

VISUAL IMPACT ASSESSMENT

State Route 91 Lane Addition between State Route 55 and State Route 241

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Caltrans District 12

**Landscape Architecture
Branch**

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I. PURPOSE OF STUDY

The purpose of this study is to assess the visual impacts of the project proposal and to identify measures to mitigate any adverse visual impacts associated with the construction of additional lanes on Route 91.

II. PROJECT DESCRIPTION

The project is to relieve congestion and to improve operational efficiency on Route 91 in Orange County. There are two project alternatives, a build and a no build alternative.

- **Build Alternative**

The build alternative is to add one eastbound general purpose and standard lane from the Route 91 and 55 connector to post mile 9.20, a location just east of the Weir Canyon Road Interchange. The project also includes the addition of one westbound general purpose and standard lane from the roadway post mile 9.20 east to the Imperial Highway Interchange. This roadway improvement includes a modification of the westbound on ramps at the Lakeview Avenue Interchange.

- **No Build Alternative**

The no build alternative means there is no transportation corridor improvement.

III. ASSESSMENT METHOD

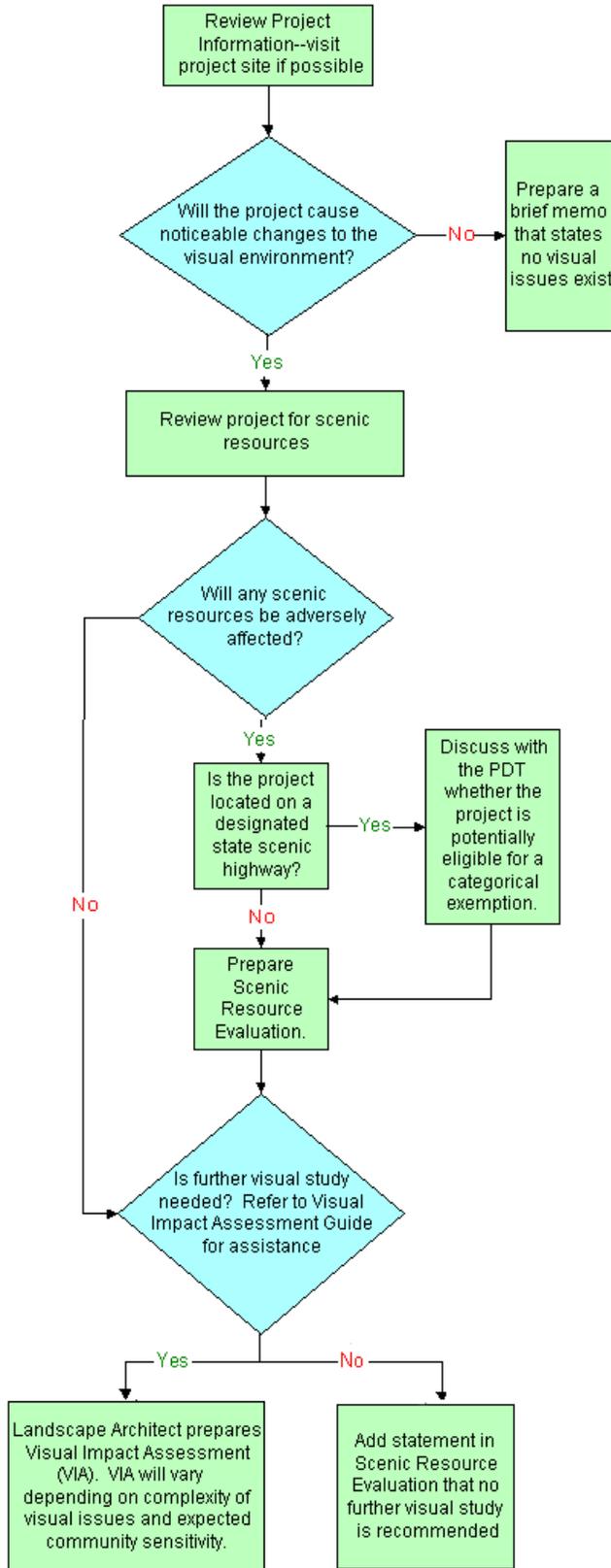
The process for this visual impact study follows the guidelines in the publication Visual Impact Assessment for Highway Projects, Federal Highway Administration (FHWA), March 1981. There are six main considerations in this analysis.

- Description of the project setting and view shed.
- Identification of the project key views.
- Analysis of the existing visual resources and the viewer response.
- Depiction of the visual appearance of the project alternatives.
- Assessment of the visual impacts of the project alternatives.
- Identification of the methods to mitigate adverse visual impacts.

California Environmental Quality Act (CEQA) Requirements

This project must meet the requirements of CEQA. This includes the requirements that pertain to the State Scenic Highway System. The project area is entirely in the Route 91 Designated Scenic Highway. Since the project is not categorically exempt, it is necessary to do a Scenic Resource Evaluation (SRE). This is a visual and aesthetic review. The determination to do a SRE is the result of the review of the Visual Study Decision Tree.

Visual Study Decision Tree



This visual study also serves as the SRE. The review of the visual quality and conditions indicate the scenic resource.

IV. VISUAL ENVIRONMENT OF THE PROJECT

A. Project Setting

The Santa Ana River, a coastal plain, and a mountain range define the regional landscape and geography of the project area in Orange County. The northern portion of the County is the coast plain of the Los Angeles Basin. The geography of the southern portion of the County is primarily the foothills of the Santa Ana Mountains. The majority of the population distribution is in one of the two coastal valleys, the Santa Ana Valley and the Saddleback Valley.

The elevation transition between the coastal plain and the Santa Ana Mountains is moderate. The Santa Ana Mountains are part of the peninsular ranges that span from Mount San Jacinto to the Baja California peninsula. The highest elevation in the County is Santiago Peak (5,687 ft.). The Santiago Peak and the Modjeska Peak (5,487 ft.) form the Saddleback Ridge.

The regional landscape establishes the typical visual environment of the project. The land uses of the coastal plain and mountain foothills are open space, industrial, commercial and residential. There is significant landscape planting associated with these land uses. This vegetation complements the view and the character of the regional landscape.

B. Landscape Units

The elements of the visual environment form a landscape unit. The visual study provides a quantitative analysis to identify and to group the typical elements of the view to categorize the elements into units. Landscape units are specific areas with similar visual environment characteristics in the regional project view shed. They contain similar and distinctive visual elements that contribute to a similar visual character and environment.

Suburban River Basin

The visual characteristics of this unit are the Santa Ana Mountains to the South and the Santa Ana River to the North and to the West. There is a moderate elevation transition from the river to the Chino Hills. The Chino Hills are the foothills at the base of the Santa Ana Mountains. There are existing visual intrusions from residential and commercial land use throughout this landscape unit in the cities of Anaheim and Yorba Linda. Other land use in this landscape unit is open space. The following are the landscape elements visible in the Suburban River Basin landscape unit in the foreground, middle ground and background of the view shed.

- Foothills of the Santa Ana Mountains
- Santa Ana Mountains
- Santa Ana River vegetation and stream bed
- Suburban development in the City of Anaheim and the City of Yorba Linda.
- Santa Ana Mountain foothills.
- Route 91 roadway
- Highway planting

The following shows typical views of the various land uses in the project area **residential, commercial and open space.**

❖ Residential

- Existing Noise Barrier





- **Existing Roadside Planting**



❖ Commercial





❖ Open Space



C. Project View Shed

The project view shed is the geography, the landscape and the development visible by the motorist and the public from and to the project area. The elements and composition of the view shed is the visual environment.

The composition of the view shed is foreground, middle ground and background. The foreground is the scene in close range to the viewer. The middle ground is the portion of the view shed that is half way between the foreground and the background view. The background is scenery in the distance view that generally frames the view.

The foreground views generally contain views of the roadway and the associated highway planting. The middle ground views contain the vegetation associated with the Santa Ana River and streambed and the suburban development in the cities of Anaheim and Yorba Linda. The Santa Ana Mountains and foothills are visible in the background views.

V. EXISTING VISUAL RESOURCES AND VIEWER RESPONSE

A. FHWA Method of Visual Resource Analysis

Identify Visual Character – Visual character is the descriptive and factual vision of the viewer. There is no judgment of positive or negative attributes of the view. There is only factual analysis. The basis for the determination is a logical quantification of the response of the viewer to various changes in the visual factors from the project. Public preference for the visual character of a regional landscape necessitates a visual character analysis and evaluation.

Assessment of Visual Quality – The evaluation of visual quality is by the identification of vividness, intactness and unity in the view. The FHWA states this analysis needs to correlate and to predict public judgments of visual quality. This process does not assume there is a negative visual impact from the project. Visual quality assessment helps to identify methods to mitigate adverse visual impacts.

Vividness is the strength and memory of visual image and patterns to the viewers of the landscape of components of the landscape unit.

Intactness is the visual artistic value of the natural and unnatural landscape and the level of intrusive and encroachment of the visual components of the visual character of the setting. This applies to urban and rural landscape units.

Unity is the logical visual connections, similarities and harmony of the elements of the landscape unit.

B. Visual Resources

Visual Character

It is necessary to analyze the visual environment of the landscape units. The visual environment is the view from the transportation corridor and the view of the community to the project area. The FHWA Method of Visual Resource Analysis is a tool to analyze the visual environment. The method identifies the visual resources and the viewer response.

The visual environment of the project area is primarily the views of suburban development in the cities of Anaheim and Yorba Linda; the Santa Ana Mountains, the Santa Ana riverbed, and the Santa Ana foothills. The vegetation of the Santa Ana foothills is Coastal Sage Scrub and Coast Live Oak Woodland vegetation. The vegetation in the suburban areas in the cities Anaheim and Yorba Linda are ornamental plant materials. The visual character of the vegetation creates a distinctive quality of the view that is consistent with the high level of visual quality of the Designated Scenic Highway.

- **Santa Ana Mountains**

The Santa Ana Mountains are a short peninsular mountain range along the coast of Southern California that extends for approximately 35 miles southeast of the Los Angeles Basin along the boundary between Orange and Riverside counties. This range emerges from the East and from the Southern Channel Islands of Santa Barbara, San Nicolas, and San Clemente. The rolling slopes of the Santa Ana Mountains gradually rise from the broad marine terraces. The foothill vegetation is medium green. Vegetation does not appear along the mountain ridges. The ridges and peaks contain snow in the winter. The highest point of this coastal mountain range is 10,000 feet.

- **Santa Ana River Basin**

The Santa Ana River begins in San Bernardino County in the San Bernardino National Forest. The River extends 100 miles through San Bernardino, Riverside, and Orange Counties. The terminus is between Newport Beach and Huntington Beach at the Pacific Ocean. The Santa River is one of the largest river systems in Southern California. Due to the dry climate of Southern California, dam control, and confiscation of water by local water agencies; the water flow in the river varies throughout the year. The river maintains a rural character in the project area year round, consistent with the Designated Scenic Highway. A recreational bicycle trail runs along the river and adjacent to the project area from the Prado Dam near Corona to the Pacific Ocean.

- **Coastal Sage Scrub (CSS) Foothills**

The location of CSS is at low elevations in the maritime climate zone of Southern California. CSS vegetation is generally low growing, dense and generally evergreen, with relatively small, resinous or waxy leaves.

Moisture differences between slopes with north and south aspects result in differences in the visual appearance of this plant community. Plants on slopes with south aspects tend to be small and low growing succulents, while north facing slopes and moister areas may have large evergreen shrubs and trees.

The most visible vegetation of the CSS community is light and dark green and gray foliage. Showy white, yellow and pink flowers are present during after the seasonal rains. Grasses grow under and between shrubs. Undisturbed areas are light gray to gray green from the moss typically found in the CCS plant community.

The plants in moist areas and on slopes with a north aspect are more commonly evergreen with larger leaves and extensive roots.

- **Coast Live Oak Woodland Hills**

The Coast Live Oak Woodland is a plant community found in the inland valleys and canyons of Southern California below 5000 ft. One of three large oaks species; Coast Live Oak, Engelmann Oak, Interior Live Oak, and California Walnut visually dominate this the plant community. These trees have deep root systems and are green all year round. The leaves of the Oak trees create a dense canopy that is shiny and medium to dark green. Other under story vegetation is primarily Poison Oak, California Black Walnut, Sugar Bush and grasses. The appearance of the under story vegetation varies from green to brown seasonally. The overall appearance of this plant community is shiny with a medium to dark green color.

- **Suburban Development**

A large amount of suburban development in the cities of Anaheim and Yorba Linda comprises the geography of the foothills of the Santa Ana Mountains. The landscape associated with residential and commercial land use screens a large amount of these uses from visibility from the roadway. As the vegetation continues to grow in the region, the view of the suburban development continues to diminish. As a result, in time, any visual intrusions from suburban development to the Route 91 Designated Scenic Highway continue to become insignificant. The overall visual character is medium green and complements the visual elements of the surrounding visual environment.

2. Visual Quality

The existing visual quality is an assessment of the degree of visual excellence of a landscape unit. The basis of the degree is the amount of visual continuity of the view. An assessment of the existing visual quality is in the key view analysis in this visual study.

- **Suburban River Basin**

There is a direct relationship between the level and the amount of visual quality in the Suburban River Basin and the amount of seasonal rainfall and haze associated with natural and man made environmental atmospheric conditions. After a winter rain, the views of the Santa Ana Mountains and foothills from Route 91 are spectacular, resulting in a clear view of the unique and regionally significant landscape elements of this landscape unit and the Designated Scenic Highway. Conversely during the summer, during periods of poor air quality and haze, there are low levels of visibility or no visibility of the Santa Ana Mountains. There is a high degree of visual quality in the foreground, middle ground and background views of the Suburban River Basin landscape unit. The degree of visual quality is a product of the consistency and continuity from the similar visual character of the vegetation in the **foreground, middle ground** and **background** views of this landscape unit.

The closer proximity the resource is to the view, the greater the view sensitivity. Although distance visual zones in may vary due to geographic differences, a commonly set of criteria identifies the foreground as the detailed landscape of visual element within a quarter to one half of a mile of the viewer. The middle ground includes the geography from one half a mile to 5 miles of the viewer. The background includes generally includes the view of the geography that is greater than five miles of the viewer.

- **Foreground Visual Quality**

The highway planting in the foreground are native California plants or are ornamental plants that are consistent with the visual appearance of a rural environment of this region.

- **Middle Ground Visual Quality**

The landscape of the middle ground is the introduced landscape associated with the suburban development in the cities of Anaheim and Yorba Linda. This landscape, when viewed in the middle ground, provides for a screen of visual intrusions and complements and blends the vegetation of the foreground with the rural character of the background view of the Santa Ana Mountains.

- **Background Visual Quality**

The landscape of the background in this view shed is primarily views of the Santa Ana Mountains and foothills. The view of the foothills and the mountains provides for a dramatic view due to the contrast of the geographic features. The flat and wide spread appearance of the Santa Ana River Basin compared to the significant elevation change associated with the Santa Ana Mountain provides for a dynamic contrast that is very unique and valuable visual resource.

C. Methods to Predict Viewer Response

Viewer response has two elements, viewer sensitivity and viewer exposure. The combination of these elements provides a method to predict the public reaction to the visual change from this project.

Viewer sensitivity is the viewer concern and response to change in the visual resource. Local values and goals may support the visual significance of a view that may appear unexceptional in a visual resource analysis, as the view is consistent with the visual goals of the community. The identification of local visual resource may be from public input and participation or from local publications or planning documents.

Viewer exposure is an assessment and a measurement the relationships of the viewer activity, duration, speed, and position to the view. The amount of exposure increases the importance of the considerations of the visual appearance of the project in the beginning of the process and best manage the visual resources of the project elements.

D. Existing Viewer Groups, Viewer Exposure and Viewer Awareness

- **Viewer Sensitivity**

We can predict the potential view sensitivity of the various user groups in the project area. Generally transportation users and citizens of the community and citizens in close proximity to Route 91 have some impacts for the transportation project improvement. The following identifies the view group and provides for an explanation that predicts their exposure and awareness of the visual impacts of the proposed project improvement.

- **Traveling Public**

- **State Route 91 Highway**

There are approximately 127,000 vehicles per day that travel east bound on this portion of the Route 91. The combined eastbound and westbound travelers reach a total volume of 250,000 vehicles per day. The majority of travelers are commuters to their jobs from the communities in Riverside County that work in Los Angeles County.

Daily commuters have an awareness of the views from the roadway as they spend significant time on the roadway daily. Travelers that experience traffic tend to focus on the roadway and their drive. Travelers without traffic tend to travel at normal roadway speeds and to focus their attention on long-range views. Vehicle passengers tend to focus on long range, intermediate and short-range views.

- **Local Community/Arterial Streets**

They are Gypsum Canyon, Imperial Highway and Lakeview. All of these roadways cross under the freeway. The views from these roadways are generally east and west toward the roadway bridge structures and the landscape of the highway and the median plantings.

- **Community Residents**

- **General Residents**

The residents and on the south side and the east side of Route 91 generally have expansive views of the Santa Ana River Canyon landscape unit either from their private property or from the arterial and local streets in the community. The construction project may impact the view of some of the surrounding residential development. The closer the residence is to the construction project the greater the visual impact since the construction activities and elements at close range which comprise a large volume of the view shed.

- **Adjacent Residents**

The residents of the region include the surrounding suburban development in the Santa Ana River Basin and the foothills of the surrounding community. The views of this group are generally

distant views of the transportation improvement. As result the visual impact of the very low.

- **Recreational Users**

The Santa Ana River Trail runs parallel to Route 91 on the West Side of the roadway. There are not direct impacts to the users due to the proximity of the trail to the roadway.

- **Commercial Area Users**

The commercial areas in the project area are Weir Canyon and Imperial Highway. There is limited exposure to the view of the transportation corridor and scenic highway since the focus of their visual attention is on the services and products associated with the commercial land use.

One tool to predict the concerns, expectations for the visual impacts to the community is the general plan of communities associated with the transportation improvement. The General Plan of the City of Anaheim, adopted by the community, identifies the project area as the Hill and Canyon area of the City.

Since 1960, the Hill and Canyon area has become home to thousands of hillside residents and one of the most desirable communities to live in Orange County. Scenic views, planned residential development, access to a variety of natural, scenic and recreational resources like the Santa Ana River, Deer Canyon Park Preserve and the Anaheim Hills Golf Course, all contribute to the sense of pride felt by the residents. The General Plan seeks to preserve those characteristics that make the Hill and Canyon area a special place and to provide current and future residents with adequate community services and facilities. It is further intended to encourage and maintain living areas that preserve the amenities of hillside living and retain the overall density, semi-rural, and uncongested character of the Santa Ana Canyon area.

One of the goals of the City of Anaheim General Plan that applies to and helps to predict the response of the community is goal 8.1 of the document.

“Preserve natural, scenic and recreational resources; continue to ensure residential neighborhoods are safe, well-maintained places to live; and continue to provide necessary community services and facilities.”

Additionally the General Plan identifies the following policies that also apply to the project.

“Encourage the preservation of scenic vistas and view through Green Element policies and zoning code development standards.”

Additionally the City of Anaheim includes a Green Element to their General Plan. The Green Element is a combination of a general plan required open space and conservation element.

The Green Element identifies goals and policies for the natural open space in the Hill and Canyon area of the City. According to the plan the area contains a significant amount of open space that abuts some major open space resources; the Chino Hills State Park, the Cleveland National Forest and the Santa Ana River. The Plan identifies that the natural slopes are one the primary aesthetic and visual resource in the Hill and Canyon area. The City requires careful siting, grading and design to minimize exposure to hazards and to maintain and enhance the scenic quality of the area.

Accordingly the City;

- Requires future development to be balanced with the need to preserve the natural environment to ensure current and future generations are able to enjoy the benefits of this important resource.
- Identifies the hillsides visible from Route 91 create a dramatic backdrop to the area and define that defines the rural visual character of the area.
- Requires that hillside development minimize the alteration of the natural landforms and natural vegetation.
- Identifies the views and vistas in Anaheim as important visual amenities.
- The views of the contours of the Hill and Canyon area and the Santa Ana Mountains are visible.
- Identifies the Santa Ana River as a scenic amenity that provides visual relief

Additionally the goal of the City of Anaheim General Plan is to;

- *“Preserve views of ridgelines, natural open space and other scenic vistas whenever possible. Additionally the City encourages development that preserves natural contours and prominent views.”*
- *“Maximize the recreational and scenic potential of existing reservoirs, basins and waterways.”*

In accordance with the General Plan and to respect the values of the community the project elements need to complement the natural environment to the maximum potential possible to avoid any negative visual impacts to the Designated Scenic Highway.

VI. VISUAL IMPACT ASSESSMENT

A. Method of Project Impact Assessment

The determination of the visual impacts of the project is by the assessment of the visual resource change and the prediction of the viewer response to the change. Visual resource change is the sum to the change in visual character and visual quality. The first step to assess visual

The determination of the visual impact of the project alternatives is by the assessment of the visual resource change due to the project and the prediction of viewer response to the change.

Visual resource change is the sum of the change in visual character and change in visual quality. The first step to determine visual resource change is to assess the compatibility of the proposed project with the visual character of the existing landscape. The second step is to compare the visual quality of the existing resources with projected visual quality after the completion of project construction.

The viewer response to project changes is the sum of viewer exposure and viewer sensitivity to the project. The determination of the level of visual impact is the combination of the severity of resource change with the degree people is likely to oppose the change. A matrix of the severity of the change and the degree of opposition to the change is an importance analysis of the study.

B. Definition of Visual Impact Levels

- **Very Low**- Minor no adverse visual change to the existing visual resource. There is very little or no response to the change in the visual environment. Mitigation is not a project requirement.
- **Low** -Minor adverse change to the existing visual resource. There is a low viewer response to change in the visual environment. Mitigation may or may not be a project development requirement.
- **Moderately Low**- Moderate adverse visual resource change with low viewer response.
- **Moderate** -Moderate adverse change to the visual resource with moderate viewer response. The achievement of visual impact mitigation within five years with conventional practice is possible.
- **Moderately High** -Moderate adverse visual resource change with high viewer response or high adverse visual resource change with moderate viewer response.

- **High** -A high level of negative change to the visual resource or a high level of viewer response to visual change. Architectural design and landscape treatments cannot mitigate the visual impacts of the project. The viewer response level is high. An alternative project design may be necessary to avoid highly adverse impacts.
- **Very High** – There is a very high level of adverse change to the visual resource or a very high level of viewer response to visual change. Architectural design and landscape treatments cannot mitigate the visual impacts of the project. The viewer response level is high. An alternative project design may be necessary to avoid highly adverse impacts.

These are the three criteria used in the objective rating system that have equal influence on the visual quality assessment of a landscape.

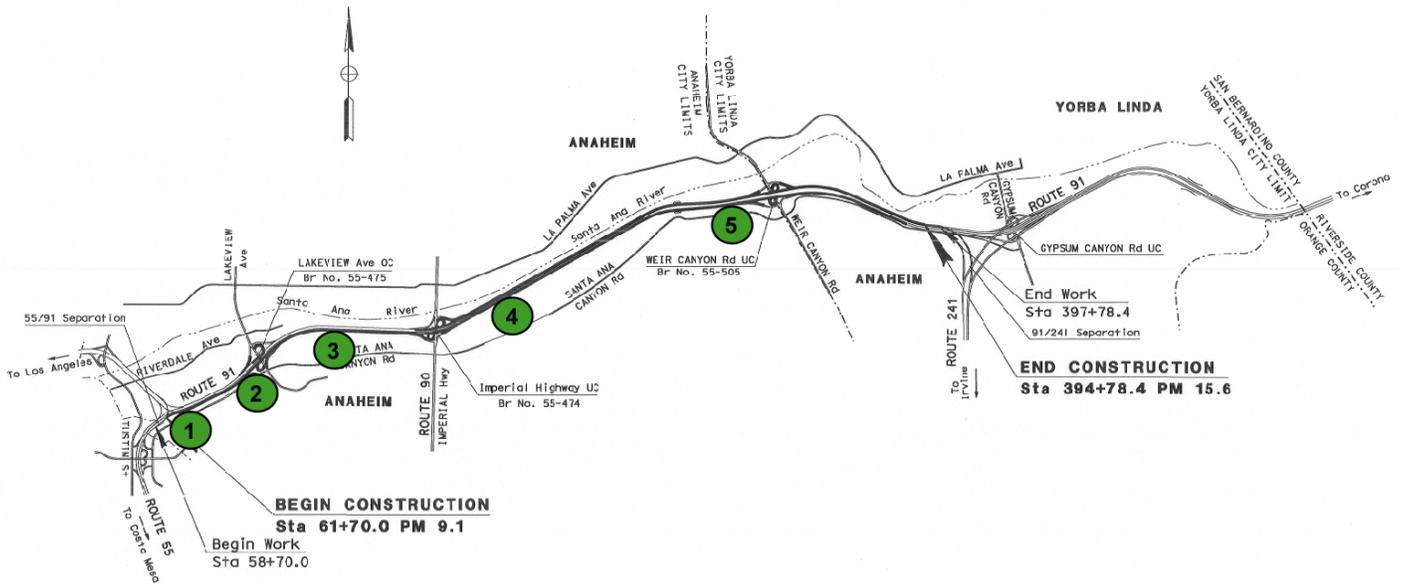
$$\text{Visual Quality} = \frac{\text{Vividness} + \text{Intactness} + \text{Unity}}{3}$$

The evaluations of vividness, intactness, and unity are independent. Each criterion has an assigned rating from 1 to 7. The following outlines the rating scale:

- 1- **Very Low**
- 2- **Low**
- 3- **Moderately Low**
- 4- **Moderate**
- 5- **Moderately High**
- 6- **High**
- 7- **Very High**

C. Analysis of Key Views

A key view is a representative, typical, characteristic and clear perception of the project elements to the primary viewer groups. Key views also need to represent the landscape units and include all of the project elements. Additionally key views are the seen areas to and from the roadway. They are viewpoints that clearly display the visual effects of the project and represent the primary viewer groups affected by the visual impacts of the project. The following graphic is a vicinity map of the project area that shows the location of the key views of this visual analysis.



SR-91 WIDENING PROJECT SR-55 TO SR-241

KEY VIEW MAP

Figure 5

❖ **Key view #1**

- **Orientation**

Eastbound and westbound on Route 91 at the Route 55 Interchange.

- **Visual Quality and Character**

The foreground view has a noise barrier. There is a highway planting area between the roadway and the noise barrier. The planting is ornamental that has a consistent character with the surrounding natural environment. The middle ground view to the west has the geography of a river basin with suburban development. There is significant landscape associated with the development that softens the visual character and provides unity and consistency with the rural character of the foothills. The background view is of the Santa Ana Mountains and the associated foothills. The background view is spectacular when visible on a clear day.



Existing View

Existing Visual Quality Analysis

KEY VIEW 1	Vividness	Intactness	Unity	Visual Quality
	Moderate	Moderately High	Moderate	Moderate to Moderately High
	4	5	4	4.33

- **Proposed Project Elements**

- Additional lane Eastbound and Westbound
- Retaining Wall
- Noise barrier

- **View from the Roadway**

The foreground view from the roadway in the project area is primarily residential properties with ornamental landscape. The middle ground view is of the foothills of the Santa Ana Mountains. The foothills have complete vegetative cover of the Chaparral and Coast Sage Scrub plant communities. The background view is of the Santa Ana Mountains.

- **Views to the Roadway**

There is no direct view of the roadway from the adjacent community. There are distance views to the roadway from the surrounding hillside. Due to the proximity of the hills to the project area, there is little to no view of the project elements from the eastside of the roadway. Any views to the project area from the west side are of the slopes adjacent to the roadway. The roadway is at a higher elevation than geography to the west of the project area. As a result there is no view of the project elements from the west side of the roadway. Any project elements are not discernable for any distant views to the roadway from the west from the surrounding hillside due to the proximity of the roadway to the hills.

- **Change to Visual Quality and Character**

The widening removes the highway planting to accommodate the additional lane. The following is the rating of the change to the visual quality and character resultant from the project elements of the project improvement.

The following chart shows the visual impact without any mitigation considerations.



View without Mitigation



Proposed View with Mitigation

- **Viewer Response**

The viewer response to the visual change in this location is moderate.

- **Visual Impact**

The following shows the visual impact for the project after construction. There is a reduction of visual quality of .333 as result of the project elements in this location.

KEY VIEW 1	Vividness	Intactness	Unity	Visual Quality
	Moderate 4	Moderately 4	Moderate 4	Moderate 4

❖ **Key view #2**

- **Orientation**

East bound Route 91 at Lakeview onramp.

- **Visual Quality and Character**

The foreground view is of a bridge structure and highway planting. The planting is ornamental that has a consistent character with the surrounding natural environment. The middle ground view to the west has the geography of a river basin with suburban development. There is significant landscape associated with the development that softens the visual character and provides unity and consistency with the rural character of the foothills. The background view is of the Santa Ana Mountains and the associated foothills. The bridge structure interrupts the background view that is significant on a clear day.



Existing View

Existing Visual Quality Analysis

KEY VIEW 2	Vividness	Intactness	Unity	Visual Quality
	Moderate 4	Moderately High 5	Moderately Low 3	Moderate to 4

- **Proposed Project Elements**

- Additional lane Eastbound and Westbound
- Retaining wall

- **Change to Visual Quality and Character**

The addition of another lane in both direction changes impacts to the foreground, middle ground, and background views. A standard new retaining wall in the foreground is a dominant feature in the view shed. The impact to the middle ground and background views is similar to the impact in the foreground view due to the dominance of the retaining wall structure and loss of landscape area in the State right-of-way. The affect is also cumulative with the addition of concrete structures and elements that continue to add elements that contrast with the visual character of the natural environment. On the other hand the structural element are minimum so there is very little change to the visual change in this key view.



Proposed View with Mitigation

KEY VIEW 2	Vividness	Intactness	Unity	Visual Quality
	Moderate 4	Moderately High 5	Moderately High 5	Moderate to Moderately High 4.66

- **Viewer Response**

The viewer response to the visual change in this location is low to moderate.

- **Visual Impact**

The following shows the visual impact for the project after construction. There is a reduction of visual quality of .333 as result of the project elements in this location.

❖ **Key view #3**

- **Orientation**

East bound and west bound view from Route 91 between the arterial streets of Lakeview and Imperial Highway in the City of Anaheim.

- **Existing Visual Quality and Character**

The foreground view has a noise barrier. There is a highway planting area between the roadway and the noise barrier is a tree planting. The planting is ornamental that has a consistent character with the surrounding natural environment. The middle ground view to the west has the geography of a river basin with suburban development. There is significant landscape associated with the development that softens the visual character and provides unity and consistency with the rural character of the foothills. The background view is of the Santa Ana Mountains and the associated foothills. The background view is spectacular when visible on a clear day.

- Noise barrier
- Highway planting



Existing View

Existing Visual Quality Analysis

KEY VIEW 3	Vividness	Intactness	Unity	Visual Quality
	Moderately Low 3	Moderately Low 3	Low 2	Low to Moderately Low 2.66

- **Proposed Project Elements**

- Additional lane Eastbound and Westbound

- **Change to Visual Quality and Character**

The addition of a noise barrier affects the foreground, middle ground, and background views. A standard noise barrier in the foreground is a dominant feature in the view shed. The impact to the middle ground and background views is similar to the impact in the foreground view due to the dominance a noise barrier structure. The affect is also cumulative with the addition of structures and elements that continue to add elements that contrast with the visual character of the natural environment.



View without Mitigation



Proposed View

KEY VIEW 3	Vividness	Intactness	Unity	Visual Quality
	Moderate 4	Moderately High 5	Moderately High 5	Moderate to Moderately High 4.66

- **Viewer Response**

The viewer response to the visual change in this location is low to moderate.

- **Visual Impact**

The following shows the visual impact for the project after construction. There is a reduction of visual quality of .333 as result of the project elements in this location.

❖ **Key view #4**

- **Orientation**

East and west view north from Route 91 at Imperial Highway.

- **Existing Visual Quality and Character**

The foreground view has a noise barrier. There is a highway planting area between the roadway and the noise barrier that contains grasses. The middle ground view to the west has the geography of a river basin with suburban development. There is significant landscape associated with the development that softens the visual character and provides unity and consistency with the rural character of the foothills. The background view is of the Santa Ana Mountains and the associated foothills. The background view is spectacular when visible on a clear day.

- Residential development perimeter wall.
- No highway planting



Existing View

Existing Visual Quality Analysis

KEY VIEW 4	Vividness	Intactness	Unity	Visual Quality
	Moderately High 5	Moderate 4	Moderate 4	Moderate to Moderately High 4.33

• Proposed Project Elements

- Additional lane eastbound and westbound.
- Noise barrier.

- **Change to Visual Quality and Character**



Proposed View without Mitigation



Proposed View with Mitigation

KEY VIEW 4	Vividness	Intactness	Unity	Visual Quality
	High 6	Moderately High 5	High 6	Moderately High to High 5.66

- **Viewer Response**

The viewer response to the change in visual quality from the project is moderate to high.

- **Visual Impact**

The following shows the visual impact for the project after construction. There is a reduction of visual quality of .333 as result of the project elements in this location.

❖ **Key view #5**

- **Orientation**

This key view is an East and West view at Route 91 at Weir Canyon off ramp.

- **Visual Quality and Character**

The foreground view on the eastside is highway planting and rolling hills. Landscape associated with suburban development is to the West.

The middle ground view on the east and is of suburban development. The landscape associated with the suburban development.

The background view is of the foothills of the Santa Ana Mountains.

Any views to the project area from the west are of the slopes adjacent to the roadway. The roadway is at a higher elevation than geography to the west of the project area. As a result there is no view of the project elements from the west are of the roadway. Any project elements are not discernable for any distant views to the roadway from the west from the surrounding hillside due to the proximity of the roadway to the hills.



Existing View

Existing Visual Quality Analysis

KEY VIEW 5	Vividness	Intactness	Unity	Visual Quality
	Moderately High 5	Moderately High 5	Moderately High 5	Moderately High 5

- **Proposed Project Elements**

- Roadway expansion (one additional lane)
- Bridge widening

- **Change to Visual Quality and Character**

The change to the visual character is from an additional travel lane. The bridge needs modification to accommodate the new roadway width associated with this project improvement.



Proposed View with Mitigation

KEY VIEW 5	Vividness	Intactness	Unity	Visual Quality
	Moderately High 5	Moderately High 5	Moderately High 5	Moderately High 5

- **Viewer Response**

The viewer response to the visual change in this location is low to moderate.

- **Visual Impact**

The following shows the visual impact for the project after construction. There is a reduction of visual quality of .333 as result of the project elements in this location.

The change to the visual quality is low or no impact.

D. Summary of Project Impacts

The overall project impacts to the visual environment of the Route 91 decreases the scenic quality of the scenic highway at locations of the general purpose roadway widening, retaining walls and noise barrier new construction. The key west show typical areas of the roadway improvement. The structural improvement are general on the east bound portion of the existing road way due to the geography of the area that slopes up to the west.

It is very important that any roadway improvements on a Designated Scenic Highway, since Route 91 is a Designated Scenic Highway

The following is a summary of visual impacts. The chart shows the quantitative analysis of the key views before construction. As a result of the project elements there is an affect on the visual quality of the Designated Scenic Highway. The goals of the scenic highway are to avoid an intrusion that reduces the visual environment. In each key view there is to be a reduction of visual quality from the roadway construction.

The visual impact of the project is moderate. With the incorporation mitigation the visual impact of the project are neutralize so the project has very low or no visual impact to the Designated Scenic Highway. Additionally with the project mitigation there is to be an improvement of the existing visual quality. Since some of the areas there are additions of structure elements where there is minimal or no landscape. The addition of landscape to screen and mitigation of visual impact of the structural elements in the scenic highway improve the overall visual quality.

VII. VISUAL MITIGATION

Caltrans and the FHWA mandate a quantitative, qualitative and aesthetic approach to mitigate the cumulative loss of visual quality to the view shed resultant from the associated transportation project. This provides the basis to generate public support, acceptance and neutrality for the project.

The implementation of all mitigation design requirements requires concurrence and approval of the District Landscape Architect for conformance to the mitigation requirement.

The visual mitigation for negative views, identified in the key view analysis, is by individual project element. The analysis to justify the visual mitigation design requirements is the key view assessment and summary. The implementation of the following project elements reduces the project impacts to neutralize the visual impact on the landscape units and the associated scenic highway. The following are the treatment and design considerations are the mitigation requirements. Context Sensitive Design Solutions for transportation corridor compatibility with the aesthetic goals and image of the communities associate with the project improvement is one of the considerations of

requirements necessary to maintain the visual quality of the Designated Scenic Highway.

Project Elements

- **Roadway improvements**

The new road way is consistent with the existing roadway, as a result there is no mitigation in the roadway design necessary as long as it matches the existing.

- **Retaining walls**

- Provide for a landscape buffer between the edge of the roadway and the retaining wall.
- Provide for a wall aesthetic treatment to complement the surrounding natural environment. The design needs consideration to complement the appearance of the geological formations in the region. The District Landscape Architect needs to review and approve the wall texture, color and landscape. The document, Master Plan of Freeway and Transit Corridor Enhancements: Creating a Quality Environment Along Orange County's Transportation Network is one the considerations of the review of the District Landscape Architect. Additionally aesthetic considerations documented by the City of Anaheim planning documents also may be a review and approval consideration at the discretion of the District Landscape Architect.
- The shape of the retaining wall needs to reflect the character of the rolling hillside.
- The use of color concrete for the retaining wall structure is necessary to complement and blend with the natural environment.
- Planting between the edge of roadway and retaining wall is necessary as a buffer and to meet the requirements of the Landscaped Freeway Classification.

- **Noise Barriers**

- Consideration to build noise barriers with a landscape buffer is necessary at the discretion of the District Landscape Architect. This is to the visual impact of the noise barriers to the Designated Scenic Highway.

- The installation of noise barriers on earth berms can reduce a noise barrier height by four feet and is to be a consideration.
- In accordance with the highway development policy the slope of a berm is not to have a rise of more than one foot for every four feet of run. In the event there is not sufficient State Right-of-Way available to meet the four to one standard, a slope steeper than four to one may be approved with concurrence of the District Landscape Architect.

Design considerations, at the discretion of the District Landscape Architect, identified in the Master Plan of Freeway and Transit Corridor Enhancements: Creating a Quality Environment Along Orange County's Transportation Network, are necessary to neutralize the visual intrusions from the noise barrier. In accordance with the master plan vine planting and a landscape buffer between the roadway and the wall are necessary to buffer and screen the wall and support the landscaped freeway classification. A landscape freeway classification is imperative to maintain the visual environment. The installation of billboards is not appropriate on freeways classified as "Landscaped Freeways."

- **Grading**

Design considerations, at the discretion of the District Landscape Architect, identified in the Master Plan of Freeway and Transit Corridor Enhancements: Creating a Quality Environment Along Orange County's Transportation Network, are necessary to neutralize the visual intrusions from the noise barrier.

- **Bridge Expansion**

Design considerations, at the discretion of the District Landscape Architect, identified in the Master Plan of Freeway and Transit Corridor Enhancements: Creating a Quality Environment Along Orange County's Transportation Network, are necessary to neutralize the visual intrusions from the noise barrier.

- **Project Lighting and signage**

Design considerations, at the discretion of the District Landscape Architect, identified in the Master Plan of Freeway and Transit Corridor Enhancements: Creating a Quality Environment Along Orange County's Transportation Network, are necessary to neutralize the visual intrusions from the noise barrier.

- **Maintenance facilities**

As part of the design considerations of the locations of these elements, such as maintenance facilities and maintenance access roads, the Project Engineer needs to work with the District Landscape Architect to determine the best location of

these facilities to minimize the visual impacts of these facilities. At the discretion of the District Landscape Architect, these facilities need to incorporate the associated considerations identified in the Master Plan of Freeway and Transit Corridor Enhancements: Creating a Quality Environment Along Orange County's Transportation Network, that are consistent with the policies and procedures of the Department.

- **Water quality features**

The locations of these elements such detention basins, the Project Engineer needs to work with the District Landscape Architect to determine the best location of these facilities to minimize the visual impacts of these facilities. At the discretion of the District Landscape Architect, these facilities need to incorporate the associated considerations identified in the Master Plan of Freeway and Transit Corridor Enhancements: Creating a Quality Environment Along Orange County's Transportation Network, that are consistent with the policies and procedures of the Department. The plant materials planted in detention basins need approval by the District Landscape Architect for plant culture and for visual compatibility of with the visual quality of the surrounding region.

Scenic Highway Considerations

The California Scenic Highway Program helps to preserve the views of the natural visual resources of the State. In 1963 the California Legislature adopted the Program legislation. There are now 45 State Designated Scenic Highways and approximately 6,000 miles of roadway that is eligible for scenic highway designation upon application and the implementation of a protection program by a local jurisdiction. The responsibility of the State is to protect the scenic views and visual environment along the transportation corridors in California.

The Transportation Department provides for discrete signage recognition of a designated scenic highway at the request of a local jurisdiction. As a result, the Department logo of the California Poppy appears on many of the transportation corridors throughout the State. This provides for public recognition of the many of the unique vistas of the California landscape.

The project is in the only Designated Scenic Highway in Orange County.

The increase of the roadway width of this project proposal increases the amount the view of concrete to the roadway traveler. Concrete is not consistent with the character of the natural view associated with semi- rural and rural character of the surrounding geography, as is a man made element. Additionally the appearance is not consistent with the unity of the color and texture of the view of the visual resource of the Route 91 scenic highway. Visual elements that are lack consistency with the scenery of the geography of the visual environment disrupt and intrude on the character of the visual environment of the scenic highway. The visual study analyzes the level of impact of the project to the visual environment and provides recommendations to neutralize the impact. The analysis of the

study can identify a range of impacts that includes no impact, low impact, moderate impact or high impact. Design considerations to mitigate and to neutralize the visual disruption or intrusion can neutralize the visual impact and support the goals and responsibilities of the State to protect the scenic highway.

Community input – Caltrans is to work with the associated community with the any aesthetic treatments for bridges, noise barriers and retaining walls to ensure there are context sensitive design solutions for the project.

VIII. REFERENCES

Publications

- U.S.D.O.T., Federal Highway Administration, Office of Environmental Policy, Visual Impact Assessment for Highway Projects, U. S. Department of Transportation Washington D. C. March 1981.
- Tatsumi and Partners, Inc., Scenic Resources Evaluation/Visual Impact Assessment, SR-91 Eastbound Lane Addition Between SR-241 and SR -71, April 2007.
- Dames and Moore, Inc., Master Plan of Freeway and Transit Corridor Enhancements: Creating a Quality Environment Along Orange County's Transportation Network, December 1995.
- City of Anaheim, General Plan, 2004.