



State Route 28 National Scenic Byway Corridor Management Plan

*America's Most
Beautiful Drive*

October 4, 2013



Tahoe Transportation
DISTRICT

**State Route 28 National Scenic Byway
Corridor Management Plan
America's Most Beautiful Drive**

Adopted by Tahoe Transportation District
October 4, 2013

Prepared For:

Tahoe Transportation District
Tahoe Regional Planning Agency
Nevada Division of State Parks
U.S. Forest Service Lake Tahoe Basin Management Unit
Nevada Department of Transportation
Nevada Highway Patrol
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Unparalleled popularity,
unprecedented collaboration.



2.6

million+ vehicles

impact Tahoe's longest undeveloped shoreline.

SR 28 CORRIDOR MANAGEMENT PLAN OVERVIEW

Eleven miles of undeveloped shoreline, the longest stretch at Lake Tahoe, parallels Nevada State Route (SR) 28 south of Lakeshore Drive in Incline Village. This two-lane, mountainside road is the only access route for over one million recreating visitors and 2.6 million-plus vehicles per year.

And its popularity is growing. But the area's sensitive resources suffer due to a lack of coordinated solutions for safer, adequate access to a variety of recreation experiences. Until now...

In an unprecedented response to the safety and environmental concerns, the Tahoe Transportation District (TTD) partnered with 12 agencies to develop a Corridor Management Plan (CMP) for SR 28. While recognizing individual jurisdictions, it creates a platform for effective collaboration to protect and enhance this section of "America's Most Beautiful Drive."

"A safer, multi-modal and pedestrian-friendly SR 28 corridor can only be achieved by agencies working together."

Carl Hasty, District Manager, Tahoe Transportation District

Challenges

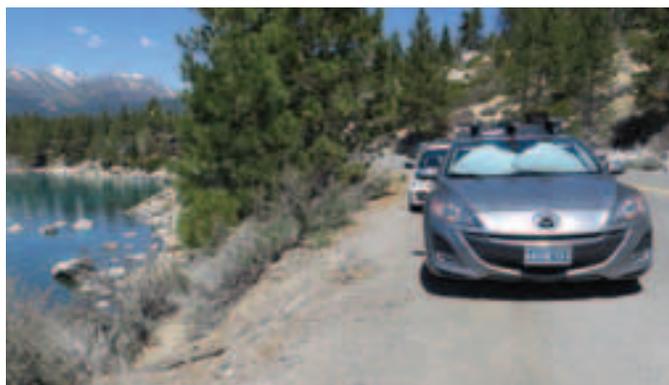
Recreation demand is double the existing parking capacity (1,175 vehicles looking for parking at the overall peak time and only 582 paved spaces). This results in a multitude of challenges. Perhaps the biggest is “shoulder-parking.”

The areas are narrow, often at the edge of steep inclines with limited sight distance. Safety and erosion are important concerns. The number of vehicles parked along the shoulder has grown every year – almost 170% between 2000 and 2011 – and is projected to double by 2038.

Safety is critical as the fatality trend increased from 2006-2013 in contrast to the statewide average that decreased about 50% per NDOT. Pedestrians (nearly 2,000 at peak overall demand) are forced to walk in travel lanes. Vehicles pull off and on. Traffic slows and becomes congested as vehicles, trying to enter Sand Harbor’s typically full lot, back up for almost a mile.



Safety issues and “social trails” result from shoulder-parking.



Shoulder-parking causes erosion and sediment run-off.



Rugged terrain limits options for off-highway parking.

Chaos vs. management. The only option here is to manage the SR 28 Corridor for safe driving and access to the lake. It's what Tahoe visitors and residents deserve.

Randy Jackson, Sergeant
Nevada Highway Patrol, Incline Village/Lake Tahoe



Congestion at Sand Harbor hinders emergency vehicle access.



170% increase in shoulder parking August 2000 to August 2011.

Rarely do federal, state and local agencies tackle issues together. The East Shore is a national treasure, however, that we must protect, even while providing safe, recreational access.

Dave Morrow, Administrator
Nevada Division of State Parks

Opportunities

The plan connects Corridor challenges with opportunities that can be grouped into five primary and inter-related benefits. To address these opportunities and realize the benefits, project partners identified their agencies' strengths and highlighted potential collaboration.

Protect the Lake.

Reduce erosion with appropriate parking, trails and access. Ensure water quality by reducing fine sediments that reach the lake.

Design for fewer accidents, zero fatalities. Provide safer pedestrian, bicyclist and motorist choices. Construct emergency turnouts and viewpoints.

Improve safety.

Promote economic vitality.

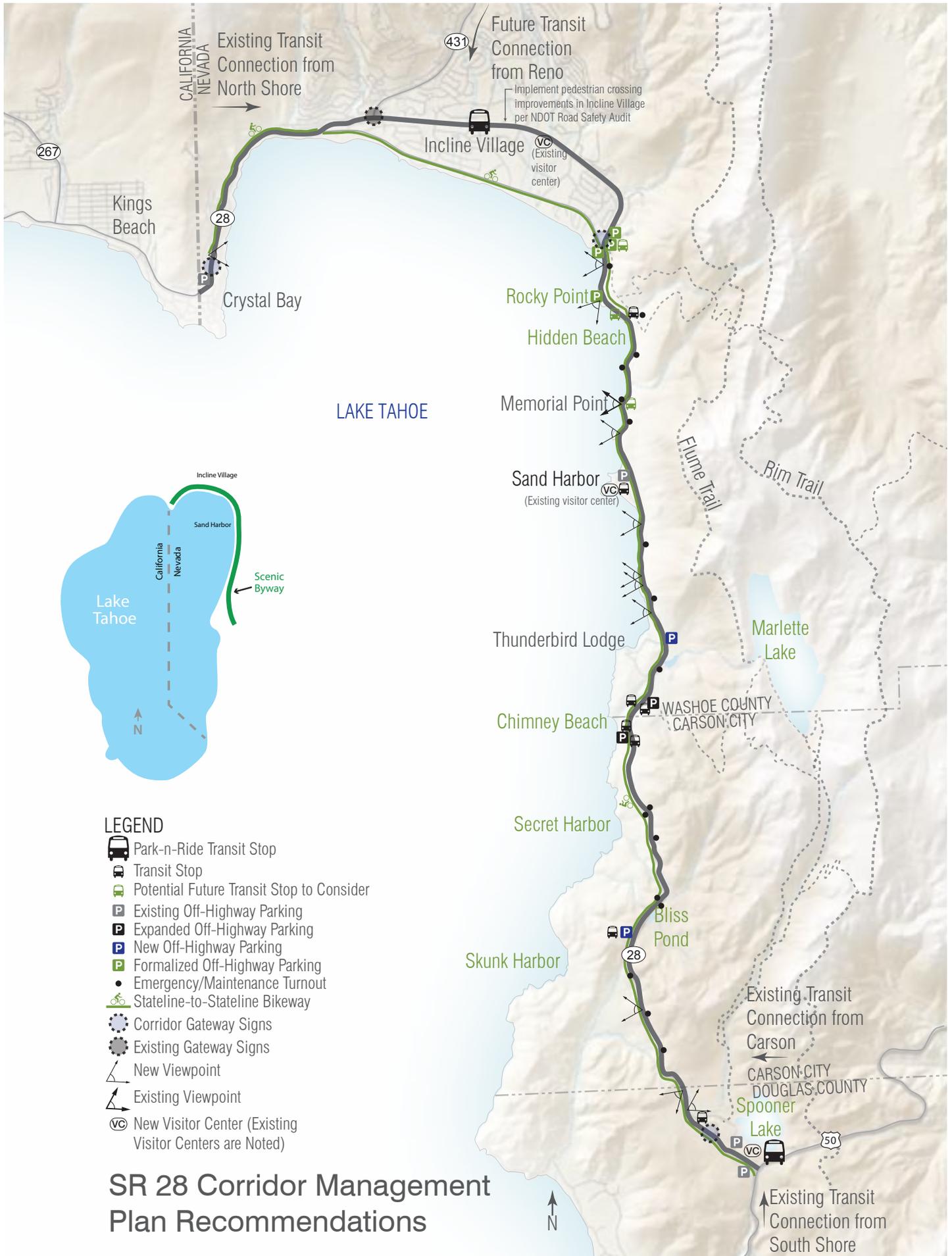
Encourage collaboration. Establish public/private partnerships. Reduce resource impacts.

Manage capacity at current levels. Enhance recreation alternatives. Promote value to future generations.

Enhance the visitor experience.

Expand transportation choices

Encourage riding transit, bicycling and walking. Connect off-highway parking to transit. Construct a "wikeable" (walking/biking) shared-use path.



Recommendations

One of the CMP's overall goals is to provide all users a Corridor that reflects its National Scenic Byway status. The conceptual drawings and photographs on these pages depict the quality of some of the plan's solutions.

New or expanded off-highway or park-n-ride lots will relocate shoulder-parking to safe sites. Emergency turnouts will help reduce Corridor congestion. Designated viewpoints with 20-minute parking will also ease vehicle

congestion and improve safety. Pedestrians will benefit from implementation of Road Safety/Audit improvements to make Incline Village pedestrian crossings safer.

Transit service will add transportation choices, helping to manage access within capacity. The "wikeable" (walking/ biking) Nevada Stateline-to-Stateline Bikeway will connect trailheads to recreation, while clearly defined trail systems allow restoration of over four miles of user-created trails.

27

emergency pullouts plus 12 viewpoints

increasing safety, reducing congestion

With a contextual rim to lake approach, the partnering agencies can integrate multi-modal transportation choices to enhance the visitor experience and protect the environment.

Nancy J. Gibson, Forest Supervisor
USFS Lake Tahoe Basin Management Unit



Conceptual illustration of expanded parking at the Secret Harbor Trailhead.



Conceptual illustration of a viewpoint along the Bikeway to enhance the bicyclist and pedestrian experience.



Conceptual illustration of the Bikeway, integrated with clearly defined trails to reduce erosion and provide safe access.



Concept of transit service, like the East Shore Express, to manage access and ensure a quality visitor experience.

Implementation

Based on the 13 partners' strengths, jurisdictions and interests, the CMP proposes a framework for project funding, planning, construction, maintenance and evaluation, as well as long-term collaboration.

Success can be measured by completing projects with the overall goals of creating safe parking alternatives, improving aesthetics, enhancing the visitor experience and safeguarding the undeveloped shoreline.



The CMP proposes improving the visual environment for a "national park" quality.



Concept of viewpoints that allow scenic-drivers to safely park without leaving vehicles unattended.



Success means protecting Lake Tahoe while providing safe, recreational access.

Partnering to improve the safety, traffic flow and aesthetics along the Corridor will result in a true National Scenic Byway that is also a model for other roadways around the lake.

Rudy Malfabon, P.E., Director
Nevada Department of Transportation

Technology

60+% of outdoor recreationalists, ages 18-44, use technology to plan. This growing trend can enhance the visitor experience along the SR 28 Corridor.

Through the Internet, social media and mobile apps, we can distribute information about the different beach experiences, types of trail access, hiking/ biking trails, etc. We can also broadcast timely updates on parking availability, transit options and alternate locations.

Continuous data capture will allow us to manage/ maintain visitor levels as well, by monitoring transit use and capping available parking at park-n-ride lots.

Information

Please visit our website for more information:
www.tahoetransportation.org

We welcome your input. Please contact:
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Commitment

To jointly address shared issues, the TTD and its 12 partners have created a remarkable implementation mechanism: the SR 28 Corridor Management Plan. We thank the public for thoughtful comments and for supporting our commitment to protect the lake, improve safety, enhance recreation with transportation choices and benefit local/regional economies.

We, the undersigned, look forward to continued collaboration with the community as well as with each other:



Tahoe Transportation District

Carl Hasty, District Manager



Federal Highway Administration

Sue Klekar, Division Administrator



Nevada Department of Transportation

Rudy Malfabon, P.E., Director



Nevada Highway Patrol

Sergeant Randy Jackson
Incline Village/Lake Tahoe



Carson City Regional Transportation Commission

John McKenna, Chair



County of Washoe

John Berkich, Interim County Manager



Washoe Tribe of Nevada and California

Darrel Cruz, Washoe Cultural Resource
Department-Director, Tribal Historic
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Tahoe Regional Planning Agency

Joanne Marchetta, Executive Director

Tim Carlson, Presidential Appointee



U.S. Forest Service

Nancy J. Gibson, Forest Supervisor
Lake Tahoe Basin Management Unit



Nevada Division of State Parks

Dave Morrow, Administrator



State of Nevada, Division of State Lands

James R. Lawrence, Administrator and
State Land Registrar



County of Douglas

Steve Mokrohisky, County Manager



Incline Village General Improvement District

William B. Horn, General Manager

13 agencies, one effort

The Plan recognizes the unique role of individual agencies, their missions and their goals while providing a platform for a coordinated approach to assist agencies in developing future collaborations so they may operate more effectively and efficiently within the Corridor.

Executive Summary

In response to concerns about the numerous pedestrian and traffic challenges along Nevada State Route (SR) 28, the Tahoe Transportation District (TTD) partnered with 12 agencies (the Plan Partners) to develop a Corridor Management Plan for the National Scenic Byway referred to as "America's Most Beautiful Drive", the longest stretch of undeveloped shoreline at Lake Tahoe.

The Corridor Management Plan (CMP) includes the contextual area (from rim to lake) of SR 28 from Crystal Bay to the U.S. 50 intersection. This contextual planning approach does not supersede individual jurisdictions' management plans, but allows for a coordinated approach and understanding of projects and efforts.

The majority of issues facing the Corridor are associated with shoulder parking and recreation access from SR 28 and the visitor experience. Recommendations focus on addressing issues in the east shore recreation area south of Lakeshore Boulevard to the U.S. 50 intersection.

The CMP envisions a safe Corridor with parking in designated, off-highway lots that are interconnected by a system of trails and separated shared-use path. It describes recommendations to allow Corridor users the ability to explore the scenic Corridor, from rim to lake, with fewer cars, less noise, and easier access.

The Plan recognizes the unique role, mission, and goals of individual agencies while providing a platform for a coordinated approach to facilitate agency collaborations so they may operate more effectively and efficiently within the Corridor.

Purpose & Need

Purpose

The purpose of the SR 28 National Scenic Corridor Management Plan is to address the Corridor's safety, transportation, environmental, recreation, scenic, and economic needs in a coordinated manner.

Need

The need stems primarily from the Corridor's high recreation demand and limited areas of safe, off-highway parking to meet that demand. SR 28 is perhaps one of the most photographed areas of the region, showcasing Lake Tahoe's clarity with its crystal blue waters and unique boulder outcroppings. It hosts over one million visitors recreating annually (State Parks, 2011) who come to enjoy the beaches, coves, and trails. Additionally, fatality trends increased from 2004-2011 in contrast to the statewide average that decreased about 50% per NDOT.

To protect this area and allow its continued use for sustainable recreation, it is necessary to address the impacts of user activity on the multi-modal transportation systems as well as the impacts of transportation systems on this area's unique natural resources and the recreational experience.

A plan is needed that engages all jurisdictions operating in the Corridor, evaluates shared issues, coordinates planning and construction projects and monitors impacts to ensure overall Corridor needs are met, goals are attained, and funding sources leveraged, leading to the successful completion of complex projects in the Tahoe Basin while providing for long term maintenance and operations.

Challenges

There are 2.6 million vehicles using the Corridor annually (based on NDOT traffic counts from http://www.nevadadot.com/About_NDOT/NDOT_Divisions/Planning/Traffic/Annual_Traffic_Reports.aspx), of which, many are taking the popular scenic drive around Lake Tahoe. The narrow, winding highway presents many challenges which are discussed in detail in Chapter 4.

- The number of vehicles parked along the shoulder has grown every year – almost 170% between 2000 and 2011 – and is projected to double by 2038.
- The demand for parking is double the existing safe, off-highway parking capacity (1,175 vehicles at overall peak demand and only 582 available spaces).
- The majority of off-highway parking serves Sand Harbor (530 spaces), with only 52 spaces for the rest of the Corridor.
- Vehicles are parked along narrow shoulders, at the edge of steep slopes, and in areas of limited sight distance.
- Pedestrians are forced to walk in travel lanes with children, dogs, coolers, chairs, and other recreation gear as they make their way to their destination.
- In 2011 at the hour of peak overall parking demand, surveyors counted 593 cars parked along the roadway shoulder – equating to almost 2,000 people walking along the roadway in heavy traffic (LSC, September 8, 2011).
- The east shore has an overall crash rate of 1.33 per million vehicle miles compared to the average two lane rural Nevada Highway at 0.96. Fatalities have also been on a rise from 2006 to 2013, which is opposite the statewide trend for the same time period.
- Cars are parked over the fog line and vehicle accidents occur as cars stop abruptly to park along the shoulder and make U-turns across the highway to secure a parking spot.
- Traffic slows and becomes congested as vehicles try to negotiate around shoulder-parked cars or try to enter Sand Harbor's typically full lot that backs up traffic for almost a mile.
- Traffic hinders the movement of emergency vehicles.
- Pedestrians jump over guardrails to make their way from the road shoulder to the beaches.
- Users create unauthorized trails as they cut across the hillsides from their shoulder-parked cars, causing erosion and impacting lake clarity and quality.
- There is a lack of room for bicyclists using the Corridor.
- Preliminary evaluation of visitor use levels supports discussions with land managers that east shore beaches are close to or at capacity. Water level is an important factor in available beach space.
- The type of visitor experience varies for the recreation sites. There is a desire to maintain the high quality and different types of experiences. Visitor use should not be significantly shifted from one site to the next.

The need stems primarily from the Corridor's high recreation demand and limited areas of safe, off-highway parking to meet that demand.

The majority of issues facing the Corridor are associated with shoulder parking and recreation access from SR 28 and maintaining the visitor experience. Recommendations focus on addressing issues in the east shore recreation area.

The CMP connects Corridor challenges with opportunities to achieve goals.

- The number of differing agencies and governing bodies with Corridor jurisdiction creates a need for continued collaboration to address shared issues and overcome procedural hurdles.

Goals

The Plan Partners; along with Design Workshop, Karen Mullen-Ehly, and LSC Transportation Consultants; evaluated the issues and input from public and stakeholder comments to develop a strategy of connecting Corridor challenges with opportunities that then can be grouped according to their inter-related benefits.

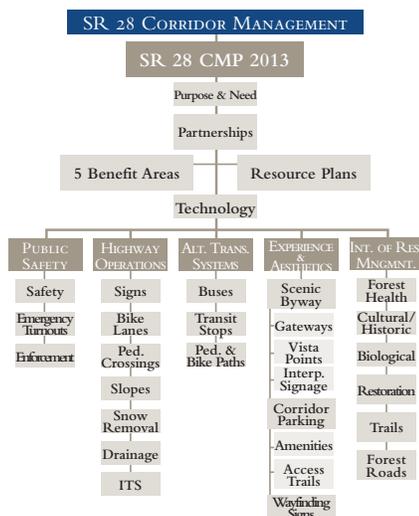
- Improve Safety.
 - Design for fewer accidents, zero fatalities.
 - Provide safer pedestrian, bicyclist, and motorist choices.
 - Construct emergency turnouts and viewpoints to improve traffic flow.
- Protect Lake Tahoe.
 - Reduce erosion with appropriate parking, trails, and access.
 - Ensure water quality by reducing fine sediments that reach Lake Tahoe.
- Enhance the visitor experience.
 - Manage capacity at appropriate levels.
 - Enhance recreation alternatives.
 - Promote value to future generations.
- Expand multi-modal transportation choices.
 - Encourage riding transit, bicycling, and walking.
 - Connect off-highway parking to transit.
 - Construct a walking/biking shared-use path.
- Promote economic vitality.
 - Encourage collaboration.
 - Establish public/private partnerships.
 - Reduce resource impacts.

Corridor Management Structure

The CMP requires implementing projects and managing the Corridor across jurisdictional boundaries while recognizing each agency’s mission and goals. The CMP is organized with this goal in mind. Five management categories create the framework for implementation, management, and maintenance.

- Public Safety
- Highway Operations
- Alternative Transportation Systems
- User Experience & Aesthetics
- Integration of Resource Management

The CMP is a living document that focuses on identifying opportunities for partnerships and collaborations among agencies to complete projects and fund implementation and maintenance. It is likely that new opportunities and challenges will arise that alter strategies to achieve Corridor goals. As circumstances change, Plan Partners should modify the project list and adjust recommended action items accordingly.



See page 25 for a full-size version.

Solutions

As a result of Corridor analysis and aligning the challenges with opportunities, the Plan Partners, along with the consultants, developed a strategy and a series of solutions that maintain appropriate visitor use levels while improving safety, protecting Lake Tahoe, and enhancing the visitor experience. A summary of the strategies and recommendations are below.

Relocated Shoulder Parking

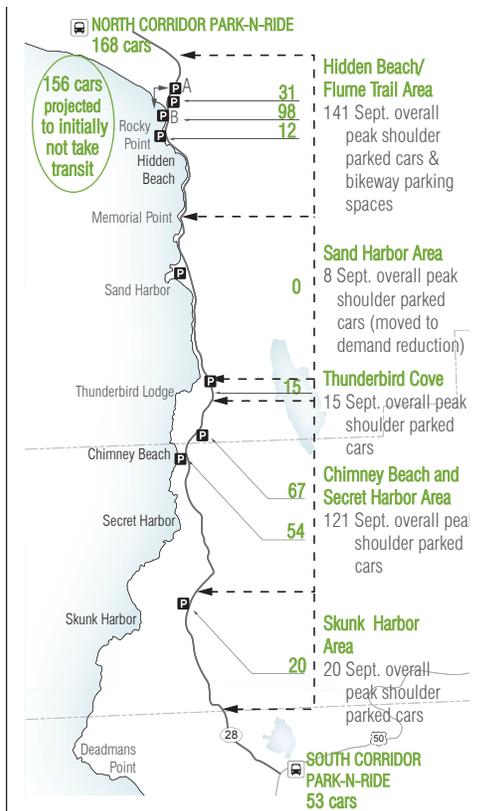
- Relocate shoulder parking and provide safe, environmentally appropriate parking.
- Provide additional off-highway parking by expanding existing lots, developing new lots, and formalizing existing shoulder parking. Additional parking should be designed to accommodate the peak overall demand for shoulder season use when transit is not running.
- Accommodate future shared-use path parking demands.
- Locate new parking and design transit to accommodate current recreation access patterns and use levels.
- Expand the no parking zone and provide barriers or signage and enforcement concurrently with relocated shoulder parking.
- Work with the management team to address parking management issues such as paid parking, time of openings/closure, and snow removal for lots that may be open year-round.
- Improve access with trail system connectivity to parking and recreation destinations.

Shoulder Parking Relocation Summary

Summer's peak overall demand: 593 shoulder-parked vehicles
 Stateline-to-Stateline Bikeway parking demand: 81 spaces
 Total: 674 relocated spaces

Existing and potential off-highway parking areas do not have the ability to accommodate the relocation of summer peak overall parking demands. Sand harbor has 530 spaces and there is limited ability to add additional on-site parking. The same is true for other corridor parking areas. Transit is needed to meet the excess demand.

Consequently, shoulder parking is relocated to both additional internal off-highway parking and new external park-n-ride lots at the Corridor's north and south ends. Because transit is only recommended for peak summer use and will end after Labor Day, the peak overall demand for shoulder parking during the shoulder-season is accommodated by increasing off-highway parking near each recreation site.



Recommended Relocation of Shoulder Parking to Safe, Off-Highway Parking Areas and Park-n-Ride Areas

Existing and potential off-highway parking areas can not accommodate summer peak overall parking demands. Transit is needed to meet the excess demand.

Transit is only recommended for peak summer use. The peak overall parking demand for the shoulder-season is accommodated by increasing off-highway parking near each recreation site.

The approximate, recommended number of relocated shoulder parking spaces is shown below for each existing and new trailhead.

TRAILHEAD	PARKING SPACES
Flume Trail Trailhead (New)	31
North Trailhead Parking Areas A & B (New)	98
Rocky Point Vista Parking (New)	12 (plus up to 4 vista spaces)
Thunderbird Cove Trailhead (New)	15
Chimney Beach Trailhead (Existing)	67 add'tl spaces (21 existing)
Secret Harbor Trailhead (Existing)	54 add'tl spaces (31 existing)
Skunk Harbor Trailhead (New)	20 (plus up to 3 Tribe spaces)
North Corridor Park-n-Ride (New)	168
South Corridor Park-n-Ride (New)	53
Initial Demand Reduction (Users who will go elsewhere instead of using transit – corresponds with potential park-n-ride lot growth while maintaining current visitor use)	156
Total	674

Notes

- The number of spaces at the park-n-rides may increase over time to accommodate the number of spaces associated with the initial demand reduction as users choose use transit.
- The quantity of relocated parking spaces allows for current user demand and visitor use patterns to continue. Agencies may revisit capacity in the future.
- Parking is limited to 15 spaces at the Thunderbird Cove trailhead due to limited beach area and potential resource impacts to the shoreline between Thunderbird Cove and Sand Harbor.
- Chimney Beach and Secret Harbor Trailheads work in concert to meet shoulder parking relocation needs for the Chimney Beach and Secret Harbor beaches. No one parking area could expand or be developed to relocate all of the parking. Therefore, the capacity is distributed among the parking locations and trail connections disperse visitors.

Summer Transit Service

- Provide summer transit service along the east shore for safe visitor access during peak demand periods. Transit stops include the areas below. Additional stops may be considered in the future.
 - Hidden Beach
 - Sand Harbor
 - Chimney Beach
 - Secret Harbor
 - Skunk Harbor
 - Spooner Lake
- Locate Park-n-Rides in Incline Village and near Spooner Lake.
- Monitor transit to manage visitor use levels. Adjust headways, the number of buses and number of stops accordingly.
- Initially, Hidden Beach may only have a northbound stop to allow land managers an opportunity to monitor visitor use level impacts and to determine the feasibility of a southbound stop.

Technology

- Provide technology-based improvements that assist and guide visitors to their destination and help traffic flow.
- Align projects, such as the co-location of utilities with trail improvements, where feasible to reduce cost and reduce construction delays on SR 28.

Bike Facilities

- Provide bike lanes. Where bike lanes can not be accommodated, shoulder widening and signage are called for. At a minimum, in steep sections there should be a bike lane in the uphill direction with a corresponding sharrow in the downhill direction.
- Implement the Stateline-to-Stateline Bikeway (shared-use path).

Environment and Aesthetics/Visitor Experience

- Implement NDOT's environmental improvement projects to reduce fine sediments reaching Lake Tahoe, helping water quality/clarity.
- Improve accessibility and safety by enhancing visitor amenities such as viewpoints and emergency turnouts.
- Highlight the Corridor by creating enhanced gateway signage.
- Improve Corridor aesthetics by applying the enhanced standard of treatment described in NDOT's Landscape & Aesthetics Corridor Plan and the TRPA Roadway Design Standards and Guidelines. Seek flexibility to the rigid application of technical standards to implement the design alternatives.
- Create a joint-use visitor center near Spooner Lake that also serves a function for park-n-ride users and aquatic invasive species inspections.

Implementation

The CMP narrows the project list into manageable projects defined by segments. Although projects are not listed in priority order, a large percentage of the Corridor problems are in the Incline Village to Sand Harbor segment. Therefore, it has been targeted as a high priority. Implementation of projects such as the East Shore Express pilot project to Sand Harbor illustrate the significant benefits, such as reduced congestion at the Sand Harbor's entrance, which can be realized along the rest of the Corridor.

The CMP estimates maintenance and operating expenses to present a general sense of costs for improvements and to illustrate the need to look at funding strategies. Estimates use Washoe County Public Works' unit prices and apply a life span/depreciation factor. A contingency was added to account for additional costs that may be associated with projects in the Tahoe Basin such as stormwater treatment systems. These costs should be revised at the time of individual project design. As the CMP is implemented, projects should ensure they have a funding source for maintenance costs prior to moving forward.

A discussion of potential revenue sources identifies opportunities to be explored. Implementation of a visitor fee should be explored by the partnering agencies and discussed with Corridor visitors. A pilot project at Sand Harbor may be conducted to evaluate the program's effectiveness.

The CMP estimates maintenance and operating expenses to present a general sense of costs for improvements and to illustrate the need to look at strategies to fund improvements.

Establishing a Management Team from the existing Plan Partners is recommended. The Management Team should work together to implement projects and provide a coordinated approach to maintenance and operations. Monitoring serves as tool for implementation, improvement, and innovation to achieve quality, efficiency, and effectiveness.

Management

Establishing a Management Team from the existing Plan Partners is recommended. The Management Team should work together to provide a coordinated approach to maintenance and operations. An Inter-local Agreement or other legal document would need to be developed amongst the agencies to provide the team's structure. It is not the intent to have this Management Team direct individual agency goals or their budgets but to establish a partnership that collaboratively works toward addressing their shared issues.

The proposed operations and maintenance responsibilities are derived based on discussions with partnering agencies and by identifying “who does what best”. Although not a commitment to do the activities, the responsible agencies should be involved in future maintenance and operations discussions.

Management may be focused around lands each agency operates, but collaboration for increased mutual benefit should be established whenever possible and when funding allows. Currently the impacts of the Corridor are not being managed. Therefore as the CMP moves forward, management of the impacts represents an increase over current practices for the land management agencies.

Monitoring

Benchmarks serve as a tool for implementation, improvement and innovation to achieve quality, efficiency, and effectiveness. Measuring the success of the CMP includes evaluating various aspects of the Plan so that partnering agencies can make improvements or adjustments as projects are implemented.

The metrics provide reference to existing conditions, note progress, and provide a look over time at emerging trends in the Corridor. Specific requirements for projects or programs are not addressed at this level nor are specific protocols. Tracking the data is not intended to be onerous. Most information is currently being collected by agencies and is cost effective, reliable, and repeatable data that uses the same methods over time to insure a consistent data source.

A Living Document

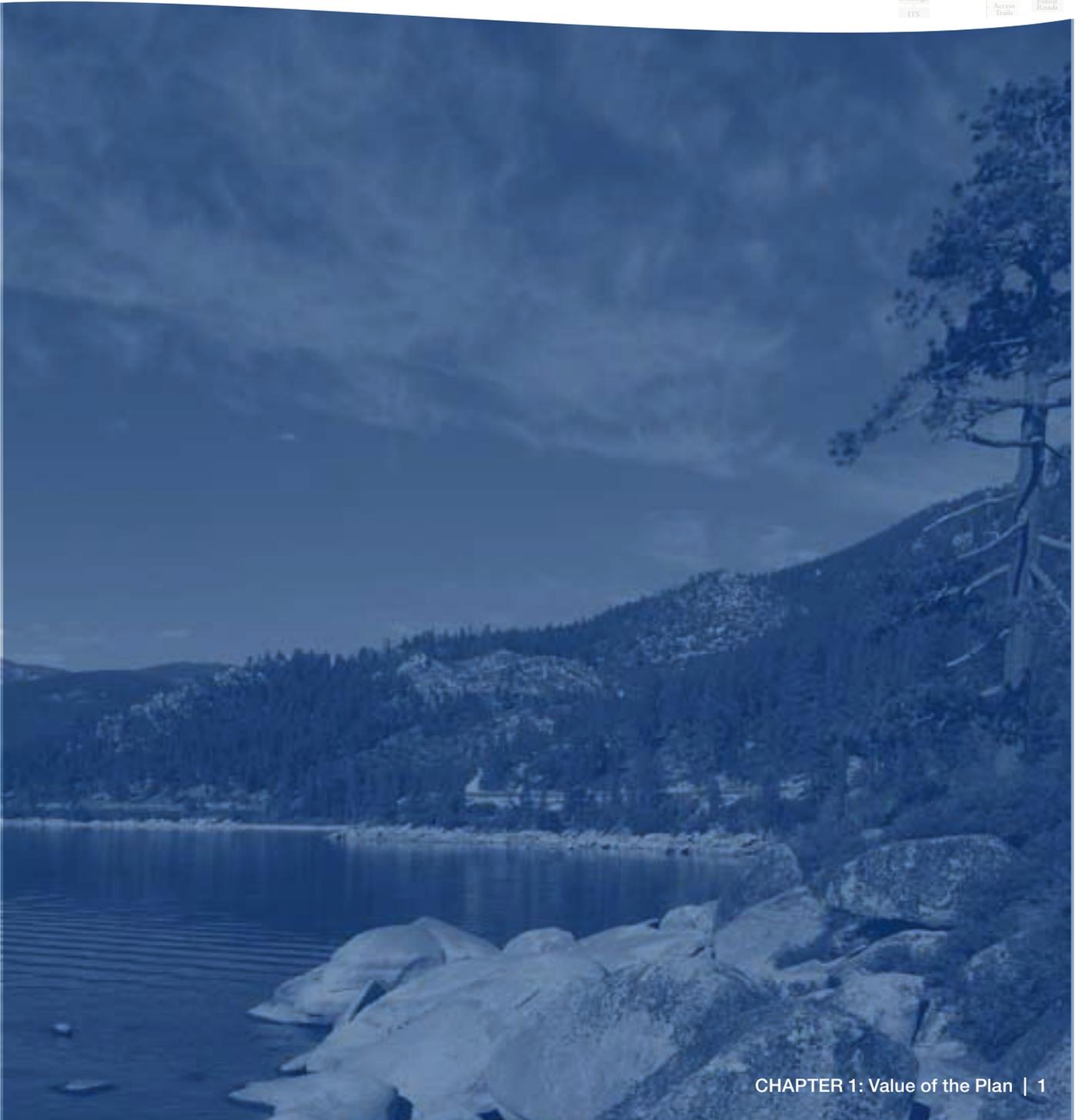
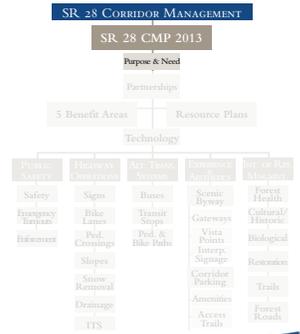
The CMP creates a platform for continuing a coordinated Corridor approach. It serves as a living and relevant framework insomuch that the Management Team maintains regular coordination and updates the action items and project list.

Key portions of the CMP are replicated in the Appendix to facilitate continual change and update. The project list is included in two forms. First, as Appendix A, the list identifies the project stage, project elements, and potential timing. It clarifies how one project may be coordinated with another and how agencies might collaborate on multiple projects. Second, as Appendix B, the list identifies potential grant funding sources.

Appendix C includes the monitoring/metrics list that can be regularly updated during normal agency monitoring sequences.

1

Value of the Plan



Value of the Plan

Nevada State Route 28 (SR 28) parallels the longest stretch of undeveloped shoreline along Lake Tahoe. Designated a national scenic byway by the Federal Highway Administration (FHWA) in 1996, the highway is referred to as “America’s Most Beautiful Drive” by the National Scenic Byways Program or “American Byways®” as it showcases Lake Tahoe’s crystal blue waters and unique boulder outcroppings. Recreation destinations include Forest Service beaches and Sand Harbor of Lake Tahoe Nevada State Park, one of Lake Tahoe’s most popular destinations. A number of highly desired beaches, trails, lakes, and historic resources draw visitors who enjoy swimming, sunbathing, picnicking, bicycling, hiking, walking, boating, fishing, x-country skiing, snowshoeing, and just relaxing.



SR 28 provides the only access route for over one million visitors annually recreating at beaches, trails, and historic sites. Limited off-highway parking areas forces users to park along the highway and walk along the road to their destination.

The two-lane highway hugs the steep mountainside and provides the only access route for over one million visitors annually recreating (State Parks, 2011) and also carries over 2.6 million vehicles per year (based on NDOT traffic counts from http://www.nevadadot.com/About_NDOT/NDOT_Divisions/Planning/Traffic/Annual_Traffic_Reports.aspx), of which, many are taking the popular scenic drive around Lake Tahoe.

The area’s rugged terrain and sensitive resources limit the ability to provide off-highway parking facilities for the large numbers of visitors. Vehicles park along narrow shoulders, at the edge of steep terrain, and in areas of limited sight distance. Pedestrians are then forced into travel lanes with children, dogs, coolers, chairs, and other recreation gear as they make their way to their destination. In 2011 at the hour of peak overall parking demand, surveyors counted 593 cars¹ parked along the roadway shoulder – equating to almost 2,000 people walking along the roadway in heavy vehicular traffic (LSC, September 8, 2011).



Sand Harbor saw a 7% visitation increase in 2011 that contributed to Corridor congestion with traffic backed up over a mile.

Safety hazards created by the shoulder-parked cars include:

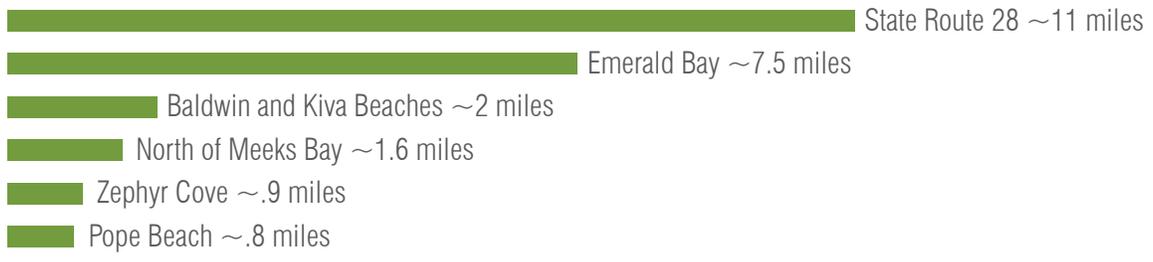
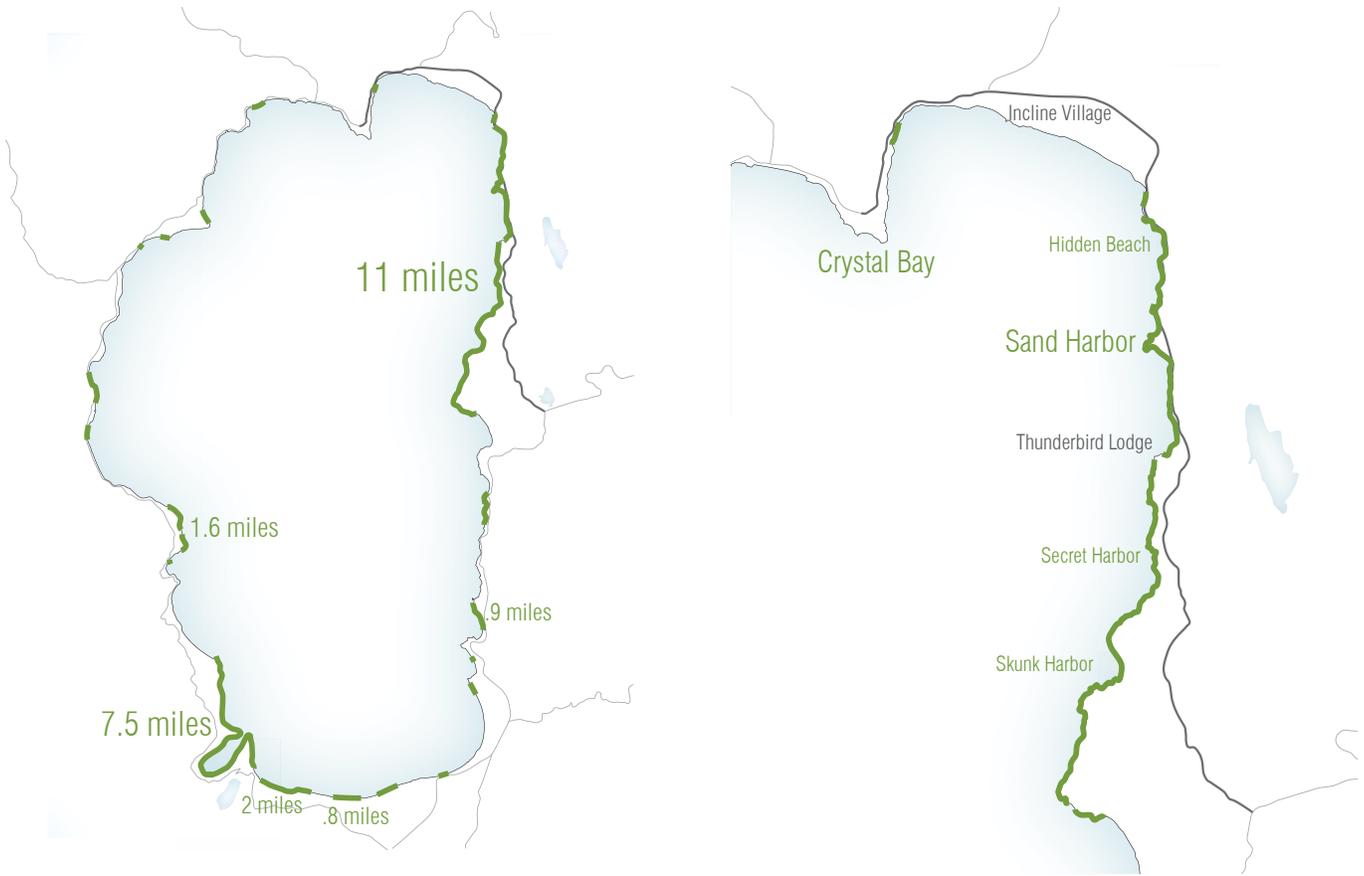
- Pedestrians walking in travel lanes,
- Cars parked over the fog line,
- Vehicle accidents as cars stop abruptly to park along the shoulder,
- Drivers making U-turns across the highway to secure a parking spot,
- Pedestrians jumping over guardrails to make their way from the road shoulder to the beaches, and
- Lack of room for bicyclists using the Corridor.

The lack of coordinated Corridor solutions for recreation and user access damages the sensitive resources, degrading the pristine lake environment and scenic resources. Users create unauthorized trails as they cut across the hillsides from their shoulder-parked cars, causing erosion and impacting lake clarity and quality.



User generated trails from roadside parking erode sensitive slopes and degrade water quality and clarity.

An increase in visitors and Corridor use threatens to compound the prevalent safety and environmental issues. Surveys documented a 100% increase in peak hour parking for the different beaches from 318 cars in August 2000 to 687 cars¹



SR 28 parallels Lake Tahoe's longest undeveloped shoreline.

in 2011 (LSC, September 8, 2011). Sand Harbor saw a 7% visitation increase in 2011 that attributed to Corridor congestion with traffic backed up over a mile (communication, State Parks/Jay Howard, 2011). Biking and pedestrian levels have also increased.

- Note: The peak hour parking count of 687 differs from the peak overall demand count of 593.*
- Peak hour parking counts are calculated based on the individual hour each section of shoulder-parked vehicles reaches their peak number. This may occur at various hours throughout the day. For example, the shoulder parking areas around the USFS beaches may have reached their peak at 11AM and the areas around Sand Harbor may have reached their peak around 1PM. Peak hour parking sums the numbers of vehicles counted along each highway section during their individual peak times.
 - The peak overall parking demand is determined based upon the hour in which the overall shoulder parking for the entire east shore portion of the Corridor was highest. It sums the number of vehicles for each section at this hour of peak overall demand.
 - The Corridor Management Plan utilizes the peak overall demand number to evaluate where and how to appropriately relocate shoulder parking.

Although previous planning efforts have sought solutions to these issues, little progress has been made. Since 1997, five Corridor Management Plans and/or parking/access management plans have been developed which address parking and access points along the Corridor. Some plans involved multiple agencies, while others were more internal. None made provisions to insure that a collaborative working group of agencies and stakeholders continued to work together to fulfill plan recommendations and complete critical Corridor projects.

This Corridor Management Plan (CMP) rectifies previous plan insufficiencies by:

- Addressing the fundamental issues generated from traffic, access, user conflict, and their subsequent environmental impacts;
- Providing an umbrella document whereby the Corridor can be addressed at a contextual/watershed-level to understand all the management resources and actions which may impact Corridor management;
- Providing a living resource that can be updated annually with recommended projects and studies that support the Corridor goals;
- Monitoring progress and achievement of goals;
- Serving as an updated National Scenic Byway Corridor Management Plan, per the Federal Highway Administration's 14-point list; and
- Most importantly, using project charters and inter-local agreements to establish a mechanism for implementation and continued agency coordination for a single strategy to achieve the five benefits (see page 12).

The Corridor Management Plan is an umbrella document that recognizes previous, existing, and future projects and management plans.



Plan Partners

A number of agencies manage, administer, and/or operate lands within the Corridor. The Tahoe Transportation District brought these entities together to develop a plan to address shared issues spanning jurisdictional boundaries. The Corridor crosses three counties and two communities within the Tahoe Basin. A large portion of the roadway travels through public lands managed by either the Nevada Division of State Parks (State Parks) or the U.S. Forest Service Lake Tahoe Basin Management Unit (USFS). The highway itself is operated by the Nevada Department of Transportation (NDOT). See Appendix E for the Project Charter.

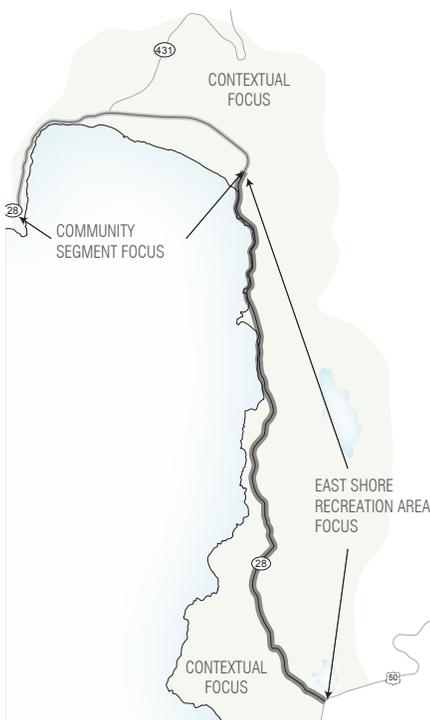
Plan partners include the following:

- Tahoe Transportation District
- Tahoe Regional Planning Agency
- Nevada Division of State Parks
- U.S. Forest Service, Lake Tahoe Basin Management Unit
- Nevada Department of Transportation
- Nevada Highway Patrol
- Federal Highway Administration
- Washoe County
- Carson City
- Douglas County
- Nevada Division of State Lands
- Incline Village General Improvement District
- Washoe Tribe



The Corridor Management Plan creates a platform for a coordinated approach between agencies and stakeholders to comprehensively develop viable solutions and future collaborations so they may operate more effectively and efficiently within the Corridor.

While focusing on the critical recreation access issues near the highway, the CMP takes a contextual rim to lake approach, that includes the trails and resource management areas from Lake Tahoe's ridgeline to the beaches at its shoreline.



Plan Focus

Corridor Location

The Corridor is not limited to the highway right-of-way. Although issues affecting the Corridor may be most easily seen along the roadway, management strategies must identify and understand the Corridor at a contextual level – from the trails and resource management areas along the Tahoe Basin ridgeline to the beaches and shoreline at Lake Tahoe's edge.

This contextual planning approach does not supersede individual jurisdictions' management plans, but rather allows for a coordinated approach and understanding of projects and efforts. Plan partners can collaborate more effectively to identify joint projects and recognize opportunities for shared benefits within the Corridor.

This approach reinforces the relationship between transportation planning and land use planning. Just as land use planning can not occur without considering the transportation network, transportation planning, or the CMP, is not complete without understanding the surrounding land uses and the impact on environmental resources.

Focus of Plan Recommendations

The majority of issues facing the Corridor are associated with recreation access from SR 28 and the visitor experience. Recommendations focus on addressing issues in the east shore recreation area south of Lakeshore Boulevard to the U.S. 50 intersection. While recommendations primarily focus on addressing the critical issues of recreation access near the highway, the CMP also establishes the platform for problem-solving scenarios within the overall Corridor. Management of contextual areas should be coordinated between agencies.

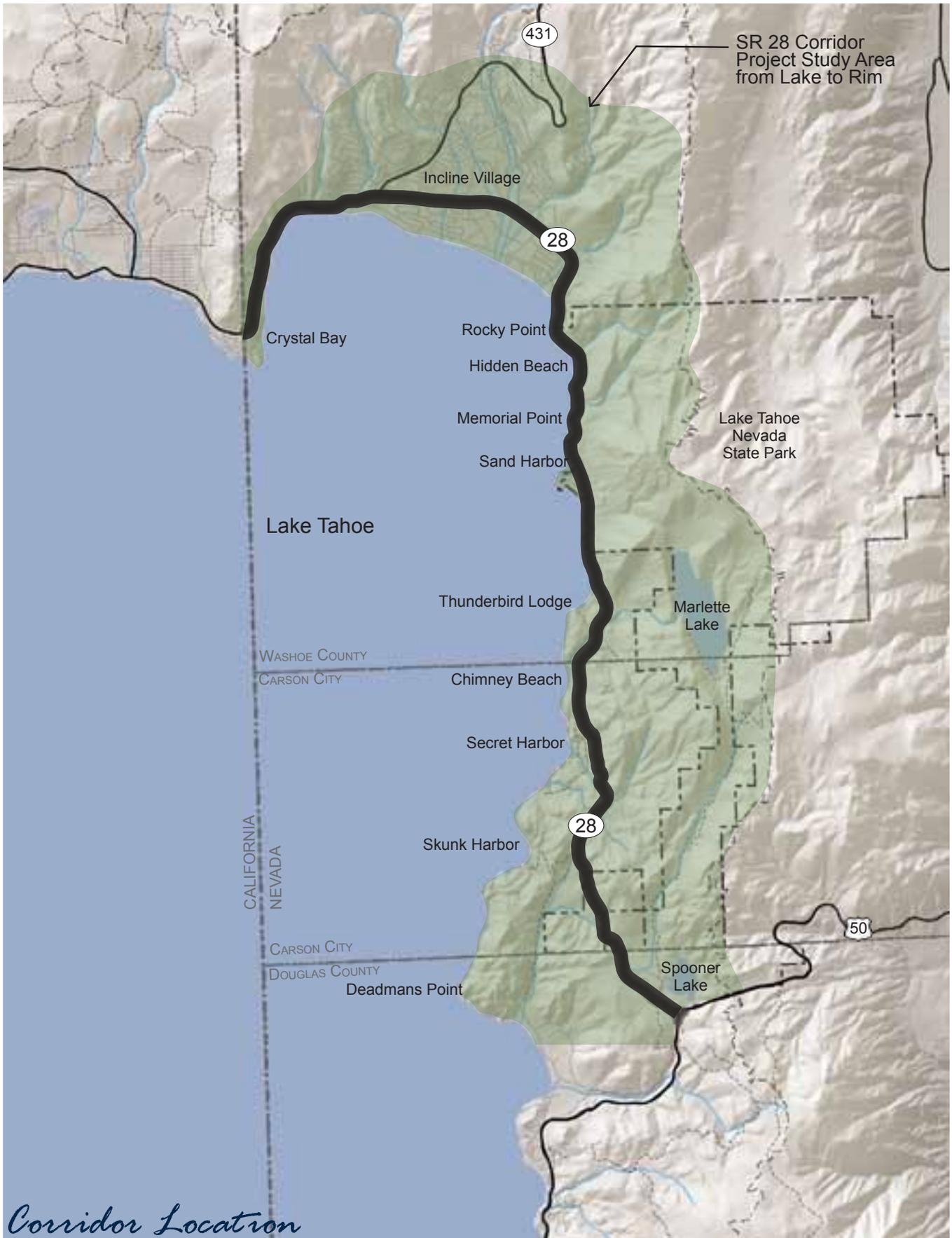
Recommendations and projects identified as part of the CMP are organized according to location.

East Shore Recreation Segments:

- Area 1: Sweetwater Drive to Sand Harbor
- Area 2: Sand Harbor to Bliss Pond
- Area 3: Bliss Pond to U.S. 50

Community Segments

- Area 1: West Incline Village to Sweetwater Drive
- Area 2: Crystal Bay to West Incline Village



Corridor Location

The National Scenic Byway, “America’s Most Beautiful Drive” should provide the unique natural and human environment expected of its title.



Vision Statement

Provide all users a Corridor from lake to rim that reflects its national scenic corridor status and the unique qualities of the east shore of Lake Tahoe while defining connections to recreation areas, expanding transportation choices, promoting safety, improving water clarity, and enhancing the enjoyment of Lake Tahoe.

Mission Statement

Improve the quality of Lake Tahoe's east shore and State Route 28, America's Most Beautiful Drive, for visitors and residents through collaboration across jurisdictional boundaries.

Purpose & Need

Purpose

The purpose of the SR 28 National Scenic Corridor Management Plan is to address the Corridor’s safety, transportation, environmental, recreation, scenic, and economic needs in a coordinated manner. The Plan is intended to facilitate implementation of a long-term vision for the Corridor that accomplishes the following objectives:

- Reduces auto dependency, congestion, and vehicle miles of travel (VMT) by enhancing available multi-modal transportation options, such as the East Shore Express and the Stateline-to-Stateline Bikeway (a shared-use path referred to as the Bikeway per initial working group discussions.)
- Enhances opportunities for accessibility. (Including Americans with Disability Act (ADA) and Architectural Barriers Act (ABA), Forest Service Outdoor Recreation Accessibility Guidelines/Forest Service Trails Accessibility Guidelines (FSORAG/FSTAG) for Federal facilities.)
- Maintains and enhances recreation travel access and connectivity.

- Supports the protection, restoration, and sustainability of natural and cultural resources.
- Remains sensitive to cultural resources and traditions of the Washoe Tribe.
- Enhances visual quality by relocating shoulder-parked cars and addressing rock cuts.
- Establishes partnerships for construction, operations, and maintenance of projects implemented by the Plan.
- Maximizes funding source opportunities for project implementation and long-term operation.
- Reduces vehicle-related impacts.
- Facilitates implementation of the Nevada Stateline-to-Stateline Bikeway and other Environmental Improvement Program projects.
- Identifies viable solutions for implementation.
- Develops coordinated strategies and partnerships for CMP implementation.

The Plan recognizes the unique role, mission, and goals of individual agencies while providing a platform for a coordinated approach to facilitate agency collaborations so they may operate more effectively and efficiently within the Corridor.

Need

This National Scenic Byway, “America’s Most Beautiful Drive”, encompasses the longest stretch of undeveloped shoreline at Lake Tahoe. It is one of the most photographed areas of the region, showcasing Lake Tahoe’s clarity with its crystal blue waters and unique boulder outcroppings. It hosts over one million visitors recreating annually (State Parks, 2011) who come to enjoy the beaches, coves, and trails. To protect this area and allow its continued use for sustainable recreation, it is necessary to address the impacts of user activity on the multi-modal transportation systems as well as the impacts of transportation systems on this area’s unique natural resources and the recreational experience.

Issues contributing to the need:

- High user demand, coupled with a narrow road that accommodates 2.6 million vehicles annually (based on NDOT traffic counts from http://www.nevadadot.com/About_NDOT/NDOT_Divisions/Planning/Traffic/Annual_Traffic_Reports.aspx)
- Unsafe access with people walking on the highway
- Steep topography
- Unsafe shoulder parking
- Limited emergency turnouts
- Scenic degradation from shoulder-parked cars and prolific signage
- Sensitive resource constraints
- User conflicts
- Highway congestion
- Decreased water quality/clarity
- Increased erosion problems

A plan is needed that engages all jurisdictions operating in the Corridor, evaluates shared issues, coordinates planning and construction projects, and monitors impacts to ensure overall Corridor needs are met, goals are attained, and funding sources leveraged, leading to the successful completion of complex projects in the Tahoe Basin while providing for long term maintenance and operations.

Purpose:

- Coordinated strategies
- Viable solutions
- Long-term vision
- Recognize individual jurisdictions
- Address Corridor needs
- Reduce resource impacts

Need:

- High recreation & user demand in a challenging physical environment
- User activity impacts on the transportation system & transportation system impacts on natural resources & recreation experience
- Unsafe shoulder parking
- Multiple jurisdictions must coordinate efforts to complete projects



Principles provide common understanding for a collaborative Corridor approach.

Plan Principles

The following principles were generated to act as a guide for Corridor recommendations and future projects.

- Manage, maintain, and fund a Corridor at a contextual/rim to lake level through collaborative partnerships which recognize individual agency jurisdictions, missions, and goals while providing a platform for an integrated approach to transportation, recreation, and resource management to operate effectively and efficiently within the Corridor.
- Address the shared, interconnected issues arising from the impacts of user activity along and within the Corridor and its context from rim to lake. For example, user impacts on the transportation system and regional resources, impacts of the transportation system on the regional resources and recreation experience, and impacts of regional resources on the transportation system and recreation experience.
- Create a safer roadway environment by providing appropriate emergency (including fire) and maintenance turnout areas and off-highway bicycle and pedestrian facilities.
- Relocate shoulder parking while maintaining existing recreation access and capacity levels through a combination of off-highway parking, transit, and pedestrian and bicycle facilities.
- Locate off-highway parking and transit stops and develop access policies that will support a defined trail system which will reduce erosion and provide direct connections.

- Maintain a variety of high quality recreation experiences by providing for use levels appropriate to the recreation type, location, and desired experience.
- Utilize parking management strategies and technology to manage capacity to appropriate use levels while allowing for improved access and capacity where appropriate.
- Create Corridor gateways, viewpoints, and interpretive messaging and elevate roadway aesthetics of railings, signage, materials, and rock cuts to provide the experience expected along America's Most Beautiful Drive.
- Recognize the culture, history and use of the Corridor, including the cultural resources and traditions of the Washoe Tribe.
- Reinforce multi-modal travel through the incorporation of bike lanes and a separated shared-use path.
- Create safe, walkable, pedestrian-friendly downtown environments in the town centers of Incline Village and Crystal Bay. Provide for a multi-modal environment with supporting uses that reinforce the main street vitality.
- Improve connections between town center areas and recreation areas through transit, bike lanes, and off-highway shared-use facilities.
- Implement environmental improvements to protect water clarity and quality.
- Utilize technology to manage and disperse use and provide funding for Corridor management.
- Coordinate the planning and implementation of facilities and the resolution of shared issues and challenges from rim to lake and across jurisdictional boundaries.
- Support opportunities for public/private partnerships which further the goals of the Corridor and create social and economic benefits.

A safer, multi-modal and pedestrian-friendly roadway environment can be achieved by agencies working together to address the Corridor's shared, interconnected issues.





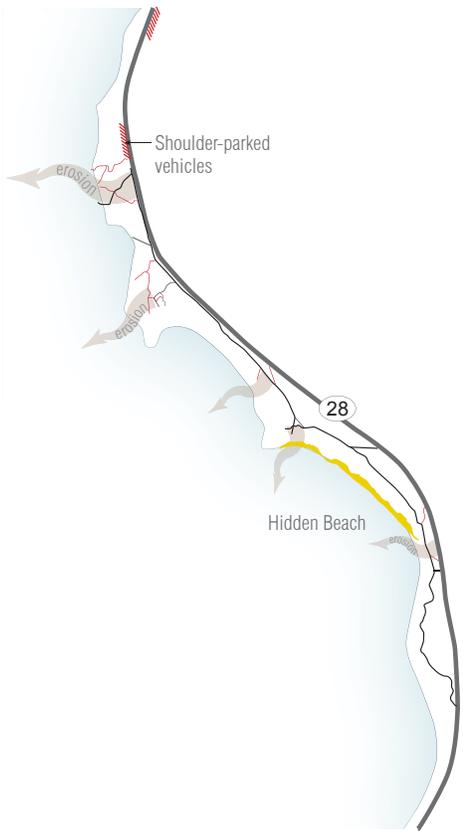
Goals within five primary categories can be achieved by addressing Corridor issues in a comprehensive manner.

Goals and Objectives

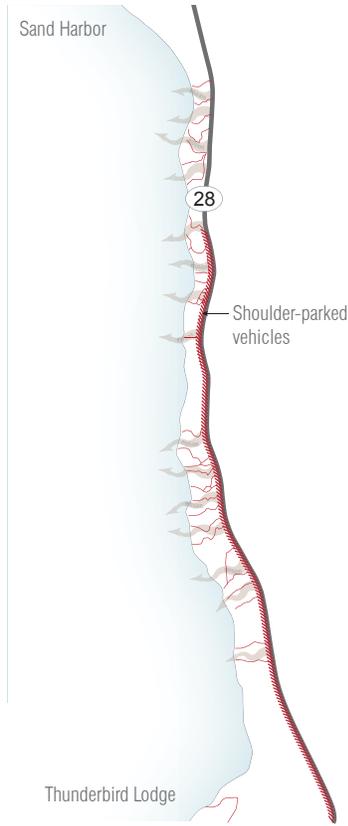
Critical resource and land issues face the Corridor. Fundamentally, the issues include, but are not limited to, access, user experience, scenic experience, water and air quality, mobility choice, resource management, parking and carry capacity, access for fire management, utilities and infrastructure, physical constraints/topography, and multi-jurisdictional authority.

The issues are inter-related. For example, roadside parking leads to unregulated trail use and soil erosion which affects lake quality and clarity. User experience and mobility choice affect a resource's carrying capacity. Physical constraints create access issues.

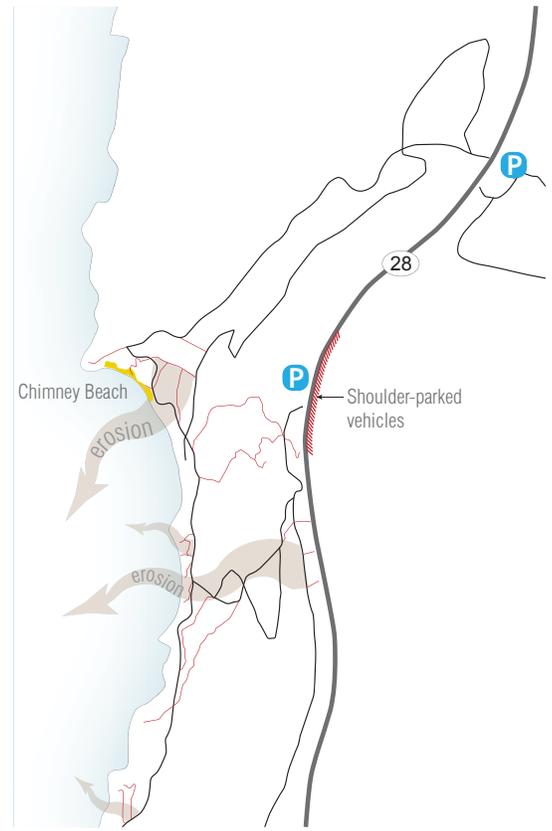
A holistic understanding of separate issues and their interrelated impacts allow for multiple Corridor goals to be met for safety, environment, transportation, economic vitality, and the visitor experience rather than just focusing on one element.



Hidden Beach Area



Area South of Sand Harbor



Chimney Beach Area

Legend

- Non-Authorized trails
- Authorized trails
- Beach areas
- P Off-highway parking lots
- Shoulder-parked vehicles

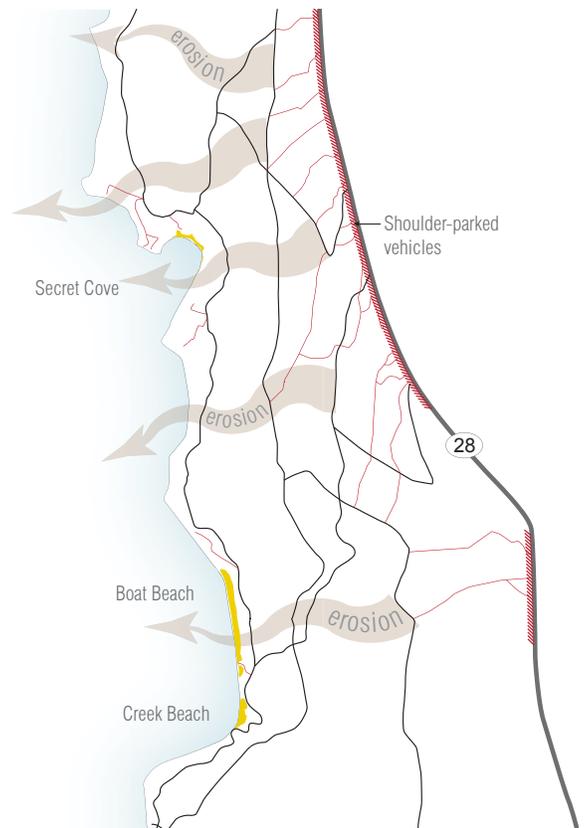
Correlation between shoulder parking, user trails and erosion negatively impacts lake clarity.

Percentage of Trails

Non-Authorized trails (5.99 miles)

Authorized trails (9.12 miles)

Source: LSC, December 27, 2011



Secret Harbor Area

Coordinating transit, bike paths, bike lanes, and appropriate off-highway parking improves safety, enhances the user experience and reduces water quality impacts to Lake Tahoe.

Objective: Provide for all modes of transportation

- Encourage the shift in travel demand for east shore recreation areas from driving to transit, bicycling, and walking.
- Streamline traffic flow while providing opportunities for emergency and view-point turnouts.
- Relocate shoulder parking to safe, off-highway locations while maintaining recreation access to east shore beaches, trails, and other facilities.
- Identify viable off-highway parking locations and their connection to transit and destination areas.
- Identify transit opportunities for existing and future demands.
- Establish a separated shared-use path alignment referred to as the Stateline-to-Stateline Bikeway project.
- Identify and complete the Bikeway alignment from Incline to Sand Harbor that will connect to the Lakeshore Boulevard shared-use path and to the Tahoe Boulevard bike lanes and pedestrian path.



High volumes of visitor use and limited off-highway parking led to a situation with a peak overall demand of almost 600 cars parked along the highway with pedestrians walking along the highway to reach their destinations.



The first year, summer 2012, of the East Shore Express pilot project demonstrated the success of collaboration and using transit to allow for recreation access while relocating cars from the highway shoulder to a park-n-ride lot. The second year was even more successful. (See Chapter 4)

Objective: Improve overall safety

- Promote safety along the Corridor for motorists, bicycles, and pedestrians.
- Provide appropriate emergency turnout locations.
- Strategically locate crossings to safe and appropriate areas.
- Reduce conflicts between motorists, bicyclists, and pedestrians.
- Create a safer roadway environment by providing appropriate emergency (including fire) and maintenance turnout areas.



Inadequate parking and the lack of safe and appropriate highway crossings and access points force families with children into unsafe situations.



Users step over guardrails to access beach areas.



Large volumes of people (including children) walk and carry beach gear, walk dogs, and roll coolers along the highway to recreate at Sand Harbor.

User conflicts and safety issues are readily apparent along the highway. Identifying emergency turnout areas and locations for additional or expanded off-highway parking is feasible, but limited. The Corridor requires a multi-modal approach to achieve objectives.

zero[®]
Fatalities
Drive Safe Nevada

Impacts to water clarity and sensitive cultural and natural resources can be minimized by providing appropriate access and coordinating project efforts. Involving children and families as part of the solution connects them to Lake Tahoe's unique environment, consistent with America's Great Outdoors Initiative.

Objective: Protect the environment

- Protect water clarity and quality by reducing the amount of fine sediments reaching Lake Tahoe.
- Define appropriate trail system connections to reduce unauthorized trails and erosion.
- Recognize recreation capacity limitations to prevent over-use of recreation facilities and significant changes in the type of recreation experience.
- Support the protection, restoration, and sustainability of natural and cultural resources.
- Remain sensitive to the cultural resources and traditions of the Washoe Tribe.
- Enhance the Corridor's environmental assets.
- Teach and connect children and families with the Corridor's natural, cultural, and historical heritage consistent with America's Great Outdoors Initiative.



Cars parked along the highway shoulder contribute to erosion, causing degradation of roadway stability and reduction of water clarity.



Tahoe City's bike path demonstrates how children and families can engage with the outdoors in a safe, environmentally beneficial way.

Objective: Provide for and enhance recreation access and the Corridor experience

- Provide and/or improve multi-modal connections to existing or new trails to beaches, coves, recreation areas, transportation facilities, and community centers along the Corridor.
- Improve recreation access to east shore beaches, trails, and other facilities while balancing visitor use levels and capacity concerns.
- Create lasting connections to the landscape for youth and communities.
- Identify and provide convenient, feasible parking and shared-use path connections to communities, recreation facilities, public facilities, public lands, the lakeshore, and open spaces.
- Provide visitor amenities, such as rest areas and viewpoints, to enhance Corridor enjoyment.
- Promote Tahoe as a world-class ecotourism destination.
- Provide interpretive opportunities along the Corridor for natural, cultural, and historical resources.
- Include opportunities for accessibility.
- Provide adequate public and private support facilities for the Corridor.
- Define the visual character of facilities to reinforce the sense of place and essence of the Corridor.
- Reduce visual impacts of signage and roadway facilities such as rock cuts and barriers.

Corridor recreation includes active uses such as beach-going and trail use as well as a large number of other recreational drivers. Each of the different uses and their user experience must be considered.



Vehicles parked along the highway block views of Lake Tahoe and reduce the visual quality of the scenic byway and views looking back from Lake Tahoe.



No parking signs line the highway, detracting from the visual quality. Many users ignore the signage due to lack of enforcement and disregard for the fine.

Implementing the plan and funding improvements and maintenance requires a long-term commitment and agreement among agencies. Opportunities for public/private partnerships should also be sought out.

Objective: Establish and maintain partnerships and funding opportunities

- Maximize funding sources for timely project implementation and for long-term operations.
- Facilitate long-term maintenance and operations by identifying partnerships for operations and maintenance prior to construction approval.
- Provide opportunities for existing local businesses to participate in the process so they can help enhance the visitor experience and access to the Corridor.
- Coordinate with the appropriate agencies to incorporate the CMP in their new development plans and avoid conflicts with recreation, road, and highway projects.
- Design the Corridor improvements to create social and economic benefits.
- Engage young people in the implementation of the CMP.



The successful implementation of the East Shore Express and enforcement of a no-parking zone around Sand Harbor shows the potential results when agencies and organizations work together and use their individual strengths to achieve a common goal.



Businesses and vendors along the Corridor can be engaged to help develop and implement mutually beneficial solutions.

Public Engagement

A robust public engagement effort was conducted as part of the planning effort. It included traditional public open houses as well as online outreach to expand the number and quality of input. A follow-up, on-line questionnaire was created to receive comments and feedback on the Final Draft Corridor Management Plan. A summary of both the both public outreach efforts can be found in Appendix D.

Four Meeting Locations

- University of Nevada, Reno
- The Grove in Reno
- The Carson City Community Center
- The Chateau at Incline Village

Web-based Input

- Participants were able to go on-line and provide input and comments using an interactive software called Crowdbrite which was available for four weeks.

Stakeholder Meeting

A stakeholder meeting inviting the Plan Partners, other local business people and interested property owners allowed additional collaboration and input from those who may partner in the Corridor outcomes. The stakeholders also used the Crowdbrite software during the meeting and were able to add more information and comments on-line after the meeting.

Results

- 120 people attended the public open house meetings
- 42 people attended the stakeholder meeting
- Crowdbrite recorded over 2,750 page views and gathered almost 570 ideas, votes, and comments.
- The 570 ideas, votes, and comments were organized according to the topic/ category associated with the comment. Charts show the relative response per each comment grouping.

Comment Summaries

Participants provided a range of comments and ideas based on the questions and topics below. Participants both directly answered the questions and provided additional thoughts or ideas. The responses were grouped to identify and rank common themes.

Activities

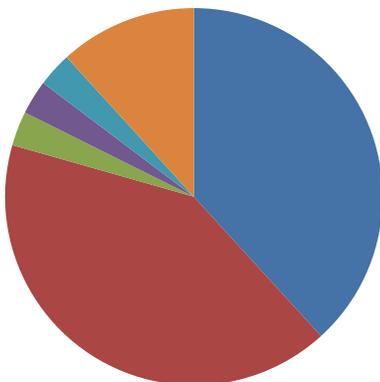
- Tell us what you do, where, and in what season.
- Show us where you park and how long you park there.
- Comment on other’s ideas.



Participants were able to add comments and vote on ideas on physical and virtual map canvases.

Of the comments regarding the overall Corridor, 41% said the situation is dangerous and 38% said it was difficult to find parking.

62% of the comments regarding parking showed support for relocating shoulder parking and/or expanding off-highway parking areas.



Transportation & Access

- Where would you locate additional parking areas?
- Where would you locate transit stops?
- Identify missing trail or bike connections.
- Tell us what other improvements you would make.

Aesthetics

- Indicate top three visual preference for imagery of entry gateways, signage, safety features, and slope treatments.
- Provide input on defining Corridor characteristics and interpretive topics.

Out of the ideas provided, the graphs below capture the public’s perception of the Corridor and where improvements are most needed. Of those comments regarding the Corridor situation 41% found the current situation to be dangerous and 38% noted that it is difficult to find parking. Similarly, 62% of the responses regarding parking showed support for relocating shoulder parking and/or expanding off-highway parking areas. Even the majority of respondents showing support for retaining shoulder parking noted that it should be improved in some way.

Support was also seen for a separated shared-use path, trail improvements, transit, and removal of no parking signs or better enforcement of no parking. Concerns included the removal of shoulder parking limiting access to the beaches and the use of transit overwhelming the beach capacity and changing the existing experience.

General Comments on the Corridor Situation

Current Parking/Situation is Dangerous	14, 41%
Trouble Finding Parking	13, 38%
Shoulder Parking Makes Bike Riding Difficult	4, 12%
Parking on Highway is Great for Trail Access	1, 3%
Trash is a Problem at the Sledding Hill	1, 3%
Lack of Town Center in Incline Forces Driving	1, 3%

34 Comments, Ideas, & Votes Regarding the Overall Corridor Situation

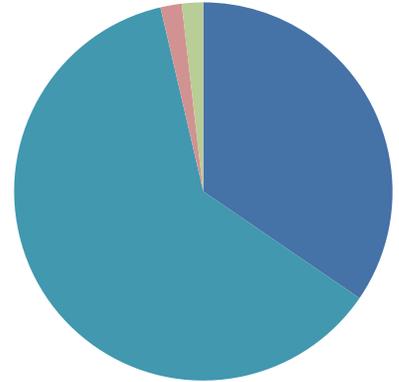
- *Trouble Finding Parking*
- *Current Parking/Situation is Dangerous*
- *Parking on Highway is Great for Trail Access*
- *Trash is a Problem at the Sledding Hill*
- *Lack of Town Center in Incline Forces Driving*
- *Shoulder Parking Makes Bike Riding Difficult*

Parking Suggestions, Comments, Ideas, & Votes

Support for Relocating Shoulder Parking & Expanding Off-Highway Parking	34, 62%
Off-Highway Parking	
• Retain Shoulder Parking or Build Lot	3
• Improve Parking	4
• Remove Shoulder Parking	6
• Expand Off-Highway Parking	17
• Provide Parking at Ponderosa Ranch	3
• Create Parking Garage at Sand Harbor	1
Support for Retaining & Improving Shoulder Parking	19, 35%
• Retain Shoulder Parking	2
• Retain & Improve Shoulder Parking	12
• Improve Shoulder Parking – Widen Shoulder	5
Open Lots Earlier & Leave Them Open Longer	1, 2%
Provide Private Parking for Rocky Point Residences	1, 2%

55 Comments, Ideas, & Votes Regarding Parking Suggestions

- Support for Retaining & Improving Shoulder Parking*
- Support for Relocating Shoulder Parking & Expanding Off-Highway Parking*
- Open Lots Earlier & Leave Them Open Longer*
- Provide Private Parking for Rocky Point Residences*

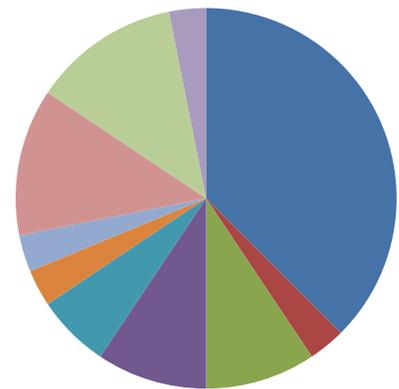


General Transit Suggestions, Comments, Ideas, & Votes

Supports Transit	12, 38%
Provide Transit from Reno to Tahoe	4, 13%
Provide Transit from Carson City to Incline Village	4, 13%
Consider Waterborne Transit (solar powered)	3, 9%
Shuttle Worked Well/Keep It	3, 9%
Shuttle to Accommodate Kayaks, Paddle Boards, Bikes	2, 6%
Wouldn't Take Transit	1, 3%
Allow Dogs on Transit	1, 3%
Provide Transit Around the Lake	1, 3%
Provide Transit from Minden/Gardnerville to East Shore	1, 3%

32 Comments, Ideas, & Votes Regarding Parking Suggestions

- Supports Transit*
- Wouldn't Take Transit*
- Consider Waterborne Transit (solar powered)*
- Retain Shoulder Parking or Build Lot*
- Shuttle Should Accommodate Kayaks, Paddle Boards, Bikes*
- Allow Dogs on Transit*
- Provide Transit Around the Lake*
- Provide Transit from Reno to Tahoe*
- Provide Transit from Carson City to Incline Village*
- Provide Transit from Minden/Gardnerville to East Shore*



Stakeholder Comments

Stakeholder participants reviewed comments and ideas from the general public prior to working in groups to identify their ideas and goals for the Corridor. During the group sessions they were asked to consider the following:

- What are your concerns or ideas for the SR 28 Corridor?
- What are your thoughts on transportation choices, parking, and access management in the 28 Corridor?
- Is there potential for coordination of existing/future projects?
- Do you have possible solutions that should be a part of the SR 28 CMP?
- What opportunities do you see for projects or for public/private business ventures which could provide economic development for the Tahoe Basin?
- Are there partnerships that might enable completion of projects sooner rather than later?
- What other thoughts, comments, input would you or your agency like to contribute to the SR 28 CMP?

A full list of comments and ideas generated from the conversations is located in Appendix D. Overall:

- Each group agreed that a solution for relocating parking, providing transit, and incorporating the Bikeway needed to be developed for the Corridor; and
- Understanding capacity issues, considering pedestrian movement in Crystal Bay and Incline Village, and reducing undefined access points to minimize erosion was discussed.

Additional Input

Additional public input was provided during a presentation to the TTD board in August 2013. Craig Olsen, owner of Tunnel Creek Cafe, noted that in July the main parking lot at the Tunnel Creek corral area is typically full and it shows the need for additional parking at the north end of the Corridor. The Flume Trail has hikers and bikers that park for 2 hours or more.

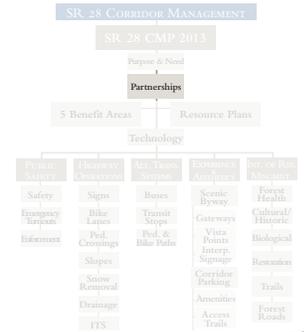
A follow-up video from summer 2013 was also sent to the TTD showing the queuing issues at the Sand Harbor entry. On a typical summer morning, traffic backs up for a mile as vehicles wait to enter the park and check-in at the kiosk.

Providing both face-to-face meetings and on-line options for public engagement increased participation and the number of ideas gathered for Corridor improvements.



2

Plan Organization Corridor Management Structure



Success for the Corridor Management Plan means agencies working together and projects being implemented – results not achieved by previous studies. This plan establishes a framework for success by identifying funding and structuring projects, planning, and maintenance according to each organization’s strengths and assets – the five categories shown in the diagram on the following page.

Looking at the Corridor Differently

A successful Corridor Management Plan (CMP) requires implementing projects and managing the Corridor across jurisdictional boundaries while recognizing each agency’s mission and goals. The CMP is organized with this goal in mind. It is a living document that focuses on identifying opportunities for partnerships and collaborations among agencies to complete projects and fund their implementation and maintenance.

The goals of safety, environment, transportation, visitor experience, and economic vitality are primary and are supported by the use and implementation of individual agency management plans, community plans, and other governing documents. Technology facilitates achieving Corridor goals and its application is considered throughout the Corridor to aid implementation and management.

Five overarching categories create the framework for implementation, management, and maintenance.

- Public Safety
- Highway Operations
- Alternative Transportation Systems
- User Experience & Aesthetics
- Integration of Resource Management

Partnerships & Governance

As part of the development of the CMP, participating agencies and governing bodies entered into a Project Charter. The charter documents their commitment to multi-agency coordination within the Corridor, development of the CMP, and improvement of SR 28 (refer to Appendix E). Additional multi-agency agreements will be developed as specific projects move forward. The intent is for the CMP to be a living document. This requires the continuation of annual meetings with the partnering agencies and an update of the Project Charter or development of a new agreement upon completion/approval of the CMP.

The CMP recommends that an agreement be developed that allows funds generated within the Corridor to be used for new projects and maintenance within the Corridor. Current management structures do not allow for that approach. Therefore the plan identifies methods by which the approach may be implemented.

SR 28 CORRIDOR MANAGEMENT

SR 28 National Scenic Byway
Corridor Management Plan 2013

Purpose & Need
Plan's Value

Partnerships,
Governing Policies,
Funding Plan, &
Maintenance

Safety, Environment, Transportation,
Visitor Experience,
Economic Vitality Benefit

Agency Coordination/Management Plans;
TRPA Plan Area Statements & Community
Plans; Access Management Policies;
Recreation Facility Operations; NDOT
Corridor Landscape & Aesthetics Plan

Technology

PUBLIC SAFETY

Highway Safety
Improvements

Emergency
Turnouts

Highway
Enforcement

HIGHWAY
OPERATIONS

Regulatory
Signs

Bike Lanes

Pedestrian-
crossings

Slope
Stabilization

Snow Removal

Drainage
Improvements

Intelligent
Transportation
Systems

ALTERNATIVE
TRANSPORTATION
SYSTEMS

Buses

Transit Stops

Pedestrian &
Bike Paths

USER EXPERIENCE
& AESTHETICS

Scenic Byway
(National Park
Level)

Gateways

Vista Points

Interpretive
Signage

Corridor Parking

Visitor
Amenities

Recreation
Access Points/
Trails

Wayfinding Signs

INTEGRATION
OF RESOURCE
MANAGEMENT

Forest Health

Cultural &
Historic

Biological

Watershed-
Level
Restoration

Backcountry
Trails

Forest Roads

Corridor Management Approach



Although the immediate opportunities for change within the Corridor involve issues with parking and recreation access, coordination of contextual planning and resource management activities are important.

Plan Partner's roles and responsibilities within the Corridor correspond with their individual strengths and missions while highlighting areas of cooperation and shared ownership.

Contextual Corridor Planning

The CMP sets forth recommendations for improving the SR 28 Corridor. The primary opportunities for change within the Corridor involve the issues around parking and recreation access along the roadway. However, coordination with other planning and resource management activities within the greater context of the Corridor remain important.

Communication between agencies regarding resource management projects for the entire Corridor area promotes synergies and connections between projects which benefit the whole.

Technology

Innovations in technology increase the ability to manage and maintain the Corridor in a beneficial way. Apps for mobile phones and tablets can be coupled with parking kiosks or embedded parking discs to quickly distribute information and allow potential users to identify desirable recreation destinations and potential parking locations and availability. Intelligent Transportation Systems (ITS) such as digital message systems boards seen on local highways can be used to instantly notify drivers of changing road conditions and Corridor opportunities. Radio can be used to distribute messaging.

The world of technology is continually evolving and provides more and more options for assisting jurisdictions and agencies to reach their goals. Continual consideration, review, and incorporation of innovative advances should occur throughout every aspect of Corridor management.

Management Categories

The following five categories create the Corridor's management framework.

- Public Safety
- Highway Operations
- Alternative Transportation Systems
- User Experience & Aesthetics
- Integration of Resource Management

This organization corresponds to the strengths and missions of the governing and managing entities within the Corridor.

The intent is to streamline management while allowing each entity to achieve their individual missions. For example, NDOT is primarily responsible for highway operations activities. NDOT, the Nevada Highway Patrol (NHP), State Parks, and Washoe County all have obligations involving public safety along the roadway.

The five categories identify these areas of individual and joint responsibility to enhance coordination, implementation, and maintenance. Entities can better coordinate resources to achieve shared Corridor goals.



Integration of Resource Management

The integration of resource management illustrates continual agency coordination and cooperation. Each entity is responsible for the implementation of their individual agency management plans. This document does not supersede that requirement. Rather, it highlights the connectivity between resource management and the Corridor (for example, understanding the connection between recreation destinations and parking/trailheads.) Resource areas can not be appropriately planned without considering safe, appropriate access and potential user needs.

Resource & Management Plans

The first step towards comprehensive coordination includes identifying the various resource and management plans which have bearing for the Corridor. The CMP does not supersede these documents. Rather, it recognizes their importance and directs land use managers to be aware of what management actions others may be completing or contemplating within the Corridor to coordinate goals and projects.

A list of relevant plans as of April 2013 is presented below.

Public Safety

- NDOT. Road Safety Audit Report SR 28 from U.S. 50 to Ponderosa Ranch Access, Post-Construction Phase Audit, Douglas, Carson City and Washoe Counties. 2011.
- NDOT. 2011-2015 Nevada Strategic Highway Safety Plan: A Winning Approach to Safety. June 2011.

The CMP does not supersede existing management plans, but rather focuses the attention on a coordinated effort for improved results and implementation of the management plans.

Highway Operations

- NDOT. Sign Supplement 2006.
- NDOT. Design and Management Manuals.

Alternative Transportation Systems

- TMPO/TRPA. Lake Tahoe Regional Transportation Plan/Mobility 2035.
- TMPO/TRPA. Lake Tahoe Region Bicycle and Pedestrian Plan. 2010.
- TRPA. Lake Tahoe Waterborne Transit Site Selection Study – Final Report, 2007.
- TTD. SR 28 East Shore Demonstration Transit Shuttle Concept Development/Feasibility Study, February 2012.
- TTD. SR 28 East Shore Corridor Transportation Alternatives Analysis. April 2012.
- TRPA and TTD. Nevada Stateline-to-Stateline Bikeway Project Feasibility Study Report, 2010.
- NDOT. Connecting Nevada Phase II: Planning Our Transportation Future. (Draft Plan, January 15, 2013.)

User Experience & Aesthetics

- NDOT. North U.S. 395, West U.S. 50, SR 28, SR 207, SR 431 Landscape and Aesthetics Corridor Plan. 2006.
- Nevada Division of State Parks. Lake Tahoe Nevada State Park Sand Harbor Recreational Capacity Study. 2011.
- TRPA. Draft Lake Tahoe Basin Roadway Guidelines.
- TRPA. Design Review Guidelines.
- TRPA. Scenic Quality Improvement Program.

Integration of Resource Management

- USFS. East Shore Beaches Trail Access Trails Management.
- USFS. Trail Management Plan – Tahoe Rim Trail System.
- USFS. Draft Forest Plan and EIS. 2012.
- USFS. Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy.
- USFS. BMP Manual.
- Nevada Division of State Parks. Lake Tahoe Nevada State Park General Management Plan. 1990.
- Nevada Division of State Parks. Lake Tahoe Nevada State Park Resource Management Plan. 2010.
- Nevada Division of State Parks. Water Conservation Plan. 2009.
- TRPA. Regional Recreation Plan Recreation Assessment. 2005.
- TRPA. Regional Plan. Effective 2013.
- TRPA. Plan Area Statements and Community Plans (to be replaced by Area Plans.)
 - North Stateline Community Plan
 - Incline Village Tourist Community Plan
 - Incline Village Commercial Community Plan
 - Ponderosa Ranch Commercial Community Plan
- TRPA. Code of Ordinances.
- TRPA. Environmental Thresholds.
- TRPA. Environmental Improvement Program.
- TRPA. Lake Tahoe 208 Water Quality Management Plan.
- Washoe County Master Plan.
- Douglas County Master Plan.
- Carson City Master Plan.



Environmental Compliance

Environmental Permitting

The CMP is a planning study that provides an overall vision of the Corridor and recommendations that could be implemented by one or more of the several agencies with jurisdiction over land and/or facilities to achieve that vision. The CMP is a tool for agencies to work together to help move projects through the environmental process more efficiently. Although a single agency might serve as the project proponent, it is anticipated that they would collaborate with other agencies to coordinate projects and consider the cumulative impacts of all projects identified in the CMP.

Some CMP-implementing actions would result in physical changes to the environment requiring environmental review and permitting in accordance with federal, TRPA and state of Nevada laws, as applicable. The environmental review process requires consideration of all direct, indirect, and cumulative effects of the proposed actions. If significant adverse effects on the environment are anticipated, feasible mitigation would also be identified by the proponent agency.

All of the project actions in the CMP would be subject to TRPA permitting and approval in accordance with the Tahoe Regional Planning Compact (Public Law 96-551), the Code of Ordinances, and the Rules of Procedure.

The CMP is a planning study that provides an overall vision and recommendations. It is a tool for agencies to work together to help move projects through the environmental process more efficiently. Although a single agency might serve as the project proponent, it is anticipated that they would collaborate with other agencies to coordinate projects and consider cumulative impacts of all the CMP projects.

Where multiple federal agencies' approval is required, a cooperative agreement between the federal agencies would be made to designate the NEPA lead agency.

CMP projects implemented with federal funds, located on federal lands, or that require approval by one or more federal agencies are also required to comply with the National Environmental Policy Act (NEPA) and the Council on Environmental Quality's regulations implementing NEPA (40 Code of Federal Regulations [CFR] Section 1500 et seq.). The NEPA lead agency is typically the federal agency with the primary approval authority for the federal action to be implemented.

For transportation projects receiving federal funds, either the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA) (operating administrations under the U.S. Department of Transportation) is typically the Federal lead agency. In Nevada, NDOT often provides assistance to the federal lead agency in completing the appropriate NEPA documentation. The USFS would sometimes be the NEPA lead agency, when National Forest System (NFS) lands are involved.

The lands managed by the USFS are located throughout the SR 28 Corridor. In instances where a CMP project (such as the Nevada Stateline-to-Stateline Bikeway) would be located on NFS lands, the USFS may be the appropriate NEPA lead agency. Where multiple federal agencies approvals are required (e.g., where a project is located on NFS land and receives federal funding), a cooperative agreement between the federal agencies would be made to designate the NEPA lead agency.

TTD serves the unique role of sponsoring, allocating funds for, implementing, and managing transportation projects throughout the Basin. TTD may acquire, own and operate public transportation systems and parking facilities serving the region. TTD also has the ability to receive specific tax revenue to support transit and transportation facilities. TTD cannot serve as lead agency for TRPA or NEPA environmental review. However, when implementing transportation projects in the Tahoe Basin, TTD has been instrumental in coordinating with TRPA, and where applicable, the NEPA lead agency, to facilitate completion of the appropriate environmental review.

Several other agencies plan, evaluate, approve, finance, and implement roadway and transit projects of their own. Some of these projects also involve facilities that are intended to satisfy non-motorized transportation and recreational demands, but also have utility as part of the broader transportation network. These agencies include NDOT, Washoe County, Douglas County, Carson City, among others. Each has its own unique set of characteristics affecting the timing and strategy for the environmental review process, including varying project objectives, lead agencies, jurisdictional locations, degree of urgency in the implementation schedule, potential funding sources, and requirements for environmental compliance.

In addition to environmental review, projects described in the CMP would be subject to permitting. The breadth of permitting required for individual projects would depend on the location and characteristics of the project.

All projects under the CMP resulting in physical landscape changes would be subject to TRPA permitting. TRPA is responsible for ensuring that projects within the Tahoe Region are consistent with the Regional Plan and Regional Transportation Plan. Depending on the nature and scale of the project, TRPA staff may either approve the project or take it to the Hearings Officer or Governing Board for approval. Requirements for when a project must go to the Hearings Officer or the Governing Board are described in Chapter 2 of the TRPA Code of Ordinances.

Other permits and/or approvals that may be required for individual projects could include, but are not limited to the following:

- *Section 404 Nationwide Permit*: Required for any project that would involve work in streams, wetlands, and other waters of the U.S. Issued by the U.S. Army Corps of Engineers.
- *Section 7 of the Endangered Species Act (ESA) Consultation*: Required for any project that may affect a species listed as threatened or endangered under the federal ESA. Consultation with the U.S. Fish and Wildlife Service and National Marine Fisheries Service.
- *Special Use Permit*: Required for any project on NFS land that requires the forest to be altered in any way. Issued by the USFS, LTBMU.
- *Construction General Storm Water Permit*: Required to address stormwater discharge for projects that would disturb more than one acre and projects less than one acre in size that would impact receiving waters or tributaries within a 0.25-radius of the project. If the construction site would disturb less than five acres and meets certain criteria, the site may be eligible for a construction stormwater permit waiver. Issued by the Nevada Department of Environmental Protection (NDEP.)
- *Section 401 Water Quality Certification*: Required for projects that require a federal Section 404 permit. Applicants must “certify” that the proposed work would not violate state water quality standards. Issued by NDEP.
- *National Pollutant Discharge Elimination System Permit*: Required for projects that would discharge pollutants from a point source into the waters of the state of Nevada. Issued by NDEP.
- *Encroachment Permit*: Required for projects that involve temporary work or permanent improvements within a roadway right-of-way. Issued by NDOT for the SR 28 and U.S. 50 right-of-way and local jurisdictions (Carson City, Douglas County, and Washoe County) for right-of-way within their jurisdiction.
- *State Historic Preservation Office Concurrence/Section 106 Compliance*: Compliance with Section 106 of the National Historic Preservation Act regulations is required for all projects subject to NEPA and federal approvals. Determination by Nevada State Historic Preservation Officer.
- *Site Improvement Permit*: Required for projects within local jurisdictions that include improvements or demolition of a structure or site. Issued by local jurisdictions (Carson City, Douglas County, and Washoe County).

Recognizing the extensive area of Nevada land holdings within the SR 28 Corridor, CMP projects could also require easements from the Nevada Division of State Lands and/or the Nevada Division of State Parks.

When implementing transportation projects in the Tahoe Basin, TTD has been instrumental in coordinating with TRPA, and where applicable, the NEPA lead agency, to facilitate completion of the appropriate environmental review.

Anticipated Environmental Gains

Implementation of CMP projects is anticipated to create environmental gains. Table 1 provides a brief indication of where significant gains might be realized in relation to TRPA thresholds. It is not intended to be a complete analysis, but it sets the stage for considering what the primary positive combined impacts of implementing the CMP may be.

Table 1: Anticipated Significant Gains in TRPA Thresholds

TRPA THRESHOLD	ANTICIPATED GAIN	DESCRIPTION
Air Quality	X	<ul style="list-style-type: none"> • Reduced congestion from vehicles searching for parking & waiting in the queue at Sand Harbor • Reduced VMT as use shifts to transit and bicycling
Water Quality	X	<ul style="list-style-type: none"> • Reduced erosion from shoulder parking and unauthorized trails
Soil Conservation		
Scenic Resources	X	<ul style="list-style-type: none"> • Improved visual quality from both the roadway and from Lake Tahoe with relocated shoulder parking to off-highway areas • Improved visual quality with enhanced roadway aesthetics
Wildlife		
Fisheries		
Vegetation Preservation		
Recreation	X	<ul style="list-style-type: none"> • Improved access to recreation sites • Improved quality of experience for scenic drivers, one of the most popular recreation activities • Improved overall quality of experience as the experience of getting to the recreation destination is improved • Improved overall experience by maintaining the variety of experiences and setting the appropriate expectation for the type of experience for each beach and recreation site
Noise		

Using & Maintaining the Plan

The CMP creates a platform for continuing a coordinated Corridor approach. It serves as a living and relevant framework in-somuch that the Plan Partners maintain regular coordination and update the action items and project list. It is recommended that a Management Team be established from the existing Plan Partners. An Inter-local Agreement or other legal document would need to be developed amongst the agencies to provide the team's structure.

The document summarizes current plan recommendations, actions, implementation, and funding measures to move the Corridor towards its goals. It identifies the broad-based vision and means to achieve results. It is anticipated that concessionaires who may operate sites under a Special Use Permit would work through their respective agency to achieve the CMP goals.

This process takes time and commitment. It is likely that new opportunities and challenges will arise that alter strategies to achieve Corridor goals. As circumstances change, Plan Partners should modify the project list and adjust recommended action items accordingly.

Programs are administered, managed, and implemented by a multitude of agencies at different levels of government under a wide array of statutory and regulatory authorities. Moving forward means Plan Partners must continue the alignment of the various programs.

Maintaining the Plan

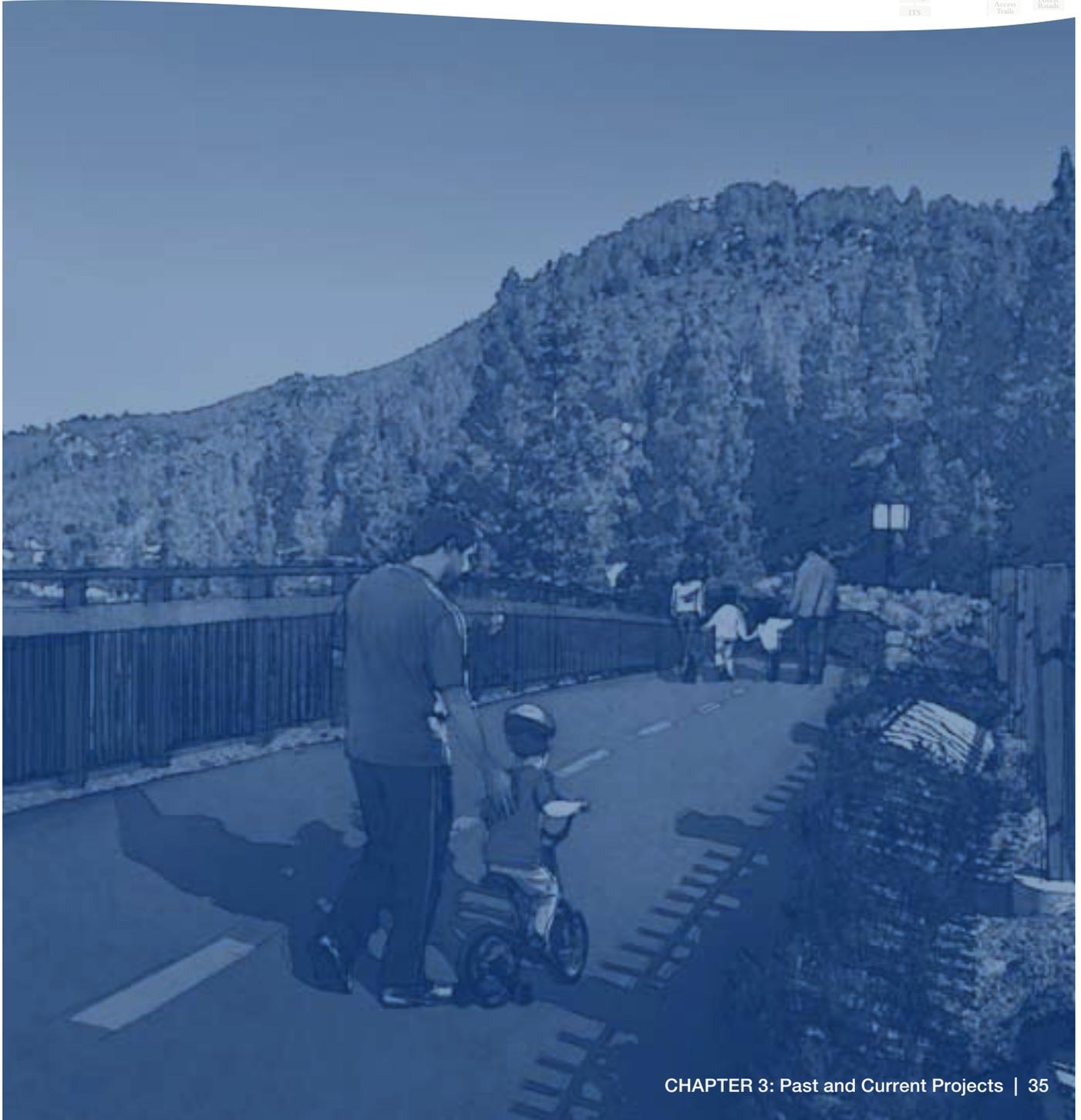
- Develop Management Team from the Plan Partners
- Meet according to current project needs and long-term coordination
- Coordinate projects and management strategies
- Update consolidated project list annually (see Appendix A)
- Provide annual progress reporting and analysis (see Appendix C)

Using the Plan

- Identify overarching project goals and objectives (per individual project)
- Identify corresponding Corridor goals and objective (see Chapter 1)
- Review Corridor recommended projects and action steps to identify project correlations (see Chapter 5 and Appendix A)
- Review current project list to identify project correlations (see Appendix A)
- Identify potential funding sources (see Appendix B)
- Coordinate with Plan Partners/Management Team to coordinate and implement projects (see Appendix A)

3

PAST & CURRENT PROJECTS GAP ANALYSIS





Previous and current studies and resolutions recommend addressing parking, providing transit, and creating a separated shared-use path. The CMP seeks to implement many of these unrealized recommendations through re-established working relationships with the Plan Partners through the TTD's leadership.

Coordination with Past & Current Studies

Over the years, managing agencies completed numerous studies involving the Corridor. Many of the studies address similar issues and recommend comparable solutions. Table 2, starting on the following page, lists 16 of the key studies and resolutions affecting the Corridor over the past 20 years and the types of projects recommended. Correlations can be seen where multiple documents address similar elements, such as finding a solution to roadside parking, providing transit, and implementing a separated shared-use path along the Corridor.

A large number of the proposed projects are still relevant and would bring positive improvements for the Corridor. A list of more specific projects and their completion/relevance/status can be found in Appendix F.

The Corridor Management Plan (CMP) builds off these previous recommendations and seeks to facilitate their implementation. Key factors in making this plan successful include the Plan Partner's agreement to the Project Charter to achieve results and the continued leadership role of the TTD.

Table 2: Categories of Projects Identified in Previous and Current Studies

Project Addressed/Recommended	Carson City, NDOT, TRPA, & T.E.A.M. Tahoe Eastshore Corridor Management Plan, 1997	LTBMU, NDOT, TRPA Draft EA Nevada SR 28 Off-Highway Parking, 1999	TRPA Draft East Shore Access Plan, 2001	MOI Sept. 1999 – TRPA, USFS, NDOT, TTD, NDSP	TRPA Res. 99-9 May 26, 1999	Tahoe Eastern Area Management Team	NDSP Lake Tahoe General Management Plan, 1990	NDSP Lake Tahoe Nevada State Park Sand Harbor Recreation Capacity Study, 2011	LTBMU Forest Plan, 1988	LTBMU Draft Forest Plan, 2012	LTBMU Decision Memo of East Shore Access Management Plan, 2008	NDOT Landscape & Aesthetics Corridor Plan, 2006	TRPA/TMPO Bicycle and Ped. Plan, 2010	NDOT Road Safety Audit, 2007	NDOT Road Safety Audit, 2010	NDOT Road Safety Audit, 2012 (Incline Village)
Adopt-a-Highway Program	X															
Backcountry designation							X									
Barriers and signage			X						X	X						
Barriers (install)														X	X	
Bike facilities													X			
Bike friendliness – review drainage grates															X	
Bike lanes and wide shoulders – incorporate striping and regular maintenance into all projects.													X			
Bike: Link parking with shared use path												X				
Bike racks							X									
Business/Private/Non-Profit partnerships	X															
Campgrounds and camping							X		X							
Corridor Management Plan revisions & updates	X		X													
Emergency turnouts									X							
Equestrian recreation opportunities							X									
FHWA “experimental status” to achieve desired benefits													X			
Funding programs and options	X			X									X			
Hidden Beach improvements							X									
Historic preservation							X			X						
Interpretive signage program	X									X						
Interpretive signage									X			X				
Litter management on beaches and trails									X							
Management	X					X		X								
Management: Acquire lands that resolve resource conflicts	X															

Project Addressed/Recommended	Carson City, NDOT, TRPA, & T.E.A.M. Tahoe Eastshore Corridor Management Plan, 1997	LTBMU, NDOT, TRPA Draft EA Nevada SR 28 Off-Highway Parking, 1999	TRPA Draft East Shore Access Plan, 2001	MOI Sept. 1999 – TRPA, USFS, NDOT, TTD, NDSP	TRPA Res. 99-9 May 26, 1999	Tahoe Eastern Area Management Team	NDSP Lake Tahoe General Management Plan, 1990	NDSP Lake Tahoe Nevada State Park Sand Harbor Recreation Capacity Study, 2011	LTBMU Forest Plan, 1988	LTBMU Draft Forest Plan, 2012	LTBMU Decision Memo of East Shore Access Management Plan, 2008	NDOT Landscape & Aesthetics Corridor Plan, 2006	TRPA/TMPO Bicycle and Ped. Plan, 2010	NDOT Road Safety Audit, 2007	NDOT Road Safety Audit, 2010	NDOT Road Safety Audit, 2012 (Incline Village)
Marlette Lake improvements							X									
Memorial Point improvements							X									
Monitoring	X		X							X		X				
National Scenic Byway signs	X															
Pedestrian-crossings													X			
Pedestrian underpasses												X				
Public access to shorelines & Spooner Summit									X	X						
Public information	X		X													
Public participation and outreach	X															
Road: Administration and access to homes at Secret Harbor									X							
Safety improvements – road design and signage	X						X	X						X	X	
Shoulder parking																
Develop Parking		X			X		X		X							
Eliminate Roadside Parking	X			X	X		X		X							
Formalized/Organized Parking			X												X	
Parking Expansions			X	X			X		X							
Reduce Roadside Parking										X					X	
Shoulder parking: Enforce No parking zones and parking management	X		X	X	X			X							X	
Sidewalk maintenance													X			
Sign guidelines (TCORP): Implement	X															
Skunk Harbor management and improvements							X		X							
Spooner Lake improvements							X		X							
Stateline to Stateline Bikeway	X						X	X							X	

Project Addressed/Recommended	Carson City, NDOT, TRPA, & T.E.A.M. Tahoe Eastshore Corridor Management Plan, 1997	LTBMU, NDOT, TRPA Draft EA Nevada SR 28 Off-Highway Parking, 1999	TRPA Draft East Shore Access Plan, 2001	MOI Sept. 1999 – TRPA, USFS, NDOT, TTD, NDSP	TRPA Res. 99-9 May 26, 1999	Tahoe Eastern Area Management Team	NDSP Lake Tahoe General Management Plan, 1990	NDSP Lake Tahoe Nevada State Park Sand Harbor Recreation Capacity Study, 2011	LTBMU Forest Plan, 1988	LTBMU Draft Forest Plan, 2012	LTBMU Decision Memo of East Shore Access Management Plan, 2008	NDOT Landscape & Aesthetics Corridor Plan, 2006	TRPA/TMPO Bicycle and Ped. Plan, 2010	NDOT Road Safety Audit, 2007	NDOT Road Safety Audit, 2010	NDOT Road Safety Audit, 2012 (Incline Village)
Studies: capacity study	X							X	X					X	X	
Studies: facilities studies, traffic management, barriers, parking, retaining walls, impact of Whittell purchase on visitation	X			X										X	X	
Support USFS Forest Health Plan	X															
Trail improvements							X									
Trail maintenance									X							
Trails: OHV closure									X							
Trails plan and restore old trails	X															
Traffic management at Sand Harbor								X						X	X	
Transit with reduced roadside parking or parking nodes	X		X	X				X		X		X			X	
Turnouts: Evaluate and provide															X	
Viewpoint turnouts	X								X							
Visitor Center at Sand Harbor							X									
Visitor Center at Spooner Lake							X					X				
Visual quality	X															



Conceptual illustration. May not show final Bikeway alignment.

Ongoing project coordination can be achieved through regular communication between Plan Partners and update of the Corridor Project Matrix found in Appendix A.

Coordinating Projects

As projects are planned and implemented within the Corridor, the greatest results will be achieved through the coordination of projects. Funding opportunities can be leveraged and overall impacts reduced as Plan Partners come together to discuss existing and future projects and find synergies to support their completion.

At the end of 2012, a number of major projects were being planned or considered for the Corridor as seen in the graphic on the following page. Opportunities were identified for coordinating projects such as the Sewer Export Line Upgrade and implementation of a portion of the Stateline-to-Stateline Bikeway. Creating a dialogue to evaluate the feasibility of coordinating the projects may offer a great benefit to both projects as discussed in Chapter 11. Similarly, CMP project recommendations may be addressed as part of the NDOT erosion control and water quality project to ensure that opportunities are not missed and that goals are accomplished.



At the end of 2012, a number of major projects were planned or being considered for the Corridor. Coordinating projects with each other and with other Corridor improvements promotes achieving multiple Corridor goals and may reduce overall project costs.

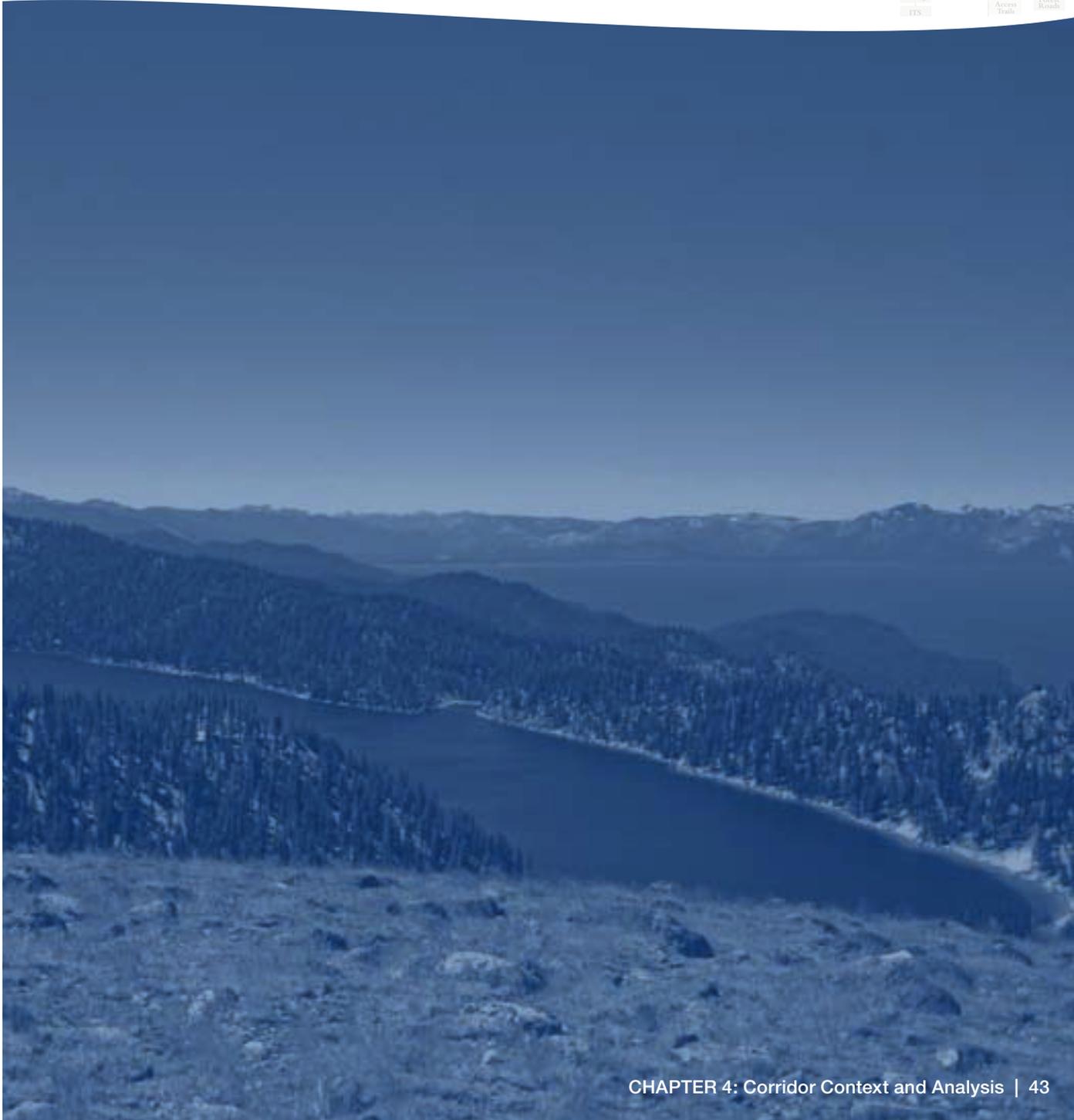
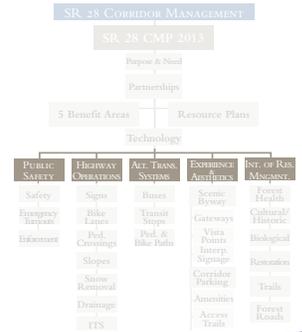
- LEGEND**
- Stateline to Stateline Bikeway PH 2 (North Demo) TTD, Under Environmental Review
 - SR 28 Erosion Control and Water Quality Project NDOT, 2014
 - Sewer Export Line Upgrade 2014 IVGID, 2014-2015
 - Stateline to Stateline Bikeway PH 3 (alignment to be determined) TTD, TBD
 - Stateline to Stateline Bikeway PH 4 TTD, TBD

*Coordinating
Planned Projects*

4

CORRIDOR CONTEXT & ANALYSIS

DEFINING THE SETTING





The east shore is uniquely beautiful. Understanding the current context and gaps in implementing previous planning efforts sets the stage to meet Corridor and user needs while improving the sensitive and scenic natural environment.

Introduction

SR 28 provides the sole access to Lake Tahoe's east shore recreation. It also serves as the main street for Crystal Bay and Incline Village. The east shore is a uniquely beautiful area within the Lake Tahoe Basin. It is the longest stretch of undeveloped shoreline and its steep slopes drop from the highly used Rim Trail and Flume Trail along the ridgeline of the Carson Range down to the rocky shoreline and its secluded beaches. The large amount of publicly-owned and managed lands (primarily by State Parks and USFS) contribute to the special character.

The current state of the Corridor has been described as chaos. The following public safety section describes the high accident rate and factors contributing to safety concerns and the need for the CMP. The highway operations section presents increasing trends in traffic volumes and shoulder parking. The parking discussion and its relationship to visitor use levels is important as it relates back to the primary safety concerns. A lack of pedestrian and bicycle facilities also contribute.

Analysis of the current conditions helps drive the recommendations made in Chapter 5. The desire to maintain the variety of visitor experiences while identifying opportunities to relocate shoulder-parked vehicles to safe locations requires understanding current parking needs during the peak season (summer) and the shoulder-season (fall) and the relationship to visitor use levels at key recreation sites.



Private parcels are primarily found within the communities of Crystal Bay and Incline Village. Public lands dominate the Corridor south of Lakeshore Drive. Lake Tahoe Nevada State Park and the U.S. Forest Service manage the majority of the Corridor. NDOT is responsible for managing the SR 28 roadway and right-of-way. Tribal lands around Skunk Harbor and private parcels, such as those owned by the Secret Harbor Corporation, are scattered within the USFS property. The Thunderbird Lodge Preservation Society operates Thunderbird Lake Tahoe on USFS lands.

LEGEND

- Lake Tahoe Nevada State Park
- USDA Forest Service
- Nevada State Lands
- Washoe Tribe Lands
- Private

Ownership



The overall crash rate and injury crash rate for the Corridor exceeds the Nevada statewide average for a rural two-lane road. Fatalities have also been on the rise from 2006 to 2013 – opposite the statewide trend for the same time period.

Public Safety

The dueling needs for recreation access and through traffic have created safety concerns for motorists and pedestrians. NDOT and the Nevada Highway Patrol (NHP) are primarily responsible for public safety within the highway right-of-way. From 2007 to 2012, three different NDOT Road Safety Audit (RSA) Reports have been prepared for NDOT within the Corridor. Two reports evaluated conditions from the SR 28/U.S. 50 intersection north to the Lakeshore Boulevard East/Ponderosa Ranch area. A third focused on pedestrian safety issues in Incline Village.

Evaluating accident information from April 1, 2006 to March 31, 2013, LSC determined the Corridor crash rates. (LSC, August 2013) The overall crash rate is 1.44 crashes per million vehicle miles which exceeds the statewide average of 0.96 for a rural highway minor arterial. The injury crash rate of 0.54 per million vehicle miles is 180% higher than the statewide average of 0.30 (NDOT, 2011).

Safety is critical as the fatality trend increased along the highway from 2006-2013 in contrast to the statewide average that decreased about 50% per NDOT. According to LSC's summary of NDOT data, from April 1, 2006 to March 31, 2013 there were:

- 469 total accidents (vehicular, ped., and bike)
- 6 total fatal accidents, resulting in 8 fatalities (vehicular, ped., and bike)
- 176 total injury accidents, resulting in 250 injuries (vehicular, ped., and bike)
- 288 property damage only accidents
- All of the fatal vehicular crashes occurred in Incline Village and the Carson City portion of the Corridor
- 8 pedestrian-involved accidents, resulting in 4 fatalities and 5 injuries
- 2 bicyclists-involved accidents, resulting in 2 injuries (Note: a fatal accident with a bicyclist occurred outside of the time period analyzed.)

LSC's August 2013 Nevada SR 28 Crash Summary Memorandum documented the location of all accidents along the Corridor from April 2006 through March. Accident information was described as follows:

- Summer season – 28.7 accidents per summer (201 total)
- Winter season – 21.4 accidents per winter (150 total)
- Shoulder seasons – 16.9 accidents per year (118 total)

The top six areas of crashes were noted at:

- Village Boulevard/SR 28 intersection (50)
- From the "Do Not Pass" sign in Carson City to the Douglas County line (45)
- Amargosa Road to Red Cedar Road (34)
- Between the Sand Harbor utility building to Thunderbird Cove parking (29)
- Reservoir Road to Amargosa Road (27)
- Between the State Park northern boundary and Memorial Point (23)

The 2011 and 2012 NDOT RSAs note primary issues involving public safety include the following:

- Limited area for turnouts for emergencies or law enforcement.
- Narrow two-lane road with adjacent unprotected adjacent steep drop-offs.
- Use of the roadway as a popular bicyclist route with a limited number of advisory signs or adequate space for designated bike lanes.
- Increased use of bicyclists and pedestrians in the roadway with high numbers of vehicles.
- Demand for parking is not met by off-highway parking areas, thereby forcing shoulder parking. Vehicles park over the fog line and people (often with small children) walk in the roadway.
- High demand for access to Sand Harbor creates a vehicle queue that extends past the right turn deceleration lane, blocks the southbound lane, and extends to the first curve on SR 28 north of the park entrance. A similar queue exists for northbound traffic. Southbound traffic has been reported to drive illegally in the northbound lane to pass the queue.
- Steep slopes on the lake side of SR 28 between Lakeshore Boulevard and Rocky Point show signs of erosion undercutting the pavement. Shoulder parking worsens the situation.
- Shoulder parking north of the guardrail at Hidden Beach often spills over into traffic lanes, congesting the residential parking area with drivers seeking parking and making U-turns.
- Turnouts are located in curved areas not readily apparent to drivers.
- Uncontrolled crosswalks in Incline Village have no warning flashers or traffic signals to assist pedestrians and have no street lighting for nighttime use.
- Position of uncontrolled crosswalks conflict with and encourage jaywalking at bus stops.
- Limited sight distance at intersections in Incline Village due to trees and bushes.
- ADA non-compliant wheelchair ramps at intersections in Incline Village.
- Missing sidewalks in Incline Village.
- Lack of left turn lanes at a signalized intersection in Incline Village.

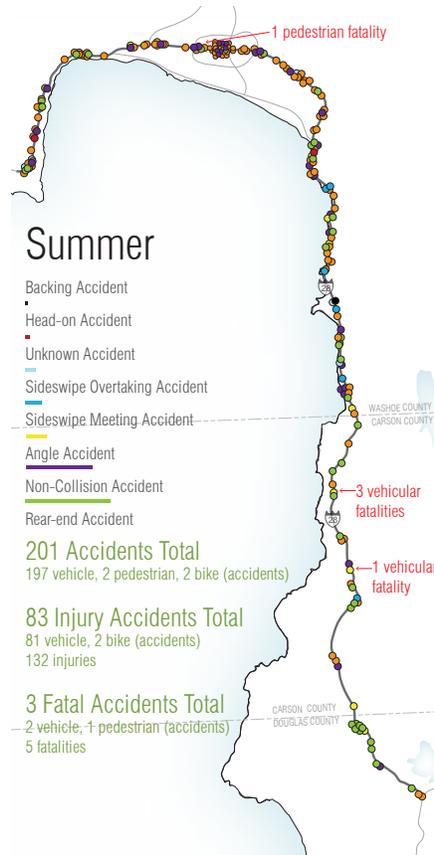
Safety issues along the east shore stem from large numbers of shoulder parking and pedestrian use conflicting with high traffic volumes in the narrow roadway Corridor.

Pedestrian safety issues need to be addressed at specific intersections within Incline Village.

Summer Season Vehicular Accidents

(Apr. 2006 through Mar. 2013)

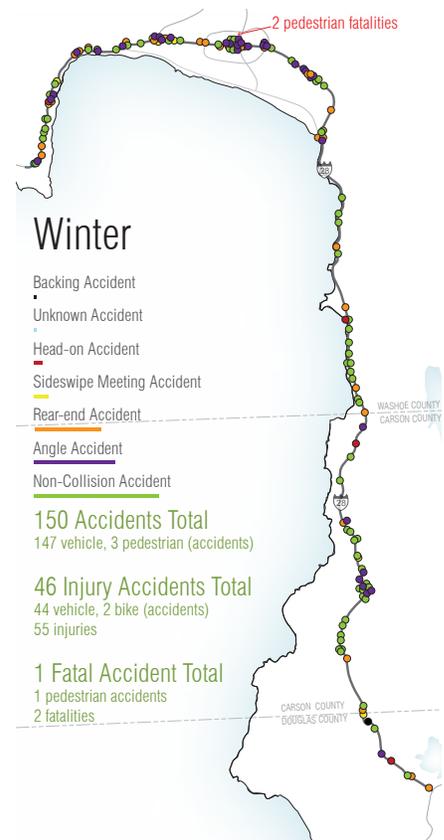
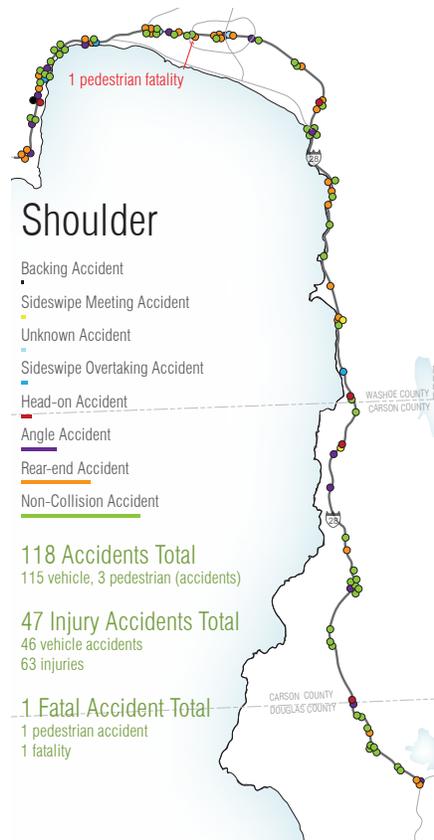
- 201 accidents recorded during summer months (average of 28.7 per summer).
- Rear-end collisions and sideswipe accidents could potentially involve vehicles entering or leaving a parking space.
- Higher concentrations of accidents occurred at the Village Boulevard Intersection, between the northern State Park boundary and Memorial Point, from the State Park utility building to the Thunderbird Cove parking area, and in the Carson City portion of the Corridor.
- 3 fatal crashes with 5 fatalities.
- 83 injury crashes with 132 injuries.



Shoulder (Spring & Fall) & Winter Season Vehicular Accidents

(Apr. 2006 through Mar. 2013)

- Shoulder seasons – 118 accidents recorded (average: 16.9 per year)
- Winter: 150 accidents recorded (average: 21.4 per winter)
- A much higher proportion of single vehicle accidents occur during the winter and shoulder seasons, particularly near relatively short-radius curves or steep grades



* Information per NDOT Accident Data between April 1, 2006 and March 31, 2013. See Appendix G for map enlargements.



Highway Operations

SR 28 consists of a two-lane highway with relatively narrow, unpaved shoulders and a speed limit of 45 miles per hour through the east shore recreation area.

Increasing Traffic Volumes

LSC's June 2012 report describes the increasing traffic volumes. Per NDOT's existing and historical traffic volumes, the annual average daily traffic (ADT) in general decreased during 2000-2005 and then increased during 2005-2010 but not quite back up to year 2000 levels (see Table 3 & Figures 1 & 2.) Most of Tahoe experienced similar trends. Potential factors include the recession, decline of gaming, shift from full-time to vacation home use, etc. Within Incline Village, the decrease may also be linked to Ponderosa Ranch closing and a decrease in full-time population by 400-500 persons.

Over the last decade the following trends were observed:

- Traffic volumes increased from south to north. Volume in Incline Village was roughly twice the volume along the east shore.
- The largest traffic volume decrease occurred between North Stateline and West Lakeshore Boulevard. Volumes decreased 15% over the last decade.
- The largest traffic volume increase occurred north and south of East Lakeshore Boulevard. Over the last decade ADT had a net increase of 5 and 7 percent.
- The surrounding highways of SR 431 and U.S. 50 had similar trends.
- Traffic volumes along the east shore peak in July and August. These volumes are on average approximately 30% higher on weekends and 17% higher on weekdays than count volumes in late June.
- Peak hour volumes reach just over 500 vehicles per hour during the peak on Saturday and Sunday.

Along the east shore, SR 28 consists of two lanes with relatively narrow, unpaved shoulders. Traffic volumes have been increasing since 2005. This trend shows the importance of addressing Corridor issues now to provide safe recreation access and improve congestion issues.

- Peak hour volumes were lower in the southern end of the Corridor, with greater differences between northbound and southbound peak hour volumes. Traffic volumes were higher in the morning for traffic to the east shore with corresponding afternoon volumes exiting the east shore.
- West of Lakeshore Boulevard peak volumes occurred around 4PM with slightly higher southbound volumes.
- The largest traffic volumes increase occurred on segments north and south east Lakeshore Boulevard.

The following table and figures show and illustrate the previously described changes in Corridor traffic volumes.

Table 3: Average Daily Traffic Volumes (source: NDOT via LSC, September, 2011)

	Location	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
SR 28	Spoooner Summit	6,000	6,000	5,850	5,950	6,450	6,000	5,650	5,700	5,500	5,500	5,600
SR 28	South of Lakeshore East	6,700	7,300	6,600	6,800	6,950	6,250	5,900	7,700	7,000	7,000	7,200
SR 28	North of Lakeshore East	5,800	6,200	5,750	5,950	5,750	5,050	5,050	6,200	5,600	5,600	6,100
SR 28	East of Village Blvd	11,900	12,000	12,100	12,700	11,800	10,900	11,100	12,000	11,000	10,000	12,000
SR 28	East of Mt Rose Hwy	11,800	11,800	12,100	13,100	12,000	10,900	9,700	12,000	11,000	11,000	11,000
SR 28	West of Mt Rose Hwy	12,100	12,000	11,800	14,000	12,300	11,500	10,500	13,000	11,000	11,000	12,000
SR 28	West of Lakeshore West	14,080	14,040	14,230	14,310	14,067	13,500	13,400	13,000	12,000	11,800	12,000
SR 431	North of SR 28	5,850	5,600	5,300	5,650	5,450	5,000	5,050	5,400	5,400	5,400	5,600
U.S. 50	West of SR 28	12,700	12,600	12,600	11,100	13,000	11,300	10,900	11,000	10,000	10,000	12,000

		PERCENT CHANGE			ANNUAL AVERAGE CHANGE		
		2000-2005	2005-2010	2000-2010	2000-2005	2005-2010	2000-2010
SR 28	Spoooner Summit	0%	-7%	-7%	41	-76	-58
SR 28	South of Lakeshore East	-7%	15%	7%	-89	210	30
SR 28	North of Lakeshore East	-13%	21%	5%	-140	180	-14
SR 28	East of Village Blvd	-8%	10%	1%	-143	34	-117
SR 28	East of Mt Rose Hwy	-8%	1%	-7%	-83	97	-136
SR 28	West of Mt Rose Hwy	-5%	4%	-1%	3	57	-97
SR 28	West of Lakeshore West	-4%	-11%	-15%	-78	-380	-267
SR 431	North of SR 28	-15%	12%	-4%	-124	116	-24
U.S. 50	West of SR 28	-11%	6%	-6%	-209	-6	-218

Figure 1: Trends of Annual Average Daily Traffic

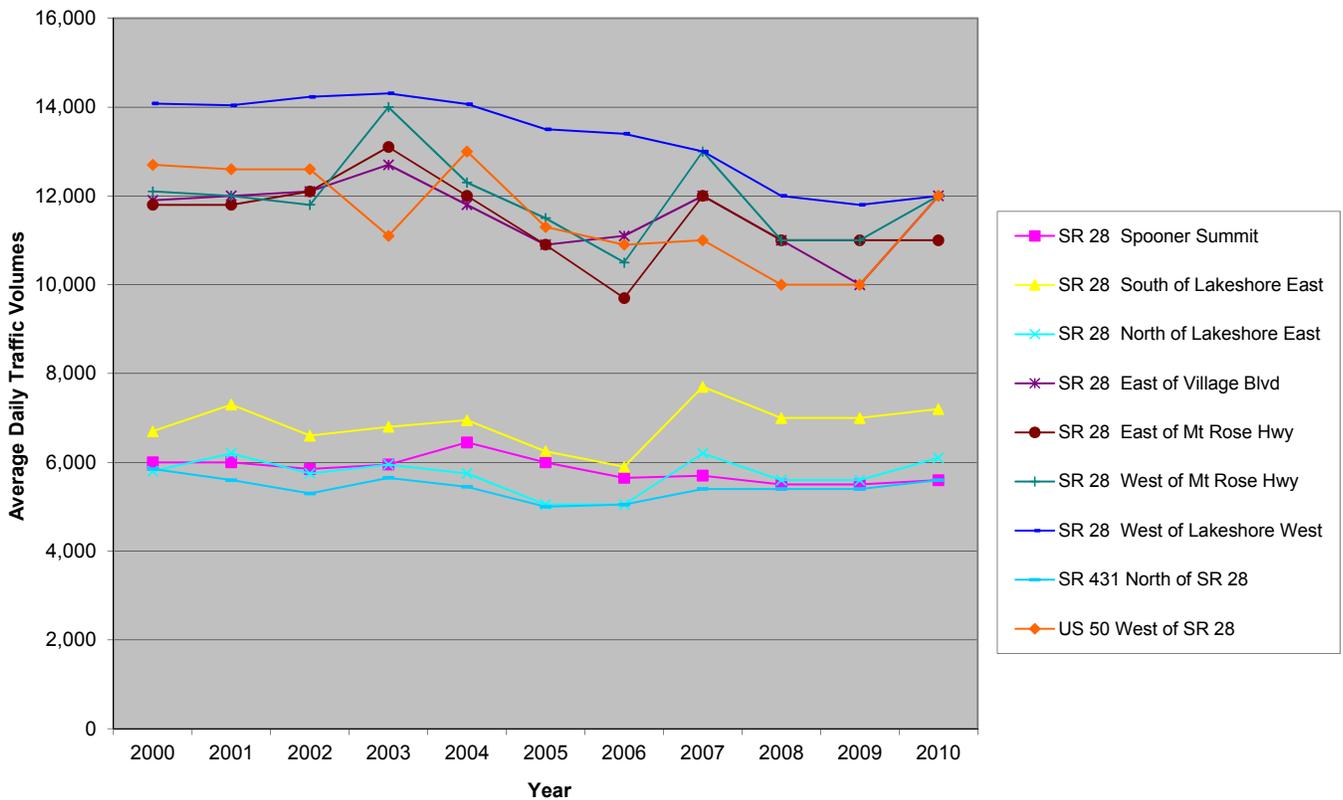
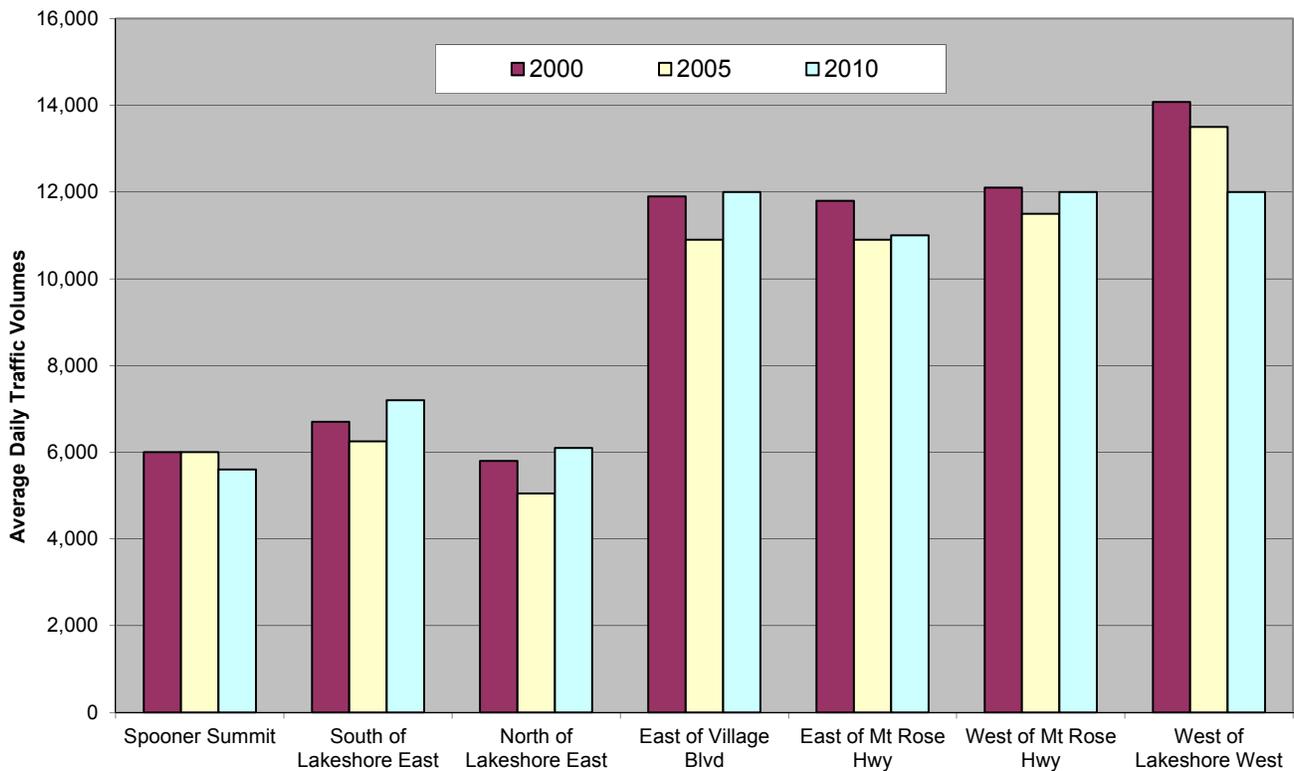


Figure 2: Annual Average Daily Traffic Volumes along SR 28 by Location





Year-round public transit is not provided along the east shore portion of the Corridor. TART provides transit services through Crystal Bay and Incline Village. Private services offer seasonal shuttles for users and “Around the Lake” tours.

Regional connections to the East Shore Express should be considered in the future.

Alternative Transportation Systems

Corridor Transportation Services

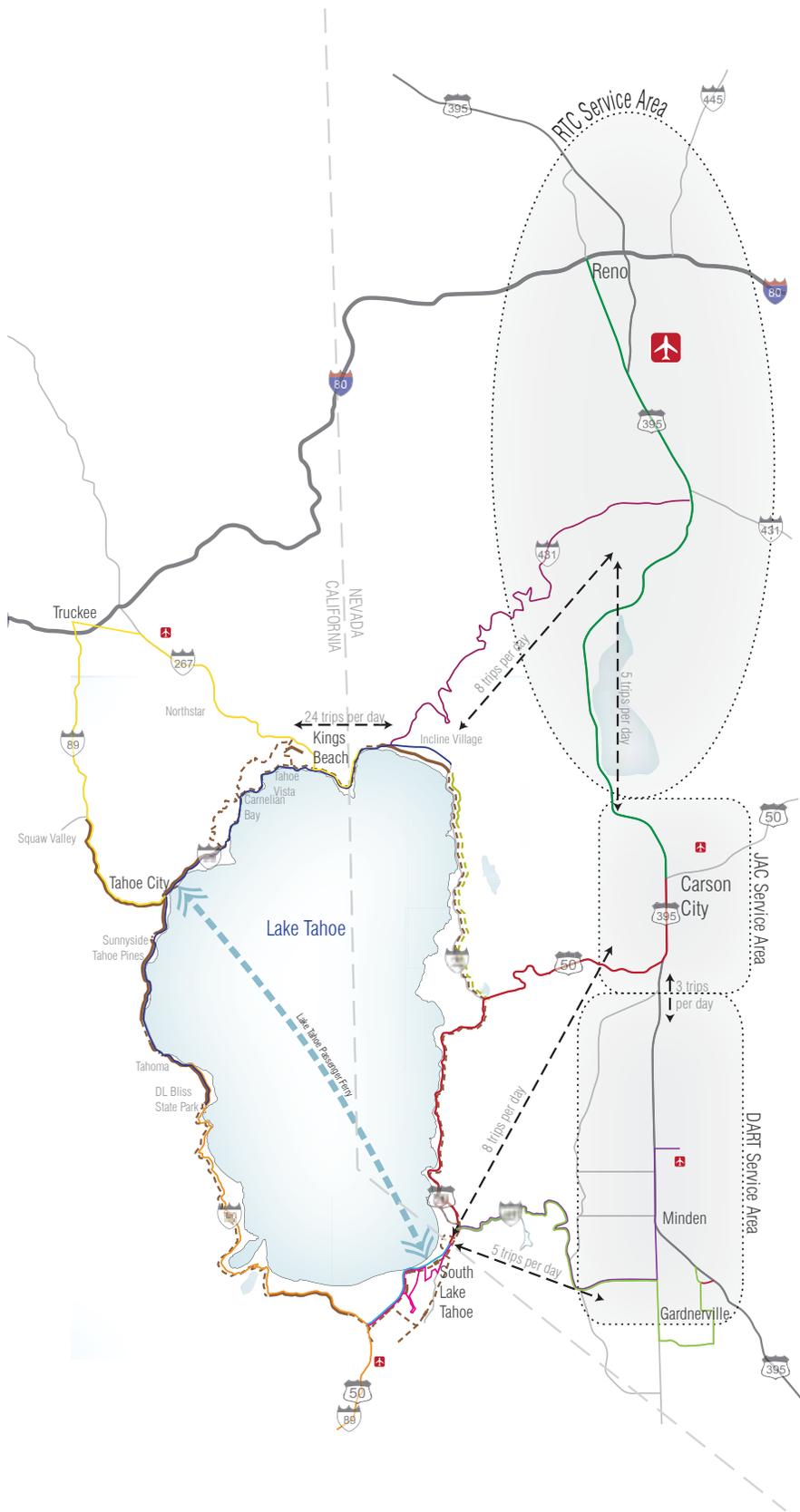
No year-round public transit serves the recreation areas along the east shore.

Transit services within the Corridor include:

- Tahoe Area Regional Transit (TART), operated by TTD, serving Crystal Bay and Incline Village;
- A flume Trail mountain bike shuttle;
- Private seasonal shuttle services offering around the lake tours; and
- A pilot East Shore Express project launched by TTD in 2012 and 2013 providing transit to Sand Harbor from Incline Village.

Regional Transportation Services

- TART’s regular service connects Crystal Bay and Incline Village to the rest of the North Shore.
- TTD’s Stateline to Carson City transit service route has a stop at the NDOT park-n-ride on U.S. 50 in Carson City.
- While the Washoe County RTC operates Intercity service between Reno and Carson, it does not connect to the Corridor. Its closest route extends as far south as Damonte Ranch Road.
- The Truckee-North Tahoe Transportation Management Association manages the North Lake Tahoe Express which connects the Reno Tahoe International Airport with Incline Village.
- The Reno-Tahoe International Airport provides regional commercial air service approximately 20 miles to the northeast of the study Corridor. This airport serves 120 inbound and outbound flights a day, accommodating approximately 3.8 million passengers per year.
- Waterborne transit consists of a summer-only “Fun Runner” service in the South Shore and a “North Lake Tahoe Water Shuttle” in Placer County. TTD is also conducting a study of a passenger ferry service that would connect the north and south shores of Lake Tahoe.
- TTD East Shore Express pilot project for 2012 and 2013 offered safe, convenient alternative access to Sand Harbor from Incline Village.



Regional transportation services include RTC, JAC, DART, TART, and TTD transit routes. A few connections exist between the routes, but no year-round transit serves the east shore portion of the Corridor. Connection from Incline Village to the Reno area is only available through an airport shuttle service.

A water shuttle stop at Sand Harbor has been discussed by State Parks with links to the proposed Lake Tahoe Passenger Ferry.

LEGEND

- Proposed Lake Tahoe Passenger Ferry ←- - ->
- Existing Bike Path —————
- Proposed Bike Path - - - - -
- East Shore Express —————
- East Shore Express - - - - -
- TTD Transit Route 20X —————
- TTD Transit Route 21X —————
- TTD Transit Route 30 —————
- TTD Transit Route 53 —————
- TTD Transit Route 23 —————
- TTD Transit Route 50 —————
- TTD Transit Route 24X —————
- TART Mainline Route —————
- Other TART Routes —————
- RTC Intercity Route —————
- North Tahoe Express —————



Pedestrian safety concerns are greatest at a few Incline Village crosswalks and along the east shore as pedestrians are forced to walk in the roadway.

Almost 2,000 persons are walking along the highway during peak overall demand conditions.

Existing Pedestrian & Bicyclist Activity

There are significant levels of bicycle and pedestrian activity in the Corridor during the summer months.

Pedestrian Activity

Pedestrian activity along the east shore is influenced by limited parking and access to the beaches. For example, per LSC, June 22, 2012, in the Rocky Point area, people park just south of Lakeshore Boulevard East and walk the rest of the way to Hidden Beach. Pedestrian counts around Rocky Point were conducted in 2011 between 8AM and 3PM and counts conducted on the Lakeshore Boulevard path were conducted July 5, 2007 from 10AM to 2PM. The counts showed:

- Rocky Point: 153 during the weekday and 287 on a weekend. Residents have suggested reduced traffic speeds and the use of no walking signs to mitigate conflicts between residents and beach-goers.
- Peak time of activity occurred in the early afternoon between noon and 3PM.
- Up to 16% of pedestrians were recorded as travelling with a dog.
- Lakeshore Boulevard Path: 691 pedestrians or an average of 173 pedestrians per hour. Pedestrians accounted for about 80% of path users.

A pedestrian-crossing traffic signal in Crystal Bay allows people to walk between the two casinos separated by SR 28. Pedestrian counts conducted in July 2008 from 4PM to 8PM recorded 129 pedestrian using the crossing plus another 37 that crossed the highway at other undesignated locations. (2012)

Sand Harbor visitation averages 3.8 persons per vehicle and other Corridor beaches average 2.9 persons per vehicle (LSC, September 8, 2011). Based on the quantity and location of vehicles parked along the shoulder at the peak overall demand hour, almost 2,000 persons are walking along the highway during peak overall demand conditions (see page 60 for shoulder parking count information).



Bicycle Activity

Bicycling in the Corridor includes commuting, road cycling around Lake Tahoe, mountain biking world class trails, and riding from parking areas to east shore beaches.

Bicycle volume data collected with the pedestrian data in 2011 showed (2012):

- Rocky Point: nearly three times less bicycle traffic than pedestrian traffic (49 on a weekday and 90 on a weekend).
- Tunnel Creek: 33 on a weekday and 41 on a weekend.
- The current level of bicycling is relatively modest.
- The majority of bicyclists are traveling southbound on the lakeside of SR 28 and would be considered through trips – 81% on weekdays and 42% on weekends.
- Long distance road cyclists and casual, cruising cyclists frequently use Lakeshore Boulevard as an alternative to SR 28. Counts on July 5, 2007 10AM and 2PM totaled 170 bicycles with 63 occurring during the peak hour.
- Bicycles accounted for 20% of all users on the Lakeshore Boulevard path.

Proposed Stateline-to-Stateline Bikeway

The Nevada Stateline-to-Stateline Bikeway is a joint proposal of local, state, and federal agencies with responsibilities on the Nevada side of the Lake Tahoe Basin. It would complete the Nevada portion of a premier separated shared-use path circling Lake Tahoe that connects communities, enhances recreational opportunities, expands transportation choices, and promotes the enjoyment of the Tahoe Basin. A portion of the southern leg of the trail was recently constructed in Stateline, Nevada and connects Nevada Beach and Round Hill Pines Beach to south shore communities. The section connecting Incline Village to Sand Harbor is under design and environmental review. A shared-use path, it is referred to as the Bikeway per initial discussions with the working group during the strategic plan development.

Bicyclists commonly travel clockwise around Lake Tahoe. The current level of bicycling along the east shore is relatively modest due to the lack of bicycle facilities and dangers of riding within the roadway. Within Incline Village cyclists frequently use Lakeshore Boulevard. A total of 170 cyclists were counted from 10AM to 2 PM on July 5, 2007 by TRPA.

70% of Americans say having bike lanes or paths is important to them.

(U.S. Department of Transportation, 2010)



Parking issues arise in the summer when the high demand for beach access parking exceeds the limited number of off-highway parking spaces. 530 spaces serve Sand Harbor and there are only 52 spaces to serve all other beaches.

Parking

Shoulder parking has not been an issue within Incline Village and Crystal Bay. This section therefore focuses on the east shore area, where parking is a major issue. This issue arises largely during the summer months, when the high demand for recreational beach parking exceeds the number of parking spaces.

A primary goal of the CMP is the relocation of existing shoulder parking to safe off-highway locations (either within an existing, expanded, or new east shore parking lot or in a park-n-ride lot). Maintaining recreation access during both the peak and shoulder season (after Labor Day) is important.

Shoulder parking demands for the shoulder season (after Labor Day) were conducted to help the Plan Partners evaluate different scenarios for relocating parking based on the seasonal demand for recreation in the Corridor. When transit operates longer, more parking can be relocated to park-n-ride lots instead of east shore parking lots, but transit costs will be higher.

East Shore Parking Lots

A limited number of parking lots serve the east shore area.

- Memorial Point parking (temporary parking only)
- Sand Harbor lots
- USFS East (Chimney Beach) lot
- USFS West (Secret Harbor) lot
- Spooner Lake lots

Except for the lot at Spooner Lake, these off-highway lots do not have enough available spaces to serve the recreation demand.

Existing parking lot numbers are as follows:

- Memorial Point lot27 spaces
- Sand Harbor lots:530 spaces
- USFS East (Chimney Beach) lot:21 spaces
- USFS West (Secret Harbor) lot:31 spaces
- Spooner Lake lots108 spaces

Parking Lot Management

USFS managed parking lots are open seasonally. This creates issues in the shoulder seasons when the lots are closed mid-fall through early spring and people want to access recreation sites. The conflict is apparent when lots are not open during late spring and hiking, biking, and beach-going have favorable weather. Likewise, conflicts occur in early fall when the lots close early and users are forced to park along roadway shoulders.

The issue of parking lot management, when lots open and close and which, if any, can be open year-round with snow removal are topics of future consideration. It is recommended that a Management Team be formed from the existing Plan Partners. This would be an item for them to address as the CMP is implemented.

At USFS parking lots 62% of traffic was to/from the north and 38% was to/from the south.

At Sand Harbor 93% of traffic was to/from the north with only 7% to/from the south.



The peak number of cars parked along the shoulders on a busy summer Saturday has been increasing by 22 cars per year on average over the past decade.

Shoulder parking demand fell from 216 in September to 90 after October 1st. If transit ends at Labor Day, trailheads along the east shore need to accommodate shoulder season demands to successfully relocate shoulder-parked vehicles.

The peak hour of overall Corridor shoulder parking during the summer is 2PM to 3PM, but Hidden Beach, USFS lots and Sand Harbor can fill before 10AM.

Shoulder Parking

Summer and shoulder season parking counts conducted by LSC along the east shore revealed the following: (LSC, September 8, 2011 unless otherwise noted)

- The peak hour of overall Corridor shoulder parking during the summer is 2PM to 3PM, but Hidden Beach, USFS lots, and Sand Harbor can fill before 10AM.
- The capacity of shoulder areas not signed "no parking" is exceeded in the Hidden Beach/Tunnel Creek and Sand Harbor areas.
- Substantial shoulder parking activity results in erosion, pedestrians walking along the edge of travel lanes, and traffic congestion.
- Historic parking counts show demand dipped in the early 2000's and increased significantly during 2010 and 2011.
- Between 2000 and 2011, the peak number of cars parked along the east shore shoulders on a summer Saturday increased by 22 cars/year.
- Shoulder parking and pedestrians walking along the highway from parked cars cause friction and congestion with the vehicular traffic along SR 28.
- Many of the shoulder parking areas are partially or fully on dirt, causing erosion that affects Lake Tahoe.
- In the shoulder season the highest volume of shoulder-parked cars was 216, compared to the 593 during peak season. (LSC, October 31, 2012)
- Demand declines as fall progresses, declining from 216 in September to 90 in October. Weekday demand in October exceeds weekend demand. (2012)
- The closure of USFS parking lots in late fall, winter, and early spring generates shoulder parking use.

Figure 3: Weekend Shoulder Parking Annual Trend

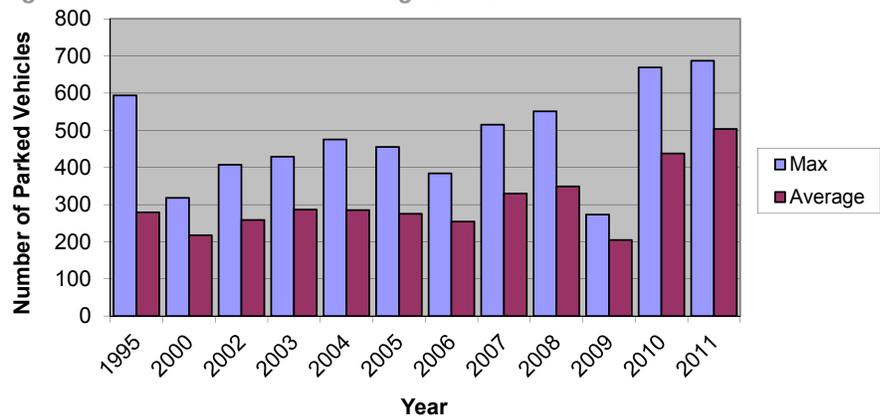
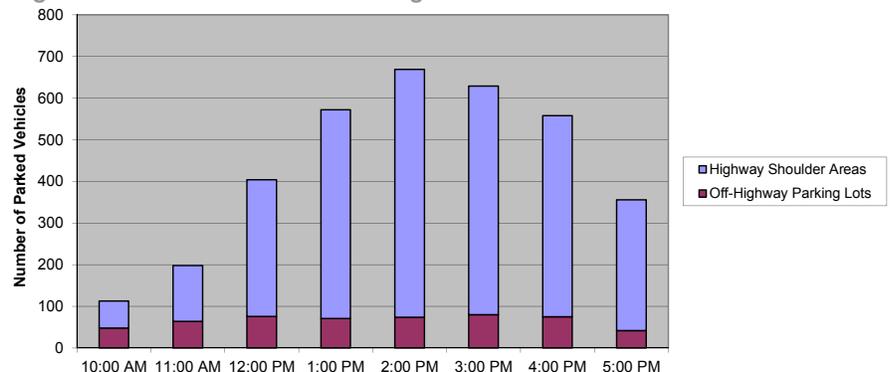
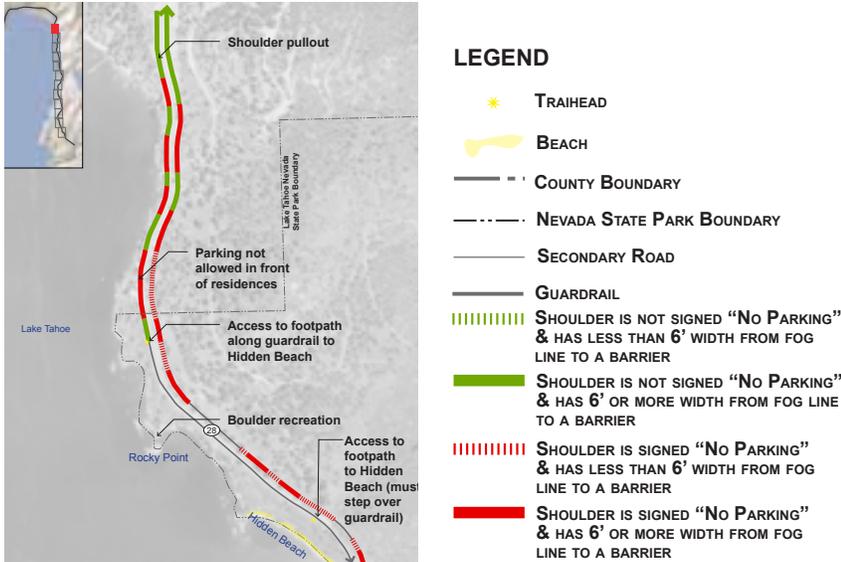
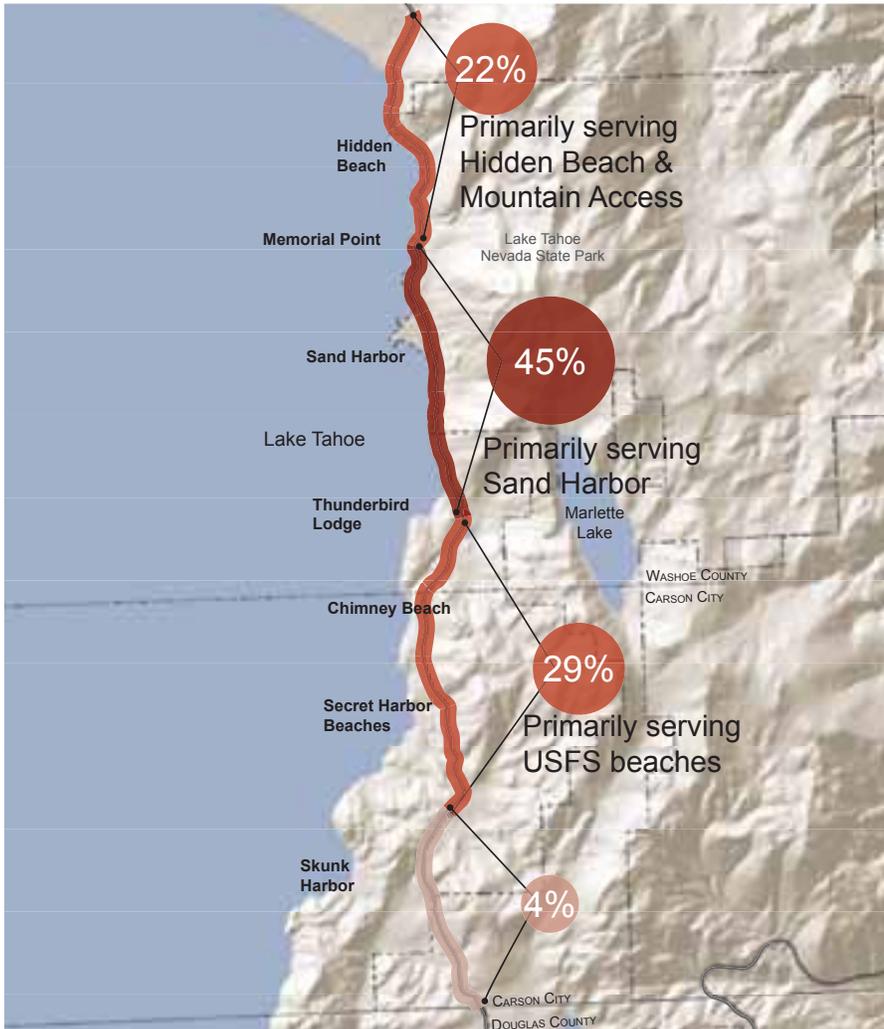


Figure 4: Weekend Shoulder Parking Overall Peak Hour





Almost all areas around Hidden Beach are signed "No Parking", yet a large number of vehicles park in the area. (See Appendix H for enlarged maps.)



Concentration of 2011 Overall Shoulder Parking

Although some shoulder areas may be wide enough to accommodate a car and do not have signs indicating "No Parking", all instances of shoulder parking are considered hazardous due to the resulting safety concerns.

Shoulder parking is concentrated around beach access points. The largest percentage of people park in the northern area of the Corridor to access Sand Harbor, Hidden Beach, and mountain trails. Chimney Beach and Secret Harbor create the majority of shoulder parking demand south of Sand Harbor.

*Percentage shown reflects the percent of cars parked along the highway shoulder for the area shown during the 2011 peak overall demand time. Recreation access primarily defines where parking occurs.

Table 4: Capacity and Utilization of SR 28 East Shore Shoulder Areas Not Signed "No Parking"

	Length of Shoulder Area Not Signed "No Parking" with Adequate Space ¹	Estimated # of Shoulder Spaces ²	Observed Parking Demand ³	Percent Parking Utilization
PARKING SECTION/ DESCRIPTION		TOTAL	SAT	SAT
1 – Sweetwater to Lakeshore	3,660 lf	146	35	24%
2 – Lakeshore to 1169 SR 28	1,020 lf	40	36	90%
3 – 1169 SR 28 to Begin Res Pkg Only Sign	610 lf	24	23	96%
4 – Within Residential Only Parking Area	0 lf	0	2	N/A
5 – End Res Pkg Only Sign to Entering State Park Sign	120 lf	4	8	200%
6 – Entering State Park Sign to north end of Scenic Overlook	1,365 lf	54	25	46%
7 – North End of Scenic Overlook to Sand Harbor Boat Ramp	1,680 lf	67	66	99%
8 – Sand Harbor to Utility Building	0 lf	0	89	N/A
9 – Utility Building to Thunderbird Beach Parking	4,705 lf	188	112	60%
10 – Thunderbird Cove Beach Parking to Carson City Sign	2,415 lf	96	29	30%
11 – Carson City Sign to Beginning of Hill	1,650 lf	66	34	52%
12 – Beginning of Hill to Solar Panel	3,675 lf	147	105	71%
13 – Solar Panel to "Do Not Pass Next 3 Miles" Sign	5,390 lf	215	3	1%
14 – "Do Not Pass Next 3 Miles" Sign to Douglas County line	7,540 lf	301	26	9%
Subtotal 1, 2, 3, 4, 5, 6: Hidden Beach/Flume Trail Area		268	129	48%
Subtotal 7, 8, 9: Sand Harbor Area		255	267	105%
Subtotal 10, 11, 12: Chimney Beach & Secret Harbor Area		524	171	33%
Subtotal 13: Skunk Harbor Area		301	26	9%
Total		1,348	593	44%

Source: LSC, December 27, 2011

¹ Shoulder space area within the right-of-way is not signed "No Parking" and there is width for average-sized vehicles (minimum of six feet).

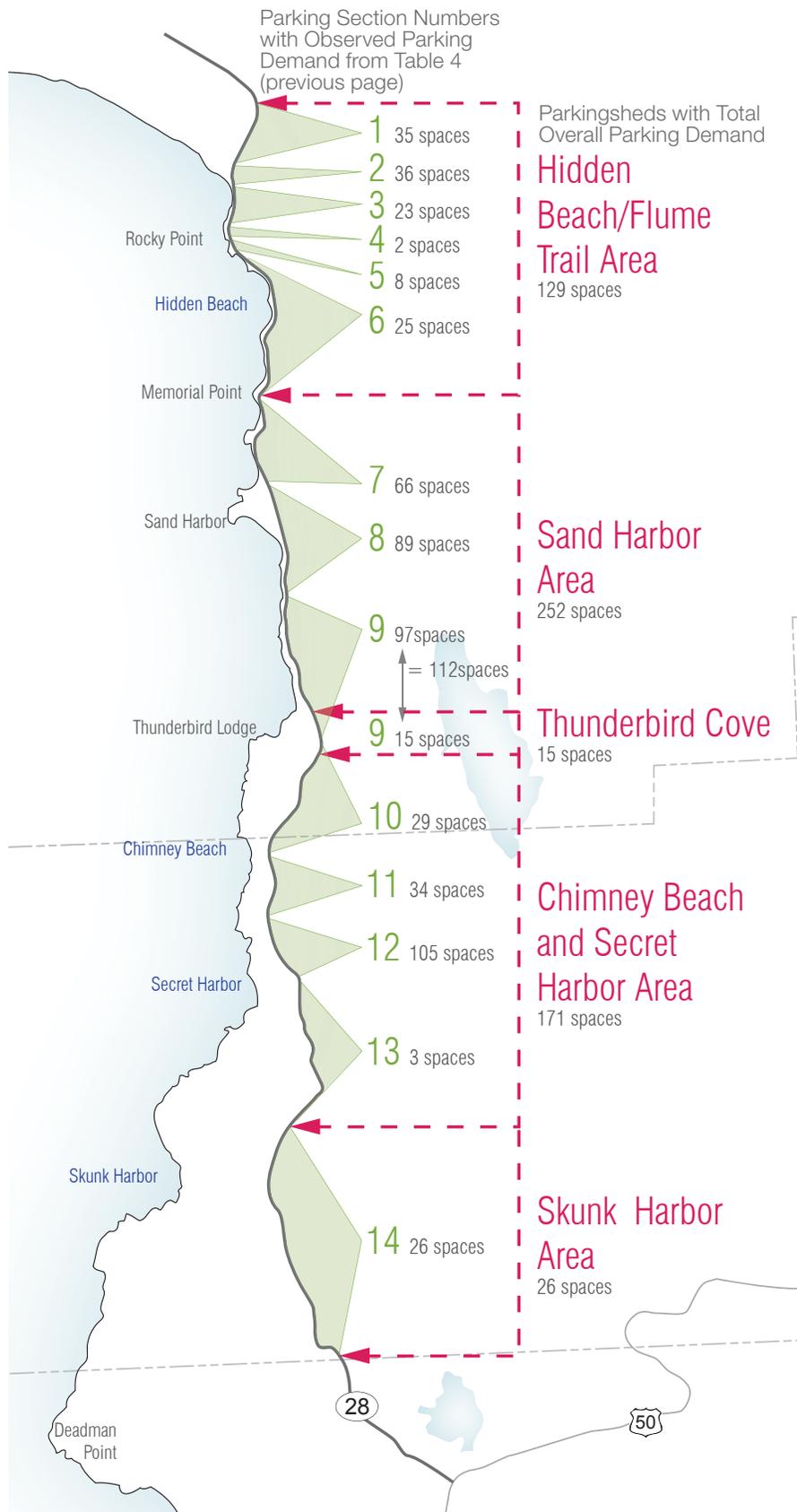
² 25' average used for shoulder parking space length.

³ Number of parked cars recorded during the peak overall demand time in each parking section on August 3 and 6, 2011.

The CMP seeks to relocate the observed peak parking demand shown in Table 4 to safe, off-highway locations that serve the recreation areas.

Note:

Although some shoulder areas may be wide enough to accommodate a car and do not have signs marking it as a no parking area, all instances of shoulder parking are considered hazardous due to the resulting safety concerns. Pedestrians are forced to walk in highway. Vehicles pull in and out of spaces in heavy traffic. Cars stop abruptly to park and make U-turns across the highway to secure a parking spot.



“Parkingsheds”, include the area of shoulder parking used to access various beaches and upland trails. These zones influence how parking can be relocated to serve the same area.

- Sections 1-6: Hidden Beach/Flume Trail parkingshed
- Sections 7- 9: Sand Harbor parkingshed
- Section 9: Thunderbird Cove parkingshed
- Sections 10-13: Chimney Beach & Secret Harbor beaches parkingshed
- Section 14: Skunk Harbor parkingshed

Parking Count Sections, Parkingsheds, & 2011 Counts



The East Shore Express successfully provided transit for Sand Harbor visitors, significantly reducing the number of cars parked along the highway shoulder and the number of pedestrians walking along the highway in the 3-mile stretch near Sand Harbor.

East Shore Express Pilot Project

A pilot program offered transit for visitors to Sand Harbor during the summers of 2012 and 2013. The 2013 program was still running during the production of the CMP, but the 2012 program successfully achieved the following:

- Relocated 1,623 cars and 12,155 people from unsafe shoulder parking to safe park-n-ride locations in Incline Village, (LSC, October 3, 2012)
- Reduced congestion at Sand Harbor entrance,
- Improved overall traffic flow,
- Reduced conflicts between motorists and pedestrians,
- Provided safe, convenient alternative access to Sand Harbor from Incline Village addressing the most severely congested area within the Corridor,
- Included daily service between Incline Village and Sand Harbor,
- Improved the no parking zone signage, and
- Implemented a no walk-in policy at Sand Harbor for safety, helping the pilot project be successful.

100% of East Shore Express survey respondents indicated that the service should run in the future. (LSC, October 3, 2012)



Shoulder parking along the highway prior to the pilot transit project.



Shoulder parking along the highway prior to the pilot transit project.



Successful implementation of the pilot transit project in conjunction with increased enforcement, a defined "no parking zone" and no walk-in policy at Sand Harbor safely relocated parking and virtually eliminated people walking along the highway in this area.

Before and after imagery illustrate how the successful relocation of unsafe shoulder parking to transit park-n-ride lots improved safety and the Corridor's scenic quality.

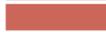
Shoulder parking creates a situation where people must walk along the highway to reach their destination. Large numbers of people walk along the highway to access Hidden Beach, Sand Harbor, Chimney Beach, and Secret Harbor beaches.

LEGEND
Number of Persons Getting Out of Cars Parked in a Particular Segment
(Persons May Walk Through Multiple Segments to Reach a Destination)

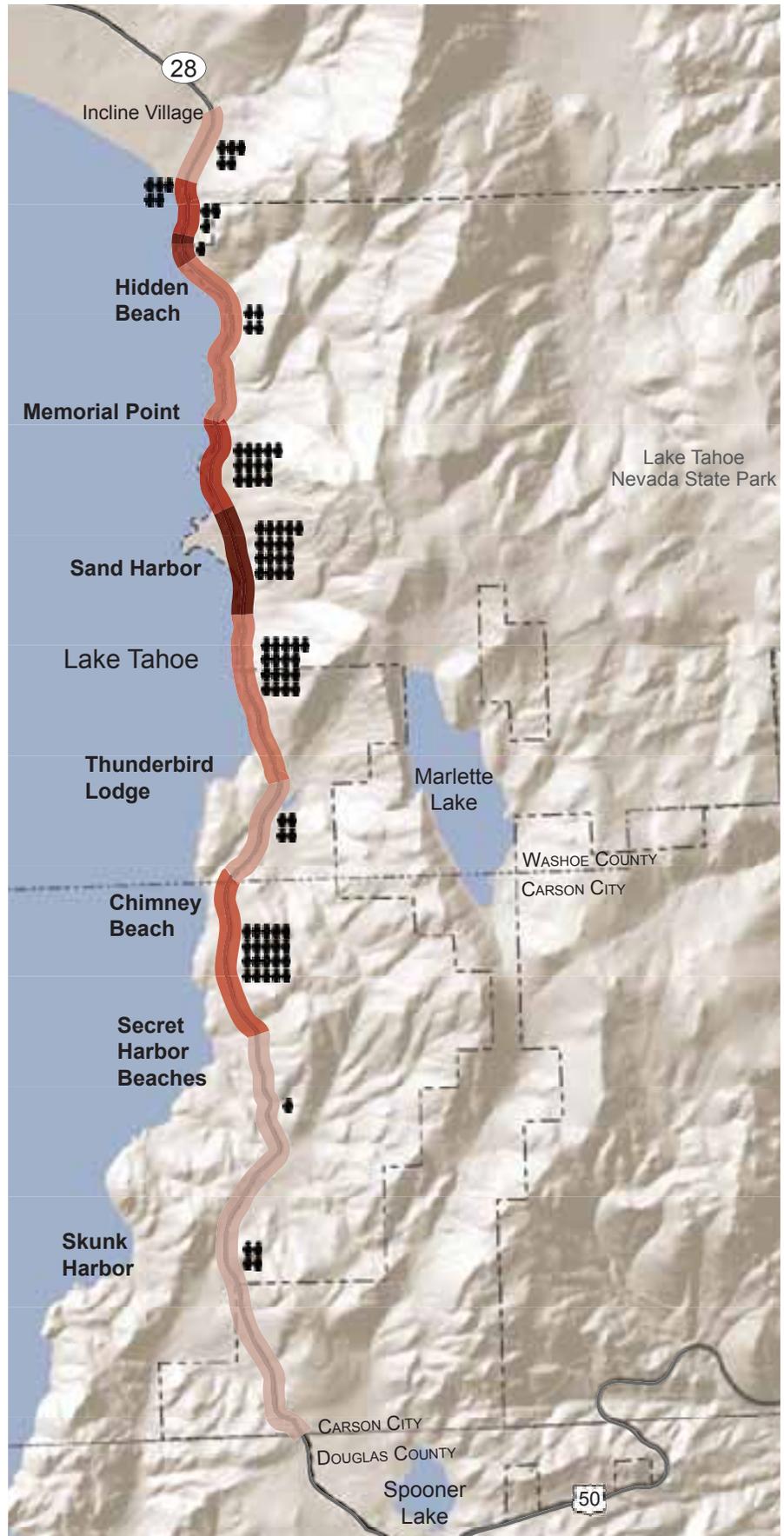
 1  Equals 20 People

2.9 persons/car for majority of the Corridor
 3.8 persons/car for the Sand Harbor area

Percent Utilization of Available Parking

-  All Illegal Parking
-  Greater than 100% Utilized
-  80% to 99% Utilized
-  60% to 79% Utilized
-  40% to 59% Utilized
-  20% to 39% Utilized
-  0% to 19% Utilized

2011 Peak Shoulder Parking Counts





The East Shore Express transit shuttle to Sand Harbor in conjunction with enforcement, assistance of the justice court, Sand Harbor no walk-in policy, and a no parking zone successfully reduced large numbers of cars parked within the Sand Harbor area, thereby significantly reducing the number of pedestrians walking along the highway.

LEGEND
Number of Persons Getting Out of Cars Parked in a Particular Segment
 (Persons May Walk Through Multiple Segments to Reach a Destination)
 ████ 1█ Equals 20 People
 2.9 persons/car for majority of the Corridor
 3.8 persons/car for the Sand Harbor area

Percent Utilization of Available Parking

- All Illegal Parking
- Greater than 100% Utilized
- 80% to 99% Utilized
- 60% to 79% Utilized
- 40% to 59% Utilized
- 20% to 39% Utilized
- 0% to 19% Utilized

Change in Parking From 2011 to 2012
Increased Shoulder Parking
 Change in Number of Cars (at peak time)
 Change in Number of Persons (at peak time)

Decreased Shoulder Parking
 Change in Number of Cars (at peak time)
 Change in Number of Persons (at peak time)

Change in Peak Shoulder Parking from 2011 to 2012



A Recreation Opportunity Spectrum is a tool that can help agencies manage Corridor recreation sites based on a range of desired experiences.

User Experience & Aesthetics

Transportation Recreation Opportunity Spectrum

Land managers often use a Recreation Opportunity Spectrum (ROS) to manage diverse outdoor recreation opportunities. The tool considers a range of factors that influence a recreation experience (density of use, type of facilities, etc.) to manage sites based on a desired recreation experience. It is a system that links activities, settings, motivations, and benefits.

Central Federal Lands Highway is applying the ROS concept to assess transportation's impact on the visitor experience and natural and cultural resources. It is referred to as a Transportation Recreation Opportunity Spectrum (T-ROS). The framework intends to help managers maximize visitor satisfaction by matching visitors' expectations and desired level of access with available resources.

The T-ROS considers access, visitor satisfaction, density of use, types of facilities, types of attractors, types of modes of access (e.g. vehicle, bike, walk, transit), vehicle capacity, and connectivity.

Because the Corridor has a large percentage of Federally-owned land and provides both access to recreation and is a form of recreation itself, the CMP applies the settings of the T-ROS system to Corridor recreation areas.

Defining how Corridor facilities fit within the T-ROS system gives land managers an understanding of the different desired recreation experiences in order to maintain that variety in the future. Key characteristics of the recreation settings follow:

Urban Facilities

- A recreation area in a community which may contain built features such as paved parking lots, restrooms, swimming pools, and playgrounds.
- Access roads are paved.
- Site is located in developed areas.

Highly Developed Facilities

- A recreation area in a natural setting that may contain many built features, including paved parking lots, roads, restrooms, and entertainment facilities.
- Access roads are paved.
- Uses may include overnight lodging, camping, restaurants, boat launch, marinas, visitor centers & gift shops, ski resorts, and horse stables.
- User fees are generally required.

Developed Facilities

- A recreation area that contains some built amenities with paved parking; restrooms are common but other services may not be.
- Access roads are paved.
- Uses may include camping, small and large group day use, food and beverage service (versus a restaurant), boat launching, concessionaires, and visitor center. Facility may host events or have an amphitheater. No lodging or marinas.
- User fees are generally required.

Semi-Developed Facilities

- A recreation area that contains limited structures (constructed from rustic materials), pit toilets, individual picnic areas, and unpaved access trails with remote, vehicular paved parking.
- Uses may include boat launch, small interpretive facilities, visitor information, and campfire center (small amphitheater). May host small to medium events.
- User fees may or may not be required.
- Site has easy to moderate access with limited accessibility.

Semi-Primitive Facilities

- Little to no motorized accommodation. No facilities and restrooms may or may not be available. Parking may be paved or unpaved.
- Structures may exist, but are primitive (like a log bridge).
- Site has moderate to difficult trail access with limited accessibility.
- May have tours or back country trail events.

Primitive Facilities

- A completely primitive setting. No facilities or man-made structures. No motorized access.
- Remote trail access. Typically no mountain biking.

The CMP uses the Transportation Recreation Opportunity Spectrum recreation settings. Defining the different desired Corridor recreation experiences helps CMP recommendations maintain the variety of recreation experiences while improving safety and access.



Corridor natural attractions include:

- Crystal Clear Waters
- Boulders
- Nice Sand
- Remote Beaches
- Developed Beaches
- Trails
- Forests
- Steep Cliffs
- Meadows
- Views of Lake Tahoe
- Aspen Groves
- Lakes
- Lake Ecology
- Undeveloped Shore Line

Recreation Areas

SR 28 travels through striking natural scenery, provides access to numerous recreation areas, and offers a scenic, recreational drive. Recreation activities and destinations within the Corridor are shown on the Recreation Areas and Major Trails map and include the following types of facilities:

- Urban Facilities
 - Incline Village IVGID operated beaches
 - Incline Village golf courses
 - Incline Village recreation facilities: athletic fields, visitor center, tennis complex, community building, community parks, etc.
 - Biking and hiking trails in Crystal Bay and Incline Village
- Highly Developed Facilities
 - Diamond Peak Ski Resort
 - Tunnel Creek Station (and former Ponderosa Ranch area)
 - Thunderbird Lodge
- Developed Facilities
 - Sand Harbor recreation area, LTNSP
 - Spooner Lake recreation area, LTNSP
- Semi-Developed Facilities
 - Hidden Beach, LTNSP
 - Memorial Point viewpoint, LTNSP
 - Crystal Bay USFS Lookout
- Semi-Primitive Facilities
 - Thunderbird Beach
 - Chimney Beach
 - Secret Harbor Beaches
 - Skunk Harbor
 - Flume Trail
 - North Canyon Trail
 - Marlette Lake
- Primitive Facilities
 - Tahoe Rim Trail
 - Marlette Lake Trail



User experience includes the alignment between the expected experience and actual experience; available facilities, amenities, & activities; condition of the site & process of getting to the site.

LEGEND

- Viewpoint
- Sports Fields
- Downhill Skiing
- Tennis
- Golf Course
- Fishing
- Snowshoe
- Trailhead
- Private Beach Access
- Public Beach Access
- Mountain Biking
- Amphitheater
- Private Boat Launch
- Public Boat Launch
- Camping
- Rim Trail, Flume Trail, North Canyon Trail, Marlette Trail
- Dirt roads/ OHV trails
- Existing and proposed hiking/ biking trails

*Recreation Areas
& Major Trails*



Preliminary evaluation of visitor use levels supports discussions with land managers that east shore beaches are close to or at capacity. Water level is an important factor in available beach space. This baseline assumption can be used in management decisions to ensure use levels are not shifted in a manner that would decrease visitor experience nor damage the resource area.

Visitor Use Levels

The concept of carrying capacity as a recreation management tool began over 40 years ago. It is a tool that has evolved over the years and is still debated by many. The fundamental concept of understanding the connections between an area's desired conditions and the amount and type of use it can sustain to maintain the physical environment and the visitor's experience are relevant for the entire Corridor.

It is not the intent of the CMP to fully assess the recreational capacity of the Corridor. However, a general understanding of the existing conditions is necessary to make thoughtful recommendations. Discussions with land managers and feedback from beach users indicate a desire to generally maintain the current level of use experienced at the east shore beaches, including those at Sand Harbor and Hidden Beach.

Therefore, the CMP defines the baseline range of desired visitor use levels as being comparable to the current situation. This baseline assumption supports the concept that providing for existing use levels will not decrease visitor experience nor damage the resource area. The CMP also allows for agencies to revisit the question of visitor use levels and desired capacity in the future. As improvements, such as multi-modal access, are implemented it may be possible to accommodate the future demands with less impact to the Corridor.

Current Conditions

To capture the current conditions and define the range of use levels, the available beach area was correlated with a desired density range of people. This range was cross-checked with the known peak number of parked cars for the different beach areas. Density ranges came from the recreational capacity study for Sand Harbor completed by State Parks (December, 2011) and the Draft TRPA Regional Recreation Plan Recreation Assessment (May 16, 2005). Diagrams showing the available beach area can be found in Appendix I.

Sand Harbor's capacity study included extensive visitor surveys along with empirical research conducted on Mediterranean beaches to determine appropriate visitor densities. The study also approached the idea of capacity from several angles – physical/spacial capacity, facility capacity, ecological capacity, and social capacity – and could be used as a representative approach to evaluate capacity for the entire Corridor. TRPA's study determined the appropriate density from site studies evaluating the spatial arrangement and spatial needs of varying situations.

Table 5: Range of Desired Density Numbers

	Developed Beach (High Density Standard)	Dispersed Beach (Low Density Standard)
Sand Harbor Capacity Study	162 sf/person	323 sf/person
TRPA Recreation Plan	100 sf/person	150 sf/person

Table 6: Average Density of Use Per Beach During Peak Period of 2011

BEACH	AVERAGE BEACH AREA AVAILABLE	RANGE OF DENSITY (SF/PERSON)	NUMBER OF PERSONS BASED ON DENSITY RANGE	PEAK NUMBER OF CARS PARKING IN BEACH VICINITY ¹	NUMBER OF PERSONS GENERATED FROM PEAK NUMBER OF PARKED CARS ²	DENSITY ASSOCIATED WITH PERSONS GENERATED FROM PARKING ³
Hidden Beach	60,471 sf	323-150	187-403 persons	129 cars	374 persons	162 sf/person
Sand Harbor ⁴	299,040 sf	162-100	1,846-2,990 persons	782 cars	2,972 persons	101 sf/person
Thunderbird Cove	7,362 sf	323-150	23-49 persons	15 cars	44 persons	167 sf/person
Chimney Beach	28,810 sf	323-150	89-192 persons	50 cars	145 persons	199 sf/person
Secret Harbor Beaches	89,910	323-150	278-599 persons	173 cars	502 persons	179 sf/person
Secret Cove	19,986 sf	323-150	62-133 persons	part of Secret Harbor total	part of Secret Harbor total	part of Secret Harbor total
Boat Beach	24,949 sf	323-150	77-166 persons	part of Secret Harbor total	part of Secret Harbor total	part of Secret Harbor total
Creek Beach	14,552 sf	323-150	45-97 persons	part of Secret Harbor total	part of Secret Harbor total	part of Secret Harbor total
Whale Beach	30,423 sf	323-150	94-203 persons	part of Secret Harbor total	part of Secret Harbor total	part of Secret Harbor total
Skunk Harbor	17,684 sf	323-150	56-118 persons	26 cars	75 persons	236 sf/person

¹Based on overall peak shoulder demand in Summer 2011 and available off-highway parking lots

²2.9 persons per vehicle average for USFS beaches and Hidden Beach

³3.8 persons per vehicle average for Sand Harbor

⁴Density calculated using average beach area available and persons generated by overall peak parking demand

⁵Use of transit to Sand Harbor in 2012 shifted some walk-in users to transit. The total number of visitors for the season did not increase due to transit, rather the number decreased from around 10,000 walk-ins to approximately 7,500 transit users. It is anticipated that transit use may increase in the future and will require monitoring and adjustment as necessary to maintain use levels.

The capacity of a recreation area should consider its social, physical/spatial, ecological, and facility resources and the overall desired recreation experience. Visitor use levels can be managed by controlling access, shifting use to off-peak times, shifting use to a similar type facility around Lake Tahoe, and modifying transit services, if provided.

Overall, even on a peak day, the majority of beaches are within the range of desired visitor use based on average beach area. The exception is use at Thunderbird Cove.

Peak days are estimated to only occur 40-42 days out of the year. During the 2012 Fourth of July holiday, an unofficial survey was conducted on the USFS beaches and Hidden Beach to verify whether beach-goers were satisfied with the number of people on the beach. A majority of users responded positively.

Managing Visitor Use Levels

The Corridor should be managed to appropriate use levels based on the desired type of experience and available resources for each facility. The CMP does not restrict growth and recognizes that in the future agencies may consider reasonable expansion of facilities. In the event an agency desires to allow for increased visitor use, they should evaluate the facility's ability to accommodate that increase in relationship to its social, physical/spatial, ecological, and facility resources and the overall desired recreation experience described by the facility's T-ROS setting. Unintended effects should be considered.

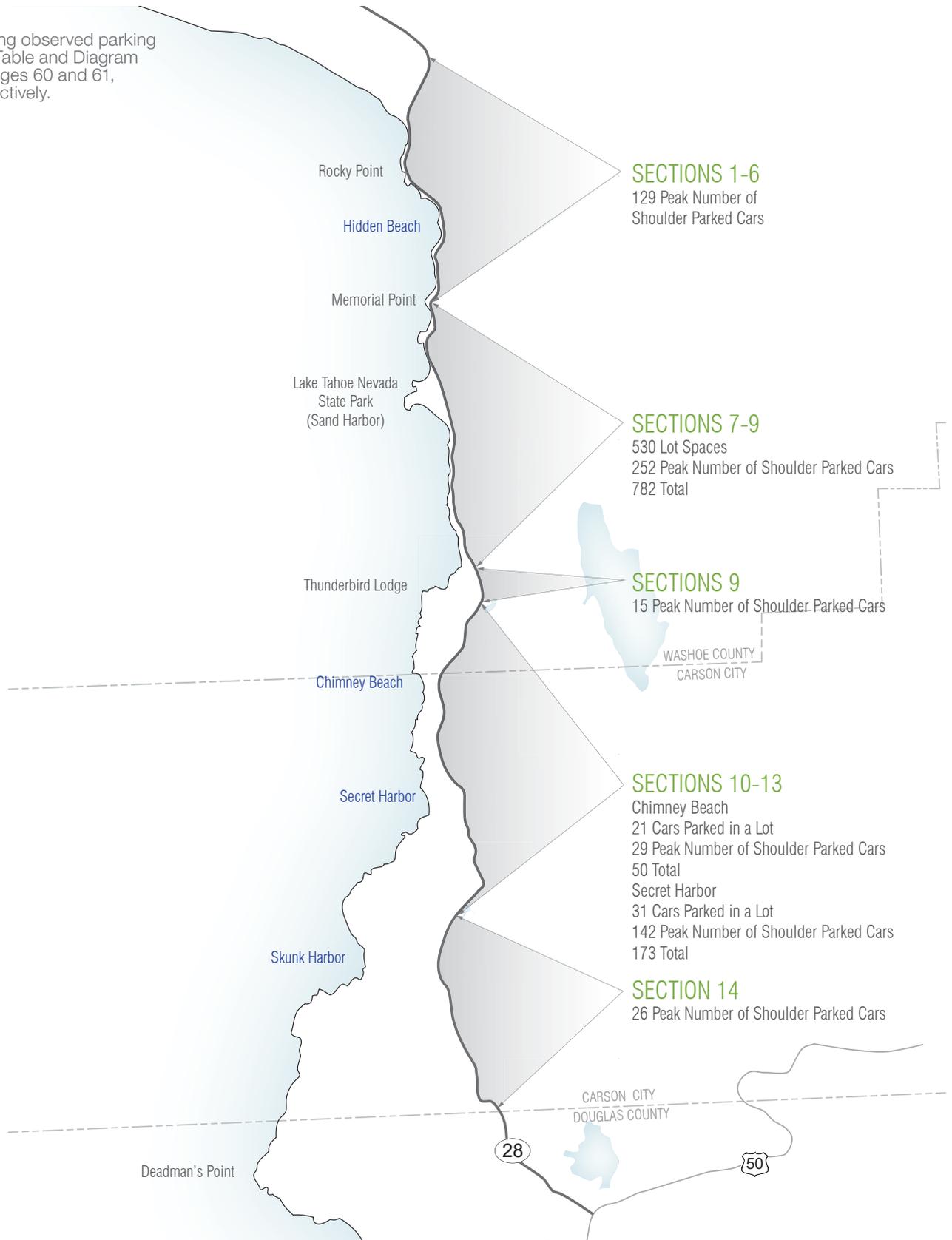
Management strategies include shifting peak period use to off-peak, shifting use to a similar type facility around Lake Tahoe, and modifying transit services. Use of technology and coordination with other Basin-wide facilities would make these strategies more achievable.

Limiting site access is another management tool. It is not the intent of the CMP to exclude people from sites. Rather, access to sites is provided based on the desired experience, impacts to natural resources, and the ability to maintain facilities.

For example, based upon the number of people generated from peak parking demands (Table 6), the number of persons at the Thunderbird Cove beach exceeds the desired use level which impacts the natural resources. Some of the demand may disperse along boulders to the north, but the shoreline impacts associated with that dispersion is not desired by land managers. Therefore, the CMP recommends shifting that demand to the Chimney Beach and Secret Harbor beaches to the south.

The CMP does not propose the expansion of overall parking in the Corridor but suggests providing for appropriate visitor use levels and relocating parking to safer locations and incorporating transit and non-motorized transportation facilities to maintain recreation access.

Existing observed parking
(see Table and Diagram
on pages 60 and 61,
respectively).



Parkingsheds Peak Parking Numbers and Corresponding Beach Access



Gateway signage currently consists of a state entry sign.



Memorial Point provides the one developed viewpoint area along the Corridor.



Interpretive signage is planned as part of the Stateline-to-Stateline Bikeway.



Spoooner Lake Management Area includes day use facilities.

Corridor Elements

Gateways

- Roundabout at the SR 28/SR 431 intersection outside of Incline Village.
- State gateway signage located at the state line in Crystal Bay.
- No gateway signage identifies the byway's status as "America's Most Beautiful Drive". Standard NDOT Scenic Byway pole signs are located near the SR 28/U.S. 50 intersection and the SR 28 Nevada entry.

Vista Points

- Memorial Point provides the one designated viewpoint area.
- Motorists use small shoulder areas not taken by parked vehicles to take photographs and view the scenic vista.

Interpretive Signage

- Signage is located at Memorial Point, Sand Harbor, Spooner Lake, and other established facilities.
- The North Demonstration portion of the Stateline-to-Stateline Bikeway plans to include interpretive signage along the shared use path.
- Potential Interpretive Topics:
 - Logging History
 - Native American/Washoan
 - Flumes & Pipelines
 - Historic Architecture
 - Historic Figures
 - Boats/Steamers
 - Plants & Wildlife
 - Stewardship/protection of Lake Tahoe and environment
 - California/Nevada relationship
 - Lake Tahoe
 - Washoe Tribe Place Names
 - Railroad
 - Thunderbird Lodge
 - Mark Twain
 - Vistas
 - Water Clarity/Quality

Recreation User Amenities

- Hidden Beach has restroom facilities near the beach.
- Sand Harbor is developed with amenities that include restrooms, a visitor center, day use facilities, boat launching, trash receptacles, etc.
- USFS east shore beaches are not highly developed and have few visitor amenities. For example, there is only a restroom at the USFS West parking lot and near the beach areas. The USFS East parking lot does not have permanent restroom facilities.

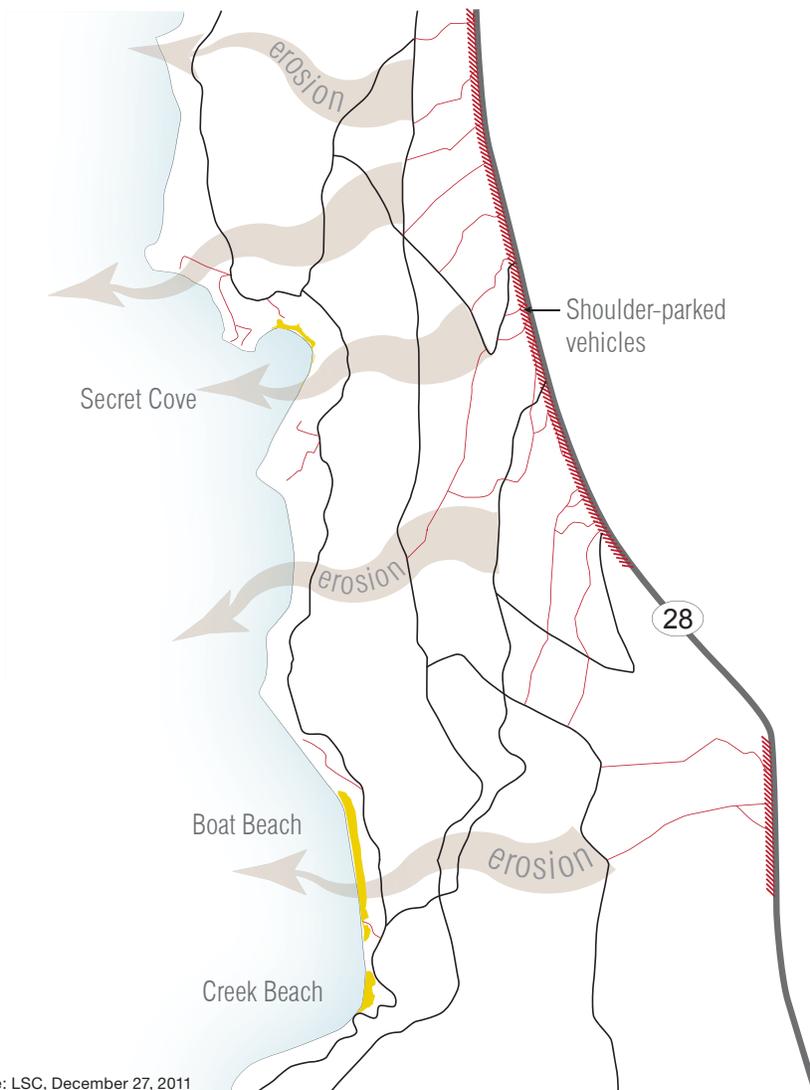
Water Trail

The Lake Tahoe water trail (laketahowatertrail.org) identifies launching and day use recreation opportunities for kayaks, paddle boards, and other non-motorized watercraft along Lake Tahoe's shores. For the Corridor, a launching site is identified at Sand Harbor and day use landings are noted at Memorial Point and other East Shore Beaches.

Recreation Access Trails

Over the years, a large number of trails have been created by beach-goers accessing the shoreline from SR 28. These trails contribute to erosion and reduction of Lake Tahoe water clarity. State Parks and USFS have formalized some of these trails into “authorized” trails by maintaining them, providing stairs in steep locations, and providing signage. The USFS East Shore Management Plan identifies trails to be restored and improved. All trails, including unauthorized trails not included in the USFS East Shore Management Plan, were mapped as part of the memo SR 28 East Shore Mapping (LSC, December 27, 2011).

In total, approximately 6 miles of unauthorized trails and just over 9 miles of authorized trails (including USFS unpaved roads) exist along the east shore for a total of 15 miles of trails. The greatest mileage of both unauthorized and authorized trails were found in the area that includes access to Chimney Beach, Secret Cove, Secret Harbor, Whale Beach, and other popular USFS spots where the beaches are located further from the highway. The largest area of unauthorized trails is associated with users parking along roadway shoulders and walking down the slope to access more established trails.



Source: LSC, December 27, 2011



Signage directs users to stay on established trails.



Users park on the shoulder and then walk down the slope to access trails and beaches, creating erosion that degrades water clarity.

Unauthorized trails are associated with users parking along the highway and walking down the slope to more established trails. The greatest concentration of unauthorized trails includes those accessing the USFS east shore beaches.



One of the top tourist activities is taking a scenic drive around Lake Tahoe. Beachgoers often park in turnout areas that could be used for vista points or emergency turnouts.

Scenic Resources & Quality

There is heavy demand for Corridor recreation and transportation access since driving around Lake Tahoe is one of the main tourist activities. Likewise national surveys have found driving for pleasure is an important form of recreation (Hallo and Manning 2009, Hallo and Manning 2011). This is true for SR 28, as driving around Lake Tahoe is a common activity.

TRPA signage guidelines prevent the use of billboards as part of outdoor advertising and describe standards appropriate for a national scenic byway and scenic attainment.

Physical qualities and historic elements that establish SR 28 as a national byway include the following:

- Lake clarity and water quality
- Surrounding mountain ranges with conifer forests
- Sandy beaches
- Serene meadows – e.g. Slaughterhouse Canyon, Lower Prey Meadows, Spooner Meadow
- Large, distinctive, granite boulders at waters edge
- Little evidence of human disturbance
- Newhall family house and Whittel Thunderbird Lodge
- Historic railroad grade used for logging during the Comstock period

Issues associated with scenic quality include the following:

- Corridor entries are not well-defined as “America’s Most Beautiful Drive”
- Shoulder parking reduces visual quality & blocks views
- Rock cuts create visual scars and are easily eroded
- Barrier rails create long, linear features that can block views and miss an opportunity to add visual character
- Abundant “No Parking” signs create visual clutter
- Viewpoint locations limited



Crystal blue waters of Lake Tahoe glisten along the SR 28 Corridor.



Views of Spooner Meadow open to motorists traveling the Corridor.



Locals and visitors often remark on prominent boulder outcroppings highlighting the undisturbed shoreline.

Visual Attractions

- Crystal blue waters
- Large granite boulders
- Meadows
- Conifer forests
- Sandy beaches
- Mountain vistas
- Undeveloped shoreline

Visual Detractions

- Road/rock cuts
- Unused paving previously used for parking at Ponderosa Ranch
- Shoulder-parked vehicles



Large rock cuts create significant visual scars.



Large expanses of unused paving previously used for parking at Ponderosa Ranch reduce the scenic quality.



Stretches of shoulder parking block views from the highway and create linear features when viewing the Corridor from Lake Tahoe.



Natural Resources

In addition to being constrained by steep topography, the Corridor includes a number of sensitive natural resources, including aspen stands, stream and riparian zones, Tahoe yellow cress, and Osprey and Northern goshawk nest sites. These resources, the conifer forests, and boulder outcroppings make the Corridor distinct and beautiful but also constrain development of new facilities.

- Aspen stands provide high biological value, unique ecological functions and distinct cultural and scenic value as well as having special regulatory protection.
- Riparian areas and stream environment zones are also protected and offer habitat for numerous plants and animals.
- Tahoe yellow cress is a candidate for listing by the United States Fish and Wildlife Service (USFWS) and is a TRPA special interest species. Tahoe yellow cress is endemic to beach and dune habitats along Lake Tahoe. Increased access to beaches by recreational users is of potential concern as it could lead to indirect impacts on this species.
- Osprey and Northern goshawk nest sites are protected by TRPA. Disturbance zone buffers apply to all nest sites regardless of occupancy.
- Fourteen Osprey nests, seven Northern goshawk nests and two bald eagle nests are currently mapped within the Corridor.
- Managing agencies have individual resource management plans for the Corridor. See Chapter One for a list.

Corridor use must be balanced with impacts to natural resources. A number of sensitive species and landscape environments are found in the Corridor.

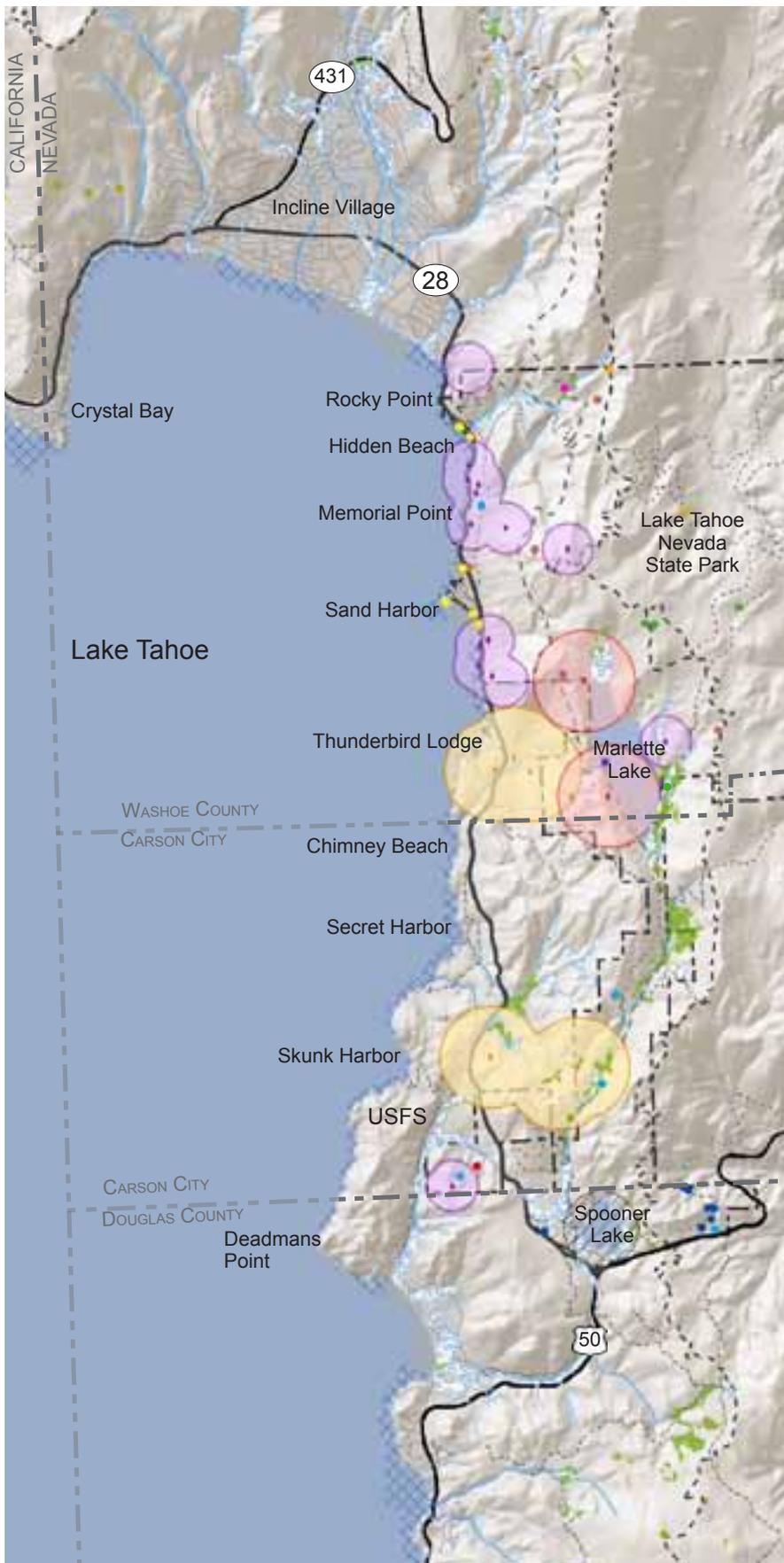
Steep slopes constrain the majority of the Corridor, limiting opportunities for off-highway parking development and expansions.

LEGEND

- 0-5% Slope
- 5-15% Slope
- 15-30% Slope
- 30-50% Slope
- Greater than 50% Slope

Slope Analysis





The largest number of sensitive resources in the Corridor lie south of Lakeshore Drive. In general, development should occur in areas adjacent to existing, disturbance to limit impacts. Stream corridors and aspen stands provide both scenic interest and resource constraints.

LEGEND

- Sierra Nevada Snowshoe Hare
- Washoe Tall Rockress
- Northern Flying Squirrel
- Fringed Myotis
- American Marten
- Northern Sierra Endemic Ant
- Slide Mountain Buckwheat
- Tahoe Yellowcress
- Spotted Owl
- Galena Creek Rockress
- Bald Eagle Nest 1/2 mile buffer
- Osprey Nest 1/4 mile buffer
- Northern Goshawk 1/2 mile buffer
- TRPA Waterfowl Threshold Area
- Aspen Stand
- Fish Spawning Habitat
- Fish Marginal Habitat
- Fish Feeding and Cover Habitat
- Stream Environment Zone (SEZ)

Note: Individual detections do not represent a complete data set. Detections are noted to direct agencies to consider habitat areas and obtain more specific data when moving into project level design and planning states.

Natural Resources

Within the Tahoe Basin soil land capability designations impact the location and the amount of disturbance and impervious materials that may be used. High capability lands are concentrated within the developed areas of Incline Village and Crystal Bay. Pockets of high capability land are found south of Lakeshore Drive. The majority of the Corridor is identified as Land Class 1A which is representative of the steep slopes associated with the Corridor.

LEGEND

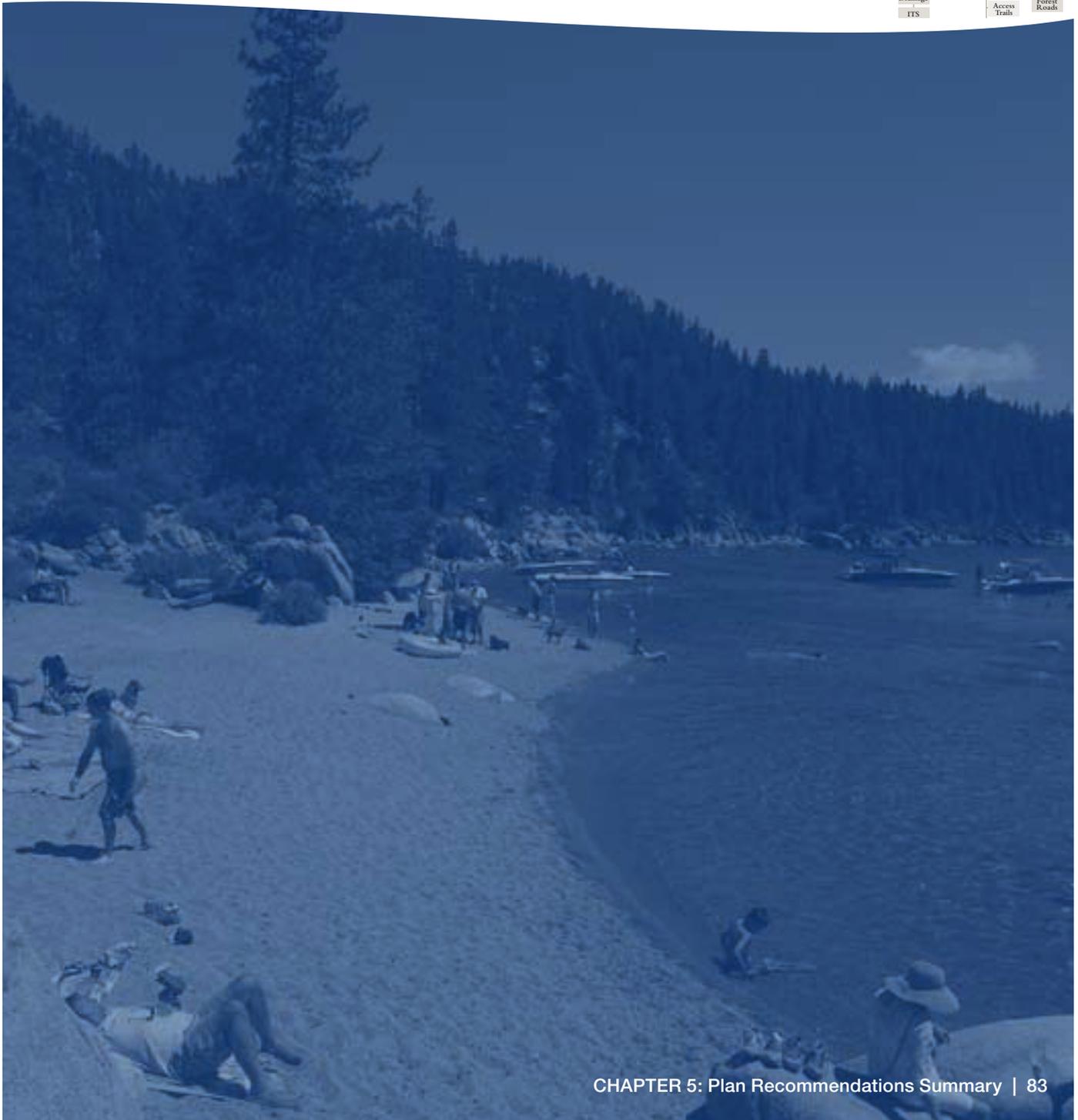
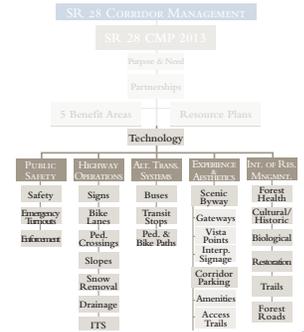
- Land Class 1A
- Land Class 1B
- Land Class 1C
- Land Class 2
- Land Class 3
- Land Class 4
- Land Class 5
- Land Class 6

Land Capability



5

PLAN ELEMENTS SUMMARY PROJECTS & RECOMMENDATIONS



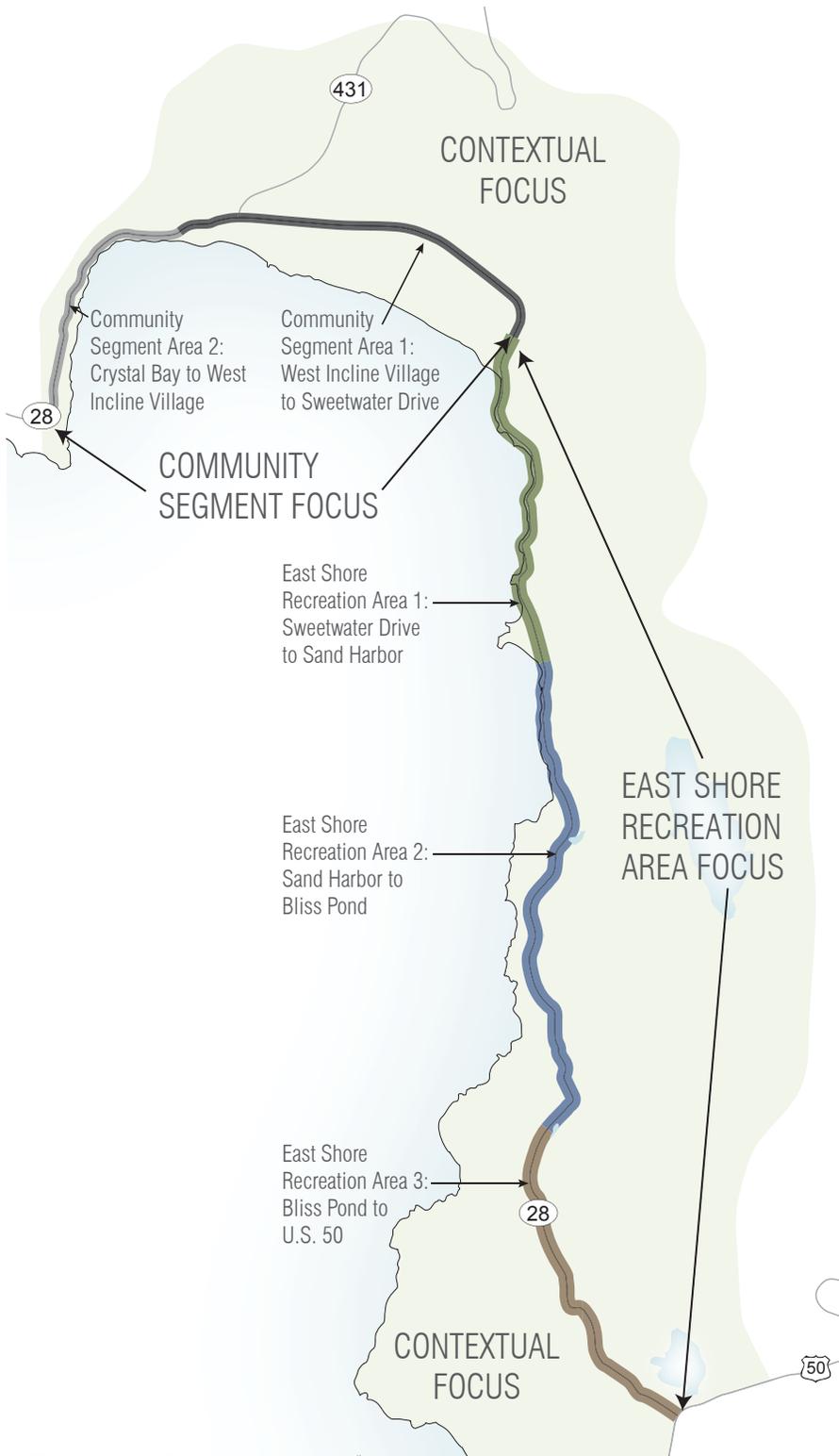


Plan recommendations focus primarily on the east shore recreation area south of Lakeshore Boulevard to the U.S. 50 intersection.

Focus of Plan Recommendations

The majority of issues facing the Corridor are associated with recreation access from SR 28 and the visitor experience. Therefore, recommendations focus on addressing issues in the east shore recreation area south of Lakeshore Boulevard to the U.S. 50 intersection. The Plan also identifies needs for the community sections in Incline Village and Crystal Bay. Management of contextual areas should be coordinated between agencies but project recommendations for those areas are included within their individual management plans and are not included in the Corridor Management Plan (CMP).

Recommendations and projects identified as part of the CMP are organized according to location as shown on the following map. Although the relocation of shoulder parking is described in relation to the beach areas it serves, the relocated parking will also serve trail and mountain users who currently use the Corridor.



Plan Focus & Segments

East Shore Recreation Segments:

- Area 1: Sweetwater Drive to Sand Harbor
 - Ponderosa/Tunnel Creek Road Area
 - Flume Trail Access
 - Rim Trail Access
 - Rocky Point Area
 - Hidden Beach Access Area
 - Sand Harbor Access Area
- Area 2: Sand Harbor to Bliss Pond
 - Thunderbird Cove Access Area
 - Thunderbird Lodge Area
 - Marlette Trail Access
 - Chimney Beach & Secret Harbor Access Area
 - Flume Trail Access
 - Rim Trail Access
- Area 3: Bliss Pond to U.S. 50
 - Skunk Harbor Access Area
 - Spooner Lake, Lake Tahoe Nevada State Park, Area
 - Flume Trail Access
 - Rim Trail Access

Community Segments

- Area 1: West Incline Village to Sweetwater Drive
- Area 2: Crystal Bay to West Incline Village

The CMP aims to improve safety while maintaining appropriate peak and shoulder season recreation access and the variety of user experiences. Shoulder parking is relocated to safe, off-highway locations including new and expanded lots near recreation sites and park-n-ride lots at the north and south ends of the east shore recreation segment.

East Shore Recreation Area Access

Design Goals

The following goals drive development of the CMP access strategy:

- Improve safety for motorists, cyclists, and pedestrians.
- Manage capacity to provide for appropriate levels of use to maintain the existing, varied user experiences at the different recreation sites during the peak and shoulder seasons. The existing level of peak and shoulder season access for the recreation areas (beaches and trails) should generally remain the same but may be revisited as multi-modal access improves.
- Identify strategies for an economically sustainable Corridor (balance of long-term transit, operating and maintenance costs, short-term capital infrastructure costs, and potential revenue).
- Relocate shoulder parking to safe, off-highway locations.
- Improve the visual character of the Corridor.
- Reduce erosion and improve lake clarity by defining access points and a managed system of authorized trails.



Design Considerations

As described in previous sections, meeting the design goals requires consideration of a number of elements, including the following key components:

- Relocating the 2011 peak overall demand levels of shoulder parking to appropriate off-highway locations can achieve multiple Corridor goals. Goal attainment is not possible without addressing the shoulder parking issue and the shoulder parking is projected to double in 20-25 years.
- Steep topography and sensitive resources limit the ability to provide new or expanded off-highway parking areas to accommodate the peak overall shoulder-parking demand of 593 vehicles. (LSC, Sept. 8, 2011)
- Parking for the Stateline-to-Stateline Bikeway needs to be incorporated. Per the Bikeway environmental document and feasibility study the additional parking demand for the Bikeway at full-build-out (from Incline Village to U.S. 50) includes 71 spaces to be located in the northern portion of the Corridor (Ascent, June 2013) and 10 spaces located in the southern portion of the Corridor (AECOM, 2008). Per surveys conducted at Camp Richardson, the majority of Bikeway users are not anticipated to stay at beaches for long periods of time.
- 593 peak overall demand shoulder-parking spaces plus 81 Bikeway spaces creates a total 674 spaces to be relocated in either internal off-highway lots or external park-n-ride lots.
- Existing visitor use level on the majority of beaches is generally the desired future condition and the number of vehicles parked to access those recreation areas should generally stay the same with some vehicles parking at park-n-rides with users arriving via transit. Land managers may revisit capacity issues in the future to understand demands and facility needs.
- Capacity at Thunderbird Cove is limited and access should be limited to about 15 vehicles.
- Because some shoulder parking may be relocated to park-n-ride and require transit use, an initial decrease in visitor use may occur in the Corridor as some people will choose to go elsewhere rather than use transit. This decrease may diminish over the years as the expectation of transit becomes more common.
- A no-parking zone should be developed or increased in conjunction with relocating shoulder parking.



Scenarios vary depending on how long transit runs during the summer months. The number of shoulder-parked vehicles relocated to park-n-ride locations versus off-highway parking lots near recreation sites increases the longer transit runs.

Shoulder Parking Relocation Summary

Summer's peak overall demand:

593 shoulder-parked vehicles

Stateline-to-Stateline Bikeway parking demand:

81 spaces (71 northern spaces & 10 southern spaces)

Total: 674 relocated spaces

Scenarios vary depending on how long transit runs during the summer and shoulder season months. The number of shoulder-parked vehicles relocated to park-n-ride locations versus off-highway parking lots near recreation sites increases the longer transit runs.

Transit Considerations

Incorporating transit into a design solution enables the Corridor issues to be addressed by relocating a portion of shoulder-parked vehicles to new and expanded off-highway lots along the east shore and a portion to park-n-ride lots at the north and south ends of the east shore recreation segment. The number of vehicles to be accommodated in the east shore would vary depending on how long transit operates during the summer months.

Four Transit Service Scenarios

SCENARIO		ASSOCIATED PARKING/TRANSIT DESCRIPTION ¹
Scenario 1	No Transit	<ul style="list-style-type: none"> • Does not provide transit • Provides additional internal parking to meet summer overall peak shoulder parking demands
Scenario 2	Peak Season Transit June 5 - Labor Day, 7 days/week	<ul style="list-style-type: none"> • Provides daily transit in the peak summer season (stops Sept. 1) • Provides additional internal parking to meet September peak shoulder parking demands • Provides parking at park-n-ride locations to accommodate the additional summer overall peak parking demand
Scenario 3	Peak Season & Weekend Shoulder Season Transit June 15 - Labor Day, 7 days/week & September weekends	<ul style="list-style-type: none"> • Provides daily transit in the peak summer season & provides transit on weekends during September • Provides additional internal parking to meet September peak weekday shoulder parking demands • Provides parking at park-n-ride locations to accommodate the additional summer overall peak parking demand and the September weekend peak parking demand
Scenario 4	Peak & Shoulder Season Transit June 15 - Sept. 30, 7 days/week	<ul style="list-style-type: none"> • Provides daily transit in the peak summer season and shoulder season (thru September) • Provides additional internal parking to meet October peak shoulder parking demands • Provides parking at park-n-ride locations to accommodate the additional summer overall peak parking demand and September peak parking demand

¹ Summer overall peak parking demand counts are from 2011 surveys. September and October overall peak parking demand counts are from 2012 surveys.

² Daily summer transit runs approximately from June 15th to Labor Day.

Using the parking counts conducted by LSC during 2011 and 2012 (see page 60), Table 7 shows how many shoulder parking spaces need to be relocated to new or expanded off-highway lots or park-n-ride lots. Scenarios vary depending on how long transit serves the Corridor. The total number of relocated spaces in each scenario is 674. These numbers do not include parking spaces available in existing off-highway lots. The numbers do account for Bikeway parking demands.

Table 7: Number of Shoulder-Parked Vehicles to be Relocated Based on Length of Transit Service

PARKINGSHED AREAS	SCENARIO 1 ¹ NO TRANSIT	SCENARIO 2 ² PEAK SEASON TRANSIT	SCENARIO 3 ³ PEAK SEASON & WEEKEND OFF SEASON TRANSIT	SCENARIO 4 ⁴ PEAK SEASON & OFF SEASON TRANSIT
	Cars (#)	Cars (#)	Cars (#)	Cars (#)
Hidden Beach/Flume Trail Area & Bikeway Demand for North Corridor	129 ⁵ +71 ⁶ = 200	70 ⁵ +71 ⁶ = 141	54 ⁵ +71 ⁶ = 125	36 ⁵ +71 ⁶ = 107
Sand Harbor Area	252	0	0	0
Thunderbird Cove Beach Area	15	15	9	3
Chimney Beach & Secret Harbor Area	171+10 ⁷ = 181	121	24	17
Skunk Harbor Area	26	20	6	2
Total Internal Spaces	674	297	164	129
PARK-N-RIDE AREAS				
North Corridor Park-n-Ride	0	168	217	233
South Corridor Park-n-Ride ⁵	0	53 ⁷	79 ⁷	83 ⁷
Initial Demand Reduction (Users who will go elsewhere instead of using transit – corresponds with potential park-n-ride lot growth while maintaining current visitor use)	0	156	214	229
Total Internal & External Spaces	674	674	674	674

¹ Based on overall peak parking shoulder demand in Summer 2011 (no shuttle service provided & no increased enforcement of no shoulder parking).

² Based on overall peak parking shoulder demand in September 2012. Shuttle operating from Incline Village to Spooner Summit.

³ Based on overall peak weekday parking shoulder demand in September 2012. Shuttle operating from Incline Village to Spooner Summit.

⁴ Based on overall peak parking shoulder demand in October 2012. Shuttle operating from Incline Village to Spooner Summit.

⁵ Overall peak shoulder parking demand. Varies based on season/ time of parking demand (summer, September, September weekends, and October).

⁶ Bikeway demand for northern portion of Corridor (71 spaces).

⁷ Bikeway demand for southern portion of Corridor (10 spaces) located in Chimney Beach & Secret Harbor Area in Scenario 1 and the South Corridor Park-n-Ride for Scenarios 2, 3 and 4.

Shoulder Parking Relocation Summary

Summer's peak overall demand: 593 shoulder-parked vehicles
 Stateline-to-Stateline Bikeway 81 spaces (71 in the north & parking demand: 10 in the south)
 Total: 674 relocated spaces

Parkingsheds with Total Overall Summer Parking Demand

See page 61 for enlarged diagram. Parking section numbers with observed parking demand are from Table 4 on page 60.

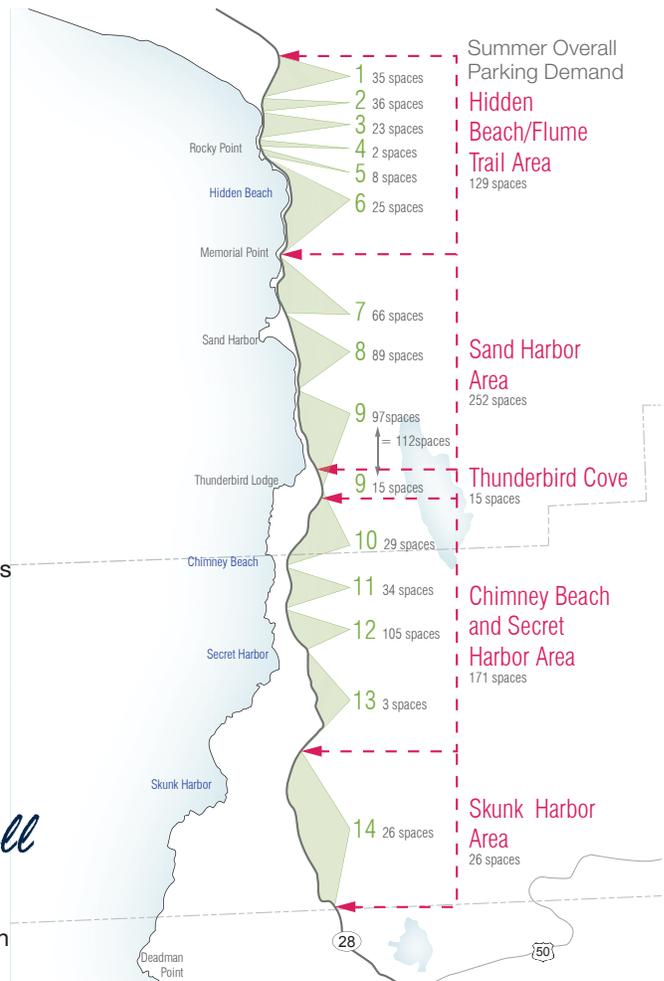


Table 8 shows how the number of shoulder-parked vehicles noted in Table 7 can be relocated to either internal off-highway parking areas or external park-n-ride locations. Refer to the scenario descriptions on page 88 for additional information.

Table 8: Potential Shoulder Parking Relocation Areas & Number of Spaces Based on Length of Transit Service

RECREATION ACCESS AREA PARKING REQUIREMENTS & CORRESPONDING TRAILHEADS	SCENARIO 1 ¹ NO TRANSIT			SCENARIO 2 ² PEAK SEASON TRANSIT			SCENARIO 3 ³ PEAK SEASON & WEEKEND OFF SEASON TRANSIT			SCENARIO 4 ⁴ PEAK SEASON & OFF SEASON TRANSIT		
	Cars (#)	Feasible?		Cars (#)	Feasible?		Cars (#)	Feasible?		Cars (#)	Feasible?	
		Yes	No		Yes	No		Yes	No		Yes	No
Hidden Beach/Flume Trail Area & Bikeway Demand for North Corridor	129 ⁵ +71 ⁶ = 200		✓	70 ⁵ +71 ⁶ = 141	✓		54 ⁵ +71 ⁶ = 125	✓		36 ⁵ +71 ⁶ = 107	✓	
Flume Trail Trailhead	31	✓		31	✓		31	✓		31	✓	
North Corridor Trailheads A & B	148		✓	98	✓		82	✓		64	✓	
Rocky Point Vista Parking ⁷	21 ⁷	✓		12 ⁷	✓		12 ⁷	✓		12 ⁷	✓	
Sand Harbor Area	252		✓	0	✓		0	✓		0	✓	
Sand Harbor Parking	252		✓	0	✓		0	✓		0	✓	
Thunderbird Cove Beach Area	15	✓		15	✓		9	✓		3	✓	
Thunderbird Cove Trailhead	15	✓		15	✓		9	✓		3	✓	
Chimney Beach & Secret Harbor Area	171+10 ⁸ = 181		✓	121	✓		24	✓		17	✓	
Chimney Beach Trailhead	90		✓	67	✓		0	✓		0	✓	
Secret Harbor Trailhead	91		✓	54	✓		24	✓		17	✓	
Skunk Harbor Area	26	✓		20	✓		6	✓		2	✓	
Skunk Harbor Trailhead ⁹	26 ⁹	✓		20 ⁹	✓		6 ⁹	✓		2 ⁹	✓	
Total Internal Spaces	674		✓	297	✓		164	✓		129	✓	
PARK-N-RIDE AREAS												
North Corridor Park-n-Ride	0	✓		168	✓		217	✓		233	✓	
South Corridor Park-n-Ride ⁷	0	✓		53 ⁸	✓		79 ⁸	✓		83 ⁸	✓	
Initial Demand Reduction (Users who will go elsewhere instead of using transit – corresponds with potential park-n-ride lot growth while maintaining current visitor use)	0			156			214			229		
Total Internal & External Spaces	674		✓	674	✓		674	✓		674	✓	

¹ Based on overall peak parking shoulder demand in Summer 2011 (no shuttle service provided & no increased enforcement of no shoulder parking)

² Based on overall peak parking shoulder demand in September 2012. Shuttle operating from Incline Village to Spooner Summit.

³ Based on overall peak weekday parking shoulder demand in September 2012. Shuttle operating from Incline Village to Spooner Summit.

⁴ Based on overall peak parking shoulder demand in October 2012. Shuttle operating from Incline Village to Spooner Summit.

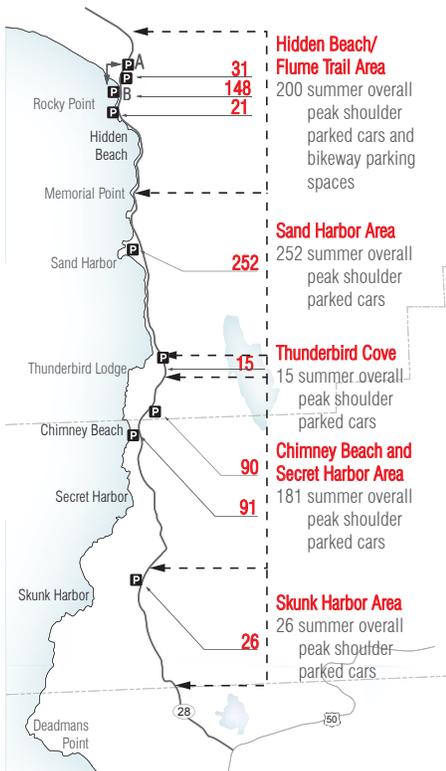
⁵ Overall peak shoulder parking demand. Varies based on season/time of parking demand (summer, September, September weekends, and October).

⁶ Bikeway demand for northern portion of Corridor (71 spaces).

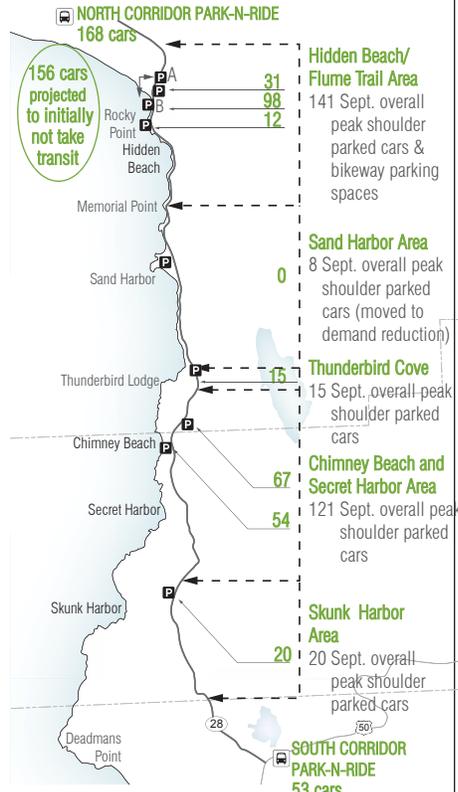
⁷ Future design should also consider including up to 4 viewpoint/temporary parking spaces (approximately 16 total spaces). Twelve spaces relocates the shoulder-parked vehicles in Sections 4 and 5 (see page 60) and a small portion of Section 6 to an off-highway lot.

⁸ Bikeway Demand for southern portion of Corridor (10 spaces) located in Chimney Beach & Secret Harbor Area in Scenario 1 and the South Corridor Park-n-Ride for Scenarios 2, 3 and 4.

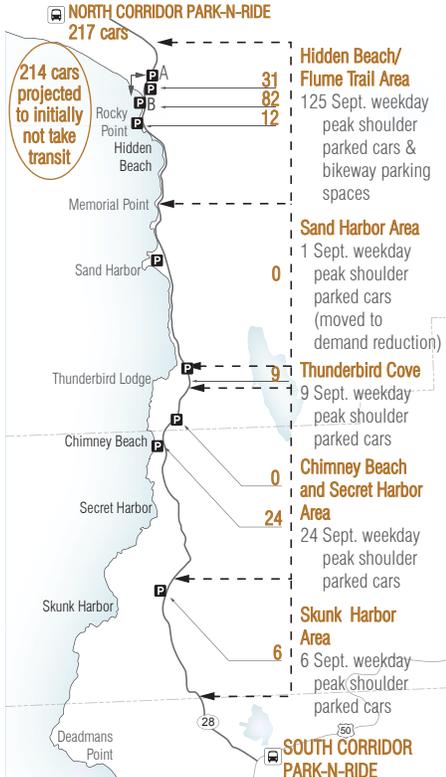
⁹ Consider including 3 spaces reserved for Washoe Tribe member parking as requested by the Tribe (approximately 23 total spaces).



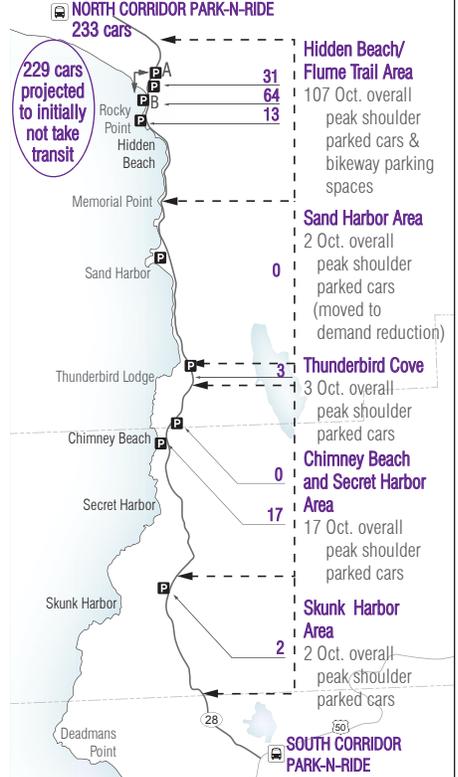
Scenario 1 – No Transit



Scenario 2 – Peak Season Transit



Scenario 3 – Peak Season & Weekend Shoulder Season Transit



Scenario 4 – Peak Season & Shoulder Season Transit

Relocation of Parking Demand

Potential Parking Areas

Based on previous studies and a current assessment of buildable areas, the areas below have potential to accommodate relocated shoulder parking.

Hidden Beach/Flume Trail Area

- Flume Trail Trailhead – formalize existing parking
- North Corridor Trailheads A & B – formalize existing parking
- Rocky Point Vista Parking – formalize existing parking

Sand Harbor Access Area

- Sand Harbor Parking – limited ability to expand existing parking

Thunderbird Cove Beach Access Area

- Thunderbird Cove Trailhead – new parking lot or formalize existing parking

Chimney Beach & Secret Harbor Access Area

- Chimney Beach Trailhead – expand existing lot
- Secret Harbor Trailhead – expand existing lot

Secret Harbor Access Area

- Skunk Harbor Trailhead – new parking lot

Incorporating Transit & Managing Visitor Use Levels

It is not feasible to accommodate off-highway parking for the 2011 overall peak demand without significant engineering and potential impacts to sensitive resources. Transit must be incorporated in some form to provide for visitor access and create a safer, more environmentally appropriate Corridor. Scenario 2 provides for adequate shoulder season parking and has the lowest transit operating cost (of those scenarios including transit).

Managing visitor use and maintaining the current, varied recreation experiences is a significant concern. 2011 shoulder parking counts indicate sites are nearing desired use levels (see pages 70-72). As multi-modal access improves, desired capacity should be revisited as some areas may be able to accommodate the demands with less impact due to the improved access. This plan does not intend to shift large amounts of visitor use from one area to another. Rather, the number of people accessing the beaches can be monitored and controlled by the parking availability, the number and capacity of buses, transit headways, and enforcement. This information can help manage visitor use levels. Parking at the Thunderbird Cove trailhead will be initially limited to 15 spaces and transit will not be provided in order to manage resource impacts. Potential visitor use level impacts and management changes should be discussed at the time water transit to Sand Harbor is considered.

Anticipated Transit Operations & Impacts to Visitor Use Levels

Two park-n-ride locations (northern and southern) would serve the Corridor. Three buses are anticipated to run from 10AM to 8PM with 20 minute headways to Sand Harbor and 40 minute headways to Hidden Beach and the USFS beaches.

Table 9: Transit Trips

TRANSIT TRIPS	NUMBER OF STOPS MADE BETWEEN 10AM & 4PM	MAXIMUM NUMBER OF PERSONS PER BUS	MAXIMUM NUMBER OF PERSONS TRANSPORTED
Trips to Sand Harbor Only	9	30	270
Trips to All Corridor Stops	17	30	510

The potential number of persons arriving to the beaches via transit is generated by applying the concentration of the peak overall shoulder parking demand associated with the different beach areas (see page 59) to the maximum number of persons transported via transit to all Corridor stops (for example, 22% of 510 for Hidden Beach). The number of persons arriving at Sand Harbor includes the percentage of persons arriving via the "All Corridor Stops" shuttle as well as the 270 potential persons arriving on the Sand Harbor only shuttle (45% of 510, plus 270).

Table 10: Number of Persons Arriving to Beaches Via Transit Using 2011 Parking Concentration

BEACH LOCATION	PERCENTAGE OF 2011 PEAK OVERALL DEMAND SHOULDER PARKING (SEE PAGE 59)	NUMBER OF PERSONS TRANSPORTED
Hidden Beach	22%	112
Sand Harbor	45%	500 (230+270)
Chimney Beach & Secret Harbor Beaches	29%	148
Skunk Harbor	4%	20

In the event recreation access demands change, the Table 11 shows the number of persons that might arrive at a beach area if the 2011 shoulder parking use pattern was doubled.

Table 11: Number of Persons Arriving to Beaches Via Transit Using a Doubled 2011 Parking Concentration

BEACH LOCATION	PERCENTAGE OF 2011 PEAK OVERALL DEMAND SHOULDER PARKING (SEE PAGE 59)	NUMBER OF PERSONS TRANSPORTED
Hidden Beach	44%	224
Sand Harbor	90%	730 (460+270)
Chimney Beach & Secret Harbor Beaches	58%	296
Skunk Harbor	8%	40

Using this information, the density of people that may arrive at each beach is derived using the following:

- Number of off-highway parking spaces serving the beach and the average number of people per vehicle
- Anticipated percentage of people arriving to the different beaches via transit
- 2.9 persons per vehicle average for USFS beaches and Hidden Beach (LSC, September 8, 2011)
- 3.8 persons per vehicle average for Sand Harbor (LSC, September 8, 2011)
- The majority of Bikeway users are not anticipated to stay on the beach for more than a few hours (per TMPO survey)

Table 12: Potential Visitor Use Impacts from Transit Use

BEACH AREA	AVERAGE BEACH AREA	NUMBER OF SPACES SERVING AVERAGE BEACH AREA (SCENARIO 2)	NUMBER OF PERSONS ASSOCIATED WITH ON-SITE PARKING	NUMBER OF PERSONS DELIVERED VIA TRANSIT		TOTAL ESTIMATED NUMBER OF PERSONS		DENSITY ASSOCIATED WITH PERSONS ASSOCIATED WITH PARKING & TRANSIT		CURRENT AVERAGE DENSITY OF USE (SEE PG 71)	DESIRED DENSITY RANGE
				2011 Use Pattern	Doubled 2011 Use Pattern	2011 Use Pattern	Doubled 2011 Use Pattern	2011 Use Pattern	Doubled 2011 Use Pattern		
Hidden Beach	60,471 sf	70	203	112	224	315	427	192 sf/person	142 sf/person	162 sf/person	150 – 323 sf/person
Sand Harbor	299,040 sf	530	2,014	500	730	2,514	2,744	119 sf/person	109 sf/person	101 sf/person	100 – 162 sf/person
Chimney Beach & Secret Harbor Beaches	118,720 sf	173	502	148	296	650	798	182 sf/person	149 sf/person	199 sf/person (Chimney) & 179 sf/person (Secret)	150 – 323 sf/person
Skunk Harbor	17,684 sf	20	58	20	40	78	98	227 sf/person	180 sf/person	236 sf/person	150 – 323 sf/person

- Number of Parking Spaces Serving Hidden Beach Calculated By:

PARKING AREA	NUMBER OF SPACES	SPACES SERVING HIDDEN BEACH USERS
Flume Trail Trailhead	31	0 •31 to serve Bikeway users
North Corridor Parking A & B	98	60 •40 serve Bikeway users •58 to serve Hidden Beach users
Rocky Point Vista Parking	16	12 (4 spaces serve as viewpoint parking)
Total	145	70

Finding

- Using the defined transit scenario, incorporating transit into the access strategy is not anticipated to significantly exceed the desired density range for beach destinations. Use levels for Hidden Beach, Chimney Beach, and Secret Harbor Beaches slightly exceed desired ratio levels if the existing use pattern doubles in that area. Land managers should monitor use as new projects and relocation of shoulder parking is implemented. Initially, Hidden Beach may only have a northbound stop to monitor visitor use level impacts and to determine the feasibility of a southbound stop.

Monitoring

Transit riders can be monitored to determine the trends and percentage of passengers arriving to the different beaches. In the event the anticipated percentage of riders for a given beach is higher than desired, the headway times can be adjusted to ensure visitor use levels are not exceeded. Based on the information above and in consideration of access via the Bikeway, visitor use levels at Hidden Beach should be monitored. Adjustments to the transit system could be made to manage the number of visitors accessing the beach via transit.

Expanded and new internal trailheads should be developed in concert with transit, trail connectivity, and enforcement to relocate shoulder parking to appropriate areas and reduce safety issues.

Recommended Corridor Approach

Scenario 2 is the recommended Corridor approach and was selected based on:

- Visitor use/capacity considerations
- Maintaining the variety of current user experiences
- 2011 peak season shoulder parking numbers
- 2012 off-season shoulder parking numbers
- Ability to accommodate relocated shoulder parking along the east shore or in external transit locations
- Accommodation of Stateline-to-Stateline Bikeway
- Ability to fund and manage the selected approach (see Chapter 11)
- Opportunities for trail restoration and other environmental improvements
- Ability to provide connectivity without the need to walk along the roadway
- Opportunities for viewpoints and emergency turnouts
- Terrain limitations and natural resource constraints

Relocated Shoulder Parking

Based on the information above, the recommended number of relocated shoulder parking spaces is shown for each existing and new trailhead.

- Flume Trail Trailhead 31
- North Trailhead Parking Areas A & B. 89
- Rocky Point Vista Parking 12 (apprx.) plus up to 4, 20-minute only spaces
- Thunderbird Cove Trailhead 15
- Chimney Beach Trailhead 67 add'tl spaces (21 existing)
- Secret Harbor Trailhead. 54 add'tl spaces (31 existing)
- Skunk Harbor Trailhead 20 (plus up to 3 spaces reserved for Tribe members)
- North Corridor Park-n-Ride 168 (see note 1 below)
- South Corridor Park-n-Ride 53 (see note 1 below)

Notes

1. The number of spaces at the park-n-rides may increase over time to accommodate the number of spaces associated with the initial demand reduction as users choose to return and use transit.
2. The quantity of relocated spaces allows for appropriate user demand and visitor use patterns.
3. Parking is limited to 15 spaces at the Thunderbird Cove trailhead due to limited beach area and potential resource impacts to the shoreline between Thunderbird Cove and Sand Harbor.
4. Chimney Beach and Secret Harbor Trailheads work in concert to meet shoulder parking relocation needs for the Chimney Beach and Secret Harbor beaches. No one parking area could expand or be developed to relocate all of the parking. Therefore, the capacity is distributed among the parking locations and trail connections disperse use.

Signage & Enforcement

Signage and enforcement to ensure the relocation of shoulder parking should occur in concert with trailhead development. The no parking zone should expand in correlation with the relocation of shoulder parking. The no parking zone should extend to Sweetwater Road in the north with no parking on the residential side of SR 28 across from Ponderosa Ranch area. In the south the no parking zone should extend to U.S. 50.

Continued enforcement and coordination with NHP and subsequent court enforcement of ticketing must occur to achieve the desired safety and environmental improvements.

Barriers may be used where appropriate to reinforce the no parking zone, and in some cases may be more desirable than additional signage. The intent is to minimize long stretches of barriers or excessive signage. Bike lanes can also provide additional enforcement opportunities as vehicles in bike lanes may be ticketed.

Transit

Transit is envisioned to operate from June 15 through Labor Day. Northbound and southbound transit stops are identified for the following locations.

- Hidden Beach
 - Sand Harbor
 - Chimney Beach
 - Secret Harbor
 - Skunk Harbor
 - Spooner Lake
- Initially, Hidden Beach may only have a northbound stop to monitor visitor use level impacts and to determine the feasibility of a southbound stop.
 - Locations, such as Memorial Point and the North Corridor trailheads, may be included in the future as Corridor needs are reassessed.
 - Future transit at the North Corridor location should consider potential impacts such as the lots filling up for Sand Harbor parking and displacing the parking identified for Hidden Beach and shared-use path users.

Parking at the park-n-ride locations will satisfy shoulder parking relocation needs not met by other internal trailhead locations. Managing the number of park-n-ride spaces and transit design can help maintain current use levels. Adjustments can be made based on monitoring transit use and evaluating capacity concerns.



The no parking zone should expand in correlation with shoulder parking relocation. As the no parking zone is made more consistent through the Corridor it will be easier for the public to know where parking is allowed.

Combining the South Corridor park-n-ride lot with other facilities such as a visitor center can create mutual benefits. Studies have shown that transit locations which are also combined with visitor-serving amenities are more successful than standard park-n-ride facilities.

Park-n-Ride Lots

A separate study is needed to determine the locations of the North Corridor and South Corridor park-n-rides. Potential sites that were evaluated in previous studies (LSC, February 2012) include the locations below. Boat trail parking should be accommodated at park-n-ride lots. Diamond Peak and the old Ponderosa Ranch area have been discussed but were not listed as they are on private property and previous discussions with owners/representatives have indicated they could not be used. However, should the opportunity arise, these locations may be highly desirable and should be a priority consideration.

North Corridor Park-n-Ride Lots

- Incline Village High School
- Incline Village Middle School
- Old Incline Elementary School
- New Incline Elementary School
- Sierra Nevada College
- Tunnel Creek properties

South Corridor Park-n-Ride Lots

- NDOT sand hut on U.S. 50
- Old highway alignment north
- Tubing hill on old highway alignment west

Stateline-to-Stateline Bikeway

The CMP supports implementation of the Stateline-to-Stateline Bikeway. The Bikeway Feasibility Study describes its purpose and need. The shared-use path, referred to as the Bikeway, would also provide connectivity between off-highway parking nodes and improve the safety of recreationists along the Corridor.

Bike Lanes or Widened Shoulders

The CMP supports the development of bike lanes along SR 28 as noted in the Lake Tahoe Region Bicycle and Pedestrian Plan 2010. Where bike lanes can not be accommodated, shoulder widening and signage are called for. At a minimum, in steep sections bike lanes with a corresponding sharrow should be provided. The bike lane would be striped for the uphill direction and a sharrow would be marked in the downhill direction.

Visitor Center

In addition to the existing visitor centers in Incline Village and at Sand Harbor, a joint-use facility is identified at Spooner Lake. The intent is to develop a shared facility that also accommodates a park-n-ride facility and an aquatic invasive species inspection station. The opportunity exists to create a more successful park-n-ride facility by also offering visitors the ability to gather information about the Corridor while waiting for transit. Current plans are conceptual. Coordination with neighboring facilities at Spooner Lake, Lake Tahoe Nevada State Park would need to occur.

Viewpoints

Eleven new viewpoints along with the existing Memorial Point viewpoint are identified. Viewpoints allow for short-term (20-minute) parking. Signage should indicate that vehicles should not be left unattended in order to help enforce the intent for temporary parking only. Viewpoints can benefit the large number of users who drive around Lake Tahoe as part of their recreation experience.

Emergency Turnouts

Twenty-seven emergency turnout locations are identified. Turnouts are sited approximately every 1/4-mile from Incline Village to the Secret Harbor Trailhead and every 1/2-mile (due to challenging terrain) south of the Secret Harbor to U.S. 50. In some instances, a viewpoint or off-highway parking area accommodates the need for a turnout. The turnout will be signed emergency parking only and could also be used for authorized vehicles such as for maintenance access. Where space and site design allow, turnouts may be used for slow vehicle turnouts.

Gateway Signage

Nevada scenic byway monument signs are located near the Corridor entries at U.S. 50, in Crystal Bay, and south of Incline Village. An improved gateway was also recently created as part of the SR 431/SR 28 roundabout. The CMP recommends the development of gateway monument signage to further highlight the Corridor. Recommendations are shown in Chapter 9. As part of the Corridor branding, an icon or logo could be developed and incorporated into the gateway and other Corridor elements.

Enhanced Standards of Treatment/Aesthetics

The CMP recommends applying the enhanced standard of treatment described in NDOT's Landscape & Aesthetics Corridor Plan and the TRPA Roadway Design Standards and Guidelines. The intent is to provide roadway facilities that reflect the special quality of the Tahoe Basin. Flexibility to the rigid application of technical standards should be sought out among the management team to implement the design alternatives.

In addition to providing needed opportunities for maintenance vehicle access, turnouts can also be used for slow-moving vehicles where they meet design requirements.



Technology can be used to distribute information on available parking, transit opportunities, the various beach experiences, and available hiking and biking trails.

Technology

Use of technology to find and enjoy recreation opportunities is a growing trend which can be used to manage the SR 28 Corridor. More than 60 percent of outdoor recreation participants age 18–44 use technology to search for information on outdoor recreation opportunities. This use is highest (over 60%) among Asian/Pacific Islander populations (Parks & Recreation, February 2013). Technology increasingly plays a role in the attractiveness of outdoor recreation.

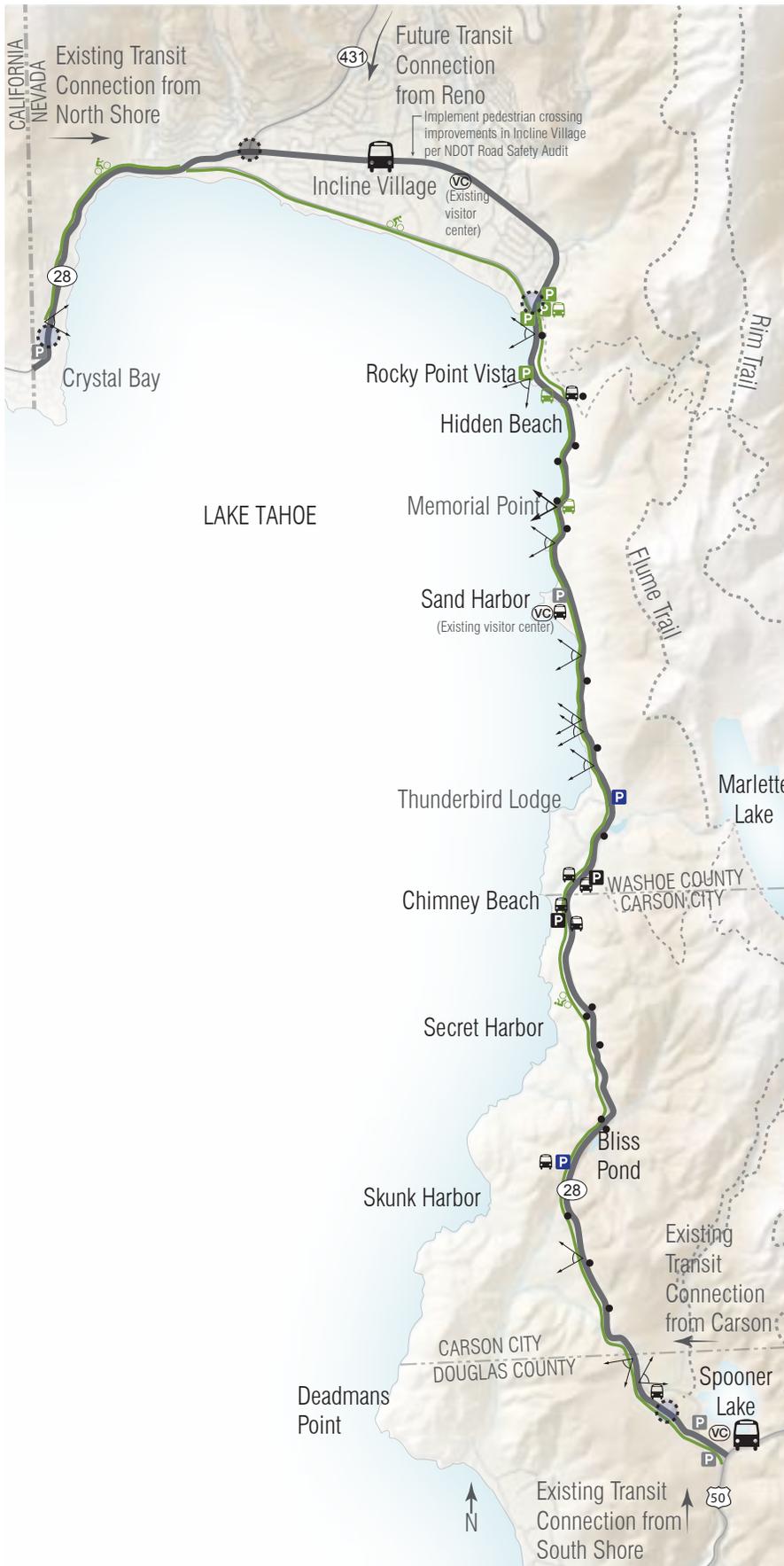
Along the SR 28 Corridor, technology can help distribute information regarding:

- Corridor access and visitor amenities (e.g. viewpoints),
- Parking locations and availability,
- Transit opportunities,
- Type of beach experience (developed vs. semi-primitive) and type of trail access to the beach and alternative locations matching the type of experience, and
- Hiking/biking trails and level of difficulty.

Maps, Diagrams & Project List

The following pages include:

- Maps showing the general location and types of recommended Corridor projects, including viewpoints (signed as 20-minute parking, vehicles must not be left unattended) and emergency turnouts (signed as emergency parking only),
- Illustrations and diagrams depicting potential trailhead improvements, and
- Lists of recommended projects for each Corridor segment.



LEGEND

- Park-n-Ride Transit Stop
- Transit Stop
- Potential Future Transit Stop to Consider
- Existing Off-Highway Parking
- Expanded Off-Highway Parking
- New Off-Highway Parking
- Formalized Off-Highway Parking
- Emergency/Maintenance Turnout
- Stateline-to-Stateline Bikeway
- New Corridor Gateway Signs
- Existing Gateway Signs
- New Viewpoint
- Existing Viewpoint
- New Visitor Center (Existing Visitor Centers are Noted)

Overall Corridor Management Plan Recommendations

Coordinated with transit connections; existing, expanded, and new off-highway parking locations are identified to serve recreation needs and provide improved areas for emergency turnouts along the east shore recreation area.



LEGEND

- Park-n-Ride Transit Stop
- Transit Stop
- Potential Future Transit Stop to Consider
- Existing Off-Highway Parking
- Expanded Off-Highway Parking
- New Off-Highway Parking
- Formalized Off-Highway Parking
- Emergency/Maintenance Turnout

Recommended Parking, Transit, & Emergency Turnouts

Note: Illustrations and diagrams are conceptual in nature. Final design and engineering may vary.



Flume Trail Trailhead – approximately 31 spaces.

Proposed parking near Tunnel Creek Station can serve Flume Trail, Bikeway, and beach access users and could accommodate approximately 31 spaces. The area currently provides access for Flume Trail and Hidden Beach users.



The Stateline-to-Stateline Bikeway would connect the Flume Trail and North Corridor Trailheads with east shore recreation areas.

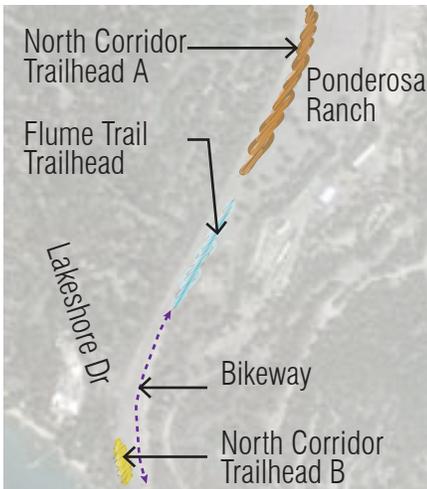
North Corridor Trailheads

Note: Illustrations and diagrams are conceptual in nature. Final design and engineering may vary.

North Corridor Trailhead Locations – approximately 98 spaces with no shoulder parking zone extended to Sweetwater Road and no shoulder parking along west side (residential side) of the highway.



Reorganizing and formalizing the existing shoulder parking in the NDOT right-of-way in North Trailhead Parking Area A could accommodate approximately 74 spaces.



North Corridor Trailheads

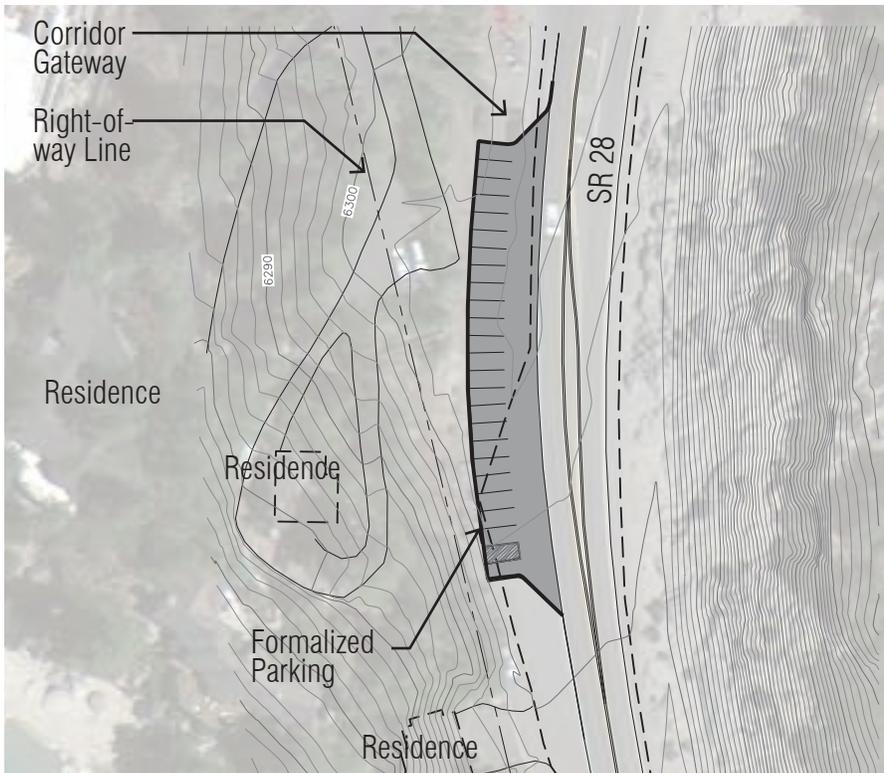


Formalizing NDOT right-of-way where shoulder parking occurs in North Trailhead Parking Area B could accommodate approximately 24 spaces.

Note:

Contractors for private construction projects near Lakeshore Boulevard often park along SR 28. Although residents have shown preference for developing the parking locations shown, access for private construction will be a management issue for future discussion. Strategies, such as contractors parking at the park-n-ride lots and carpooling incentives, can be developed.

Note: Illustrations and diagrams are conceptual in nature. Final design and engineering may vary.



Conceptual diagram of potential 24 spaces south of Lakeshore Drive at North Corridor Trailhead B. Uncontrolled parking would be eliminated as the "No Parking Zone" is expanded and parking allowed in designated areas only.



Existing area to be formalized.



Conceptual illustration of potential North Corridor Trailhead B.

Rocky Point Vista Parking

Note: Illustrations and diagrams are conceptual in nature. Final design and engineering may vary.

Rocky Point Vista Parking – approximately 16 spaces; future design should also consider signing up to 4 of the spaces as 20-minute parking, vehicles may not be left unattended. No parking zone to be extended accordingly.



Formalizing and improving the right-of-way area south of Rocky Point residences could accommodate approximately 16 parking spaces with consideration of signing up to 4 of the spaces as 20-minute parking, vehicles may not be left unattended.



Existing conditions.

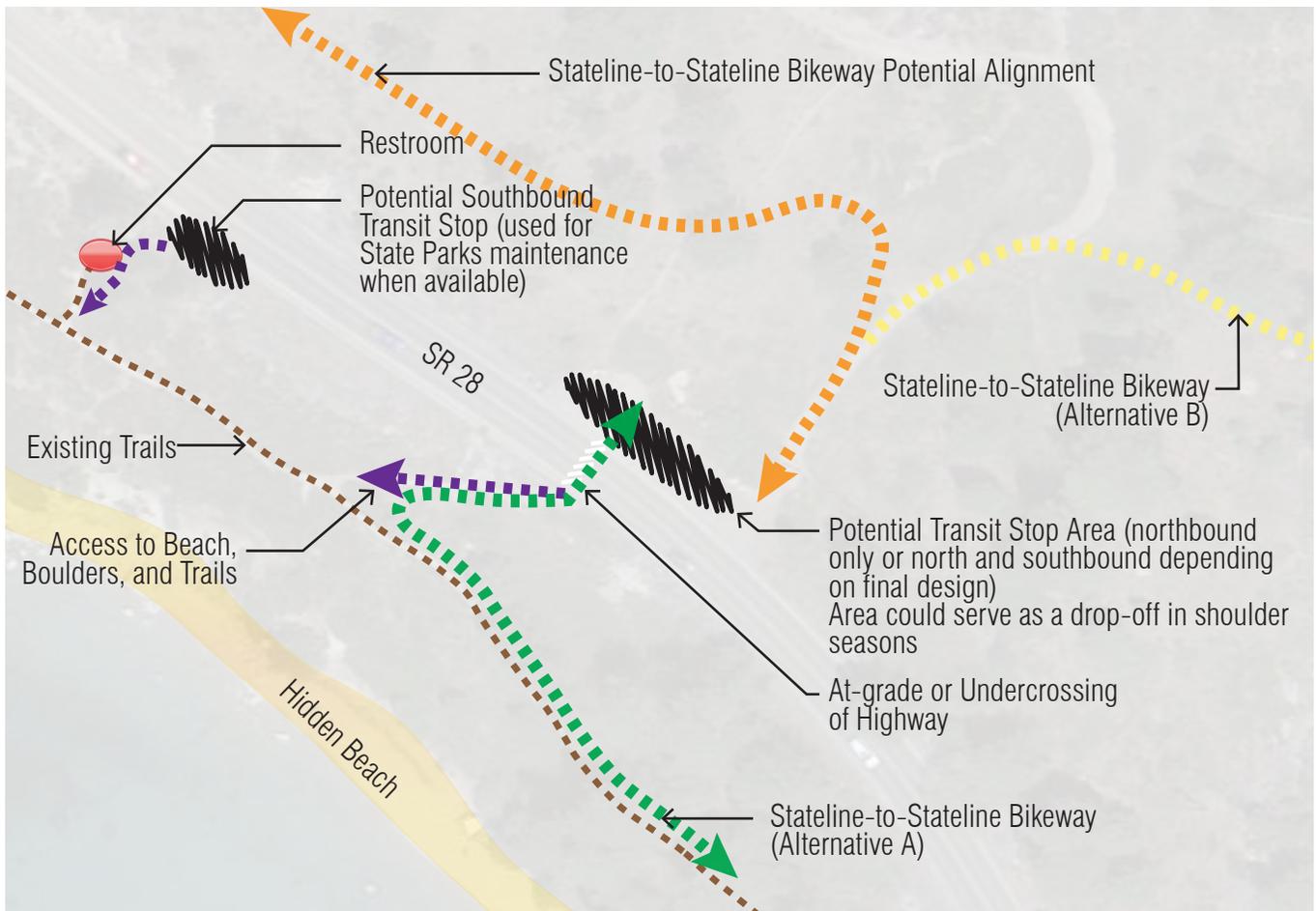


Conceptual diagram of potential parking layout with buffering to minimize impacts to residences. The buffer will exceed or at minimum match existing setback requirements of adjacent private parcel.



Conceptual illustration of Rocky Point Vista potential parking layout.

Note: Illustrations and diagrams are conceptual in nature. Final design and engineering may vary.



Due to safety concerns and limited space, recreation access to Hidden Beach would be primarily served via the Bikeway and/or transit service. Transit pullouts could serve as drop-off areas in shoulder seasons when transit is not available. Although the area has physical constraints, the opportunity for a transit stop and turnout for State Park maintenance crews should be evaluated when funding for preliminary design becomes available.

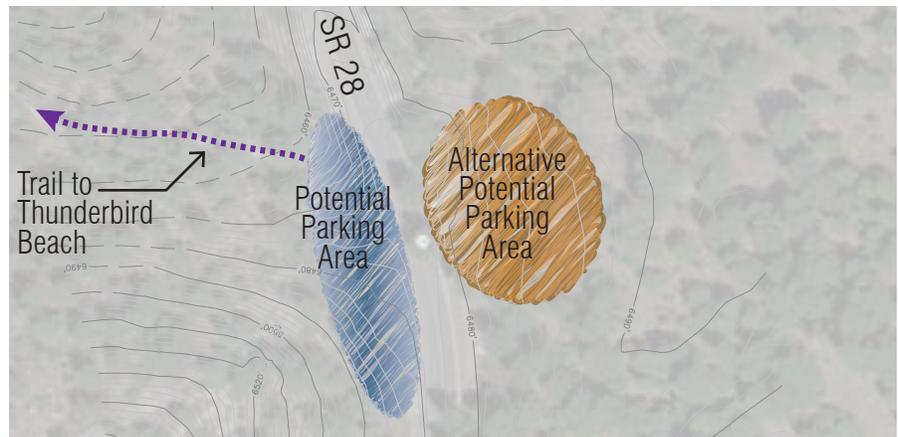
Thunderbird Cove Trailhead

Note: Illustrations and diagrams are conceptual in nature. Final design and engineering may vary.

Thunderbird Cove Trailhead
– approximately 15 spaces. No parking zone to be extended accordingly.



Existing shoulder parking on the west side of SR 28 near Thunderbird Cove.



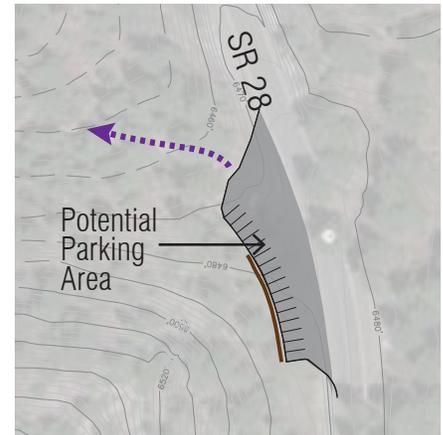
Two options for off-highway Thunderbird Cove parking exist – formalizing the currently used right-of-way area on the lake side of SR 28 or creating a new lot on the mountain side of the highway.

Note: Illustrations and diagrams are conceptual in nature. Final design and engineering may vary.

Option A: Parking on east side of highway



Conceptual diagram of alternative formalizing currently used right-of-way area for Thunderbird Cove access parking on east side of the highway.

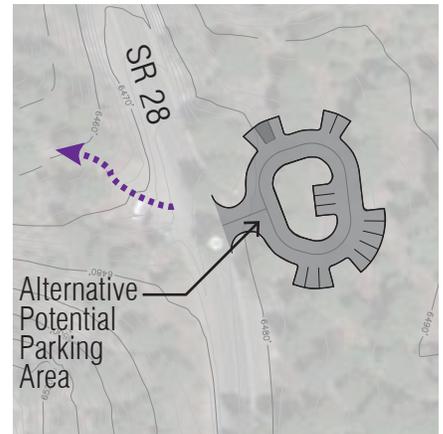


Enhancing the currently used right-of-way area east of SR 28 may require retaining walls, but it eliminates the need for a highway pedestrian-crossing and places people where they want to be.

Option B: Parking on west side of highway



Conceptual diagram of new Thunderbird parking alternative on east side of the highway.



The area east of SR 28 has gentle terrain appropriate for a small parking area.

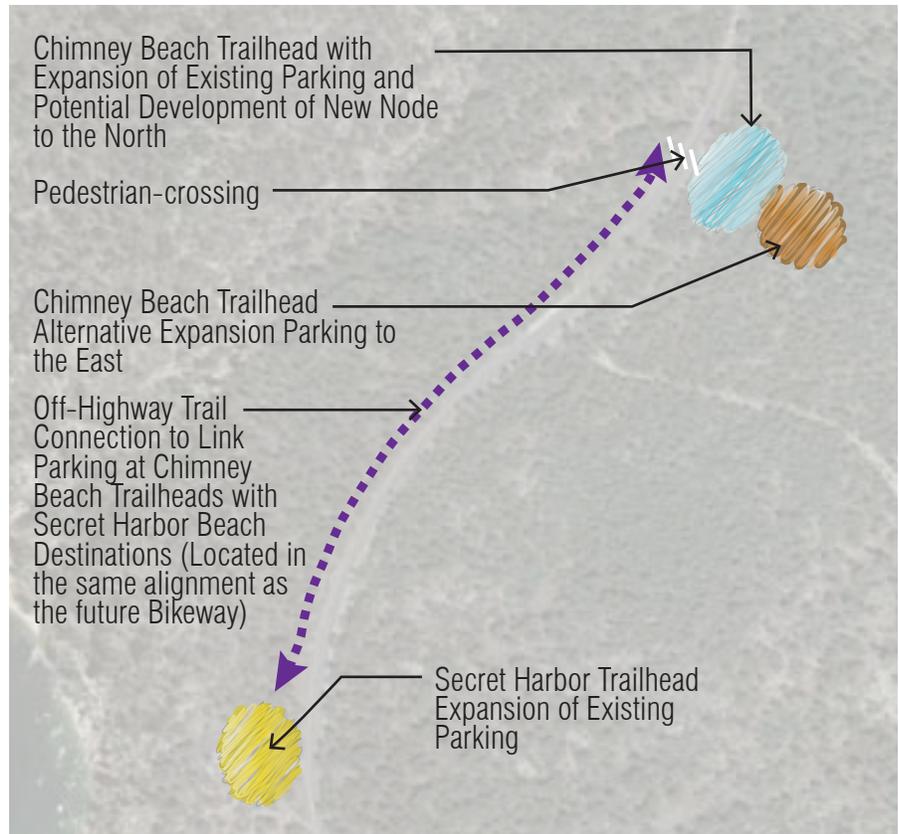
Chimney Beach Trailhead

Note: Illustrations and diagrams are conceptual in nature. Final design and engineering may vary.

Shoulder-parked cars in the Chimney Beach and Secret Harbor area may be relocated to expanded USFS Chimney Beach and Secret Harbor lots. Parking areas could be connected by an off-highway, shared-use path. No parking zone to be extended accordingly.



The existing USFS Chimney Beach parking area can be redesigned to improve circulation and increase the number of available spaces.



Two alternatives exist for the Chimney Beach Trailhead area which should be connected via an off-highway trail to the Secret Harbor Trailhead to disperse use along the east shore Beaches.

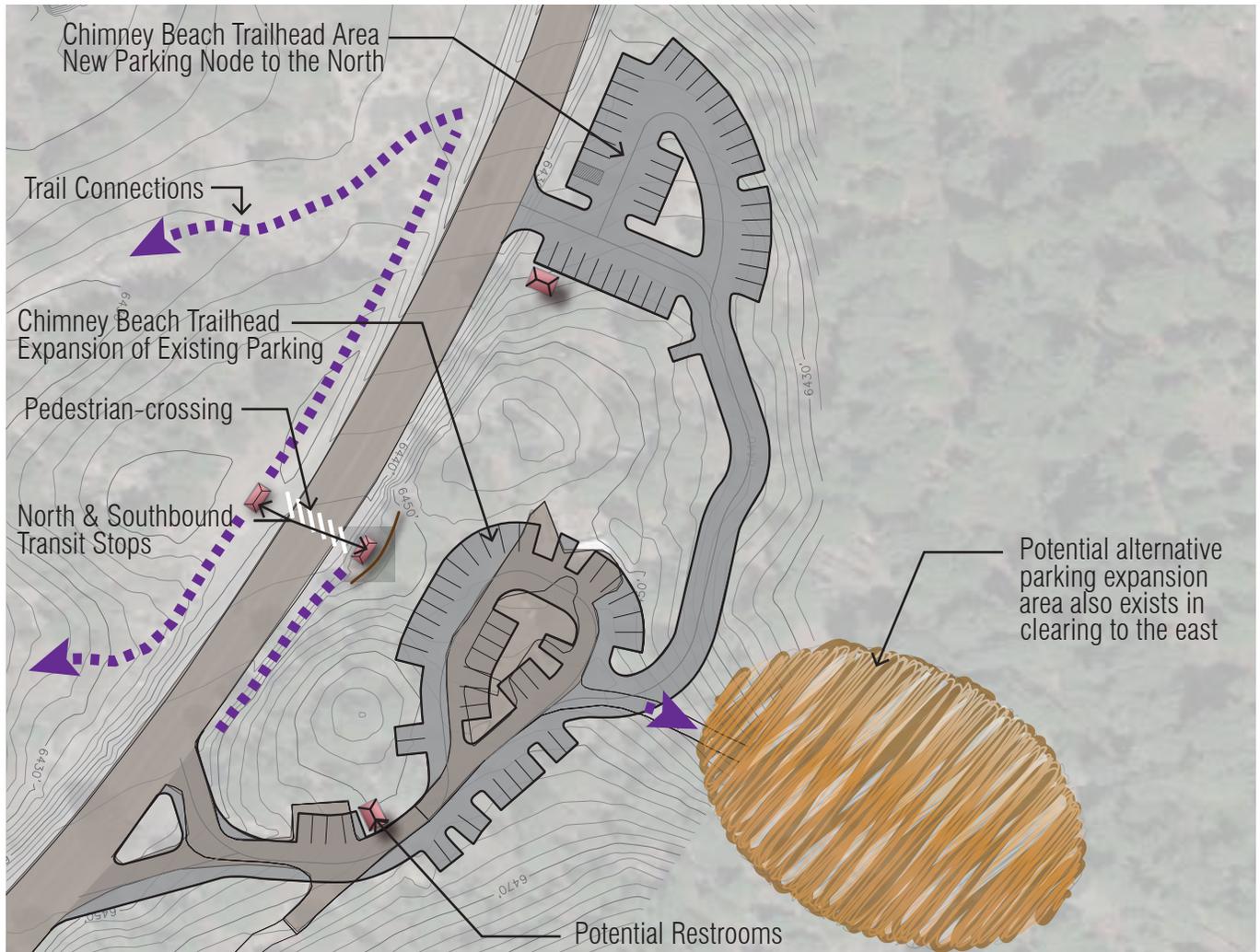


Potential southbound transit stop area.



Existing conditions of one potential parking expansion area.

Note: Illustrations and diagrams are conceptual in nature. Final design and engineering may vary.



Parking at the Chimney Beach Trailhead could be accommodated by expanding the existing parking area and developing a new parking node to the north. An alternative expansion site is located in a clearing to the east.



Conceptual illustration of a potential parking layout for Chimney Beach Trailhead expansion.

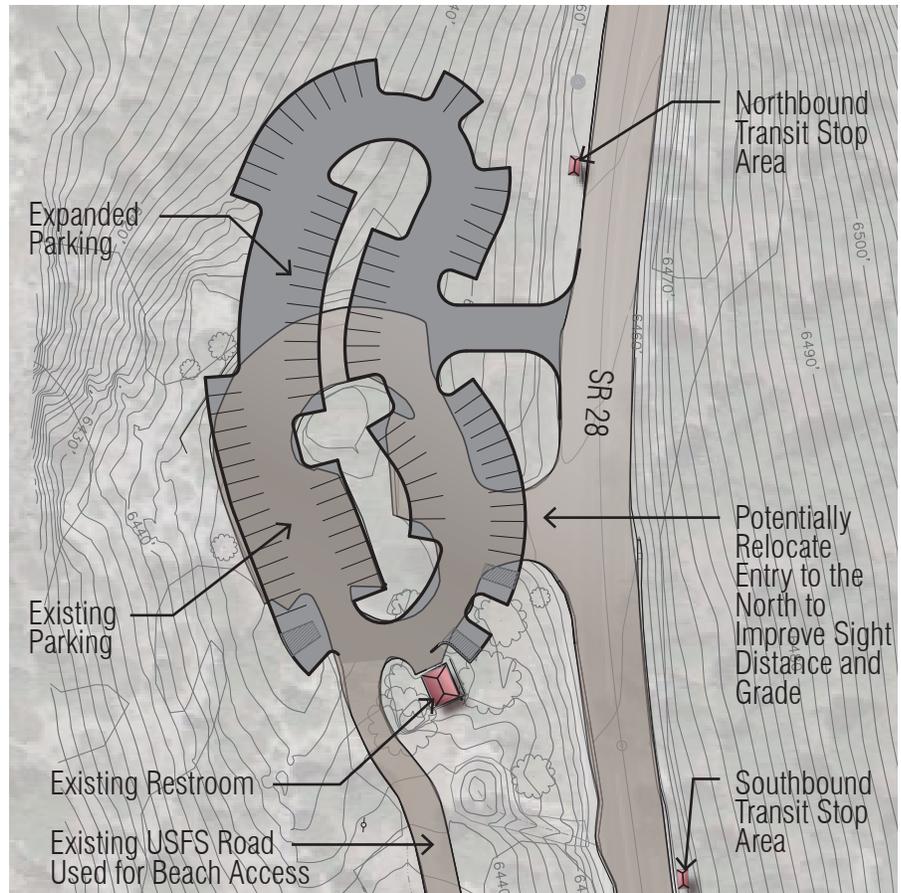
Secret Harbor Trailhead

Note: Illustrations and diagrams are conceptual in nature. Final design and engineering may vary.

A portion of the vehicles parked along SR 28 who recreate at Secret Harbor could be served by an expanded USFS Secret Harbor parking lot: approximately 54 new spaces, 31 existing: 85 total. No parking zone to be extended accordingly.



Existing Secret Harbor Trailhead area.



The existing USFS Secret Harbor parking lot could be expanded to the south to accommodate approximately 54 relocated shoulder-parked vehicles.

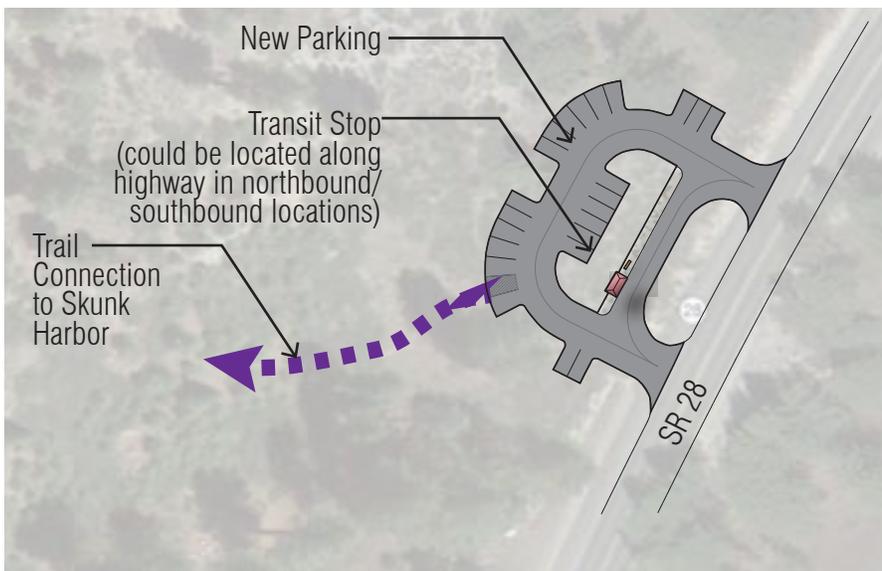


Conceptual illustration of potential Secret Harbor Trailhead expansion.

Note: Illustrations and diagrams are conceptual in nature. Final design and engineering may vary.



Existing area for Skunk Harbor Trailhead development.



Potential trailhead and transit layout for Skunk Harbor should accommodate approximately 20 public parking spaces and should consider reserving/signing 3 additional spaces for Washoe Tribe members.



Conceptual diagram of parking. A shuttle could be incorporated either internally or externally.

Skunk Harbor shoulder-parked vehicles would be relocated to a newly developed off-highway lot: 20 spaces with consideration of 3 additional spaces reserved for use by Washoe Tribe members. No parking zone to be extended accordingly.

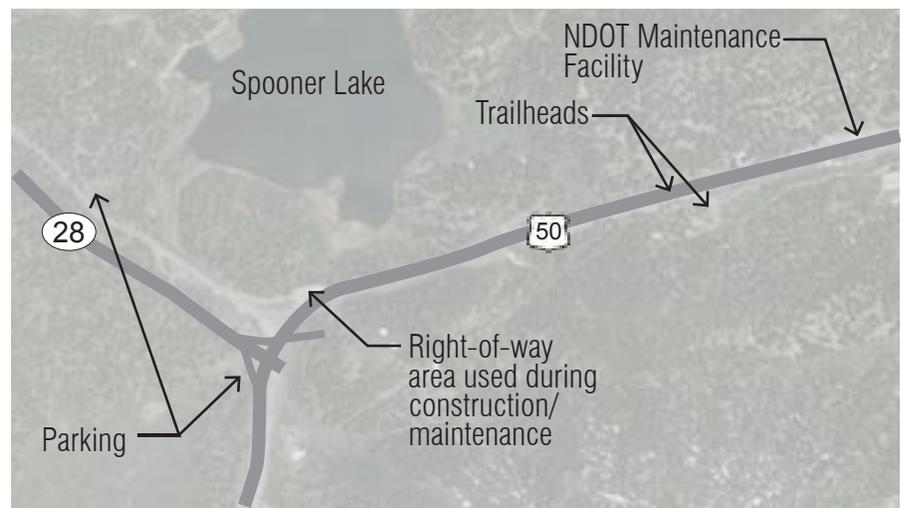
North Corridor & South Corridor Park-n-Rides

Note: Illustrations and diagrams are conceptual in nature. Final design and engineering may vary.

Locations for park-n-ride areas in Incline Village and at the Spooner Summit need to be studied. Potential sites for further study were identified in LSC's February 2012 report. The lots would accommodate the remaining number of shoulder-parked vehicles not able to be relocated within internal off-highway parking lots.



The East Shore Express Pilot Study used the old Incline Village Elementary School as a primary park-n-ride location. A permanent location for the East Shore Express must be identified.



The long term vision for the South Corridor park-n-ride locates the facility as part of a joint visitor center at Spooner Lake. Aquatic species inspections could also be planned for as part of the overall facility design. Interim and final locations need to be evaluated and determined as part of a separate study.

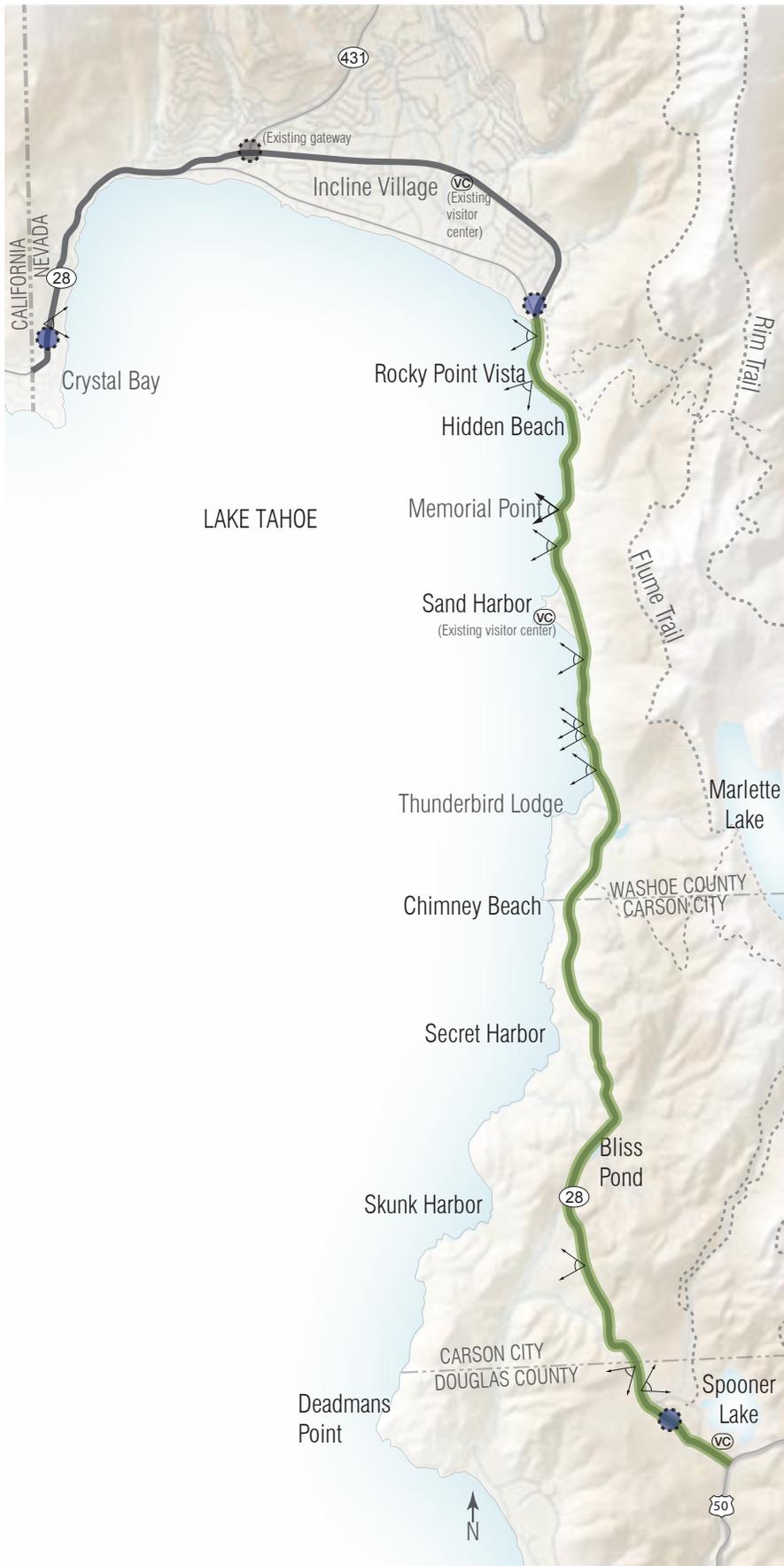
Discussed in LSC's February 2012 report, potential park-n-ride lots are listed below. Boat trail parking should be accommodated at park-n-ride lots. Diamond Peak and the old Ponderosa Ranch area have been discussed but were not listed as they are on private property and previous discussions with owners/representatives have indicated they could not be used. However, should the opportunity arise, these locations may be highly desirable and should be a priority consideration. Park-n-ride lots should also provide for boat trailer parking.

North Corridor Park-n-Ride Lots

- Incline Village High School
- Incline Village Middle School
- Old Incline Elementary School
- New Incline Elementary School
- Sierra Nevada College
- Tunnel Creek properties

South Corridor Park-n-Ride Lots

- NDOT sand hut on U.S. 50
- Old highway alignment north
- Tubing hill on old highway alignment west



Viewpoints, gateways, and scenic improvements addressing signage, railings, and rock cuts can add to an enhanced user experience. Turnouts can provide short term parking opportunities for picture taking and interpretation.

LEGEND

-  New Corridor Gateway Signs
-  Existing Corridor Gateways Signs
-  New Visitor Center (existing visitor centers are noted)
-  New Photo-Opportunity Turnout (vehicles must not be left unattended)
-  Existing viewpoint (Memorial Point)
-  Roadway Aesthetic Improvements:
 - Simplified signage
 - Use of wood & stone
 - Address large rock cut scars
 - Aesthetic railings
 - Recognize Corridor history, culture & use through messaging

Recommended User Experience Enhancements

Additional Corridor recommendations address pedestrian considerations in Incline Village, trail network improvements, contextual planning issues, and other items identified in studies such as NDOT's Road Safety Audit.

LEGEND

- East Shore Recreation Area
 - Stateline-to-Stateline Bikeway
 - Bike lanes or widened shoulders (minimum of uphill bike lane and corresponding sharrow)
 - Sand Harbor entry & queue
 - IVGID export line replacement
- Incline Village
 - Address pedestrian-crossings
 - Multi-modal roadway
 - Pedestrian enhancements
 - NDOT Road Safety Audit Recommendations
- Crystal Bay to Incline Village
 - Stateline-to-Stateline Bikeway
 - Multi-modal roadway
 - Pedestrian enhancements
- Beaches and Access Trails
 - Maintain existing capacity & access
 - Provide facilities based on experience type and capacity needs
 - Manage capacity through technology
 - Create clearly signed trail system
 - Restore user generated trails
- Management Areas
 - Coordinate facilities & integrate resource management across jurisdictional boundaries
 - Manage, maintain & fund Corridor at a regional level
 - Support public/private partnership opportunities
 - Address shared issues

Additional Recommendations



List of Recommended Projects

The following list summarizes the projects identified as part of the CMP. Corridor segments are generally listed in priority order. Projects may be completed independently, but should be coordinated where possible. The availability of funding and agency goals influence priorities and when a project can be built. See Appendices A and B for a matrix of the project list, the project partners, anticipated time frame, and funding opportunities. Partnering agencies should update and coordinate the list annually.

The project partners matrix in Appendix A includes a column indicating which projects should be considered for coordination. The description of recommended projects identifies implementation steps that must occur in tandem with the recommendation.

East Shore Recreation Segments

Segment One: Sweetwater Drive to Sand Harbor

RECOMMENDED PROJECT	PROJECT DESCRIPTION & LIST OF COORDINATED STEPS TO OCCUR WITH EACH PROJECT
Stateline-to-Stateline Bikeway Phase 2 Phase 2A Phase 2B	<ul style="list-style-type: none"> 3-mile shared use path from Incline Village to Sand Harbor <ul style="list-style-type: none"> 1-mile Lakeshore Boulevard to Hidden Beach 2-mile Hidden Beach to Sand Harbor
Flume Trail Trailhead (approx. 31 spaces)	<ul style="list-style-type: none"> Develop Flume Trail Trailhead areas A (approx. 31 spaces) Relocate/organize shoulder parking in Corridor Section 1 Provide signage and/or barriers for no shoulder parking Corridor Section 1; extend no parking zone accordingly
Pilot project for parking fee program and management systems (Phase 1 of program)	<ul style="list-style-type: none"> Pilot project for parking fee program and management systems (phase 1 of program)
Sand Harbor entry & circulation improvements, including entry intersection lighting	<ul style="list-style-type: none"> Deceleration lanes, stacking, queuing, fee booth relocation/removal, transit access, circulation, and intersection lighting
Sand Harbor transit access/facilities improvements	<ul style="list-style-type: none"> Formalized transit stop facilities (shelter, seating, turnout)
Recreation Corridor Gateway Sign (south of Lakeshore Drive)	<ul style="list-style-type: none"> Recreation Corridor Gateway Sign (south of Lakeshore Drive)
Transit stop at Tunnel Creek for Hidden Beach	<ul style="list-style-type: none"> Transit stop at Tunnel Creek for Hidden Beach (evaluate potential for both northbound and southbound stops)
North Corridor Trailhead A/B (approx. 98 spaces)	<ul style="list-style-type: none"> Develop North Corridor Trailhead areas A (74 cars) and B (24 cars) Relocate/organize shoulder parking in Corridor Sections 1, 2, 3, and 6 Provide signage and/or barriers for no shoulder parking Corridor Sections 1-6 – extend no parking zone to Sweetwater Road
Rocky Point Vista Parking (approx. 16 spaces with up to 4 of the spaces signed as viewpoint parking)	<ul style="list-style-type: none"> Develop Rocky Point Vista Parking (approx. 16 spaces with up to 4 of the spaces signed as viewpoint parking) Relocate shoulder parking from Sections 4 & 5 Provide signage and/or barriers for no shoulder parking Corridor Section 4 & 5; extend no parking zone accordingly
Viewpoint: Prior to Rocky Point (approx. 4-5 existing spaces)	<ul style="list-style-type: none"> Viewpoint enhancement (signage, striping, wall)
Viewpoint: Skinny Dipper (approx. 4 existing spaces)	<ul style="list-style-type: none"> Viewpoint enhancement (signage, striping, wall)

Trail management	<ul style="list-style-type: none"> • Restore unauthorized trails and develop any needed trails/signage
Formalize emergency turnouts	<ul style="list-style-type: none"> • Formalize emergency turnouts (design as slow-vehicle turnouts if possible)
Erosion control between Lakeshore Boulevard and Rocky Point	<ul style="list-style-type: none"> • Conduct feasibility study to install retaining walls to reduce erosion and protect the integrity of SR 28 between Lakeshore Boulevard and Rocky Point. Coordinate with trailhead design and implementation.
Lake Tahoe Nevada State Parks General Plan Improvements: Sand Harbor	<ul style="list-style-type: none"> • Boat launch parking enhancement • Screen admin/maintenance complex • Hiking trail from Sand Harbor to Flume Trail • Small observation platforms at Memorial Point • Other transportation-related projects
Improve lake side trail from parking to Hidden Beach	<ul style="list-style-type: none"> • Improve lake side trail from parking to Hidden Beach
Tunnel Creek Station 28 Corridor Parking	<ul style="list-style-type: none"> • Land owner proposed recreational parking for SR 28 with transit access

Segment Two: Sand Harbor to Bliss Pond

RECOMMENDED PROJECT	PROJECT DESCRIPTION & LIST OF COORDINATED STEPS TO OCCUR WITH EACH PROJECT
SR 28 from Secret Harbor Trailhead to Sand Harbor: Erosion Control and Drainage Improvements	<ul style="list-style-type: none"> • The project includes the design and implementation of water quality and erosion control features from the Secret Harbor Trailhead to Sand Harbor. The project includes planning, design, and construction for installation of source control, conveyance, and treatment facilities for stormwater runoff including right-of-way acquisition. This project has been initiated to identify and implement erosion control and water quality features to reduce the discharge of sediments and pollutants into Lake Tahoe.
Thunderbird Cove Trailhead (approx. 15 cars)	<ul style="list-style-type: none"> • Develop Thunderbird Cove Trailhead (approx. 15 cars) • Relocate shoulder parking from Section 9 • Provide signage and/or barriers for no shoulder parking Corridor Section 9; extend no parking zone accordingly
Chimney Beach Trailhead (approx. 88 spaces) (21 existing/67 new)	<ul style="list-style-type: none"> • Develop Chimney Beach Trailhead Area: approx. 88 spaces (21 existing and 67 new) • Relocate shoulder parking from Section 10 and 39 shoulder parking spaces from Section 11 • Provide signage for no shoulder parking Corridor Section 10 and portions of Section 11; extend no parking zone accordingly • Create trail linkage from Chimney Beach Trailhead Area to Secret Harbor Trailhead
NB/SB Transit stop near Chimney Beach Trailhead	<ul style="list-style-type: none"> • Transit stop near Chimney Beach Trailhead (NB/SB)
NB/SB Transit stop near Secret Harbor Trailhead	<ul style="list-style-type: none"> • Transit stop near Secret Harbor Trailhead
IVGID export line (pump station to Bliss Pond)	<ul style="list-style-type: none"> • Evaluation and replacement of IVGID export line from pump station to Bliss Pond
Stateline-to-Stateline Bikeway Phase 3 Phase 3A Phase 3B	<ul style="list-style-type: none"> • 7-mile Shared use path from Sand Harbor to Hwy 50 <ul style="list-style-type: none"> • 3-mile shared use path from Sand Harbor to Secret Harbor Trailhead • 4-mile shared use path from Secret Harbor Trailhead to Hwy 50
Secret Harbor Trailhead (approx. 85 spaces) (31 existing/54 new)	<ul style="list-style-type: none"> • Expand Secret Harbor Trailhead (approx. 85 total spaces) (31 existing spaces and 54 new spaces) • Relocate shoulder parking from Sections 11, 12, and 13 • Provide signage and/or barriers for no shoulder parking Corridor Sections 11, 12, and 13; extend no parking zone accordingly

East Shore Trail Management	<ul style="list-style-type: none"> Restoration, upgrades, fencing, signage, and new construction per USFS East Shore Trails and Access Management Plan
Viewpoint: South of Sand Harbor (approx. 3 spaces)	<ul style="list-style-type: none"> Viewpoint: South of Sand Harbor (approx. 3 spaces)
Viewpoint: Thunderbird to Sand Harbor: A (approx. 4-6 spaces)	<ul style="list-style-type: none"> Viewpoint: Thunderbird to Sand Harbor: A (approx. 4-6 spaces)
Viewpoint: Thunderbird to Sand Harbor: B (approx. 3-5 spaces)	<ul style="list-style-type: none"> Viewpoint: Thunderbird to Sand Harbor: B (approx. 3-5 spaces)
Viewpoint: Thunderbird to Sand Harbor: C (approx. 2-3 spaces)	<ul style="list-style-type: none"> Viewpoint: Thunderbird to Sand Harbor: C (approx. 2-3 spaces)
NDOT Safety Audit Recommendations	<ul style="list-style-type: none"> Barrier rail on lake side of SR 28 at locations of unprotected steep slope – MP CC 0.0 to 3.95 and WA 0.0 to 2.45
Formalize emergency turnouts	<ul style="list-style-type: none"> Formalize emergency turnouts (design as slow-vehicle turnouts if possible)
Parking Management System	<ul style="list-style-type: none"> Implement Phase 2 of the parking management strategy

Segment Three: Bliss Pond to U.S. 50

RECOMMENDED PROJECT	PROJECT DESCRIPTION & LIST OF COORDINATED STEPS TO OCCUR WITH EACH PROJECT
Formalize emergency turnouts	<ul style="list-style-type: none"> Formalize emergency turnouts (design as slow-vehicle turnouts if possible)
IVGID export line (Bliss Pond to the Douglas County line)	<ul style="list-style-type: none"> Evaluation and replacement of IVGID export line from Bliss Pond to the Douglas County line
South Park-n-Ride Facility (approx. 53 spaces)	<ul style="list-style-type: none"> Evaluate locations and develop a south park-n-ride facility until facility is available at Corridor visitor center (approx. 53 spaces). Refer to LSC February 2012 report.
Skunk Harbor Trailhead (approx. 20 spaces plus 3 reserved Tribe member spaces)	<ul style="list-style-type: none"> Develop Skunk Harbor Trailhead (approx. 20 spaces plus 3 reserved Tribe member spaces) Relocate shoulder parking from Section 14; extend no parking zone Provide signage and/or barriers for no shoulder parking Corridor Section 14
NB/SB Transit stop at Skunk Harbor Trailhead	<ul style="list-style-type: none"> Transit stop at Skunk Harbor Trailhead
NB/SB Transit stop at Spooner Lake	<ul style="list-style-type: none"> Transit stop at Spooner Lake
East Shore Trail Management	<ul style="list-style-type: none"> Restoration, upgrades, fencing, signage, and new construction per USFS East Shore Trails and Access Management Plan
Spooner Summit Corridor Gateway Sign	<ul style="list-style-type: none"> Spooner Summit Corridor Gateway
Viewpoint: Skunk Harbor Prey Meadow Vista (approx. 4-5 spaces)	<ul style="list-style-type: none"> Viewpoint: Skunk Harbor Prey Meadow Vista (approx. 4-5 spaces)
Viewpoint: Spooner Meadow Southbound (approx. 2-4 spaces)	<ul style="list-style-type: none"> Viewpoint: Spooner Meadow Southbound (approx. 2-4 spaces)
Viewpoint: Spooner Meadow Northbound (approx. 2 -4 spaces)	<ul style="list-style-type: none"> Viewpoint: Spooner Meadow Northbound (approx. 2 -4 spaces)
Corridor Visitor Center	<ul style="list-style-type: none"> Develop joint-use visitor center with park-n-ride facilities and aquatics species inspection at Spooner Lake
Parking Management System	<ul style="list-style-type: none"> Implement Phase 3 of the parking management strategy

Community Segments

Segment One: West Incline Village to Sweetwater Drive

RECOMMENDED PROJECT	PROJECT DESCRIPTION & LIST OF COORDINATED STEPS TO OCCUR WITH EACH PROJECT
Pedestrian-crossing enhancements	<ul style="list-style-type: none"> Evaluate and address pedestrian-crossing issues per NDOT safety audit report.
North Park-n-Ride Facility (approx. 168 spaces)	<ul style="list-style-type: none"> Evaluate appropriate locations and develop north park-n-ride facility (approx. 168 spaces). Refer to LSC February 2012 report.
IVGID Export Line	<ul style="list-style-type: none"> Evaluation and replacement of IVGID export line.

Segment Two: Crystal Bay to West Incline Village

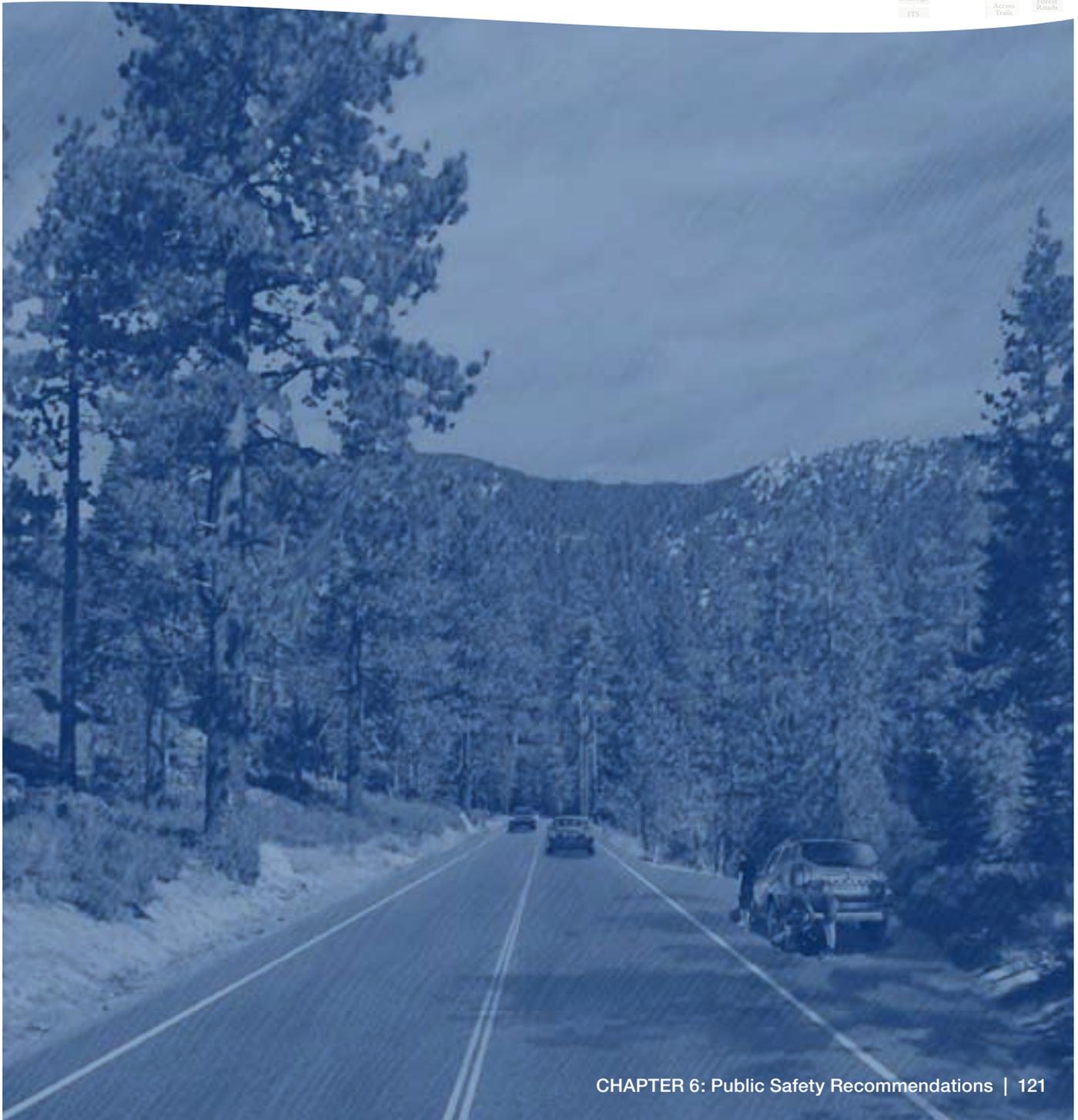
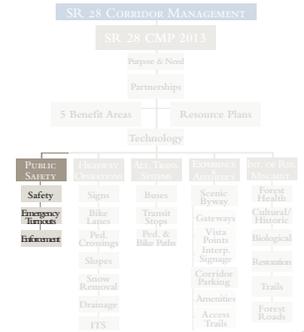
RECOMMENDED PROJECT	PROJECT DESCRIPTION & LIST OF COORDINATED STEPS TO OCCUR WITH EACH PROJECT
Stateline-to-Stateline Bikeway Phase 4	<ul style="list-style-type: none"> 3-mile shared use path from Crystal Bay to Lakeshore Boulevard (west)
Viewpoint: Crystal Bay (approx. 4-6 spaces)	<ul style="list-style-type: none"> Viewpoint: Crystal Bay (approx. 4-6 spaces)
Crystal Bay Corridor Gateway Sign	<ul style="list-style-type: none"> Crystal Bay Corridor gateway sign

Corridor-Wide Projects

RECOMMENDED PROJECT	PROJECT DESCRIPTION & LIST OF COORDINATED STEPS TO OCCUR WITH EACH PROJECT
East Shore Recreation Capacity Study	<ul style="list-style-type: none"> • Build upon Sand Harbor capacity study and current visitor use levels investigations and conduct Corridor-wide recreation capacity study to help monitor and inform management decisions as Corridor management moves forward.
Retaining wall replacement	<ul style="list-style-type: none"> • Conduct assessment of timber retaining walls along SR 28 and determine action plan for repair and replacement of walls showing signs of failure. Coordinate with viewpoints, emergency turnouts, and trailhead designs/implementation.
Interpretive program & wayfinding signage	<ul style="list-style-type: none"> • Develop a Corridor-wide interpretive program and theme and wayfinding signage.
Utility undergrounding	<ul style="list-style-type: none"> • Pursue opportunities for utility undergrounding.
Sand Harbor water shuttle connection feasibility study	<ul style="list-style-type: none"> • Evaluate feasibility of a water shuttle connection to Sand Harbor. Address capacity considerations and management decisions with evaluation.
Bike lanes or widened shoulders	<ul style="list-style-type: none"> • Evaluate feasibility of including bike lanes or widened shoulders with removal of shoulder parking. At a minimum, in steep sections provide a bike lane in the uphill direction and corresponding sharrow in the downhill direction.
Further development/approval of design standards	<ul style="list-style-type: none"> • Pursue "experimental status" for unique designs (e.g. guardrails) from the Federal Highway Administration where adherence to published standards is not feasible, or where different standards would provide safety, economic, environmental, or social benefits.
Monitoring	<ul style="list-style-type: none"> • Monitor achievement of CMP objectives annually with responsibility scheduled quarterly.
Future transit stop development	<ul style="list-style-type: none"> • Evaluate the potential for additional transit stops and transit system based on Corridor use and meeting CMP objectives (North Corridor trailhead and Memorial Point.)

6

PUBLIC SAFETY RECOMMENDATIONS





Public safety recommendations include items from NDOT Road Safety Audit Reports, emergency turnouts, and enforcement of no-shoulder parking.

zero®
Fatalities
Drive Safe Nevada

Public Safety Recommendations

Goal: Improve overall safety

Strategies

- Relocate shoulder parking to appropriate off-highway locations and connect parking and transit stop areas to recreation destinations with trails separated from the highway. Extend no parking zone accordingly.
- Develop and provide signage for emergency turnouts at 1/4-mile intervals from Lakeshore Boulevard south to Secret Harbor Trailhead and at 1/2-mile intervals from Secret Harbor Trailhead south to the U.S. 50 intersection. Allow for authorized vehicle in turnouts and slow vehicle turnouts where possible.
- Enforce no parking zone areas.
- Implement Road Safety Audit recommendations for Incline Village pedestrian-crossings.
- Evaluate and redesign the Sand Harbor entry and queuing process.
- Implement the Stateline-to-Stateline Bikeway.
- Identify off-highway parking areas to keep open during shoulder and winter seasons.
- Conduct and implement future Road Safety Audit Reports and their recommendations.

Indicators of Success

- Create 27 signed emergency turnouts (used as slow vehicle turnouts where possible).
- Increase no parking zone by 7 miles.
- Reduce vehicular incidents by 50% and reduce fatalities to 0.

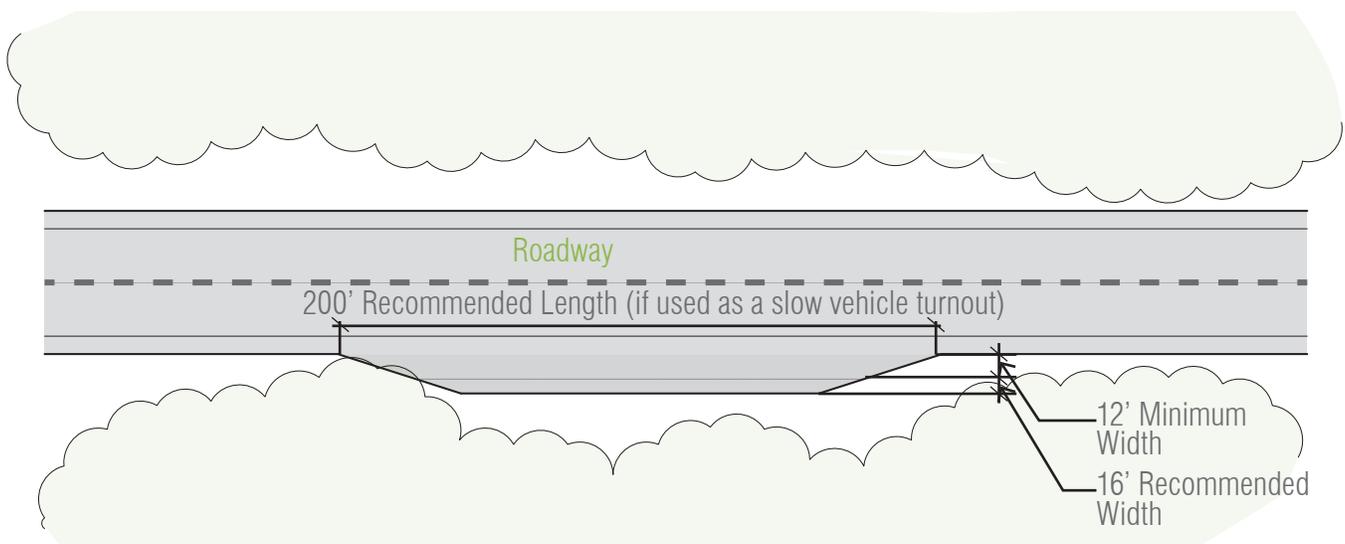
See Monitoring Program Tracking Sheet (Appendix C for complete list)



Emergency turnouts can improve the safety of motorists needing to temporarily pull off the highway to address vehicular issues, to allow following vehicles to pass, to allow safe highway enforcement pull-overs and to allow authorized vehicles to do resource work. (Conceptual illustration. Actual design may vary.)



Turnout areas can be used by maintenance vehicles or other slow moving vehicles to allow vehicular traffic to pass in a safe manner within the narrow Corridor. (Conceptual illustration. Actual design may vary.)



Per AASHTO Green Book recommendations, emergency turnouts should provide adequate room for motorists to safely pull-off the road. Two vehicles should be accommodated to allow for safe highway enforcement stops.

Where feasible, turnouts should be designed and signed to also allow for slow vehicle turnouts and should be designed per AASHTO standard for length and site distance. The conceptual diagram above shows the recommended minimum 200' lengths recommended by AASHTO for a slow vehicle turnout along a roadway with a 45 MPH speed limit. Emergency turnouts may be shorter depending on site conditions. Final design to be approved by NDOT.

Locate emergency turnouts at 1/4-mile intervals from Lakeshore Boulevard south to Secret Harbor Trailhead and at 1/2-mile intervals from Secret Harbor Trailhead south to the U.S. 50 intersection.

Turnouts can be used by authorized vehicles to do resource work.

Where possible turnouts may be designed for use as a slow vehicle turnout.



Potential signage for emergency turnouts. (Conceptual illustration of potential signage. Final signs and language to be approved by NDOT.)



Parking enforcement can be aided through technological tools such as sensed parking.

LEGEND

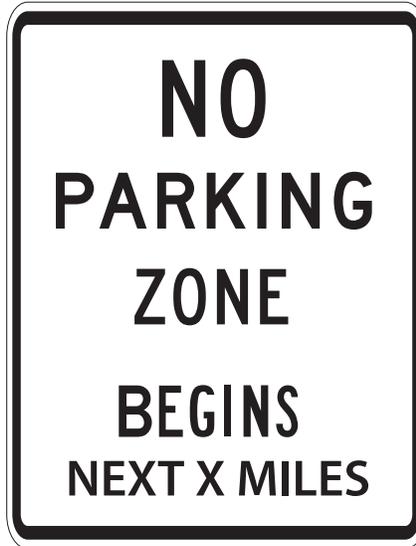
- Emergency/Maintenance Turnout (also correspond with viewpoints & photo-opp turnouts)

Note: Implement pedestrian-crossing improvements per NDOT Road Safety Audit

Emergency Turnout Locations & Pedestrian Improvements

No parking zone signage should incrementally extend as shoulder parking is relocated and transit is implemented.

Enforcement of no parking zones is of primary importance in order to achieve compliance and desired safety, environmental, and user experience benefits.



The east shore recreation area should be identified as a no parking zone correlated with the relocation of shoulder parking to safe, off-highway destinations.

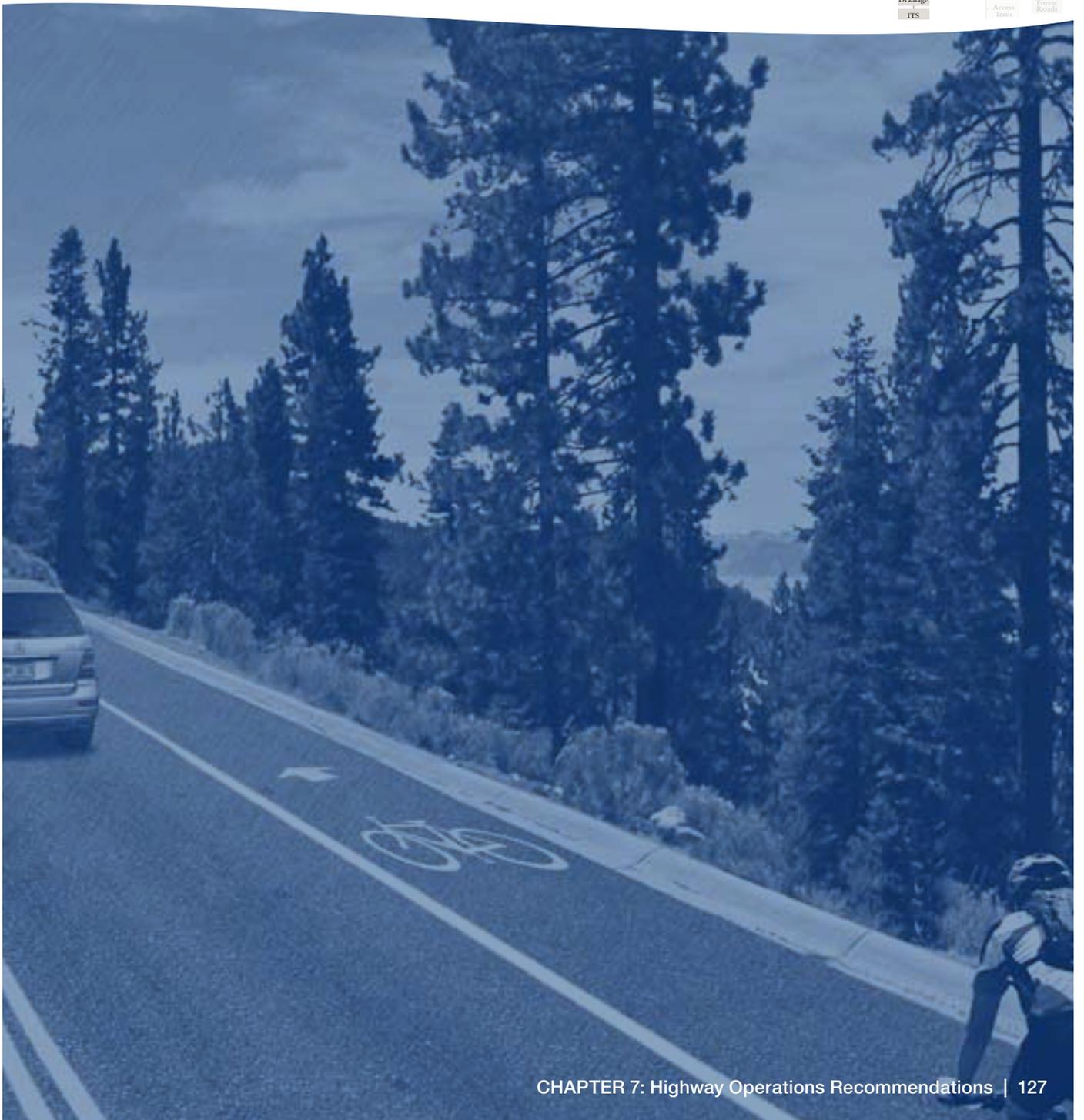
(Conceptual illustration of potential signage. Final signs and language to be approved by NDOT.)



Simple, pedestrian-activated solar crossing signs can be used to increase visual awareness of pedestrian-crossings.

7

HIGHWAY OPERATIONS RECOMMENDATIONS





Highway operations recommendations involve design, implementation, and management of elements within the highway right-of-way, for example:

- Regulatory signage
- Bike lanes
- Pedestrian-crossings
- Slope stabilization
- Snow removal
- Drainage improvements

Highway Operations Recommendations

Objective: Coordinate, provide, and manage facilities to reach overall Corridor goals.

Strategies

- Coordinate erosion control projects with other Corridor improvements to streamline project development and enhance achievement of project goals.
- Evaluate regulatory signage and minimize use as shoulder parking is relocated.
- Utilize positive messaging as part of regulatory signage (e.g. emergency turn-out ahead, trailhead and beach parking 3 miles ahead).
- Implement pedestrian-crossing recommendations from the NDOT Road Safety Audit.
- Evaluate ability to include bike lanes or widened shoulders consistent with the Lake Tahoe Bicycle and Pedestrian Plan. At a minimum, in steep sections provide a bike lane in the uphill direction and corresponding sharrow in the downhill direction.
- Develop a strategy and necessary management agreements between agencies to remove snow from a portion of off-highway trailheads as a secondary priority to snow removal from travel lanes.
- Stabilize slopes to reduce erosion and enhance the visual quality.
- Evaluate queuing improvements at Sand Harbor, including fee booth location, metered parking, and entry circulation.

Indicators of Success

- Implement NDOT Road Safety Audit pedestrian-crossing improvements.
- Install bike lanes or widened shoulders and signage per the Lake Tahoe Region Bicycle and Pedestrian Plan.
- Reduce queue at Sand Harbor entry to less than one minute delay on SR 28.
- Implement NDOT EIP projects.

See Monitoring Program Tracking Sheet (Appendix C for complete list)



Coordinating erosion control projects with other Corridor recommendations such as shoulder parking relocation and development of viewpoints and emergency turnouts can maximize the use of funding sources and enhances the ability to meet project goals. Safety is increased and the likelihood of shoulder parking negatively impacting the erosion control improvements is decreased.

LEGEND

- Current Proposed NDOT SR 28 Erosion Control and Water Quality Project
- Future NDOT SR 28 Erosion Control and Water Quality Project Areas

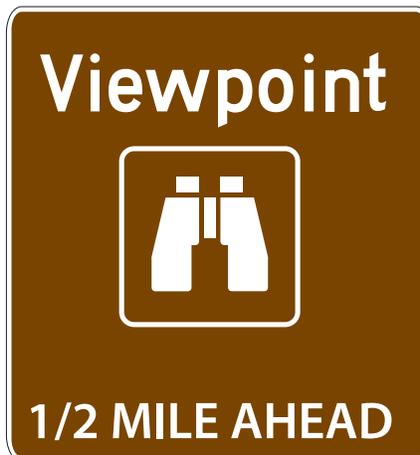
NDOT Erosion Control Project Area

Regulatory Signage:

- Promote visibility but do not detract from the Corridor’s scenic quality.
- Reduce the number of signs as shoulder parking is relocated.
- Utilize barriers of native-looking materials over no parking signage where possible.
- Utilize positive messaging where feasible.
- Evaluate new and existing signs for informational value and scenic impairment to prevent excessive signage.
- Locate signs to notify drivers of appropriate parking and turnout areas.
- Confirm ability to enforce parking restrictions.
- Utilize consistent signage.



A large number of no parking signs may be reduced with the implementation of shoulder parking relocation throughout the Corridor.



Positive messaging should notify motorists of upcoming viewpoints, parking, and emergency turnouts located along the highway.



Potential signage at viewpoints.

(Conceptual illustrations of potential signage. Final signs and language to be approved by NDOT and the Plan Partners.)



Pedestrian-crossings should include visual cues such as standard signage or signage with flashing lights.



Crossing enhancements may include colored paving where appropriate in highly used areas.



If Corridor-wide bike lanes or widened shoulders are not feasible, in steep sections a bike lane in the uphill direction with corresponding sharrow in the downhill direction can address critical locations where cyclists may need additional maneuvering room as they climb steep grades. (Conceptual illustration. Actual design may vary.)

Pedestrian-crossings:

- Provide appropriately striped, signed, and lighted crossings to contribute to walkability and reinforce multi-modal Corridor use.
- Coordinate improvements with NDOT's Road Safety Audit Report.
- Consider enhanced crossings, but at a minimum provide NDOT's standard crossing with white longitudinal lines parallel to traffic flow.

Bike Lanes:

- Evaluate potential of bike lanes or signed and widened shoulders per the Tahoe Region Bicycle and Pedestrian Plan. At a minimum, in steep sections provide bike lane in uphill direction and sharrow in downhill.

Snow Removal:

- Evaluate and identify inter-local agreements such as that between State Parks and NDOT to remove snow from a portion of off-highway lots to allow for winter use of the Corridor.



Snow removal from a portion of the off-highway parking areas would allow them to be used during the winter season and provide an off-highway parking alternative for recreationists.

Slope Stabilization:

- Use a mix of revegetation and rock mulch where possible to reduce the visual intrusion of large, untreated scars.
- Use muted tones of stacked boulder retaining walls if appropriate.
- Refer to NDOT's Landscape & Aesthetics Corridor Plan and the Aesthetic Alternatives for additional guidelines for rock cut treatments.



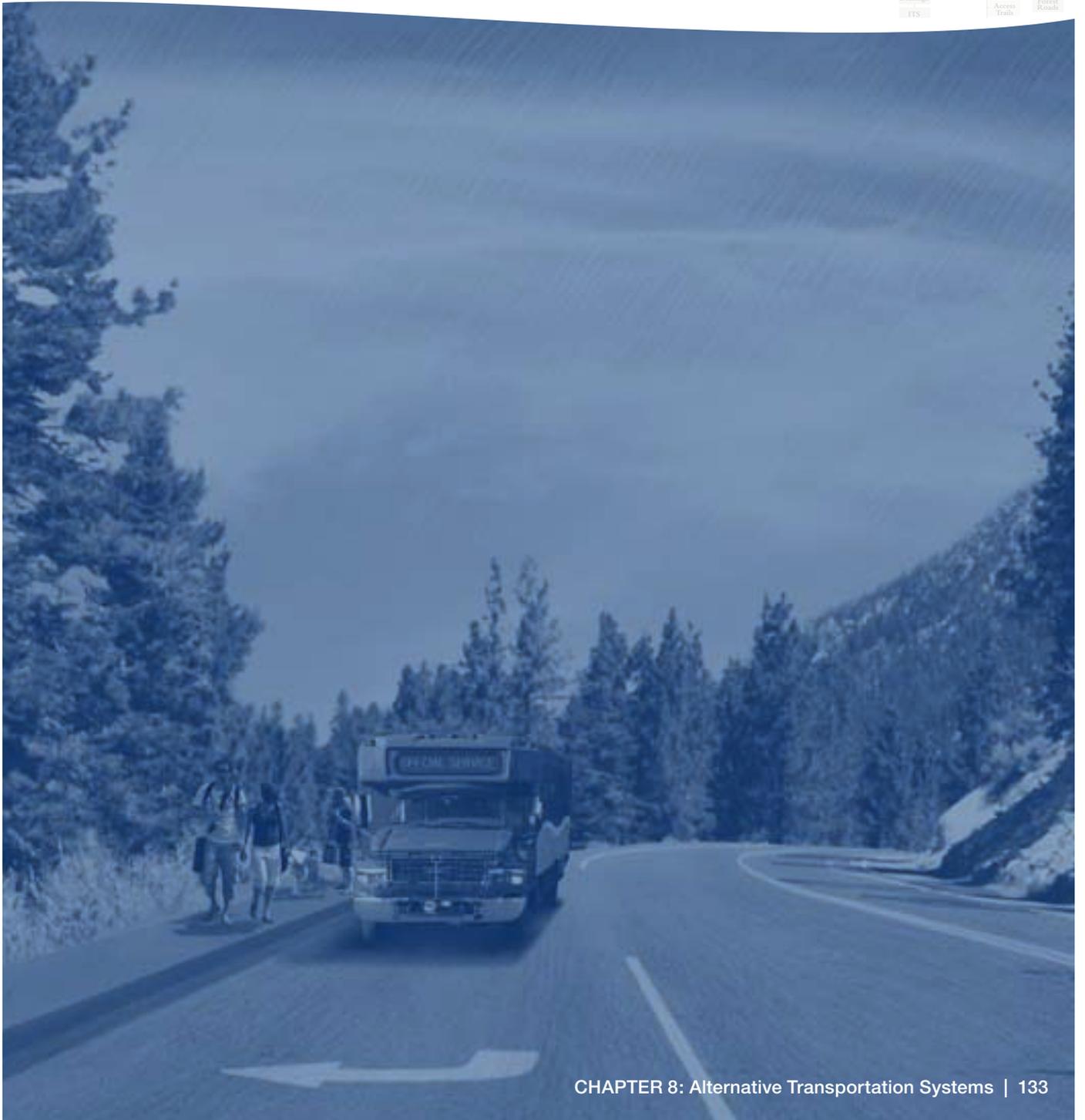
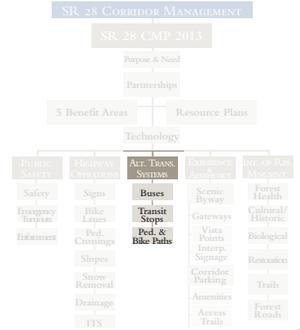
Rock cuts can be the largest visual scar along a highway. Muted tones of boulder retaining can help them blend into the natural setting.



Break up large swaths of rock mulch with revegetation and native and adapted plant material.

8

ALTERNATIVE TRANSPORTATION SYSTEMS RECOMMENDATIONS





Alternative transportation systems recommendations stem from relocating shoulder parking, providing transit, and encouraging multi-modal Corridor use along a shared-use path (the Bikeway).

Alternative Transportation Systems Recommendations

Objective: Provide for all modes of transportation

Strategies

- Provide transit for appropriate off-highway locations during the peak season based on parking and capacity demands.
- Connect parking and transit stop areas to recreation destinations with trails separated from the highway.
- Implement the Stateline-to-Stateline Bikeway.
- Create access policies by managing agencies.
- Evaluate, identify, and construct appropriate areas for North and South Corridor park-n-ride areas. Refer to previous study by LSC (February 2012).
- Connect park-n-ride facilities and transit stops to regional systems.
- Utilize technology such as web cams, smart phone applications, sensed parking areas, and intelligent transportation systems (ITS) to notify users when parking areas are full.

Indicators of Success

- Implement peak season transit operation from Incline Village to Sand Harbor at a minimum, with a goal of Corridor-wide transit operations.
- Implement 6 transit stops along the east shore recreation area.
- Ensure at least 60% of surveyed transit riders go to park-n-ride lots without having first driven to an east shore parking lot.
- For 5-year TRPA survey respondents, shift 30% of travel demand to recreation areas from driving to transit, bicycling, and walking.

See Monitoring Program Tracking Sheet (Appendix C for complete list)



The Stateline-to-Stateline Bikeway will be separated from the highway and will provide a safe way for users to access recreation sites without walking along the highway. (Conceptual illustration. Actual design may vary.)



A transit stop at the Chimney Beach Trailhead should maintain existing levels of beach use while reducing vehicle miles traveled. (Conceptual illustration. Actual design may vary.)

Transit stop locations include:

- Hidden Beach (feasibility for southbound turnout to be determined)
- Sand Harbor
- Chimney Beach Trailhead
- Secret Harbor Trailhead
- Skunk Harbor Trailhead
- Spooner Lake

Park-n-Ride locations should serve north and south portions of the Corridor and provide boat trailer parking.

Regional transit connections should include other Tahoe-based transit systems and systems from Reno, Carson, and Douglas County.

LEGEND

-  Park-n-Ride Transit Stop
-  Transit Stop
-  Potential Future Transit Stop to Consider
-  Stateline-to-Stateline Bikeway (final route to be determined)

Transit Stops & Park-n-Ride Locations





Parker mobile phone app provides real time data on available spaces for users.



Web cams such as those used at Yellowstone National Park allow for real-time visual updates of parking availability and beach use.



Images courtesy Siemens

Parking kiosks and management systems can be tied to discs placed under paving to notify users of the number of spaces available.



Signage integrated with technology can communicate parking availability.

Technology:

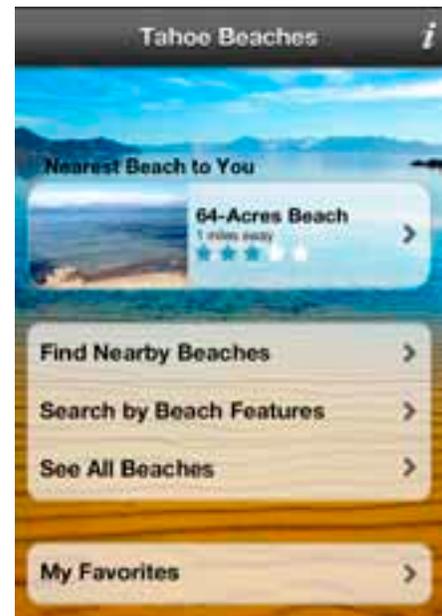
- Utilize technology to notify users of parking availability and beach capacity.
- Reduce vehicle miles traveled (VMT) and improve air quality by identifying parking availability and the need to use transit prior to motorists reaching their destination. Reduce trolling for parking.
- Coordinate information on a Basin-wide level to maximize user awareness and inform users of alternative, but similar, beaches.
- Develop a system appropriately-scaled to the east shore recreation needs. Consider ability to have an “off-season” for technology use to reduce costs, or change user content in the off-season to maintain user interest.

Technology (cont.):

- Update web and mobile phone applications regularly to ensure accuracy and maintain user interest.
- Reinforce Corridor branding.
- Consider low-cost options such as parking lot and beach cameras to show current use conditions.
- Incorporate local business information to help fund and maintain applications.
- Design applications to provide users information and to monitor visitor use.
- Coordinate new technology with existing Intelligent Transportation Systems (ITS) to maximize distribution of information.



Evaluate opportunities to distribute access information with existing ITS systems on Mount Rose Highway and U.S. 50.

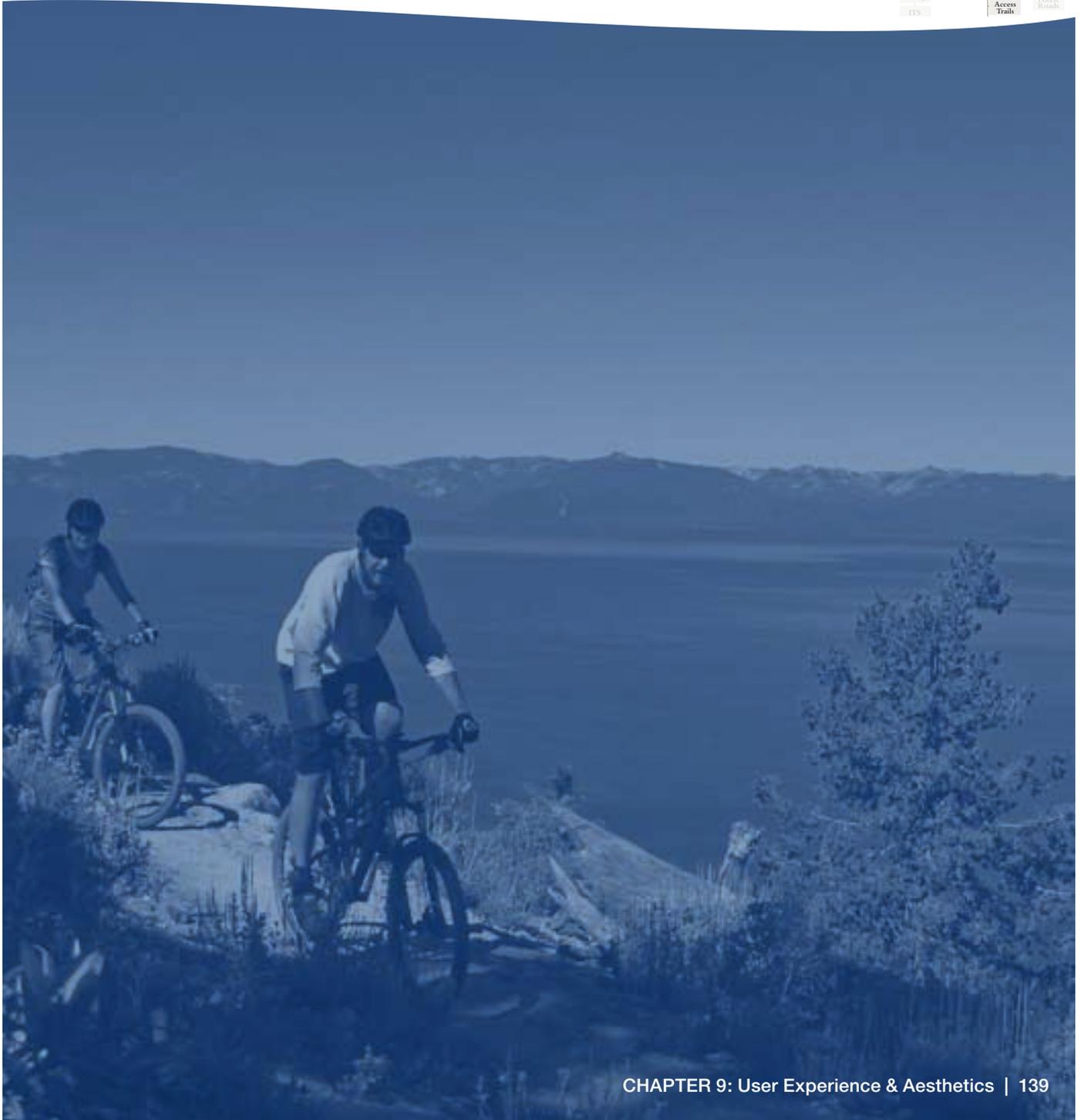


Images courtesy Lake Effects Associates

Mobile phone applications are increasingly being used across the nation by people wanting to know where recreation opportunities exist. Providing users current information via technology would influence their overall satisfaction.

9

USER EXPERIENCE & AESTHETICS RECOMMENDATIONS





Maintaining and enhancing the quality and variety of visual and recreational experiences along the Corridor requires implementation of previous recommendations and a heightened commitment to improve the visual environment.

User Experience & Aesthetics Recommendations

Objective: Provide for and enhance recreation access and the Corridor experience

Strategies

- Relocate shoulder parking and develop designated viewpoint/photo-opp turnouts.
- Provide appropriate levels of internal and external parking to maintain current use levels.
- Build upon Sand Harbor capacity study and current visitor use level investigations. Conduct Corridor-wide recreation capacity study to evaluate and monitor user satisfaction, facility needs, and resource impacts and inform management decisions moving forward.
- Coordinate scenic byway branding with branding of the Stateline-to-Stateline Bikeway to create one consistent message.
- Utilize technology such as smart phone applications to coordinate and distribute information regarding recreation opportunities.
- Highlight Corridor scenic quality through material selection and attention to detail.

- Utilize an elevated level of treatment for roadway elements such as barrier rails, rock cuts, and signage to improve the highway's visual quality both from the roadway and as seen from Lake Tahoe.
- Underground utilities.
- Develop gateway signage.
- Establish a joint-use Visitor Center at Spooner Lake and highlight the existing Visitor Center in Incline Village.
- Enhance the recreational driving experience by developing photo-opportunity turnouts.
- Develop a Corridor-wide interpretation program to celebrate natural, cultural, and historical resources.
- Provide connections to existing or new trails to beaches, coves, recreation areas, transportation facilities, and community centers along the Corridor.
- Provide appropriate visitor amenities at parking and recreation sites.
- Evaluate queuing improvements at Sand Harbor, including fee booth location, metered parking, and entry circulation.

Monitor use levels to maintain and increase user satisfaction throughout the Corridor. The user experience for Chimney Beach, Secret Harbor, and Skunk Harbor users differs from that of Sand Harbor visitors.

Indicators of Success

- Provide an additional 296 off-highway parking spaces within the Corridor (including those for the Bikeway). Extend the no parking zone accordingly.
- Maintain the diversity and level of recreation satisfaction – 90% of surveyed beach-goers and transit riders rate their experience as good to excellent and classify their experience according to its type (Sand Harbor versus the coves).
- Provide 12 quality viewpoint and photo-opportunities with interpretive signage.
- Provide signage to improve recognition of the Corridor as America's Most Beautiful Drive & America's Most Beautiful Ride.

See Monitoring Program Tracking Sheet (Appendix C for complete list)



America's Most Beautiful Drive and the east shore create a special Corridor similar to that of a National Park roadway and deserving of a higher standard. The Corridor should have a scenic appearance both along the roadway and as viewed from Lake Tahoe.

Enhanced Standards of Treatment

America's Most Beautiful Drive is a special roadway Corridor similar to that of a National Park roadway and deserving of a higher standard of treatment. NDOT's Landscape & Aesthetics Corridor Plan highlights the special quality of highways within the Tahoe Basin and substantiates the recommendation to use elevated landscape and hardscape treatments to improve its visual quality from how it is seen both from the roadway and from Lake Tahoe.

NDOT's Landscape & Aesthetics Corridor Plan

- Defines SR 28 and other highways within the Tahoe Basin as nationally significant areas.
- Supports the use of enhanced guidelines and accentuated visual treatments.
- Identifies the need for off-highway shared-use paths connecting nodes of parking to provide recreation access.
- Describes the road as an integral part of the spectacular landscape which should respond to and be respectful of the land and place.
- Illustrates barrier rails as using patterns and colors compatible with the surrounding environment.

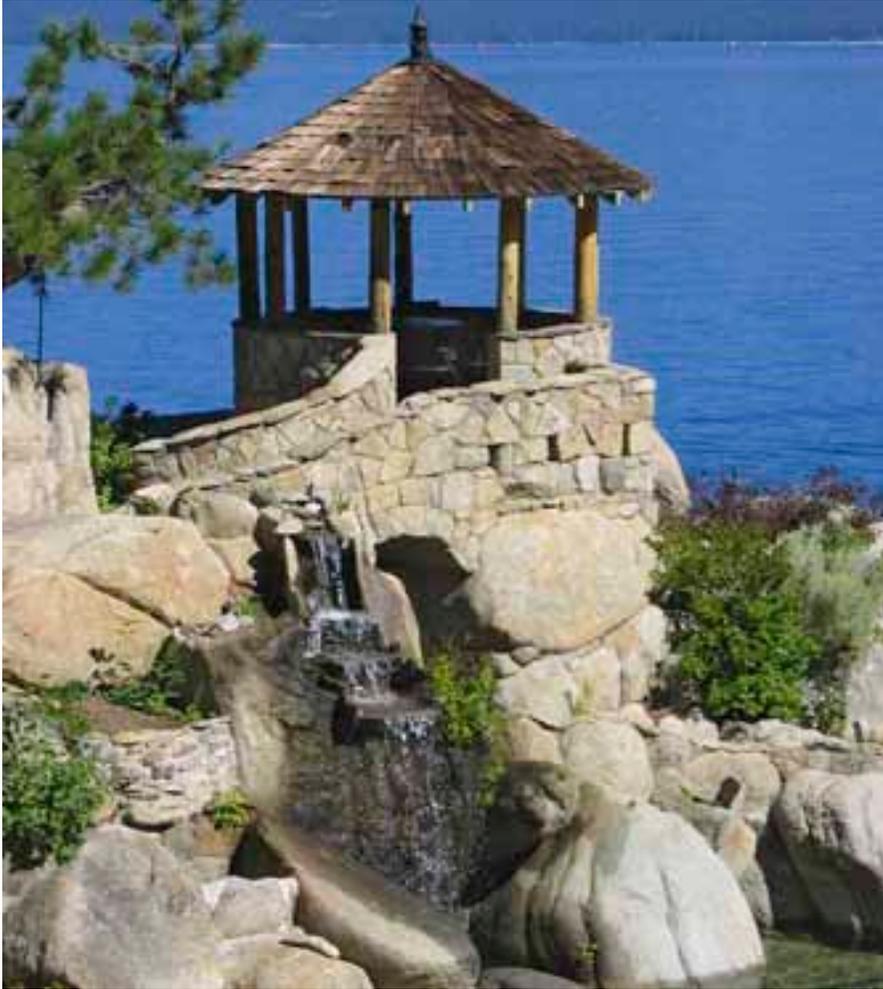
TRPA Roadway Design Standards and Guidelines

- Identifies standards to create visually attractive roadways.
- Emphasizes importance of good design and sensitivity to surrounding environment.
- Addresses elements such as barrier rails, signage, and drainage elements.

National Park Quality

- Describes the standards to design roadways that blend in with the natural landscape.
- Promotes the use of flexibility in planning and design to meet unique natural and cultural resource needs.
- Notes that all design elements must be considered as a whole system (landscaping, signs, lighting, guardrails, shoulder design, curbing, ramps, etc.).
- Supports separated shared-use paths.
- States the choice of guardrail materials and design should be sensitive to the setting as well as recognizing snow-removal methods.
- Allows safety barriers that include stone-faced concrete-core walls, steel-backed timber guardrails, w-beams of galvanized or Corten steel, and simulated stone.

The CMP recommends implementation of the NDOT Landscape & Aesthetics Corridor Plan and TRPA Guidelines to achieve a National Park quality. Additional aesthetic treatments for Corridor elements such as barrier rails, viewpoints, gateways, and visitor centers are described. Flexibility to the rigid application of technical standards should be sought out among the Plan Partners to implement design alternatives. In addition to the NDOT Landscape & Aesthetics Corridor Plan refer to Chapter 7 for aesthetic rock cut alternatives.



Stone walls should be reminiscent of stone used historically around the Basin.



Historic elements can be used as design inspiration for Corridor materials.

Material Selection:

- Stone
- Heavy timbers or material with a heavy timber look
- Consistent material palette that reinforces the “Tahoe” character
- Materials reminiscent of historic elements such as the Heller Estate, logging flumes, and Washoan elements
- Large boulders
- Granite

Guard Rails:

- Use metal-backed timber (or material with the look of timber) rails where feasible.
- Acid-wash metal features to reduce glare and visibility from Lake Tahoe.
- Avoid bright and shiny guardrails
- Use form, color, texture, and visual permeability to help define the travel Corridor but not dominate the setting.
- Consider materials with the look of rough sawn wood, stone, and weathering steel such as corten.
- Provide visual permeability as practical.



Metal-backed timber guardrail used at Bowers Mansion.



Metal-backed timber guardrail used at Bowers Mansion.



Metal-backed timber guardrail with rock pillars.



Metal-backed timber guardrail used along the Merritt Parkway, a national scenic byway in Connecticut.



Concrete, patterned barrier rail along U.S. 50 Echo Summit.



Historical barrier rail used as a design standard for new concrete rails.

Barrier Rails:

- Stain and pattern concrete barriers.
- Use color variation and patterning to simulate historic walls around the Tahoe Basin.
- Utilize a consistent barrier rail throughout the Corridor.
- Coordinate barrier rail design with Caltrans to develop a consistent rail throughout the Tahoe Basin.

Barrier Rails (cont.):

- Use form, color, texture, and visual permeability to help define the travel Corridor but not dominate the setting.
- Use flat earth tones of tan, brown, and grays.



Historical barrier rail along SR 89, Emerald Bay.



Patterned, concrete barrier rail at Cave Rock along U.S. 50.

Parking Barriers:

- Use wood (or material that looks like wood) bollards for short sections to prevent shoulder parking in highly impacted areas.
- Remove bollards where possible as no shoulder parking becomes more accepted within the Corridor.



Wood bollards used to prevent shoulder parking in unauthorized areas.



Railing in Tahoe City.



Railing at Memorial Point viewpoint.



Timber railing.

Safety Railings:

- Use wood (or material that looks like wood) and metal picket fencing.
- Maximize views of Lake Tahoe and surrounding landscape – use interior railings and cables that do not block views.
- Incorporate railings with stone walls and adjacent landscape features.

Retaining Walls:

- Use granite and stone-faced walls where appropriate.
- Stone should be similar to that used for built features elsewhere along the Corridor.
- Large retaining walls may utilize concrete, shaped and stained to simulate natural rock cuts (similar to wall at Gonowabie Road near Crystal Bay).
- Use timber retaining walls (or material that looks like heavy timbers) only in locations not highly visible from pedestrians and from Lake Tahoe.
- Minimize long stretches of walls which are visible from Lake Tahoe.



Retaining walls in highly visible locations such as parking lots and viewpoints may need a higher level of detail than those used in less visible areas.



Image courtesy Wood Rodgers

Soil nail wall with concrete finish simulates a natural rock outcropping and was used for an erosion control project on Gonowabie Road in Incline Village.



Stacked rock walls may be appropriate to retain some slopes.



Glenwood Canyon on I-70 features a separated shared-use path similar to what would be appropriate for the east shore area.



Glenwood Canyon uses a separated shared-use path to connect nodes of parking for recreation access.

Separated Shared-Use Path:

- Incorporate the Stateline-to-Stateline Bikeway into the Corridor.
- Connect trailheads with the path system.
- Highlight the national significance of the Corridor with a premiere trail system.
- Provide for safe bike and pedestrian use along the highly scenic Corridor.
- Provide bicycle racks at appropriate locations to support use of the Bikeway.

Gateways:

- Incorporate large boulders and/or granite outcroppings or other granite materials.
- Consider the use of rough hewn timbers.
- Coordinate stone with materials used for Corridor walls.
- Incorporate the message “America’s Most Beautiful Drive”.
- Locate at Corridor entries in locations feasible for motorists to safely pull-off the highway and take photographs.



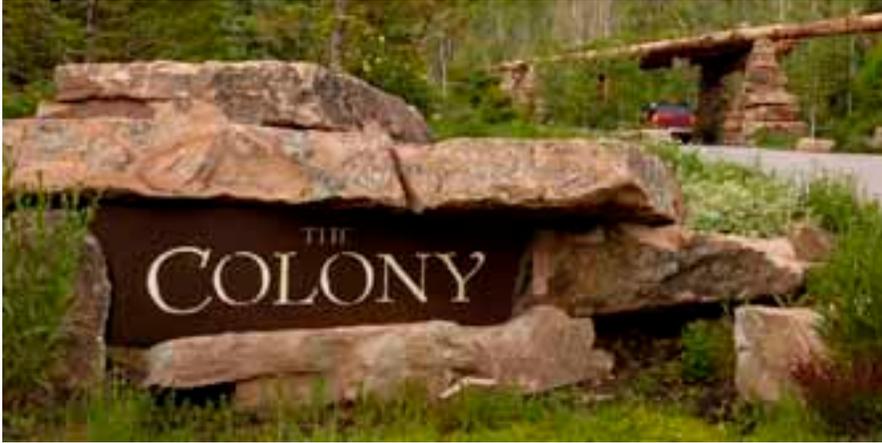
Conceptual illustration of potential gateway entry sign. (Actual design to be further developed.)



Conceptual illustration of potential viewpoint incorporating a logo element. (Actual design to be further developed.)



Gateways should use stone and wood appropriate to the Tahoe area.



Large boulders and stone could be used as design elements.



Signage should appear welcoming.



Monument signs should visually "fit" within the greater landscape.

Gateways (cont):

- Develop Corridor icon/logo.
- Incorporate icon/logo as part of gateway and other Corridor elements.
- Reinforce a Corridor brand or image with the gateway.
- Design gateway to fit into the overall landscape view and be appropriate for the surrounding setting.



Conceptual illustration of potential viewpoint overlooking Thunderbird Lodge. (Actual design may vary.)

Viewpoints:

- Identify viewpoints with signage.
- Utilize a consistent wall design.
- Incorporate viewing areas.
- Separate parking area from travel lane where feasible.
- Provide a sidewalk or designated trail to viewing areas.
- Consider angled parking where space allows.
- Incorporate Corridor logo/branding.
- Sign and enforce as temporary parking, vehicles must not be left unattended.



Conceptual illustration of potential viewpoint north of Thunderbird Lodge. (Actual design may vary.)



Signage and railings incorporated into viewpoint.



Seating incorporated into viewpoint.

Viewpoints:

- Provide seating where feasible.
- Inform motorists of other available viewpoints along the Corridor to reduce traffic congestion at any one turnout.
- Site viewpoints to maximize views, provide safe turnouts, and correspond with existing photo-opportunity sites.
- Provide bicycle racks.



Conceptual illustration of viewpoint along proposed Bikeway. (Actual design may vary.)

Visitor Center:

- Coordinate with park-n-ride and transit where feasible.
- Create joint-use facility to serve State Park and USFS uses.
- Incorporate trails, interpretive signage, seating, and visitor amenities to serve both transit users and other interested motorists/visitors.
- Incorporate boat inspection/washing facilities.
- Establish a welcoming entry presence to the Corridor and the Tahoe Basin.
- Maintain Tahoe-style architecture with wood (or materials that look like wood) and stone materials.
- Provide bicycle racks.



Existing visitor center at Sand Harbor.

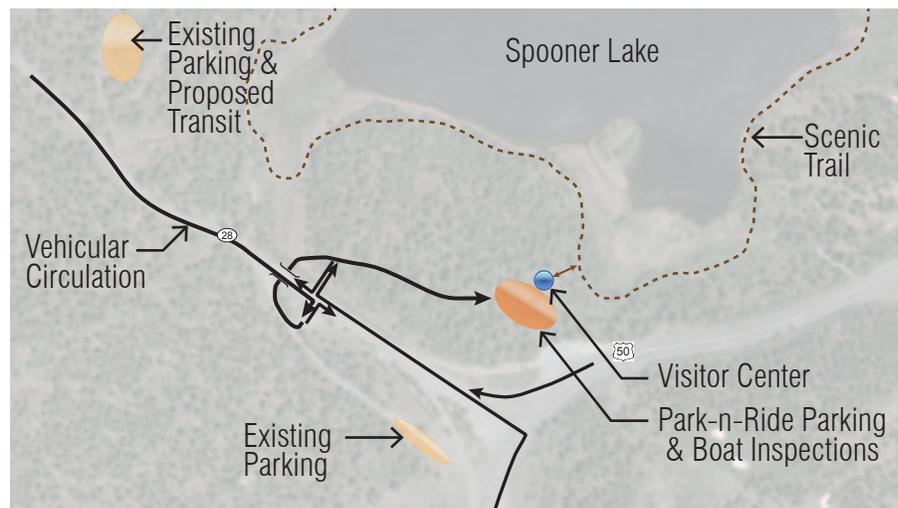


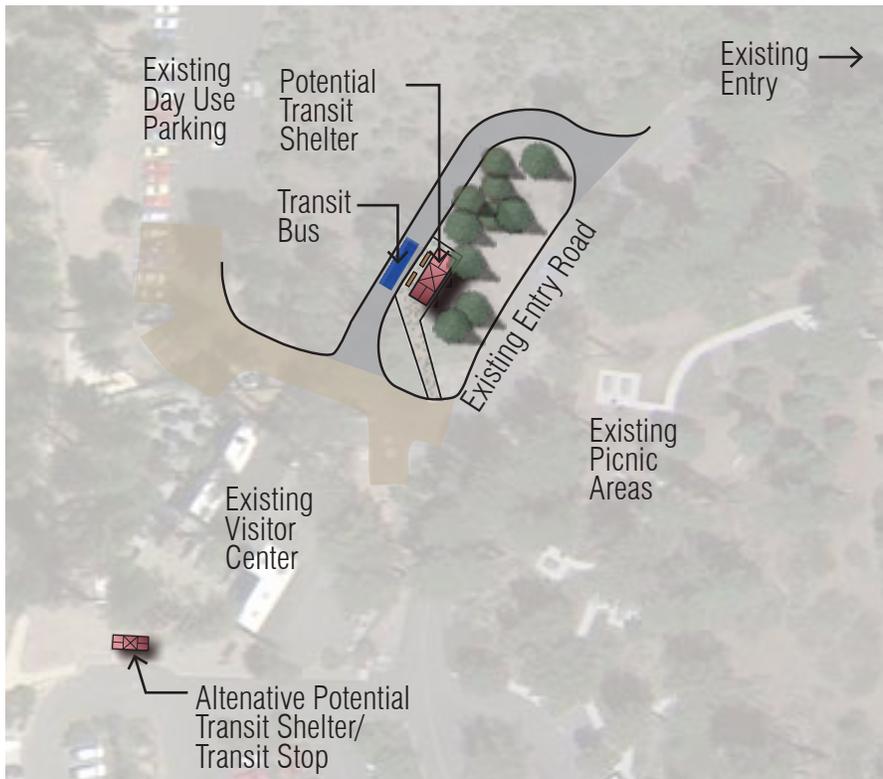
Diagram and potential circulation for a potential Visitor Center at Spooner Lake. Locating a Visitor Center in the Spooner Lake area could also provide a site for the aquatic invasive species inspection area.



Existing visitor center in Incline Village.



Conceptual illustration of a transit turnout along the east shore. (Actual design to be developed.)



Conceptual diagram of options for formalized transit stop at Sand Harbor. (Actual design to be developed and final location may vary depending on site constraints.)

Transit Stops:

- Connect transit stops with recreation destinations via trails, crosswalks, and sidewalks as appropriate.
- Create turnouts with designated pedestrian crossings for northbound and southbound stops adjacent SR 28.
- If included as part of a parking area, separate transit stop areas from other vehicular circulation in off-highway parking areas.
- Provide covered transit stops within Incline Village and Crystal Bay.
- Create a more formal transit stop for Sand Harbor.

Interpretive Signage:

- Coordinate with Bikeway signage.
- Utilize consistent signage.
- Highlight historical, environmental and cultural elements.
- Consider the following topics:
 - Logging History
 - Native American
 - Lake Tahoe
 - Water Clarity & Water Quality
 - Plants & Wildlife
 - Flumes & Pipelines
 - Railroad
 - Historic Architecture
 - Thunderbird Lodge
 - Historic Figures
 - Mark Twain
 - Boats/Steamers
- Consider using Washoe Tribe place names for beaches, features, and interpretive signs along the east shore.



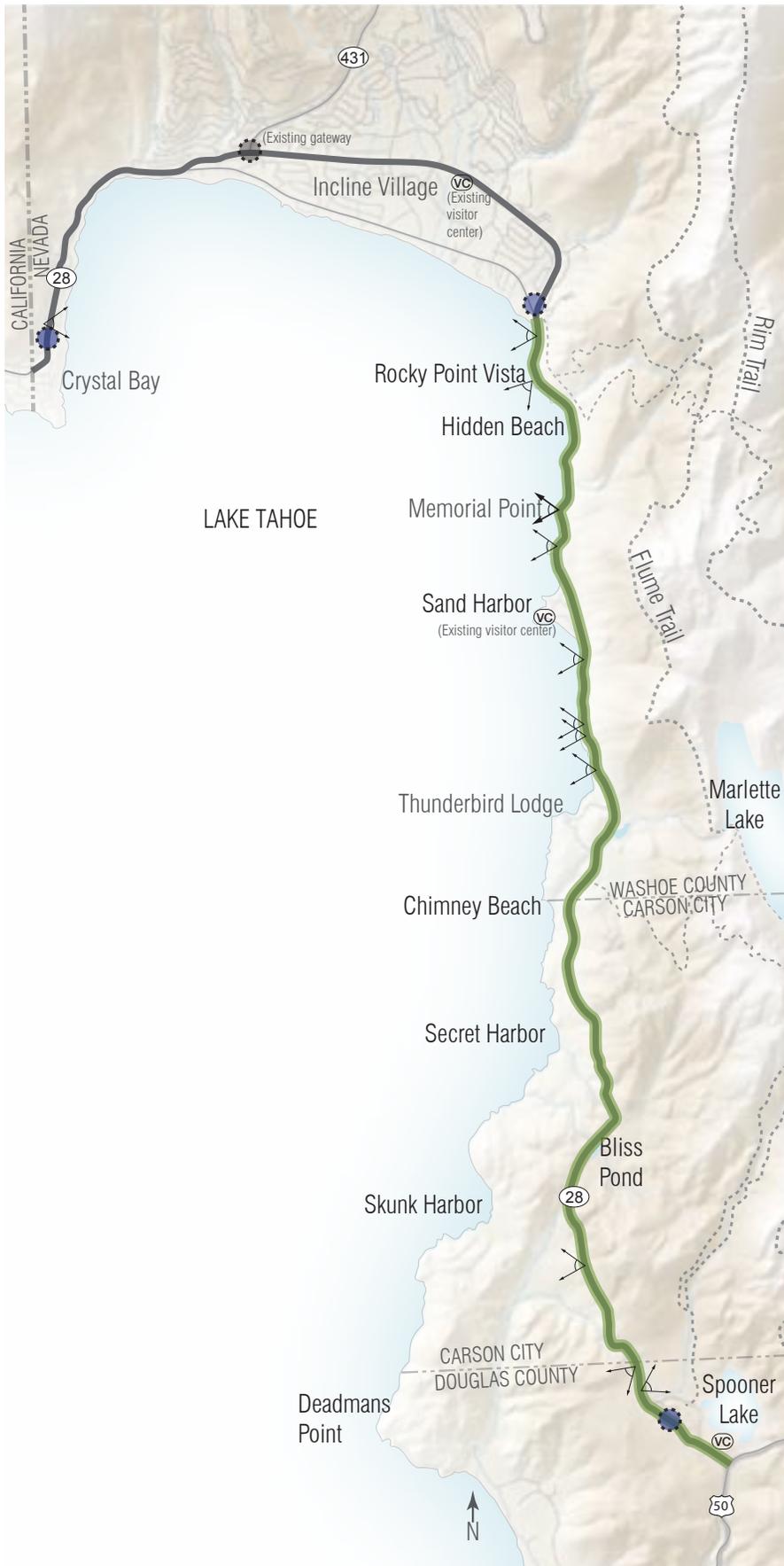
Interpretive signage is proposed as part of the Bikeway project. Corridor signage should correlate with the Bikeway signage.



Logging is part of Corridor history.



Washoan history should be interpreted and use of place names should be considered.



Viewpoints, gateways, and scenic improvements addressing signage, railings, and rock cuts can all add to an enhanced user experience. Turnouts can provide short term parking opportunities for picture taking and interpretation.

LEGEND

- New Corridor Gateway Signs
- Existing Corridor Gateways Signs
- New Visitor Center (existing visitor centers are noted)
- New Photo-Opportunity Turnout (vehicles must not be left unattended)
- Existing viewpoint (Memorial Point)
- Roadway Aesthetic Improvements:
 - Simplified signage
 - Use of wood & stone
 - Address large rock cut scars
 - Aesthetic railings
 - Recognize Corridor history, culture & use through messaging

Recommended User Experience Enhancements

Corridor Parking Visitor Amenities:

- Incorporate interpretive signage.
- Provide bicycle racks.
- Provide restroom facilities where appropriate.
- Provide animal-proof trash receptacles.
- Provide user management information for resource protection & appropriate user behavior.



Restroom facilities provided at trailheads where appropriate and can be maintained.



User signage.



Trailheads provide interpretive signage opportunities.



Trail connections are needed from trailheads to recreation areas.



Signage and fencing can reinforce appropriate trail use.



Bollards direct user movement to improve the success of restoration efforts.

Trail Connections/ Restoration

- Clearly designate trail system from trailheads to recreation sites.
- Restore unauthorized trails associated with shoulder parking.
- Utilize temporary and permanent barriers as needed to direct user movement.
- Incorporate signage to reinforce appropriate trail and resource use.

Wayfinding Signage:

- Provide consistent signage.
- Inform users of appropriate trail usage.
- Incorporate information regarding type of recreation experience (e.g. developed, semi-primitive) and length and type of trail access at park-n-ride locations and trailheads to allow informed user choices.
- Inform users of locations and capacity of trailhead parking and available beach access.
- Paint the back of road signs, including posts and mounting hardware per TRPA guidelines to blend with the environment. Use Federal Standard 595 Color FS 30059.



Trail signage to USFS beaches.



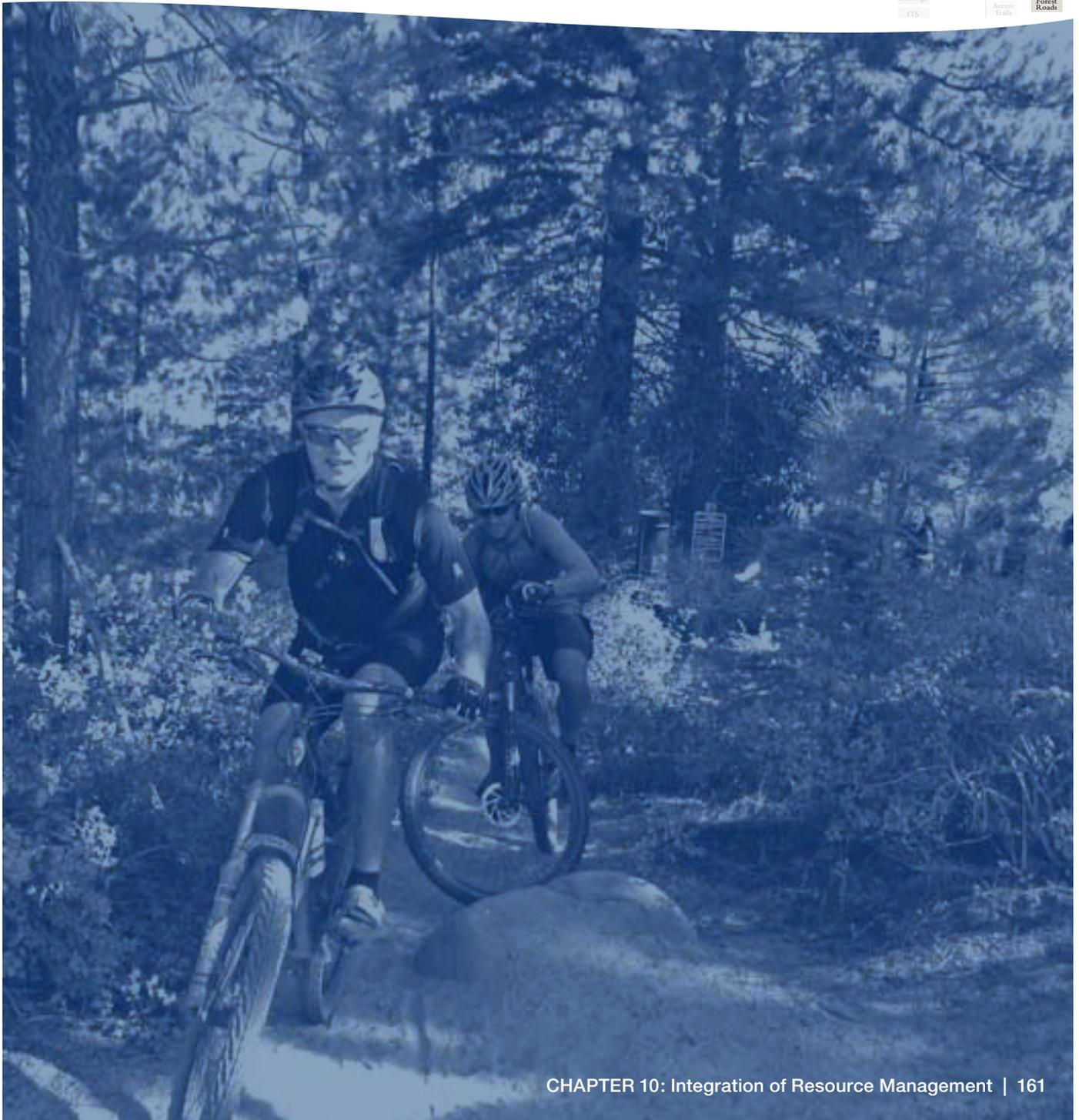
Trail signage provides wayfinding as well as a user management message.



TRPA Roadway Guidelines call for painting the back of signage brown to reduce visual distractions.

10

INTEGRATION OF RESOURCE MANAGEMENT RECOMMENDATIONS





Management agencies must meet their individual goals and needs for area natural resources. Coordination of the management strategies may offer previously unseen benefits as well as avoiding unintended effects.

Integration of Resource Management

Objective: Protect the environment while establishing and maintaining partnerships

Strategies

- Maintain a regular Plan Partners meeting schedule.
- Notify Plan Partners of upcoming projects.
- Coordinate resource management efforts with CMP goals and recommended projects.
- Allow for authorized vehicle use at turnouts and wide shoulder areas for emergencies and resource work.

Indicators of Success

- Implement 100% of NDOT EIP projects.
- Restore and maintain closure of 4 miles of unauthorized trails along the east shore.
- Plan partners meet at least twice annually to coordinate and identify short- and long-term projects.
- Co-locate the IVGID export line with the Stateline-to-Stateline Bikeway where appropriate.

See Monitoring Program Tracking Sheet (Appendix C for complete list)

Current Resource Management Documents

Following is an initial list of resource management documents and a summary of particular elements that relate to, are consistent with, or may have influence on the Corridor. The list is not inclusive, but it is meant to represent the type of documents Plan Partners should reference when planning Corridor projects.

Tahoe Metropolitan Planning Organization (TMPO) Regional Transportation Plan (RTP): Mobility 2035

The Regional Transportation Plan (RTP) is the transportation element of the Lake Tahoe Regional Plan and its update was approved by the TRPA Governing Board and Tahoe Metropolitan Planning Organization Governing Board on December 12, 2012. The environmental review process for the RTP addressed the general impacts of a long-range transportation plan and future transportation projects. CMP recommendations are consistent with the RTP.

- Provides a blueprint for a regional transportation system and guides transportation improvements.
- Includes objectives for reducing reliance on the private automobile and investing in multi-modal facilities.
- Emphasizes coordinating projects and funding to transform Corridors into complete streets.
- Identifies the following Corridor projects:
 - Nevada Stateline-to-Stateline Bikeway
 - NDOT water quality improvements
 - East Shore Express from Incline Village to U.S. 50/SR 28 intersection
 - Parking management strategies

TRPA Regional Plan, 2012

- Provides an update to the 1987 Regional plan with a focus on restoration of sensitive lands and environmental improvement projects to repair past damage and promote community through goals and policies, codes and ordinances, land use, and area plans.
- Key Related Elements:
 - Emphasizes implementation of Environmental Improvement Program to achieve erosion control on roadways and restore forests and wetlands.
 - Prioritizes increasing alternative transportation options.
 - Integrates with the RTP to support sidewalk and bike trail projects.
 - Creates coverage exemptions for bike trails.

Coordinate management strategies for forest health, cultural, & historical resources, biological resources, backcountry trails, forest roads, and watershed level restoration efforts. Identify joint benefits that may be realized by coordinating projects.





TRPA Regional Plan (cont.)

- Key Related Goals & Policies
 - Provide public access to scenic views.
 - Coordinate a multi-agency effort to prioritize and fund water quality improvement projects through the environmental improvement program.
 - Promote transportation enhancements that increase the viability of transit systems.
 - Construct, upgrade, and maintain pedestrian and bicycle facilities.
 - Implement new technology to increase the efficiency and effectiveness of the transportation network and promote usage of alternative transportation.
 - Provide transit to major summer recreational areas.
 - Strengthen transportation options into and out of the Lake Tahoe region.
 - Encourage the development of parking management strategies. Encourage programs that provide incentives to fund improvements benefiting transit users, pedestrians, and bicyclists. Encourage strategies tailored to the needs of each specific location and promote pedestrian and transit use.
 - Incorporate transit stops and bicycle and pedestrian facilities in roadway improvement projects.
 - Use transportation system management measures to improve the existing transportation system.
 - Preserve existing viewpoint turnouts along scenic highways to maintain traffic flow and safety.
 - Integrate transportation improvement programs into the environmental improvement program.
 - Engage in collaborative and cooperative planning efforts – leveraging resources and executing transportation improvements.
 - Scenic viewpoints from roadways should be identified and pull-off facilities provided on public property, wherever desirable.
 - Signs should be placed along the roadways, as appropriate, to identify photo sites and scenic turnouts.
 - Time limits for parking at roadside turnouts should be established.
 - Provide low density recreational experience along undeveloped shorelines such as the USFS beaches along the east shore. Access can be increased by providing or utilizing transportation systems such as buses, shuttles, and parking and pull-out facilities which link to trail systems along the publicly owned portions of the shoreline.
 - Bike trails should be expanded to provide an alternative for travel in conjunction with transportation systems.
 - Parking along scenic corridors shall be restricted to protect roadway views and roadside vegetation.
 - Transit operations, including shuttle-type boat service, should serve major recreation facilities and attractions.

TRPA Code of Ordinances, 2013

- Includes regulations required to implement the polices set forth in the Goals and Policies of the Regional Plan.
- The code is divided into 9 divisions; general provisions, planning, land use, site development, growth management, resource management and protection, and shore zones.
- Key Related Changes
 - Non-motorized public trails codified as exempt from coverage calculations.
 - Facility maintenance plans required for bicycle and pedestrian improvements.
 - Goshawk disturbance zones redefined to be 500 acres of best suitable habitat, including 1/4-mile radius.
 - A portion of air quality mitigation funds may be used across jurisdiction boundaries for regional priorities.
 - Sidewalks and trail easement requirements established for bicycle and pedestrian facilities on certain sites.
- Key Chapters
 - Chapter 15: Environmental Improvement Program
 - Chapter 34: Driveway and Parking Standards
 - Chapter 60: Water Quality
 - Chapter 62: Wildlife Resources
 - Chapter 66: Scenic Quality
 - Chapter 30: Land Coverage
 - Chapter 38: Signs
 - Chapter 61: Vegetation & Forest Health
 - Chapter 65: Air Quality and Transportation
 - Shorezone Requirements

TMPO Lake Tahoe Bicycle and Pedestrian Plan 2010

- Presents a guide for planning, constructing, and maintaining a regional bicycle and pedestrian network and support facilities and programs.
- Includes prioritized project lists for the bicycle and pedestrian network.
- Lays out policies for local governing bodies and transportation agencies.
- Identifies potential funding sources and specifies preferred designs to encourage consistency and safety.
- Key Goals:
 - Complete a bicycle and pedestrian network that provides convenient access to Basin destinations and destinations outside the Basin.
 - Provide environmental, economic, and social benefits to the Region through increased bicycling and walking.
- Identifies the following as proposed Corridor facilities:
 - Stateline-to-Stateline Bikeway (along the east shore from Incline Village to U.S. 50 and from Crystal Bay to Incline Village)
 - Lake Tahoe Scenic Bike Loop (bike lane meeting AASHTO standards)
 - Bike lane improvements in and around Incline Village
 - Shared-use path improvements in and around Incline Village
 - Pedestrian/sidewalk improvements in and around Incline Village



TRPA Environmental Thresholds

- The threshold evaluation is completed every five years to measure carrying capacity targets to be achieved set forth by the Lake Tahoe Regional Plan. The nine thresholds studied are: water quality, air quality, scenic resources, soil conservation, fish habitat, vegetation, wildlife habitat, noise, and recreation.
- Monitoring and surveys completed as part of the Threshold report may be used to support monitoring efforts of the Corridor.

TRPA Environmental Improvement Program

- Identifies projects designed to achieve and maintain environmental thresholds.
- Corridor projects included in the current 5-year priority list:
 - SR 28 Corridor Management Plan/Project
 - Stateline-to-Stateline Bikeway
 - Incline Village pedestrian and bicycle path
 - Scenic corridor viewpoint turnouts
 - NDOT erosion control projects along the east shore
 - USFS east shore trail management and restoration
 - USFS east shore beaches parking improvements
 - Chimney Beach parking retrofit and construction
 - Secret Harbor parking retrofit and construction
 - East shore access erosion assessment
 - Interpretive and educational programs/signage
 - Scenic improvements to Sand Harbor maintenance yard
 - Scenic improvements to SR 28 rock revetments and guardrails
 - Utility undergrounding along the Corridor
 - Standardized Basin-wide recreational survey
 - Infrastructure capacity and recreation needs analysis
 - Tools for recreation capacity targets and limits



TRPA Regional Recreation Plan

- Balances the demands for utilization and preservation of the region's resources and provides a sustainable vision for personnel and budget for resource planning, management, and maintenance.
- Defines potential capacity target for beaches.
- Provides existing recreational facility analysis, considerations, proposed opportunity and constraints, and recommendations in defined planning areas including Mt. Rose Wilderness, Incline Village, and the east shore.

USFS Draft Forest Plan and EIS 2012

- Revision to the 1988 Land and Resource Management Plan (Forest Plan) of 154,000 Acres of National Forest Service land over 15 years.
- Relevant Program Strategies, Objectives and Guidelines:
 - Reduce roadside parking in areas of high density use and provide for managed parking. Prioritize transit or alternatives to the private automobile where parking capacity is reduced.
 - Install barriers and/or signs to prevent roadside parking wherever necessary to protect the public and natural resources.
 - Consider developed site design capacity and management capabilities when evaluating access.
 - Within 10 years, develop an interpretive signage program on the East Shore National Scenic Byway in cooperation with the Nevada Department of Transportation.
 - Engage potential public/private partners to identify need and locations for joint visitor information facilities and services at major Lake Tahoe Basin entry points for the life of the plan.
 - Provide visitor information facilities and services at major entry points and areas of concentrated use using public/private partnership. Assist in orienting visitors to an area's special features, recreation opportunities, regulations, and services. Develop messages to forge emotional and intellectual connections between the interests of visitors and the meanings inherent in the resource.
 - Nominate for listing to the National Register of Historic Places - the Comstock Historic Logging District, Angora Lookout, Cave Rock, Hawley Grade, Camp Richardson Resort, Meiss Cabin and Barn, and Skunk Harbor on the National Register of Historic Places during the Plan period.
 - Maintain and enhance public access opportunities to Lake Tahoe shorelines and USFS lands.
 - Create outstanding recreation opportunities through innovative sustainable facility design.
 - Modify developed recreation facilities where appropriate to meet changing user demands.
 - Improve recreation activity on public lands by retrofitting existing recreation sites, converting existing sites to compatible uses, or expanding recreation sites or permit boundaries.
 - Improve circulation and reduce congestion through capital investments.
 - Complete LTBMU National Visitor Use Monitoring every 5 years and review for trends and visitor satisfaction.



USFS Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy, 2007

- Includes strategic decisions that must be made by land management, fire, and regulatory agencies to reduce the probability of a catastrophic fire event. Suggested treatments for 208,800 acres of forested land in the Lake Tahoe Basin including fuel reduction treatments, defensible interfaces, cost and schedules, potential, and risks.
- Identifies treatment areas along SR 28 and upland areas.
- Document is listed to reinforce importance of collaboration and coordination. Treatments within the Corridor should be coordinated to understand impacts to and potential opportunities for recreation access and facilities.

East Shore Beaches Trail Access and Travel Management Plan Douglas, Carson City, and Washoe Counties, Nevada, USDA Forest Service Pacific Southwest Region Lake Tahoe Basin Management Unit, August 2008

- Addresses the need to develop an integrated and efficient system of trails and access points to meet user needs while better protecting the East Shore Beach Area's environment. The current trail system includes a high number of user created trails which are eroding and contributing to sediment into Lake Tahoe.
- Describes trails to be created, adjusted, rebuilt, realigned, and/or decommissioned. All motorized traffic, except for emergency and service use, are prohibited.
- A majority of the recommendations have been implemented. Continued coordination for trail and access management should occur in correlation with relocation of shoulder parking and off-highway parking improvements.

Lake Tahoe Nevada State Park General Management Plan, 1990

- Includes the basic principles for the use, preservation, and operation of Lake Tahoe-Nevada State Park including the history, existing resources and conditions, site analysis, and revised development programs.
- Recommendations that have not yet been implemented:
 - Provide outdoor ice-skating rink by flooding group use parking area in winter at Sand Harbor.
 - Consider campground opportunities in upland areas (may require coordination with USFS.)
 - Develop a Visitor Interpretive Center at the junction of US 50 and SR 28 as a joint-use facility with USFS.
 - Develop a series of parking nodes off Highway 28 with trailheads to beaches and waterfront areas – Marlette Creek with 20 vehicles, USFS Secret Harbor access with 50 vehicles, and Tunnel Creek Trailhead. Reduce or eliminate roadside parking accordingly.
 - Provide small observation platforms at Memorial Point.
 - Create a treated surface bike trail between Incline Village and U.S. 50.
 - Consider providing sanitary facility services to Skunk Harbor under an operations agreement with USFS.



Lake Tahoe Nevada State Park Sand Harbor Recreational Capacity Study, December 2011

- Determines the level of recreation activity that can be sustained at the Sand Harbor Unit of LTNSP during the peak summer season based on existing data, on-site visitor surveys, and on-site assessments.
- Describes method for calculating desired density of beach users to inform desired visitor use levels.
- Evaluates capacity based on physical/spatial, facility, ecological, and social indicators. Conclusions state that in general, capacity was exceeding or approaching desired levels.
- Key Transportation-related Recommendations:
 - Continue permanent Nevada Highway Patrol along SR 28.
 - Extend vehicle storage capacity on SR 28 through temporary measures (signing and lane delineation). During peak summer visitation shift thru-traffic into the center two-way left-turn lane to use the travel lane for additional vehicle storage adjacent to Sand Harbor.
 - Change park ingress at the main entrance to two lanes inbound (reverse flow) from the time of daily opening to park closure during peak summer visitation. Provide two fee stations, one temporary, and collect walk-in fees at the south entrance.
 - As an alternative or in addition to the reverse flow operation described above, consider temporarily moving the existing main entrance fee station farther west, closer to the Main Beach, to double the number of vehicles that can be in the queue within the park.
 - Improve access and circulation in the boat launch area through a redesign of drive aisles to better accommodate trailer turning movements.
 - Consider collecting parking payment upon exit instead of upon entry.
 - Consider implementing "Park and Display" parking.
 - Erect "Cash/Check Only" and "No Buses or RVs" signs near the entrances along SR 28 to prevent unnecessary U-turns within the park.
 - Explore using NDOT changeable message signs at SR 431 and U.S. 50 and Highway Advisory Radio to provide advanced warning regarding park entrance closure, conditions on SR 28, or prohibition of tour buses and RVs at Sand Harbor.
 - Evaluate the current policy of maintaining park entrance closure until 3PM.
 - Identify and evaluate the feasibility of a shuttle service from remote parking lots.
 - Actively participate in the planning and development of the Bikeway proposed built on State Park lands. Ensure that the planning and development of the trail are in sync with the capacity issues within the park.
 - Continue parking enforcement along SR 28 to provide available shoulder width to cyclists and pedestrians.
 - Install bike racks near the Visitor Center and increase capacity commensurate with demand.
 - Collaborate with NDOT on the potential addition of pedestrian warning signs along SR 28 to alert motorists of pedestrian traffic adjacent to travel lanes and crossing the highway.
 - Continue to evaluate the feasibility of regional transit providers implementing a transit stop at Sand Harbor.
 - Work collaboratively with other agencies on SR 28 initiatives to ensure that capacity and transportation issues are properly addressed.





Washoe County Master Plan, 2010

- Outlines the existing growth patterns and provides a plan for growth that recognizes conservation areas, land use and transportation, and current and future facilities to act as a guide for the southwest portion of Washoe County.
- Key Goals and Policies
 - Create a cohesive interconnected trail network.
 - Encourage development of separated, shared-use paths.
 - Establish a high-quality pedestrian-oriented street environment.

Carson City Master Plan, April 6, 2006

- Advisory document that outlines the County of Carson City's vision and goals for the future and provides direction in making choices for the long-range needs of the community.
- Currently does not have any major applicable goals or policies related to the Corridor.

Douglas County Master Plan, 2011, Amended through October 2012

- Provides long-term guidance on the development of the county.
- Refers to TRPA plans and documents for the Corridor.
- Refers to the Douglas County Trails Plan which lists a high-priority on-street bike facility along SR 28.
- States continued participation in efforts to complete the Stateline-to-Stateline Bikeway.
- Supports continued planning and implementation of the transit system at Lake Tahoe.

TRPA Area Plans (Area Statements and Community Plans)

- Area plans (formerly community plans) are created by local governments, community members, and stakeholders that work toward regional goals on a smaller scale at the local level.
- Many area plans/community plans may be updated over the next few years. Current Community Plans associated with the Corridor include the North Stateline Community Plan, Incline Village Tourist Community Plan, Incline Village Commercial Community Plan and Ponderosa Ranch Commercial Community Plan.
- Washoe County is currently updating their Tahoe Area Plan. The revised plan will consolidate all Plan Area Statements and the four Community Plans below.

North Stateline Community Plan, April 1996

- The community plan is a development guide for Crystal Bay addressing physical design, commercial growth, housing, transit, traffic circulation, environment, recreation, and public services.
- Key Goals and Policies Related to the SR 28 CMP
 - Connect existing and future uses with a pedestrian path system. Create a pedestrian-friendly environment.
 - Improve transit service and increase transit use.
 - Establish a Reno-North Tahoe Transit service
 - Establish a visitor shuttle (between Crystal Bay and winter and summer recreation areas and to Incline Village).
 - Expand bicycle paths. Locate lanes along SR 28.
 - Consider providing shuttle service for visitors to public beaches such as Sand Harbor State Park.
 - Underground utility lines and poles along SR 28.

Incline Village Tourist Community Plan, April 1996

- The community plan is a development guide for the area of Incline Village between SR 28 and the shoreline of Lake Tahoe. It addresses physical design, commercial growth, housing, transit, traffic circulation, environment, recreation, and public services.
- Key Goals and Policies Related to the SR 28 CMP
 - Underground utility lines along SR 28.
 - Reduce ease of private automobile use.
 - Limit expansion of parking facilities.
 - Improve and increase transit service and use.
 - Develop a shuttle between Incline Village and Crystal Bay.
 - Establish a Reno-North Tahoe transit service.
 - Encourage the expansion of bicycle trails. Develop a separated, shared-use path along Country Club Boulevard from Lakeshore Boulevard to Drivers Way.
 - Encourage the expansion of recreational trails to connect major uses in the plan area.
 - Bring signs into compliance with standards.





Incline Village Commercial Community Plan, April 1996

- The community plan area is a development guide for the area of Incline Village generally located between Northwood and Southwood Boulevards and along SR 28. It addresses physical design, commercial growth, housing, transit, traffic circulation, environment, recreation, and public services.
- Key Goals and Policies Related to the SR 28 CMP
 - Underground utility lines along SR 28.
 - Create a public pathway system throughout the plan area.
 - Reduce the use of private automobiles.
 - Improve and increase transit service and use.
 - Establish a Reno-North Tahoe transit service.
 - Develop a shuttle between Incline Village and Crystal Bay.
 - Encourage the expansion of bicycle trails. Develop bike lanes along SR 28.
 - Create a pedestrian friendly environment. Minimize conflicts between pedestrian, bicycles, and automobiles.
 - Develop a pedestrian corridor to connect shopping, restaurant, office, and residential uses to "downtown" Incline Village.
 - Bring signs into compliance with standards.

Ponderosa Ranch Commercial Community Plan, April 1996

- The community plan area is a development guide for the Ponderosa Ranch area and industrial/commercial businesses along SR 28 immediately north of Ponderosa Ranch and the Incline Village General Improvement District maintenance and sewer treatment facilities. It addresses physical design, commercial growth, housing, transit, traffic circulation, environment, recreation, and public services.
- Key Goals and Policies Related to the SR 28 CMP
 - Create a beautiful entry to Incline Village.
 - Improve aesthetics: screening of Ponderosa Ranch parking lot and of warehouse area north of Ponderosa Ranch.
 - Underground utility lines along SR 28.
 - Bring signs into conformance.
 - Increase transit service and use.
 - Establish a Reno-North Tahoe transit service.
 - Develop a shuttle between Incline Village and Crystal Bay with a stop at Ponderosa Ranch.
 - Expand pedestrian facilities. Connect to the pedestrian network in Incline Village.
 - Provide winter shuttle from the Ponderosa Ranch parking lot to Diamond Peak.

Coordinate resource management issues, strategies, and projects from rim to lake.

LEGEND

- Beaches and Access Trails
 - Maintain existing capacity & access
 - Provide facilities based on experience type and capacity needs
 - Manage capacity through technology
 - Create clearly signed trail system
 - Restore user generated trails

- Management Areas
 - Coordinate facilities & integrate resource management across jurisdictional boundaries
 - Manage, maintain, & fund Corridor at a regional level
 - Support public/private partnership opportunities
 - Address shared issues

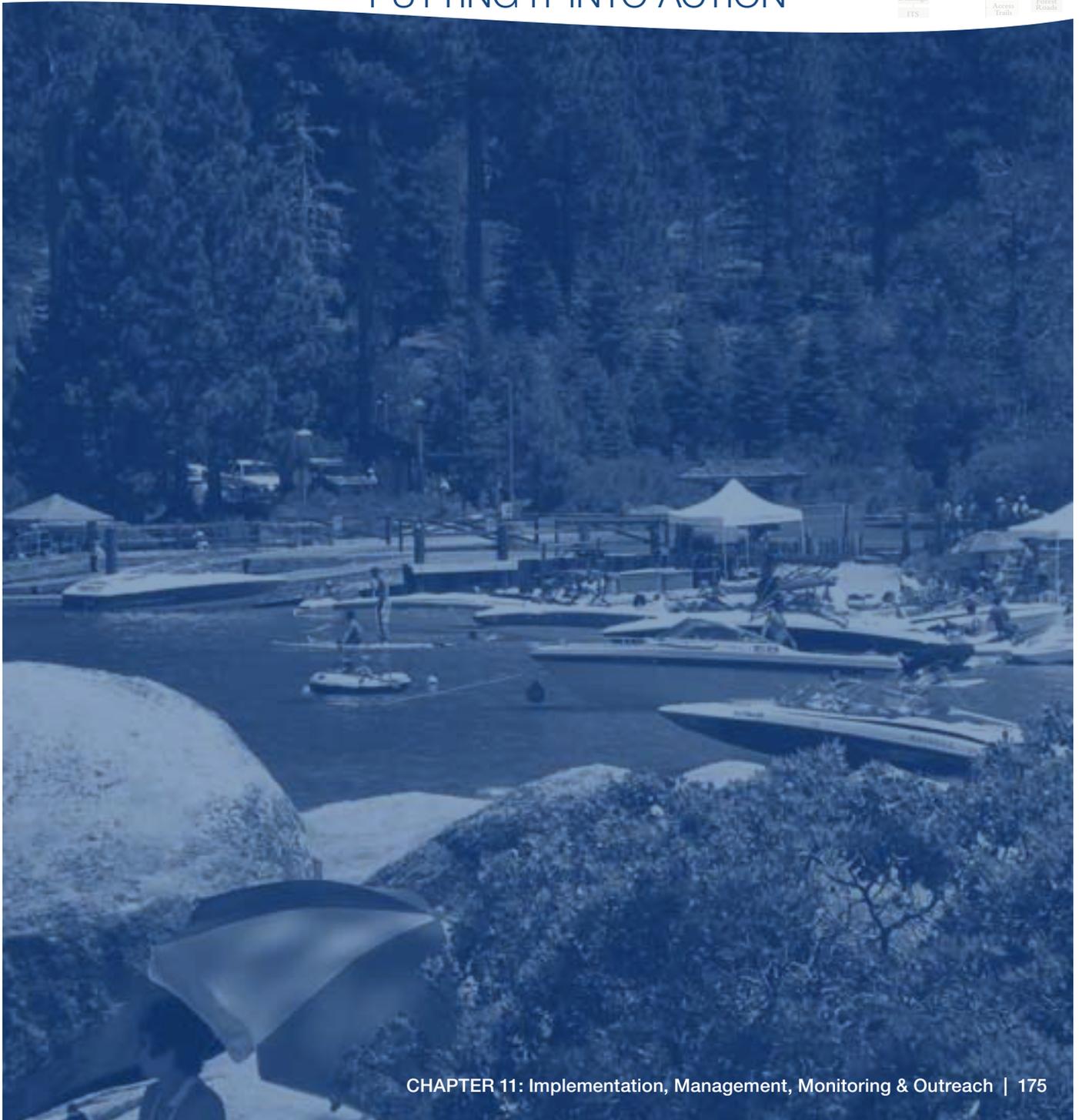
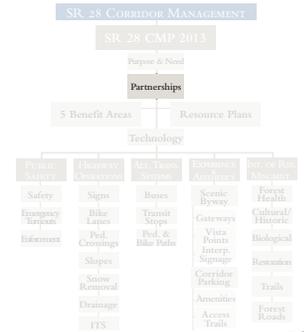
*Recommended
Integration
of Resource
Management*



11

IMPLEMENTATION, MANAGEMENT, MONITORING & OUTREACH

PUTTING IT INTO ACTION





Partnering agencies must continue to work together to create attractive grant funding applications, leverage resources, and create an operating plan that works Corridor-wide.

Implementation and Funding

Managing change for SR 28 requires partnering agencies to continue engaging the community and working together to implement projects, to resolve issues as they arise, and to further develop funding sources.

The primary agencies managing existing facilities along the Corridor – NDOT, State Parks, USFS, Washoe County, and IVGID – have budgetary challenges for existing operations and maintenance. This condition is unlikely to change in the near future. Therefore projects implemented as part of the Corridor Management Plan (CMP) should explore alternative funding sources. Agencies recognize it will not only take a collaborative effort to accomplish many of the projects, but that future infrastructure and maintenance and operation costs also need to be covered.

The Plan Partners evaluated potential costs of annual operations and maintenance of suggested improvements not covered under their existing operating budgets. They looked at the potential to work collectively to provide maintenance and operation tasks within the Corridor. The CMP provides suggestions for potential revenue opportunities but recognizes that implementing funding strategies will at a minimum require approval of the operating agencies and may include legal agreements and legislative changes. Finally, the CMP explores the opportunity to promote long term agency collaboration through a SR 28 management board made up of partnering agency representatives.

Funding Needs

Examples of major projects identified for the Corridor include:

- Nevada Stateline-to-Stateline Bikeway
- Transit pullouts
- Viewpoints
- IVGID co-location
- Trail connections
- Off-highway parking
- Park-n-rides
- Emergency pullouts
- EIP projects

All of these projects need both capital construction funding and long term operations and maintenance funding. Funding can be leveraged by correlating multiple projects.

Strategic Funding

Many plans make the mistake of taking on too much or trying to appeal to too many groups. The CMP narrows the project list into manageable projects defined by segments. It clarifies how one project may be coordinated with another (see Appendix A's "Consider Coordination with Other Projects" column), how agencies might collaborate on multiple projects (see Appendix A), and how to seek grant funding in partnership with one another (see Appendix B).

The project list considers the high volume of visitors, number of shoulder-parked vehicles, vehicle congestion, and persons walking and biking in a particular segment. Over 50% of the Corridor problems are in the Incline Village to Sand Harbor segment. Therefore it has been targeted as a high priority. Implementation of projects such as the East Shore Express pilot project to Sand Harbor illustrate the significant benefits, such as reduced congestion at Sand Harbor's entrance, which can be realized along the rest of the Corridor.

The project list shown on pages 115-119 identifies near term and long term projects as described in Appendix A.

Capital Construction Funding

Federal transportation grants change regularly with the federal budget process. A matrix noting possible funding opportunities for capital construction provides guidance to the partnering agencies and can be found in Appendix B. Partnering agencies should meet annually to determine the priority projects and which grants will be sought for those projects. This collaborative process and support by partnering agencies is often part of the ranking criteria of grants and creates a higher potential for grant success. Noting the Corridor's large partnership that crosses many jurisdictional boundaries and having a management structure in place helps improve grant success.

Appendix A and B identify potential project coordination, partnerships, and funding sources for projects. Over 50% of Corridor problems are in the Incline Village to Sand Harbor segment. It has been targeted as a high priority but the importance of other segments also remain high. Implementation of projects such as the East Shore Express to Sand Harbor demonstrate potential Corridor-wide benefits.

Potential Infrastructure Maintenance and Operating Expenses

The cost to maintain the recommended infrastructure projects estimates maintenance using Washoe County Public Works' unit prices and applies a life span/depreciation factor. A contingency was added to account for additional costs associated with projects in the Tahoe Basin such as stormwater treatment systems. Estimates are conceptual and based on gross square footage of project areas. This is a snap shot in time as costs will change based on factors such as the price of oil and the length of time before actual construction. The projected costs are comparable to existing facilities in the Basin.

The estimated expenses present a general sense of costs and illustrate the need to look at strategies to fund improvements. At this point, designs are conceptual and will likely be modified. Costs should be revised during project design. As the CMP is implemented, projects should ensure they have a funding source for maintenance costs prior to moving forward.

Existing Maintenance and Operation Needs Not Included

This document does not look at existing agency facility maintenance and operation needs. For example, NDOT is scheduled to complete water quality improvements along SR 28 and maintenance will be incorporated into NDOT's existing budget. The CMP also provides for emergency turnouts and viewpoints which are essentially a widening of the existing pavement. Maintenance of these areas is anticipated to be folded into routine highway maintenance.

Table 13: Estimated Additional Maintenance and Operating Expenses Using 2013 Dollars

ESTIMATED ADDITIONAL ANNUAL OPERATING AND INFRASTRUCTURE EXPENSES USING 2013 DOLLARS				
CORRIDOR SEGMENT	INFRASTRUCTURE CAPITAL MAINTENANCE ¹	ROUTINE OPERATING EXPENSES ²	TOTAL ANNUAL INFRASTRUCTURE & MAINTENANCE	ANNUAL TRANSIT OPERATING EXPENSES ³
Incline to Sand Harbor				Incline to Sand Harbor
Bikeway Phase 2	\$28,490.00	\$1,500.00	\$29,990.00	
Flume Trail Trailhead	\$4,387.00	\$660.00	\$5,047.00	
North Corridor A	\$8,216.00	\$660.00	\$8,876.00	
North Corridor B	\$2,368.00	\$510.00	\$2,878.00	
Rocky Point Vista	\$3,724.00	\$510.00	\$4,234.00	
Total Annual Expenses	\$47,185.00	\$3,840.00	\$51,115	\$150,000
Sand Harbor to Bliss Pond				Sand Harbor to U.S. 50
Bikeway Phase 3A	\$26,379.00	\$1,500.00	\$27,879.00	
Thunderbird Cove	\$2,316.00	\$510.00	\$2,826.00	
Chimney Beach	\$8,331.00	\$660.00	\$8,991.00	
Secret Harbor	\$6,844.00	\$660.00	\$7,504.00	
Total Annual Expense	\$43,870.00	\$3,330.00	\$47,200	
Bliss Pond to U.S. 50				
Bikeway Phase 3B	\$35,250.00	\$2,000.00	\$37,250.00	
Skunk Harbor	\$3,374.00	\$510.00	\$3,884.00	
Total Annual Expense	\$38,624.00	\$2,510.00	\$41,134	\$150,000-\$250,000 (depending on level of service)
Full Corridor Expenses			\$139,449	\$300,000-\$400,000

Notes:

¹ Infrastructure maintenance costs include sealing pavement, re-striping, pavement overlays, visitor amenity replacement etc.

² Operating costs include sweeping of pavement twice per year, seasonal labor for litter, and trash pickup etc.

³ Transit costs are general estimates subject to change on an annual basis.

Existing USFS Lots Maintenance and Operations

The USFS requested that the calculations be applied to two existing Corridor parking lots to provide a baseline in the event they enter into Special Use Permits for operation of the two small lots.

Table 14: Estimated Existing USFS Lots Maintenance and Operating Expenses Using 2013 Dollars

ESTIMATED EXISTING USFS LOTS ANNUAL OPERATING AND INFRASTRUCTURE EXPENSES USING 2013 DOLLARS			
EXISTING USFS LOT	INFRASTRUCTURE DEPRECIATION	ROUTINE OPERATING EXPENSES	ANNUAL COST TOTAL
Chimney Beach	\$3,724	\$510	\$4,234
Secret Harbor ¹	\$9,606	\$3,890.00	\$13,496
Total Annual Expenses	\$13,330	\$4,400	\$17,730

Notes:

¹ Does not include Sani-Hut contract.

² Operating expense includes estimated restroom cleaning cost per season.

Potential Revenue Sources

Visitors are often reluctant to pay user fees because they feel the money does not stay with the recreational facility. Partnering agencies must address this issue and engage in discussions with Corridor visitors regarding fees. They must explore opportunities to keep revenue within the Corridor for infrastructure preservation and annual operating costs. It is recognized that using funds across jurisdictions will require, at minimum, legal agreements and may require legislative changes. Although it is not a simple process, it is attainable within a partnership program.

Parking Management

Opportunities for parking management should be explored as a future topic of the Management Team. This includes options for potential revenue generation through paid parking. As more communities install the kiosks, demand increases and costs associated with operating systems should decrease.

Parking management provides an effective tool for managing the Corridor. Its ability to connect with technology and provide real-time information may be beneficial above and beyond potential revenue generation. Looking briefly at parking capacity, occupancy rates, and conservative turnover rates it is estimated that parking kiosks with a flat \$5-\$10 daily parking fee could generate \$188,000 - \$377,000.

It is recommended that a pilot project be conducted at Sand Harbor to evaluate the efficacy of paid parking and a parking kiosk system. Because it is more difficult to add fees a long time after new improvements are made, paid parking should be considered as new and expanded parking areas are developed. Additionally, the impacts of only charging for some parking areas and not all should be evaluated as people will typically park at unpaid beaches first.

Because there are several variables to consider, further analysis is needed to explore the topic.

Implementation of a visitor fee should be explored among the partnering agencies and discussed with Corridor visitors. A pilot project at Sand Harbor may be conducted to evaluate the program's effectiveness.

Opportunities must be explored to keep revenue within the Corridor for infrastructure preservation and annual operating costs. Although it is not a simple process it is attainable within a partnership program. In addition to parking or entry fees, the funding sources to the right could be explored.

Other Potential Funding Sources

While parking or entry fees are generally the largest revenue source for recreation areas other sources of revenue generation may want to be explored include:

- Opt-Out/Opt-In Program – A program gaining popularity in recreation destination communities whereby local businesses volunteer to add a small donation of \$1-2 to their bill and direct it to the maintenance of area recreation amenities. The visitor can Opt-Out or Opt-In to have it taken off or applied to the bill.
- Special Event Fee – Bike races, marathons, mountain bike races, and other large group events occur in the Corridor. A small voluntary donation to the Corridor trail system on each registration application should be explored with the groups.
- Technology – Many new phone app programs are being created and used in recreation facilities, such as "Text if You Like the Bikeway or a Trail" or QR codes for "liking" a viewpoint and an automatic donation goes to facility maintenance.
- Advertising – Although it will be controlled by agency regulations, advertising does have merit in appropriate locations and can be an effective revenue generator. Some low impact areas that may be considered would be on buses, parking meters, brochures, etc.
- Donation or Endowments – Local non-profits such as the Tahoe Fund can establish campaigns for donations for construction of specific viewpoints or trails within the Corridor and endowments for long-term maintenance and operation of the visitor amenities.
- Lease Options – During non-peak or winter periods there may be an opportunity to lease parking spaces in the north Corridor area for other community parking needs.
- Viewpoint Parking – Although it would not be effective until all viewpoints were built out, a minimal one-time parking "pay and display" or code fee could be considered.
- Sand Harbor – The majority of the Corridor visitor use occurs at Sand Harbor and there is a need to match federal transit dollars with local dollars. State Parks should consider instituting a \$0.50-1.00 per car charge to support transit which has proven to reduce congestion on SR 28 in the Sand Harbor area. It is a benefit to the visitors going to Sand Harbor. State Parks could also consider increasing the non-resident entrance fee at state parks. This may have limited application to Sand Harbor, however, as the majority of visitors are Nevadans.

The exploration of revenue options should consider how implementation of these options on the SR 28 Corridor could impact other areas around Lake Tahoe. In addition, agencies should consider that fee structures can encourage or reward those who take alternative transportation to recreation sites, thereby reducing the vehicle miles traveled (VMT) and improving the environment. For example, the Thunderbird Lodge discounts admission for those visitors who arrive by bike or kayak.

Conversations regarding revenue streams are never easy but are necessary to the success of implementing the CMP and providing a safe quality visitor experience. The SR 28 Corridor is unique in that it encompasses the longest undeveloped shoreline at the Tahoe. It can offer economic benefits for the local communities and to the region. Both the indirect and direct values created by visitors enjoying this stretch of National Scenic Byway must be considered.

Management

Establishing a Management Team from the existing Plan Partners is recommended. It is intended for the Management Team to work together to provide a coordinated approach to maintenance and operations.

The SR 28 Corridor crosses through three counties, state and federal lands, and has 12 agencies operating within the Corridor making management challenging. No single agency can address the many issues that are a by-product of shoulder parking. Additionally, prior planning efforts stagnated due to the lack of a management structure that would bring all parties together to resolve shared issues.

Management Team

An Inter-local Agreement or other legal document would need to be developed amongst the agencies to establish the team's structure. The Management Team would:

- Meet 2-3 times per year to review progress in implementing the CMP,
- Provide a coordinated approach in seeking grants,
- Identify emerging issues that need to be addressed in the Corridor, and
- Develop a revenue stream for maintenance and operation of the Corridor.

The Management Team would set up Technical Advisory Committees to address various needs throughout the year. It is not the intent to have this Management Team direct individual agency goals or their budgets but to establish a partnership that collaboratively works toward addressing their shared issues. In the future, partnering agencies may find efficiencies that could be gained by sharing resources.



Establishing a Management Team from the existing Plan Partners is recommended. It is intended for the Management Team to work together to provide a coordinated approach to maintenance and operations.

Operations and Maintenance Responsibilities

The CMP suggests establishing a management structure as a critical component to future success. The proposed operations and maintenance responsibilities are derived based on discussions with partnering agencies and identifying “who does what best”. These are not a commitment to do the activities, but these agencies should be involved in future maintenance and operations discussions in the areas listed. (See Table 15 below.)

Management may be focused around lands each agency operates, but collaboration for increased mutual benefit should be established whenever possible and where funding allows. Currently the impacts of the Corridor are not being managed. Therefore as the CMP moves forward, management of the impacts will be an increase from existing conditions for the land management agencies.

Although Douglas County and Carson City residents use the Corridor, their respective jurisdictions do not currently have facilities they manage within the Corridor. Therefore, it would be more challenging for them to take on maintenance responsibilities as it would require special accommodations. For this reason they are not listed. It is the intent for them to participate in all management decisions as a jurisdictional partner.

TRPA's primary role is permitting and monitoring the management/maintenance activities and are therefore not specifically listed in the table. In particular, they are the regulatory agency for best management practices by all other agencies. Items of review may include sweeping, signage, and snow removal.

Table 15: Proposed Operations & Maintenance Responsibilities (may be focused around individual agency lands)

Task	NDOT	State Parks	USFS	Washoe County	TTD	Vendor
Parking Lots						
Parking Meter Maintenance	To be discussed by the Management Team as CMP implementation moves forward.					
Meter Collection/Administration						
Sweeping	X	Staff only		X		
Garbage Pickup		X	X			X
Litter Patrol	X	X	X	X		
Regulatory Sign Replacement	X	X (in park)	X			
Visitor Signage	X	X	X	X		
Vista, Transit Stops, & Emergency Turnouts						
Sweeping	X	Staff only	Vistas	X		
Garbage Pickup		X	Vistas			X
Litter Patrol	X	X	Vistas	X		
Restroom Cleaning		X	Vistas			X
Graffiti Removal	X	X	Vistas	X		
Regulatory Sign Replacement	X	X (in park)				
Visitor/Wayfinding/Interpretive Signage	X	X	X	X		
Snow Removal	X			X		
Scenic Byway Brochures	Funding Only			X	X	

Task	NDOT	State Parks	USFS	Washoe County	TTD	Vendor
Bikeway						
Sweeping		Staff only		X		
Litter Patrol		X		X		
Regulatory Sign Replacement	X	X (in park)		X		
Vista Point Interpretive Signs		X	X	X		
Public Information	X	X	X	X	X	
Authorized Trails						
Routine Tread Maintenance		X	X			
Visitor Signage		X	X			
Litter Patrol		X	X			
Monitoring Unauthorized Trails		X	X			
Public Info/Trail Guides		X	X			
Transit						
Transit Funding	X				X	
Bus Operation					X	
Bus Stop Kiosk Maintenance		X (in park)			X	
Brochure Time Table					X	
DMS Messaging	X					
Public Information	X	X	X	X	X	
Intercept Lot Litter Pickup		X (in park)				X
Capital Infrastructure Maintenance						
Bus Replacement					X	
Parking Lot Striping	X		X	X		
Parking Lot Resealing	X		X	X		
Parking Lot Overlay	X		X	X		
Parking Lot Concrete – Curbs	X		X	X		
Parking Lot Stormwater Treatment Systems	X		X	X		
Bike Lane Striping/Resealing	X					
Bikeway Striping/Resealing			X	X		
Bikeway Overlay	X		X	X		
Bikeway Co-location Project				X /IVGID		
Viewpoint/Highway Transit Stop/Emergency Turnout Striping/Resealing	X					
Viewpoint/Highway Transit Stop/Emergency Turnout Overlay	X					
Bridge Inspections	X			X		
Interpretive Sign Replacement		X	X	X		
Bench Replacement		X	X	X		
Bear Proof Can Replacement		X	X	X		
Scenic Byway Entry Signage	X				X	

The Management Team should work together to address these and other potential management considerations for the immediate and future management of the Corridor.

Future Management Team Considerations

As the Management Team works together to implement the CMP, they will also address issues that emerge over time. A few items are listed here for future consideration by the Management Team. The list is not intended to be all-inclusive, but provides a starting point for future discussions.

Parking Management

- Closure times for USFS lots
- USFS lots (or portions of a lot) that should stay open year-round
- Potential for paid parking
- Kiosk system use and application
- How technology can be integrated into parking management
- Visual impacts of advertising on buses or parking meters
- Parking access for private residential construction in the North Corridor

Snow Removal

- Snow blower versus a snow plow for the Bikeway
- Which parking areas might have snow removal

Highway Operations

- Truck traffic limitations to certain night hours
- Speed limit reductions or traffic calming around turnouts and viewpoints

Capacity

- Corridor-wide capacity study
- Implications of water transit service at Sand Harbor
- Implementation of management strategies
 - Shifting peak period use to off-peak times
 - Shifting use to Basin-wide destinations
 - Adjusting transit service, such as headways or the number of buses

Procedural Hurdles

- Management Team Inter-local Agreement
- Operations and maintenance agreements
- USFS parking lot closures and openings
- Concessionaire responsibilities

Water Trail

- Potential facility and resource impacts and opportunities

Economic Vitality Connection

The connection between Corridor improvements and economic vitality may be demonstrated as agencies find opportunities to create synergies between projects which maximize funding sources for project implementation and long-term operations. Benefits will also likely be realized as part of an improved overall recreation experience. According to the Outdoor Industry Association's recent report, recreation generated \$14.9 billion in consumer spending in Nevada. This equates to 148,000 direct jobs, \$4.8 billion in wages and salaries, and \$1.0 billion in state and local tax revenue. (Outdoor Industry Association, 2011/2012).

Recreation and access to the outdoors drives the economy of Lake Tahoe's communities. Improving access while minimizing impacts to the sensitive environment greatly benefits the area's businesses, communities, and residents.

As the recreation experience is enhanced and new facilities are developed, new businesses may be generated and existing businesses may expand. The recent construction of Phase I of the Stateline-to-Stateline Bikeway on the south shore of Lake Tahoe provides a great example. Quickly after the shared-use path was built, a new business opened to serve recreation users. Near Incline Village, Tunnel Creek Station opened in a prime location that will service future Bikeway users on the north shore. Likewise, the next segment of Phase I of the Bikeway which extends from Nevada Beach to Roundhill Pines spurred the USFS to solicit bids for improved facilities and concessionaire agreement for the site.

Based on these successes and the importance of recreation to Tahoe (and the American) economy, there is considerable potential for positive economic and social impacts from Corridor transportation and recreation improvements.



Recreation generates \$14.9 billion in consumer spending in Nevada.

Recreation and access to the outdoors drives the economy of Lake Tahoe's communities. Improving access while minimizing impacts to the sensitive environment greatly benefits the area's businesses, communities, and residents.

As of October 1, 2013, both the TAP and FLAP grant submittals were short-listed for approval and appear likely to receive funding. Depending on the final grant amount, a majority of the east shore Corridor improvements could be funded and begin planning, design, and construction in the near future.

Current Funding Submittals

During the CMP development, on behalf of the project partners, TTD prepared grant submittals for the Transportation Alternatives Program (TAP). TTD collaborated with NDOT staff to prepare their submittal for the Central Federal Lands Highway's Federal Lands Access Program (FLAP). Funding requests through the TAP program would provide monies for the Rocky Point Vista Parking and gateway signage.

If received in full, FLAP funding would be directed towards three priority projects:

- First, the Stateline-to-Stateline Bikeway (shared-use path) from Lakeshore Drive to Sand Harbor, including trailhead parking in the north portion of the Corridor and a transit stop;
- Second, NDOT's erosion control project from Sand Harbor to Secret Harbor Trailhead, including parking expansions at Chimney Beach Trailhead and Secret Harbor Trailhead, new parking at Thunderbird Cove Trailhead, four new transit stops, a viewpoint, and expansion of the no parking zone to cover relocation of shoulder parking from Sand Harbor to Secret Harbor Trailhead; and
- Third, the co-location of 8 miles of the Stateline-to-Stateline Bikeway (shared-use path) with a relocated IVGID sewer export line from Sand Harbor south to U.S. 50. The project would also include the Skunk Harbor Trailhead, viewpoints, and the potential for additional safety improvements.

This list of projects generally corresponds with the priority segments for the Corridor. Although all Corridor segments are important, the east shore recreation segment from Lakeshore Boulevard south to Sand Harbor receives the highest intensity of use. Addressing those issues first, if funding allows, can help set the stage for success throughout the rest of the Corridor.

As of October 1, 2013, both grant submittals were short-listed for approval and appear likely to receive funding. Depending on the final grant amount, a majority of Corridor improvements could be funded and begin planning, design, and construction in the near future.

The short-listing of the grant proposals reinforces the importance of agencies working together and developing a package of joint projects to achieve goals and address shared issues. Utilizing the CMP project list and funding matrices enables agencies to continue this approach to receive funding in the future.

The map shown on the following page is similar to the projects map submitted for the FLAP funding.



LEGEND

- PRIORITY SEGMENT 1**
 Incline Village to Sand Harbor:
 Stateline-to-Stateline Bikeway,
 trailhead, viewpoint, no parking zone
 expansion, and other improvements
- PRIORITY SEGMENT 2**
 Sand Harbor to Secret Harbor:
 NDOT Erosion Control Project,
 trailheads, transit stops, viewpoint,
 no parking zone expansion, and other
 improvements
- PRIORITY SEGMENT 3**
 Sand Harbor to U.S. 50:
 Co-location of IVGID sewer export
 line & the Bikeway, trailheads, transit
 stops, viewpoints, no parking zone
 expansion, and other improvements
- Park-n-Ride Transit Stop
- Transit Stop
- Potential Future Transit Stop to Consider
- Existing Off-Highway Parking
- Expanded Off-Highway Parking
- New Off-Highway Parking
- Formalized Off-Highway Parking
- Emergency/Maintenance Turnout
- Stateline-to-Stateline Bikeway
- New Corridor Gateway Signs
- New Viewpoint
- Existing Viewpoint

*Partnership
 Grant Priorities
 Submittals 2013*

Monitoring/Metrics

Benchmarks serve as a tool for implementation, improvement, and innovation to achieve quality, efficiency, and effectiveness. Measuring the success of the CMP includes evaluating various aspects of the Plan so that partnering agencies can make improvements or adjustments as projects are implemented. The metrics should be discussed and evaluated annually as part of Management Team discussions. The benchmarks described here represent a starting point from which to develop and adjust targets moving forward. Appendix C includes a working file of the metrics that can be updated regularly.

The metrics are organized according to the overall CMP framework and assess whether or not improvement has been made in five key areas: Safety, Transportation, Visitor Experience, Environment and Economic Vitality. The metrics in the chart below may have benefits for more than one of the five key areas. They provide reference to existing conditions, note progress, and provide a look at emerging trends in the Corridor. Specific requirements for projects or programs are not addressed at this level nor are specific protocols. Tracking the data is not intended to be onerous. Most information is currently being collected by agencies and is cost effective, reliable, and repeatable data that uses the same methods overtime to insure a consistent data source. The data can then be used as a strategic management tool in which agencies can evaluate various aspects of the CMP and can allow them to increase the performance of the CMP in the future.

The responsibility and timing of collecting the data by the various agencies noted may change in the future. The intent is to provide a starting point with data currently collected, illustrate its value to the agencies, and show how it might be integrated into determining that the CMP is successful for all partnering agencies.

Table 16: Corridor Items to Monitor and Track CMP Implementation

METRIC	BASELINE DATA	TARGET GOAL	PROGRESS UPDATE	METHOD	VALUE
PUBLIC SAFETY					
Create 27 signed, emergency turnouts.	2011: 0 signed turnouts	2023: 27 signed turnouts		Number of turnouts implemented.	Allows for safe areas to address vehicular and enforcement issues. Aides traffic flow.
90% reduction in shoulder parking tickets two years after no parking zone established	2011: ##	2023: ##		Total tickets per year illegally parked	Cost savings with less staff required on highway and shows if compliance to signs is working.
Zero Fatalities	2011: 3 fatalities	0 fatalities annually		NDOT data	A NDOT goal that is a priority for all highways.
Reduce collisions of cyclists & pedestrians with & without vehicle involvement by 30%	N/A	N/A		NDOT RSA every 4 years NHP data NLTFPD data	Knowing where collision clusters occur allows the management team to further refine and make improvements along the Corridor.
Reduce rear end and drifting incidents by 50%	2011: 175 incidents	2023: 88 incidents		NDOT RSA every 4 years	Indication of improved safety.

METRIC	BASELINE DATA	TARGET GOAL	PROGRESS UPDATE	METHOD	VALUE
TRANSPORTATION – HIGHWAY OPERATIONS					
Bike lanes or widened shoulders	2011: 0 miles	2023: 10 miles of bike lanes or signed and widened shoulders. Minimum of 5.5 miles of uphill bike lanes with corresponding downhill sharrows in steep sections.		Number of miles striped by NDOT	As a Share-the-Road highway providing lanes in up-hill segments improves safety and traffic flow.
Extend no parking zone to full length of Corridor	2011: 3 miles of no parking zone	2023: 10 miles of no parking zone		Amount of shoulder parking occurring	Shoulder parking and associated effects impacts traffic flow and operations
Implement NDOT RSA pedestrian-crossing improvements	2011: Pedestrian-crossing improvements needed in Incline Village	Improvements implementation		Improvements implementation	Enhanced pedestrian safety.
Reduce queue at Sand Harbor entry to less than 1 minute delay on SR 28	2011: Vehicles entering park back-up onto highway with wait time exceeding 20 minutes	2023: Vehicles queue within park and do not back-up onto highway		NDSP	Clearing traffic congestion points within the Corridor assists in improving air quality and should reduce the number of rear end collision in this area.



METRIC	BASELINE DATA	TARGET GOAL	PROGRESS UPDATE	METHOD	VALUE
TRANSPORTATION – ALTERNATIVE TRANSPORTATION SYSTEMS					
60% of surveyed ESE riders go to intercept lot first	N/A	60% of surveyed riders		Survey card on ESE every 4 years	Reduces VMT and improves air quality as motorists don't travel to a parking lot and then turn around to access transit.
Manage number of passenger trips per hour to spread demand throughout the day	N/A	TBD (normalize bell curve of demand)		Calculated via fare box	Can be used to determine peak times if there is a desire to shift demand.
Monitor number of passengers picked up at each stop to maintain appropriate visitor use levels	N/A	Varies per stop		Calculated via fare box	Can be used to indicate % of total passenger at each location to compare to capacity for each location.
Increase the number of people who bike, walk, or take transit to a trailhead	N/A	TBD. Coordinate with TMPO		Integrate with TCORP survey Q: Did you drive walk or bike to trail today & zip code	Can be used to look at shift in auto to alternative modes of transportation in Basin
Increase the number of people biking or walking for destination transportation	LSC ped/bike counts	TBD. Coordinate with TMPO		Infrared counters for two week period in July or Aug to coincide with TCORP survey.	Can be used to determine ROI and check trends in demand and is part of TRPA threshold attainment surveys.
Increase transit stops to recreation sites	2012/2013: ESE Pilot Program to Sand Harbor	2023: 7 Transit Stops	Pilot Program 2 transit stops	Count number of transit stops to recreation sites, including intercept lots	Helps to attain connectivity to recreation sites a TRPA Threshold.
Regional connectivity to TART, Reno, Carson/Douglas		Connections established and number of trips per day		Review of available transit options.	Helps to identify regional connectivity to the east shore transit system

METRIC	BASELINE DATA	TARGET GOAL	PROGRESS UPDATE	METHOD	VALUE
USER EXPERIENCE & AESTHETICS					
Relocation of all shoulder parking along east shore	2011: 593 shoulder-parked vehicles at peak overall demand	2023: 593 spaces relocated	2012: 152 spaces relocated	As No Parking Zone expands, the number of cars relocated.	Relocation of shoulder parking improves safety for motorist, bikes and pedestrians.
90% of surveyed visitors who are at the beaches and coves rated the "type of their expected experience" to be comparable to their "actual experience"	N/A	90% of surveyed users		TRPA survey every 5 years USFS survey every 5 years (National Visitor Use Monitoring has general basin-wide information)	Indication that the different experiences expected for Sand Harbor and the coves quality remains similar to 2013 conditions. TRPA threshold.
90% of surveyed visitors who are at the beaches and coves rated their experience as good to excellent	N/A	90% of surveyed users		TRPA survey every 5 years USFS survey every 5 years (National Visitor Use Monitoring has general basin-wide information)	Indication that a quality visitor experience remains high. TRPA threshold.
90% of surveyed ESE riders rate experience as good to excellent	2011: Good to excellent rating	2023: Good to excellent rating		Survey card on ESE every 4 years	Indication that visitor experience remain at a high level. TRPA threshold.
Visitor viewpoints, kiosks, interpretive centers, interpretive signage improved	2011: 1 vista point	2023: 12 vista points		Number of viewpoints, kiosks, interpretive signs, interpretive center constructed.	Construction of vista points will help to attain a quality visitor experience and designate appropriate areas for travelers to temporarily pull-off the highway.
Connectivity of parking, trails and recreation sites along east shore	2011: 0 miles connected	2023: 10.5 miles connected		Number of trail miles built that connect facilities.	Improves safety and promotes biking and walking to destinations.
Miles of authorized trails with connectivity to other recreation amenities or linking communities	2011: Lakeshore Boulevard connection	2023: 14 miles of trail connectivity		Number of miles of trail constructed. USFS Access & Travel Management Plans	Expands/maintains a high quality visitor recreation experience.

METRIC	BASELINE DATA	TARGET GOAL	PROGRESS UPDATE	METHOD	VALUE
ENVIRONMENT – INTEGRATION OF NATURAL RESOURCES					
NDOT EIP 100% Complete	2013: #% complete	2023: 100% complete		Number of miles completed by NDOT	Because 70% of fine sediments come from roads and contribute to the loss in Lake clarity completing EIP is imperative.
Restore 65% of unauthorized trails	2011: 6 miles unauthorized trails	2023: 2 miles unauthorized trails		As Bikeway is built, the number of restored miles of user trails.	Because user-created trail erosion contributes fine sediments to Lake Tahoe it is important to restore these trails.
Implement joint projects		20% of Corridor projects to be joint projects		Number of projects planned and implemented	Improves collaboration, reduces overall budget, enhances funding opportunities, and reduces implementation issues.
Co-locate export line		2023: Export line co-located with Bikeway		IVGID TTD	Coordination and funding savings
Underground utilities along east shore	2011: 0 miles utilities underground	2023: 10 miles utilities underground		NV Utilities	Reduced fire danger. Scenic improvements.



METRIC	BASELINE DATA	TARGET GOAL	PROGRESS UPDATE	METHOD	VALUE
ECONOMIC VITALITY					
Increase return on investment from bike and pedestrian facilities		ROI greater than X. Amount to be determined with TMPO.		Currently calculate number of cyclists and pedestrians and their economic impact possibly could add NSS	The amount of money spent by those using the Bikeway has economic benefit both from a return on investment and to local economies and as a cost benefit measure.
Number of national publications noting America's Most Beautiful Drive & America's Most Beautiful Ride, including being on National Geographic's Geo Tourism site	N/A	4 national publications per year		Number of publications after Bikeway and CMP is implemented	Geo Tourism is a major trend and sites like National Geographic indicate interest in tourism and facilities as economic driver.
Incline Crystal Bay Visitor Bureau number of hits on link to America's Most Beautiful Drive & America's Most Beautiful Ride. Number of press release requests.	N/A	35% of free marketing is via press releases and editorials		IVCBVB currently collects number of hits to links or hits on social media and number of requests for press releases	IVCBVB is responsible for destination marketing & promoting area and this will help indicate interest in destination recreation.
Increase destination recreation. Increase length of stay by 1 day.		Destination stays increased by 1 day as people explore the east shore		TRPA & TCORP Lake Tahoe Recreation and Commercial Area Travel Mode Surveys (add question regarding mode of travel to rec sites)	The Bikeway and Scenic Corridor will attract national and international visitors producing a broader regional impact which can be calculated with this information.

A well-executed outreach campaign can help achieve the CMP’s goals related to improving lake clarity, safety, transportation, the economy, and the visitor experience. Influencing public perceptions can lead to positive changes in behavior as well as promoting contributions to funding SR 28 projects and maintenance. It can also help foster public-private partnerships.

Outreach for Action: In Touch With Outreach

Three objectives make outreach an integral part of the CMP:

- Informing multiple audiences about the enhancements to the SR 28 National Scenic Byway;
- Attracting/encouraging the necessary funding for implementation and maintenance; and
- Perhaps most importantly, motivating visitors to embrace the changes – realizing the benefits to safety as well as Lake Tahoe’s clarity and scenic beauty.

Research, Analysis, and Interpretation

The foundation of successful outreach is a clear understanding of how the subject is perceived and by whom. Regional workshop comments and out-of-area surveys have provided key data about what Scenic Byway visitors/travelers like to do, where they come from, and how they like to receive information.

Although the demographics vary, research indicates outreach efforts can be skewed by activity level with visitors falling into two groups:

- Active – bicyclists, hikers, beach-goers, boaters/kayakers, water sports enthusiasts, fisherman, motorcyclists, e.g.
- Passive – sight-seers, photographers, commuters, e.g.

Outreach can also focus on special interests within those groups, i.e., cyclists, boaters, photographers, etc.

Geographically, Northern California and the state of Nevada are the primary regional target markets, with submarkets including the Basin itself (residents and visitors already here), surrounding Nevada and California counties, Sacramento, the greater San Francisco Bay Area, and the greater Las Vegas area.

In addition to the more traditional print, radio and television avenues, those surveyed indicated receptiveness to the Internet and social media, including mobile device access (see Table 18).

Strategy

Although the messaging may be adjusted for different groups, the overall goal will be to position the SR 28 National Scenic Byway and Lake Tahoe’s Most Beautiful Drive as a precedent for what recreation in the Basin can be.

This vision will help popularize the more practical advantages of parking in designated, off-highway lots that are interconnected by a system of trails. Readers and viewers will be able to imagine exploring the scenic Corridor, from rim to lake, with fewer cars, less noise, and easier access.

Table 17: Activity Interests Along SR 28

ACTIVITY	LEVEL OF PARTICIPATION
Beach Activities boating, kayaking, paddle boarding, swimming, etc.	59%
Biking (road and mountain)	20%
Hiking	12%
Snow Play Cross- country skiing, snowshoeing, sledding, etc.	9%

Source: Crowdbrite, September-October 2012

Addressing specific aspects of the scenic Corridor experience will also help encourage visitors/travelers to embrace the following enhancements:

- No Parking Zones with interpretive signage to educate visitors on the shift from shoulder parking and social trails to off-highway parking connected by a network of established trails;
- East Shore Express from Incline Village to U.S. 50 to facilitate easy access, safety, and convenience; and
- America’s Most Beautiful Bikeway™, as the must-do bike ride in the western U.S. for its spectacular views and multi-modal connectivity.

In addition to the messages aimed at those using the scenic Corridor, separate outreach efforts will be directed at the local visitors bureau and business community, grant resources, and government agencies and officials.

From their gateway location to the longest stretch of undeveloped shoreline along SR 28, Incline Village/Crystal Bay and local businesses can play an integral role in spreading the message of positive change and facilitating funding. Naturally, funding will also be the goal for grant resources. The strategy for government agencies and officials should be dual-purpose: offering help with outreach messaging and/or lobbying and seeking help with funding commitments.

Tactics

Splitting outreach activities between paid and free media (see Table 19) could stretch the budget and expand the reach. Recommended media buys, targeted by region and/or interest, include:

- Cable television
- Radio
- Outdoor
- Newspaper
- Internet
- Mobile
- SMS texting

Public information efforts for unpaid coverage would involve:

- Blog and Facebook posts
- Press releases and editorials
- Television and radio PSAs
- Community workshops

The media schedule and costs depend on annual budgets. Because the CMP has a 10-year horizon, it is difficult to accurately anticipate annual funding levels at this point. Approximate production costs range from \$750 per newspaper ad to \$5,000 for a television commercial.

The budget for execution will also include interpretive signage along the scenic byway as well as designing, producing, and distributing brochures and maps to direct visitors and ease traffic flow.

Table 18: Bay Area Mobile Device Use for Tahoe Info

MAIN FIGURES	
Yes	52%
No/Can't Say	48%
Subsets of Yes	
Men	64%
Women	36%
Subsets of No/Can't Say	
Men	45%
Women	55%

Source: Cromer Group, March 11-13, 2013

Table 19: Goal Ratios for Paid vs. Free Media

MAIN FIGURES	
Paid	40%
Free	60%
Subsets of Paid	
Cable Television	15%
Radio	15%
Outdoor	10%
Newspaper	25%
Internet	15%
Mobile	15%
SMS Texting	5%
Subsets of Free	
Blog and Facebook Posts	30%
Press Releases and Editorials	35%
Television and Radio PSAs	15%
Community Workshops	20%

Source: Smith & Jones preliminary media analysis/recommendation

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