

# VISUAL IMPACT ASSESSMENT

## City of Palo Alto Highway 101 Overcrossing and Trail at Adobe Creek

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### California Department of Transportation

District 4, Santa Clara County, Route 101

Post Mile 50.66

Project NO.:04-SM-101

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# VISUAL IMPACT ASSESSMENT

## City of Palo Alto Highway 101 Overcrossing & Trail at Adobe Creek

### **PURPOSE OF STUDY AND ASSESSMENT METHOD**

The purpose of this visual impact assessment (VIA) is to document potential visual impacts caused by the proposed project and propose measures to lessen any detrimental impacts that are identified. Visual impacts are demonstrated by identifying visual resources in the project area, measuring the amount of change that would occur as a result of the project, and predicting how the affected public would respond to or perceive those changes. This visual impact assessment follows the guidance outlined in the publication *Visual Impact Assessment for Highway Projects* published by the Federal Highway Administration (FHWA) in March 1981.

### **PROJECT DESCRIPTION**

The proposed project consists of the construction of a permanent grade-separated, shared bicycle and pedestrian bridge over U.S. 101 and East and West Bayshore Roads at Adobe Creek to replace an existing flood-prone undercrossing; construction of sidewalk and bikeway improvements along West Bayshore Road; and construction of an approximately 800-foot long trail along the east side of Adobe Creek between U.S. 101 and East Meadow Drive. Ancillary improvements to be constructed as part of the new facility would include new signage and striping, sidewalk improvements, retaining walls, fencing, railings, landscaping, utility relocations, amenities, and lighting.

The proposed main pedestrian/bicycle bridge over U.S. 101 would be a bowstring steel truss structure of approximately 165 feet in length that would clear-span the freeway. The structure, which would have a total width of 14 feet, would be supported on concrete pier walls located between the freeway and East and West Bayshore Roads. The vertical clearance of the structure over U.S. 101 would be approximately 18.5 feet and the elevation of the highest point of the steel truss would be less than 35 feet from the freeway surface.

Leading up to the main bridge would be additional steel truss spans over East and West Bayshore Roads, as well as concrete approach ramp structures, the elevations of which would not exceed approximately 30 feet above ground level at their highest point. The steel truss and concrete ramp on the east side of U.S. 101 would be supported on concrete pier walls. The steel truss on the west side of U.S. 101 would be supported on concrete pier walls, and the concrete approach ramp structure would be supported on oval concrete columns.

The ramp on the east side of U.S. 101 would connect to the existing Bay Trail that is located adjacent to East Bayshore Road.

The ramp on the west side of U.S. 101 would connect to a new pedestrian/bicycle bridge over Adobe Creek adjacent to West Bayshore Road. The new bridge would be a single-span, prefabricated steel half-

through truss structure approximately 140 feet in length and 14 feet in width. The existing sidewalk would be widened and would connect to the existing bike lane on West Bayshore Road. The sidewalk would also connect to an approximately 800-foot long trail to be constructed along the east side of Adobe Creek between U.S. 101 and East Meadow Drive. Construction of the trail would consist of paving the existing gravel maintenance road that is above the top-of-bank, which is used by the Santa Clara Valley Water District (SCVWD). Trailheads would be constructed at each end of the trail. A 2-foot high fence would also be constructed on top of the existing raised floodwall for safety purposes. Lighting on the new bridge would be provided for nighttime use. The design of the lighting would include features (e.g., shields) to focus lighting on the pathway and to minimize spillover to the surrounding habitat and creeks, as well as prevent interference with drivers on U.S. 101 and Bayshore Roads.

## PROJECT LOCATION AND SETTING

The project location and setting provides for the context for determining the type of changes to the existing visual environment. The proposed project would cross over U.S. 101 at Adobe Creek, approximately 0.3 miles north of San Antonio Road and 1.3 miles south of the Oregon Expressway overcrossings in the City of Palo Alto in Santa Clara County, California. On the east side of U.S. 101, the proposed overcrossing would connect to the existing Bay Trail that is adjacent to East Bayshore Road. On the west side of U.S. 101, the overcrossing would connect to the existing bike lane on West Bayshore Road via a short trail and bridge over Adobe Creek and would also include a trail along the east side of Adobe Creek between U.S. 101 and East Meadow Drive. The project is located along the peninsula of the southern San Francisco Bay Area.

The landscape is characterized by low (one- to three-story tall) urban development to the east, south, west, and northwest and open space to the north and northeast **Figure 1** presents land uses in Study Area, which include Research/Office Park, Light Industrial, and Public Conservation Land.

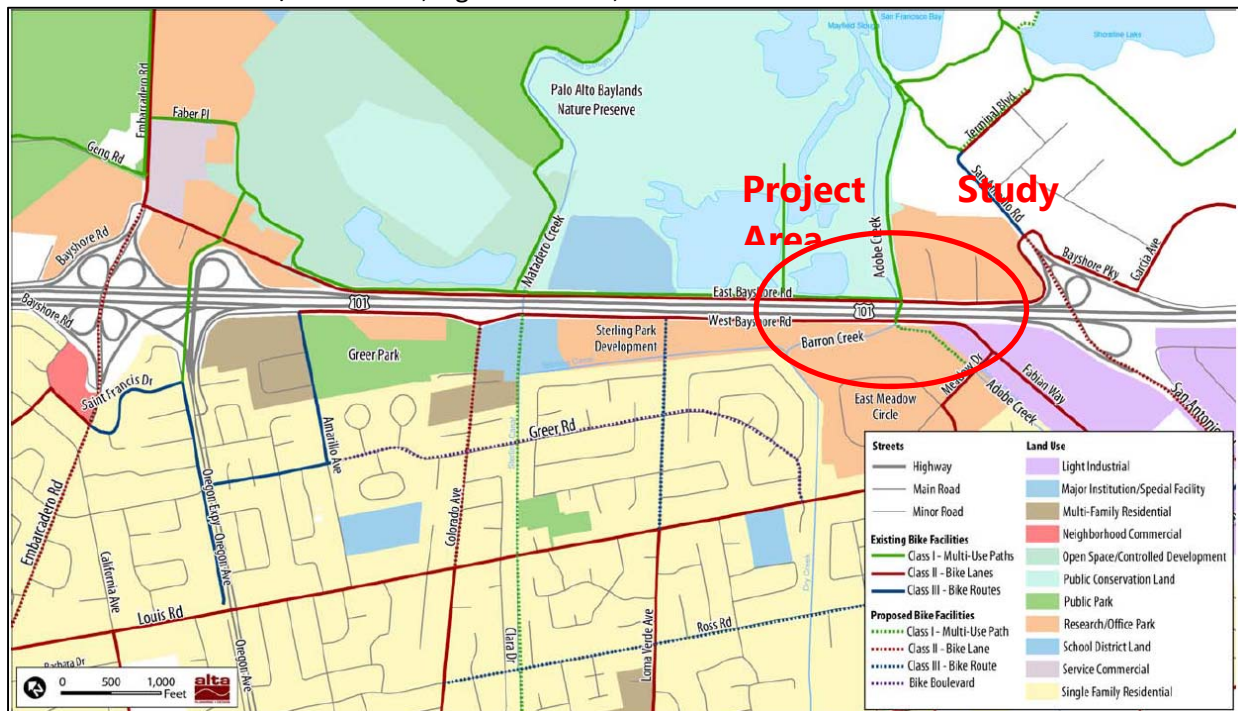


Figure 1: Project Study Area and Land Uses

The segment of Highway 101 Study Area was included in the January 2009 U.S. 101 Auxiliary Lanes (SR 85 to Embarcadero Road) project VIA.<sup>1</sup> The highway within the Study Area is not a designated scenic highway; however, the City's Comprehensive Plan states wetlands within the City are an important scenic resource. The project site is not in Bay Conservation and Development Commission (BCDC) jurisdiction.

## **VISUAL RESOURCES AND RESOURCE CHANGE**

Visual resources of the project setting are defined and identified below by assessing *visual character* and *visual quality* in the project corridor. *Resource change* is assessed by evaluating the visual character and the visual quality of the visual resources that comprise the project corridor before and after the construction of the proposed project.

The visual character of the proposed project will be compatible with the existing visual character of the corridor.

The existing visual character is made up of straight lines made by the striping along the highway travel lanes, the concrete median barrier, and the fences that border each side of the highway. Visible materials and textures include concrete, asphalt, evergreen vegetation to the west, and marsh and grassland to the east. The colors of the grasslands change seasonally from green/blue in spring to golden hues in the summer. Nighttime light sources include streetlights along East and West Bayshore Road.

The proposed alignment would introduce horizontal elements, vertical elements and nighttime lighting. Project materials and textures would include concrete surfaces, metal railing, and lighting similar to elements currently present within this corridor. The curvilinear forms of the proposed bridge ramps are compatible with the form of the Baylands.

The visual quality of the existing corridor will be slightly altered by the proposed project. The project could increase the vividness of the viewshed by creating a gateway feature that is distinct and memorable. The proposed alternative would obscure a small portion of the Baylands landscape (slightly reducing the vividness, intactness and unity).

Resource Change (changes to visual resources as measured by changes in visual character and visual quality) will be low to moderate-low due to the generally compatible character of the project with the low to moderate quality of the viewsheds.

## **VIEWERS AND VIEWER RESPONSE**

*Neighbors* (people with views *to* the road) and *highway users* (people with views *from* the road) will be affected by the proposed project.

Viewer sensitivity is anticipated to moderate for neighbors and highways users observing the Baylands and low for neighbors and highways users observing the remaining views.

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<sup>1</sup> Project number 04-SCI-101 and post mile 48.97/52.17.

Viewer exposure is a measure of the viewer's ability to see a particular object. Neighbors viewer exposure is limited due to landscaping adjacent to the highway and the proposed alignment otherwise being obscured from their direct line of site. The alignment's impact to view of the Baylands is limited to 3-5 seconds. Highway users will view the proposed alignment for 15-20 seconds. The proposed alignment's obstruction of the Baylands for northbound drivers is mitigated by its location adjacent to an existing tree canopy. The proposed alignment does not significantly impact the view of the Baylands for southbound drivers.

It is anticipated that the average response of all viewer groups will be moderate.

## **VISUAL IMPACT**

Visual impacts are determined by assessing changes to the visual resources and predicting viewer response to those changes.

The following describes the visual impacts at three key views:

### **Key View 1: Southbound from Bay Trail / East Bayshore Road/ Highway 101 / West Bayshore Road**

#### **Visual Character**

- **Overall Existing Visual Character:** The visual character of key view 1 is dominated by straight lines made by striping along the highway travel lanes, the concrete median barrier, and the chain link fences on either side of the highway. The pattern character (dominance) of the highway is created primarily by concrete and asphalt materials and the vegetation seen from this view consists mainly of evergreen species (such that the seasonal variance is minimal). Nighttime light sources include street lights along West Bayshore Road and East Bayshore Road, and vehicular head lights from the highway. This segment may be slightly darker than segments to the north and south due to the absence of lighting from buildings and parking lots within the Baylands on the east side.
- **Anticipated Visual Character Change (Low)** The proposed alignment would introduce a horizontal element with safety lighting across the length of the highway, similar to those created by the pedestrian bridge and Oregon Expressway overcrossing to the north and the San Antonio Road overcrossing to the south. Project elements would include concrete surfaces, metal railing, and safety lighting similar to elements currently present in the viewshed. The no-build alternative would not impact the existing visual character as the existing undercrossing is not visible from this viewshed.

#### **Visual Quality**

- **Vividness (Medium):** The stark contrast between the highway and frontage roads and the open expanse of grassland/wetland vegetation that constitutes the Baylands is a relatively memorable visual image compared to the generally urban or suburban corridor. Partial views of the Baylands and Adobe/Barron Creek confluence add some memorability, particularly as a transition point at the edge of the Baylands area where the views along West Bayshore Road of the creeks are most striking. However, the views of the highway and roads and adjacent urban development and ornamental/introduced landscape are not unique or memorable, and even the Baylands – which is

unique for its open space in an otherwise developed setting – is not memorable in terms of visual forms or features from this viewshed.

- **Intactness (Low/Medium):** The highway and frontage roads contrast starkly with the peripheral vistas of the Baylands, and the overall view experience lacks cohesion due to a variety of signage and utilitarian buffer elements (which include concrete barrier, metal guard rail, sound wall, chain link fence, and low-level plantings). These buffers (along with passing vehicles) interrupt views to the Baylands, which are diminished further by the presence of development on East Bayshore Road. Users of the Bay Trail enjoy more unaffected views of the Baylands and park-like edge treatments including wood bollards, mowed grass, and a small gravel parking area. The more intimate trail view may also include views of invasive plants, litter, broken asphalt, and light glare from the highway. Views of the Baylands from West Bayshore Road are peripheral; views of the Adobe/Baron Creek confluence area include a discordant mix of flood channel, electrical substation/overhead utilities, surface parking, and low-rise industrial buildings.
- **Unity (Medium):** The overall impression of the southbound view is relatively unified. Though the highway and frontage roads contrast with the adjacent Baylands, the urban development in the background is relatively harmonious, without a distracting sense of an element that stands out.
- **Overall Existing Visual Quality (Medium/Low):** The southbound view is not striking in its visual quality or clarity, and has a variety of land uses and highway elements that diminish the aesthetic value of the Baylands, except for Bay Trail users and to a lesser extent views from vehicles on southbound East Bayshore Road.
- **Anticipated Change in Visual Quality (Minimal):** The Project could increase the vividness of the viewshed by creating a gateway feature that is distinct and memorable. The project would not significantly alter the low/medium intactness of this view.

### **Overall Resource Change**

The overall level of resource change at Key View 1 is low due to the low level of change to both visual character and quality.

### **Viewer Response**

Viewers at this Key View are primarily highway travelers. As described previously, their level of viewer response is expected to be low due to their brief exposure to the project and their low expectations for scenic value along this urban corridor.

### **Visual Impact**

Together the low level of resource change and viewer response creates a low visual impact.



Figure 2: Existing Condition from Key View 1



Figure 3: Photosimulation from Key View 1

## Key View 2: Looking northeast from northbound East Bayshore Blvd.

### Visual Character

- **Overall Existing Visual Character:** At Key View 2 the landscape is characterized by the sweeping form of the marsh and grasslands and the texture of grasses in the foreground and leaves on trees in the middleground. The colors of the marsh and grasslands change seasonally from green and blue in the spring to golden hues in summer and winter. The Bay Trail and East Bayshore Road create a hard line along the edge of the Baylands. Nighttime light sources include street lights along West Bayshore Road, street lighting along East Bayshore Road south of Adobe Creek and to the north near the trailhead, and vehicular head lights such that this roadway and trail segment may be slightly darker than segments to the north and south.
- **Anticipated Visual Character Change (Moderate):** The proposed alternative would introduce additional horizontal and vertical elements and nighttime lighting into the Baylands. The curvilinear forms of the proposed bridge ramps are compatible with the form of the Baylands. The removal of Eucalyptus trees will affect the visual character, but will minimize intrusion into the Baylands. Construction along or within the Baylands may include potentially significant adverse biological impacts and may result in a need for screening fences and/or limiting height of structures. The no-build alternative would not impact the existing visual character as the existing undercrossing is not visible from this viewshed.

### Visual Quality

- **Vividness (High):** As one travels northbound along East Bayshore Road and the Bay Trail, development and a large stand of non-native eucalyptus trees on the banks of Adobe Creek give way to the open vista of the Baylands and unusually wide view of the sky, and horizon.
- **Intactness (Medium):** This key view offers impressive views of a large expanse of intact tidal marsh that reaches out toward Byxbee Park and the East Bay hills on the horizon.
- **Unity (Medium/High):** The viewshed is a relatively unified landscape from this viewer perspective. Natural landscapes and trail features transition to the frontage road, highway, and urbanized areas beyond to create a view that seems consistently broad, open and harmonious.
- **Overall Existing Visual Quality (Medium/High):** The view of the project area at the start of the Baylands open space exhibits a high degree of vividness, intactness, and unity due to its large size and relative unspoiled natural character.
- **Anticipated Change in Visual Quality (Moderate):** The proposed alternative would obscure a portion of the Baylands landscape (slightly reducing the vividness, intactness and unity). The removal of existing Eucalyptus trees on the north side of Adobe Creek would open up views of the Baylands, helping to offset the visual intrusion of the overcrossing ramp. Considering the relatively narrow width and shallow depth of pedestrian/bicycle bridge structures and location of the ramp, the change is considered moderate.

### Overall Resource Change

The overall level of resource change at Key View 2 is moderate due to the moderate level of change to both visual character and quality.

### Viewer Response



Viewers at this Key View are primarily travelers of Highway 101 and East Bayshore. As described previously, their level of viewer response is expected to be low due to their brief exposure to the project and the curvilinear forms of the ramps being compatible with the forms in the Baylands.

**Visual Impact**

Together the low level of resource change and viewer response creates a moderate-low visual impact.



**Figure 4: Existing conditions from Key View 2**



**Figure 5: Photo Simulation from Key View 2**

### Key View 3: Northbound from West Bayshore Road

#### Visual Character

- **Overall Existing Visual Character:** The paved surfaces and straight lines dominate the visual character of the landscape at this key view. The height and texture of the vegetation seen from this view contrasts with the low, smooth pavement, and consists mainly of evergreen species such that seasonal variance is minimal. Nighttime light sources include street lights along West Bayshore Road, limited street lighting along East Bayshore Road, and vehicular head lights such that lighting along this roadway segment is similar to that along segments to the north and south.
- **Anticipated Visual Character Change (Low):** The proposed alignment would introduce additional horizontal and vertical elements and nighttime lighting across and along West Bayshore Road. Project elements would include concrete surfaces, metal railing, and safety lighting, similar to elements currently present at this view. The no-build alternative would not impact the existing visual character as the existing undercrossing is marginally visible at this view

#### Visual Quality

- **Vividness (Low):** The confluence of the two creeks is a somewhat memorable setting, but the fact that they are channelized with gravel or concrete surfaces reduces their interest and uniqueness. The most vivid elements are the street trees, more distant tree grove along Adobe Creek, and the expanse of the highway with its busy traffic flow.
- **Intactness (Low):** The channelized creeks, combined with views to the backs of adjacent office, industrial and residential structures and a substation, along with views of the frontage road and highway, create a view that is highly changed from its original condition and a relatively disparate collection of landscape features.
- **Unity (Medium):** The creek channels, roads, substation and functional structures comprise a relatively unified utilitarian corridor.
- **Overall Existing Visual Quality (Medium):** The northbound view from West Bayshore Road is not as striking as the corresponding view from East Bayshore Road, but it does provide open space within an office/commercial development and helps moderate the visual impacts of Highway 101.
- **Anticipated Change in Visual Quality (Minimal):** The project would not significantly alter the low intactness of this view. The overcrossing would introduce another urban feature in a moderately unified, primarily urban view.

#### Overall Resource Change

The overall level of resource change at Key View 3 is low due to the low level of change to both visual character and quality.

#### Viewer Response

Viewers at this Key View include neighbors and travelers of Highway 101 and West Bayshore. As described previously, their level of viewer response is expected to be low due to their low expectations for scenic value along this urban corridor.

#### Visual Impact

Together the low level of resource change and viewer response creates a low visual impact.



Figure 6: Existing Conditions from Key View 3



Figure 7: Photo Simulation from Key View 3

## AVOIDANCE AND MINIMIZATION MEASURES

Avoidance or minimization measures have been identified and can lessen visual impacts caused by the project. Also, the inclusion of aesthetic features in the project design previously discussed can help generate public acceptance of a project. This section describes additional avoidance and/or minimization measures to address specific visual impacts. These will be designed and implemented with concurrence of the District Landscape Architect.

The following measures to avoid or minimize visual impacts will be incorporated into the project:

1. Aesthetic treatment of the structure, including rails and fences, would use context-sensitive texture and color to minimize the change to visual character caused by building the proposed overcrossing.
2. Tree and vegetation removal due to construction would be minimized to the greatest extent feasible.
3. Trees and vegetation outside of clearing and grubbing limits shall be protected from the contractor's operations, equipment, and materials storage.
4. Tree trimming by the contractor shall be limited to that required in order to provide a clear work area.
5. All trees to be removed shall be field marked by the Engineer and approved by the Engineer prior to removal.

6. Removed vegetation should be replaced within the project area or in other appropriate locations as determined by the City Arborist
6. Overcrossing and path safety lighting would be designed to minimize glare.
7. Construction activities would limit all construction lighting to within the area of work and avoid light trespass through directional lighting, shielding, and other measures as needed.

## **CONCLUSIONS**

This VIA determines that no substantial adverse permanent visual impacts would result from the proposed Adobe Creek overcrossing.

Construction activities would create short-term negative visual impacts through the removal of trees, shrubs and groundcover. However, these impacts would be temporary. The project would implement measures to minimize visual intrusion while increasing pedestrian and bicycle access to the recreational and scenic resources of the Baylands.