Shutterstock)

Tahoe East Shore Trail with lake view (photo by Jason Bean from Reno Gazette Journal)

Undercorssing along Tahoe East Shore Trail (photo by Mike B. from Yelp.com)

Boardwalk and bridge near Trout Creek in South Lake Tahoe (photo by D. Rios)

Bridge along Tahoe East Shore Trail (photo by Shaun Hunter from outdoorproject.com)

APPENDIX D:
PRELIMINARY COST ESTIMATE

Buildable Project	Path Length (LF)	Path Area [acres]	HMA Paving Cost	Shoulder Paving Cost	Retaining Wall Length (LF)	Tree Removal Est.	Tree Removal Cost	Earthwork Total	Cut/fill	Earthwork Cost	Structures (Undercrossing)	Creek Crossings (bridges, culverts, retaining walls, and boardwalks)	Estimated Total Cost [Year 2022]	2022 Cost with Contingency (30%)	2022 Soft Cost (12% design, geotech, survey; 8% Reg. Comp.; 10% CM)	2022 Total Cost
Meeks - SR 89	8,225	1.9	$ 685,406	$ 109,665	4,420	200	$ 200,000	$ 19,165	Cut	$ 670,763	$ 2,400,000	$ 2,900,000	$ 6,965,834	$ 9,055,584	$ 2,716,675	$ 11,772,259
Meeks - Residential	8,998	2.1	$ 749,818	$ 119,971	4,000	100	$ 100,000	$ 10,756	Fill	$ 484,007	$ 2,400,000	$ 4,600,000	$ 8,453,797	$ 10,989,936	$ 3,296,981	$ 14,286,916
Rubicon Forest	4,945	1.1	$ 412,106	$ 65,937	7,500	300	$ 300,000	$ 10,406	Cut	$ 364,197		$ 6,600,000	$ 7,742,240	$ 10,064,912	$ 3,019,474	$ 13,084,385
Paradise Flat	10,802	2.5	$ 900,126	$ 144,020	4,700	378	$ 378,000	$ 35,433	Cut	$ 1,240,160		$ 4,900,000	$ 7,562,306	$ 9,830,997	$ 2,949,299	$ 12,780,296
D.L. Bliss North	9,901	2.3	$ 825,108	$ 132,017	17,400	400	$ 400,000	$ 22,557	Cut	$ 789,511	$ 1,200,000	$ 18,700,000	$ 22,046,636	$ 28,660,627	$ 8,598,188	$ 37,258,815
D.L. Bliss South	4,648	1.1	$ 387,329	$ 61,973	5,700	100	$ 100,000	$ 14,294	Fill	$ 643,218		$ 3,500,000	$ 4,692,520	$ 6,100,276	$ 1,830,083	$ 7,930,359
Emerald Bay Vikingsholm	6,363	1.5	$ 530,238	$ 84,838	11,180	180	$ 180,000	$ 27,817	Fill	$ 1,251,778		$ 18,700,000	$ 20,746,854	$ 26,970,910	$ 8,091,273	$ 35,062,182
Emerald Bay Inspiration Point	7,959	1.8	$ 663,217	$ 106,115	13,600	250	$ 250,000	$ 119,895	Fill	$ 5,395,279	$ 1,200,000	$ 13,306,000	$ 20,920,610	$ 27,196,793	$ 8,159,038	$ 35,355,831
Emerald Bay Eagle Point	3,728	0.9	$ 310,668	$ 49,707	5,425	100	$ 100,000	$ 14,787	Fill	$ 665,402	$ 1,200,000	$ 59,600,000	$ 61,925,776	$ 80,503,509	$ 24,151,053	$ 104,654,562
Eagle Point	7,454	1.7	$ 621,148	$ 99,384	11,350	180	$ 180,000	$ 24,885	Fill	$ 1,119,841		$ 18,800,000	$ 20,820,373	$ 27,066,485	$ 8,119,945	$ 35,186,430
Cascade	7,877	1.8	$ 656,408	$ 105,025	9,450	120	$ 120,000	$ 27,940	Fill	$ 1,257,295		$ 9,500,000	$ 11,638,727	$ 15,130,345	$ 4,539,104	$ 19,669,449

Cascade to Meeks Buildable Projects - Preliminary Cost Estimate - Detailed

Buildable Project	2022 Cost	2022 Cost (with 30% contingency)	2022 Soft Cost	2022 Total Cost
Meeks - SR 89	$ 6,965,834	$ 9,055,584	$ 2,716,675	$ 11,772,259
Meeks - Residential	$ 8,453,797	$ 10,989,936	$ 3,296,981	$ 14,286,916
Rubicon Forest	$ 7,742,240	$ 10,064,912	$ 3,019,474	$ 13,084,385
Paradise Flat	$ 7,562,306	$ 9,830,997	$ 2,949,299	$ 12,780,296
D.L. Bliss North	$ 22,046,636	$ 28,660,627	$ 8,598,188	$ 37,258,815
D.L. Bliss South	$ 4,692,520	$ 6,100,276	$ 1,830,083	$ 7,930,359
Emerald Bay Vikingsholm	$ 20,746,854	$ 26,970,910	$ 8,091,273	$ 35,062,182
Emerald Bay Inspiration Point	$ 20,920,610	$ 27,196,793	$ 8,159,038	$ 35,355,831
Emerald Bay Eagle Point	$ 61,925,776	$ 80,503,509	$ 24,151,053	$ 104,654,562
Eagle Point	$ 20,820,373	$ 27,066,485	$ 8,119,945	$ 35,186,430
Cascade	$ 11,638,727	$ 15,130,345	$ 4,539,104	$ 19,669,449

Cascade to Meeks Buildable Projects - Preliminary Cost Estimate - Summary

Cost estimates were developed based on the following assumptions:

- Earthwork costs include cut and fill estimates and slope protection (e.g., rock slope protection).
- Cost estimates for retaining walls were calculated by multiplying the average wall height by the wall length by the unit cost for wall area.
- Planning-level cost estimates include clearing and grubbing, mobilization, asphalt, retaining walls, undercrossings, bridge spans, foundations, and tree removal.
- Soft costs include engineering design, geotechnical investigations, hydrologic studies, topographic survey, regulatory compliance and permitting, and construction management.
- Soft costs are estimated to be approximately 30% of the 2022 cost with contingency (e.g., 12% for design, geotechnical investigations and hydrologic studies, and survey; 8% for regulatory compliance and permitting; and 10% for construction management).
- The final alignment and potential need for utility relocation or other unanticipated factors will affect the final costs.
- Future cost increases due to inflation or the rise in material or contractor costs is not reflected in these estimates.
- Long-term maintenance and operations costs are not included in the cost estimates.

APPENDIX E:
OUTREACH AND ENGAGEMENT SUMMARY

CASCADE TO MEEKS TRAIL STUDY

WEST SHORE TAHOE TRAIL

Outreach & Engagement Results Report

TABLE OF CONTENTS

Cascade to Meeks Trail Study
Outreach & Engagement Results Report

Introduction

Outreach and engagement (O&E) were an essential component of the West Shore Tahoe Trail Cascade to Meeks Trail Feasibility Study. TRPA and the consultant team recognized and planned for engagement with the many partner agencies and organizations, stakeholders, and community members who had an interest in the Study.

The O & E Activities were divided into four phases that spanned a timeframe of 21 months from June 2021 to March 2023. At every phase of O & E, the input gathered from stakeholders was used to update and guide the process moving forward.

The goal through the entirety of O & E was to cast a wide net and reach a diversity of stakeholders and audiences. Those groups included: individual property owners and residents, business owners, homeowners' association groups, user groups (hiking, cycling, rock climbing, snow sports, etc.), community leaders, non-profit organizations, and members of the general public.

The guiding principle of O & E was to build awareness of the Feasibility Study purpose, benefits, process, and results. Throughout the duration of O & E, we continuously engaged stakeholders through a variety of channels, tracked communication efforts, and allowed for flexibility in our approach and messaging based on feedback received.

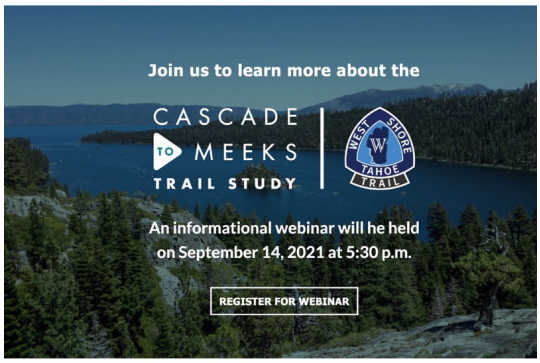
Getting Started

In consultation with TRPA and NCE, East River Public Relations & Marketing initiated the O & E campaign by developing a comprehensive document that outlined goals and strategies for the O & E Approach. After many iterations and a review by the Steering Committee, this document was formalized into a final O & E Framework and Timeline that guided our efforts to achieve the desired results.

Several visual and creative assets were developed prior to the launch of the O & E campaign. Those included:

1. Campaign name and logo: the name "Cascade to Meeks Trail Study" was created to clearly define the specific project boundaries within the already established West Shore Tahoe Trail. A logo combining this name with the West Shore Tahoe Trail logo was developed. (Attachment 1)
2. 2.Website: the website started with just a landing page, and as the project evolved, the website grew to include multiple pages containing detailed information.
3. Direct Mailer: a direct mail postcard was sent to property owners within the project boundaryto a nnounce the beginning of the Feasibility Study and directed interested stakeholders to the website where they could "opt in" to receive further communication. (Attachment 3)

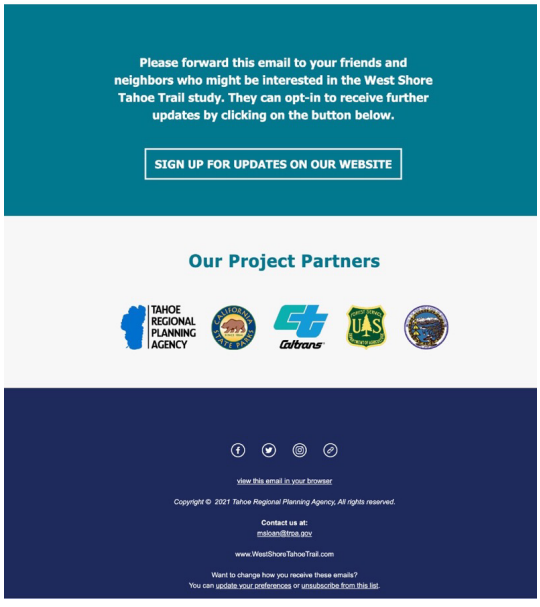
4. PowerPoint template: a PowerPoint template was created to align all presentation efforts with the other creative assets.
5. Eblast template: an eblast template was created to provide continuity for all email messaging.
6. Business Card: business cards were handed out at several summertime HOA gatherings which provided a text opt-in for stakeholders to be added to future communications.
(see examples below of website home page, business card and eblast)



The State Route 89 corridor is one of the most visited and popular destinations within the Lake Tahoe region. Traffic congestion and year-round visitor demand exceeds current infrastructure during peak times. After the recent completion of the SR 89 Corridor Management Plan, the creation of a multi-use trail along the lake's southwest shoreline was identified as a high priority need. A feasibility study to examine the constructability of this segment of the West Shore Tahoe Trail, dubbed the Cascade to Meeks Trail, has now begun. The public is encouraged to be a part of it.

The trail feasibility study will take place in 2021-2022. During this time there will be opportunities for the public and key stakeholders to provide input on the project's vision and goals, trail segments and access points. Once complete, the entire West Shore Trail will help reduce traffic congestion, and enable multi-use access to some of Lake Tahoe's most treasured locations including Emerald Bay, Meeks Bay, and Baldwin Beach along with access to multiple trailheads.

Your input on this trail study will help determine the best trail alignment. After a brief presentation, there will be time for questions and comments.

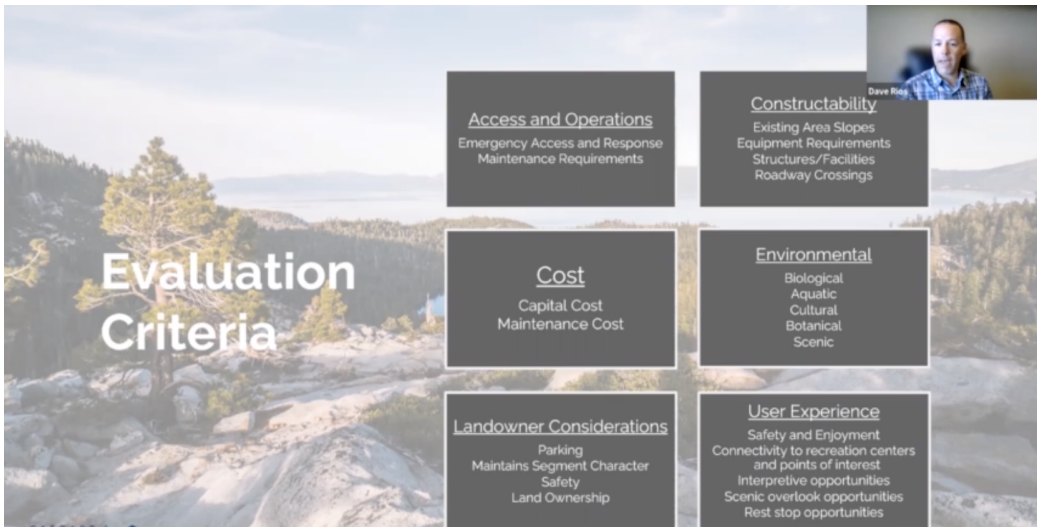


Phase 1: Building Awareness and Engaging Stakeholders

The goal for Phase 1 was to begin building community awareness of the Feasibility Study and initiate communication and engagement with the community. After a few meet and greet opportunities at homeowner's association summer BBQ's and some informal one-on-one meetings with property owners, it was clear that we needed to provide context from the SR 89 Recreation Corridor Management Plan as the framework for the Feasibility Study. TRPA staff and the consultant team provided this background during the first public workshop, explained the purpose and goals of the Feasibility Study, and presented draft Evaluation Criteria for potential trail alignments. Participants were able to submit questions through the chat function, that the team answered during the workshop. After the workshop, the O & E team recognized that there was still some lingering confusion and concern about the Feasibility Study. In an effort to drill deeper into those concerns, a survey was sent to all workshop participants and to the large email contact list. The survey contained many open-ended questions that allowed respondents to fully express their opinions, ideas, and concerns about the Study. The information gathered from the workshop and the survey helped to guide changes in the O & E Framework.

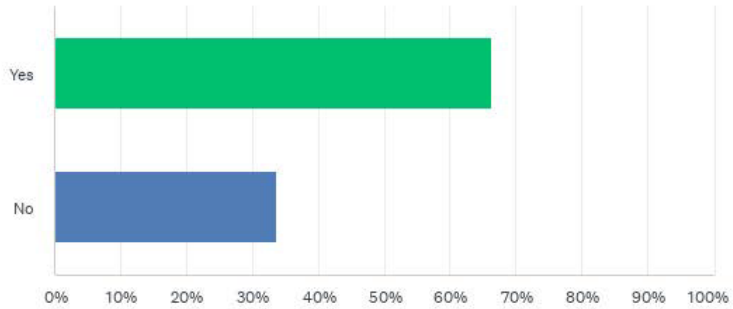
The first public workshop was held on October 25, 2021. It was determined that a Zoom meeting was the best way to reach a large and diverse audience.

- A direct mail postcard was sent to 1370 property owners within the project area.
- 3 eblasts were sent (to 954, 949, 946 people respectively) that announced workshop details.
- 5 news stories were secured in local media.
    - *Sierra Sun* (September 10, 2021 and October 22, 2021)
    - *South Tahoe Now* (September 7, 2021 and October 9, 2021)
    - *Tahoe Tribune* (October 23, 2021)
- 289 people pre-registered for the workshop, and 122 people attended virtually. (Note: the original September 14, 2021 date for the workshop was canceled and rescheduled due to the Caldor Fire. Eblasts were sent notifying participants the meeting was rescheduled, and the media was also notified of the new October 25, 2021 date.)
- The workshop included background information on the need for the Feasibility Study, an explanation of the Study Evaluation Criteria, an overview of the trail segments, and a question-and-answer period for the zoom participants. The presentation was one hour in length.



- 77 questions were submitted during the workshop. Those questions were compiled into a single document, answers were provided, and the document was posted to the website.
- 1,083 and 1,082 residents respectively received two eblasts with a link to a post-workshop survey.
- 187 people responded to the survey. The survey contained several open-ended questions and included a question about the demographics of survey respondents. The information collected in the survey was analyzed and compiled into a data report; an infographic of the key takeaways was created. The figure below is an example of the types of questions asked in the survey.

Q7 Do the Six Evaluation Criteria Categories reasonably cover the range of considerations for the trail?



Transitioning to More Targeted and In-Depth Communication Strategies

It was clear from the comments received during the first workshop and the survey responses, that a more direct small-group communication effort would be helpful in furthering the discussion of trail alignments and to address the concerns of specific neighborhoods. The O & E Framework was adjusted to address this need.

- Eblasts were sent notifying stakeholders of the upcoming meetings.
- Six small group Zoom meetings and one in-person meeting, held in late-November and early-December of 2021.
- Meetings were organized for specific neighborhoods and HOAs which provided a smaller setting that promoted interaction. Anyone who was interested was welcome to attend any or all of the meetings, but generally, the participants at each meeting consisted of individuals from those communities. The six meetings were:
    - Emerald Bay Lower Cabins HOA
    - Tahoe Hills HOA
    - Cascade Properties HOA
    - Upper Emerald Bay HOA
    - Rubicon Tahoe HOA
    - Rubicon Park Estates
- 93 people participated in the 6 Zoom meetings and 7 people participated in the in-person meeting.
- The format of the Zoom meetings encouraged participants to ask questions directly to the moderators. 45 questions were posed and answered in real time and recorded in a summary document.
- The feedback received during these meetings was similar to what was received during the initial workshop and survey. Top concerns included:
    - Parking
    - Safety
    - Private property owners' rights
    - Trash/Restroom access and issues
    - Environmental impacts
    - Increased traffic and visitation
- Support for the project was also noted:
    - Excitement for new trail opportunities
    - Opportunity to deal with traffic and parking
    - Needed expansion of the current trail system
    - Needed amenity improvements within the corridor
    - Improved access to public recreation sites and facilities
- The comments received during these targeted meetings resulted in an update to the evaluation criteria along with the addition of trail alignments to be evaluated.

Phase 2: Informational sessions to present the results of the Alignment Analysis

Input received during Phase 1 resulted in changes to the Evaluation Criteria and the addition of alternate trail alignments. In Phase 2, it was important to reach back out to the community to review those changes and solicit additional input. Three additional public meetings were scheduled and organized by three distinct geographic sections of the trail. Each discussion was focused on its particular section. Community members were encouraged to attend the meeting within their section of interest or all three.

These three meetings presented the results of the Alignment Analysis which was based on the updated Evaluation Criteria.

- The meetings were organized by geographic location of the Trail Study: north, middle, and south.
- The meetings were held early June 2022.
- 105 participants attended the 3 meetings.
- 50 questions were submitted both verbally and through the chat during these meetings. Those questions with answers were collected into one document and posted to the website.
- A second infographic summarizing the June 2022 meetings was created and posted to the website.
- A second survey was sent which asked respondents to rank their preferred trail alignments.
- 348 people responded, the results were tallied and posted to the website.
- A news story was published in the *Tahoe Daily Tribune* (July 30, 2022) highlighting the O & E efforts to date and encouraging readers to visit the project website.

Input gathered during the three informational meetings, the survey and various email and phone communication was presented to the Steering Committee and given consideration. The main themes that came out of Phase 2 efforts was a desire for more detail on each trail segment, concerns about the impacts to property owners and residents, parking issues, and questions about the overall evaluation and scoring of the trail segments. The survey asked respondents to rank their preferred trail alignment in each trail segment. With the aid of this public input, the Steering Committee selected a preferred trail alignment to be further evaluated as part of the Study.

Phase 3: Public Presentation of the Draft Report & Solicitation of Public Comment

The final Outreach & Engagement phase of the project was to present the draft Trail Study to the public and provide opportunity for the public to submit written comments. The draft report was added to the website with a flip-book functionality to make it easier for readers to see and navigate through the document. A comment tool was also added to the website allowing participants to note the page number and submit their comment. A Zoom webinar was held on March 16, 2023 where the draft report was reviewed and any remaining questions were answered.

- 4 eblasts were sent (1000, 1000, 187, 1000) announcing the Zoom workshop, resending the Zoom link to registered attendees, announcing the Zoom recording and comment period opening, and announcing the end of the comment period.
- The Zoom Webinar was held on March 16, 2023.
- 74 individuals participated in the Webinar.
- 25 questions were submitted and answered during the Webinar.
- 4 announcements were secured in local media providing information on the webinar.
    - *South Tahoe Now* (February 8, 2023)
    - *Sierra Sun* (February 8, 2023)
    - *Tahoe Daily Tribune* (February 8, 2023
    - *Moonshine Ink* (February 8, 2023)
- 57 public comments were submitted through the online comment tool.
- The public comments were reviewed and considered in the development of the Final Trail Feasibility Study.

Trail Study Outreach & Engagement Conclusions:

The engagement and input received from the public was vital to the outcomes of the Cascade to Meeks Trail Study. Every comment or suggestion made on Zoom, via email, phone, or submitted through surveys was given serious consideration and evaluation. Initial concerns from residents, property owners and Homeowners' Associations led to modifications in the evaluation criteria, trail alignments and preferred amenities. The public was asked to vote for their preferred trail alignment on each segment of trail. Those votes were reviewed by the Steering Committee and helped to influence the final selection of the Preferred Alignment. At every stage of the Trail Study, the public was invited and encouraged to participate in the process.

Overall Numbers:

- **28,647 total number contact points**
- 14694 individual eblasts sent
- 1370 postcards mailed directly to the primary address of property owners
- 10 Zoom meetings held
- 320 individuals participated in Zoom meetings
- 1 Zoom Webinar held
- 74 Individuals participated in the Zoom webinar

- 11,542 site sessions on the project website
- 7,692 page views on the project website
- 2 surveys conducted
- 535 survey responses tallied
- 75 direct emails/phone calls executed
- 10 media placements secured
- 57 public comments submitted

Attachments:

1. Project Logo
2. Launch Press Release
3. Direct Mailer
4. October 2021 Workshop Power Point
5. Q & A from October 2021 Workshop
6. Infographic #1: Community Engagement Summary
7. June 2022 Power Point for Meetings
8. Q & A from June 2022 Meetings
9. Infographic #2: June 2022 meetings recap and survey results
10. Draft final report webinar announcement press release
11. Public Comments Submitted on Draft Feasibility Study Report
12. Media Placement Tracker
13. Eblast September 2021 workshop
14. Eblast February 2023 webinar
15. Eblast June 2022 meetings
16. Eblast preferred trail alignment survey
17. Samples of Graphic Design
18. Zoom Recording Sample with “What We Heard” graphic
19. Sample Survey Question

Attachment 1:

CASCADE TO MEEKS TRAIL STUDY

Media Contact: Cass Field
East River Public Relations
775-741-7065
cass@eastriverpr.com

FOR IMMEDIATE RELEASE

Trail Study for Cascade to Meeks Section of State Route 89 Underway

The community is invited to learn more and provide feedback on the West Shore Tahoe Trail

South Lake Tahoe, CALIF. (Tuesday, August 24, 2021) – The State Route 89 corridor is one of the most visited and popular destinations within the Lake Tahoe Region. Traffic congestion and year-round visitor demand exceeds current infrastructure during peak times.

After the recent completion of the SR 89 Corridor Management Plan, the creation of a multi-use trail along the lake's southwest shoreline was identified as a high priority need. The planning process to design the Cascade to Meeks section of the West Shore Tahoe Trail has now begun. The public is encouraged to be a part of it.

The first of several upcoming opportunities for community involvement in the trail feasibility study will be an informational webinar on September 14, 2021 at 5:30 p.m. The webinar link is https://us02web.zoom.us/webinar/register/WN_pzJNt0C1QV2FQXNt0z90LQ. Public comments and questions will be available through the chat function during the webinar.

The trail feasibility study will take place in 2021-2022. During this time there will be opportunities for the public and key stakeholders to give input on the project's vision and goals, trail segments, and access points. Once complete, the West Shore Tahoe Trail will enable multi-use access to some of Lake Tahoe's most treasured locations like Emerald Bay, Meeks Bay and Baldwin Beach along with access to multiple trailheads.

For more information and to opt-in to receive future communication about the West Shore Tahoe Trail and the Trail Feasibility Study, visit our website at www.westshoretahoetrail.com.

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Attachment 3:

CASCADE TO MEEKS TRAIL STUDY

State Route 89, a narrow two-lane mountain roadway, is currently the only access route to many of Lake Tahoe's most popular recreation destinations and residential neighborhoods.

The planning process to design the West Shore Tahoe Trail has now begun, and we invite you to be a part of it. Over the next several months, we will provide opportunities for the public and key stakeholders to give input on the project's vision and goals, trail segments, and access points. Once complete, the entire West Shore Trail will help reduce traffic congestion, and enable multi-use access to some of Lake Tahoe's most treasured locations like Emerald Bay, Meeks Bay, and Baldwin Beach along with access to multiple trailheads.

Please join us as we kick off this effort on September 14, 2021 at 5:30 p.m. You can access the webinar at tinyurl.com/czecwmsf. After a brief presentation, there will be time for questions and comments.

PROJECT PARTNERS

WestShoreTahoeTrail.com

Attachment 4:

Tonight's Workshop

1. About an hour
2. Post questions to the Q & A
3. Tonight's meeting will be recorded
4. www.westshoretahoetrail.com
5. Survey

SR 89 Trail Feasibility Study: Background

WWW.WESTSHORETAHOETRAIL.COM

Completion of the Tahoe Trail

Transit & reservation system during the summer months and peak weekends

Roadside parking restricted/ relocated with increased enforcement and fine

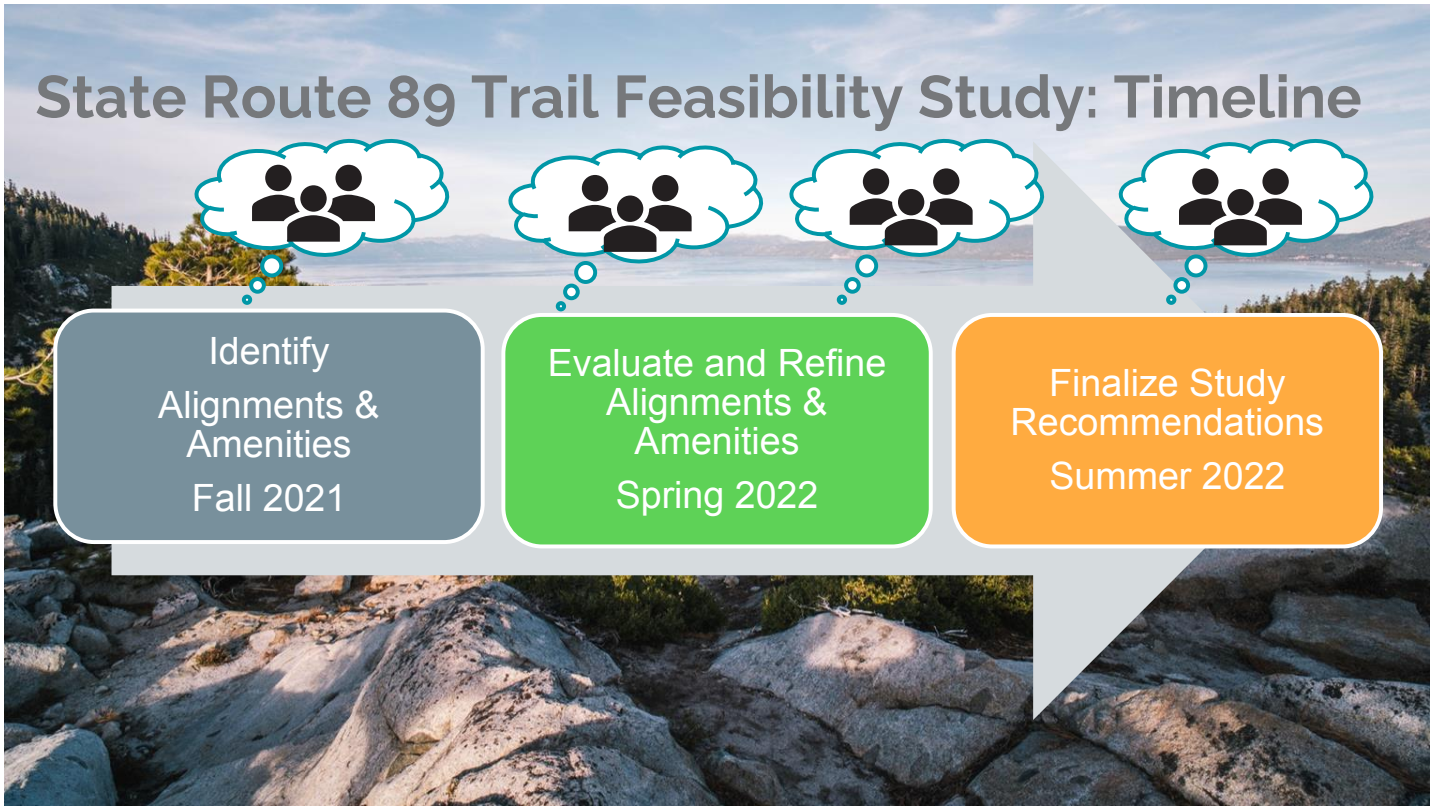
SR 89 Trail Feasibility Study Project Area

Goals

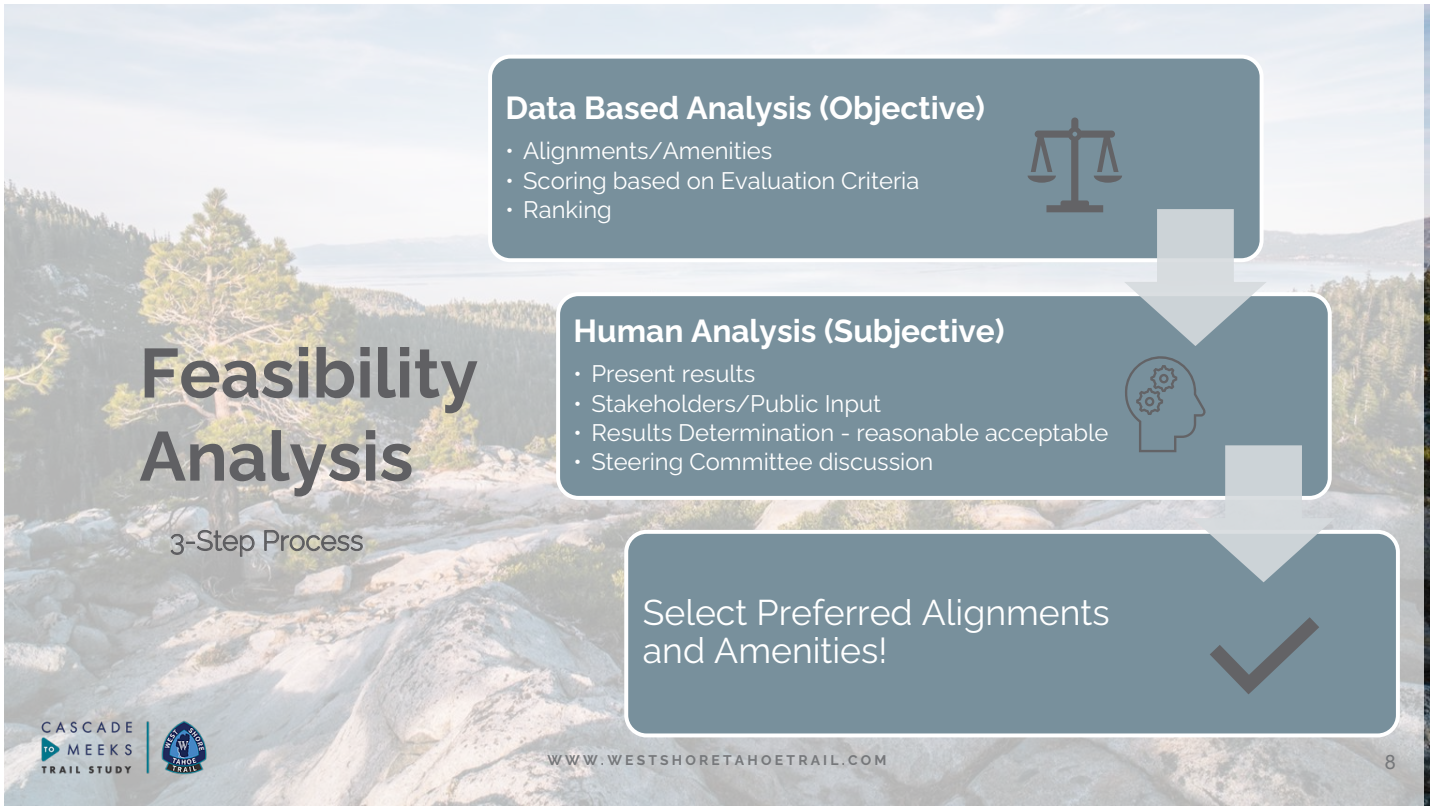
1. Identify feasible alignments and amenities
2. Provide a trail experience for all
3. Improve user experience
4. Sensitive to the environment
5. Focused on sustainable design
6. Improve connectivity

SR 89 RECREATION CORRIDOR IMPLEMENTATION PLAN

Steering Committee


State Route 89 Trail Feasibility Study: Timeline
Identify
Alignments & Amenities
Fall 2021
Evaluate and Refine Alignments & Amenities
Spring 2022
Finalize Study Recommendations
Summer 2022

Consultant Team


Feasibility Analysis
3-Step Process
Data Based Analysis (Objective)
• Alignments/Amenities
• Scoring based on Evaluation Criteria
• Ranking
Human Analysis (Subjective)
• Present results
• Stakeholders/Public Input
• Results Determination - reasonable acceptable
• Steering Committee discussion
Select Preferred Alignments and Amenities!
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Evaluation Criteria Categories
Access & Operations
Constructibility
User Experience
Environmental
Cost
Preferred Alignment
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Access &
Operations
Emergency Access and Response
Land Ownership
Maintenance Requirements
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Constructibility
Existing Area Slopes
Equipment Requirements
Structures/Facilities
Roadway Crossings
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WWW.WESTSHORETAHOETRAIL.COM
11


Cost
$
Capital Cost
Maintenance Cost
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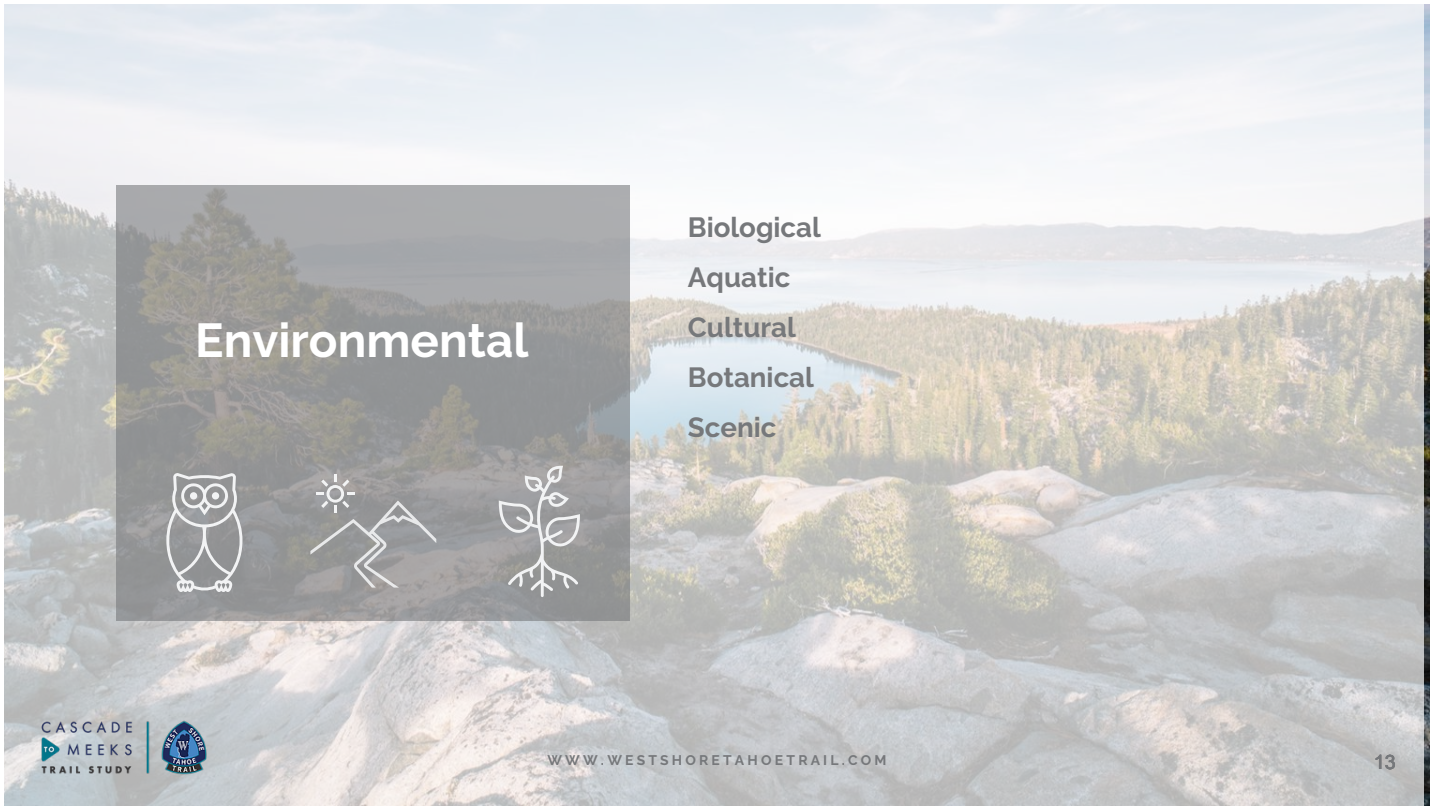
Environmental
Biological
Aquatic
Cultural
Botanical
Scenic
CASCADE TO MEEKS TRAIL STUDY
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User Experience
Safety, Security, & Accessibility
Connectivity to recreation centers and points of interest
Interpretive opportunities
Scenic overlook opportunities
Rest stop opportunities
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Meeks Bay Example

Access and Operations
Land Ownership

Constructibility
Equipment Requirements

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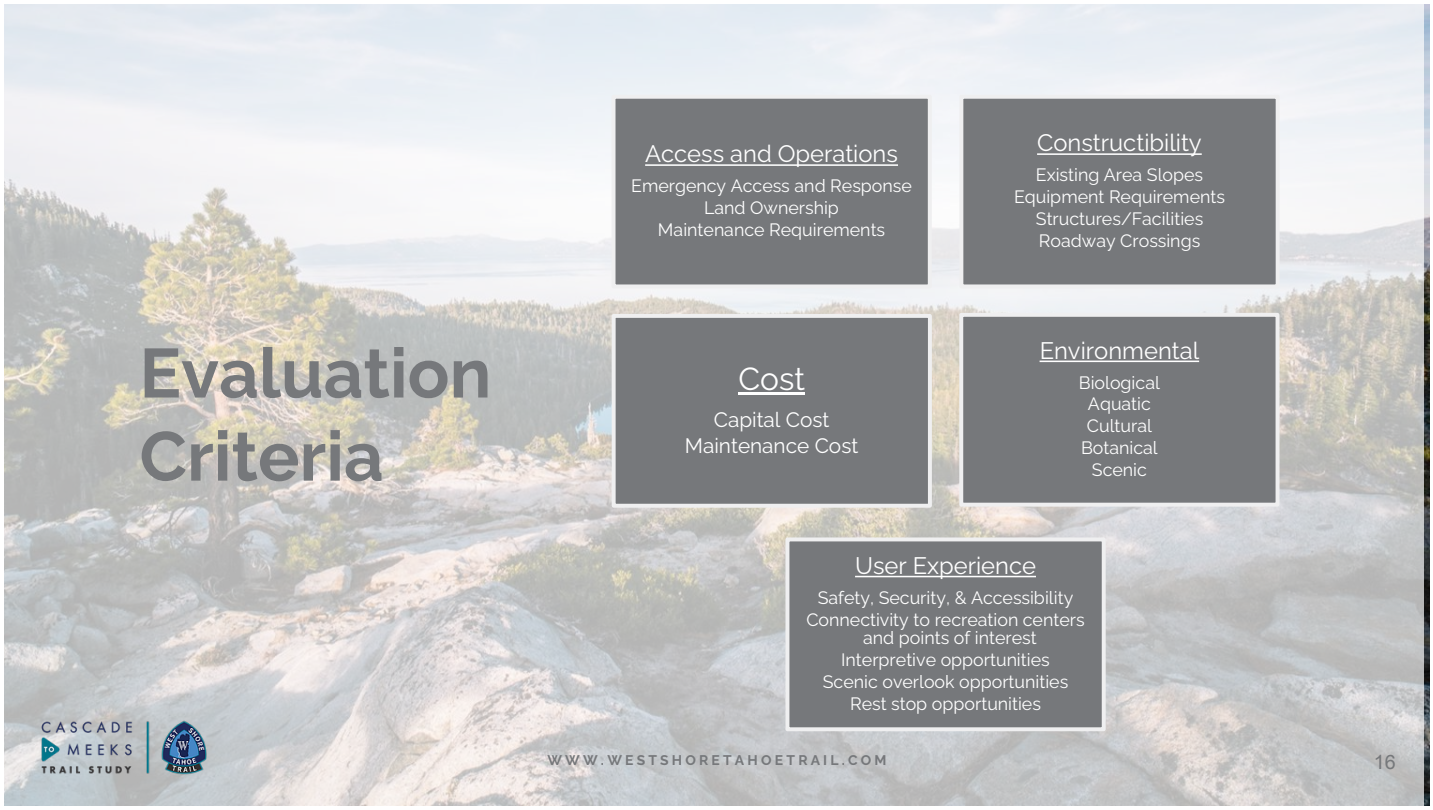
Evaluation Criteria
Access and Operations
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Land Ownership
Maintenance Requirements
Constructibility
Existing Area Slopes
Equipment Requirements
Structures/Facilities
Roadway Crossings
Cost
Capital Cost
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Scenic overlook opportunities
Rest stop opportunities
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Question & Answer

SR 89 Trail Feasibility Study: Next Steps

- Workshop Materials
  - Website: Cascade to Meeks Trail Feasibility Study | West Shore Tahoe Trail
  - Email to registrants & project list
- Survey
  - Dive into the details and give us your input by November 15
- Finalize What to Evaluate
  - Completed winter 2021
- Alignments and Amenity Analysis
  - Completed spring 2022
- Public Engagement
  - Through analysis, spring 2022

WWW.WESTSHORETAHOETRAIL.COM

Thank you!

Contact info: Melanie Sloan

Email: msloan@trpa.gov

Phone number: 775-589-5208

Website: https://www.westshoretahoetrail.com/

Social media:

https://www.facebook.com/trpatahoe
https://twitter.com/TahoeAgency
https://www.instagram.com/trpa_tahoe/

Attachment 5:

	Questions/Comments	Response
1	Has a decision been made if e bikes will be allowed?	The use of e-bikes trails in Tahoe is determined by the land manager where the path is located. For example, California State Parks does not allow e-bikes to be used on trails within their lands. Therefore, any decision on e-bikes will need to be informed by the final location, layout, and design of the trail. The decision will also need to be informed by what agency or organization owns or is responsible for the trail.
2	Will there be a MOU with Caltrans?	An MOU with Caltrans may be necessary, but this will depend on the final alignment and what agency or organization owns or is responsible for the trail.
3	How do we not have it NOT go thru the neighborhood in Tahoe hills? And Rubicon palisades? Obviously those who live there don't want a crowded bike path it inside our neighborhood roads.	No decision has been made on a preferred alignment. The Feasibility Study is intended to evaluate the options identified during the Corridor Management Plan and select a preferred alignment. The desire to not have the trail within these two neighborhoods is noted.
4	Who will maintain the trail over time?	This has not yet been determined.
5	When you refer to using local county roads (such as thru Rubicon) what does that actually look like (i.e. a new bike path on the side of the road? Or riding on the road as would be done by bikers currently?)	Depending on the preferred alignment selected, the trail could be located on the roadway or in a completely separated facility.
6	Any issues with fire department in Meeks Bay Option A?	Unknown at this time. This will be considered during the evaluation process.
7	Are objective criteria weighted more heavily than subjective criteria? How so?	The objective criteria (i.e., evaluation criteria) are equally weighted. The objective analysis uses data based scoring and ranking using the evaluation criteria to compare alignment options. The results of the objective analysis become one consideration for stakeholders, interested parties, and the Steering Committee to consider when identifying a preferred alignment.
8	Can the Rubicon and Cascade segments that are west of Hwy 89 meet accessibility requirements? How? At what cost?	Specifics related to meeting ADA requirements, such as maximum grade or steepness and required breaks or rest areas, of any particular segment are unknown at this time. Slope (steepness) of the existing ground and other physical impediments are considered within the evaluation criteria.
9	Are e-bikes allowed on the trail?	The use of e-bikes trails in Tahoe is determined by the land manager where the path is located. For example, California State Parks does not allow e-bikes to be used on trails within their lands. Therefore, any decision on e-bikes will need to be informed by the final location, layout, and design of the trail. The decision will also need to be informed by what agency or organization owns or is responsible for the trail.
10	How accurate are the maps? Some places seem to show the map going physically through cabins or weaving between cabins. Some cabins are not shown on the map.	The map of potential alignments is conceptual. The lines are not intended to reflect an exact location. The intent is to determine the general location. There may be places where the map shows the trail crossing over an existing residential structure. There is no intent to impact any residential structure with the trail.
11	Once the plan is approved, how will the sections be prioritized around the timing / order of completion?	Initial prioritizing of implementation will occur in the later phases of this Feasibility Study. The factors that will drive prioritization have not yet been identified.
12	Most of us own second homes. My concern is for property safety in our absence. Will you have additional police coverage? Trash REMOVAL due to bear population?	Law enforcement within neighborhoods or along the trail is outside of the scope of this feasibility study. The protection of private property and structures is noted as a point of importance. A maintenance agreement for the trail will be in place prior to trail implementation. The agreement will address trash removal.
13	Please share how many people are signed in to this webinar.	The October 25, 2021 public workshop #1 had 157 attendees.
14	Can you directly address the Lower Emerald Bay Tract? The cabins are not shown on the map and two proposed trails run directly through the tract (maybe even shown through cabins). The map does not show the LEBT HOA group in pink either so seems to have been missed.	The map background is the current available basemap from the BLM. A request will be made of the USFS to determine if they have additional basemap information.
15	Will the quantitative evaluation be publicly viewed with all grades and scores available for public review and comment?	Yes. The results of the evaluation process work will be shared with the public.
16	Dave Rios -- When you refer to using local county roads (such as thru Rubicon) what does that actually look like (i.e. a new bike path on the side of the road? Or riding on the road as would be done by bikers currently?)	Please see response above. Depending on the preferred alignment selected, the trail could be located be on the roadway or in a completely separated facility.
17	Do you feel that you received a great deal of input tonight on this webinar? Do you think this format is conducive to give and take for you to gather information? Will you be hosting smaller meetings later?	The October 25, 2021 workshop had a 157 participants who submitted 77 questions and comments. A post workshop Survey is currently collecting additional input. There will be additional opportunities for engagement and to gather additional input from the public. All participants from the Workshop and those who have signed up for the contact list will be notified.
18	I think we need more discussion rather than just getting responses to a few questions. How do we organize that?	For specific concerns or requests please contact Melanie Sloan TRPA Project Manager at msloan@trpa.gov. Full contact information is available in the Workshop presentation at www.westshoretahoetrail.com.
19	Are you going to evaluate the speed limits on HWY 89? Lower them?	Speed limit evaluation or changes are outside the scope of this Feasibility Study. The SR 89 Corridor Management Plan identified implementing recreation zone speed limits during peak season to be implemented as a priority action item of the plan. Overall requests for adjustment of speed limits on the State Highway System should be directed to Caltrans.

20	The parking challenge at Meeks Bay is brutal around HWY 89. How would Option A address the conflict between parked cars/boat trailers and biking/walking. Lots of cross traffic from people bringing beach toys etc. from their cars across HWY 89 to Meeks Bay. Option B, although more costly, would alleviate much of the conflict with parking and foot traffic. Also be safer.	Comment noted. The evaluation criteria and process will consider parking, safety, and roadway crossings.
21	The views above Bliss are just stunning, but the room is minimal. Barely enough room for two cars. How would you build out a safe path right next to this narrow road?	Criteria, such as constructability, including roadway width and the need for structures or bridges, and other criteria, are what will be used to complete the alignment evaluation in the next phase of the Feasibility Study.
22	Last question. Is there existing funding for this Trail work or is that to be determined in the future. The trail to Meeks Bay is fantastic and well done. Kudos to all who made that happen.	Funding to construct the trail is to be determined. There are likely to be multiple local, state, and federal sources similar to the Sugar Pine Point to Meeks Bay trail. The existing trail is an example reference project that is being considered in the delivery of this Feasibility Study.
23	Intersect with cultural scoring lower. What about from an educational experience with a cultural resources?	The user experience evaluation criteria includes interpretive opportunities, which can include educational and cultural opportunities.
24	Does a trail of this length require access to restroom or water facilities?	There are no requirements for providing restroom or water facilities. However, the Feasibility Study will identify amenities to complete the trail, and these recommendations will include restrooms and other facilities.
25	Are their inherent weighting issues regarding comparing evaluation criteria?	The objective criteria (i.e., evaluation criteria) are equally weighted.
26	When you show an option along the Highway 89 corridor is there a minimum distance from the edge of 89, the asphalt, that you can achieve? My concern is that the trail north of what we are discussing sometimes is quite close to the highway and it would seem not so save for younger and older trail walkers, riders, strollers.	The specific location of the trail is unknown at this time. There is not a minimum or maximum distance from the highway that is guiding the identification of a preferred alignment at this time. If the preferred alignment is along the Caltrans right of way, there will be design standards that must be met (e.g., separation of pathway to roadway, lateral clearances, intersections and crossings, etc.)
27	Can you tell us now, which potential highway crossing will be at road grade and which will not be (for example, over or under the highway)?	This is not known at this time. The location and types of roadway crossings are better understood once the alignment evaluation is completed. This will be evaluated during the next phase of the Feasibility Study.
28	By your maps we cannot tell which side of 89 you are considering above the Rubicon Drive loop? Are both sides of 89 still being considered?	To be determined. Both sides of Hwy 89 are potential locations. The evaluation of alignment alternatives and input from stakeholders and the Steering Committee will ultimately provide guidance on which side of the Hwy the trail will reside in this specific area.
29	Who are the "stakeholders?"	Stakeholders include interested parties, landowners, residents, trail users, agencies, organizations, and others. Stakeholders includes a broad suite of individuals and groups who are interested in participating in the planning and implementation the SR 89 Corridor Management Plan.
30	Is design for foot & bike use, or include use by motorized vehicles?	The trail is for those walking and bicycling. The use of e-bikes on trails in Tahoe is determined by the land manager where the path is located. For example, California State Parks does not allow e-bikes to be used on trails within their lands. Therefore, any decision on e-bikes will need to be informed by the final location, layout, and design of the trail. The decision will also need to be informed by what agency or organization owns or is responsible for the trail.
31	if Option A is chosen along 89 adjacent to Meeks Bay Resort, will parking still be allowed? There's enough room for both, but could be a public safety hazard.	To be determined. This will need to be considered based on the preferred alignment. For example, if the preferred trail alignment is within Caltrans' right of way, they will be involved with determining if parking is compatible with a new trail.
32	How would you like to identify ourselves if we would like to make a comment?	Comments were posted through the Q&A tab.
33	Is there a strict time limit for comments?	Participants were able to submit comments at anytime during the Workshop.
34	Can you see the speakers as they speak?	Speakers video feed is shown when they speak.
35	How many people are on this call?	The October 25, 2021 public workshop #1 had 157 attendees.
36	How will you determine the relative importance or weight of each of the evaluation criteria? I see most of the analysis slanted toward engineering, constructability, and cost criteria. What about the “private landowner experience” in addition to the “user experience”? Private landowners have concerns over: -litter -trespassing -noise off-street parking -public safety -property values -sanitation	The objective criteria (i.e., evaluation criteria) are equally weighted. The objective analysis uses data based criteria to compare alignment options. The results of the objective analysis become one consideration for stakeholders, interested parties, and the Steering Committee to consider when identifying a preferred alignment. The Access & Operations evaluation criteria does include consideration for land ownership. Based on input during the Corridor Management Plan alignments have been focused on public land. The concern of property owners is noted and will be further discussed.

37	In Rubicon, there is quite a bit of debate over whether the trail should go on the mountainside shoulder of SR89 or the Lakeside shoulder. This is a KEY decision that needs to be made clear, transparent, and legally defensible. Please explain the process to arrive at the least impactful alignment.	Both sides of Hwy 89 are potential locations. The objective analysis will use data based evaluation criteria to compare alignment options. The final evaluation criteria will be informed by input from workshop participants, survey responses, and Steering Committee members. The final evaluation criteria will be applied to any segment area with multiple alignment options. The results of the objective analysis becomes one consideration for stakeholders, interested parties, and the Steering Committee to consider when identifying a preferred alignment. The results of this objective analysis will be shared with all interested parties in spring 2022
38	Just so you are aware, I am a Rubicon homeowner NOT along the highway for 33 years and also on the Board of the League to Save Lake Tahoe and the Program Chair	Comment noted.
39	"Access and Operations" doesn't mean much to most participants. Why not use "Private Landowner Experience" as the 5th criteria in contrast to the "User Experience". That's really the tradeoff the matters.	The Access & Operations evaluation criteria does include consideration for land ownership. The Feasibility Study places an emphasis to aligning the trail on public land. The concern of property owners is noted and will be further discussed.
40	When Jeremy said that weighting of the five criteria is not planned at this time, treating each of five categories equally is a form of weighting	Comment noted.
41	The map of the Emerald Bay segment omits the Lower Emerald Bay HOA. The Option 1 alignment does not seem to follow an existing trail. As the President of the Lower Emerald Bay HOA, I would request the most detailed drawing that you have of the "Option 1" alignment on the North side of Emerald Bay.	The map background is the current available basemap from the BLM. A request will be made of the USFS to determine if they have additional basemap information.
42	Who will be responsible for the maintenance and long term upkeep of the trails? Where will the funding come from?	To be determined. A maintenance plan or agreement for the trail will be developed as apart of trail implementation. This topic will be an item of discussion for the Steering Committee and any potential owners of the trail.
43	Please provide the study that shows a demand for these trail segments. I feel the slope and distance from visitor infrastructure will not make this popularity casual recreationists and not meet the objective to get bikes off the road.	The Corridor Management Plan identified the need for this trail feasibility study. The CMP can be accessed at https://www.trpa.gov/rtp/sr-89-recreation-corridor-management-plan/
44	We are very concerned about trail being located above upper Emerald Bay FS tract. There is no existing trail as map indicates. This was pointed out to TRPA at July meeting with FS tract and TRPA representatives. I offered to hike the area with them to show that there is no existing trail. That route is on extremely steep terrain and cuts through at least 6 springs and avalanche shoots! As a Geologist, soils in this area are very unstable! What is your PLAN B Route.	There are currently no alignment options proposed above the Upper Emerald Bay Cabins.
45	Are we talking about a multiuser trail for bikes and walkers as exists farther north?	Yes, the trail is for those walking and bicycling.
46	My recommendation is to stay away from existing homes, Minimize highway crossings and a recipe for problems is to use Caltrans ROW--way to close to the highway traffic!!	Comment noted.
47	Is this a walking trail only or bike too?	The trail is for those walking and bicycling.
48	We live in the Rubicon Bay area and have tried for four years to get internet service for primarily safety reasons, without success. What about access to emergency communication messages since so many are by internet only?	Emergency access and response is a consideration in the Access & Operations evaluation criteria. Broadband infrastructure or upgrades to existing broadband are outside the scope of this Feasibility Study.
49	Would the money for this expensive segment of trail be better used to work on correcting parking and transit issues in Emerald Bay?	The Trail Feasibility Study is one of many priority projects identified in the SR 89 Corridor Management Plan (https://www.trpa.gov/rtp/sr-89-recreation-corridor-management-plan/). The study is the first priority being advanced, and that is made possible with grant funding from partner, the USFS. Along with leading the trail feasibility study, TRPA is Working with partners to identify and activate other priorities from the CMP, like transit and parking. The Feasibility Study is not intended to compare investment in a trail to other priority projects from the corridor management plan. Cost is important and is an evaluation criteria.
50	Will existing secondary neighborhood streets be used through stripping the bike path?	Depending on the preferred alignment selected, the trail could located on the roadway, with striping, or in a completely separated facility.

51	Good evening, looking at the options near cascade creek seems option 1 is to run the trail along the cascade homeowners association and then follow the switchback turns along highway 89. Option 2 looks like it runs along private property at cascade road then crosses just north of cascade creek, is that correct? Just curious how safe looping this path over the highway and up and over a significant grade with families new to biking would be? For example a mom hauling a bike trailer with a toddler, seems this would be very dangerous. If this trail goes along the HOA at cascade will there be a natural barrier provided to the homeowners? Where along this trail would the “amenities” be located and would that include restrooms and if so what would the restroom location be? Maybe a park and ride bike shuttle would be a better option to safely move people from Spring creek to the other side of emerald bay. thank you	The existing map of potential alignments is conceptual. The accuracy of the lines are not intended to reflect an exact location of the trail. The intent is to determine the general desired location. The two options currently represent for the Cascade Segment include a west or upslope option (west of Hwy 89) and an east or downslope option.
52	Are the slides going to be made available soon?	The presentation material is available on the Feasibility Study website at www.westshoretahoetrail.com
53	Can we assume that the trail standard, in terms of width of trail, trail gradient, will be similar to that of the recently completed segment from Sugar Pine Point State Park to Meeks Bay?	The goal is to identify an alignment that includes as much Class 1 trail as feasible. Class 1 trail is typically a minimum of 8-feet wide, and sometimes 10-feet wide. Many factors, including slope, land ownership, right-of-way, etc. will influence the final recommendation. Some portions of the Sugar Pine Point to Meeks Bay trail that are Class 1 facilities.
54	No one has spoken to me, 9011 Rubicon Drive. We are so close to 89 that the bike path would obliterate the small amount of "backyard" we have. We are strongly opposed to a lakeside alignment through Rubicon.	Comment noted.
55	What is an "existing disturbed area?"	An existing disturbed area is any area that has been developed, paved, graded, or disturbed by an existing activity or use (e.g., highway shoulder).
56	How many feet does the Caltrans right of way include? Would you try to use eminent domain proceedings?	The Caltrans right of way varies throughout the corridor. The Trail Feasibility Study is not considering eminent domain as part of its proceedings.
57	You are really scaring me with the "scenic opportunity" talk. Bike riders "scenic opportunity" should not trump homeowner's rights. I literally won't be able to sit on the side deck and enjoy my scenic opportunity because of the noise from the bike riders and the fact that they would be looking directly at me. They have plenty of scenic views through Meeks Bay and Emerald Bay.	Comment noted.
58	For reasons I cannot understand, the Rubicon Home Owner's Association is refusing to protect our rights and is apparently not willing to get involved How do we make sure that the affected homeowners in Rubicon will be heard, and when and how is the best way to assert any objections?	Your participation in the Workshop is the first of several opportunities to participate in the Feasibility Study Process. Comments provided during and after the Workshop will be documented and considered. For specific concerns or requests please contact Melanie Sloan TRPA Project Manager at msloan@trpa.gov. Full contact information is available in the Workshop presentation at www.westshoretahoetrail.com
59	I didn't hear you evaluate homeowner's rights. Here's a question to ask yourself - does the path serious impair the homeowner's rights to quiet enjoyment, first and foremost, and ultimately the value of their property?	The Access & Operations evaluation criteria does include consideration for land ownership. The Feasibility Study places an emphasis to aligning the trail on public land. The concern of property owners is noted and will be further discussed.
60	I really do appreciate this presentation. However, it's very similar to what we heard a few months ago. I'm afraid decisions will be made before we have the opportunity to assert objections in a meaningful manner, before it's too late.	No decisions regarding the project or trail have been made. Your participation in the Workshop is the first of several opportunities to participate in the Feasibility Study Process. Comments provided during and after the Workshop will be documented and considered.
61	Will motorized bikes be allowed access to all trails?	The use of e-bikes trails in Tahoe is determined by the land manager where the path is located. For example, California State Parks does not allow e-bikes to be used on trails within their lands. Therefore, any decision on e-bikes will need to be informed by the final location, layout, and design of the trail. The decision will also need to be informed by what agency or organization owns or is responsible for the trail.
62	Why is there a belief there is a trail already through Emerald Bay? There is not an existing trail above Emerald Bay now though it seems that this plan acts like there is one. We are stakeholders/cabin owners in the Emerald Bay Tract and our water systems, which are very fragile, as is the water source for the Vikingsholm, have sources on that hillside. As well as being an avalanche area, the area is very steep and rugged. There is not a trail there now. Why is there a belief there is a trail there already?	The map background is the current available basemap from the BLM. NCE will ask the USFS if they have a more current or accurate basemap. The sensitivity of this area is noted and will be considered as part of the evaluation process.
63	If everything goes smoothly, how soon would we be able to ride a bike from Meeks Bay to Camp Richardson?	Completing planning, design, permitting, funding, and construction for the full corridor will take many years - and potentially decades.
64	Are all 19 evaluation criteria equally weighted?	Yes, all evaluation criteria are equally weighted.
65	Is there an estimate of how much traffic reduction will occur if the trail is implemented?	The SR 89 Corridor Management Plan conducted travel analysis on the strategies and priorities identified in the plan. The travel study did not estimate reduction in traffic from the trail alone.
66	I didn’t hear directness as an evaluation criteria. I think it’s valuable to consider how efficient it would be for a cyclist to take the path. If not efficient, some people will take the road instead, increasing safety risk.	This comment is noted and will be further discussed.

67	Mr. Rios mentions "user experience" very frequently. I would hope that taxpaying property owners that have invested a lot to enjoy being Tahoe residence will have priority over the visitors experience. One option considered is very close to my property on Glen Drive. I strongly suggest sticking close to HW 89 and not an excursion up the hill.	The Access & Operations evaluation criteria does include consideration for land ownership. The Feasibility Study places an emphasis to aligning the trail on public land. The concern of property owners is noted and will be further discussed.
68	In past meetings, both onsite and online, I was told you were going to try to limit the number of times the trail would cross hwy 89. Will you continue to stay with this concept?	A goal is to minimize the number of crossings within the corridor. Several evaluation criteria will help support a minimum of crossing, including cost, constructability, environmental, and user experience.
69	How wide would the trail be? Aside from hikers, what type of users would be expected on the trail - bikes, e-bikes, horses, dogs, other motorized vehicles?	The width of the trail is unknown at this time. The goal is to identify an alignment that includes as much Class 1 trail as feasible within this corridor. Class 1 trail is typically a minimum of 8-feet wide, and sometimes 10-feet wide. The recommended trail width and gradient details will be influenced by many factors, including slope, land ownership, physical constraints right-of-way, etc.. Tahoe is determined by the land manager where the path is located. For example, California State Parks does not allow e-bikes to be used on trails within their lands. Therefore, any decision on e-bikes will need to be informed by the final location, layout, and design of the trail. The decision will also need to be informed by what agency or organization owns or is responsible for the trail.
70	we are considering the route of a ROAD why are you calling it a trail?;;my mistake, I understand the topic now. Excellent presentation in my opinion. Will bike access be considered?	The trail is for those walking and bicycling.
71	How do the Rubicon west of HWY 89 routes provide for accessibility and safety transiting to connect to existing Meeks Bay trail termination for persons (whether resident or non-resident / second homeowner) residing in north Rubicon area? How does this plan consider other plans to remove pedestrians from HWY 89 in and around Emerald Bay?	The intent of any preferred alignment through the Rubicon Segment will be a connection to the Meeks Bay segment and specifically the Meeks Bay Resort and Campground. The locations and details of the connection, including any crossings of the highway, will be identified through this Feasibility Study. TRPA and the Feasibility Study team are communicating with other programs and projects ongoing within the corridor, including transit and facility improvements aimed at addressing safety within the corridor.
72	The HWY 89 roadway is incredibly dangerous. For example, Just recently my wife (ER Physician) and myself (fire / medic) rendered care to an auto vs. ped with serious limb threatening injuries. In my car I've been hit by a car driving left of center distracted by views. Did I hear correctly that a main objective of this plan is to increase safety by minimizing highway 89 crossings and getting peds off the roadway?	A goal of the SR 89 Corridor Management Plan is to advance safety throughout the corridor. Planning and implementing a trail within the corridor was identified as one of the ways to achieve this goal.
73	For the colors of the proposed trails, is the blue color the preferred path? What does green color	The colors of the lines on the map represent different options for those segments where multiple options exists.
74	I and my Rubicon neighbors are very concerned with the seemingly only part of the entire trail that goes directly through a quiet neighborhood- Glen drive. It seems as if you've made up your mind already especially when hearing of your criteria.	No decision has been made on a preferred alignment. The Feasibility Study is intended to evaluate potential alignments and select a preferred alternative. The desire to not have the trail within the Rubicon Neighborhood is noted.
75	what will the total cost of this project be and have you considered the cost vs number of people that will actually use this very steep trail	Total project costs are unknown at this time. Preliminary estimates will be developed once a preferred alignment is selected and concept designs are prepared.
76	I am curious about tonight's attendance. Can you let us know how many persons are attending?	The October 25, 2021 public workshop #1 had 157 attendees.
77	Who do Jason, Dave, and Drew, work for? What is NCE? Where is their office located? Do any of them own property in the Tahoe basin?	NCE is a local Engineering and Environmental Consulting Firm with an office in Stateline, NV. NCE has significant experience working on trail planning and design projects in the Lake Tahoe Basin. Jason Drew, Dave Rios, and several other NCE staff are full time residents and property owners in the Lake Tahoe Basin.

CASCADE TO MEEKS TRAIL STUDY

Community engagement summary

Cascade to Meeks Bay Trail

The information below is a snapshot of our initial outreach efforts and the feedback received during the first phase of the Cascade to Meeks Trail Feasibility Study.

Overview of multi-pronged approach

Survey, emails, zooms

5,014 Total number of emails sent.

122 Number of people who attended the 1st informational Zoom workshop.

187 Number of people who responded to our online survey.

93 Number of residents who participated in our six small listening sessions.

What we heard

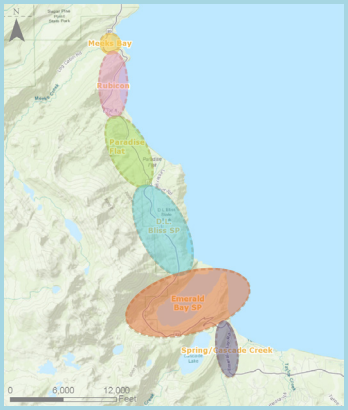
Support

- Excitement and desire for new trail opportunities
- Opportunity to deal with parking and traffic
- Needed expansion of the current trail system
- Needed amenity to improve safety within the corridor
- Improve access to public recreation sites and facilities

Top Concerns

- Parking
- Safety
  - Private property concerns
  - Trash
  - Trespassing
  - Noise
- Environmental impacts
  - Wildlife
  - Slope stability
  - Water source protection
- Encourage more visitors and tourists

Snapshots of segment feedback



Meeks Bay
- Parking and safety along SR 89 important issues
- Minimize road crossings
- Desire trail for improved access to recreation amenities
- Keep trail away from highway
- Keep trail out of neighborhood

Rubicon
- Concerns about parking, trash, and trespassing in neighborhood from trail users
- Keep trail away from highway
- Keep trail out of neighborhood

Paradise Flat
- Concern about safety and experience of trail near highway

D.L. Bliss SP
- Opportunity to keep trail away from highway
- Protect environmental resources
- Minimize slope to improve accessibility to larger group of users

Emerald Bay SP
- Concern about congestion, safety, and parking
- Protect environmental resources
- Keep trail away from highway
- Keep trail away from cabins

Spring/ Cascade Creek
- Keep trail away from highway
- Keep trail out of neighborhood
- Minimize road crossings

Attachment 7:

Tonight's Info Session

1. Introductions
2. Zoom Norms
3. www.westshoretahoetrail.com
4. Survey!

SR 89 Trail Feasibility Study Project Area

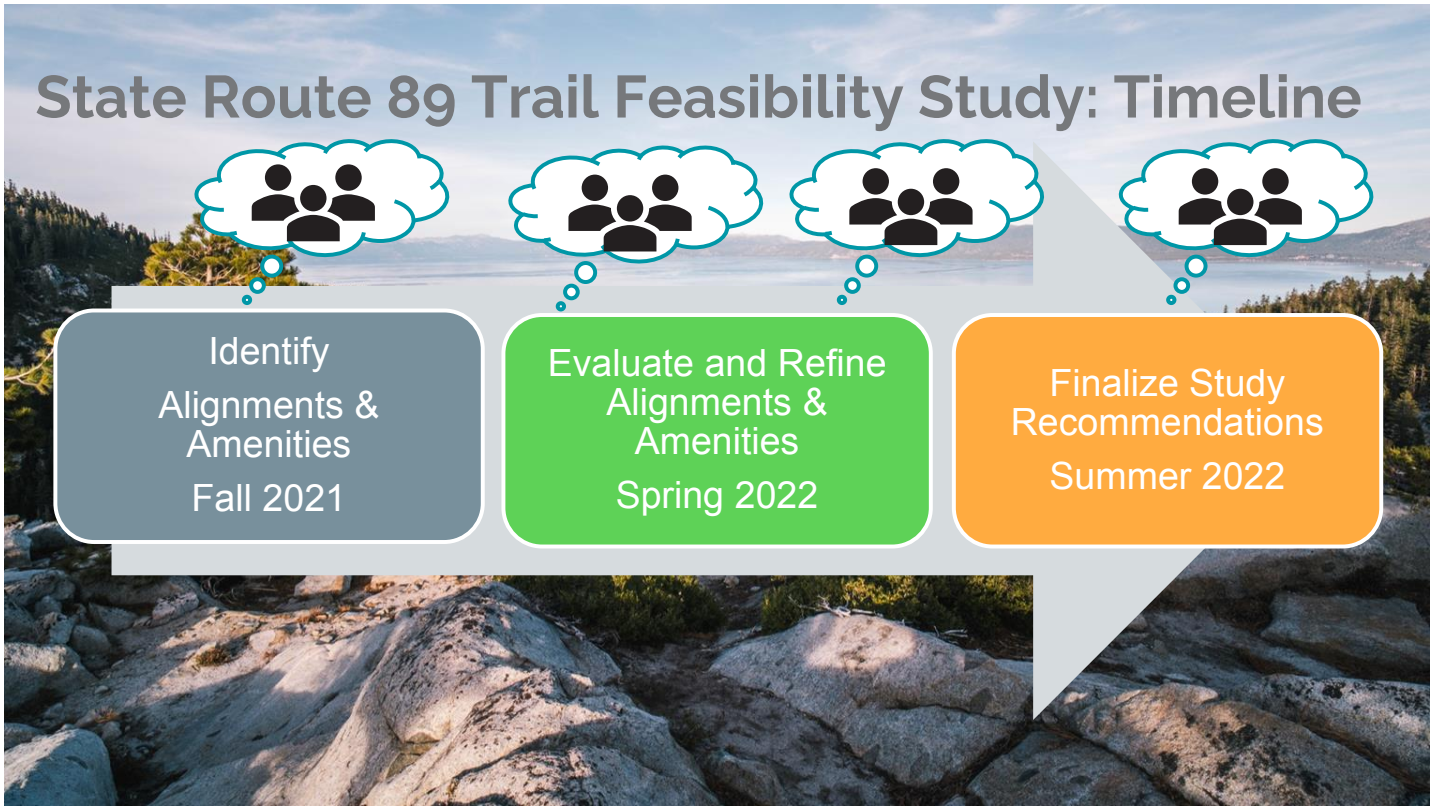
Goals

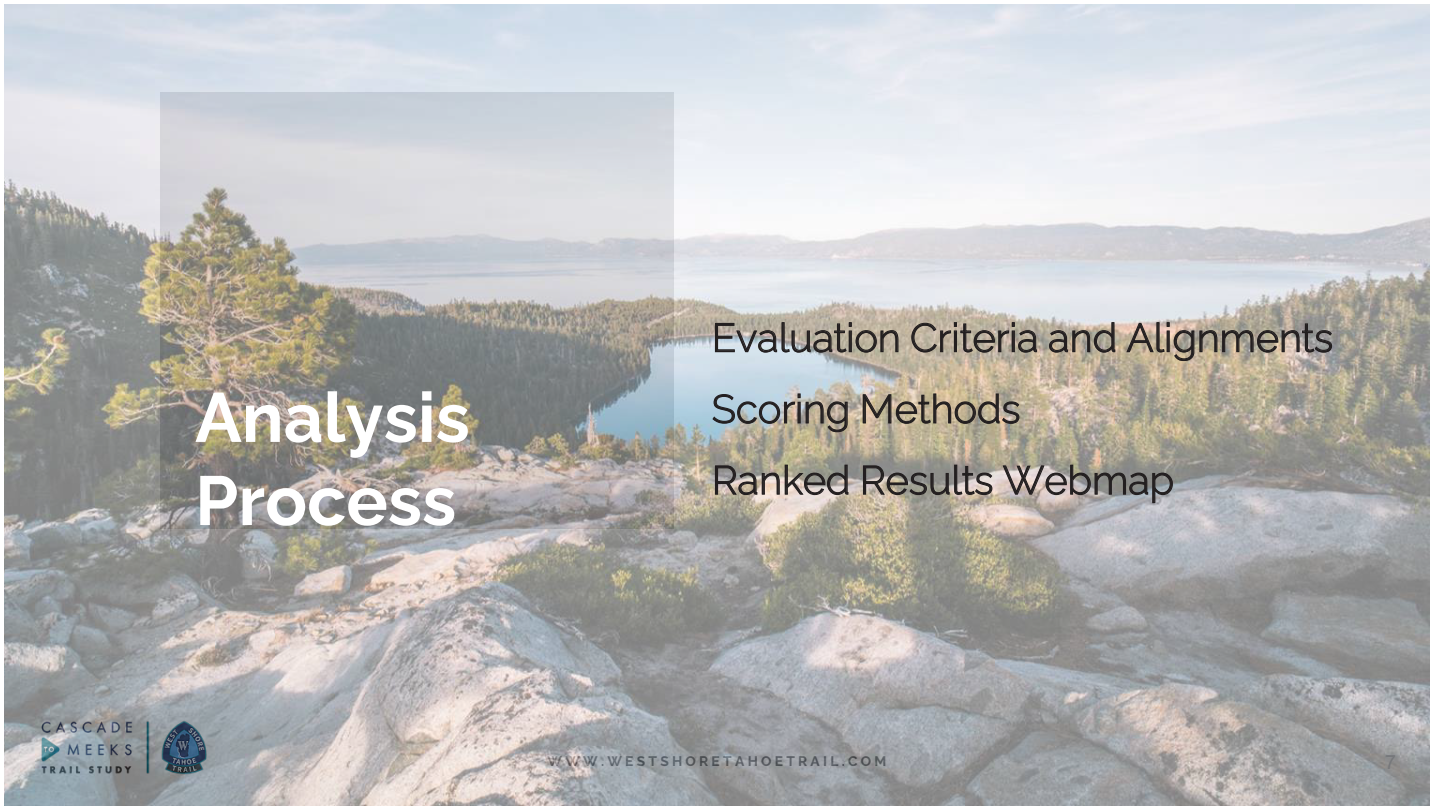
1. Identify feasible alignments and amenities
2. Provide a trail experience for all
3. Improve user experience
4. Sensitive to the environment
5. Focused on sustainable design
6. Improve connectivity

SR 89 RECREATION CORRIDOR IMPLEMENTATION PLAN


Related Plans & Projects
Tahoe Metropolitan Planning Organization
TAHOE REGIONAL PLANNING AGENCY
REGIONAL TRANSPORTATION PLAN
MOBILITY 2035
TAHOE METROPOLITAN PLANNING ORGANIZATION
TAHOE REGIONAL PLANNING AGENCY
lake Tahoe
TAHOE REGIONAL PLANNING AGENCY
SR-89 Corridor Management Plan
September 2020
ASCENT
SECOND SCREENCHECK DRAFT
DRAFT ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT STATEMENT/ENVIRONMENTAL IMPACT REPORT
Meeks Bay Restoration Project
WATER BOARDS
TAHOE REGIONAL PLANNING AGENCY
Completion of the Tahoe Trail
Transit & reservation system during the summer months and peak weekends
Roadside parking restricted/ relocated with increased enforcement and fine
4

Planning Partnership


State Route 89 Trail Feasibility Study: Timeline
Identify
Alignments & Amenities
Fall 2021
Evaluate and Refine Alignments & Amenities
Spring 2022
Finalize Study Recommendations
Summer 2022


Analysis Process
Evaluation Criteria and Alignments
Scoring Methods
Ranked Results Webmap
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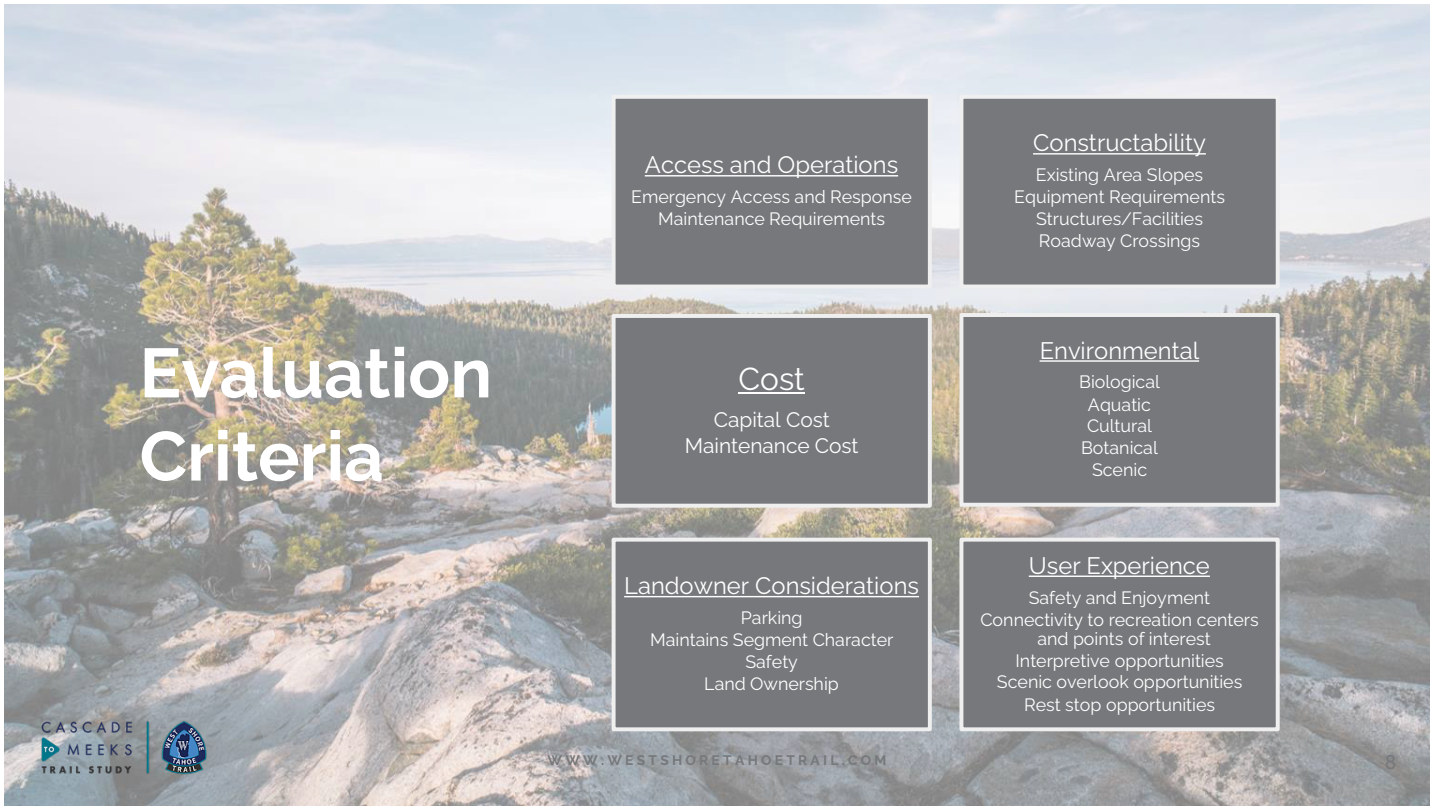
Evaluation Criteria
Access and Operations
Emergency Access and Response
Maintenance Requirements
Constructability
Existing Area Slopes
Equipment Requirements
Structures/Facilities
Roadway Crossings
Cost
Capital Cost
Maintenance Cost
Environmental
Biological
Aquatic
Cultural
Botanical
Scenic
Landowner Considerations
Parking
Maintains Segment Character
Safety
Land Ownership
User Experience
Safety and Enjoyment
Connectivity to recreation centers and points of interest
Interpretive opportunities
Scenic overlook opportunities
Rest stop opportunities
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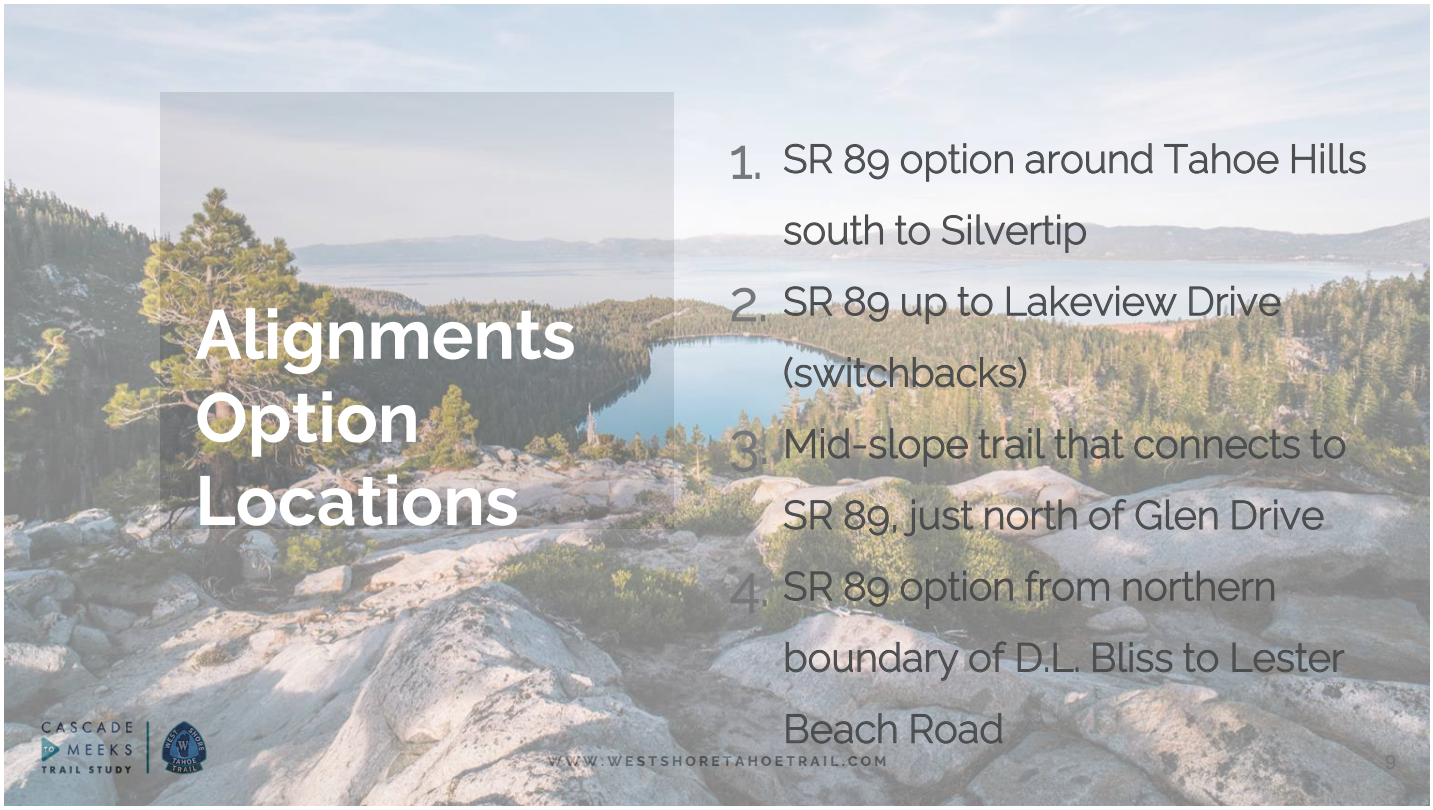
Alignments Option Locations
1. SR 89 option around Tahoe Hills south to Silvertip
2. SR 89 up to Lakeview Drive (switchbacks)
3. Mid-slope trail that connects to SR 89, just north of Glen Drive
4. SR 89 option from northern boundary of D.L. Bliss to Lester Beach Road
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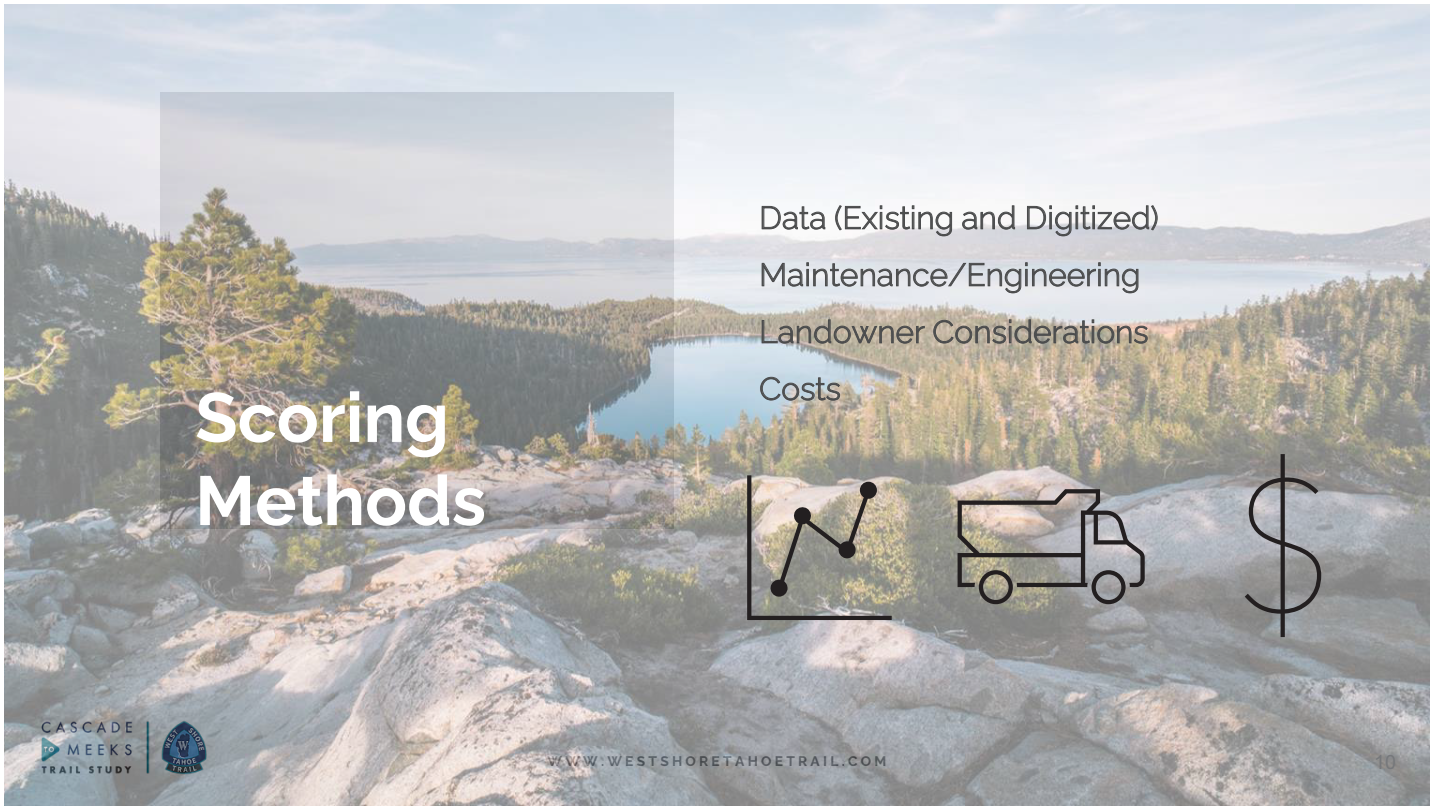
Scoring Methods
Data (Existing and Digitized)
Maintenance/Engineering
Landowner Considerations
Costs
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Scoring - Environmental

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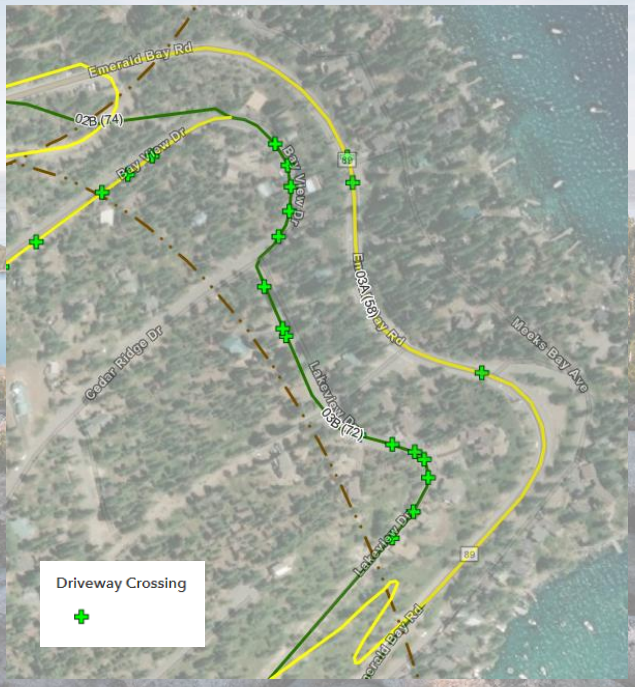
Constructibility

Scoring – Landowner Considerations



CASCADE TO MEEKS TRAIL STUDY

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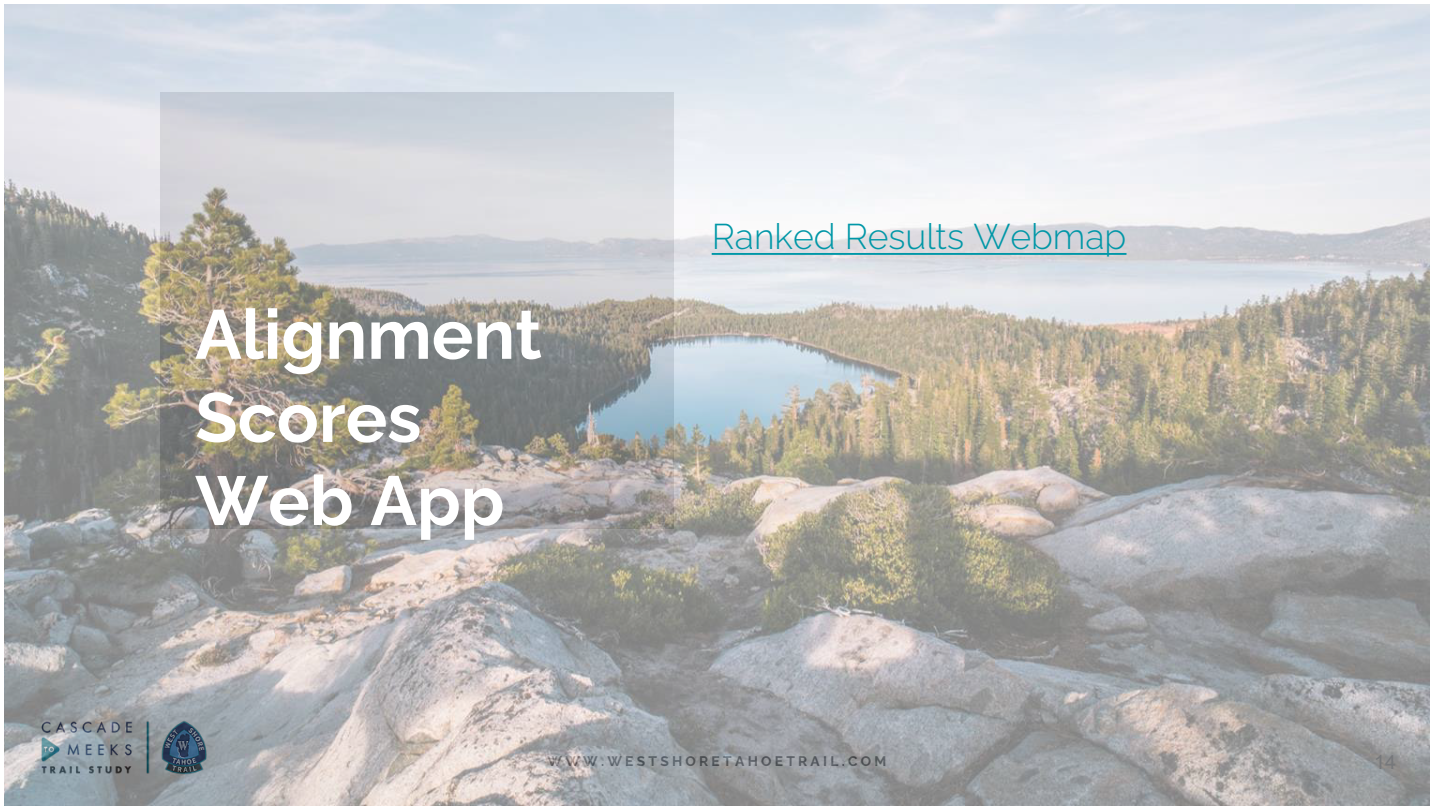
Ranked Results Webmap
Alignment Scores Web App
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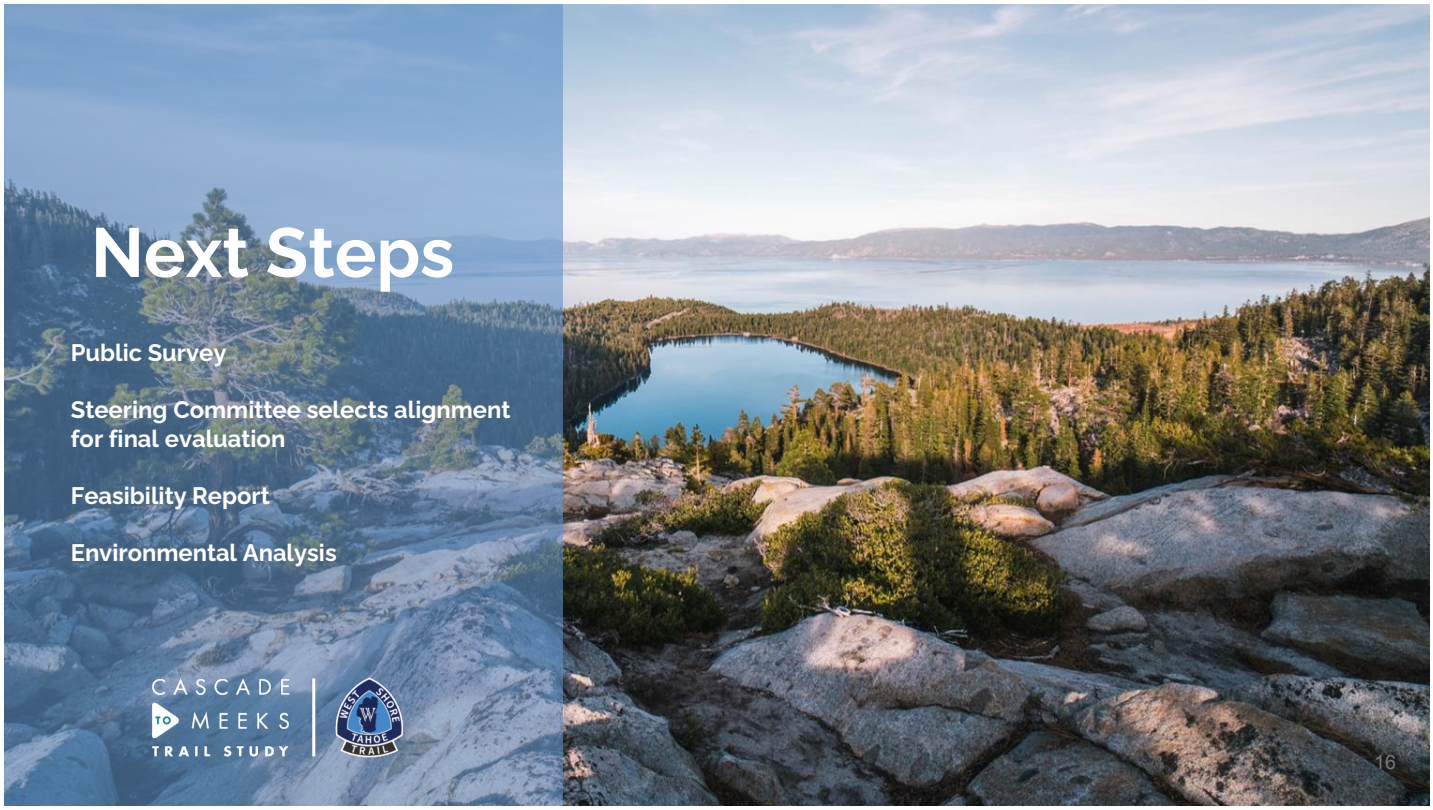
Q & A
Raise Hand
or Post to
Chat
CASCADE
TO MEEKS
TRAIL STUDY
WEST SHORE
TAHOE
TRAIL
15


Next Steps
Public Survey
Steering Committee selects alignment for final evaluation
Feasibility Report
Environmental Analysis
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Thank you!
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Question:	Answer:
Can you provide the colorful trail options in a scale large enough so we can see the streets in Rubicon and then if you can add their street names then we can more easily see just where the trail options are	Street names were added to webmap and to trail alignment segment PDFs
Please identify street names on the map at westshoretahoetrail.com	Street names were added to webmap and to trail alignment segment PDFs
1) above ground Flashing Lights, signage, marking, at Hwy 89 crossing for Segment alignment 02B; 2) agree with switchbacks on SR89 up to Lakeview Drive to provide more gentle slope.	comment noted
Where will you evaluate where people will park to access the path? While adding the criteria for public parking access/distance as deterrent is appreciated, that still doesn't address where people WILL park.	The State Route 89 Corridor Plan also identified improved transit, real time travel information, and parking management as strategies to relieve congestion. TRPA, State Parks, Caltrans, El Dorado County, and the Forest Service, and the Tahoe Transportation District are exploring a pilot parking management program and seeking funds for transit. The Trail Feasiblity Study will not evaluate parking as it is being considered and planned for by other efforts in the Corridor.
Can you also provide pdfs of the routes/scores?	Information included on the website includes Evaluation Criteria & Scoring Measures, Criteria Definition and Data Sources, Quantitative Scores, Feasibility Analysis "Step by Step", trail alignment segment PDFs, and the Ranked Results webmap.
If there is no option for the black line segment then what side (lake or mountain) of Highway 89 will the trail be built on above Rubicon Drive?	Portions of the corridor presented with a black line segment are locations where the trail is envisioned to be constructed within the public right of way. The specific side of the public right of way will be determined in the future design phase of the project.
What will be done with the surveys? How will they affect decisions?	The survey results will be provided to the Steering Committee as data and information to consider in determinging the trail alignment to be further evaluated as part of the Feasibility Study. The Steering Committee will be provided other information including the Fall 2021 public input, results from the feasibility analysis, survey results, and feedback obtained in Summer 2022.
You should add inverse condemnation damages to routes close to homes for privacy and related impacts of public use.	comment noted
89 is not flat around Tahoe Hills. Bay View Drive and Lake View Drive are both quite steep, it appears from the map (and we walked it) that the trail comes up to Bay View drive near the top of the hill which will help with the slope issue. But that location of the street is quite narrow and can be dangerous for pedestrians and bicyclists as cars come fast around this blind corner. Lake View up to the the end of the paved route is quite steep and will be difficult for many cyclists. But as mentioned this is a challenging section for either the 89 or the neighborhood option.	comment noted
Have you addressed why BOTH sides of Highway were not evaluated for the alignment? The southern section of Rubicon is labeled as "unevaluated" and it looks like only the east side of 89 is being used.	Portions of the corridor presented with a black line segment are locations where the trail is envisioned to be constructed within the public right of way. The specific side of the public right of way will be determined in the future design phase of the project.
How do we have impact on the decision on the alignment in southern Rubicon? Actual steps we can take?	Please sign up on our mailing list, visit the website fequently, participate in public meetings and provide oral and written comment, respond to surveys, participate in future public workshops and meetings, and stay informed as implementing agencies move trail segments into the design/environmental phase.
How well defined (actual location of the trail) are each of the alignments in each segment? Have all the proposed alignments been walked in the preparation of the evaluation? It's easy to draw a line on a map, but it is often far different to get out and walk a proposed alignment. One may see things that cannot be understood from a map or a LIDAR scan. For example, in one case alignment 2B traverses an area that has a stairway up a very steep hillside. (I am not an engineer and I know engineers can solve most issues like this, but it still makes me wonder how a wide trail – 8-10' or more – will make it up or across some an area like this at reasonable gradients.)	The trail alignments are defined only to the planning scale for the purposes of the Feasibility Study. The specific or exact location, deminsion, and profile of the trail will be determined in the future design/environmental phase. TRPA and the consulting team have walked each of the proposed alignments multiple times. In addition, the alignments have been photographed, mapped, and evaluated with geospatial mapping tools. The team is aware of the many unique physical and spatial constraints associated with each alignment.
What standard is the trail to be built to? Paved? Width of pavement or tread? Width of shoulders? Maximum gradient? Is the trail expected to look more like the section of trail through Sugar Pine Point State Park or the section of the trail from the State Park to Meeks Bay Resort?	The trail is envisioned to be a class 1 separated path. Class 1 paths typically include a paved 10 foot trail with 2 foot unpaved shoulders on either side of the trail. However, the specific dimensions and type of trail has yet to be determined and there are likely several places within the corridor where a standard Class 1 trail may not be feasible.
For alignments along SR89, how much right-of-way exists to either side of the SR89 roadway? Is there a standard distance you expect to keep between the fog line on the roadway and the trail? Is the roadway centered in the right-of-way or does the roadway meander?	An initial review of the Caltrans ROW width suggests there is adequate area to construct a trail. The ROW location does vary across the corridor; however, for alignments envisioned to be within the public right of way, a separation between the roadway and trail is desired. None of these specifics have been determined and are not part of this feasibility study.
Related to the right-of-way question above, how is this project accounting for the storm water facilities that were recently constructed all along SR89, mostly, or perhaps, in the SR89 right-of-way? Within this segment there are storm water facilities on each side of SR89 just south of the Meeks Creek bridge/box culvert that appear to occupy the available right-of-way.	Existing facilities, including stormwater facilities, will be considered as a part of the design of any trail segment. They will be accomodated or integrated with any changes in locations where both existing facilities and the trail are proposed.
How/where will Meeks Creek be crossed in both of the proposed alignments? The current bridge/box culvert does not appear wide enough on either side to accommodate the trail. Is a separate bicycle/pedestrian bridge being proposed? Are you working with the Meeks Bay Restoration Project regarding the creek restoration both upstream and downstream from the SR89 crossing and/or a possible replacement of the existing bridge/box culvert with a bridge which is being considered? This could be an opportunity for a separated grade crossing of SR89 if that might create the possibility of a more favorable alignment of the Tahoe Trail.	The Feasibility Study is coordinating with the Meeks Bay Restoration Project. The final alignment selected for the trail will determine the location for the crossing. There is potential for inclusion with a new bridge facility on the Caltrans right of way or a seperate trail specific crossing on the meadow or lake side of the highway.
When Roadway Crossings are discussed in the evaluation of Constructability criteria is this only for SR89 or does it include other roads, driveways, entranceways (Meeks Bay Resort, Meeks Bay Campground) and the Firehouse apron?	Roadway crossings as part of the evaluation criteria only relate to crossings of Highway 89.
Will the current parking along SR89 in the vicinity of the Desolation Wilderness trailhead be impacted by either alignments 1A or 1B? In what ways? Could this project address improving the parking along SR89, particularly in making it much clearer where parking is and is not allowed?	There is potential for the trail to intersect with existing formal and informal parking near the Desolation trailhead. The Feasibility Study is coordinating with Caltrans, the USFS, and the Meeks Bay Restoration Project and parking in this area is being considered. All parties are looking for opportunities to improve safety and parking accessibility in the area.
It sounds as if this study is evaluating "corridors" rather than actual "alignment" - is this an accurate understanding?	No. Trail alignments are being evaluated. The Feasibility Study will include the Steering Committee selecting a single alignment from the existing options for further refinement and evauation as part of the Feasibility Study. The Highway 89 Recreation Corridor Plan recommends that a trail be studied as one of the strategies to address congestion.
Why was a 1-3-5 scoring system adopted? (What happened to 2 and 4? They could provide some nuance to the process!) If only using three values, why not a 1-2-3 system? Also, is the scoring based on some standard across all segments and alignments or is it comparative to roughly "parallel" alignments (ones that start at Point A and end at Point B, such as 1A and 1B, although I am not sure the south end of those alignments are in the same location)?	The scoring system was developed based on other similar trail based evaluation efforts and the experience of the Project team. The 1, 3, 5 scoring system allows for clearer seperation between alternative alignments. The metrics applied to each alignment are defined and provided for review on the Project website. The same criteria is applied to each alignment option.
Is there supporting documentation for the evaluation scores that will be made available to the public? It helps to know why certain situations were scored in certain ways.	The scoring results and supporting criteria and metrics are provided within the webmap (click on the actual trail line in the map) and additional scoring summaries and details of the criteria are provided in pdfs on the web page.

Question:	Answer:
Your map is provided by ERSI, as is the TRPA Tahoe Open Data map shown here: https://data-trpa.opendata.arcgis.com/apps/map-maker/explore. It seems that adding the street layer should be pretty easy.	Street names were added to webmap and to trail alignment segment PDFs
E Bikes will be a game changer and need to be part of the planning. The reality is the goal is to minizine / eliminate parking at Emerald Bay, the only way that will happen is with people using E Bikes.	The agencies will evaluate the use of Ebikes on the trail.
Can you address concerns at Emerald Bay (geotechnical analysis, landslide areas, etc.)	Emerald Bay is a challenging location. Readily available soils, geologic, avalanche, drainage, and other information are being used to develop the Feasibility Study. Further engineering, soils, geotechnical, and environmental analysis will be conducted in the future design/environmental phase.
Qualitatively, is there a significant difference between an alignment score of 68 V 70? When alignment scores are close, what is the judgement criteria which will be used in the next phase that has the most impact?	Scoring that results in alignment options with similar scores requires evaluation of how those scores were accumulated. Are their different scores produced by different criteria or were they the same? These results require stakeholders and the Steering Committee to consider qualitative considerations in determining which alignment option should rank higher.
It apears on the map that you are potentially planning on the path running along 89 by Cascade Properties between Cascade Rd and the creek. This portion of the land has a new drainage pond installed, for runoff. How will the path go around this?	The trail alignments are defined only to the planning scale for the purposes of the Feasibility Study. The specific or exact location, deminsion, and profile of the trail will be determined in the future design/environmental phase.
Is it likely that the Emerald Bay segment will be the last one tackled because of its unique challenges?	Emerald Bay is a challenging location. It may result in this segment moving to design/environmental and construction later then other segments.
How do construction costs figure in on a project of this size when all other factors are fairly equivalent? Let's assume everyone agrees on a certain blue alignment, but that segment costs more to build. How much more can be spent to build on the preferred blue alignment v. a different alignment? Thousands, tens of thousands, hundreds of thousands, millions?	Construction costs are one of the evaluation criteria. Preliminary cost estimates will be developed for the alignment included in the Feasibility Study. TRPA and other agency partners will evaluate costs and potential funding sources as a part of next steps in the basin.
Who pays for NEPA on this project?	NEPA development and funding is often determined by the federal lead agency. In the case of the trail that may be the US Forest Service, Army Corps of Engineers, or other federal partner.
Where the blue alignment is proposed in front of Cascade Properties, are there any rest stops, bathroom areas proposed, etc?	The trail alignments are defined only to the planning scale for the purposes of the Feasibility Study. The specific or exact location, deminsion, and profile of the trail will be determined in the future design/environmental phase. Amenities including rest stops and restrooms will be futher evaluated for the highest ranked alignment.
Will the Steering Committee meetings be open to the public?	No, these meetings are internal. However, if the study is presented to a public agency board it would be open to the public.
The potential impacts on residential and private property areas sould be considered.	Comment noted
Trail enjoyment for the landowner as well as the user is important, particularly noise impace, views, litter and trespassing.	Comment noted
I think operational alternatives (buses, boats, shuttles, timed entry) will be very helpful to try out before construction of a trail alternative.	comment noted
Options like a shuttle will be more effective in addressing the traffic concerns than a bike path many people won't use. A better use of resources in my opinion.	The State Route 89 Corridor Plan also identified improved transit, real time travel information, and parking management as strategies to relieve congestion. TRPA, State Parks, Caltrans, El Dorado County, and the Forest Service, and the Tahoe Transportation District are exploring a pilot parking management program and seeking funds for transit.
Appreciate that you've added switchbacks on #2 from 89 to Lake Drive. The switchback are important becauser of the grade. It would be welcome to get people up the grade in a gentle manner.	comment noted
The crossing at 02B - if it's a surface crossing will there be surface painted markings? I would highly recommend signage and flashing lights. Some of the crossings don't have them. It will be important for safety.	The details of any road crossing will be determined in the future design/environmental phase.
Please explain the "not evaluated" black line.	Portions of the corridor presented with a black line segment are locations where the trail is envisioned to be constructed within the public right of way. The specific side of the public right of way will be determined in the future design phase of the project.
I appreciate the attention to Glen Drive. Can you overlay the map with street names?	Street names were added to webmap and to trail alignment segment PDFs
Right at Rubicon Drive near the entrance, there is a power line easement. It looks from the map that the preferred option comes down to Hwy 89. Is it on the hill side or the lake side?	The trail alignments are defined only to the planning scale for the purposes of the Feasibility Study. The specific or exact location, deminsion, and profile of the trail will be determined in the future design/environmental phase.
The analysis is somewhat subjective as to the criteria evaluated, and some of the scoring. There is a difference between 14 points between 89 and Tahoe Hills. I disagree with the scoring on emergency access. Also, there are more slopes on Tahoe Hills than Hwy 89. I think the scoring should be 5 for 89 and 1 for Tahoe Hills. There are far more crossings in Tahoe Hills than Hwy 89. Maintanance is also not scored correctly. If you made those changes, then 89 would be the high score.	Comment noted
It's a steep slope along Meeks Bay Avenue. Yes Hwy 89 is flat but drops off steeply behind many of those cabins, and we will see them from our backyard and decks. There would need to be retaining walls dug into that area. Prefer the trail be on the mountain side of 89.	comment noted
Crossing Meek's Creek, would the trail be included in the discussion of the replacing of the bridge/crossing over the creek?	Yes
What is the reasoning on the scoring for slope on Tahoe Hills and 89? One seems to have quite a few slopes and the other is flat.	Please see the scoring metric definition and the scoring table.
In order to get quality input you need to provide better information than you have now. The maps are not good enough. Improve the map quality. And don't send us to the website to get the information. Send us an email directly.	comment noted
Tell people what the options are for the black line. Let people tell you whether they want the lake or mountain side on the black line.	Portions of the corridor presented with a black line segment are locations where the trail is envisioned to be constructed within the public right of way. The specific side of the public right of way will be determined in the future design phase of the project.
Where exactly will the trail go into DL Bliss at option D?	To be determined
Will public consultation be a part of the process for those who are impacted by what side of the black line is decided?	Yes
Can you break down the segments within Rubicon so we can distinguish the streets more easily?	Street names were added to webmap and to trail alignment segment PDFs
Is it as a general cheaper to build the trail into the upslope side or the downslope side?	Depends on type and size of trail and site conditions.

Attachment 9:

Cascade to Meeks Trail Feasibility Study

June 22 Informational Sessions & Survey Results

Zoom Information Sessions held on:

June 6, 2022

June 8, 2022

June 16, 2022

105 total participants *in the* **3** Informational Sessions

Information Presented During the Zoom Sessions:

1. Purpose of the Feasibility Study
2. Feasibility Study Process
3. Results of the Analysis
4. Feasibility Study Next Steps
5. Future Project Phases

Major Themes or Topics Discussed During the Zoom Sessions

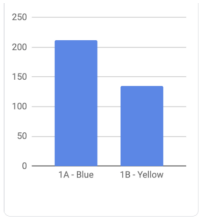
· Desire for more map segment detail
· Specific questions about design and construction
· Specific comments about where to locate the trail on Hwy 89
· Questions about scoring reasoning/discrepancy
· Impacts on residential land (noise, litter, etc.)
· Parking

Survey

Following the Zoom Informational Sessions, a survey was sent to session participants as well as the 1100+ individuals who have opted in to receive project emails. There were 348 respondents to the survey.

1A and 1B

1A Blue 212, 1B Yellow 135

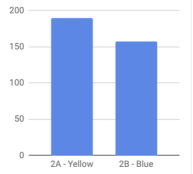


Most | Least

VALUE	FREQUENCY
1A - Blue	212
1B - Yellow	135

2A and 2B

2A Yellow 190 , 2B blue 157

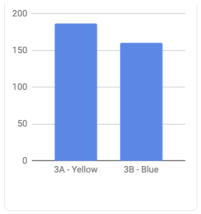


Most | Least

VALUE	FREQUENCY
2A - Yellow	190
2B - Blue	157

3A and 3B

3A Yellow 187, 3B Blue 160

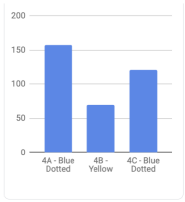


Most | Least

VALUE	FREQUENCY
3A - Yellow	187
3B - Blue	160

4A, 4B and 4C

4A Blue 157, 4C Blue 121, 4B Yellow 69

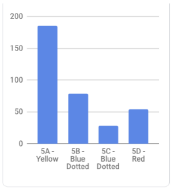


Most | Least

VALUE	FREQUENCY
4A - Blue Dotted	157
4C - Blue Dotted	121
4B - Yellow	69

5A, 5B, 5C and 5D

5A Yellow 186, 5B Blue 79, 5D Red 54, 5C Blue 28

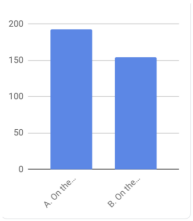


Most | Least

VALUE	FREQUENCY
5A - Yellow	186
5B - Blue Dotted	79
5D - Red	54
5C - Blue Dotted	28

Paradise Flat Black Line Segment: Please choose which side of the highway is preferred for each segment. #1. Glen Drive to Rubicon Drive

Mountain Side 193, Lake side 154

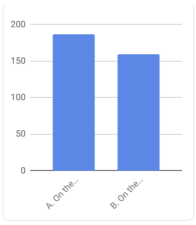


Most | Least

VALUE	FREQUENCY
A. On the mountain ...	193
B. On the Lake side ...	154

Paradise Flat Black Line Segment:Please choose which side of the highway is preferred for each segment. #2. Rubicon Drive to Scenic Drive (south)

Mountain side 187, Lake side 159

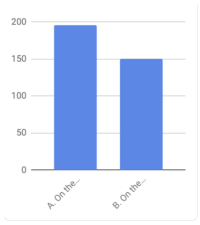


Most | Least

VALUE	FREQUENCY
A. On the mountain ...	187
B. On the Lake side ...	159

Paradise Flat Black Line Segment: Please choose which side of the highway is preferred for each segment. #3 Scenic Drive to Four Ring Road

Mountain side 196, Lake side 150

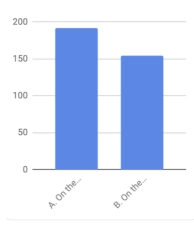


Most | Least

VALUE	FREQUENCY
A. On the mountain ...	196
B. On the Lake side ...	150

Paradise Flat Black Line Segment:Please choose which side of the highway is preferred for each segment. #4 Four Ring Road to DL Bliss State Park

Mountain side 192, Lake side 154

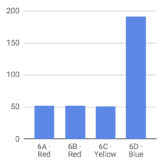


Most | Least

VALUE	FREQUENCY
A. On the mountain ...	192
B. On the Lake side ...	154

6A, 6B, 6C and 6D

6D Blue 192, 6A Red 52, 6B Red 52, 6C Yellow 51

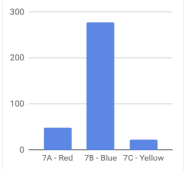


Most | Least

VALUE	FREQUENCY
6D - Blue	192
6A - Red	52
6B - Red	52
6C - Yellow	51

7A, 7B and 7C

7B Blue 277, 7A Red 48, 7C Yellow 22

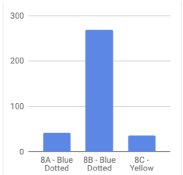


Most | Least

VALUE	FREQUENCY
7B - Blue	277
7A - Red	48
7C - Yellow	22

8A, 8B and 8C

8B Blue 269, 8A Blue 42, 8C Yellow 36

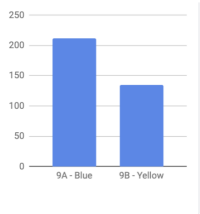


Most | Least

VALUE	FREQUENCY
8B - Blue Dotted	269
8A - Blue Dotted	42
8C - Yellow	36

9A and 9B

9A Blue 212, 9B Yellow 135

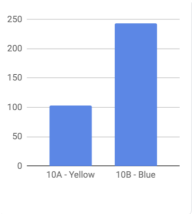


Most | Least

VALUE	FREQUENCY
9A - Blue	212
9B - Yellow	135

10A and 10B

10B Blue 244, 10A Yellow

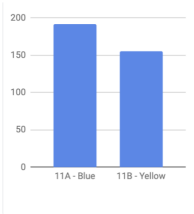


Most | Least

VALUE	FREQUENCY
10B - Blue	244
10A - Yellow	103

11A and 11B

11A Blue 192, 11B Yellow 155



Most | Least

VALUE	FREQUENCY
11A - Blue	192
11B - Yellow	155

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FOR IMMEDIATE RELEASE

Cascade to Meeks Trail Study Ready for Review

The community is invited to learn more about the draft report.

South Lake Tahoe, CALIF. (Monday, February 6, 2023) – After nearly two years of research, public input, and analysis the draft report of the Cascade to Meeks Trail Study is ready for public review.

The need for a public trail along State Route 89 on Lake Tahoe's west shore was identified as a priority project in 2020 to address the negative impacts of the extremely high and growing visitation levels along this stretch of roadway.

The Trail Study was launched in 2021 with a spirit of collaboration among sponsor agencies, key stakeholders, members of the general public, trial users, and property owners. The input received through the many public meetings held on the Trail Study was critical to defining the overall evaluation criteria, deciding on the preferred trail alignment, and analyzing the feasibility of constructing the trail.

The public is invited to again provide their input on the Cascade to Meeks Trail Study. A public webinar will be held via Zoom on January 16th at 4 p.m. to review the draft report and its findings.

Please visit the project website at www.westshoretahoetrail.com to register for the webinar, view the draft report, and submit public comment. The public comment period will close on March 3.

###

I've ridden or driven from the Meeks area to south shore for over 50 years. I absolutely cannot believe you are considering adding/putting bike and walking trails in this segment. I see the traffic by emerald bay and the parking nightmare for visitors.
The solution? Establish water taxis from Meeks (or sugar pine point or someplace else) to points south. Have stops at bliss, emerald bay, etc. Bikers can take their bikes on the taxis. The cascade to Meeks area has nothing for cars to stop at - no gas stations, stores, etc.
This area is filled with homes of people. It's not a resort destination. I realize people will still drive, but given an option, they might explore this area by water taxi. Find areas at both ends for increased parking. Plan for a few
Where do you propose parking for all the people who want to access the trail? The Incline Village lakeside trail is inaccessible due to no parking.
Maybe even have an express taxi service that doesn't stop in addition to those that stop at various points. Walkers, cyclists and cars DO NOT belong near each other on this stretch of the lake. You are asking for trouble.
I really like the idea of this trail and the design that you've developed. I look forward to being able to use this great amenity. At what I calculated to be an estimated $325M+, I'll be curious to see if you can obtain funding for it (and over what timeframe), but hopeful that you can. Thanks for all your hard work in putting this together.
I reviewed 51-58 and 91-92. More familiar. I do not mean for this to be included in a formal list of comments. These are suggestions for your consideration. Thank you.
As a cabin owner in Upper Emerald Bay track I hope to see this done in my lifetime. This is good for the environment it's good for the traffic it's good for the people. I support this project 100 percent.
Pertaining to the section of bike road from Bliss through Emerald Bay, the Zoom on 2/16 spoke volumes. The most delicate, difficult, and expensive segment was glossed over with very little time dedicated to discussion. There were no logistics or artist renderings and only rough cost estimates. In short, no plan. It's unconscionable to proceed with a project that will forever scar the crown jewel of Lake Tahoe with a "we'll figure it out as we go" strategy. The objective should be the protection of such a resource. To desecrate it with a monolithic human
The intent of this trail is noble. The evaluation of path forward has been lost. No where does this trail through Rubicon North west of Moutnain Dr increase public safety. The trail needs to be realigned east of SR89 even at the objection of wealthy parcel owners. Rubicon residents will not have an access point. Serenity by green space bordering wilderness lost. Criminal behavior more enticing with an alternate travel path out of area. Cost of construction highest. Greatest soil disruption. Inconsistent application of regulation created by this entity.
The off-highway alignments from D.L. Bliss through Emerald Pay Point should all be abandoned. The massive retaining walls required to support the proposed 10-foot wide road would permanently disfigure National Natural Landmarks and TRPA Scenic Resource Areas. It is dumbfounding that any responsible, environmentally sensitive person, would give any passing consideration to these supposedly "buildable projects." Their negative impacts cannot be mitigated. The damage would be devastating and irreversible. Please do the right thing, and abandon all of these off-highway and mid-slope alignment.
I love Appendix C with the existing bike trail examples. My husband and I are eternally grateful for SLT, Meyers, and East Shore bike trails. If we were among the 1%, we would happily fund this Cascade-to-Meeks project that will bring so much joy. Please consider prioritizing the Emerald Bay Vikingsholm segment. Currently this buildable project is last in the sequencing. It seems it would have the largest impact on public opinion. The current congestion and safety of this portion of the corridor is seriously horrendous!
We own the 5 parcel land where the scenic overlook in cascade is proposed. We are vehemently against that location. Tourists encroach/trespass on private property and generate massive litter. Trail should be on the mountainside of SR 89 not the Lakeside. That would be less destructive to the environment and would respect private property rights. Stephen Monahan 704.458.3504; 530.542.4748. Stephen.t.monahan@bofa.com Thank
Thank you for the opportunity to comment.

I am highly concerned that a new highly-engineered mid-slope road for bikes around nearly the whole bay has been deemed preferred alignment. This alignment has obvious major impacts to viewshed and environment on a world-treasure and National Natural Landmark. Process used to arrive at preferred designation has obvious flaws, subjectivity, biases, and limitations. Appropriate consideration does not appear to be given to seemingly better options that meet the same goals in an equal or superior fashion with far less impact, and are also more
The proposed trail plan in a National Natural Landmark and TRPA Scenic Resource Area should not be approved by TRPA. The plan's retaining walls will reach up to 39 feet, exceeding TRPA's 24-foot height limit in these areas, and will mar the view from every vantage point. To put this into perspective, the great wall of China, visible from outer space, has an average height of 26 feet and an average width only 5 feet wider than the proposed plan. Moreover, the narrow purpose of the project does not justify the expenditure of $327 million of public funds.
The section of proposed bike trail above Cascade Property would impact the safety of cyclists, pedestrians and residents of Cascade Property. The area above Cascade Property is steep with difficult to navigate curves. The lakeside proposal of the trail would impact erosion as the area is deeply scarred from recent wildfires and has not begun to recover. The road above Cascade Properties has been the scene of horrific accidents in the past and the guardrail was placed due to the dangerous road conditions in this area. Placement of path on
The Cascade to Meeks plan is reckless and wasteful and threatens to permanently damage one of the countries most beloved Natural National Landmarks. Retaining walls towering up to 39’ and construction in steep, unstable terrain pose an immediate danger to the surrounding ecosystem, which cannot be underestimated. Moreover, the plan represents a gross misappropriation of public funds, with the cost of over $327 million unjustifiable for the narrow purpose of creating a bike road. The Tahoe Regional Planning Agency should reject
While I question this very expensive project, I appreciate the vision and goals. I am sure it would be a valuable addition to Lake Tahoe. But Bikers will still bike on the Hwy, Cars will still pile up at Emerald Bay, pedestrians will still walk aimlessly onto traffic on 89. As a LONGTIME homeowner on the Cascade portion of the project, I respectfully urge the planners to NOT make a trail on the lakeside of Hwy 89. But, please respect the landowners above and around Cascade Lake and take measures to protect their private property. Thank you
I really hope you reconsider this ill-conceived project. While my husband and I are avid bikers and are generally in favor of bike paths, this purportedly "feasible" plan would cost well over $300M for 11 miles and would forever alter, for the worse, the iconic Emerald Bay views that people come from around the world to see. There are much cheaper, faster, easier ways to manage traffic through this corridor than ruining Emerald Bay. Please
I hope electric bicycles are restricted on the entire trail or not allowed. They simply move too fast.
Notwithstanding additional SR 89 crossings required for Alignment 11B there seem to be many additional benefits to an uphill West of SR 89 alignment many of the which are in the category of more of a separation of the new trail and significant public use from private land/HOA. On our private and gated roads in our community we are already overrun at times by trespassers, bicycle riders, those seeking lake access. A trail adjacent to our community including across our access roads rather than a separation by SR 89 will create
I’ve been slowly been seeing a lot more bike paths that are either being fixed, updated, or brand new (dirt or pavement), and hopefully whatever trail gets put in to connect from Meeks Bay to wherever it’s gonna be to connect to the the 15th street bike path
While I appreciate the intent for the public good, the overall cost and environmental disruption will be horrific by incorporating this plan; most of those using this plan will still drive to "bike able and walkable" areas and still try to park and will likely increase parking vs decreasing the parking issues. It will disrupt the privacy and cleanliness of communities along this corridor with increase in trash, noise, tourist populations, and environmental disruption of trash and toilet facilities, with NO ONE to take responsibility for all these disruptions and clean up.

The project as envisioned is infeasible. It would damage iconic National Natural Landmark viewsheds in ways that cannot be mitigated. The study authors indicate scenic impacts will be covered in environmental reviews, which will cost millions, and are likely to show these impacts cannot be mitigated. It is doubtful a Lead Agency could make a finding that unmitigated impacts are outweighed by project benefits as required under CEQA. A second major concern should be cost. Does this narrow project result in sufficient benefits to justify taking
The proposed trail in Emerald Bay raises concerns about its impact on the environment and iconic viewsheds. The feasibility report lacks basic quantitative information to evaluate the cost/benefit of the project. The lack of analysis on whether the project is truly feasible raises questions about whether it should proceed. The dangers of mixing pedestrians, bicycles, and E-bikes on a narrow trail and the potential for accidents should be addressed. The narrow purpose of the project does not justify the $327 million expenditure of public funds.
Although I support the idea of a bike path with general access, I think that this proposal does not yet address many issues- facilities for toilets and trash, increased parking for users, increased number of people in the basin, etc. In addition, this proposed extension of the bike path, runs parallel to Cascade Properties individual land parcel and will cause increased noise and access issues for the homeowners there as well as possible
The Emerald Bay Inspiration Point segment includes retaining walls as high as 129’ averaging 15’ high for 16,500 feet (over 3 miles). Other segments have similar data. The report should have included specific information on where these structures would be located and a rendering of their appearance. Lacking this, commentors cannot make meaningful input on scenic impacts, critical in evaluating the feasibility of the project as it passes through this iconic scenic corridor. This information exists now and should not await further design and planning to
The off-highway alignments from D.L. Bliss south through Emerald Pay Point should all be abandoned. The massive retaining walls required to support the proposed 10-foot wide road would permanently disfigure National Natural Landmarks and TRPA Scenic Resource Areas. It is dumbfounding that any responsible, environmentally sensitive person, would give any passing consideration to these supposedly “buildable projects.” Their negative impacts cannot be mitigated. The damage would be devastating and irreversible. Please do the right thing, and abandon all of these off-highway and mid-slope alignmen
Traffic speed is dangerously fast with bicycles in that area. Blind corners!
TRPA should not approve the proposed trail plan in a National Natural Landmark and TRPA Scenic Resource Area. The plan includes retaining walls reaching up to 39 feet, which exceeds TRPA's regulations that limit building heights to 24 feet in these areas. Such walls will mar the view from every vantage point. To put this into perspective, the great wall of China, one of the few man-made structures visible from outer space, has an average height of 26 feet and average width only 5 feet wider than the proposed plan. This is the legacy you
Good parking and alternate transportation plans must be defined and implemented before any new trails are built. Current congestion needs to be addressed and relieved before bringing more people to the area.
As a lover of Lake Tahoe I can not support the preferred alignment at mid slope around Emerald Bay. It would be an environmental tragedy to cut a new road through a glacial moraine, with nesting Osprey, crossing many drainages, and constructing retaining walls taller than some dams. I support the bike path in the position of alignment number 3. This would inevitably bring bikers closer to my cabin but it would spare our beautiful emerald bay
TRPA should not allow the proposal plan to proceed in a National Natural Landmark and TRPA Scenic Resource Area. TRPA's regulations would not permit a building to exceed 24 feet in these areas, so the proposed retaining walls of equal or greater height should not be permitted. Not only does the project fail to meet the basic policy goal of "greatest good for greatest number," it is excessively expensive and environmentally reckless. A more practical, eco-friendly and cost-effective alternative, such as an unpaved hiking trail mid-slope and a biking trail

I am all for getting cars off the road but no evidence has been provided that building a bike path will significantly reduce vehicle traffic.The fact that additional parking hasn't been added makes me think this plan has not been fully thought out. As a property owner in the Cascade area I already have to deal with trash and trespassing on a regular basis and as it is now this plan would only make these problems exponentially worse. I am strongly opposed to the project as there are too many unaddressed issues.
Increase parking at both ends. Water taxis with an express route and multiple stop options. There, I just saved you tens of millions of dollars.

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COMMUNICATIONS • PUBLIC OUTREACH • SOCIAL MEDIA

2021 Media Placements Secured on behalf of TRPA

Press Release:	Title	Outlet:	Date:	Placement
Route 89 Webinar Canceled	Trail study webinar canceled due to Caldor Fire	Sierra Sun	9/10/21	Online
Route 89 Webinar Canceled	Trail study webinar canceled due to Caldor Fire	SouthTahoeNow	9/7/21	Online
Trail Study Meeting Rescheduled	Upcoming webinar to discuss the West Shore Trail from Meeks Bay to Cascade Lake	SouthTahoeNow	10/9/21	online
Meeting Rescheduled	Trail study meeting rescheduled	Sierra Sun	#######	Online + print
Trail Study Meeting Rescheduled	West Shore trail study meeting scheduled for Monday	Tahoe Tribune	#######	Online
N/A	Stakeholders weigh in on Cascade to Meeks Trail	Tahoe Daily Tribune	7/30/22	Online + Print
Study Ready for Review	Cascade to Meeks Trail ready for review; Webinar scheduled	SouthTahoeNow.com	02.08.23	Online
Study Ready for Review	Cascade to Meeks: Meeting set to discuss recommended trail along Tahoe's West Shore	Sierra Sun	02.08.23	Online
Study Ready for Review	Cascade to Meeks: Meeting set to discuss recommended trail along Tahoe's West Shore	Tahoe Daily Tribune	02.08.23	Online
Study Ready for Review	Cascade to Meeks Trail Study Ready for Review	Moonshine Ink	02.10.23	Online

Trail study underway for Cascade to Meeks section of Highway 89

NEWS | Aug 28, 2021

SOUTH LAKE TAHOE, Calif. — The California State Route 89 corridor is one of the most visited and popular destinations within the Lake Tahoe Region. Traffic congestion and year-round visitor demand exceeds current infrastructure during peak times.

After the recent completion of the SR 89 Corridor Management Plan, the creation of a multi-use trail along the lake's southwest shoreline was identified as a high priority need. The planning process to design the Cascade to Meeks section of the West Shore Tahoe Trail has now begun and the public is encouraged to be a part of it.

The first of several upcoming opportunities for community involvement in the trail feasibility study will be an informational webinar at 5:30 p.m. Sept. 14. The webinar link is https://us02web.zoom.us/webinar/register/WN_pzJNt0C1QV2FQXNt0z90LQ. Public comments and questions will be available through the chat function during the webinar.

Cascade to Meeks: Meeting set to discuss recommended trail along Tahoe's West Shore

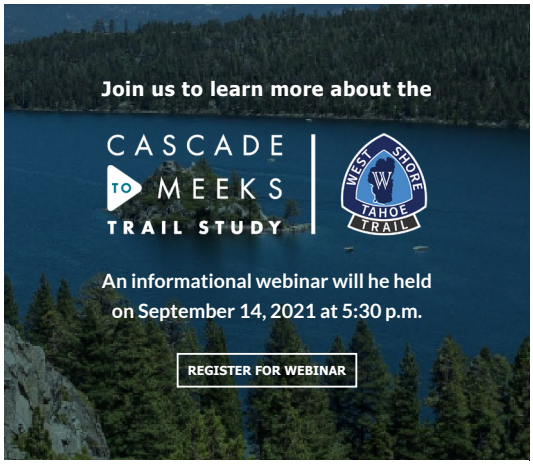
NEWS | Feb 8, 2023

Submitted to the Tribune

SOUTH LAKE TAHOE, Calif. — The draft Cascade to Meeks Trail Study has been released for public review. The study analyzes preferred routes for a paved pedestrian and biking trail along the West Shore from Cascade to Meeks Bay, along with access points and a cost/feasibility analysis.

The SR-89 Corridor Management Plan identified the need for a multi-use trail along State Route 89 on Lake Tahoe's West Shore. The trail is one of several strategies to address high visitation levels, traffic congestion, and public safety concerns within the corridor. The agencies leading the project used the input received through public meetings and surveys to select the trail alignment analyzed as part of this trail study.

The public is invited to learn about the draft report in a webinar to be held via Zoom at 4 p.m. Thursday, Feb. 16. To register for the webinar, view the draft report, and submit comments, visit the project website at http://www.westshoretahoetrail.com. The public comment period closes March 3.



The State Route 89 corridor is one of the most visited and popular destinations within the Lake Tahoe region. Traffic congestion and year-round visitor demand exceeds current infrastructure during peak times. After the recent completion of the SR 89 Corridor Management Plan, the creation of a multi-use trail along the lake's southwest shoreline was identified as a high priority need. A feasibility study to examine the constructability of this segment of the West Shore Tahoe Trail, dubbed the Cascade to Meeks Trail, has now begun. The public is encouraged to be a part of it.

The trail feasibility study will take place in 2021-2022. During this time there will be opportunities for the public and key stakeholders to provide input on the project's vision and goals, trail segments and access points. Once complete, the entire West Shore Trail will help reduce traffic congestion, and enable multi-use access to some of Lake Tahoe's most treasured locations including Emerald Bay, Meeks Bay, and Baldwin Beach along with access to multiple trailheads.

Your input on this trail study will help determine the best trail alignment. After a brief presentation, there will be time for questions and comments.

Please forward this email to your friends and neighbors who might be interested in the West Shore Tahoe Trail study. They can opt-in to receive further updates by clicking on the button below.

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The Draft Feasibility Study is complete and is now available for public review.

We invite you to join us for an informational webinar on Feb. 16th at 4pm to learn more.

Register here for the Webinar

Click here

Review and comment on the report

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Thank you for signing up for Meeting #1

Meeks Bay and Rubicon Segments

June 6, noon - 1 p.m.

Join Zoom Meeting info:
https://us02web.zoom.us/j/87671521403?pwd=UncvYUNQRE9pNVAydU0raWowdyt6Zz09

Meeting ID: 876 7152 1403
Passcode: 793672
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Which trail alignment do you prefer?

The quantitative analysis for the Cascade to Meeks section of the West Shore Tahoe Trail is complete.

Please **click here** for the survey link to select your preferred trail alignments within each of the six corridor segments.

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CASCADE TO MEEKS TRAIL STUDY | WEST SHORE TAHOE TRAIL

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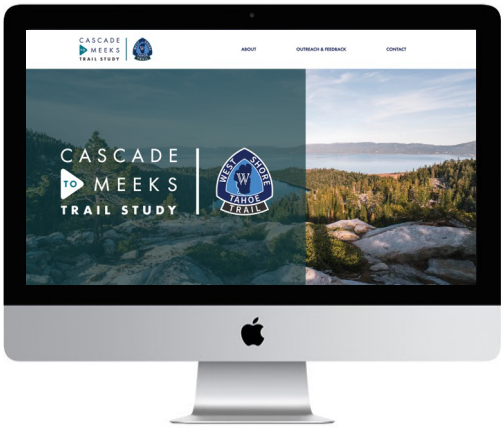
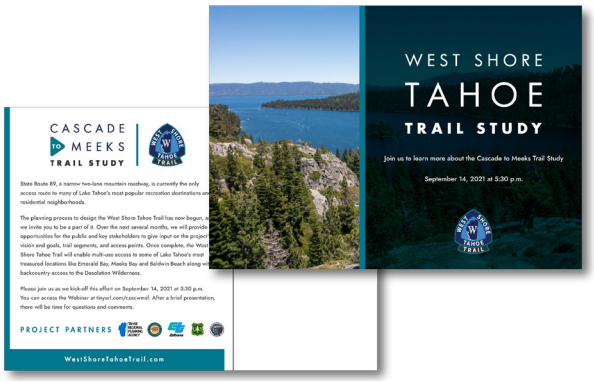
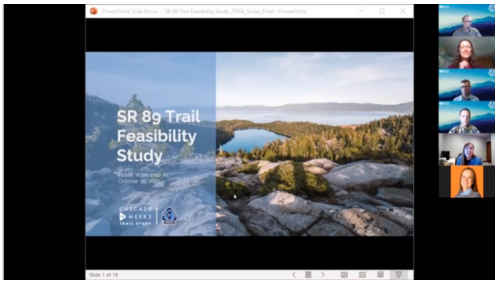


DIRECT MAILER

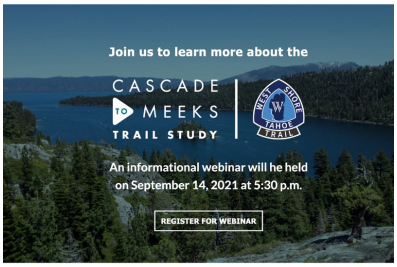


BUSINESS CARD

WORKSHOP POWERPOINT



EBLAST #1



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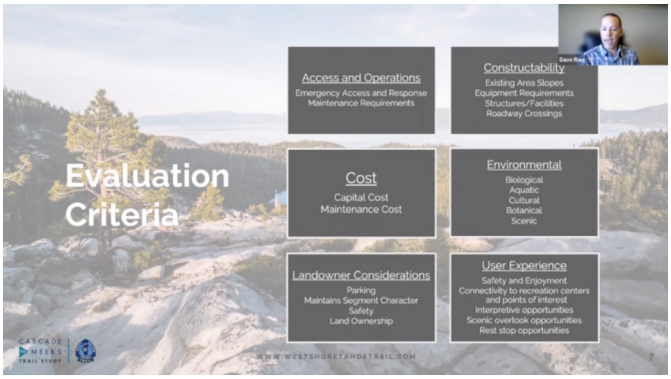

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