CONNECTED COMMUNITIES

"A Community-Driven Vision To Strengthen The Communities Of The Lost Sierra Region"

2025

Prepared For: Sierra Nevada Conservancy

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ACKNOWLEDGEMENTS

Sierra Buttes Trail Stewardship would like to thank all our partners and supporters that have helped us make Dirt Magic. Everyone who has picked up a Mcleod, helped out at our events or shared our message. All those who donated time, money, sweat and love. We would also like to thank all our tribal representatives, land managers, local stakeholders, outdoor industry and organizational partners who collaborated with us with the goal of increasing overall health and happiness in the Lost Sierra Region.

Made in America for the benefit of Americans for generations.

SBTS acknowledges that the Lost Sierra Region is the ancestral homeland to many indigenous peoples including - Miwok, Nisenan, Maidu, Washoe, Konkow, Pit River and Paiute. These people are the original stewards of this region and they still call this place home. We acknowledge that western colonization forcibly removed these people from their homeland with no financial compensation or emotional regard for the lives and ways of these indigenous communities. We hope the trails we work on provide access, connection and appreciation for these indigenous ancestral homelands and that it inspires you to become a steward of the land.

SIERRA NEVADA CONSERVANCY

Connected Communities was funded by the Sierra Nevada Conservancy Resilient Sierra Nevada Communities – Proposition 68, under the authority of California Drought, Water, Parks, Climate, Coastal Protection, and Outdoor Access For All Act of 2018.

FOREST SERVICE U S DEPARTMENT OF AGRICULTURE

U.S. DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

Connected Communities included participation with the United States Department of Agriculture Forest Service operating under Master Challenge Cost Share Agreements with the Pacific Southwest Region 5 and the Lassen, Plumas, Tahoe and Humboldt-Toiyabe National Forests, and the Bureau of Land Management.

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

Amid growing interest in outdoor recreation, Connected Communities, led by Sierra Buttes Trail Stewardship (SBTS), is a bold, community-driven vision to strengthen the Lost Sierra region's economy through sustainable trail development and long-term stewardship. Built from the ground up, this grassroots effort supports sustainable recreation, land conservation, economic opportunity and community resilience. It is being shaped in partnership with local residents, Indigenous tribes, public land agencies and a diverse network of stakeholders.

From September 2020 to March 2021, Sierra Buttes Trail Stewardship completed a survey process to gather public input on the Connected Communities vision through two methods: digital outreach and paper surveys. The paper surveys were distributed through essential businesses across the planning region and were set up for a two week period in each community. In total, 1,351 survey responses were from respondents ranging in age from <18-65+, with 68% identifying as local residents and 32% as visitors. The response was overwhelmingly supportive:

- 98% said trails are important in their lives
- 94% want more trails near their communities
- 96% want trails that connect nearby towns
- 88% said they would volunteer to build and maintain trails

More than 800 people also shared detailed ideas for new trail locations, providing critical insight for local planning and reinforcing the vision of a truly community-powered initiative.

As of December 2024, 161 community meetings occurred with approximately 2,465 people attending across the region and through the planning process. Due to the onset of Covid-19 at the beginning of the outreach campaign, town hall style meetings were not possible; however, in-person outdoor and distanced meetings still occurred. In addition to in-person outreach, a significant online and social media presence has encouraged public engagement with the Connected Communities Project. During the planning process, approximately 742,515 individuals were reached online with information about the project, meeting dates and how to participate in the survey.

To date, the Connected Communities Project has received 73 letters of support from a broad coalition of elected officials and local governments. Supporters include Congressman Doug LaMalfa, Congressman Tom McClintock, Congressman Kevin Kiley, Senator Brian Dahle and Assemblywoman Megan Dahle. Additional endorsements have come from the Boards of Supervisors of Sierra, Plumas, Lassen, Butte and Nevada counties; the cities of Susanville, Portola and Loyalton; the Town of Truckee; Washoe County; and the Nevada Off-Highway Vehicles Program.

Connected Communities has established a unified framework and Best Management Practices for trail planning that span boundaries few projects ever reach, crossing four National Forests (Plumas, Lassen, Tahoe and Humboldt-Toiyabe), Bureau of Land Management lands, and six counties in two states: Lassen, Plumas, Sierra, Butte and Nevada counties in California, and Washoe County in Nevada. By bringing multiple agencies and jurisdictions together under a shared vision, the project is setting a new standard for large-scale recreation planning and rural economic revitalization. **Best Management Practices developed as part of Connected Communities** include:

- **Public outreach and engagement**
    - Connected Communities is built on the voices of the communities it serves
- **Collaboration with Indigenous tribes**
    - SBTS works directly with Indigenous tribes whose homelands and cultural resources are part of the Connected Communities landscape
- **Recreation balanced with conservation**
    - Every trail project is designed to enhance recreational access while safeguarding ecological health
- **Compliance with NEPA and CEQA**
    - SBTS operates with full compliance under both the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), ensuring all projects meet the highest legal and environmental standards
- **Optimum Location Reviews for new trail corridors**
    - Through Optimum Location Reviews (OLRs), SBTS identifies the most sustainable alignments for new trail corridors
- **The Fire Hardened Trails prescription to integrate wildfire resilience into trail design**
    - SBTS pioneered the Fire Hardened Trails prescription, a groundbreaking approach that integrates wildfire resilience into recreation planning

Throughout the pre-planning process, communities identified priority projects including trail segments connecting towns, trailheads, recreation infrastructure and Citizen Inventoried Recreation Zones (CIRZ): places where the public already recreates or seeks better access.

With unprecedented public support and strong SBTS leadership, Connected Communities is redefining what's possible in rural recreation economies. By advancing projects identified by the people who live, work and play here, we can ensure the Lost Sierra remains not just a world-class trail destination, but a vibrant and resilient home for generations to come.

Community-Driven Planning and Public Engagement

Connected Communities was developed with extensive public input, prioritizing access for all trail users. While the U.S. Forest Service (USFS) and Bureau of Land Management (BLM) provided data and recommendations to inform the process, Connected Communities remains a community-driven vision, not a federal agency directive.

Public engagement has been central to shaping this vision, with ongoing opportunities for involvement through the National Environmental Protection Act (NEPA) and the California Environmental Quality Act (CEQA) processes as project planning progresses. These processes will help refine trail and recreation infrastructure proposals, evaluate alternatives and assess environmental impacts.

A Regional Trail Network Connecting Rural Towns

At its core, Connected Communities seeks to link 15- mountain towns across Northern California and Nevada through a world-class trail network, strengthening recreation-based economies while celebrating each community's unique character and heritage. A central goal of this effort is the creation of the Lost Sierra Route, a signature trail that connects mountain towns, cultures and landscapes across Northern California and Nevada. Tracing forests, rivers, and historic communities, the route is designed to be both a journey and a destination, inviting people to experience the heart of the Lost Sierra while strengthening the resilience of the people and places who call it home. This vision has been shaped in collaboration with local residents, businesses, stakeholders, tribal representatives, outdoor enthusiasts and public agencies to ensure it reflects the needs and values of those who call the Lost Sierra region home.

Lasting Benefits of Connected Communities

This initiative is designed to deliver long-term social, economic and environmental benefits, including:

- **Economic Revitalization**: Attracting outdoor enthusiasts, supporting local businesses and creating job opportunities to stimulate rural economies, particularly in disadvantaged areas and those impacted by wildfires.
- **Healthy Forests and Communities**: Integrating Fire Hardened Trail prescriptions and forest health practices to enhance wildfire mitigation and environmental resilience.
- **Outdoor Access for All**: Providing equitable access to trails, promoting wellness, recreation and a deeper connection with the land.
- **Cultural and Historical Preservation**: Honoring Indigenous traditions and local histories by incorporating trails that highlight the region's heritage.

A Model for Sustainable Recreation and Rural Connection

Connected Communities is more than recreational trails, it's about building connections between people, places and opportunities. By leveraging the power of trails, this community-driven vision serves as a model for sustainable recreation and rural revitalization in California and beyond.

2. REGIONAL OVERVIEW

Connected Communities spans Lassen, Plumas, Sierra and Nevada counties, with links to Butte County and Washoe County in Nevada, ultimately connecting 15 mountain communities: Susanville, Westwood, Chester, Jonesville, Greenville, Taylorsville, Quincy, Graeagle, Portola, Loyalton, Sierraville, Sierra City, Downieville and Truckee, with a connection to Reno, Nevada. The region includes land managed by the Lassen, Plumas, Tahoe and Humboldt-Toiyabe National Forests as well as the Bureau of Land Management. There are several complementary projects happening throughout the area and in various phases of planning and development.

2.1 Landscape and Terrain

The Lost Sierra region is the convergence of the Sierra Nevada Mountains, Cascade Range, and Central Basin and Range Mountains which provides unique landscapes, terrain and ecosystems. The elevation of the region ranges from 2,943 feet at Downieville to 8,760 feet at Babbitt Peak and features gentle to steep side slopes, perennial and seasonal streams, alpine valleys and rugged mountains. The region includes several important features such as Upper Feather River Watershed (providing nearly all the water delivered by the California State Water Project), Sierra Valley (one of the largest alpine valleys in the United State) and the iconic Sierra Buttes of the Lakes Basin Recreation Area. The Southern Cascade ecoregion, with diverse conifer forests and broad valleys, defines the northern extent of the region. The Sierra Nevada ecoregion, with more Douglas firs and Ponderosa pines defines the central and southern portions of the region. The Central Basin and Range ecoregion, with spruce-fir forests, juniper woodlands and sagebrush in the eastern extent of the region.

3. CONNECTED COMMUNITIES OVERVIEW

Connected Communities aims to stimulate the economies of rural communities by improving trail access and connectivity, and encouraging diverse user types to explore and recreate on public lands by linking 15 mountain towns by trails. To date, Connected Communities has been primarily funded by Sierra Nevada Conservancy's Resilient Sierra Nevada Communities and Vibrant Recreation and Tourism programs, but growing awareness across the region has generated financial support from private foundations, Outdoor Industry partners and matching funds brought by SBTS volunteers and donors. This funding has supported planning efforts to collaborate and partner with land managers, government agencies, indigenous tribes and local stakeholder organizations, and to conduct community outreach and engagement, public surveys, mapping, ground truthing, alignment flagging and trail-feasibility reporting. This document is the culmination of pre-planning efforts within the Connected Communities project area.

Throughout the planning process, goals and objectives for Connected Communities were further refined and are summarized in four main categories:

1. **Identify the optimum location of trail corridors for a network to connect communities across the region and outline a signature route, consisting of trails and dirt roads, through the region, dubbed the Lost Sierra Route**
2. **Conceptualizing ancillary improvement projects needed to support a world-class trail network such as trailhead infrastructure and overnight accommodations**
3. **Highlight Citizen Identified Recreation Zones as areas near communities that warrant additional planning and development**
4. **Develop a prescription for Fire Hardened Trails to include desired conditions for fuels reduction and restoration within future project planning areas**

The responses from the community outreach and engagement project component outlined the public desire for a more extensive trail system connecting towns and providing more recreational opportunities throughout the region. The outreach and survey efforts were used to guide preliminary mapping of the trail corridors in addition to input from land managers and community organizations. This regional expertise allowed for identification of ideal trail corridors for singletrack trails seeking to avoid known natural and cultural resources. Once preliminary corridors were established, Sierra Buttes Trail Stewardship employees conducted field work to ground truth and flag identified trail corridors and to identify areas of concern, such as stream crossings or rugged terrain. Through this process, the trail corridors were further refined in order to avoid and protect resources, while creating desirable and world-class recreational opportunities.

3.1 Community Outreach and Engagement

Connected Communities, led by Sierra Buttes Trail Stewardship (SBTS) and developed through the broadest possible range of public and community input, represents a community-driven vision to

strengthen the Lost Sierra region's economy through sustainable trail development and long-term stewardship. To ensure robust and equitable public engagement throughout the pre-planning process, SBTS implemented a series of strategic, inclusive and transparent steps which ensured that all voices were heard and integrated into the pre-planning process. By fostering accessibility and collaboration, SBTS ensured the project reflects the diverse values, needs and aspirations of all trail users.

Through this process, SBTS has developed a 'recipe book' for creating a community-driven vision. Here are the key ingredients we used for Connected Communities:

Establish Partnerships:
SBTS has established strong partnerships with federal land managers through Master Challenge Cost Share Agreements with the USFS Pacific Southwest Region 5 and the Plumas, Tahoe, Lassen and Humboldt-Toiyabe National Forests. Additionally, SBTS has built partnerships with Plumas, Lassen, Sierra, Butte, Nevada and Washoe counties through Resolutions and Letters of Support. At the municipal level, SBTS has secured Resolutions and Letters of Support from the cities of Portola, Loyalton and Susanville, as well as the Town of Truckee.

Broad Community and Stakeholder Outreach:
SBTS conducted extensive outreach to a diverse range of stakeholders, including local residents, business owners, government agencies, tribal representatives, environmental groups, recreational enthusiasts, land trusts and community organizations. To raise awareness and engage the public, SBTS produced the informational film A Trail for Everyone and accompanying video shorts, which have collectively reached more than 2.1 million people to date. Additionally, SBTS engaged in direct outreach through phone calls, emails and in-person visits with agencies, land managers, tribes, local organizations, businesses and residents. These efforts ensured that a wide variety of perspectives were included in the planning process.

Community Workshops and Town Hall Meetings:
Meetings were hosted in the communities involved in the pre-planning process. These events served as platforms for residents, business owners, partners and stakeholders to share ideas, voice concerns and contribute to shaping their communities vision. Workshops included presentations, open discussions and interactive mapping exercises.

SBTS successfully applied for and received a grant to host a week-long workshop in partnership with the Environmental Protection Agency (EPA) focused on the Recreation Economy for Rural

Communities (RERC) program. The workshop aimed to develop a Community Action Plan for Quincy. The team included representatives from Plumas National Forest, USFS Region 5, Plumas County, FEMA Region 9, the U.S. Small Business Administration, the EPA Office of Community Revitalization, USDA Rural Development, U.S. Economic Development Administration, National Park Service, California Governor's Office of Business & Economic Development and Sierra Nevada Conservancy.

Online Surveys and Public Comment Periods:
To engage individuals unable to attend in-person meetings, SBTS implemented a multi-faceted outreach approach. Informational kiosks with paper surveys and localized maps were distributed to essential businesses in each community, such as banks, grocery stores, hardware stores, and gas stations. Additionally, SBTS hosted accessible online surveys and encouraged public comments through social media platforms. These efforts successfully captured input from a broader audience, including residents in rural and remote areas.

As a result, 1,351 surveys were completed by participants ranging in age from 16 to 85+, with 68% identifying as local residents and 32% as visitors. The survey revealed overwhelming support for trails, with 98% of respondents indicating that trails are important in their lives, 94% wanting more trails near their communities, and 96% expressing a desire for trails that connect nearby towns. Over 800 respondents shared specific ideas for new trail locations, and 88% stated they would volunteer to build and maintain local trails. These insights provided valuable guidance for planning and reinforced the community-driven vision of Connected Communities.

Transparent Communication:
SBTS implemented a comprehensive online engagement strategy, sharing regular project updates through the SBTS website, newsletters and social media platforms throughout the pre-planning process. This approach kept the public informed about progress and upcoming opportunities to participate. Social media was actively leveraged to disseminate updates, promote surveys and provide interactive spaces for public comment and discussion.

Youth and Family Engagement:
Recognizing the importance of future generations, SBTS hosted family-friendly events and activities to engage children and youth. This encouraged input from families and raised awareness about trail stewardship among younger participants.

Partnership with the Sierra Nevada Conservancy:

As a major partner in the project, the Sierra Nevada Conservancy helped facilitate outreach, provided funding for public engagement and ensured alignment with regional conservation goals.

Information Feedback Loops:
SBTS adopted an iterative planning process that actively incorporated feedback collected during community engagement sessions. After gathering input, plans were revisited and revised to address community concerns, priorities and suggestions. This approach ensured that the evolving vision for the project was shaped by the voices of those it would impact, allowing the community to see their contributions reflected in tangible updates and fostering a sense of ownership and trust in the process.

Equity-Focused Engagement:
Recognizing that many of the towns involved in Connected Communities face economic challenges, SBTS designed the planning process to be accessible and inclusive by meeting people where they are. This included offering translation services, providing both in-person and virtual participation options and holding meetings at times and locations that worked for working families, elders and those with limited transportation. The goal was to remove barriers and make it easier for all community members to share their voices and shape the future of their town.

Integration of Tribal Perspectives:
SBTS actively engaged tribal leaders to thoughtfully integrate Native American cultural and historical considerations into the pre-planning process. In collaboration with Fresno State University and the Southern Sierra Miwuk Nation, SBTS hosted a Cultural Monitoring Workshop that trained and certified 37 cultural monitors representing 11 California tribes. As part of every project, SBTS prioritizes meaningful engagement with local tribes and employs Cultural Monitors to protect cultural resources and ensure their preservation.

Collaboration with Local Governments and Agencies:
SBTS collaborated closely with town councils, county officials, and regional planning agencies to ensure the project aligned with local priorities. Multiple updates were presented to each council, with opportunities for public comment integrated into the presentations. Feedback from these sessions was instrumental in shaping the vision for each community. These collaborations also helped identify additional strategies for engaging residents more effectively.

3.2 Tribal Engagement

As an indigenous led organization, SBTS recognizes the Lost Sierra region as the ancestral homeland to many indigenous peoples that still call this place home. Our Executive Director, Greg Williams, is of Miwok descent and other tribes of the area include Maidu, Washoe, Paiute, Nissenan, Konkow and Pit River. These indigenous populations were the original stewards of this land and while we acknowledge that western colonization forcibly removed them from their homeland with no financial compensation or emotional regard for their lives, we hope that the work we do and the trails we maintain provide access and connection for the local indigenous communities that are here and present in our communities. We want to promote and support better access, connection, education and appreciation for these indigenous ancestral homelands with hopes that it inspires us all to become better human beings and stewards of this land.

Engaging with tribes during all stages of the Connected Communities vision has helped SBTS ensure there are no unnecessary impacts to invaluable tribal resources. SBTS also hopes, with tribal participation, that together we can improve access to areas of cultural significance and assist in getting tribal members, especially the youth, more engaged and intimate with their ancestral homelands.

3.3 Conservation Plan

The Sierra Buttes Trail Stewardship (SBTS) conservation plan integrates Best Management Practices (BMPs) to create sustainable, shared-use trails that support outdoor recreation while preserving the ecological and cultural integrity of the Lost Sierra region. By leveraging scientific best practices, engaging local communities and fostering strong partnerships, SBTS ensures that the Lost Sierra remains a premier destination for trail-based recreation and conservation stewardship. This conservation plan integrates Best Management Practices from the U.S. Forest Service (USFS) to ensure trails are designed, constructed and maintained in a way that protects natural and cultural resources while supporting recreation and local economies. The U.S. Forest Service Standard Trail Plans and Specifications will be used for the design, construction and maintenance of National Forest System trails and trail bridges.

1. Trail Bridges and Wet Crossings

- Utilize engineered trail bridges at key water crossings to prevent erosion and habitat disruption.
- Construct wet crossings with hardened approaches to stabilize stream banks and minimize sedimentation.
- Collaborate with watershed organizations and regulatory agencies to ensure compliance with sediment control measures.

Bottomless Arch Culverts:

- Built to USDA Forest Service Trail Maintenance and Construction specifications, Bottomless Arch Culverts provide a natural streambed bottom and preferred conditions for aquatic organism passage.
- Size culverts based on channel width, depth, and storm runoff capacity to ensure at least 100% of channel volume is maintained.
- Use galvanized metal culverts (not plastic) to reduce fire risk in fire-prone areas.
- Install settling basins upstream of crossings to reduce clogging from sediment and debris.
- Excavate ditches with a width equal to the culvert diameter, leaving 8–12 in (20–30 cm) on either side for compaction.
- Place fill material in lifts and compact each layer, maintaining a minimum of 12 in (30 cm) tread depth above culverts.
- Armor inlets and outlets with native rock to protect fill, creating a rock funnel at inlets to improve flow.
- Armor stream banks with native rock and riprap to prevent scour and failure.
- Avoid construction practices that narrow or constrict the channel, preventing increased water velocity and scour.

Use Bottomless Arch Culvert when:

- Perennial or seasonally flowing streams with consistent water presence.
- Identified aquatic species habitat (e.g., yellow-legged frog, fish passage) where maintaining a natural streambed is critical.
- Channel width and depth require a structure capable of spanning the full cross-section without constriction.
- High storm runoff potential, requiring design that accommodates 100% of predicted peak flows.
- Erosion risk is high, and armored inlets/outlets are needed to protect banks and maintain water quality.
- Long-term durability and low maintenance are priorities.

Open-Top Rock Drains:

- Function: Open-top drains are easy to maintain, can handle moderate flows without eroding the surrounding area, and will be wide enough to pass water while narrow enough for trail users to step over safely.
- Construction Method:
    - Excavate a ditch across the trail wide and deep enough to accommodate a rock base and sides, with an opening sized for the highest predicted flow.
    - For the base, embed large smooth rocks (>80 lb / 36 kg) two-thirds into the ground at a 3% downslope grade to direct water off-trail.

    - For the sides, embed large rocks two-thirds into the bottom and sidewalls of the drain, leaving a flat, stable surface for the trail tread.

Use Open-Top Rock Drain when:

- Ephemeral or intermittent flows, such as rain events or snowmelt, rather than a continuously flowing stream.
- Small cross-drain needs where water crosses the trail surface but no defined stream channel exists.
- Moderate flows that can be safely conveyed without eroding adjacent soils.
- Low aquatic habitat value (not a primary stream or breeding area), so impacts on organisms are minimal.
- Easy maintenance access is desirable, since open-top drains can be cleared by hand with minimal tools.
- Narrow enough crossing that trail users can step or ride over comfortably.

Species Protection During Construction:

- Schedule construction near streams outside of yellow-legged frog breeding and peak activity seasons whenever feasible.
- Conduct pre-construction biological surveys to identify and avoid frogs or egg masses.
- Establish exclusion zones (temporary fencing or flagging) around active work areas if frogs are present.
- Provide on-site monitoring during construction to relocate any frogs encountered to suitable nearby habitat.
- Minimize disturbance by keeping equipment out of wetted channels and confining work areas to the smallest footprint necessary.
- Implement erosion-control measures to maintain water quality and reduce indirect impacts on aquatic species.

2. Sustainable Tree Removal Practices

- Maintain an 8-foot wide by 10-foot tall trail corridor.
- Removal of trees over 10 inches DBH will be rare and will only occur if necessary for safety or to support the maintenance of Fire Hardened Trails for wildfire suppression and prescribed fire implementation.
- Prioritize retention of native pines, including Sugar pine (Pinus lambertiana), Washoe pine (Pinus washensis), Jeffrey pine (Pinus jeffreyi), and Ponderosa pine (Pinus ponderosa).
- Utilize Fire-Hardened Trail prescriptions to enhance wildfire resilience.

3. Integrated Design Features for Environmental Protection

- Adopt the U.S. Forest Service (USFS) Trail Fundamentals and Trail Management Objectives (2015) as guiding principles.
- Implement BMPs to minimize soil disturbance, preserve hydrology and protect biodiversity.
- Monitor and adapt practices based on environmental impact assessments.

4. Botany: Rare and Invasive Plant Management

Protection of Threatened, Endangered and Sensitive Plant Species

- Conduct botanical surveys before breaking ground on new trails.
- Flag and avoid rare and sensitive plant species using GIS-based tracking systems.
- Maintain a 50-foot buffer around identified plant species.

Invasive Species Management

- Require all trail-building equipment to be weed-free before entering forested areas.
- Identify and flag known noxious weed infestations for treatment by forest personnel.
- Implement a 50-foot buffer around untreated invasive species sites.
- Conduct post-project monitoring for two years to ensure effectiveness.
- Use locally adapted native plant materials for revegetation.

5. Cultural Resource Protection

- Adhere to the Programmatic Agreement (PA) for Historic Properties (Region 5, 2018).
- Engage local Indigenous communities to identify and protect culturally significant sites.
- Train SBTS crews in cultural resource awareness and require on-site monitoring during construction.

6. Wildlife Protection Measures

Limited Operating Periods (LOPs): To prevent disturbances to sensitive wildlife, the following seasonal restrictions will be enforced:

Species	LOP Period	Buffer
California Spotted Owl	March 1 - August 15	¼ mile from PACs unless surveys confirm non-nesting
Northern Goshawk	February 15 - September 15	¼ mile from PACs or known nests
Pacific Marten	February 15 - July 31	100-acre habitat protection

Pacific Fisher	March 1 - June 30	700-acre habitat protection

Additional Wildlife Protection Measures

- Report any detection of sensitive wildlife or plant species before or during implementation.
- Follow guidelines from the 2004 SNFPA ROD and 2014 USFWS Programmatic Biological Opinion for amphibians.
- Limit tree cutting within California spotted owl and northern goshawk PACs to trees under 6 inches DBH, unless approved by a U.S. Forest Service (USFS) Wildlife Biologist.
- Maintain riparian vegetation (aspen, cottonwood, alder, willow, dogwood) and prioritize conservation of rust-resistant Sugar pine.
- Retain large snags (≥15 inches DBH) where safe and route trails around them instead of removing them.

7. Fire-Resilient Trail Management

- Utilize Fire-Hardened Trail prescriptions to reduce fuel loads while maintaining ecological integrity.
- Preserve coarse woody debris for soil stabilization while ensuring safety along trails.
- Collaborate with CALFIRE and the U.S. Forest Service (USFS) to integrate trails into fire management strategies.

8. Sustainable Trail Construction and Long-Term Monitoring

- Follow U.S. Forest Service (USFS) Standard Trail Plans and Specifications to ensure sustainable design.
- Conduct post-project monitoring for two years to assess effectiveness and adapt management strategies.

9. Soil Monitoring and Habitat Management Plans

As part of the **California Off-Highway Motor Vehicle (OHMVR) grants program**, SBTS is required to produce annual **Soil Monitoring Reports** and **Habitat Management Plans** to assess long-term environmental impacts on designated motorized trails.

Soil Monitoring

- Conduct annual soil stability assessments on OHV-designated trails to evaluate erosion control effectiveness.
- Use erosion monitoring protocols to track sedimentation levels and adjust trail maintenance strategies.

- Implement adaptive management strategies based on soil monitoring data to prevent long-term degradation.

Habitat Management Plans

- Develop site-specific Habitat Management Plans (HMPs) for priority wildlife corridors and sensitive ecosystems.
- Monitor wildlife activity, vegetation recovery and water quality to ensure sustainable trail impacts.
- Work with state and federal agencies to refine HMPs based on real-time ecological data.
- Include public engagement and education initiatives to promote conservation awareness among OHV users.

Emergency Repair Standards

- Identify pending hazardous weather conditions that would have damaging effects to trail facilities or present life hazards to trail users.
- Implement temporary erosion control measures as appropriate to the weather conditions.
- Consider rerouting of damaged trails.
- Implement trail closures where appropriate to protect trail surfaces from overuse in wet conditions.

4.0 OPTIMUM LOCATION REVIEW

The Optimum Location Review (OLR) process is a key element of trail and infrastructure planning and development on public lands. Building on the National Forest OLR model, SBTS has developed a refined framework that prioritizes community and tribal engagement. This approach ensures that trail and infrastructure projects are environmentally sustainable, culturally respectful and contribute to the economic vitality of rural mountain towns.

SBTS OLR Process:

Step 1: Define Purpose and Goals

- Establish the objectives for the trail system, such as recreation, connectivity, wildfire resilience and economic impact.
- Align with land management plans, including travel management, recreation strategies and fire mitigation policies.
- Identify user groups (e.g., hikers, mountain bikers, equestrians, motorized users) and assess potential for shared-use trail corridors.

Step 2: Community and Tribal Engagement

- Conduct public outreach through meetings, surveys and workshops to incorporate local knowledge and preferences into trail and infrastructure planning.
- Partner with Indigenous communities to integrate Traditional Ecological Knowledge (TEK) and respect cultural landscapes.
- Establish a community advisory group to ensure ongoing dialogue with stakeholders, including recreation groups, local governments and conservation organizations.

Step 3: Site Analysis and Data Collection

- Utilize GIS mapping and remote sensing to identify potential trail alignments based on terrain, land ownership and environmental constraints.
- Conduct on-the-ground field surveys with land managers and resource specialists to identify cultural sites, assess habitat sensitivity, evaluate soil stability and review water crossings to ensure responsible trail development.

- Evaluate potential impacts on wildlife corridors, watersheds and erosion-prone areas in accordance with NEPA and CEQA guidelines.

Step 4: Field Verification and Route Selection

- Conduct multi-agency site visits with land manager planners, biologists, hydrologists and archaeologists to refine trail alignments.
- Prioritize low-impact routes that avoid critical habitats, steep terrain and culturally significant areas.
- Where applicable, incorporate Fire-Hardened Trail design principles to enhance forest health and support emergency response access.

Step 5: Compliance and Approvals

- Complete required environmental reviews under the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA).
- Ensure compliance with National Historic Preservation Act (NHPA) and consult with Tribal Historic Preservation Officers (THPOs).
- Obtain necessary land manager special use permits, categorical exclusions, or Environmental Assessments (EAs).

Step 6: Trail Design and Construction Planning

- Develop detailed trail design specifications following USFS Trail Classifications and Standards.
- Integrate sustainable trail-building techniques, such as contour alignment, erosion control measures and durable tread surfaces.
- Establish a long-term maintenance strategy, leveraging SBTS's trail crews, volunteer and Adopt a Trail programs and partner agencies.

Step 7: Monitoring and Adaptive Management

- Implement Trail Maintenance and Reconstruction Plan to assess and prioritize trails for maintenance and reconstruction, ensuring sustainable recreation access, user safety and environmental integrity while maximizing resources and economic impact.
- Work with land manager recreation staff to adaptively manage trails in response to changing conditions, such as wildfire recovery or overuse mitigation.

- Utilize community stewardship programs to foster local involvement in trail maintenance and conservation.

4.1 Proposed Trail Corridors

Using the Sierra Buttes Trail Stewardship (SBTS) Optimum Location Review (OLR) process, SBTS identified proposed trail corridors connecting 15 mountain communities. This data-driven approach prioritizes existing trails and roads while incorporating new corridors for feasibility and enjoyment. The resulting sustainable town-to-town trail system aims to:

- **Expand recreation access with minimal environmental impact**
- **Boost economic resilience in disadvantaged communities**
- **Enhance wildfire resilience through Fire Hardened Trails**

This proposed network serves as the foundation for Connected Communities, linking rural towns with a sustainable, well-planned trail system that aligns with state and federal land management goals. The OLR process integrates environmental, cultural and user-experience considerations to ensure responsible and efficient trail development. After reviewing the Connected Communities draft plan with forests, tribes, counties and community members, SBTS identified key concerns, such as the scale of new and motorized trail development, and a need for a maintenance and conservation plan. Priorities included inclusivity, economic benefits and community-driven CIRZ design. These insights guided the development of project alternatives:

Alternative A: 463.94 miles of new trail development, 566.31 miles of existing road and 57.6 miles of trail. These routes would connect 15 mountain communities and link to all Community Identified Recreation Zones (CIRZs). Alternative A can be seen in **Appendix I**.

Alternative B: proposes utilizing 803.76 miles of existing infrastructure including 48.85 miles of existing National Forest System trails, 754.91 miles of roads. These routes would connect 15 mountain communities and link to all Community Identified Recreation Zones (CIRZs). SBTS recommends surveying these roads and trails to assess their condition and developing a maintenance plan to ensure long-term accessibility. Roads include State, County and Federally managed roads that all allow for motorized use. This alternative would accommodate a variety of trail opportunities and multi-use adventures. Alternative B can be seen in **Appendix I.**

Here's how SBTS identified these proposed trail corridors:

Data Collection & GIS Analysis

SBTS utilized Geographic Information System (GIS) mapping to analyze existing trails, roads and public lands. Layers included:

- Land ownership (USFS, BLM, state, and private lands)

- Federal and state land designation (Wilderness, Proposed Wilderness, Inventoried Roadless, Semi-Primitive Roadless, Wilde & Scenic, Recreation)
- Topography and hydrology to assess feasibility and minimize environmental impact
- Wildfire history and vegetation to align with fuels reduction efforts
- Wildlife habitat and cultural resource zones to mitigate impacts on sensitive areas

Connectivity modeling was used to determine the most efficient routes between communities, ensuring the trail network linked key recreation hubs and recreation assets, points of interest and supported local economies.

Stakeholder & Community Engagement

SBTS collaborated with local communities, tribes, public land managers and recreation groups to incorporate local knowledge and ensure the proposed corridors aligned with community needs. The process included:

- Public meetings, surveys and workshops to gather input and refine proposed routes
- Tribal consultation to address cultural heritage concerns and incorporate Traditional Ecological Knowledge (TEK)
- Multi-user considerations to support a diverse range of trail users while minimizing conflicts

Environmental & Land Use Considerations

Trail selection focused on sustainability and minimal environmental impact, aligning with federal and state land management regulations. Key factors included:

- USFS Travel Management Rule & Minimization Criteria for motorized trail components
- Fire-Hardened Trail prescription to enhance wildfire resilience and forest health
- Erosion control and water management strategies to prevent degradation

Field Verification

On-the-ground assessments validated GIS data and refined trail alignments based on:

- Soil stability and gradient analysis to optimize trail sustainability
- Potential trailhead locations for accessibility and connectivity
- Scenic value and user experience to enhance recreational appeal

Connectivity & Economic Impact Prioritization

Corridors were prioritized based on their potential to strengthen rural economies by linking 15 communities in the Lost Sierra: Loyalton, Sierraville, Portola, Downieville, Sierra City, Graeagle,

Quincy, Taylorsville, Greenville, Jonesville, Chester, Westwood, Susanville, Truckee and Reno. The selection process emphasized:

- Access to town centers, businesses and existing outdoor recreation opportunities
- Workforce development and tourism potential to support sustainable economic growth
- Integration with regional transportation and recreation plans

Early Coordination with Resource Agencies

- SBTS collaborates with land managers (USFS, BLM, state agencies) and wildlife biologists early in the trail planning phase.
- Data from the California Natural Diversity Database (CNDDB) and other sources help identify known populations of sensitive species.
- Engagement with local conservation organizations ensures best practices are followed.

Wildlife Habitat Assessments

- SBTS conducted desktop reviews using up to date biological surveys to assess the presence of sensitive species.
- Known habitats such as riparian corridors, nesting areas, migration routes and breeding grounds were considered and avoided.
- Seasonal restrictions (e.g., breeding seasons for raptors, amphibians, and mammals) guided trail alignment decisions.

Avoidance and Minimization Strategies

- Trail realignment: Proposed trail corridors were routed to avoid critical habitats, including nesting or denning sites for species like the California Spotted Owl, Northern Goshawk and Sierra Nevada Red Fox.
- Buffer zones: Proposed trail corridors were kept at a safe distance from wetlands, streams and meadows to protect aquatic species like the Foothill Yellow-Legged Frog and Lahontan Cutthroat Trout.

Long-Term Monitoring & Adaptive Management

- If a new sensitive species nesting site is discovered, adaptive management allows for rerouting or seasonal restrictions.
- Collaboration with agencies ensures that monitoring data informs future trail maintenance and modifications.

Educating Trail Users

- Interpretive signage and outreach programs educate trail users about wildlife protection and Leave No Trace ethics.

- Volunteer events engage the community in habitat restoration efforts near trails.

Consideration of Trail- User Conflict

A report by trail researcher Roger Moore, *Conflicts on Multiple Use Trails*, outlines 12 key principles for reducing user conflict and improving trail experiences. These include recognizing that conflict often stems from goal interference, offering enough trail opportunities to meet demand, involving users early in the planning process, understanding user needs, identifying the root causes of conflict, working directly with affected groups and promoting trail etiquette. The report also encourages respectful interactions among trail users, local decision-making, light-handed management and ongoing monitoring.

To avoid or reduce trail user conflicts, the report recommends two main strategies:
Education and Safety

- Use clear signage, trail maps and brochures
- Share trail etiquette and user-specific information
- Host meetings with diverse trail user groups
- Maintain a presence on the trail through patrols and volunteer ambassadors

Trail Design and Physical Improvements

- Expand trail systems and separate uses where needed
- Design for visibility, safe passing and appropriate speeds, especially in congested areas
- Widen trail sections where appropriate
- Minimize erosion through sustainable trail building
- Provide designated areas tailored to different recreation types

Together, these strategies help create safer, more enjoyable experiences for everyone on the trail.

Outcome: A Sustainable Trail Network

A map and trails feasibility report was completed for all proposed trail corridors and are included in **Appendix I and II.**

4.1.1 Proposed Trail Design

Forest Service EM-7720-103 specification, adapted to local conditions, would guide trail design and construction. The proposed trail corridor would be for single lane standard/terra trail type with intended development to Trail Class 2 Moderately Developed standard, which includes continuous and discernible, but narrow and rough tread constructed of native materials. The trails would be constructed to accommodate multiple uses and managed for all allowable use types. Trail Management Objectives (TMO) would be developed in accordance with USFS standards and with Forest Service partners. The guidelines are described in the Trail Fundamentals and Trail Management Objectives prepared by the Forest Service (USFS, 2016). Designated use would be determined based on environmental review and land manager approval. Alternative designations are discussed in the Environmental Review section.

Trail construction would utilize both mechanized and non-mechanized tools and incorporate sustainable construction methods and best management practices. Mechanized trail construction includes the use of both gas powered and electric motorcycles to access project sites, chainsaws, trail dozer (30" wide and < 5,000lbs) mini-excavator (36" to 54" wide and < 5,000 lbs), rock drill and in limited instances explosives such as Magnum Buster and Micro Blaster charges. Non-mechanized finish work includes the use of hand tools such as McLeods, Pulaskis, picks, shovels, pry bars, hand saws and loppers.

Sustainable construction methods do not mean "sanitized" or "dumbed down." The goal is for the trail system to maximize fun for the user, protect and blend in with the landscape while taking into account watershed, flora and fauna, keeping erosion to a minimum, and facilitating management strategies that reflect appreciation and support for public lands. Once NEPA/CEQA have been completed, work proceeds through tread layout, corridor clearing , full bench cutting, finishing work and revegetation. This can be achieved through a hybrid method of professional, volunteer and youth crews. The hybrid method encourages both the building of trails and community participation. Costs and timelines will vary based on soil types, hydrology, topography, seasons, site access, trail character and classification. Characteristics of the sustainable trail design and build will include:

- Rolling contour trail: traverse slope in an undulating manner to help resist erosion
- Full bench: full width of tread is cut into the hillside
- Positive and negative control points
- Considerable sight lines and speed control
- Intuitive layout and signage
- Progression: allows users to build and improve skills
- Road to trail conversion where beneficial
- Utilization of natural terrain to add in technical trail features
- Utilization of trail structures to harden wet areas, gain or lose elevation, resist erosion, and navigate through challenging terrain
- Insloped turns with appropriate drainage
- Multi-Season use (Summer/Winter) if applicable
- Mixed terrain providing open and flowy to tight and technical experiences

Proposed Trail Specifications

The entire trail system is proposed as a Class 2 single-lane non-wilderness route with a native tread surface. The design specifications use the most constraining trail attributes from each recreation type; taking design attributes from Pack & Saddle, Biker & Pedestrian, Motorcycle and Bicycle design parameters. These parameters provide the baseline for construction and are adapted to local conditions when necessary. The following design parameters have been selected from the FSH 2309.18 Trails Management Handbook to best accommodate all user types. Proper trail design will ensure that designated trail specifications, determined by appropriate land managers are met.

- Design Tread Width - Pack & Saddle specifications of 12-24 inches, 48 inches along steep side slopes, and 48-60 inches or greater along precipices
- Design Tread Surface - Bicycle and Motorcycle specifications of native, limited grading, may be continuously rough with sections of soft or unstable tread on grades <5 % may be common
    - Protrusions - meet all user specifications, ≤6 inches may be common and continuous
- Design Grade - Bicycle specifications of 5-12 % with short pitch maximums of 25 % and maximum pitch density of 10-20 % to meet both pack and saddle and bicycle specifications
- Design Cross Slope - Bicycle specifications of 5-8 % with a maximum of 10 %
- Design Clearing - Pack & Saddle specifications of 8-10 feet high and 72 inches wide with a shoulder clearance of 6-12 inches
- Designed Turn Radius - Bicycle specifications of 3-6 feet minimum, SBTS has found that local conditions often warrant a 12 foot minimum radius

A matrix comparing all managed use design parameters as well as the adapted design parameters are included in **Appendix 2. Trail Feasibility Study.**

4.1.2 Proposed Trail Signage

All trail signage would follow Sign and Poster Guidelines for the Forest Service, EM7100-15. The following sign types would be utilized to support the proposed trail segments:

- Trailhead signage including user education and trail map(s)
- Junction signage at trail and road crossings
    - Major junctions would include wooden signs
    - Minor crossings would include route marker signs
- Reassurance markers/tour route signs

Additionally, information signs along National Forest Service roads that cross private lands would be appropriate: “Private land next 1/2 mile, stay on road.” These signs along easement roads would help educate the public in regards to their ability to use the road to cross private lands and access public lands.

4.1.3 Identified Trailheads

With increased recreation trail opportunity, strategic trailhead planning is necessary in order to provide access points with parking, trailhead signage and amenities.

Using the Optimum Location Review (OLR) process, SBTS identified 24 strategic trailhead locations. With increased recreational trail opportunities, well-planned trailheads are necessary to provide access, parking, signage and amenities. Trailhead infrastructure varies based on its classification - existing, downtown, remote or information center.

Key considerations for trailhead selection included:

- GIS-Based Suitability Analysis: Evaluating accessibility, proximity to communities, terrain suitability and land ownership.
- User Demand & Access: Prioritizing locations near population centers and key recreation hubs to maximize accessibility and economic impact.
- Multi-Modal Access: Ensuring compatibility with various transportation modes, including vehicle parking, equestrian trailer access and bike-friendly infrastructure.
- Environmental & Cultural Sensitivity: Avoiding impacts on sensitive habitats and cultural sites, with input from Indigenous tribes and land managers.
- Amenities & Support Facilities: Planning for restrooms, signage, kiosks, picnic areas and water access to enhance user experience.
- Integration with Regional Plans: Aligning trailheads with local and regional recreation strategies to support sustainable growth and tourism.

Trailhead (TH) infrastructure varies depending on the style of trailhead suggested (existing, downtown, remote or information center).

4.2 Citizen Identified Recreation Zones (CIRZ)

As part of the Connected Communities community-driven vision, five Citizen Inventoried Recreation Zones (CIRZ) were identified through the Optimum Location Review (OLR) process. This effort engaged local stakeholders to determine areas with high recreational value and potential for sustainable trail development.

The term Citizen Inventoried Recreation Zones (CIRZ) is being used for areas where community meetings and survey results indicate additional trails would be desirable, or that social trail networks are known to exist, demonstrating a need for development and maintenance of a sustainable trail system. Specific trail proposals were not developed as part of Connected Communities, but rather the areas are being highlighted for potential future planning and development. Additionally, CIRZ boundaries are approximate and would be refined during future planning efforts. During future planning efforts, CIRZ should also be evaluated for potential conservation consideration to facilitate regional, state and federal efforts to protect public lands. In general, the following principles should be utilized to develop future trail proposals:

- Public Input & Local Knowledge: Community members provided input on existing recreation assets, desired trail connections and priority areas for outdoor access.
- GIS & Environmental Analysis: SBTS used mapping tools to evaluate land suitability, topography and environmental considerations to ensure responsible trail placement.
- Multi-Use & Sustainability Criteria: Each zone was evaluated for its ability to support diverse recreation activities, including ADA accessibility, hiking, mountain biking, Class 1 E-Bike, adaptive biking and equestrian use. In two zones, motorized access was recommended based on current and historic motorcycle use.
- Field Surveys & Site Assessments: SBTS conducted on-the-ground evaluations to confirm feasibility, identify potential constraints and refine boundaries for each zone.

- Evaluation of stacked loop system trails with easier and shorter trails close to trailheads and longer, harder trails progressing further away from the trailhead. Stacked loop systems allow users to choose variety and distance.
- Positive control points to take users to vistas, intersections and other points of interest.
- Negative control points to avoid areas of sensitivity or special issue.
- Skill progression which keeps locals engaged and visitors returning by providing a spectrum of opportunities, challenges, and exploration.
- Winter recreation uses Nordic skis, fat tire bikes, snowshoes and snowmobiles.
- Purpose-built and directional trails including but not limited to ADA trails, adaptive mountain bike trails, downhill-traffic-only trails and quad trails.
- Strategic alignment of trails to complement fuels-reduction projects that reduce risk of wildfire to nearby fire-safe communities.
- Restoration of non-system user created roads and social trails.
- Rerouting, reclassification or obliteration of Forest Service system roads and trails that are causing negative impacts to forest resources.
- Trailhead facility planning to include parking/staging, restrooms and signage.

Below is a discussion of the Citizen Identified Recreation Zones with recommended conditions based on survey results and regional trail development and maintenance expertise. Regional examples of existing Recreation Zones and Recreation Areas include: Colby Mountain, Lakes Basin National Recreation Area, Mount Hough Trail System, South Park Trail System, East Zone Connectivity and Restoration Project, Claremont Trail Project, Cottonwood Connectivity and Restoration Project, along with regional Wilderness areas.

Future planning for Community Identified Recreation Zone (CIRZ) would start by SBTS engaging with local residents and tribal representatives to better understand the community's specific needs for trail types, design and location. This approach reflects feedback from public land agencies, county officials, tribes and community members, all of whom emphasized the importance of close collaboration during CIRZ planning. A key component of this work will be the Fire Hardened Trails prescription, which helps guide trail location and design, especially for routes located in the Wildland Urban Interface by integrating wildfire resilience with recreation planning. To keep everyone involved, SBTS will share regular updates and host field days where people can explore potential trail routes, offer input and help shape the future of outdoor access in their region.

The CIRZ identified during the OLR:

- Stover Mountain: Just outside the community of Chester, this CIRZ reflects an existing community vision. The goal is to create a non-motorized stacked loop trail system with a connection to the Pacific Crest Trail (PCT), allowing thru-hikers to easily walk into town for resupply. This connection would also position Chester as a key gateway to long-distance PCT adventures.
- Butt Lake: This CIRZ was identified through community meetings, survey results and the presence of long-established social trails within the zone. Many of these include

unsanctioned motorized singletrack routes that have been used by the public for generations, highlighting the area's deep recreational history and the need for thoughtful planning to manage and enhance access.

- Lake Davis: Just outside the communities of Delleker and Portola, this CIRZ includes Smith Peak and Lake Davis. The Zone was identified during the Connected Communities planning process based on community meetings, survey results, and social trails located within the Zone.
- Mohawk Valley: The area was first identified in 2015 as part of an extensive multi-year public outreach campaign led by SBTS, Plumas National Forest, Beckwourth Ranger District and Trails for Recreation and Community (TRAC). The is 13,692 acres within this recreation zone with 13.26 miles of existing trails. It is outside the town of Graeagle.
- Frenchman: Just north of Chillcoot, the Zone was identified during the Connected Communities planning process based on community meetings, survey results and social trails located within the Zone. Significant unsanctioned motorcycle use is occurring, and has occurred for generations on social trails located in this area, demonstrating a need to provide sustainable, safe and legal recreation trail opportunities to motorized trail users.

4.3 Fire Hardened Trails (Desired Conditions for Fuels Reduction and Recreation Trails)

A Fire Hardened Trail is a designated and managed corridor that combines both vegetation management and recreational trails. It is a planned corridor where the preservation and enhancement of the forest plays a significant role in forest restoration and fuels reduction work, and is integrated with the creation of trails for recreational use.

Fire Hardened Trails serve as multi-functional spaces that cater to both environmental conservation and community well-being. They are designed to provide a harmonious blend of nature and recreation, promoting a healthier lifestyle while preserving and enhancing the natural environment.

The Fire Hardened Trail prescription utilizes forest management techniques to create a resilient forest that supports healthy ecosystems, recreational benefits and wildfire resiliency. The community and forest benefits of a Fire-Hardened Trail can be accomplished by creating fuel conditions that pose low wildfire risk to communities while fostering a pattern of forest fuels that slow wildfire spread and intensity when wildfire encounters the trail corridors. The Prescription is a concept consistent with the goals in California's Joint Strategy for Sustainable Outdoor Recreation and Wildfire Resilience, and aims to implement identified actions. Specifically, these desired conditions would implement Goal #1 of the Strategy: Integrate Forest Health and Sustainable Outdoor Recreation. Additionally, Fire Hardened Trails embrace the essence of Shared Stewardship by 'using all available tools for active management.' (California Wildlife and Forest Resilience Task Force , 2022).

During the Dixie Fire and North Complex Fire, trails were used as firelines for containment, anchor points, and strategic firing operations. Removing fuels along trail corridors allows for the protection of the investment in the trail systems, accounts for wildfire prevention from trail users, and provides strategically placed and tactically feasible trails for wildland fire operations.

The Fire Hardened Trail prescription for vegetation management corridors can be accomplished through generally accepted fuels reduction practices and non-commercial thinning (i.e., mechanical thinning, mechanical piling, mastication, towed and tracked chipping, hand cutting, hand piling, pruning, pile burning and underburning). The site specific prescription for a Fire-Hardened Trail will be created in partnership with the local land managers, applicable fire control agencies and the Natural Resources Conservation Service, Conservation Practice Specification Fuel Break – Forestland (Code 383).

During the NEPA (National Environmental Policy Act) and CEQA (California Environmental Quality Act) process, a 100-foot wide corridor is identified as being the optimum location for a recreational trail and is then surveyed by resource specialists for impacts to archaeology, botany, wildlife and hydrology. The Fire Hardened Trails prescription maximizes the 100-foot wide trail corridor as a fuel break that is conducive for trails as a fireline. The Fire Hardened Trails prescription includes the following activities:

Reduced Ignition Zone - Within 15 feet of both sides of centerline of the trail:

- Remove all dead standing or downed trees and brush
- Remove all trees less than 6 inch DBH
- Limb all trees to a height of 8 feet, not to exceed ⅓ the total height of the tree

Limited Spread Zone - Within 50 feet of both sides of the centerline of the trail:

- Thin 40 % of trees less than 6 inch DBH and reduce brush components by 50 %
- Remove all dead standing trees less than 12” DBH
- Leave trees will have a minimum spacing of 10 feet between branch tips of surrounding trees on slopes less than 20% and will have 20 feet of spacing on slopes greater than 20%
- Keep at least three times the height of any shrubs between the shrubs and the lowest branches of overhanging trees
- Disposal of slash will be accomplished either through chipping on site or hand piling, not to exceed 4x4, to be burned by the US Forest Service.

This approach highlights the integration of recreation with environmental stewardship, addressing key concerns such as wildfire prevention, sustainable recreation, and the preservation of California's critical watersheds. In collaboration with regional stakeholders, land managers, emergency services personnel, wildland firefighters, Department of Forestry and Fire Protection staff, SBTS drafted the Fire-Hardened Trail prescription, which is included in **Appendix V. Fire Hardened Trails.**

5. IMPLEMENTATION AND ACTION STEPS

Implementation of projects identified as part of Connected Communities will require widespread coordination and commitment from regional partners and stakeholders as well as aggressive, creative and opportunistic approaches to funding. This may limit stakeholder's ability to implement the project in one linear fashion. Implementation and action steps will differ for Alternatives A and B.

5.1 Pre-Planning

During the pre-planning phase, SBTS has engaged tribes, community members, business owners and stakeholders through phone calls, emails, meetings and site visits to review proposed trail alignments and address concerns. Funded by the Sierra Nevada Conservancy, these efforts support the Connected Communities vision, with SBTS committed to ongoing engagement. To ensure meaningful tribal engagement, SBTS plans to secure funding to reimburse tribes for their time in evaluating and monitoring projects.

For Alternative A, SBTS used its proven approach to identify the best possible trail routes,starting with map-based analysis of environmental, cultural and terrain factors, followed by on-the-ground review. This careful planning helps ensure the trails are sustainable, feasible and meet Forest Service standards. By doing this work early, SBTS supports better collaboration with land managers, tribes and local communities, helping the official environmental review process (NEPA/CEQA) move forward more smoothly.

For Alternative B, SBTS will apply its best practice Optimum Location Review methods to field-verify alignment, condition, sustainability and multi-use suitability along Connected Communities Inventoried Routes using existing trails and roads.

5.2 Environmental Review

Since Connected Communities primarily involves federal land managed by the U.S. Forest Service and Bureau of Land Management, all project components must comply with the National Environmental Policy Act (NEPA) and receive final approval from the land manager. While land managers must approve the final NEPA decision, they also play a key role earlier, by accepting proposed projects before the NEPA process begins and later, by approving whether or not to move forward with implementation. Not all approved plans are ultimately carried out.

The NEPA process includes formal scoping, tribal notifications and opportunities for public engagement and comment. Additionally, any motorized trail components must adhere to the U.S. Forest Service Travel Management Rule and Minimization Criteria, following Trail Fundamentals and Sustainable Trail Design principles. **Appendix IV. Sustainable Trail Management Objectives**.

SBTS recommends involving approved third-party consultants for field surveys within a 100-foot corridor and proposed trailhead locations, as well as for drafting NEPA and CEQA documents for review and approval by lead agencies.

SBTS recommends forming regional advisory groups with Indigenous tribes, local stakeholders, residents, business owners and agency staff to guide pre-planning, environmental review and project development, ensuring balanced community needs and engagement.

Proposed trails, trailheads, infrastructure, fuels reduction and restoration measures will require resource surveys directed by land managers, ideally at the Forest District level. These surveys will assess wildlife, heritage, botany, hydrology and recreation. SBTS will also collaborate with tribes to ensure Tribal Monitors prevent impacts to cultural sites.

Any engineered features (bridge, puncheon, armored creek crossing, rock wall, etc.) or mitigation measures would be determined as part of the environmental review process. Final trail corridor, trailhead infrastructure, fuels-reduction prescription and restoration measures will rely on the comprehensive environmental review process and land manager decision.

Although Connected Communities focuses primarily on federal lands and requires only NEPA for environmental review, SBTS recommends that all projects comply with California Environmental Quality Act (CEQA) in order to allow for state funding sources and to protect California's natural resources. The CEQA compliance would lean heavily on the surveys and analysis completed under NEPA.

The NEPA and CEQA processes, along with land manager approval, will determine trail designations for each project. SBTS pictures a few potential options for trail segment designation under Alternative A:

Option 1 - Motorized (motorcycle) shared-use trail, built to Motorcycle Trail Class 2 standards.

Option 2 - Non-motorized shared-use trail open to Class 1 E-Bikes only, built to Bike Trail Class 2 standards.

Option 3 - Non-motorized shared-use trail, built to Bike Trail Class 2 standards.

Option 4 - No trail segments are approved, and no action is taken.

Alternative B would not require NEPA, as it utilizes existing roads and trails with no new construction.

5.3 Construction

Construction of trail segments will not occur until Environmental Review (Phase 2) is complete and the segments are approved for construction. Once these two steps are completed construction methods will follow the methodology described in section 4.1.1 Proposed Trail Design. Construction of capital improvement projects such as trailheads will be a large undertaking. The scale of construction varies depending on if the site requires full development or upgrades to existing facilities. Additionally the extent of development also depends on the site location and desired amenities; in town locations would have more amenities than remote trail head locations. A more detailed discussion of suggested amenities for each proposed trailhead location is included in section 6.1.4 Trailhead Infrastructure Projects.

Implementation of the Fire Hardened Trails prescription along the trail will be considered where the trails provide logical fuel breaks. In those scenarios a 100 foot corridor (50 feet on either side of the trail) would be established by hand or mechanical vegetation clearing activities such as controlled burns, pruning, masticating, cutting and piling. Further detail is provided in **Appendix V. Fire Hardened Trails.**

Alternative B would not require new construction.

5.4 Maintenance

Maintenance will vary based on the scale, pace and extent of implementation, with different needs for trails, infrastructure and fuels reduction. Trail corridors affected by high-severity wildfire require more frequent maintenance, including enhancing and constructing drains, filling burnt-out stump holes, mitigating sheet flow impacts and addressing safety hazards such as fallen trees, punji sticks and large debris, especially after wind events. The primary fire-related challenges include increased erosion from sheet flow, accelerated brush regrowth and a continuous cycle of hazard trees falling onto trails.

By incorporating sustainable travel management objectives, trail maintenance will be significantly reduced. Properly designed sustainable trails minimize tread surface repair and erosion issues. As a result, maintenance needs will primarily consist of annual tree clearing, brush clearing every 3-5 years, and tread repair as needed following major precipitation events.

Managing Fire-Hardened Trail corridors requires planning, execution and ongoing assessment to ensure functionality while minimizing environmental impact. This includes sustainable vegetation removal, scheduled maintenance such as controlled burns, pruning or selective herbicide use, and clearing on a 10-20 year cycle, depending on landscape needs. SBTS will conduct annual maintenance, including deadfall removal, brush clearing and corridor condition monitoring.

To help address the growing need for trail maintenance, SBTS operates an Adopt-A-Trail program in partnership with the Forest Service. This program creates a structured opportunity for businesses, organizations and individuals to contribute to the upkeep of designated National Forest System Trails through sponsorship and volunteer engagement. Administered under approved Volunteer Agreements with the Plumas and Tahoe National Forests, the program aligns with agency requirements and supports land manager priorities by supplementing limited federal resources. Adoptable trails are selected in coordination with Forest staff to ensure suitability and alignment with broader recreation and resource management goals. SBTS provides sponsors with supervision, tools and training during scheduled work days, ensuring that all activities meet Forest Service safety and stewardship standards. In addition to filling a critical maintenance gap, the program fosters community ownership, enhances public-private partnerships and increases overall stewardship capacity on National Forest lands.

6. COST ESTIMATES

As we move forward with Connected Communities, it's important to understand that project costs vary significantly across different phases: pre-planning, environmental review, construction and long-term maintenance. These costs are influenced by numerous factors including regulatory requirements, geography, forest health and unforeseen natural events.

Pre-planning includes preliminary mapping, community engagement, route verification and desktop review by land managers for cultural and biological surveys. Costs during this phase are generally lower but can rise depending on the scale of the area being studied and the level of public involvement required.

Environmental review under NEPA or CEQA can range dramatically. A project qualifying for a Categorical Exclusion (CE) may be approved quickly and at low cost. However, if an Environmental Assessment (EA) or Environmental Impact Statement (EIS) is required due to sensitive resources or potential impacts, costs and timelines increase substantially due to additional analysis, consultation and public review.

Construction costs are highly site-specific. Building trails in flat, open terrain is significantly less expensive than constructing on steep slopes, through rocky terrain or in remote backcountry areas. Soil type, water crossings and necessary structures like bridges or retaining walls also impact final costs.

Maintenance is a long-term investment and just as important as building the trail. Routine upkeep like brushing, drainage and surface repair is manageable with a trained crew. However, wildfire impacts can drastically increase maintenance costs. Burned areas often experience increased treefall, erosion and sedimentation, requiring frequent trail clearing and reconstruction.

Connected Communities is a dynamic vision, and costs will be evaluated at a project level with adaptability built into every step. We recognize the importance of being efficient with resources while delivering trails that are sustainable, accessible and resilient for future generations.

7. Conclusion

Alternative A, while requiring a longer timeline and greater investment, proposes the construction of new recreational trails that would enhance user experience and generate greater tourism benefits. This approach creates a long-term economic resource and supports sustained recreation-based economies across the 15 Connected Communities.

Alternative B eliminates the need for new construction by utilizing an existing route, significantly reducing costs and implementation time. While it may not provide the same level of user appeal or economic return as new trail development, it offers a streamlined and practical solution for advancing the vision of regional connectivity and economic resilience in the near term.