This section presents a discussion of the visual character in the vicinity of the highway segments, along with a description of potential impacts and mitigation measures proposed to preserve the quality of the visual resources in accordance with state and regional regulatory guidance.

3.3.1 Environmental Setting

The visual environment is defined as the area along US 50 and SR 89 from which proposed Program facilities could be seen by the public. The viewshed for the Program was determined by visual inspection of existing conditions along US 50 and SR 89, including existing infiltration basins that are representative of the changes proposed with the Program. The purpose of this section is to define the quality of the visual environment within the project limits.

3.3.1.1 Evaluation of Visual Quality

Visual quality is a measure of the excellence of a view. For this analysis, visual quality was evaluated using the guidelines set forth in *Visual Impact Assessment for Highway Projects* (FHWA 1983) and the analysis of two previous TRPA studies. The *Lake Tahoe Environmental Threshold Study Report* (TRPA 1982, Scenic Quality Ratings: Visual Quality from Roadways) analyzed and quantified the Lake Tahoe Basin scenic resources that are visible from the roads within the regional area. The *2001 Threshold Evaluation Report* (TRPA 2002, Chapter 8, Appendix 1, Travel Route Ratings) analyzed and quantified the visual character and quality of the environment as seen from the road using six categories: Man-Made Features, Roadway Distractions, Road Structure, Lake Views, Landscape Views, and Variety. Each study measured visual quality using a common baseline of numbered Roadway Units (Forest Service 1970), the locations of which are shown in Figure 3.3-1. The 1982 study used numbers from 1 to 3 to designate low to high degrees of visual quality, and the 2001 study designations ranged from 5 to 30. Table 3.3-1 lists the Roadway Units, the composite Roadway Threshold Numbers assigned in the 2001 study, and the Visual Resource Ratings identified in the 1982 study. These ratings represent the existing visual quality at the locations evaluated in the TRPA studies.

The visual environment was assessed for views from sensitive receptors in the areas of US 50 and SR 89 and from areas within the project segments that would be representative of a range of views of proposed Program facilities. Potential viewer sensitivity or response was estimated based on the “use” of the viewshed. Sensitive receptors in the vicinities of US 50 and SR 89 include residents of single-family homes; users of recreation trails, resorts, and campgrounds; motorists on scenic routes; and boaters on Lake Tahoe.

3.3.1.2 Existing Visual Environment

This section describes the existing visual environment for the study area, which consists of the eight project segments shown in Figure 1-1 and the surrounding areas. Figure 3.3-2 is an aerial photo that shows the locations of representative views along US 50 and SR 89. Figures 3.3-3A through 3.3-3F are photographs of these views and of existing drainage facilities and erosion control measures similar to those proposed by the Program.

Existing Landscape

Lake Tahoe is high within the Sierra Nevada mountain range, with a lake surface elevation of 1,897 meters (6,225 feet) above sea level. Peaks with elevations of greater than 3,050 meters

(10,000 feet) surround the Lake. Conifer forests are visible around the Lake and on the mountain slopes. Distant views of mountains and high-elevation forests of red fir and lodgepole pine appear relatively undisturbed. At lower elevations, the natural landscape has been altered over time as buildings and roads have been constructed. Native plant species have been replaced by, or augmented with, introduced species planted by individual property owners.

Much of the Lake Tahoe Basin was deforested for lumber needed for the silver and gold mining operations of the Comstock Lode starting in the 1859. The forests regenerated naturally, but fir trees replaced the earlier 200- to 500-year-old pine forests.

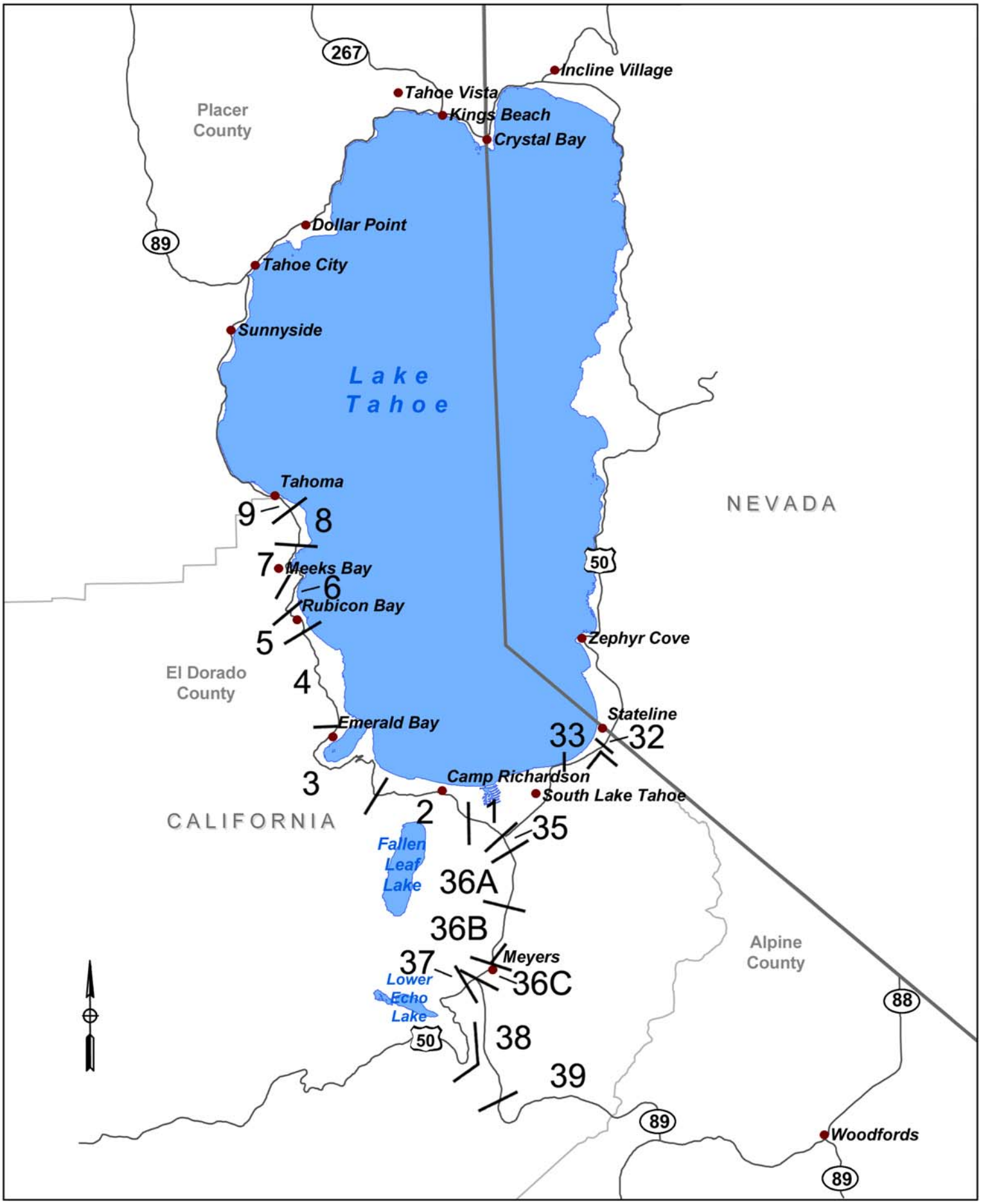
US 50 and SR 89

As shown on Figure 3.3-2, US 50 and SR 89 within the project area approach Lake Tahoe from the south, split at the South Lake Tahoe "Y," and follow the east and west shorelines, respectively. US 50 north of Echo Summit descends steeply through the Meyers Grade, and then traverses relatively even terrain through the developed commercial areas of South Lake Tahoe and Stateline.

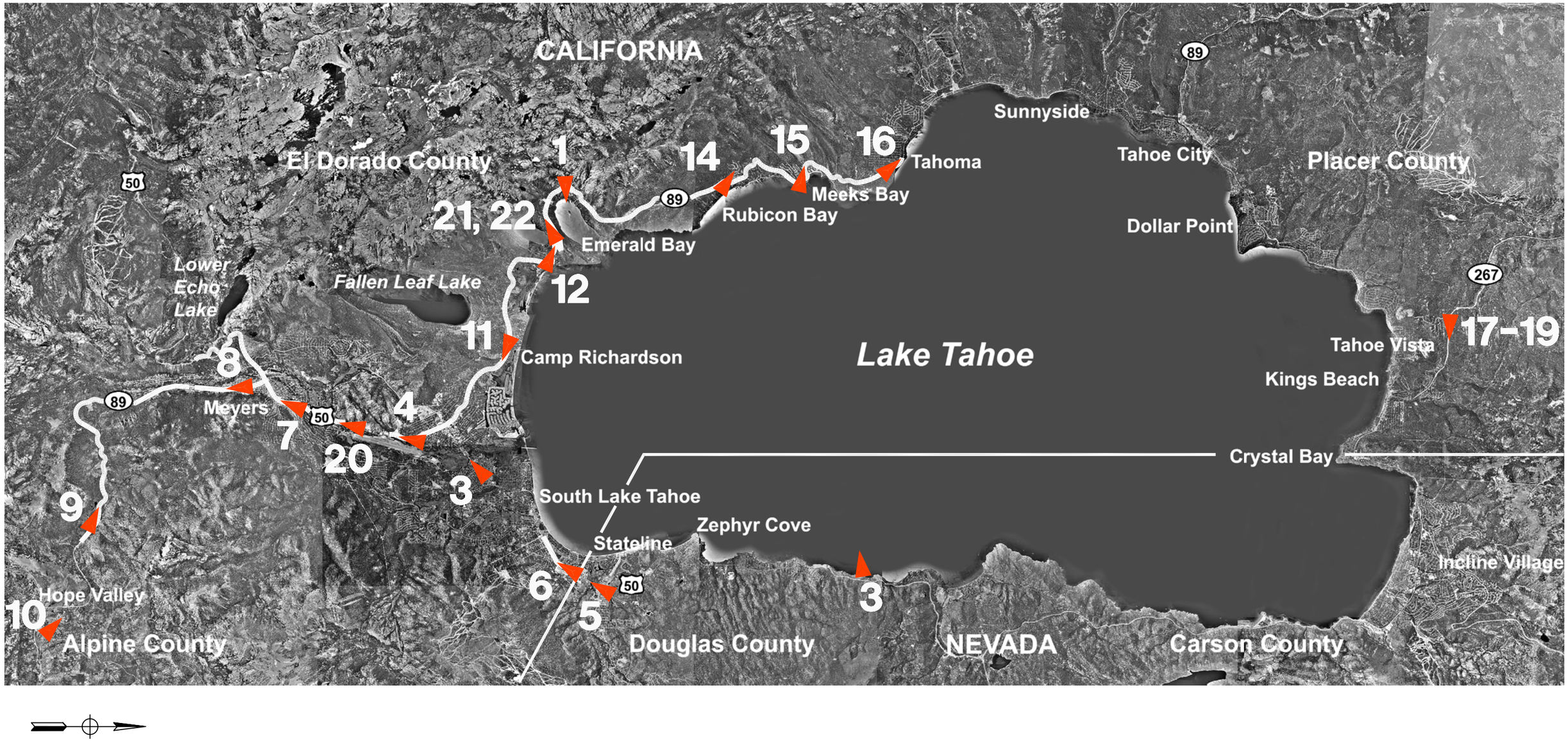
SR 89 passes through the Carson Pass mountain range and Hope Valley before entering the project limits near Luther Pass, and then descends to the community of Meyers and its junction with US 50. The first segment of SR 89 passes through mixed conifer forests that are relatively undisturbed except for the highway, until reaching the residential area at Meyers. From Meyers, US 50 and SR 89 merge and descend gently in elevation through developed areas into South Lake Tahoe and the "Y" intersection. After the highways split off again at the "Y" intersection, SR 89 continues northwest through relatively flat forested and meadow areas at and surrounding Camp Richardson. These areas support native grasses, shrubs, and Sierran mixed-conifer pine forests. North of the Fallen Leaf Lake area, SR 89 ascends steeply to vistas of Emerald Bay. Where SR 89 traverses the higher-elevation slopes above the Bay, long-range views of the mountains and natural landscaped features are available. Sloped areas adjacent to the highway are undisturbed with the exception of erosion and installed stabilization measures. North of Emerald Bay, SR 89 descends through forested State Park land (D. L. Bliss). It continues north through the communities of Rubicon and Meeks Bays, Sugar Pine State Park, and to the northern project limit at Tahoma.

Urban Structures

The greatest concentration, density, and vertical mass of urban structures are in the vicinity of the casinos at the Nevada state line. One- and two-story commercial buildings lie along US 50 between the state line and the intersection of US 50 and SR 89. The density of buildings decreases substantially as US 50 proceeds south of the US 50/SR 89 intersection, and structures are not visible after the Lake Tahoe Airport until the town of Meyers. Buildings visible from SR 89 after it proceeds east from Meyers consist of one-story residences behind a forested edge of road. No buildings are visible east of Portal Road. Structures between Portal Road and the eastern project limit consist of occasional highway and Forest Service signs.



Lake Tahoe Basin EIP	TRPA Visual Assessment Roadway Units	Figure 3.3-1
26815171		



Lake Tahoe Basin EIP	View Location Map	Figure 3.3-2
26815171		

VIEW 1: View East at SR 89
of Emerald Bay

VIEW 2: View West at US 50
of Lake Tahoe

VIEW 3: View South at US 50
of South Lake Tahoe

VIEW 4: View South of SR 89
South of the "Y"

Lake Tahoe Basin EIP	Views 1 to 4	Figure 3.3–3A
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VIEW 5: View South at State Line

VIEW 6: View South at US 50
of Commercial Land Use
South of State Line

VIEW 7: View South at US 50
of Meyers

VIEW 8: View East at SR 89
East of Meyers

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Lake Tahoe Basin EIP	Views 5 to 8	Figure 3.3-3B
26815171		

VIEW 9: View North at SR 89

VIEW 10: View North at SR 89
of Hope Valley

VIEW 11: View South at SR 89
of Camp Richardson

VIEW 12: View North of SR 89

Lake Tahoe Basin EIP	Views 9 to 12	Figure 3.3–3C
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VIEW 13: View North at SR 89 of Rock Blanket

VIEW 14: View West at SR 89 of Rubicon Bay Single-Family Residence

VIEW 15: View North at SR 89 of Meeks Bay Resort

VIEW 16: View North of SR 89 of Tahoma

Lake Tahoe Basin EIP	Views 13 to 16	Figure 3.3–3D
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VIEW 17: View South of Concrete Drainage Structures and Filtration Basin Access Road Installed on SR 267

VIEW 18: View South at SR 267 of Filtration Basin

VIEW 19: View South at SR 267 at Drainage Structures

VIEW 20: View South of US 50 / SR 89 of Filtration Basin

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Lake Tahoe Basin EIP	**Views 17 to 20**	Figure 3.3–3E
26815171		

VIEW 21: View at SR 89 of HIghway Retaining Wall

VIEW 22: View at SR 89 of Rock Blanket

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Lake Tahoe Basin EIP	**Views 21 to 22**	Figure 3.3–3F
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Table 3.3-1
Potential Impacts to TRPA Visual Quality Ratings from Proposed Program Facilities

Roadway Unit Numbers with 2001 Updates	Roadway Unit Location Names	TRPA 2002[a]	TRPA 1982[b]	Proposed Improvements and Potential Visual Impacts to TRPA Ratings																					
		Composite Roadway Threshold Numbers	Visual Resources Ratings from Roadway	Widen Shoulders 1.2 Meters (4 Feet) Minimum with AC Dike to Convey Stormwater Runoff		Construct Retaining Walls Where Required to Facilitate Shoulder Widening		Pave Existing Unsurfaced Pullouts		Rehabilitate Existing and Install New Drainage Systems		Install Traction Sand Traps		Construct Infiltration Basins		Provide Rock Slope Protect		Flatten and Protect Erodible Slopes for Erosion Control		Revegetate Bare or Erodible Areas		Allow Sheet Flow Off Road at Longitudinal Basins and Spreading Water into SEZ Areas		Pave All Driveway Connections Within State Right-of-Way	
		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
1	Tahoe Valley (City of South Lake Tahoe)	12	2	NC	NC	-	-	-	-	NC	NC	NC	NC	NC	NC	-	-	-	-	+	+	NC	NC	NC	NC
2	Camp Richardson (El Dorado County)	18	3	-	-	-	-	-	-	NC	NC	-	-	-	-	-	-	-	-	+	+	NC	NC	NC	NC
3	Emerald Bay (El Dorado County)	26.5	3+	-	-	-	-	-	-	NC	NC	-	-	-	-	-	-	-	-	+	+	NC	NC	NC	NC
4	D.L. Bliss State Park (El Dorado County)	21	3	-	-	-	-	-	-	NC	NC	-	-	-	-	-	-	-	-	+	+	NC	NC	NC	NC
5	Rubicon Bay (El Dorado County)	18	2	-	-	-	-	-	-	NC	NC	-	-	-	-	-	-	-	-	+	+	NC	NC	NC	NC
6	Lonely Gulch (El Dorado County)	18	2	-	-	-	-	-	-	NC	NC	-	-	-	-	-	-	-	-	+	+	NC	NC	NC	NC
7	Meeks Bay (El Dorado County)	14	3	NC	NC	-	-	NC	NC	NC	NC	NC	NC	NC	NC	-	-	-	-	+	+	NC	NC	NC	NC
8	Sugar Pine Point (El Dorado County)	23	3	-	-	-	-	-	-	NC	NC	-	-	-	-	-	-	-	-	+	+	NC	NC	NC	NC
9	Tahoma (Placer County)	14	1	NC	NC	-	-	NC	NC	NC	NC	NC	NC	NC	NC	-	-	-	-	+	+	NC	NC	NC	NC
32	Casino Area (Douglas County)	11.5	1	NC	NC	-	-	NC	NC	NC	NC	NC	NC	NC	NC	-	-	-	-	+	+	NC	NC	NC	NC
33	The Strip (City of South Lake Tahoe)	11.5	1	-	-	-	-	NC	NC	NC	NC	NC	NC	NC	NC	-	-	-	-	+	+	NC	NC	NC	NC
35	Al Tahoe (City of South Lake Tahoe)	16	2	-	-	-	-	NC	NC	NC	NC	NC	NC	NC	NC	-	-	-	-	+	+	NC	NC	NC	NC
36A	Airport Area (El Dorado County)	10.5	(Previous Unit 36) 2	-	-	-	-	-	-	NC	NC	-	-	-	-	-	-	-	-	+	+	NC	NC	NC	NC
36B	Lake Valley (El Dorado County)	19	(Previous Unit 36) 2	-	-	-	-	-	-	NC	NC	-	-	-	-	-	-	-	-	+	+	NC	NC	NC	NC
36C	Meyers (El Dorado County)	14	(Previous Unit 36) 2	NC	NC	-	-	NC	NC	NC	NC	NC	NC	NC	NC	-	-	-	-	+	+	NC	NC	NC	NC
37	Echo Summit (El Dorado County)	26	3	-	-	-	-	-	-	NC	NC	-	-	-	-	-	-	-	-	+	+	NC	NC	NC	NC
38	Upper Truckee River (El Dorado County)	18	2	-	-	-	-	-	-	NC	NC	-	-	-	-	-	-	-	-	+	+	NC	NC	NC	NC
39	Alpine Summit (El Dorado County)	24	3+	-	-	-	-	-	-	NC	NC	-	-	-	-	-	-	-	-	+	+	NC	NC	NC	NC

Notes:

+ = Positive visual impact
- = Negative visual impact
NC = No change

[a] TRPA 2002 Threshold Evaluation Report range: 5 (low) to 30 (high); travel route (roadway) minimum threshold attainment score = 15.5

[b] TPRA 1982 Lake Tahoe Basin Scenic Resource Inventory range: 1 (low) to 3+ (high)

Buildings are visible from SR 89 west of the US 50/SR 89 intersection to Camp Richardson Resort and consist of one-story commercial buildings and one- and two-story residences. North of Camp Richardson is relatively undeveloped except for utilities and highway signage. Along SR 89 at Emerald Bay, there are retaining walls, parking areas, and an occasional sign. One- and two-story homes residential buildings are visible at Rubicon Bay. Meeks Bay has a few commercial services buildings near the Meeks Bay Resort and Marina. North of the resort are sparsely located one- and two-story residences until Glen Ridge Road, after which no buildings are visible until the northern project limits at Tahoma.

3.3.2 Regulatory Setting

3.3.2.1 Federal

National Scenic Byways Program

The National Scenic Byways Program is operated by the FHWA to recognize certain roads as All-American Roads or National Scenic Byways based on one or more archeological, cultural, historic, natural, recreational, or scenic quality. US 50 in El Dorado County and SR 89 at the Monitor Pass and Luther Pass Highways and Lake Tahoe Road have been designated as National Scenic Byways.

National Trails System

The National Trails System Act, which is under the jurisdiction of the National Park Service, defines National Scenic Trails "as extended trails so located as to provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass." The Pacific Crest National Scenic Trail, which extends north-south along the crests of the Sierra Nevada mountains, crosses US 50 west of SR 89 in the Echo Lake region, outside of the project limits.

National Natural Landmarks Program

The National Natural Landmarks Program, also under the jurisdiction of the National Park Service, recognizes and encourages the conservation of outstanding examples of the country's natural history. The program identifies and recognizes the best examples of biological and geological features in both public and private ownership. Emerald Bay was designated as a National Natural Landmark in 1968 as an outstanding example of glacial geology.

LTBMU Visual Quality Objectives

The LBTMU *Land and Resource Management Plan* (Forest Service 1988) established Visual Quality Objectives, thresholds for development coverage on National Forest lands in the Tahoe Basin. These include the following designations:

- Preservation on 27 percent of land area
- Retention on 65 percent of land area

- Partial retention on 4 percent of land area
- Modification on 3 percent of land area
- Maximum modification on 1 percent of land area

3.3.2.2 State

CEQA Significance Criteria

Potentially applicable CEQA significance criteria for the Program include the following.

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings and structures such as rockwalls within a state scenic highway.
- Substantially degrade the existing visual character or quality of the site and its surroundings.
- Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

State Scenic Highway Program

The State Scenic Highway Program, created by the California Legislature in 1963, was established to preserve and protect scenic highway corridors from change that would diminish the aesthetic value of lands adjacent to highways. A highway is officially designated under this program when a local jurisdiction adopts a scenic corridor protection program, applies to Caltrans for scenic highway approval, and receives notification from Caltrans that the highway has been designated as a Scenic Highway. US 50 between Echo Summit and the South Lake Tahoe city limit and SR 89 between Alpine and Placer Counties are designated as State Scenic Highways.

3.3.2.3 Regional

TRPA Thresholds

One of the primary objectives embodied in the TRPA Compact is the preservation of the scenic values of the Lake Tahoe Basin, which are closely linked to the social and economic health of the region (TRPA Compact, Public Law 96-551-Dec. 19, 1980, Article I). The TRPA has inventoried and rated roadway segments and travel routes in the region, including segments within the Study Area, to determine scenic resource values from roadway vantage points. Based on the TRPA's 1982 inventory of resources in the Tahoe Basin, it established threshold standards for the protection and enhancement of the scenic quality, and evaluates performance in achieving those levels on a regional basis (TRPA 2002). The TRPA requires that the numerical threshold assigned to each rated roadway segment or travel route be maintained or improved.

The following TRPA thresholds currently apply to visual resources:

- SR-1 – Travel Route Rating: The travel route rating threshold tracks long-term, cumulative changes to views seen from major roadways in urban and natural landscapes in the region and the views seen from Lake Tahoe looking toward the shore. To secure threshold attainment, all travel routes with a 1982 rating of 15.5 (for roadway units) or 7.5 (for shoreline units) or greater must maintain their scores, and all travel routes with a 1982 score of 15 (roadway) or 7 (shoreline) or less must improve their scores until he score is reached.
- SR-2 – Scenic Quality Rating: The scenic quality rating threshold protects specific views of scenic features of Tahoe's natural landscape that can be seen from major roadways and from the lake. To secure threshold attainment, all 1982 scenic quality scores must be maintained.
- SR-3 – Public Recreation Areas and Bike Trails: The public recreation area threshold protects the viewshed from public recreation areas and certain bicycle trails. To secure threshold attainment, all 1993 scenic quality scores must be maintained.
- SR-4 – Community Design: To secure threshold attainment, design standards and guidelines must be widely implemented to improve travel route ratings and produce built environments compatible with the natural, scenic, and recreational values of the region.

TRPA Tree Removal Ordinances

Cutting, moving, removing, killing, or materially damaging live trees; removing disease-infested and hazardous trees; and attaching appurtenances to trees (6 inches diameter at breast height and larger) require approval of a permit by the TRPA. Trees of "limited occurrence" (such as aspen, black cottonwood, ponderosa pine, Douglas fir, incense cedar, sugar pine, western white pine, mountain hemlock, whitebark pine, and western juniper) should be managed for protection and enhancement, and promotion of late stage or old growth characteristics (TRPA Code of Ordinances, Chapter 71). Replacement ratios and planting requirements are generally determined by TRPA on a case-by-case basis.

El Dorado County General Plan

The Transportation and Circulation Element of the General Plan (El Dorado County 2004), Policy TC-1w states that new streets and improvements to existing rural roads necessitated by new development shall be designed to minimize visual impacts, preserve rural character, and ensure neighborhood quality to the maximum extent possible consistent with the needs of emergency access, on-street parking, and vehicular and pedestrian safety.

South Lake Tahoe General Plan

The South Lake Tahoe General Plan (City of South Lake Tahoe 2003) includes measures to conserve and enhance the scenic and other natural resources within the city boundaries. These include goals to implement and construct storm drainage and erosion control projects that complement and improve the transportation system. Conservation Element goals include conserving and enhancing the scenic and other natural resources within the city boundaries and managing open space to promote conservation of vegetation and protection of watersheds.

Meyers Community Plan (TRPA 1998)

The community plan identifies several environmental improvement goals that can relate to visual resources and the Program, including the following.

- The installation and maintenance of water quality BMPs on public and private lands
- The implementation of site planning improvements consistent with the TRPA's Scenic Quality Improvement Program and Community Design Program
- The preservation of existing views from Meyers to the surrounding landscape
- The recognition of US 50 and SR 89 as state and regionally designated scenic highway corridors and the maintenance and improvement the quality of their viewsheds

3.3.3 Impacts

This section evaluates the potential visual impacts of the proposed Program.

Impact Assessment Methodology

As discussed in Section 3.3.1, the viewshed for the proposed Program was identified from an on-the-ground reconnaissance of the areas adjacent to US 50 and SR 89 that are potential sites for Program improvements. Existing infiltration basins in the Tahoe Basin were used as reference points for determining the distances from which infiltration basins could potentially be seen from the US 50 and SR 89 corridors. The methodology used to evaluate visual impacts is based on *Visual Impact Assessment for Highway Projects* guidelines (FHWA 1983).

3.3.3.1 CEQA Considerations

During construction, viewers would see materials, equipment, workers, and the operations of construction, including trenches, excavations, and structures in the process of being built. Motorists and pedestrians would be exposed to construction activities while passing through the construction zones. Residents of adjacent homes and business owners and employees would be exposed to construction activities on a more continuous basis while work is under way in nearby project segments. Construction impacts to the visual environment would be unavoidable and short term. Because the impacts would be temporary and seasonal and would transition along the roadway segments as work is completed, they are considered less than significant.

The Program could impact the visual character and quality of the existing visual environment of views to Emerald Bay from SR 89 and from Emerald Bay toward the proposed facility locations adjacent to SR 89. These impacts could occur where new retaining walls and concrete structures are installed and would involve substantial removal of vegetation and addition of imported rock for slope stabilization and erosion control. Emerald Bay is a National Natural Landmark, and US 50 between Echo Summit and South Lake Tahoe and SR 89 between Placer and Alpine Counties are designated State Scenic Highways. Along these routes and depending on the visibility of the work, the steepness of the slopes and inadequate horizontal flat terrain may make it difficult or impossible to hide or blend such structures completely into the surrounding visual landscape. Some of these effects could be only temporary until vegetation matures or the slopes become weathered and blend in with the existing environment. The Program facilities could result in

significant effects to scenic vistas, scenic resources, and the visual character of the Emerald Bay area. Mitigation is proposed in Section 3.3.4.

Many hiking trails have trailheads located on US 50 and SR 89. A facility that contrasts with the natural and undisturbed landscape and is visible from the trails would be considered an adverse visual impact. However, if mitigated as discussed in Section 3.3.4, this impact would be reduced to less than significant.

In general, any facility that visually contrasts with naturally occurring and undisturbed landscapes or replaces existing trees or other vegetation may result in an impact to the visual environment. The specific types of facilities that could result in impacts are summarized as follows.

- Infiltration basins, which would appear as sculpted land forms with steep side slopes and regularly shaped channels.
- Traction sand traps, which capture suspended sands in drainage runoff and minimize the amount of eroded material carried downstream.
- Retaining walls.
- Rock blankets and slope covers, if they have replaced existing surfaces that support vegetation and where they appear as islands of rock surrounded by vegetation.
- Shoulder widening, if trees are removed that screen unsightly views and provide a sense of enclosure along a wooded segment of highway. Removal of trees would result in positive visual impacts if vistas of distant scenic resources were opened to view.
- Blasting rock escarpments and excavation to widen the road and shoulders, if exposed substrata have different colors and surface textures than surrounding undisturbed rock that has been weathered and eroded over time. Excavated surfaces may be visible from long distances and could potentially be seen from views from the lake or opposite hillsides/shorelines, such as at Emerald Bay.
- Flattening and protecting erodible slopes for erosion control, if the new slopes appear machine tooled and contrast with natural adjacent slopes.

These impacts could be avoided by use of the mitigation measures discussed in Section 3.3.4. Therefore, visual impacts from Program facilities would be less than significant.

3.3.3.2 TRPA Considerations

Program-related impacts on the quality of the visual environment are identified in Table 3.3-1 by TRPA Roadway Unit (shown in Figure 3.3-1) and discussed below. Visual impacts are shown as a plus, a minus, or NC (no change), meaning that the proposed Program would have a positive impact, a negative impact, or little to no impact, respectively, on the TRPA Composite Roadway Threshold Numbers and Visual Resource Ratings. The Threshold Numbers and Visual Resource Ratings indicate the visual quality within a Roadway Unit. The TRPA has designated a Threshold Score of 15.5 as the minimum acceptable level for visual quality. Some areas, especially where development has occurred, are below that rating. In those areas, the goal is to improve conditions in the visual environment to increase their score to 15.5 or better through the

implementation of mitigation measures described in Section 3.3.4. In addition, the Program would not reduce a TRPA designated Travel Route or Shoreline Rating.

The following provides a more detailed description of the proposed Program facilities identified in Table 3.3-1 and their anticipated impacts to TRPA visual ratings.

Widen Shoulders

Where shoulders are proposed to be widened, the dimension would vary from 1.2 to 2.4 meters (3.94 to 7.87 feet). In mountainous terrain, widening would require extensive disturbance of existing land forms and vegetation due to earthwork, blasting of slopes, construction of retaining walls, roadway stabilization fill and slopes, and slope stabilization using light rock and/or vegetation. In areas where the terrain is relatively flat, shoulder widening would remove existing materials and replace them with asphalt paving and dikes at the edges of the road to direct water flow. Wherever vertical undisturbed indigenous surfaces such as rock escarpments, large boulders, and mixed rock/earth/vegetation are disturbed, adverse visual impacts are expected to occur. The public would see disturbed surfaces on uphill slopes at the edges of the roadway while driving, across chasms where the roadway winds around topography, from hiking trails, from within 300 feet of the shore of Lake Tahoe, and from stationary view points. The same would be true for views of disturbed downhill slopes, except that motorists would not see downhill slopes in near views.

Construct Retaining Walls to Facilitate Shoulder Widening

Construction of retaining walls on uphill slopes and downhill slopes would result in similar visual impacts to those described for shoulder widening. In addition, retaining walls would be human-made, poured-in-place concrete, and uniform in line, and would have a standardized range of colors and textures that would contrast with the naturally occurring and undisturbed surfaces that would be seen adjacent to the walls. Walls can be finished in faux rock textures and colors to help blend them into natural environments. However, they would still contrast with the natural lines, forms, colors, and textures. The impact to the visual character of the environment as a result of construction of retaining walls is expected to be adverse. Such a visual impact would be considered particularly adverse in areas that have high TRPA ratings for scenic quality.

Pave Existing Unsurfaced Pullouts

Existing unsurfaced pullouts are compacted earth or compacted gravel on earth. The surface texture is random and variable, the color is gray-brown, the form is the horizontal plane and the line is the outline of the pullout. Paving the pullouts with asphalt or concrete would change the visual character of the pullouts to a uniform smooth texture and color. The change to the character of the visual environment from paving pullouts is expected to be marginally adverse. However, proposals to restore unsurfaced pullouts to offset land coverage impacts are included in the design, unless paving is required for parking, maintenance access, or stormwater conveyance.

Rehabilitate Existing and Install New Drainage Systems

Visual impacts would be expected to occur where drainage system improvements would be seen by the public. Where new structures would replace existing structures in the same location, little to no visual impacts would be expected. Where new drainage structures are proposed in undisturbed locations, visual impacts would occur from removal of natural lines, forms, colors, and textures with structures that are uniform in line, color, form and texture and with lightly-colored reflective surfaces. Where seen by the public, these structures would be perceived as adverse visual impacts. In areas where the natural environment has a high TRPA visual quality rating, the visual impact could be perceived as particularly adverse.

Install Traction Sand Traps

Traction sand traps reduce water velocity and filter stormwater runoff through sand, catching larger debris particles that then filter down to the bottom of the sand trap. The design of the sand trap depends on the amount of water that is being filtered, cost factors, and available space. The top of the trap may remain similar in dimensions at approximately 0.9 by 1.2 meter (3 by 4 feet) or greater while the depth would vary depending on the volume of water being treated. Where concrete boxes are considered for use to contain the sand, they would contrast with the surrounding visual environment in natural undisturbed areas and would be perceived as an adverse visual impact. In urban areas such as Stateline and South Lake Tahoe, the sand traps in concrete boxes, if placed adjacent to existing paved areas, would not be perceived as an adverse visual impact because similar features are already seen in these locations. A typical view of the road surface with a sand trap and asphalt-concrete dike is shown in Figure 3.3-3G.

Construct Infiltration Basins

Trees would be removed to construct infiltration basins. Tree removal might create an adverse visual impact in areas where the trees screened structures and might be considered a positive visual impact where trees blocked views of scenic resources. Basins that contrast adversely with the random and variable colors, textures, forms, and lines seen in the adjacent undisturbed natural environment would be perceived as a particularly adverse visual impact wherever the structures are visible to the public. Representative views of infiltration basins are shown in Figures 3.3-3H, 3.3-3I, and 3.3-3J.

Provide Rock Slope Protection

Wherever rock slope protection is placed in a natural undisturbed environment, adverse visual impacts are expected to occur. The rocks are uniform within a range of sizes and the color is light gray. They would replace the random and variable lines, forms, colors, and textures in the existing undisturbed environment, and would contrast with the adjacent natural environment.

Flatten and Protect Erodible Slopes for Erosion Control

Earthwork removes the random and variable characteristics of the natural environment, including landforms, rocks and boulders, trees, and other vegetation. The design of the new slope would determine the degree of adversity of permanent visual impacts.

Revegetate Bare or Erodible Areas

Revegetating of bare or erodible areas would be perceived as a positive visual impact as long as the species used in the replacement matched species seen in the adjacent undisturbed environment under similar microclimate and terrain conditions. Use of dissimilar species would be perceived as an adverse visual impact because the character between new species and naturally occurring species in the adjacent visual environment would contrast. Revegetation will include species from TRPA's Recommended Plant List to minimize potential impacts from non-native species.

Allow Sheet Flow and Spreading of Runoff Water

There would be no visual impacts expected from shaping roadway surfaces to sheet flow. Existing roadway surfaces are already visible, and reshaping them would not change the character of the visual environment adversely. Secondary and adverse visual impacts would be expected to occur wherever runoff might result in erosion of the undisturbed natural environment.

Pave All Driveway Connections Within State Right-of-Way

The changes to the existing character of the visual environment and potential visual impacts as a result of such paving would be similar to paving pullout areas described above.

Tree Removal

Many of the preliminary locations for drainage basins contain trees. Substantial adverse visual impacts could result where groups of trees are removed that are visible to residents, where the trees occur within state park lands, or when the trees provide a separation between the highway and an existing land use or facility (such as a trail). Removal of trees will require approval of TRPA.

3.3.3.3 LTBMU Visual Quality Objectives

The Program will not result in a noticeable change for purposes of development coverage and LTBMU Visual Quality Objectives. Negligible changes in pavement and shoulder coverage will occur along US 50 and SR 89.

3.3.3.4 No Project Alternative

The No Project Alternative would have no effect on the existing visual character of the site within the project limits. No construction activities would occur that would disrupt the existing visual character of the site, and the existing visual/aesthetic conditions within the project limits would be preserved.

Double-Barreled Traction
Sand Trap With Asphalt Dikes

Highway Maintenance Personnel
Clean Out a Sand Trap With a Large Vacuum Truck

Lake Tahoe Basin EIP	**Typical Sand Trap and Asphalt Dike**	Figure 3.3-3G
26815171		

Existing Condition

Basin Simulation

Lake Tahoe Basin EIP	**Representative Basin Simulation #1 (Before and After Views)**	Figure 3.3-3H
26815171		

Existing Condition

Basin Simulation

Lake Tahoe Basin EIP	**Representative Basin Simulation #2 (Before and After Views)**	Figure 3.3-3I
26815171		

Existing Condition

Swale Simulation

Lake Tahoe Basin EIP	**Representative Basin Simulation #3 (Before and After Views)**	Figure 3.3-3J
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3.3.4 Avoidance, Minimization, and Mitigation

Recommendations for Program Facilities

Drainage, infiltration, and filtration structures could be mitigated in the Emerald Bay viewing zones if they were installed underneath the highway road bed or pullouts, with access panels located within the paved roadway surfaces. Some existing retaining walls have been installed in adjacent areas using a faux rock treatment and appear unnatural, introduced, and in contrast with the surrounding visual environment. The existing highway and associated road cuts and structures are visible to motorists in short- and long-range views. New retaining walls should be constructed to appear consistent with the existing naturally occurring rocky slopes using native materials (rock and boulders) to match the rocky slopes that are seen in the area. Rock retaining walls should be varied in height and horizontal alignment to appear less uniform and avoid potentially significant visual impacts in this viewing zone.

Rock coloration could be used to help blend rock slope and retaining walls into their surrounding environments. Rock coloration involves applying a penetrating oxide coloration material to exposed boulder placements and rock slope protection surfaces to produce a brownish, earthtone color. This will blend the boulder placements and rock slope protection surfaces with the colors in the surrounding environment. The oxidation materials include an aqueous solution that contains salts of iron and manganese with built-in oxidizers and other trace elements including copper and zinc.

The appearance of drainage structures could also be mitigated by moving the large concrete surfaces into the road bed shoulder, depressing the concrete surface to below the asphalt layer and surfacing the top with asphalt. Manholes with steel covers would be seen at the surface of the asphalt. Another mitigation measure for concrete drainage structures would be to locate them further down the hill, away from public view, color the concrete an earth color and install boulders around the concrete box to hide the box and blend it into the undisturbed natural landscape.

To minimize or avoid potential impacts from infiltration basins, proposed earthen drainage basins should be created using freeform shapes in and around tree areas. Areas of the basins not subject to maintenance (such as side slopes above the low areas prone to siltation) could be planted with riparian trees or vegetation compatible with temporary standing water. The basins could also be softened by planting grasses and shrubs indigenous to the surrounding landscape. Any trees planted must not block existing views of scenic resources. Rock placed in the basins to minimize erosion should avoid contrasting with the existing material and should blend well with the undisturbed natural landscape. As appropriate to the each basin, rock should be used that has a wide range of sizes and earthen or weathered colors that match rocks in immediately adjacent areas.

Mitigation measures for traction sand traps would be similar to those for infiltration basins that include concrete structures.

Retaining walls could be mitigated by using construction methods that emphasize large boulders rather than concrete and using a wide diversity of sizes and shapes as might be found in an undisturbed natural landscape. The colors should match the colors of adjacent and indigenous rocks. Another mitigation measure would be to construct concrete retaining walls on a laid-back

batter in irregular tiers, steps, and offset planes to provide a supporting structure upon which to install large boulders on the "treads" and in the crevices and build up a boulder surface that would appear irregular and naturally occurring. The batter and treads would need to be angled to support boulders by means of gravity.

An alternative method of erosion control to rock blankets and slope covers could include using rock, e.g., geofabric overlain with boulders and soil and planted with indigenous species of vegetation. Where no other method of erosion mitigation is feasible, planting holes should be placed frequently throughout the rock area for indigenous species of spreading shrubs and trees to help blend the rock blankets into the surrounding undisturbed natural vegetated landscape. Vegetation restoration should include spreading shrubs and trees so that the shrubs can cover quickly and mitigate the adverse visual impact of the rock blankets.

Visual impacts from tree removal could be mitigated by planting new trees to screen unsightly views, although a delay in coverage could exist until growth returns to an effective height. Faster-growing species could be mixed with pines and then removed or thinned as the pines mature. Any disturbance to vegetation in areas adjacent to the shoulder widening would need to be restored to the original character using the same species.

Areas disturbed by construction are recommended for restoration to the original character and quality using the same colors, types, and plant species of inorganic and organic materials that existed prior to the start of the construction.

General Design Recommendations

The following recommendations are intended to provide guidance to the design team in order to minimize adverse impacts to scenic quality and meet TRPA scenic threshold requirements.

- All disturbed areas shall use temporary erosion control measures during construction to minimize permanent impacts to scenic quality.
- All areas disturbed during construction shall receive permanent erosion control measures. All finished slopes and contour graded areas shall be hydroseeded with a permanent seed mix composed of native plant species indigenous to the area. In addition, a revegetation project will install containerized native plants to supplement seeding.
- All small trees, tree limbs, shrubs and other woody debris generated during clearing and grubbing operations shall be chipped and stockpiled for future use as erosion control cover. Pine needles collected from the Tahoe Basin shall be acquired and mixed with chipped material to be used as a final treatment over all disturbed soil areas.
- During clearing and grubbing operations, remove and stockpile existing topsoils (duff) as part of the earthwork. Replace topsoil in areas where revegetation work is to be implemented. Incorporate topsoil and supplemental compost (as necessary) into finished disturbed soil areas to facilitate revegetation.
- Where rock slope protection is required, use indigenous materials matching local colors and textures. All rock generated during earthwork operations over 150 mm in size shall be stockpiled and used in drainage facilities and other areas where rock slope protection is to be used. Treat newly harvested material with environmentally benign chemical stains that give rock a weathered appearance.

- Avoid removal of vegetation in areas where narrow vegetative buffer strips separate adjacent residential and commercial properties from road edge.
- Avoid removing trees and other vegetation when relocating bike trail.
- Minimize the introduction of new roadway signage. If new signage is introduced, posts shall be of wood construction and backs of signage should be painted a TRPA-approved color.
- Finished slopes shall reflect sensitivity to the natural topography and vegetation of the surrounding area. Newly constructed rock slope protection areas shall be constructed in such a way as to incorporate existing vegetation at top of slope without removal. In areas where space allows, pockets of native soil that supports vegetation shall be incorporated into rock slope protection. These areas shall be planted with native vegetation.
- Water quality improvement basins shall avoid the use of concrete or asphalt materials. Water quality improvement ditches shall be rock lined whenever possible. Avoid constructing features with harsh angles and steep slopes. Integrate features into surroundings through the use of curvilinear forms and contour grading. Use native boulders and logs removed during clearing and grubbing operations as landscape elements to integrate basins into surroundings. Basin side slopes should be designed with 1:3 to 1:4 slopes or flatter to promote successful revegetation. In locations where large basins are proposed, consider breaking basins into smaller basins units that fit into existing clearings of forest canopy.
- Locate basins in areas that are currently disturbed or denuded of vegetation. Enlarge existing basins wherever possible.
- All new drainage facilities that are visible from roadway vantage points (i.e., metal culverts and flared end sections) shall be painted to blend into existing landscape.
- Water quality improvement basins shall be sited to minimize the motorist's visual exposure from elevated roadway vantage points. Basins shall be sited and designed to avoid removing existing vegetation which screens basins from motorists view.
- Any water treatment facilities that use spreading water such as check dams shall be constructed of native materials (rock, soil and vegetation) and be low in profile.
- In locations with narrow right-of-way limits or usable roadside areas, maximize the use of linear treatment facilities such as bioswales with check dams.
- Planting areas around basins adjacent to roadway in urban settings and residences should be landscaped and irrigated to improve appearance.
- Revegetate denuded areas (soft cover) adjacent to roadway and bike trial. Install barriers in the form of mounding and ditches to deter off-shoulder parking and promote vegetation establishment.
- New signal poles, signage poles, utility cabinets and other new traffic related features shall be constructed of wood or painted a TRPA-approved color to minimize visual impacts.
- All retaining walls shall be faced with architectural treatment textures (including painting and staining) to integrate structures into surrounding natural or urban setting. Architectural treatment types will be determined during the PS&E phase.

- All concrete structures (i.e., spillways, abutments, etc.) shall be stained to blend concrete into surrounding geological features.
- If mitigation is necessary on State Parks property, a mitigation plan will be developed in cooperation with State Parks prior to Program construction.
- Any revegetation of State Parks property will be completed in accordance with a State Parks-approved plant list.
- No stockpiling of materials will be allowed on State Park property.
- Vegetative buffers between the highway and proposed drainage facilities will be retained to the extent feasible on all lands affected by the Program.
- Any signage, including for State Parks facilities, that is damaged by the Program will be repaired or replaced as necessary.