Looking north toward the rail corridor with the OCS system, as seen from Fair Oaks Lane.

Source: Parsons 2004

Figure 3.1-8
Simulation 6: Fair Oaks Grade Crossing, Atherton
Peninsula Corridor Electrification Project

Looking southeast down the rail corridor with the OCS system and tree trimming, as seen from Churchill Avenue.

Source: Environmental Vision 2013

Figure 3.1-9
Simulation 7: Churchill Avenue, Palo Alto
Peninsula Corridor Electrification Project

Looking northwest down the rail corridor with the OCS system and overbridge protection barrier, as seen from the San Antonio Caltrain Station platform.

Source: Parsons 2004

Figure 3.1-10

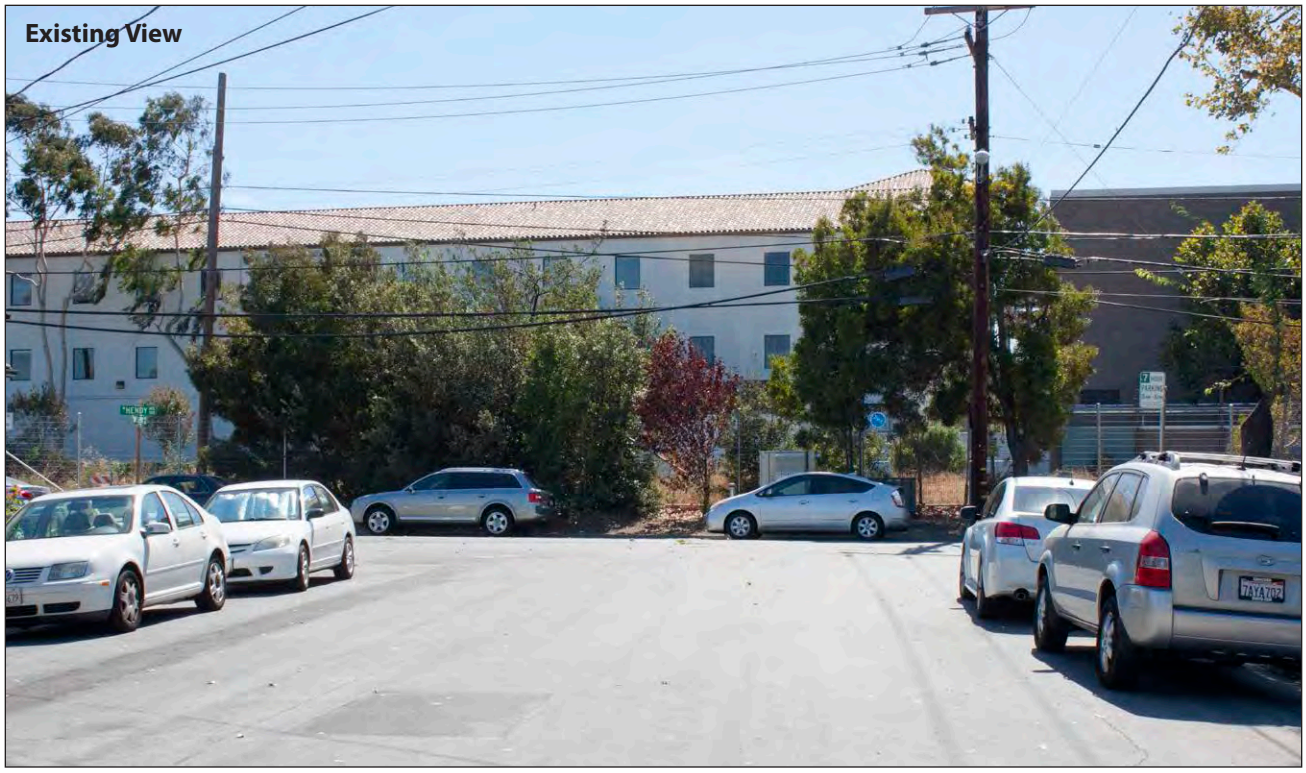
Simulation 8: Overbridge Protection Barrier near San Antonio Caltrain Station, Mountain View

Peninsula Corridor Electrification Project

Looking northeast toward the OCS system with side pole construction at the San Antonio Caltrain Station, as seen from a multi-story apartment building on the corner of Showers Drive and Pacchetti Way.

Source: Parsons 2004

Figure 3.1-11
Simulation 9: San Antonio Caltrain Station, Mountain View
Peninsula Corridor Electrification Project



Looking south toward PS6 Option 1, as seen from North Murphy Avenue near West Hendy Avenue.

Source: Environmental Vision 2013

Figure 3.1-12
Simulation 10: PS6, Option 1, Sunnyvale
Peninsula Corridor Electrification Project

Looking northwest toward PS6 Option 2, as seen from Sunnyvale Caltrain Station plaza.

Source: Environmental Vision 2013

Figure 3.1-13
Simulation 11: PS6, Option 2, Sunnyvale
Peninsula Corridor Electrification Project

Looking east toward the rail corridor with the OCS system with side pole construction, as seen from Park Boulevard near Prevost Street.

Source: Parsons 2004

Figure 3.1-14
Simulation 13: OCS System with Side Poles, San Jose
Peninsula Corridor Electrification Project

Looking southeast toward PS7 and the rail corridor with the OCS system, as seen from the Kurte Park pathway.

Source: Environmental Vision 2013

Figure 3.1-15
Simulation 14: PS7, San Jose
Peninsula Corridor Electrification Project

Looking northeast toward PS3, with and without landscape buffer mitigation, as seen from California Drive near Lincoln Avenue.

Source: Parsons 2004

Figure 3.1-16
Simulation 15: PS3, Burlingame
Peninsula Corridor Electrification Project

Looking south toward PS5 Option 1, with and without landscape buffer mitigation, as seen from Alma Street near Greenmeadow Way.

Source: Parsons 2004

Figure 3.1-17
Simulation 16: PS5, Option 1, Palo Alto
Peninsula Corridor Electrification Project

Stations

Caltrain stations and their platforms are train boarding and disembarking areas for Caltrain users. Caltrain riders passing through stations and station users are considered to be very familiar with a station's existing visual environment and, therefore, sensitive to any substantial changes to the visual environment. The Proposed Project would introduce OCS poles and wires along the entire corridor, including at all station areas between Tamien Station, in San Jose, and San Francisco (see Figures 2-3 through 2-7 for typical OCS arrangements). Installation of OCS poles and wires would result in the same or very similar visual changes at each of the stations. OCS poles may be spaced up to 230 feet apart on straight sections of the track, which would reduce the cluttered appearance of numerous poles within station areas.

Potential impacts on visual character at representative Caltrain stations are discussed below.

- **San Francisco 4th and King Station**: Figure 3.1-3 is representative of a location along the railroad corridor where project facilities would be visible from the station platform. Existing views from the station platform would be modified by the OCS because the current open-to-the-sky view would be partially obscured by the addition of the OCS, which would clutter the vertical view. Only commuters and other travelers waiting for a train at the station platforms have these views.
- **Bayshore Station**: Figure 3.1-4 is representative of a location along the railroad corridor where project facilities would be visible from both the station area platform and surrounding residential areas. Existing views from the Bayshore Station platform of the former Schlage Lock Factory (now vacant) would be modified due to construction of PS2. The close-range visual changes would be consistent with the visual quality of the existing railroad corridor and surrounding industrial land uses.
- **San Carlos Station:** Catenary facilities proposed at the San Carlos Station include side-pole cantilever OCS pole configurations. Figure 3.1-6, which shows the elevated San Carlos Station with added OCS infrastructure, gives an approximation of the visual effect. Pursuant to Mitigation Measure CUL-1d (see Section 3.4, *Cultural Resources*) poles would be constructed above the historical station on the modern elevated embankment. None would be placed directly in front of the historical station building. The OCS poles and wires would add new vertical structures similar to the existing light electroliers. These facilities would cause a physical change affecting views of the station, but the effect would be minor in comparison with the other numerous railroad facilities already in the view and the dominance of the elevated railroad embankment.
- **Atherton Station:** Proposed catenary wires at the Fair Oaks at-grade crossing as viewed from the Atherton Station are shown in Figure 3.1-7. As illustrated, the OCS poles and wires would be largely obscured by the dense landscaping and vegetation, thereby minimizing visual effects.
- **San Antonio Station**: Figure 3.1-11 shows a proposed side-pole cantilever OCS pole configuration at the San Antonio Station as viewed from a nearby multi-story apartment building. These OCS facilities would be clearly visible, given that the existing large trees at the site are all on the opposite side of the railroad corridor. These visual changes may be perceived by residents as increasing clutter in close proximity of the station, but the OCS would not be inconsistent with the existing railroad corridor, ancillary structures, and street lighting electroliers, nor would they obscure an existing scenic view.

- **San Jose Diridon Station**: There would be a side-pole cantilever OCS pole configuration at the San Jose Diridon Station. The OCS poles, catenaries, and wires proposed at the San Jose Diridon Station would add new vertical structures similar to the existing light electroliers. As described in Section 3.4, *Cultural Resources*, these would affect the historical butterfly passenger shelters, but implementation of Mitigation Measures CUL-1d would reduce impacts to a less-than-significant level. These facilities would, however, cause a physical change affecting views of the station.

As described in Section, 3.4, *Cultural Resources*, eight Caltrain station properties have heightened sensitivity to visual changes due to their historic status: Millbrae, Burlingame, San Carlos, Atherton, Menlo Park, Palo Alto, Santa Clara, and Diridon (San Jose). A visual simulation at the San Carlos Station is depicted in Figures 3.1-6. As described in Section 3.4, *Cultural Resources*, qualified architectural historians have determined that the placement of OCS poles near existing historic stations would have less-than-significant impacts on historic stations with implementation of Mitigation Measures CUL 1-d, which requires specific design commitments by station.

Separate from considerations of impacts on historic stations, the increase in infrastructure associated with OCS poles and wires would indirectly degrade the visual character at all Caltrain stations (whether historic or not) and change the visual experience for Caltrain riders. Implementation of Mitigation Measure AES-2b would ensure that OCS poles recede into the visual landscape as much as feasible. Implementing this measure would reduce potentially significant impacts at Caltrain stations to a less-than-significant level.

Vegetation Removal

To provide for electrical safety, the Proposed Project would require removal and pruning of trees that are within 10 feet of the OCS alignment. The existing trees provide screening for sensitive receptors of Caltrain tracks and service. Figure 3.1-5 depicts the Caltrain ROW before and after Proposed Project implementation in the Burlingame portion of the corridor. As shown, the OCS poles and wires would typically be more noticeable than existing railway facilities in these types of areas. JPB would remove trees only insofar as necessary to provide the required electrical safety zone (ESZ), or envelope. Figure 3.1-7 depicts a before and after simulation of tree removal and pruning in the Atherton area of the corridor where there is existing dense vegetation. As shown in Figure 3.1-8, tree removal and pruning of dense foliage and the OCS poles and wires would be less noticeable from outside the Caltrain ROW than from inside the ROW. In areas of sparse vegetation where the existing Caltrain ROW is already visible, the addition of poles and wires would be more evident. Figure 3.1-9 depicts a portion of the Palo Alto area of the corridor before and after project tree removal and pruning in an area with existing dense vegetation.

As described in Section 3.3, *Biological Resources*, overall the Proposed Project could require the removal of an estimated 2,200 trees and pruning of an estimated 3,600 trees, including removal or pruning of hundreds of trees in many cities along the project route. As noted above, while most of the tree removal and pruning would occur on the Caltrain ROW, some would need to occur outside the Caltrain ROW including on a number of residential properties and in three parks (see discussion of impacts of tree removal on parks in Section 3.10, *Land Use and Recreation).* Given the number of residents and park users affected, and the fact that trees and other vegetation along the ROW help screen Caltrain facilities and trains from adjacent areas, this tree removal and pruning would result in a significant change in visual character.

Mitigation Measure BIO-5 (see Section 3.3, *Biological Resources*) would require the preparation of a Tree Avoidance, Minimization, and Replacement Plan. In accordance with this mitigation, where tree removal or pruning cannot be avoided, JPB will replace trees using local tree ordinance replacement ratios, even though JPB is legally exempt from local land use regulations. Where replacement trees are planted between sensitive receptors and the OCS alignment, the trees would shield sensitive receptors from views of the Caltrain tracks and trains as the trees mature. However, because the exact locations for replacement trees is unknown at the time, it may not be feasible in all locations to plant vegetation between sensitive receptors and the ROW. Plus, it can take many years for newly planted trees to sufficiently mature and provide replacement screening. Therefore, impacts related to the visual effects of tree removal would be significant and unavoidable. This significant and unavoidable impact would be temporary but long term for areas where it is feasible to replace trees between sensitive receptors and the Caltrain ROW. The impact would be permanent for areas where it is not feasible to replace trees between sensitive receptors and the Caltrain ROW.

Overbridge Protection Barriers

Overbridge protection barriers are proposed on various roadway bridges that cross over the Caltrain alignment. These barriers would be designed to prevent objects from being dropped or thrown onto the OCS wires. One example of an overbridge protection barrier and barrier material is shown in Figure 2-23 based on a simple fencing mesh. Other designs could include a solid Lexan barrier, which would be clear. As described in Section 2.4.3, *Overbridge Protection Structures*, the barriers would be a minimum of 6.5 feet high and placed along the outside edge of the bridge parapet. The overbridge protection barriers would range from 35 to 80 feet in length, depending on the number of tracks in that segment of the alignment. Figure 3.1-10 simulates a typical overbridge protection barrier constructed from a semi-transparent wire mesh, as viewed from the San Antonio Station platform. The same barrier, as viewed from the roadway above the station platform, is shown on Figure 3.1-18. The tight wire mesh fabric, rather than solid materials, is proposed to achieve the best balance between safety and aesthetic considerations. The transparency lightens up the barrier when viewed at a distance and provides a sense of openness to the passing motorist. However, the color of the barrier could limit views. Coloring the barrier in a dark color actually improves visibility through the barrier compared with a standard grey metal surface. These barriers would be added to existing highway infrastructure that dominates the surrounding views and would, therefore, not have a substantially adverse effect on visual character.

Implementation of Mitigation Measure AES-2b would ensure that overbridge protection barriers recede into the visual landscape and ensures that overbridge protection barriers will provide the greatest access to available views and thus preventing a significant impact to the existing visual quality. Implementing this measure would reduce potentially significant impacts to a less-than-significant level.

Mitigation Measure AES-2b: Apply aesthetic surface treatments to new infrastructure to and provide screening vegetation at TPFs in sensitive visual locations

New infrastructure (OCS poles, TPF-associated structures and equipment, fencing, overbridge protection barriers) associated with the Proposed Project will be designed in a manner that allows these features to blend with the surrounding built and natural environments so that the new features complement the visual landscape.

Measures will include, but are not limited to, the following:

- Aesthetic treatments to project features will be implemented to help soften their visual intrusion upon the landscape, especially in areas of high use.
- Aesthetic considerations shall be considered when selecting pole design. Different pole designs, including round poles, square poles, and multi-face poles, have different characteristics. Some individuals find square poles to be aesthetically less desirable due to their angularity. In addition, the JPB shall consider options to reduce pole diameter with increased pole thickness instead of wider poles with lesser thickness. Aesthetic considerations shall be balanced with other considerations including cost, safety, maintenance, and durability. The JPB shall also evaluate the potential to house OCS wire-tensioning weights inside larger diameter poles.
- Features will be constructed with low sheen and non-reflective surface materials to reduce potential for glare. Unpainted metal surfaces will not be permitted.
- Features will be colored or painted a shade that is two to three shades darker than the general surrounding area. Colors will be chosen from the U.S. Department of the Interior Bureau of Land Management Standard Environmental Colors Chart CC-001: June 2008. Because color selection will vary by location, the facility designer shall employ the use of color panels evaluated from key observation points during common lighting conditions (front light versus backlighting) to aid in the appropriate color selection. Color selection will be made for the coloring of the most prevalent season. Panels will be a minimum of 3 feet-by-2 feet in dimension and will be evaluated from various distances within 1,000 feet to ensure the best possible color selection.
- All paints used for the color panels and structures will be color matched directly from the physical color chart, rather than from any digital or color-reproduced versions of the color chart. Paints will be of a dull, flat, or satin finish to reduce potential for glare, and the use of glossy paints for surfaces will be avoided. Appropriate paint type will be selected for the finished structures to ensure long-term durability of the painted surfaces. The appropriate operating agency or organization will maintain the paint color over time.

Impact AES-3	Substantially damage scenic resources, including trees, rock outcroppings, and historic buildings, along a scenic roadway during Proposed Project construction and operation
Level of Impact	Less than significant

As discussed above, the Caltrain ROW and project facilities would be visible from only one scenic roadway. The 49-Mile Scenic Drive in San Francisco is located along Cesar Chavez Street, which crosses the Caltrain ROW. However, the crossing is located in an industrial area between U.S. 101 and I-280 and is of low visual quality. There are no scenic resources or vistas at this location. Thus, construction and operation of permanent project facilities would have less-than-significant impacts on scenic resources along scenic roadways.

Impacts on the visual appearance of historic buildings along the Caltrain ROW, none of which are along a scenic roadway, are discussed under Impact AES-2b.

Looking northeast toward the overbridge protection barrier, as seen from San Antonio Road.

Source: Environmental Vision 2013

Figure 3.1-18
Simulation 17: Overbridge Protection Barrier, Mountain View
Peninsula Corridor Electrification Project

Impact AES-4a	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area during Proposed Project construction
Level of Impact	Significant
Mitigation Measure	AES-4a: Minimize spillover light during nighttime construction
Level of Impact after Mitigation	Less than significant

Some of project construction would be accomplished at night. Artificial lighting onto the worksite could result in "spill over" light or glare in adjacent residential areas, which would be a significant impact. As described under Mitigation Measure AES-4a, the JPB will require the project contractor to ensure that construction crews working at night to minimize spill over light or glare in adjacent residential areas. With mitigation, light and glare from construction would have a less-than–significant impact.

Mitigation Measure AES-4a: Minimize spillover light during nighttime construction

During nighttime construction adjacent to residential neighborhoods, the JPB will require the contractor to direct any artificial lighting onto the worksite and away from any adjacent residential areas at all times.

Impact AES-4b	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area during Proposed Project operation
Level of Impact	Significant
Mitigation Measure	AES-2b: Apply aesthetic surface treatments to new infrastructure to and provide screening vegetation at TPFs in sensitive visual locations AES-4b: Minimize light spillover at TPFs
Level of Impact after Mitigation	Less than significant

The TPFs and OCS facilities have the potential to cause minor increases in glare. While not substantial in most instances, this glare would reinforce the industrial character of the electrical infrastructure and would have a significant impact on sensitive receptors at residences or parks along the Caltrain ROW. Mitigation Measure AES-2b would reduce glare associated with TPFs and OCS facilities to a less-than-significant level by requiring paint color treatment to reduce glare and the visual obviousness of new facilities.

Installation of new nighttime lighting may be required for new TPFs for security purposes and could result in significant visual impacts if this lighting spilled outside of the site boundaries, creating a new source of nuisance lighting or glare to adjacent sensitive viewers. Implementation of Mitigation Measure AES-4b would reduce potentially significant impacts to a less-than significant level.

Mitigation Measure AES-4b: Minimize light spillover at TPFs

The JPB will ensure that all artificial outdoor lighting associated with traction power facilities will be limited to safety and security requirements and will be designed to minimize light spill over into adjacent areas. All lighting is to provide minimum impact on the surrounding

environment and will use downcast, cut-off type fixtures that are shielded and that direct the light only towards objects requiring illumination. Lights will be installed at the lowest allowable height and cast low-angle illumination while minimizing incidental light spill onto adjacent properties and open spaces. The lowest allowable wattage will be used for all lighted areas and the amount of nighttime lights needed to light an area will be minimized to the highest degree possible. Light fixtures will have non-glare finishes that will not cause reflective daytime glare. Lighting will be designed for energy efficiency, use, and have daylight sensors or be timed with an on/off program. Lights will provide good color rendering with natural light qualities with the minimum intensity feasible for security, safety, and personnel access. Lighting, including light color rendering and fixture types, will be designed to aesthetically minimize the profile of the TPFs.