

**VISUAL IMPACT ASSESSMENT**  
**of**  
**PROPOSED PASSING LANES AND CURVE CORRECTION**

**On Route 88 in Amador County**

**KP 67.6/75.6 EA 10-432120**

This Visual Impact Assessment was prepared using a process developed by Federal Highway Administration (FHWA) in conjunction with the American Society of Landscape Architects. This process for assessing visual impacts satisfies the requirements of the National Environmental Policy Act (NEPA). The intent of this visual impact assessment is to substantiate findings presented within the environmental document by acting as a technical support document.

This assessment will define the visual environment of the project area, quantify the visual resources of the project area, and identify viewer response to those resources. The study will assess the resource change that would be introduced by the project and the corresponding viewer response to that change. This perceived change will be analyzed and used to determine the degree of potential visual impacts.

## **I. INTRODUCTION**

### **EXISTING FACILITY**

Existing State Route 88 originates at State Route 99 near Stockton and continues easterly through the city of Jackson over the Carson Pass of the Sierra Nevada Mountain Range to the junction with Route 395 in Douglas County, Nevada. State Route 88 is primarily a two-lane conventional highway. Passing lanes exist at numerous locations along the route. Throughout the mountainous areas the highway typically has 1.2 meter shoulders. Classified as a principal arterial, Route 88 primarily serves interregional traffic which includes commuters, recreational and commercial users. State Route 88 is designated as an Official State Scenic Highway as well as a U.S. Forest Service Scenic Byway.

### **PROJECT DESCRIPTION**

This project proposes two westbound passing lanes and one curve realignment on Route 88 in Amador County. For the purpose of analysis, the passing lane from kilopost 67.8 to 68.6 is referred to as Location 1, and the passing lane from kilopost 74.2 to 75.3 as Location 2. The curve realignment is proposed at a location within the limits of passing lane Location 2 between kilopost 74.8 and 75.3. The project is intended to relieve congestion during peak travel periods caused by the lack of passing opportunities and provide opportunities for passing slow-moving vehicles. The curve correction is proposed to improve maneuverability at that location.

At each passing lane location, road widening will occur to the northern side of the existing highway except in the area of the curve correction. The curve correction will be

realigned to the southern side of the highway. The proposed roadway throughout Locations 1 and 2 will include three 3.6 m lanes with a 2.4 m shoulder along the eastbound lanes and a 1.2 m shoulder along the westbound lanes. The total paved roadway width will increase from an existing 9.6 m to a proposed 14.4 m.

## II. EXISTING VISUAL ENVIRONMENT

### REGIONAL LANDSCAPE

Defining the regional landscape establishes a frame of reference for comparing the visual effects of the proposed project and determining the significance of these effects. A regional landscape is made up of a characteristic combination of landscape components which distinguishes it from the next. The following description of the landscape components of the area addresses landform and landcover:

#### Landform

The region is defined as part of the western slopes of the Sierra Nevada mountain range. The highway corridor traverses an east/west ridgeline. Through the project area, snow covers the landscape throughout much of the winter season. The landform of the region is characterized by relatively steep slopes and ravines forming a series of ridgelines and deep valleys as the mountains rise from the valley floor. The landform along Route 88 within the project area is typical of the region and is relatively consistent from one end to the other. The exaggerated topography of the region generally allows the opportunity for long-range vistas of the surrounding landscape. This steep topography necessitates a curvilinear roadway which produces views for the highway traveler alternating between close-in uphill slopes and wide open panoramas.

#### Landcover - Water

Surface water is an important visual and recreational element throughout much of the region. Although lakes and streams play an important role in defining the regional landscape, views of surface water are not readily visible from the highway within the project limits. No lakes are within the viewshed of the project, and the abundant streams throughout the area are blocked from view and not noticeable from a moving vehicle.

#### Landcover - Vegetation

Throughout the region, vegetation is a primary component of visual character. In the project area, the vegetative cover is mixed conifer forest, primarily with mature pine and cedar trees, and an associated understory of manzanitas, chaparral and Sierra Juniper. The size and density of the existing vegetation, in combination with its proximity to the road, blocks long-range views to and from the highway throughout much of the area. Views from the road into the forest area generally are limited to a distance of approximately 60 to 150 feet because of intervening vegetation.

#### Landcover - Built Development

In this region the primary developments are the highway itself, occasional roadside retail businesses, U.S. Forest Service recreational improvements and

scattered cabins. A few paved and unpaved access roads can be seen from the highway. The scale and frequency of man-made development throughout the project area is such that it doesn't dominate the views when seen in the context of the forest landscape. Due to the exaggerated topography throughout much of the region, cut and fill slopes are associated with the highway facility and are commonly visible from the road.

## LANDSCAPE UNITS

To provide a framework for understanding the visual effects of a proposed highway project, the regional landscape can be divided into distinct landscape units. A landscape unit may be thought of as an "outdoor room", perceived as a complete visual environment with certain visual characteristics that distinguish it from the next.

Although this project is comprised of two separate construction locations with a gap of 5.5 kilometers between them, each location traverses a landscape which is perceived as a single-type throughout its length. The general landform and vegetative cover throughout the project are visually consistent, and no atypical visual features are present. As a result, this report analyzes the project length as a single landscape unit.

## OBSERVER VIEWPOINTS

Three viewing locations were identified which would best reveal the project's components and any potential visual character change. Viewing locations, or Observer Viewpoints, were selected which would best represent the typical visual character of the project, show any unique project components or affected resources, and which represent an affected viewer group. The locations of the Observer Viewpoints are shown on Attachment A.

## III. VIEWER SENSITIVITY AND RESPONSE

A change in visual character cannot be described as having good or bad attributes until it is compared with the viewer response to that change. Public opinion concerning the established visual character of the regional landscape, and the proposed project that would change that character are the basis for evaluating the contrast in the visual character.

### Planning Guidelines

Route 88 has long been recognized for its scenic qualities, and the following designations and planning documents illustrate the heightened degree of sensitivity concerning the aesthetic character of this highway.

State Scenic Highway Designation - In 1986, at the request of the neighboring counties, Route 88 was designated as an official State Scenic Highway, due to its natural beauty and to preserve it as a scenic asset for the region. The designation of Official State Scenic Highway requires local jurisdictions to adopt adjacent land use regulations and to develop ordinances controlling the appearance of earthwork, landscaping, vegetation, structures and equipment within the scenic corridor surrounding the highway. The California Streets and Highways Code states that

concerning State Scenic Highways, Caltrans “shall give special attention both to the impact of the highway on the landscape and to the highway’s visual appearance”.

National Forest Scenic Byway Designation - Route 88 is also designated as a National Forest Scenic Byway. A mission of this national program is to enhance appreciation and public knowledge of the scenic, cultural and historic resources along the Byway and throughout the nation. The Scenic Byways program seeks to maintain these resources through the development of a corridor management plan which specifically includes scenic issues.

Highway 88 Scenic Byway Management Guidelines – These guidelines were created by the U.S. Forest Service to “maintain and enhance Highway 88 as a forested, scenic highway of the highest quality” and to “provide quality resource management direction on National Forest lands adjacent to Highway 88”.

Highway 88 Planning Agreement - In 1985 this agreement was created and signed by Caltrans District 10, the U.S. Forest Service, Alpine, Amador and El Dorado Counties, and the Federal Highway Administration. The purpose of this Planning Agreement is “to provide long-term guidance and direction to insure scenic and safe highway experience for forest visitors traveling Highway 88”.

## **Viewer Groups**

Two general viewer groups were considered for the evaluation of viewer response; those with views from the road and those with views of the road.

### **Viewers from the Road -**

This viewer group is comprised of the highway user. For viewers travelling Route 88 through the project area, distant views are generally of short duration, and within the steeper areas, the foreground and middle ground views along the highway are dominant. The viewers along this segment of Route 88 are primarily in motor vehicles and include recreational types such as skiers, campers and hunters; local business owners and operators, and private property owners.

The awareness of visual resources by these highway users is expected to vary with their specific activity. Tourists, which comprise a large number of viewers on Route 88, generally have a high awareness of the visual resources around them, yet are anticipated to be less sensitive to specific changes in that environment. In general, highway users in vehicles will experience the area as a cumulative sequence of views and may not focus on specific roadway features. Local residents and business owners are the most sensitive to aesthetic issues due to their familiarity as well as their personal investment in the area.

### **Viewers to the Road -**

This viewer group is made of all those who can see the road project or any of its components from off-site locations. In the case of this project, the number of people with views to the specific project location is limited. Views of the project are available where access roads intersect the highway. Long distance views of the existing roadway cuts and fills are scarce. The project is not visible from either of the two closest

roadside retail establishments, Ham’s Station or Cook’s Station.

**IV. VISUAL IMPACTS**

A Visual Quality Evaluation (VQE) was conducted in order to assess the magnitude of the potential visual changes caused by the proposed project. The VQE compares the visual quality of both the existing and proposed conditions. A separate VQE was done from each of the three Observer Viewpoints. A numerical rating between 1 and 7 was assigned for the existing quality from each viewpoint, with 1 having the lowest value and 7 the highest. Photosimulations were then prepared illustrating the likely appearance of each view after project construction. Numerical ratings were then assigned to each of these “proposed” views. The numerical difference, if any, between the existing and proposed conditions quantifies the change which may occur as a result of the proposed project. This numerical difference is compared to the expected sensitivities of potential viewer groups in order to determine a level of visual impact.

The numerical rating system described above is based on evaluative criteria using three primary components identified as vividness, intactness, and unity. These three criteria are described as follows:

Vividness is the visual power or memorability of the landscape components as they combine in striking and distinctive visual pattern.

Intactness is the visual integrity of the landscape and its freedom from non-typical encroaching elements. If all of the various elements of a landscape seem to “belong” together, there will be a high level of intactness.

Unity is the visual harmony of the landscape considered as a whole. Unity represents the degree to which the visual elements maintain a coherent visual pattern.

Following are the visual quality ratings for each Observer Viewpoint:

**Observer Viewpoint 1** – Within the area of project Location 1, approximately at kilopost 68.0 looking eastbound. Observer Viewpoint 1 shows a typical segment of Route 88 throughout the project area. This view represents the character of the landscape where cut slopes are visible adjacent to the roadway (See Exhibit 1).

<u>Location</u>		<u>Vividness / Intactness / Unity / (=V+I+U/3)</u>			
<b>OV1</b>	EXISTING	4.5	5.8	6.0	5.4
	PROPOSED	4.5	5.5	5.7	<u>5.2</u>
Visual Quality Difference =					<b>-0.2</b>

Analysis of Visual Changes -

This Observer Viewpoint receives a moderately high rating for existing visual quality. This view earns it's highest ratings for visual unity, due to the harmonious aesthetic pattern created by the dense vegetation overlaying the exaggerated landform. Typical of this situation, the height of the cut slopes is visually balanced by the visual mass of

the trees directly across the road from it. The intactness of this view is also high, although reduced somewhat due to the engineered characteristic of the excavated slope. Existing vividness is moderately high but somewhat reduced since it is typical of the region and not individually memorable.

With the implementation of the proposed project, the visual quality rating from this viewpoint would be reduced slightly. Both the unity and the intactness would be lowered due to the hardscape of the additional lane and the built appearance of the new cut slope. Vividness would remain the same and is not expected to increase or decrease the memorability of the view at this location.

**Observer Viewpoint 2A** – Within the area of project Location 2, at approximately kilopost 74.7 looking westbound. This viewpoint shows a straight section of Highway 88 with typical stands of mature trees along the roadside and few particularly noticeable cut slopes (See Exhibit 2A).

<u>Location</u>		<u>Vividness / Intactness / Unity / (=V+I+U/3)</u>			
<b>OV2A</b>	EXISTING	4.4	5.9	6.0	5.4
	PROPOSED	4.6	5.3	5.5	<u>5.1</u>
Visual Quality Difference =					<b>-0.3</b>

Analysis of Visual Changes –

The ratings show that this landscape unit is of moderately high visual quality. Through this section of highway, the vividness rating is the lowest of the three rating criteria because the view is fairly typical and not unique for this route. The visual continuity of the forest along the roadside results in both a high unity rating and intactness rating for this view.

At this location, the proposed passing lane would be widened to the north side of the existing road, and would require the removal of trees and the construction of a fill slope. Changes to visual quality would be due primarily to the additional pavement width and the increased distance between the redefined forest edge and the roadside. Removal of existing trees would increase filtered long distance views from the roadway, slightly increasing the vividness rating. The unity and the intactness would be lowered because of the additional lane, loss of vegetation and the built appearance of the new embankment slope. Glimpses of this fill slope will be visible from a few distant locations north of the project. The existing forest which remains adjacent to the toe of the proposed fill slope will screen much of the slope from off-site viewing areas

**Observer Viewpoint 2B** – Within the area of project Location 2, approximately at kilopost 75.4 looking eastbound. This view is of the proposed curve correction where the existing alignment diverges from the proposed alignment. This viewpoint reveals what the highway traveler sees when approaching this area from the west (See Exhibit 2B).

<u>Location</u>		<u>Vividness / Intactness / Unity / (=V+I+U/3)</u>			
<b>OV2B</b>	EXISTING	4.6	5.8	6.0	5.5
	PROPOSED	4.9	5.0	5.4	<u>5.1</u>
Visual Quality Difference =					<b>-0.4</b>

**Analysis of Visual Changes –**

From this viewpoint the existing intactness and unity ratings are moderately high primarily because of the visual continuity of the adjacent forest. The visible cut and fill slopes, although relatively small, prevent these two ratings from being somewhat higher. The vividness, or memorability of the view is only in the moderately-high range because of the commonness of this type view along the route.

With the construction of the proposed project, vividness is expected to increase slightly at this viewpoint location due to a minor expansion of long distance views. However, the intactness and unity will likely drop because of the engineered appearance of the new fill slopes, the visibility of the old road alignment landform, the reduction in mature vegetation within close proximity to the viewer, and the presence of the additional lane of asphalt. At this location, mature trees which remain adjacent to the toe of the proposed fill slope are expected to greatly reduce visibility of the slope from off-site viewing areas.

**V. SUMMARY OF PROJECT IMPACTS**

The existing visual quality of Route 88 in the project area is moderately high. This view quality is due primarily to the abundance of natural vegetation, the dramatic topographic relief and the minimal visibility of built elements. Viewers through this area generally have high expectations regarding scenic quality, and the scenic designations bestowed by the State of California and the United States Forest Service further heighten viewers’ sensitivity along this route. Roadside views along Route 88 within the project area are generally confined to the fore- and mid-ground roadway environment.

As a result of this project, minor changes in visual resources will occur within the project limits. These changes will be due primarily to the increased visibility of “built” characteristics and the short-term decrease of the natural scenic components. This change of character will be most evident to the typical viewer in terms of newly disturbed cut and fill slopes, landform alterations and a more open spatial character at certain locations. The removal of existing mature trees adjacent to the roadway will further contribute to the character change. The Visual Quality Evaluation ratings show that because the existing visual character is one of a sparsely-developed mountain landscape, the widened scale of the roadway, along with the associated cut and fill slopes will result in a minor reduction of intactness and visual unity. A slight increase in vividness is expected due to the opening of filtered long distance views from a few

locations. The proposed project will have the greatest impact on the visual environment at project location 2, in the area of the curve correction because of the amount and visibility of earthwork at that location.

Post-construction and short term adverse visual impacts will also occur as part of the project. These impacts are expected to diminish as the project site weathers and mitigation components become established.

## **VI. CUMULATIVE EFFECTS**

In general, the relative scale of this specific project will not detract from the high quality of the total visual environment. The regional landscape can accommodate the proposed additional pavement width, earthwork and tree loss associated with this project without losing much noticeable visual quality. The greatest negative visual impact associated with this project would be in the area of the curve correction, yet the full viewing experience for the highway and forest user would not be greatly diminished.

Even though visual impacts at specific locations may be generally minor, an important consideration is the potential cumulative affect of several constructed and programmed highway improvements along Route 88.

Within recent years, several projects have been constructed along the Route 88 corridor. These highway improvements include curve corrections, passing lanes, and maintenance projects. The combined visual affect of these projects, as experienced in sequence by the highway traveler and by the forest visitor, has the potential to change the perceived character of the corridor and region. These prior projects were reviewed for cumulative impacts in combination with this currently proposed project.

It is anticipated that once in place, only the highway users most familiar with the route would perceive that the scale of the highway facility had been changed. With proposed mitigation, the area landscape and the factors that contribute to the existing view quality would "absorb" the visual changes caused by this and similar projects. The qualities that make this highway visually enjoyable would outweigh the negative effects of the proposed changes. Passing lanes and small to moderate cut and fill slopes are expected visual features within this mountainous highway environment. Cumulatively, the high quality of the visual experience along the highway corridor would not be lessened. Long-range views from the surrounding hillsides to the highway are limited and generally are screened by surrounding vegetation. These views are not adversely affected by the cumulative affect of past projects nor are they expected to be affected by the addition of this current proposal.

The potential cumulative impacts along this scenic route should continue to be assessed, and it is recommended that the affects of this project be considered as part of the analysis of future projects.

## **VII. RECOMMENDED MITIGATION**

Through analysis of specific viewpoints, and examination of the visual experience of moving through the view corridor of the proposed project location and its surroundings, it is found that the existing high visual quality is mostly due to the following:

- Native vegetation. The space-defining quality of the trees as well as the harmonious visual pattern of the diverse vegetation on the hills and ground plane.
- The minimal visual encroachment of constructed elements.
- The unique characteristics of rock outcroppings in some of the excavated cut areas.
- The combination of alternating distant vistas and narrowing viewsheds caused by undulating landform.
- The curvilinear road alignment.
- Superior (elevated) viewing positions.

In order to maintain these visual quality elements and in order to decrease the amount of negative visual impact caused by the project, the following design, construction and maintenance actions are recommended. With the implementation of the stated mitigation methods, the visual impacts of this project can be reduced and will not result in substantial changes in overall visual quality.

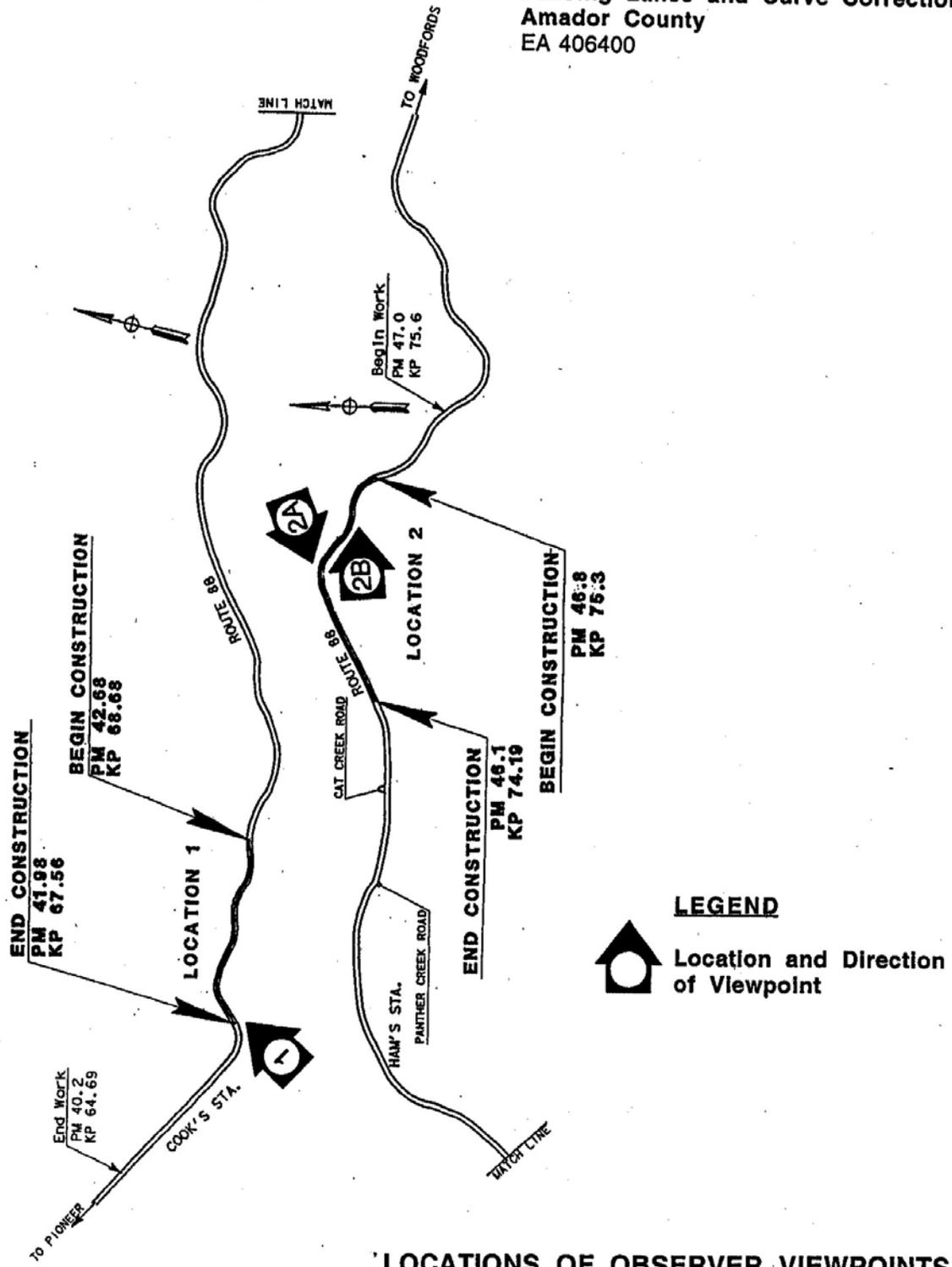
1. Obtain a design exception and reduce proposed eastbound shoulder width from 2.4 meters to 1.2 meters, to reduce the visual scale of the highway.
2. Construct excavation slopes as steep as possible to minimize tree removal.
3. Warp constructed slopes where possible to save existing trees.
4. Excavation should be done as to not expose roots of trees adjacent to impacted areas.
5. At Location 2, in the area of the curve correction, recontour the existing highway roadbed to reduce it's engineered appearance.
6. Retain existing rock outcroppings where possible.
7. If rock outcroppings are exposed during construction, treat exposed rock to give it a weathered appearance.
8. Finish-grade slopes with a rough appearance where possible to create the look of age.
9. Revegetate the existing road alignment after recontouring landform.
10. Remove base material from existing roadbed prior to revegetating that area.
11. Replace all removed trees using a planting ratio and maintenance program determined by Caltrans biologists and landscape architects which will ensure plant establishment and long-term success.
12. Replant with native species as determined by Caltrans biologists and landscape architects in consultation with U.S. Forest Service plant resource specialists.
13. Replace shrubs in specific areas where appropriate.

14. Revegetate all fill slopes with trees.
15. Undulate the perimeter of tree groupings to increase the natural appearance.
16. Vary plant spacing for a more natural appearance.
17. Save appropriate number of felled trees and boulders and naturally place them at random locations on disturbed areas to create an aged appearance, as determined by the Caltrans Landscape Architecture Department.
18. Save, stockpile and reapply duff and topsoil on disturbed slopes to reduce the newly-constructed look and to promote natural revegetation.
19. Apply erosion control to all disturbed slopes.
20. Erosion control seed species, origin and application strategy shall be determined by Caltrans Landscape Architects in consultation with Caltrans biologists and U.S. Forest Service plant resource specialists.

## **VIII. PHOTO SIMULATIONS**

The three photosimulations shown in Exhibits 1, 2A and 2B illustrate the visual character of each previously described Observer Viewpoint, as well as an overview of Route 88 through the project area. In each case, the simulation at the top of the page is of the existing conditions, and the bottom simulation represents how that location might appear with mitigation in place, after approximately three years after roadwork completion.

**ROUTE 88**  
**Passing Lanes and Curve Correction**  
**Amador County**  
**EA 406400**



**LOCATIONS OF OBSERVER VIEWPOINTS**

Attachment A

Existing view



Proposed view



**OBSERVER VIEWPOINT 1**

Within the area of Location 1, near kilopost 68.0 looking eastbound.

Exhibit 1

Existing view



Proposed view



OBSERVER VIEWPOINT 2A  
Within the area of Location 2, near kilopost 74.7 looking westbound.

Exhibit 2A

Existing view



Proposed view before mitigation



Proposed view with mitigation after approximately three years



**OBSERVER VIEWPOINT 2B**

Within the curve realignment area of Location 2, near kilopost 75.4 looking eastbound.

Exhibit 2B