Chapter 17
Aesthetics and Visual Resources

17.1 Environmental Setting/Affected Environment

This section discusses the visual resources study area (the area in which impacts may occur) which consists of the Plan Area (the area covered by the BDCP), which is largely formed by the statutory borders of the Delta, along with areas in Suisun Marsh and the Yolo Bypass; upstream rivers and reservoirs; and the Areas of Additional Analysis (see Chapter 3, *Description of Alternatives*). This area hosts a variety of land cover and vegetative communities: open water, riparian forest, wetlands and aquatic vegetation, agriculture, grasslands, and urban development.

The physical context in which a proposed project or alternative would be located is a key consideration in analyzing whether the project or alternative will have adverse or significant effects on aesthetic and visual resources. Identifying a project area's visual resources and conditions involves three steps.

1. Objective identification of the visual features (visual resources) of the landscape, including whether there are any designated scenic vistas or state scenic highways.
2. Assessment of the character and quality of those resources relative to overall regional visual character.
3. Determination of the importance to people, or sensitivity, of views of visual resources in the landscape.

The discussion of visual resource impacts in this chapter is limited to effects on the landscape that affect the human quality of life. Light or glare from construction of infrastructure elements of the project could have an indirect effect on wildlife in the vicinity of the project and in nearby wildlife preserve areas. The project's effects on wildlife in the vicinity of the project and in nearby wildlife preserve areas are discussed in Appendix 5J-D of the Bay Delta Conservation Plan (ICF International 2013:5J-D-1).

17.1.1 Concepts and Terminology

The aesthetic value of an area is a measure of its visual character and quality, combined with the viewer response to the area (Federal Highway Administration 1988:26–27, 37–43, 63–72). Scenic quality can best be described as the overall impression that an individual viewer retains after driving through, walking through, or flying over an area (Bureau of Land Management 1980:2–3). Viewer response is a combination of viewer exposure and viewer sensitivity. Viewer exposure is a function of the number of viewers, number of views seen, distance of the viewers, and viewing duration. Viewer sensitivity relates to the extent of the public's concern for a particular viewshed. These terms and criteria are described in detail below.

17.1.1.1 Visual Character

Natural and artificial landscape features contribute to the visual character of an area or view. Visual character is influenced by geologic, hydrologic, botanical, wildlife, recreational, and urban features. Urban features include those associated with landscape settlements and development, including roads, utilities, structures, earthworks, and the results of other human activities. The perception of visual character can vary significantly seasonally, even hourly, as weather, light, shadow, and elements that compose the viewshed change. The basic components used to describe visual character for most visual assessments are the elements of form, line, color, and texture of the landscape features (USDA Forest Service 1995:28–34, 1-2–1-15, 3-3–3-13, 4-5; Federal Highway Administration 1988:37–43). The appearance of the landscape is described in terms of the dominance of each of these components.

- *Form* is the unified mass or shape of an object that often has an edge or outline and can be defined by surrounding space. For example, a high-rise building would have a highly regular, rectangular form whereas a hill would have an organic, mounded form.
- *Line* is perceived when there is a change in form, color, or texture and where the eye generally follows this pathway because of the visual contrast. For example, a city's high-rises can be seen silhouetted against the blue sky and be seen as a skyline, a river can have a curvilinear line as it passes through a landscape, or a hedgerow can create a line where it is seen rising up against a flat agricultural field.
- *Color* is light reflecting off of an object at a particular wavelength that creates hue (green, indigo, purple, red, etc.) and value (light to dark hues).
- *Texture* is the perceived coarseness of a surface that is created by the light and shadow relationship over the surface of an object. For example, a rough surface texture (e.g., a rocky mountainside) would have many facets resulting in a number of areas in light and shadow and, often, with distinct separations between areas of light and shadow. Conversely, a smooth surface texture (e.g., a beach) would have fewer facets, larger surface areas in light or shadow, and gradual gradations between light and shadow. (Bureau of Land Management 1980:15; Federal Highway Administration 1988:40).

It should be noted that while the analysis does not formulaically list out form, line, color, and texture and then provide detailed descriptions of each as it applies to a location or landscape, these elements are addressed by using words and descriptions that are synonymous with those terms. For instance, a description may not read "the line of the river is meandering" but instead read "the meandering river" because the later already implies line.

Readers and reviewers are most-often familiar with the landscapes that are being discussed and gain a clear visual image of parts of that landscape when it is described more holistically and in a simple, relatable manner instead of in elemental pieces. An example would be a description that reads "a patchwork of row crops, pastureland, and orchards comprise the landscape" versus "there are many rectangular fields that are adjacent to one another and some of these look more smooth because they are pasturelands planted with grasses that form a continuous vegetative cover but some fields look more rough because orchards are planted with trees that have a rough appearance and there is not as much visual continuity because there are larger spaces between the rows of trees where the ground plane can be seen". The second description causes the reader to become more focused on overly specific details whereas the first description paints a clear visual image of the landscape in the reader's mind. The readers' familiarity with landscape elements (e.g., pastureland, orchards, suburban development, etc.) in their region allows them to intuitively understand how a landscape looks (i.e., form, line, color, and texture).

17.1.1.2 Visual Quality

Visual quality is evaluated using the well-established approach to visual analysis adopted by the Federal Highway Administration, employing the concepts of vividness, intactness, and unity (Federal Highway Administration 1988:46–59; Jones et. al. 1975:682–713), which are described below.

- *Vividness* is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns.
- *Intactness* is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes, and in natural settings.
- *Unity* is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape.

Visual quality is evaluated based on the relative degree of vividness, intactness, and unity, as modified by its visual sensitivity. High-quality views are highly vivid, relatively intact, and exhibit a high degree of visual unity. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity.

17.1.1.3 Visual Exposure and Sensitivity

The measure of the quality of a view must be tempered by the overall sensitivity of the viewer. Viewer sensitivity or concern is based on the visibility of resources in the landscape, proximity of viewers to the visual resource, elevation of viewers relative to the visual resource, frequency and duration of views, number of viewers, and type and expectations of individuals and viewer groups.

The importance of a view is related in part to the position of the viewer to the resource; therefore, visibility and visual dominance of landscape elements depend on their placement within the viewshed. A viewshed is defined as all of the surface area visible from a particular location (e.g., an overlook) or sequence of locations (e.g., a roadway or trail) (Federal Highway Administration 1988: 26–27). To identify the importance of views of a resource, a viewshed must be broken into distance zones of foreground, middleground, and background. Generally, the closer a resource is to the viewer, the more dominant it is and the greater its importance to the viewer. Although distance zones in a viewshed may vary between different geographic region and types of terrain, the standard foreground zone is 0.25–0.5 mile from the viewer, the middleground zone from the foreground zone to 3–5 miles from the viewer, and the background zone from the middleground to infinity (Litton 1968:3).

Visual sensitivity depends on the number and type of viewers and the frequency and duration of views. Visual sensitivity is also modified by viewer activity, awareness, and visual expectations in relation to the number of viewers and viewing duration. For example, visual sensitivity is generally higher for views seen by people who are driving for pleasure; people engaging in recreational activities such as hiking, biking, or camping; and homeowners. Sensitivity tends to be lower for views seen by people driving to and from work or as part of their work (U.S. Soil Conservation Service 1978:3, 9, 12; Federal Highway Administration 1988:3, 9, 12; USDA Forest Service 1995:3-

3–3-13). Commuters and non-recreational travelers have generally fleeting views and tend to focus on commute traffic, not on surrounding scenery; therefore, they are generally considered to have low visual sensitivity. Residential viewers typically have extended viewing periods and are concerned about changes in the views from their homes; therefore, they are generally considered to have high visual sensitivity. Viewers using recreation trails and areas, scenic highways, and scenic overlooks are usually assessed as having high visual sensitivity.

Judgments of visual quality and viewer response must be made based in a regional frame of reference (U.S. Soil Conservation Service 1978:3). The same landform or visual resource appearing in different geographic areas could have a different degree of visual quality and sensitivity in each setting. For example, a small hill may be a significant visual element on a flat landscape but have very little significance in mountainous terrain.

The analysis provides a quantitative measure of viewer sensitivity using a sensitivity rating matrix, provided in Appendix 17A, that evaluates the project in relation to viewer proximity/distance to the project site, viewer concern levels, duration of the views, and the number of viewers and in relation to the existing intactness and visual quality of the project site. The matrix and its application to the project analysis are described in detail in Section 17.3.1.1, *Site Inventory and Selection of Key Observation Points*, below.

17.1.2 Visual Character of the Study Area

17.1.2.1 Delta Overview

The statutory Delta encompasses 738,000 acres and consists of largely undeveloped islands and low-lying tracts of land surrounded by waterways and levees. Historically, more than 40% of the state's runoff flowed to the Delta through the Sacramento, San Joaquin, and Mokelumne Rivers (California Department of Water Resources 1995). In addition to the natural waterways, the area contains a variety of water development facilities such as levees, aqueducts, and intake structures. The construction of levees resulted in the conversion of wetlands, riparian corridors, and open water to agricultural lands characterized by elevated and vegetated levees surrounding low-lying areas of farmland. Construction of these levees, completed before World War II, also allowed for urbanization, commercial shipping to the Ports of Stockton and Sacramento, recreational boating, and marina development within the Delta (SacDelta 2009).

For purposes of this analysis, the visual resources study area consists of the Plan Area, which is largely formed by the statutory borders of the Delta, along with areas in Suisun Marsh and the Yolo Bypass; upstream rivers and reservoirs; and the Areas of Additional Analysis (see Chapter 3, *Description of Alternatives*). This area hosts a variety of land cover and vegetative communities: open water, riparian forest, wetlands and aquatic vegetation, agriculture, grasslands, and urban development.

Lands contributing to the visual resources in the study area include State Recreation Areas, wildlife refuges and preserves, marinas and shoreline recreation facilities, and the Diablo and Vaca mountain ranges. Some large tracts are managed by duck hunting clubs. Although the Delta is largely agricultural, human-made structures of aesthetic value, such as bridges and historical homes and townsites, are located along the roadways.

The largest population centers within the legal Delta are the cities of Sacramento (population 486,189) and Stockton (population 292,133), with smaller historic town centers scattered throughout the region and suburban centers at the edges of the Delta (California Department of Finance 2010). As discussed below, those town centers include Isleton, Walnut Grove, and Courtland.

The heart of the study area is at or below sea level and generally flat; however, levees constructed to prevent flooding of populated areas, islands, and agricultural areas contribute to minor topographic variations, extending an average of 10–20 feet above mean high water. These levees form a visual barrier between most development and adjacent waterways. The elevation of the Delta's peripheral areas is higher, but slopes in these areas are generally gentle. On clear days, distant views of Mt. Diablo, portions of the Coast Ranges and the Sierra Nevada are available from many locations within the Delta. State Route (SR) 160, a two-lane, state-designated scenic highway, travels primarily along the tops of levees through the central and northern areas of the Delta and provides elevated views of various land uses and landscape types.

Suisun Marsh is the largest contiguous brackish water marsh remaining on the west coast of North America and is a critical part of the San Francisco Bay–Delta Estuary ecosystem. Encompassing 116,000 acres, Suisun Marsh consists of managed and tidal wetlands, grasslands, and bays and sloughs. Most of the wetlands in the Suisun Marsh are managed as food, cover, and nesting habitat for waterfowl. A total of 230 miles of levees within the marsh provides critical protection of the drinking water for 22 million people by preventing saltwater intrusion into the Delta (California Department of Water Resources 2010). The Suisun Marsh also provides for a variety of recreational opportunities on both private and public lands, including duck hunting, fishing, upland game hunting, and wildlife observation. Additional passive recreational opportunities are provided in the Hill Slough Wildlife Area and the Peytonia Slough Ecological Reserve (see Chapter 15, *Recreation*, for further discussion). Aside from limited water-dependent industrial areas near Collinsville, the waterfront represents one of the few remaining undeveloped areas with deep-water access in the San Francisco Bay Area.

The north and north-central portions of the study area are spanned by approximately 10,200 acres of the Yolo Bypass Wildlife Area. The Yolo Bypass Wildlife Area consists of wildlife habitat and agricultural land that is managed by the California Department of Fish and Wildlife (CDFW). Recreational activities range from hunting, fishing, and hiking to wildlife viewing, nature photography, and environmental education activities (see Chapter 15, *Recreation*, for further discussion). The Sutter County portion of the Yolo Bypass extends from the Fremont Weir in the north to the Sutter/Yolo County line in the south, and the total area consists of approximately 160 acres within the Fremont Weir Wildlife Area. The Fremont Weir Wildlife Area includes approximately 1,500 acres that are managed by CDFW and provide for hunting, fishing, and wildlife viewing (see Chapter 15, *Recreation*, for further discussion). When the Fremont Weir releases overflow waters of the Sacramento River, Sutter Bypass, and the Feather River into the Yolo Bypass, the wildlife area becomes flooded. Land uses within the bypass are primarily agricultural or other open space uses that are compatible with flood control operations. Agricultural production is limited to field and row crops. Views from the bypass are expansive when haze is at a minimum. Typical views extend over agricultural fields in the foreground to the middleground and background. The largest number of viewers of the bypass are on elevated roadways, such as those on levees, which provide views of the high-rise buildings of downtown Sacramento that can be seen in the middleground and background, with views of the Sierra Nevada foothills occasionally available on clear days or of views of the western portion of the Sacramento Valley and the Vaca Mountains. These types of landscape views are strongly characteristic of the Sacramento Valley and have contributed to the region's identity.

The attributes of the Delta landscape change over the course of a year in response to seasonal changes and weather. Vegetation, agricultural crops, and land use patterns vary according to the time of year and farming activities. For instance, a particular field may be fallow through winter and early spring and yet exhibit substantial vegetative growth through summer. Often stubble or crop remnant can be seen in fall after harvest.

Weather also has a major influence on the landscape. Winter tule fog can substantially reduce ground level visibility to a few yards and have a major effect on landscape features.

Buildings associated with farms and duck clubs in areas that receive flooding are commonly raised structures that can withstand flooding. These structures are scattered throughout the study area. The visual character of the Delta landscape is an appealing and sharp contrast against the Sacramento metropolitan region. Views are moderately high in vividness. The artificial intrusions associated with development, agriculture, and infrastructure are low, but present, resulting in moderate intactness. The visual quality of the area is also moderately high in unification because the landscape is fairly congruent and harmonious in terms of scale, color, and form.

17.1.2.2 Delta Landscape Types

The Delta's landscape can be grouped into four main landscape categories: agricultural, waterways, developed, and undeveloped open space. Each of these categories has distinctive visual and scenic attributes that contribute to the dominant visual character of the Delta landscape. Within each category, specialized dominant features in the visual landscape combine to define more distinct landscape types that share similar visual elements.

Agricultural Landscapes

Agricultural lands account for the primary land use in the Delta, as described in Chapter 13, *Land Use*. The extensive tracts of agricultural land shape the Delta's visual character. A wide mixture of crops, land management practices, and agricultural infrastructure create a pastoral visual landscape composed of a variety of colors, textures, and views from different distances.

Farmsteads are often associated with agricultural land uses. Many farmsteads have traditional farm characteristics, with structures that reflect traditional farmhouse designs. Agricultural lands are further defined according to the type of agriculture employed (i.e., orchards, row crops, and pasturelands), as described below.

Orchards

Orchards are dispersed throughout the Delta and create a distinct landscape type within the broader category of agriculture. Large plots of fruit and nut trees (e.g., pears, peaches, walnuts, almonds), often planted immediately adjacent to roadways, create broad, seasonally open vistas. In winter, the barren orchards are devoid of foliage and provide more open views of the landscape. During the rest of the year, the dense foliage of the orchards limits the field of vision. The flatness of the topography, coupled with the repetition of the planted tree rows, result in long horizontal lines that dominate the visual field. These uniform forms and textures are created by cultivation into long, linear rows defined by orchard trees that are commonly topped to uniform levels.

Color changes seasonally, with winter views dominated by gray-brown hues and skeletal trees with branches lacking leaves. In spring, these tree forms contrast with the bright green grass or yellow floral displays (e.g., mustard) of groundcover vegetation. During the spring, pale-colored flowers bloom for a short period of time, followed by the emergence of lush green foliage that lasts throughout summer and autumn. During summer, orchards provide a visual solid wall of green, and for drivers, glimpses through the rows. Summer and fall bring the harvest, with some orchards bearing bright-colored fruits amid the green foliage.

The winter and summer views are contrasted by the viewing distance or the ability to see through the orchard to what is beyond. In general, activity and movement are minor elements of this landscape. Artificial lighting is generally absent; the landscape is dark at night, except for occasional views of farmsteads dispersed through the landscape. Similarly, sources of glare are generally absent.

Row Crops

Agricultural tracts supporting row crops (e.g., corn, asparagus, strawberry, wine grapes) are a distinct visual landscape type in the Delta. Row crops share some visual attributes with orchards—repeating patterns, uniform height forms, horizontality, and seasonal variation in textures and colors. Because row crops are generally low to the ground, they allow open views to the surrounding landscape and distant vistas year-round. These patterns are repeated in widespread areas throughout the Delta and dominate the visual character of this landscape type.

Like those of orchards, views of row crops change seasonally. Winter views encompass broad areas of brown to black soil, or only the cover of low-growing grasses with relatively uniform texture. Summer textures tend to be uniform, with rows of green leafy vegetation. Vineyards have a distinctive visual appearance created by frames used to train the growth of the plants that define the center of the rows. In winter, these fields are generally open and views through and above the frames are apparent.

Springtime views include bright green grass cover, sometimes with wildflower displays or bright yellow mustard plants between the vine rows. Summer foliage is dense, however, and views may be obstructed from ground level to as high as 10–12 feet above the ground depending on crop types (e.g., corn, strawberries, lettuce, asparagus). Row crops typically exhibit uniformity in forms, patterns, textures, and seasonal colors. Active agricultural practices—planting, crop tending, and harvesting activities—are routine in these areas. During periods of intensive activity, movement of farm equipment, activities by field workers, aerial spraying, and trucking normally provide visual contrast with the otherwise static landscape. Artificial lighting is generally absent; these are dark landscapes at night, except for occasional views of farmsteads dispersed through the landscape. Similarly, sources of glare are generally absent.

Pasturelands

Pasturelands typically exist toward the edges of the Delta, particularly in the eastern and southern regions (e.g., toward Lodi and Brentwood), as the landscape transitions to higher elevations that support grasslands and oak savanna. The visual character of pasturelands is characterized primarily by broad expanses of open space, sometimes with rolling hills and sparsely scattered oak trees. This landscape type generally affords broad vistas. The presence of grazing cattle contributes to a pastoral landscape. Additionally, this landscape type can include row crops and working farms such as dairies.

During the rainy winter and spring seasons, these pastures are verdant green, a color that fades to golden brown during the drier summer and fall seasons in locations where irrigation is not provided. Where oaks are present, the foliage contributes to visually dramatic forms and textures that contrast strongly with the background uniformity of the grass cover.

In winter and spring, dark-colored tree trunks and twisting branches dominate the eye of the viewer and contrast with the color of the grass, which is gray-brown in early winter but changes to bright green in late winter and spring. In summer and fall, the foliage forms large dome forms with uniform texture and gray-green color that contrasts strongly against the yellow-golden background colors of the grass.

Where irrigation is provided, these pastures often retain their green color throughout the drier summer and fall months, creating a color mosaic pattern on the landscape that contrasts with nonirrigated lands.

Large tracts of flat or gently rolling grazing land afford open vistas to distant background views of major landscape features such as Mt. Diablo, the more distant Sierra Nevada, or human-made structures such as bridges and open canals. In general, activity and movement are minor elements of this landscape and are associated mostly with pasture animals. Lighting is generally absent; at night these are dark landscapes, except for occasional views of farmsteads dispersed through the landscape. Similarly, sources of glare are generally absent.

Waterway Landscapes

Approximately 1,000 miles of waterways traverse the Delta (Delta Science Center 2009a), making them a defining and dominant feature of the landscape. Many of the waterways follow natural courses, while others have been constructed for navigation, flood control, water supply, and drainage. The predominant features constraining and defining these waterways are artificial levees.

Waterways in the Delta span a wide range of scales in the landscape. The river corridors are large and wide, while the sloughs and associated tributaries can be quite narrow, hidden in some instances amid the flat surrounding terrain.

The Delta's waterways are unique in their diversity and wide range of distribution and abundance, adding substantially to the region's visual characteristics. Most Delta waterways have a general scenic quality that attracts and contributes to varied types of recreation. The three general types of waterway visual landscapes—open river, channels and sloughs, and marsh—are described in greater detail below.

Open River

The open river is a visual landscape dominated by a singular, expansive waterway. This landscape type is a common sight along Delta roadways that closely parallel the Sacramento and other rivers and offer views of the river corridor. Delta rivers, such as the Sacramento, San Joaquin, Mokelumne, and Cosumnes, are long and meandering, with extensive surface water visible in many locations. Because of the length of the rivers and their meandering form, they are constantly moving in and out of the field of vision, particularly as viewed from the local roadways. When rivers are present, the visual field is dominated by a large expanse of water that contrasts strongly with adjacent lands and serves as a focal point in the landscape.

In some areas of the Delta where former islands have been inundated, such as Franks Tract and Big Break, the open-river landscape expands broadly, creating an open-water visual landscape. These areas offer very wide, uniform expanses of water and afford broad vistas. At a general level, water exhibits strongly horizontal features in form, especially as distance increases from a viewpoint. In more close-in views, water forms change with wind and passage of boats and ships, inducing low vertical elements in the waves and wakes, but the horizontal component of the waves and wakes predominates. The seasonal emergence of aquatic vegetation can also introduce a variety of colors and textures to these close-in views.

River corridors are typically banked by earthen levees that rise above the water level to protect adjacent lands from flooding. These are often covered with riparian vegetation (e.g., trees, ground cover), but may also provide locations for water access in the form of docks, marinas, and related facilities. In winter and early spring, vegetation lacks foliage and tends to create relatively uniform textured gray-brown forms along the water's edge. In summer, the green foliage is dense and generally uniform in texture. Levees tend to have regularly repeated colors and textures, generating a monotonous element in the visual landscape. Riverbanks may also be lined with riprap, composed of boulders or recycled concrete rubble, to protect against erosion (Delta Science Center 2009a). Such bank materials are often regarded as visually detracting from a more natural shoreline appearance.

Visually dominant features associated with open river views are the many steel drawbridges constructed over the numerous river and waterway crossings. These structures have varied forms and colors and dominate the visual field where present. Although wind may introduce an element of movement, water in this landscape type is typically flat and still. The color of water is ever changing with time of day, weather, and wave patterns. The water may be brown, green, or blue when reflecting the sky at midday and purple, golden, or black when the sun is low at dawn and evening. Under cloud cover and tule fog, it may appear gray. The color of the water constantly contrasts with the adjacent vegetation along the banks, islands, or marshes, which changes color with the seasons.

Activity and movement are important visual components of the open river visual landscape. The ever-changing movement of the water and the visual colors, textures, and patterns that result tend to attract the eye of a viewer, and sometimes dominate the view. The great amount of recreational boating and commercial shipping creates a constantly changing level of activity on the rivers. Waterfowl activity generates additional movement and visual attractants. Lighting is generally absent; these are dark landscapes at night, except for occasional views of residences and structures dispersed along the banks and traffic headlights on roadways. Boat and ship movements generate ephemeral lighting. Natural glare is related to the waters' reflective quality. Most nonnatural sources of glare in this area are temporal and related to boats and ships.

Channels and Sloughs

Numerous channels and sloughs wind through the Delta as the large Sacramento and San Joaquin rivers mingle with smaller rivers that drain the Sierra Nevada and Coast Ranges (Delta Science Center 2009b). Sloughs meander through the landscape in a curvilinear fashion, while engineered waterways that have been channelized and diverted for agriculture and water conveyance tend to carve straighter paths. These smaller waterways intersect and contrast with the larger landscape, and although they serve as a focal point in the landscape, they are less dominant in the visual field than waterways classified under the open river landscape type. The narrower expanse of water in channels and sloughs creates a more confined visual field than in the open river visual landscape.

Channels typically have earthen banks and/or riprap and often appear less natural than waterways in the open river landscape type. Riparian vegetation may be present, but some of these waterways may appear merely as depressions in the larger vegetated landscape. Channelized waterways for shipping, water diversion, or water distribution may have banks constructed of earthen or hard materials (for example, the California Aqueduct, the largest waterway of this type, along with the Sacramento, San Joaquin, and Stockton deep water ship channels).

Some channels and sloughs are lined by trees and shrubs down to the waterline. Such vegetation tends to be relatively uniform in color, texture, and pattern and varies by season in the same way as described for the open river visual landscape. Water levels in Delta channels and sloughs fluctuate seasonally and daily depending on annual precipitation and the tides. The predominant visual feature apparent with fluctuating water levels is visible during low flows, when more of the adjacent shoreline is exposed to view. Bridges, where present, form a dominant visual element of the landscape. Residences, commercial businesses and docks along the edges, some of which are run down or abandoned, also add substantial variation in forms, patterns, textures, and colors impacting the overall visual quality of the areas.

Activity and movement are also important components of the visual landscape of channels and sloughs. Depending on the amount of recreational boating and commercial shipping, there is a constantly changing level of activity on the rivers. Additionally, waterfowl activity generates additional movement and visual attractants in this visual landscape. Lighting is generally absent; these are dark landscapes at night, except for the occasional views of residences, structures, and roadways dispersed along the banks. Boat and ship movements generate ephemeral lighting. Natural glare is related to reflective quality of the water. Most artificial glare sources are temporal and related to boats and ships.

Marsh

The marsh landscape type consists of intermixed open water and wetland vegetation. It is characterized by fluctuating water levels and/or seasonal flooding from tidal action, rain, and management actions. Suisun Marsh and the Yolo Bypass Wildlife Area are two examples of this landscape type.

The predominant visual characteristic of Delta marshes is the large, flat, open expanse absent of prominent vertical features or human-made structures. The landscape has strong horizontality in form because of the plane of the water and the uniform height of marsh vegetation. The presence of islands in a marsh, which may have riparian forest, adds the primary vertical element to the landscape and generates visual interest. Texture may be irregular, with some marshes appearing as large bodies of shallow open water and others as smaller, isolated areas of saturated ground. The marsh vegetation itself appears to have uniform texture and growth forms, such as lower growing pickleweed and saltgrass and taller growing bulrush, reed, and cattails as described in Chapter 12, *Terrestrial Biological Resources*.

In these landscapes, views may change by season of the year, particularly as water levels fluctuate. Seasonal change in form, color, and pattern is common. Additionally, both freshwater and tidal marshes provide habitat for a diversity of avian species, giving rise to a wide range of seasonal wildlife.

Activity and movement of waterfowl contribute strongly to the character of this visual landscape, and wind patterns on shallow water and marsh grasses add visual interest. Human activity is largely absent. Lighting is uniformly absent; these are dark landscapes at night. Natural glare is related to the waters' reflective quality. Artificial sources of glare are generally absent.

Developed Landscapes

Settlement patterns in the Delta are generally rural; however, small towns and pockets of urban development are distributed throughout. This section does not attempt to describe the many types of land uses in the Delta; rather, it focuses on the primary development or settlement patterns that contribute to the visual landscape (i.e., rural centers, urbanized development, and industrial development). Three main types of developed land visual landscapes are described in greater detail below.

Rural Centers

Rural centers are characterized by the small, sometimes historic towns scattered throughout the Delta. These towns are typically clustered alongside a major waterway—for example, Isleton, Walnut Grove, and Courtland, which flank the Sacramento River. These communities are typically dominated by a single, main commercial street that appears characteristic of mid-nineteenth century towns. Typically, the towns were built at the turn of the twentieth century, using nineteenth-century construction techniques and architectural styles. (For a more detailed description of historic resources located in the study area, see Chapter 18, *Cultural Resources*. Additional information about rural centers in the study area is provided in the discussion of community character in Chapter 16, *Socioeconomics*.)

A small number of single-family residences typically occupy adjacent streets and may contain yards and landscaping, which break up the visual field. Vertical features are present, but buildings are generally no taller than one or two stories. Although historic storefronts display individual characteristics, there is uniformity among the buildings on the main street, and a strong, commonly repeated pattern of structures aligned in linear arrangements dominates. Building forms and textural elements are highly varied by type of structure and use. However, there are scattered low-rise commercial or industrial areas within these communities.

Building materials of brick, concrete, corrugated steel, and wood produce wide ranges of colors that dominate the visual field and contrast with the colors of the surrounding natural environment (greens, blues, and earth tones). Aesthetic quality varies with the condition of the structures in a given community. Ornamental landscaping predominates and creates highly varied forms, colors, and textures. Streets and signage are strong visual elements of the landscape.

Rural centers are compact with well-defined edges providing a clear sense of entry and departure. In some cases, rural centers are oriented along the adjacent riverfront, which serves as a focal feature. Except as related to changes in the foliage of ornamental landscaping, seasonal variation in forms, patterns, colors, and textures is generally absent from visual landscapes in rural centers.

The rural center visual landscape is characterized by considerable human activity and movement, although these are largely confined to the daytime and early evening hours. Lighting is related to the varied building sources (interior and exterior lighting and signage). Street lighting may be present but often is limited in extent. Some buildings may create sources of glare.

Urbanized Development

Most of the interior Delta is rural; large, more urban development tends to occur only on its edges. The City of Rio Vista is the single sizeable urban development center in the interior Delta and falls into the urbanized development category.

The urbanized landscape type is also characterized by medium to larger cities, some with historic downtowns such as Antioch, Oakley, Brentwood, Stockton, Lodi, and Sacramento, and scattered outlier communities, such as Discovery Bay, which are mostly on the periphery of the Delta, typically along major highways. These communities also include areas that have a general suburban visual character with single-family homes and strip commercial developments lining major streets and highways. Many of the cities have traditional industrial development and active ports and marinas along their waterfronts. Although prominent vertical features may be present in mid-rise and high-rise buildings, horizontal corridors of one or two stories that can span several miles are the dominant form.

Urbanized development sometimes occurs against a backdrop of rural agricultural land; the built forms are new, and stand in visual contrast to the built forms in historic small towns, which are characteristic of the rural centers. Color may vary, particularly where agricultural vistas may alternate with the built environment, but a similarity in built form may produce a texture that is monotonous. This is notably true for new residential subdivisions in which repetition of building forms, patterns, textures, and color palette generate visually uniform landscapes. In most instances, the presence of urbanized development hinders views or vistas.

The visual landscape of urbanized areas displays mixed uses, and can sometimes appear visually complex from a distance, making it difficult to distinguish individual visual elements. Visual connection with the surrounding natural environment of the Delta is largely absent. Urban centers are sprawling and have weakly-defined edges, providing little visual sense of entry and departure. In Rio Vista, development and visual character is oriented to the adjacent riverfront, which serves as a focal feature. Similar waterfront orientation is present, although to a lesser degree, in the other cities and today is retained largely in remnant historic districts dating back to the age when those communities had a stronger river orientation. Sacramento, Stockton, and West Sacramento have working waterfronts and Stockton and West Sacramento both have active ports.

Building forms and textural elements vary greatly by type of structure and use. Most structures are one or two stories, with mid-rise buildings common in some areas. High-rise buildings are present only in the largest cities. Building materials are highly varied and façades have wide ranges of color and texture. Aesthetic quality varies according to condition of the structures and maintenance of landscaping in a given community. Ornamental landscaping predominates and creates highly varied forms, colors, and textures. Streets and signage are strong visual elements of the landscape. Except as related to changes in the foliage of ornamental landscaping, seasonal variation in forms, patterns, colors, and textures is generally absent in urbanized development landscapes.

The urban center visual landscape is characterized by considerable human activity throughout the day and night, year-round. Lighting systems are extensive and are associated with the varied building sources (interior and exterior lighting and signage), street and highway lighting, ports and airports, and others. Many buildings may create sources of glare.

Industrial Development

The industrial visual landscape type is scattered throughout the Delta and includes ports, water conveyance facilities, transmission lines, substations, and buildings with industrial uses, such as warehouses and storage silos. The industrial landscape may occur in conjunction with other landscape types, such as grazing lands and channels and sloughs. Wind farms occur in some such areas, particularly along the western edge of the Delta in Solano County. Although elements of nature, such as grasslands and water, may be present, this landscape type contains built elements that dominate and contrast greatly with the surrounding landscape. Verticality, mass, and form of industrial features are often strong visual elements, as with transmission towers, which serve as vertical focal points with a strong pattern on a flat landscape.

Color, pattern, and texture in industrial landscapes may vary by the type of industrial facilities that are present, but these facilities typically contrast strongly with the greater landscape. As a result, the surrounding natural landscape tends to recede to the background of the visual environment, often to such an extent that the overall character of an area is wholly changed. Such features, therefore, are commonly regarded as disruptive to the visual integrity of the landscape in which they occur. In addition, lighting and glare in the environment can vary by the type of industrial structure that is present and can be a strong element in the nighttime landscape.

Only certain industrial uses generate much activity and movement. In general, warehouses and industrial uses generate considerable human activity and movement and may generate emissions plumes that have a strong visual presence in the landscape. On wind farms, the motion of wind turbine blades tends to enhance the visual dominance of those features in the landscape in combination with their vertical prominence, colors, forms, and patterns. By contrast, transmission lines and substations create little movement or activity.

Undeveloped Open Space Landscapes

Undeveloped open space landscapes in the Delta can include uncultivated lands interspersed among agricultural fields, lands that are no longer in agricultural production, and the rolling terrain of the Montezuma Hills. Uncultivated lands often contain smaller water bodies, mature trees and shrubs, and landscape signatures that suggest irregular terrain, as well as inundated lands that make the land unsuitable for agricultural production. Many of these lands are, however, suitable for habitat and wildlife viewing. Lands that are no longer in agricultural production are naturally recolonizing with vegetation, and various stages of this successional process can be seen—such as low-growing coverage over lands that were once tilled, slowly expanding hedgerows, and landscapes spotted with mature trees and shrubs where old agricultural field signatures are present. These undeveloped open space landscape types can be clearly seen on Tyler, Bradford, Mandeville, and Medford Islands and Webb and Holland Tracts. The Montezuma Hills contrast against the other low-lying lands in the Delta and provide a unique visual focal point west and north of the Sacramento River. The colors of the hills vary from green to brown with the seasons, and the rolling landform provides visual interest on the western edge of the study area.

17.1.3 Visual Character of the Areas Upstream of the Delta

In general, the major SWP and CVP water storage facilities (i.e., the potentially affected portions of the Upstream of the Delta Region) provide year-round water-based recreation areas. Generally, visual character of the SWP and CVP reservoirs that have the potential to be affected by the BDCP alternatives consists of open water with minimal areas of rural and recreation-related development.

Because recreational activities are important at these reservoirs, the surrounding lands are primarily managed as natural areas with scattered recreational development. Shoreline vegetation varies because management focuses on water supply in these areas. Decreases in water level can result in a condition known as a *bathtub ring*, where formerly submerged, unvegetated areas become visible as bare dirt around the edge of a reservoir. The visual character upstream of the Delta at SWP and CVP reservoirs is described in this analysis because the BDCP alternatives may have operational effects on these facilities that could affect their appearance, depending on a given water year. The reservoirs discussed are Trinity Lake (also referred to as Claire Engle Lake), Shasta Lake, Whiskeytown Reservoir, Lake Oroville, Folsom Lake, New Melones Lake, San Luis Reservoir, and Millerton Lake. A discussion of recreational uses at many of these reservoirs is provided in Chapter 15, *Recreation*.

The corresponding SWP and CVP waterways are the Trinity River downstream of Lewiston Dam, the Sacramento River downstream of Keswick Dam, the Feather River downstream of Oroville Dam, the American River downstream of Folsom Dam, the Stanislaus River downstream of New Melones Lake Dam, and the San Joaquin River downstream of Friant Dam. Because visual resources associated with these waterways would not be affected by implementation of the BDCP alternatives, they are not discussed further in this section. A discussion of recreational uses of these waterways is provided in Chapter 15, *Recreation*.

Whiskeytown Reservoir, Shasta Lake, and Trinity Lake are central features of the Whiskeytown-Shasta-Trinity National Recreation Area, established by Congress in 1965 to provide for public outdoor recreational use and enjoyment, among other purposes.

Folsom Lake, New Melones Lake, and Millerton Lake are CVP reservoirs, whereas Lake Oroville is the primary storage reservoir for the SWP. San Luis Reservoir serves both the SWP and the CVP. New Melones Lake is surrounded by federal recreation lands, while the other four reservoirs and their surrounding lands have been designated as State Recreation Areas.

17.1.3.1 Trinity Lake

The 19-mile-long Trinity Lake is the focus of the Trinity Unit of the Whiskeytown-Shasta-Trinity National Recreation Area, managed by the USDA Forest Service. Trinity Lake is located in Trinity County and is accessed from SR 3, also known as the Trinity Heritage Scenic Byway. Much of the shoreline is undeveloped, with developed facilities concentrated primarily along the shoreline of the Stuart Fork Arm. The surrounding lands are forested, with campgrounds, picnic areas, boat ramps, resorts, and marinas. Lewiston Lake is located just south of Trinity Dam and also supports primarily passive recreational activities such as camping, fishing, wildlife viewing, bird watching, and boating (USDA Forest Service 2003).

17.1.3.2 Shasta Lake

Shasta Lake is the largest reservoir in California, with 370 miles of shoreline and 29,500 surface acres when full. It is bisected by Interstate (I-)5 in Shasta County, allowing views from the roadway as well as from the shoreline. The USDA Forest Service manages the lake and surrounding lands as the centerpiece of the Shasta Unit of the Whiskeytown-Shasta-Trinity National Recreation Area. Water-oriented recreation is the main attraction. Views of the lake and the surrounding forested areas predominate, aside from views of I-5.

17.1.3.3 Whiskeytown Reservoir

Whiskeytown Reservoir is located 8 miles west of Redding in Shasta County. It is a main feature of the National Park Service–managed Whiskeytown Unit of the Whiskeytown-Shasta-Trinity National Recreation Area. The lake provides 36 miles of shoreline, and views are primarily water-oriented or focused on the wooded area adjacent to the lake (National Park Service 1999, 2010).

17.1.3.4 Lake Oroville

Lake Oroville is located 70 miles north of Sacramento, near the city of Oroville in Butte County. The lake is at the confluence of the north, south, and middle forks of the Feather River. The lake is the focus of the Lake Oroville State Recreation Areas, which is managed by the California Department of Parks and Recreation (DPR). Lake Oroville is operated for water supply and flood management, power generation, water quality improvement in the Delta, recreation, and fish and wildlife enhancement. Forested areas, areas of scrub, steep canyons, and open areas provide a range of views (California Department of Parks and Recreation 2008).

17.1.3.5 Folsom Lake

Folsom Lake is located 25 miles east of Sacramento, between U.S. Highway (US) 50 on the south and I-80 on the north, at the confluence of the North and South Forks of the American River. It is near many urban areas, being located in El Dorado, Placer, and Sacramento Counties and adjacent to the city of Folsom. The lake is the focus of DPR’s Folsom Lake State Recreation Area. Land uses adjacent to the lake are primarily related to active recreation, including swimming areas, boat launches, picnic areas, one marina, hiking trails, and campgrounds, though there are also nearby residential uses as well; these areas provide views of the lake. Approximately 80 miles of trails are located adjacent to the lake through scrub, grassland, and sparse tree cover (California Department of Parks and Recreation and Bureau of Reclamation 2003) that also provide views of the lake.

17.1.3.6 New Melones Lake

New Melones Lake is located in Calaveras and Tuolumne Counties and is bisected from north to south by SR 49. New Melones Lake and the surrounding lands provide flood control for the lower Stanislaus River and San Joaquin River Delta, irrigation and municipal water supplies, peak-use-period hydroelectric production, recreational opportunities, and fish and wildlife enhancement opportunities and improved water quality. Developed recreation areas focus views on the reservoir, and hiking and biking trails provide views through hilly areas of primarily scrub and scattered tree cover (Bureau of Reclamation 2010).

17.1.3.7 San Luis Reservoir

The 12,700-acre San Luis Reservoir is located in northern Merced County and is situated north and south of SR 152 between U.S. Highway 101 and I-5, approximately 2 hours from San Francisco and approximately 12 miles west of Los Banos. The reservoir is fed by the California Aqueduct and the Delta-Mendota Canal during winter and spring. It provides opportunities for views of open water and relatively open grassland (Bureau of Reclamation and California Department of Parks and Recreation 2005).

The Upper and Lower Cottonwood Wildlife Areas are northeast and northwest of the reservoir, respectively. These areas are owned by CDFW. Pacheco State Park is west of the reservoir. Los Banos Creek Reservoir is located southeast of San Luis Reservoir. Views to the southeast between San Luis Reservoir and Los Banos Creek Reservoir encompass ranchlands, agricultural lands, an electrical substation, and other scattered non-residential uses (Bureau of Reclamation and California Department of Parks and Recreation 2005).

17.1.3.8 Millerton Lake

Millerton Lake is in the Sierra Nevada foothills, approximately 20 miles northeast of Fresno, and is in both Fresno and Madera Counties. The lake is the centerpiece of the Millerton Lake State Recreation Area, managed by DPR. Water-based recreational activities are the predominant use of the lake, and views focus on the open water. Views of the surrounding area are of relatively steep open space and grazing land, with limited commercial and residential land uses in nearby Friant (Bureau of Reclamation and California Department of Parks and Recreation 2010).

17.1.4 Characterization of Viewers

17.1.4.1 Recreationists

Among the viewers of the landscapes within the Delta are recreationists who use the public lands and waterways to enjoy a variety of recreational activities, such as boating, fishing, windsurfing, hunting, wildlife viewing, photography, scenic drives, running/walking, and bicycling. Bicycle routes are shown in Chapter 19, *Transportation*, Figure 19-1, and most of these follow local roadways. There is ample opportunity for recreation in the Delta, which hosts numerous marinas, boat launches, campgrounds, fishing sites, and trails. Marinas, boat launches, and public fishing areas are available along the Delta's rivers, sloughs, and islands. State and county parks, State Recreation Areas, and wildlife areas are also present throughout the Delta. The Yolo Bypass Wildlife Area and Stone Lakes National Wildlife Refuge are of particular note because of their size, proximity to the major metropolitan area of Sacramento, and opportunities for passive recreation such as wildlife viewing.

A viewer situated at a publicly accessible location is characterized as sensitive when substantial changes to the visual landscape would negatively affect that viewer's experience and/or enjoyment while at that location. Recreationists are considered to have moderately high sensitivity to changes in views because they participate in outdoor recreational activity, are located close to visual resources, and are likely to be in popular recreational areas. In addition, they are more likely to regard the surrounding landscape as a holistic visual experience. However, these viewers are often only in the study area for short durations, ranging from a few hours to a couple of days.

17.1.4.2 Roadway Travelers

Travelers on the Delta's many local roads consist of residents, commuters, and travelers going to and from businesses, water access points, and other recreation areas. Three interstate highways (I-5, I-80, and I-580) are major transportation and trucking routes that traverse the periphery of the Delta (Delta Protection Commission 2010). Because travelers on the interstates would be traveling at relatively high speeds and are typically not anticipating or seeking scenic views, they are considered to have low visual sensitivity to changes in views. However, the limited topography of the region allows wide-ranging views of the area and freeways allow tens of thousands of travelers to view these areas on any given day. In consideration of these factors, the analysis addresses a key observation point along I-5 and takes into account changes to the visual environment as experienced by these viewers.

The four major state highways in the Delta (SR 4, SR 12, SR 84, and SR 160) are typically two lanes wide, sometimes built on top of levees. Originally meant for lower traffic volumes at moderate speeds, these state highways are now heavily used for regional trucking, recreational access, and commuting (Delta Protection Commission 2010:31–32). County roads generally follow the levees or traverse the islands from levee to levee. Two state routes require ferry crossings, including Howard Landing Ferry on SR 220 and Ryer Island Ferry on SR 84, that carry traffic over the waterways. In addition, the Jersey Island, Venice, and Woodward Island Ferries transport passengers to private islands, but these passengers are primarily working agricultural lands. These local roads are not particularly distinctive in designation or general Delta aesthetic quality, but viewers from these roads are be considered moderately sensitive to changes in views where scenic resources and views exist.

SR 160 runs north–south from Sacramento to Antioch and was officially designated a State Scenic Highway in 1969. Scenic qualities associated with SR 160 include historic communities such as Locke, extensive farmland, and the Sacramento River, as well as distant views of Mt. Diablo and the Sierra Nevada. A number of historic bridges, including several that are eligible for listing in the National Register of Historic Places (California Department of Transportation 2008), also cross the Sacramento River and contribute to the highway's scenic quality. The elevated nature of SR 160 affords high visibility of the landscape, contributing to its designation as a scenic highway. Many travelers choose to drive along SR 160 over other options (I-5 or I-80) that would allow for faster travel. River Road is a county road in Sacramento County that runs along the Sacramento River opposite SR 160. The portion of River Road between the Paintersville and Isleton bridges is an officially designated county scenic highway, a designation for county-maintained roads that is equivalent to an officially designated State Scenic Highway (Cadd pers. comm. 2009). Scenic qualities for River Road are similar to those for SR 160, described previously. Travelers on SR 160 and River Road are considered to have moderately high visual sensitive to changes in views because travelers often take these routes instead of other roadways to enjoy their scenic qualities, but they are still focused on driving the winding roadway, which redirects some of the focus from the surrounding visual environment.

17.1.4.3 Railway

As described in Chapter 19, *Transportation*, rail travel occurs in the Delta region and study area on Amtrak's Capitol Corridor, California Zephyr, Coast Starlight, and San Joaquin Oakland to Bakersfield routes. The Capitol Corridor passes through and passengers would have views of Conservation Zones (CZs) 2 and 3, as it travels between Davis and Sacramento, and CZ 11, as it travels between Martinez and Fairfield (Amtrak 2012a). The Capitol Corridor generally lies west of the Delta until it approaches Sacramento and provides views of the north Delta, including the Yolo Bypass Wildlife Area. The California Zephyr and Coast Starlight routes share the same rail line and pass through the same stations as the Capitol Corridor in the Delta region (Amtrak 2012b and 2012c). Alternatives 1–9 would not be visible from the Capitol Corridor, California Zephyr, and Coast Starlight routes, but conservations measures occurring in CZs 2, 3, and 11 may be. The San Joaquin Oakland to Bakersfield route passes through and passengers would have views CZs 6, 9, and 10 as it travels between Antioch and Stockton (Amtrak 2012d). The San Joaquin Oakland to Bakersfield route traverses over agricultural lands on Delta islands and across the San Joaquin and Middle Rivers and several sloughs. Alternatives 1–9 would be visible from this route, in addition to conservation measures occurring in CZs 6, 9, and 10 that may be visible. For a description of the Conservation Zones, see Chapter 3, *Description of Alternatives,* and Figure 3-1.

The Altamont Commuter Express (ACE) passes through the study area and passengers would have views of CZ 7, as it travels through Tracy between Lathrop/Manteca and Livermore (Altamont Commuter Express 2012). This route passes primarily through agricultural lands and across the San

Joaquin and Middle Rivers. Alternatives 1–9 would not be visible, but conservation measures occurring in CZ 7 may be.

Rail passengers would mostly have views of the CZs and only a small portion of this viewer group (those on the Joaquin Oakland to Bakersfield route) would have views of the study area that is affected by project alternatives. Rail passengers may enjoy the scenic qualities of the views from the train; however, their views are fleeting and temporary because they pass locations at high speed. Rail passengers are considered to be moderately sensitive to changes in views in the study area and CZs, particularly for those who use rail travel for scenic touring.

17.1.4.4 Residential

Residential land uses are distributed throughout the Delta in varying degrees of density, depending on location. Major cities such as Sacramento, Stockton, and Antioch contain some of the greatest population concentrations in the Delta (U.S. Census Bureau 2000). These major urban areas are located on the periphery of the Delta. In the Delta's interior, Rio Vista is the largest population center, with a population of roughly 8,000. Rio Vista is expected to triple in size by 2020, with a considerable percentage to be generated by an active senior community (City of Rio Vista 2005). The city lies on the west bank of the Sacramento River on SR 12, and most new development is planned to the west of the existing city center (City of Rio Vista 2002). Smaller towns such as Isleton, Courtland, and Clarksburg lie on the banks of the Sacramento River, which is a key visual resource for residents of these towns.

Suburban and rural residents are located directly adjacent to the study area or are separated from them by local streets, agricultural fields, or similar. Suburban residences are mostly oriented inward toward the developments, and only residences on the outer edge of the developments have middleground and background views of the study area. The separation and orientation of rural residences allow inhabitants to have direct views over agricultural fields toward the study area. Both suburban and rural residents are likely to have a high sense of ownership over their adjacent waterways, the open space that surrounds them, the recreational opportunities they provide, and their inherent scenic quality. Residents are considered to have high sensitivity to changes in the viewshed because of their potential exposure to such views, extended viewing times, short distance from the study area, and sense of ownership.

17.1.4.5 Businesses

Viewers from industrial, commercial, government, educational, and agricultural facilities have semipermanent views from their respective facilities. Situated in different locations throughout the study area, these facilities' views range from views limited by levees in the study area to sweeping views that extend out to the background. Employees and users of these facilities are likely to be occupied with their work activities and tasks at hand. People often travel to and from work and may spend some of their leisure time recreating in the study area—for example, using the waterways. For these reasons and their limited viewing times and focus on tasks at hand, this viewer group is considered to have moderate sensitivity to changes in views.

Agricultural workers are engaged in activities such as preparing and tending to the fields in the study area; their focus is generally on the task at hand. However, they would also have moderate sensitivity to changes in the study area because they make their livelihood from the land and are more likely to hold existing views in high regard.

17.2 Regulatory Setting

17.2.1 Federal Plans, Policies, and Regulations

Goals, objectives, and policies related to visual resources in applicable federal resource management plans are discussed below.

17.2.1.1 Sierra Resource Management Plan

The Bureau of Land Management (BLM) owns 2,035 acres of the Cosumnes River Preserve. BLM manages these lands through its 2008 Final Sierra Resource Management Plan (RMP), in addition to the Cosumnes River Preserve Management Plan, which applies to the entire preserve (discussed below in *State Public Land Management Plans*). The RMP designates the Cosumnes River Preserve an Area of Critical Environmental Concern (ACEC), an area requiring special management attention to protect important natural or cultural resource values (Bureau of Land Management 2008).

The RMP's single visual resources goal seeks to "protect and enhance the scenic qualities and visual integrity of the characteristic landscapes in the planning area," which includes the Cosumnes River Preserve ACEC (Bureau of Land Management 2008). The subsequent objective specifically lists the Cosumnes River Preserve ACEC among those for which it is important "to maintain the existing visual quality" (Bureau of Land Management 2008). The RMP also designates the Cosumnes River Preserve ACEC under Visual Resource Management (VRM) Class II. BLM's VRM system involves inventorying scenic values and establishing management objectives for those values through the resource management planning process. The following management objective applies to VRM Class II (Bureau of Land Management 2007).

- To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.

The RMP lists provisions designed to meet associated VRM objectives, primarily related to BLM's own projects and management activities. However, the following provision may affect the BDCP alternatives (Bureau of Land Management 2008).

- Ensure developments do not detract from scenic integrity by working with counties, agencies, and other entities with management jurisdiction.

17.2.2 State Plans, Policies, and Regulations

Goals, objectives, and policies related to visual resources in applicable state plans, policies, and regulations are discussed below.

17.2.2.1 Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992

The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992 (Section 21080.22 of the California Public Resources Code) facilitates the recognition, preservation, and protection of Delta resources for the use and enjoyment of current and future generations. The act includes a series of findings and declarations related to the quality of the Delta environment and emphasizes the national, state, and local importance of protecting the unique resources of the Delta. The act states that the protection of these resources will best be achieved if local governments implement land use planning and management practices in compliance with a comprehensive, long-term resource management plan.

17.2.2.2 Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta

The Delta Protection Act of 1992 directs the Delta Protection Commission (DPC) to prepare a comprehensive resource management plan for land uses within the Primary Zone of the Delta. The Land Use and Resource Management Plan (LURMP) for the Primary Zone of the Delta contains policies that seek to "protect, maintain, and where possible, enhance and restore the overall quality of the Delta environment" (Delta Protection Commission 1995). The Legislature has determined that local plans and decisions affecting the Primary Zone must be in conformance with the DPC's plan; and local decisions will be subject to appellate review by the DPC. DPC adopted its LURMP for the Primary Zone of the Delta on February 23, 1995. The updated plan was approved by the California Office of Administrative Law on October 7, 2010, and became effective on November 6, 2010. It contains policies to protect the Delta's unique character, expand public access and recreation, and locate new transmission lines and utilities within existing corridors to minimize impacts (Delta Protection Commission 2010). These policies may incorporate aesthetic resources and apply to the Proposed Project and Alternatives, which fall within the Primary Zone of the Delta.

17.2.2.3 The Delta Plan

The Delta Stewardship Council is currently in the process of approving the Delta Plan, a plan that includes "recommendations for early actions, projects, and programs" to provide a framework for effective and consistent actions of the Delta Stewardship Council. The Delta Stewardship Council adopted the Proposed Final Delta Plan on May 16, 2013. Once the State Office of Administrative Law and California Secretary of State approve the plan, the proposed policies in the Delta Plan will become enforceable regulations. Chapter 5 of the Delta Plan is entitled *Protect and Enhance the Unique Cultural, Recreational, Natural Resources, and Agricultural Values of the California Delta as an Evolving Place*. As the title suggests and the Delta Plan recognizes, the Delta's unique environment is worthy of protection to provide enjoyment to those experiencing this environ. This enjoyment is often facilitated by viewing wildlife and natural scenery through boating; biking; using established interpretive, walking, and driving trails; driving on Delta roadways; visiting historic Delta communities; and working and living in the Delta (Delta Stewardship Council 2013).

As stated in the Delta Plan, the "California Delta is a unique place distinguished by its geography, legacy communities, a rural and agricultural setting, vibrant natural resources, and a mix of economic activities. Its 839,640 acres of land, sometimes centered on a wide river but laced with a network of narrow channels and sloughs, stretch to the horizon, are bounded only by the levees that were built to drain the Delta's marshes and floodprone riversides. The Legislature has found that the Delta's uniqueness is particularly characterized by its hundreds of miles of meandering waterways and the many islands adjacent to them, and has described the Delta's highly productive agriculture, recreational assets, fisheries, and wildlife as invaluable resources (Water Code section 12981(b))."

The following policies in the Delta Plan pertaining to natural, agricultural, recreational and cultural heritage resources indirectly relate to aesthetic and visual resources:

DP R1: The Delta Protection Commission should complete its application for designation of the Delta and Suisun Marsh as a National Heritage Area and the federal government should complete the process in a timely manner.

DP R2: The California Department of Transportation should seek designation of State Route 160 as a National Scenic Byway and prepare and implement a scenic byway plan for it.

DP R3: Local governments, in cooperation with the Delta Protection Commission and Delta Conservancy, should prepare plans for each community that emphasize its distinctive character, encourage historic preservation, identify opportunities to encourage tourism, serve surrounding lands, or develop other appropriate uses, and reduce flood risks.

DP R4: Agencies acquiring land for water management facilities, ecosystem restoration, and flood management infrastructure should purchase from willing sellers, when feasible, including consideration of whether lands suitable for proposed projects are available at fair prices.

DP R5: The California Department of Transportation, local agencies, and utilities should plan infrastructure, such as roads and highways, to meet needs of development consistent with sustainable community strategies, local plans, Delta Protection Commission's *Land Use and Resource Management Plan for the Primary Zone of the Delt*a, and the Delta Plan.

DP R6: The Delta Stewardship Council, as part of the prioritization of State levee investments called for in RR P1 Water Code 85306, should consult with the California Department of Transportation as provided in Water Code section 85307(c) to consider the effects of flood hazards and sea level rise on State highways in the Delta.

DP R7: The following actions should be considered by the appropriate State agencies to address subsidence reversal:

- State agencies should not renew or enter into agricultural leases on Delta or Suisun Marsh islands if the actions of the lessee promote or contribute to subsidence on the leased land, unless the lessee participates in subsidence-reversal or reduction programs.
- State agencies currently conducting subsidence reversal projects in the Delta on State- owned lands should investigate options for scaling up these projects if they have been deemed successful. The Department of Water Resources should develop a plan, including funding needs, for increasing the extent of their subsidence reversal and carbon sequestration projects to 5,000 acres by January 1, 2017.
- The Council, in conjunction with the California Air Resources Board (CARB) and the Delta Conservancy, should investigate the opportunity for the development of a carbon market whereby Delta farmers could receive credit for carbon sequestration by reducing subsidence and growing native marsh and wetland plants. This investigation should include the potential for developing offset protocols applicable to these types of plants for subsequent adoption by the CARB.

DP R8: Local governments and economic development organizations, in cooperation with the Delta Protection Commission and the Delta Conservancy, should encourage value-added processing of Delta crops in appropriate locations.

DP R9: Local governments and economic development organizations, in cooperation with the Delta Protection Commission and the Delta Conservancy, should support growth in agritourism, particularly in and around legacy communities. Local plans should support agritourism where appropriate.

DP R10: The Department of Fish and Wildlife, the Delta Conservancy, and other ecosystem restoration agencies should encourage habitat enhancement and wildlife-friendly farming systems on agricultural lands to benefit both the environment and agriculture.

DP R11: Water management and ecosystem restoration agencies should provide recreation opportunities, including visitor-serving business opportunities, at new facilities and habitat areas whenever feasible, and existing recreation facilities should be protected, using California State Parks' Recreation Proposal for the Sacramento-San Joaquin Delta and Suisun Marsh and Delta Protection Commission's Economic Sustainability Plan as guides.

DP R12: The Delta Protection Commission and Delta Conservancy should encourage partnerships between other State and local agencies, and local landowners and business people to expand recreation, including boating, promote tourism, and minimize adverse impacts to non-recreational landowners.

DP R13: California State Parks should add or improve recreation facilities in the Delta in cooperation with other agencies. As funds become available, it should fully reopen Brannan Island State Recreation Area, complete the park at Delta Meadows-Locke Boarding House, and consider adding new State parks at Barker Slough, Elkhorn Basin, the Wright-Elmwood Tract, and south Delta.

DP R14: The Department of Fish and Game Wildlife, in cooperation with other public agencies, should collaborate with nonprofits, private landowners, and business partners to expand wildlife viewing, angling, and hunting opportunities.

DP R16: Public agencies owning land should increase opportunities, where feasible, for bank fishing, hunting, levee-top trails, and environmental education.

DP R17: Cities, counties, and other local and State agencies should work together to protect and enhance visitor-serving businesses by planning for recreation uses and facilities in the Delta, providing infrastructure to support recreation and tourism, and identifying settings for private visitor serving development and services.

DP R19: The Energy Commission and Public Utilities Commission should cooperate with the Delta Stewardship Council as described in Water Code section 85307(d) to identify actions that should be incorporated in the Delta Plan by 2017 to address the needs of Delta energy development, storage, and distribution.

17.2.2.4 San Francisco Bay Conservation and Development Commission Suisun Marsh Protection Plan

The Suisun Marsh Protection Act of 1974 directs the preparation of a plan "to preserve the integrity and assure continued wildlife use" of the Suisun Marsh, which "represents a unique and irreplaceable resource to the people of the state and nation" (San Francisco Bay Conservation and Development Commission 1976). The eastern boundary of the Suisun Marsh extends to Collinsville Road in southern Solano County and falls within the Delta. The San Francisco Bay Conservation and Development Commission's (BCDC's) 1976 Suisun Marsh Protection Plan contains findings that recognize the value of the aesthetic resources of the marsh, as well as adjacent upland grasslands, cultivated areas, and seasonal marshes. The plan's findings specifically highlight the Potrero Hills site as unsuitable for water-related industrial development, which would "detract from the value of the Potrero Hills as a visual feature of the Suisun Marsh" (San Francisco Bay Conservation and Development Commission 1976). The following policies apply to the development of water-related industry (San Francisco Bay Conservation and Development Commission 1976).

- **Policy 1:** Future demand for the shallow-draft water-related industrial sites in the Suisun Marsh area is questionable. In addition, the Suisun and Potrero Hills sites present several physical constraints for industrial development and have considerable value as aesthetic and wildlife resources in the Suisun Marsh area. It is both unnecessary and undesirable to continue to designate these sites for industrial use and they should not be reserved for this purpose.
- **Policy 8 (g):** Industrial facilities should be located and designed to avoid visual intrusion on the Suisun Marsh. Where sloping land is to be used for industrial development, it should be terraced, rather than leveled, and soil erosion and storm water runoff should be controlled. Buildings should not be highly visible against the skyline, should have a low profile, be well designed and unobtrusive in appearance, and use colors and materials compatible with the surrounding landscapes. Appropriate landscaping should be used to reduce the impact of industrial structures on views from the Suisun Marsh.

The plan directs Solano County to develop a Local Protection Program, which must use the plan's policies to protect, preserve, and enhance natural and human-made resources and include the following course of action (San Francisco Bay Conservation and Development Commission 1976).

- **Content of Local Protection Program:** (6) Scenic resources. Procedures and standards to review the design and location of any new development or structures in or adjacent to the Marsh management areas to protect the visual characteristics of the marsh and, where possible, enhance views of the marsh.

17.2.2.5 California Scenic Highway Program

In 1963, the California Legislature created the Scenic Highway Program to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to the highways. The state regulations and guidelines governing the Scenic Highway Program are found in Section 260 et seq. of the Streets and Highways Code. A highway may be designated as scenic depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the travelers' enjoyment of the view.

A city or county must nominate an eligible scenic highway for official designation and adopt a corridor protection program that includes zoning and/or planning policies to preserve its scenic quality. Official designations are made by the California Legislature and can include county highways as well (California Department of Transportation 2009a), with the only difference being that a county maintains the road rather than the state (Cadd pers. comm. 2009). Examples of visual intrusions that would degrade scenic corridors as stipulated by Caltrans, and potentially lead to the revocation of a scenic highway designation, include dense and continuous development, highly reflective surfaces, parking lots not screened or landscaped, billboards, noise barriers, dominance of power lines and poles, dominance of exotic vegetation, extensive cut and fill, scarred hillsides and landscape, and exposed and unvegetated earth.

SR 160 in Sacramento County from the Contra Costa County line to the southern city limit of Sacramento (45.8 miles) is the only officially designated State Scenic Highway within the Delta (California Department of Transportation 2009b). The 28-mile section of county road between the Isleton and Paintersville bridges, known as River Road, is also an officially designated Sacramento County Scenic Highway (see Section 17.2.3.*2, County and City General Plans – Sacramento County*). These roads are within the legal Delta and may be affected by the BDCP alternatives.

In Contra Costa County, two state highways are eligible for designation as State scenic highways: SR 160 from the county line to SR 4 near Brentwood and the SR 4 bypass from SR 160 near Antioch to SR 84[1] near Brentwood (approximately 9.5 miles) (California Department of Transportation 2009c). These highways fall within the Delta and may be affected by the Proposed Project and Alternatives. SR 239 is also listed as an eligible State scenic highway; however, the route has never been constructed (California Department of Transportation 2009d).

17.2.2.6 State Public Land Management Plans

Cosumnes River Preserve Management Plan

The Cosumnes River Preserve consists of approximately 45,859 acres of wildlife habitat and agricultural lands along the Cosumnes River east of I-5 and near the town of Walnut Grove. The preserve is owned by seven partners—CDFW, BLM, California Department of Water Resources, California State Lands Commission, Sacramento County, Ducks Unlimited, and The Nature Conservancy—who administer the 2008 Cosumnes River Preserve Management Plan (Cosumnes River Preserve 2008). The plan seeks to restore native biological communities and promote compatible uses to improve stewardship of the land. A subgoal specifically seeks to protect and enhance the Cosumnes River Preserve's scenic and visual resources, with the objective of managing preserve lands to retain and/or improve the existing visual character of the landscape and prevent the disruption of distant and close views from land management changes. The plan notes the following actions that may relate to the Proposed Project and Alternatives (Cosumnes River Preserve 2008).

- **Action 2.1.2:** Coordinate with the utility companies and other entities to relocate to underground the existing and future power lines crossing the Preserve.
- **Action 2.1.4:** As new development projects proposed around the Preserve, either in close proximity or in nearby urban areas, undergo environmental review (CEQA), ensure that project proponents consider potential effects on visual resources at the Preserve, including the effects of outdoor nighttime lighting.

Brannan Island and Franks Tract State Recreation Areas General Plan

Brannan Island State Recreation Area (336 acres) and Franks Tract State Recreation Area (3,300 acres) situated near the western edge of the central Delta, offer angling, boating, camping, picnicking, and swimming and are managed by DPR. Both State Recreation Areas fall within the Delta and may be affected by the BDCP alternatives. A joint general plan was prepared for both State

[1] SR 84 does not presently exist near Brentwood. However, this is the legislative description provided by Caltrans because of a possible future extension of SR 84 that would serve as a connection to I-580 from the Brentwood area (Cadd pers. comm. 2011)

Recreation Areas in 1988 and contains DPR's long-term management objectives. The general plan includes the following resource management policy on aesthetic resources for Brannan Island State Recreation Area (California Department of Parks and Recreation 1988).

- Management of Brannan Island State Recreation Area shall be toward the maintenance of water oriented viewsheds, natural landscape, and toward a reduction or elimination of human-made intrusions. The department shall work to reduce the negative impacts of easements in Brannan Island State Recreation Area. All utility companies shall be encouraged or required to reduce these impacts by rerouting or placing underground the utility lines that currently traverse the unit, by reducing the size of and rehabilitating gas well pads, and by screening and landscaping around gas wells. The department is opposed to any new easements within the unit unless there can be mitigation work accomplished to create a clear net benefit to recreation resources.

The following resource management policy for aesthetic resources is included for Franks Tract State Recreation Area (California Department of Parks and Recreation 1988).

- Management of Franks Tract State Recreation Area shall be toward the maintenance and preservation of the natural environment of the unit.

In addition, the general plan contains a Land Use and Development Element for the Brannan Island State Recreation Area, which includes the following goals related to aesthetic resources (California Department of Parks and Recreation 1988).

- **Goal 11:** Increase the scenic quality of the Highway 160 corridor through the unit, highlighting the entrances at each end and screening the recreation use areas.

- **Goal 12:** Reduce the existing visual impacts, and improve the environmental setting of all current and future use areas through landscaping and habitat enhancement.

17.2.3 Regional and Local Plans, Policies, and Regulations

Goals, objectives, and policies related to visual resources in adopted general plans for each county, district, and incorporated city in the Delta are discussed below. Local standards are listed below for informational purposes. For further discussion of these plans, policies, and regulations, please see Chapter 13, *Land Use.*

17.2.3.1 East Bay Regional Park District Master Plan

The East Bay Regional Park District (EBRPD) manages 113,000 acres of regional parklands in Alameda and Contra Costa counties. EBRPD's 2013 master plan guides the management of EBRPD lands through policies and guidelines on resource conservation, management, interpretation, public access, and recreation. The master plan specifically recognizes the conservation of its scenic, natural, and open space resources as a primary duty. It includes scenic resources among the many resources that EBRPD seeks to protect, as illustrated in the following elements of the organization's mission and vision statements (East Bay Regional Park District 2013a).

- Acquire and preserve significant biologic, geologic, scenic, and historic resources within Alameda and Contra Costa Counties.

- Manage, maintain, and restore the parklands so that they retain their important scenic, natural, and cultural values.

The master plan references the scenic values associated with EBRPD's lands throughout the document, with policies that seek to preserve and enhance the natural and cultural resources of all of its lands. In addition to broad master plan policies that may include scenic resources, several policies related to facility development on all EBRPD lands (including by other agencies and organizations) focus specifically on visual resources, as follows (East Bay Regional Park District 2013a).

The following policy addresses the undergrounding of utilities.

- New utility lines will be placed underground on land owned, operated, or managed by the District to retain the optimal visual qualities of the area. Rights-of-way (ROWs) and easements for utilities will not be granted without undergrounding. The District will work in cooperation with the utility companies to place existing overhead utilities underground (unless so doing conflicts with applicable codes) as soon as practical and will work with other agencies and neighbors to reduce visual impacts on adjacent lands. The District will seek to avoid the construction of high voltage power lines within the parklands, particularly in areas of sensitive or aesthetically important resources and in preserve areas.

The following policy addresses communication sites.

- The District will keep its lands, including all ridges and peaks, free of additional communication facilities in order to maintain open viewshed, natural conditions, and public use as well as to limit vehicular and service activities. Communication sites will be regulated by the provisions of the 1994 Communication Site Policy. No new licenses will be granted beyond December 31, 1999, except for efforts that will consolidate sites or improve visual quality. The District will work to reduce the detrimental visual impact of buildings, towers, and access roads at existing sites and will work with other agencies and neighbors to reduce this impact on adjacent lands.

EBRPD makes some land acquisitions because the acquisitions serve important operational or land management needs or have scenic value. The EBRPD states one of the reasons land may be acquired is to prevent visual intrusion on parklands and open space. EBRPD also uses scenic easements as a technique to protect its parklands. Within specific parklands, EBRPD establishes land use designations to direct resource protection activities. A parkland may be designated a Regional Park if it contains scenic or natural resources in at least 70 percent of its area, or a Natural Unit if it contains "extremely varied topography and vistas" and the primary objective is to preserve and enhance natural habitat. As part of its Natural Unit preservation policy the District acquires and manages open space view sheds to preserve the intrinsic natural and historic qualities of state and locally designated scenic highway corridors (East Bay Regional Park District 2013a).Existing EBRPD lands in the Delta include Antioch Regional Shoreline, Big Break Regional Shoreline, Bay Point Wetlands Regional Shoreline, and Browns Island Regional Preserve. According to the master plan, a regional shoreline provides significant recreational, interpretive, natural, or scenic values on land, water, and tidal areas along the San Francisco Bay and the Sacramento/San Joaquin Delta (East Bay Regional Park District 2013a). Regional preserves protect significant natural or cultural resources, which may include scenic beauty or significant topographic resources as an essential feature.

EBRPD also owns and manages a number of regional trails, which may connect to "areas of unusual scenic beauty, vista points, San Francisco Bay, Delta or lake shoreline, natural or historic resources, or similar areas of regional significance" (East Bay Regional Park District 2013a).

The 2013 Draft Master Plan Map (East Bay Regional Park District 2013b) identifies existing and potential parkland and trails. Existing parkland includes the Delta Access Regional Shoreline, Big

Break Park, Antioch-Oakley Regional Shoreline, Brown's Island, and Bay Point Wetlands, all in the Delta. Potential parkland in the Delta includes the Delta Recreation Regional Shoreline, Pittsburg Wetlands, and Point Edith Wetlands Regional Preserve. Existing trails traversing the Delta include Big Break, Marsh Creek, and Delta De Anza Regional Trails, as well as the San Francisco Bay Water Trail. Potential regional trails include the Great California Delta Trail; Delta Island Shoreline Trail; the Delta Trail Extension; Mokelumne Coast to Crest Trail; and potential trail segments along Big Break Shoreline, the Southern Pacific Railroad, Marsh Creek Trail to Discovery Bay, and Mokelumne to Discovery Bay.

17.2.3.2 County and City General Plans

Alameda County

East County Area Plan

The East County Area Plan functions as the general plan document for eastern Alameda County, which extends from the Pleasanton/Dublin ridgeline east to the San Joaquin County line, and from the Contra Costa County line south to the Santa Clara County line (Alameda County 2000). The Land Use Element contains the goal "to preserve unique visual resources and protect sensitive viewsheds" (Alameda County 2000). Policies on visual protection, trees, landscaping, alteration of landforms, and utilities seek to minimize visual impacts and enhance scenic qualities. Specifically, grading along natural watercourses is to be avoided and utility lines are to be placed underground.

Contra Costa County

Contra Costa County General Plan

The Contra Costa County General Plan 2005–2020 addresses aesthetic resources primarily in the circulation and open space elements. Under Overall Open Space Policies, the plan states that "historic and scenic features, watersheds, natural waterways, and areas important for the maintenance of natural vegetation and wildlife populations shall be preserved and enhanced" (Contra Costa County 2005). Sections dedicated to scenic routes and resources are discussed in greater detail below.

Scenic Routes

The *Transportation and Circulation Element* identifies scenic routes as those that traverse scenic corridors of relatively high visual or cultural value. Scenic routes are designated by Contra Costa County as deserving local protections and differ from State Scenic Highways. The general plan states that "most scenic routes depend on natural landscape qualities for their aesthetics" (Contra Costa County 2005). SR 160 and the SR 4 Bypass are both Contra Costa County–designated scenic highways, as well as eligible State Scenic Highways. SR 4, County Road J4, Bethel Island Road, Jersey Island Road, Walnut Boulevard, and other roadways as mapped on Contra Costa County's Scenic Routes Plan are also county-designated scenic routes within the legal Delta and therefore may be affected by the BDCP alternatives.

The Scenic Routes goal in the general plan is "to identify, preserve and enhance scenic routes in the county." The following related policies may be applicable to the BDCP alternatives (Contra Costa County 2005).

- **Policy 5-35:** Scenic corridors shall be maintained with the intent of protecting attractive natural qualities adjacent to various roads throughout the county.
- **Policy 5-37:** Scenic views observable from scenic routes shall be conserved, enhanced, and protected to the extent possible.
- **Policy 5-43:** Provide special protection for natural topographic features, aesthetic views, vistas, hills and prominent ridgelines as "gateway" sections of scenic routes. Such "gateways" are located at unique transition points in topography or land use, and serve as entrances to regions of the County.

Scenic Resources

The *Open Space Element* identifies scenic resources within Contra Costa County and names the San Francisco Bay–Delta estuary system as one of the county's two main scenic resources. The general plan's map of scenic resources identifies resources that should be treated as aesthetic opportunities, including areas that have been designated as scenic waterways. The intent of the designation of scenic waterways is "to draw attention to [their] scenic character for consideration when reviewing projects" (Contra Costa County 2005). County-designated scenic waterways frame the entire western and northern perimeter of Contra Costa County and include the Sacramento and San Joaquin rivers, Franks Tract, and other waterways in the Delta. Clifton Court Forebay is also designated as a scenic waterway.

The following general plan goals for scenic resources may apply to the BDCP alternatives (Contra Costa County 2005).

- **Goal 9-10:** To preserve and protect areas of identified high scenic value, where practical, and in accordance with the Land Use Element map.
- **Goal 9-12:** To preserve the scenic qualities of the San Francisco Bay/Delta estuary system and the Sacramento-San Joaquin River/Delta shoreline.

City of Antioch General Plan

The City of Antioch General Plan discusses aesthetic resources in the *Community Image and Design* and *Resource Management* elements (City of Antioch 2003). Identifying itself as the "Gateway to the Delta," Antioch aims to preserve and enhance visual character, including its natural features and view corridors. Goals and policies related to community design, open space preservation, and buffers seek to minimize the impacts of new developments and public facilities on the city's aesthetic resources. The SR 4 Bypass, identified as a scenic route by Contra Costa County and an eligible State Scenic Highway, traverses the City of Antioch and is located within the Delta.

City of Brentwood General Plan

Aesthetic resources are addressed in the Land Use and Community Design elements of the City of Brentwood General Plan (City of Brentwood 2006). Goals and policies aim to protect habitat areas, views of dominant natural features, and scenic view corridors of community-wide importance, which are to be delineated on a map of development constraints. The SR 4 Bypass, a Contra Costa County-designated scenic route and eligible State scenic highway also known as the Delta Expressway, runs through Brentwood and is located within the Delta. Views from this route are to be preserved and enhanced through open space designations, setbacks, and similar approaches.

City of Oakley General Plan

The *City of Oakley 2020 General Plan* states that "scenic resources in Oakley include predominant natural landscape features of the Delta waterways," and it is a specific goal of the Open Space Element "to preserve the scenic qualities of the Delta Waterway." The following additional open space policies and implementation program regarding the protection and enhancement of the City's aesthetic resources are specific to the Delta (City of Oakley 2002).

- **Policy 6.7.1:** Encourage preservation and enhancement of views of the Delta and Mount Diablo to the extent possible.
- **Policy 6.7.2:** New development and redevelopment along the Delta, adjacent to Marsh Creek and throughout the City should take advantage of view opportunities and visual impacts to the waterway and Mount Diablo, respectively.
- **Program 6.7.B:** Review development applications for discretionary actions to determine aesthetic impacts and visual compatibility with surrounding property.

The *Parks and Recreation Element* of Oakley's general plan includes the following additional policy and implementation program to preserve views of the Delta.

- **Policy 7.4.11:** Protect the visual accessibility of waterways by avoiding future development that creates visual barriers adjacent to or along the water's edge.
- **Program 7.4.B:** Require proposed development, streets, and parks along the waterfront to maintain and enhance views of the Delta through the development review process.

Sacramento County

County of Sacramento General Plan

The *County of Sacramento General Plan* addresses aesthetic resources associated with *Scenic Highways* in its *Circulation Element*, with the goal of preserving and enhancing the aesthetic quality of scenic roads. SR 160, a designated *State scenic highway*, spans Sacramento County for more than 45 miles alongside the Sacramento River. In addition, 28 miles of Sacramento County roadway between the Isleton and Paintersville bridges that comprise the River Road are an officially designated County Scenic Highway. In addition to River Road, Isleton Road is protected under scenic corridor sign controls. Sacramento County has also identified additional scenic routes that are not officially designated scenic highways by the state, including Sacramento County roads on levees and along rivers and sloughs in the Delta. These scenic routes are protected by protected by the general plan designation of Permanent Agriculture, agricultural zoning, and scenic corridor sign controls, as stipulated by Sacramento County. The general plan also proposes to provide scenic corridor protection for Twin Cities Road between SR 160 and SR 99. The Sacramento River is protected as a scenic corridor "extending 500 feet to each side of the river, as measured from the middle of the channel or by a minimum of a corridor 300 feet from the edge of the river." (Sacramento County 2011: Circulation Element 25-34)

The following objectives seek to protect Sacramento County's scenic routes.

- **Objective (1):** To retain designation of the River Road (State Highway 160) as an Official State Scenic Highway and to preserve and enhance its scenic qualities.

- **Objective (4):** To strengthen the provisions of scenic corridor regulations so as to further protect the aesthetic values of the County's freeways and scenic roads.

Related policies aim to strengthen protection of scenic routes through zoning restrictions, designation of additional roads, and coordination with the Delta Advisory Planning Council and the California Department of Water Resources regarding levee maintenance.

The Agricultural, Conservation, Land Use, Open Space, and Public Facilities Elements of the general plan contains goals and policies to preserve visual quality of Sacramento County, with an emphasis on minimizing light and glare from building exteriors and other facilities (Sacramento County 2011).

City of Sacramento General Plan

The City of Sacramento adopted its new 2030 general plan on March 3, 2009. The overarching goal identified in the *Environmental Resources Element* is to "maintain and protect significant visual resources and aesthetics that define Sacramento" (City of Sacramento 2009). The following related policies are applicable to the BDCP alternatives (City of Sacramento 2009).

- **Policy ER 7.1.1:** Protect Scenic Views. The City shall seek to protect views from public places to the Sacramento and American rivers and adjacent greenways, landmarks, and urban views of the downtown skyline and the State Capitol along Capitol Mall.
- **Policy ER 7.1.2:** Visually Complementary Development. The City shall require new development be located and designed to visually complement the natural environment/setting when near the Sacramento and American rivers, and along streams.

Additional policies seek to minimize impacts on visual resources from new development, including the removal of significant resources (e.g., mature trees) and the creation of obtrusive lighting and glare.

The general plan's *Utilities Element* also contains the following policies related to aesthetic quality (City of Sacramento 2009).

- **Policy U 1.1.10:** Safe, Attractive, and Compatible Utility Designs. The City shall ensure that public utility facilities are designed to be safe, aesthetically pleasing, and compatible with adjacent uses.
- **Policy U 1.1.11:** Underground Utilities. The City shall require undergrounding of all new publicly owned utility lines, encourage undergrounding of all privately owned utility lines in new developments, and work with electricity and telecommunications providers to underground existing overhead lines.

Additional policies to maximize visual access to the Sacramento River and encourage the visual quality of properties planned by government agencies that may be exempt from City of Sacramento land use control can be found in the *Land Use and Urban Design Element*.

San Joaquin County

San Joaquin County General Plan

San Joaquin County is comprehensively updating its 1992 general plan to meet the changing housing, environmental, economic, and growth needs of the county and to incorporate the community's vision for the future in the new general plan.

The *San Joaquin County General Plan 2010*, adopted in 1992, specifically seeks to protect the Delta's aesthetic resources in its *Community Development Element*, which includes the following policy (San Joaquin County 1992).

- **Policy 18:** Waterway development and development on Delta islands shall protect the natural beauty, the fisheries, wildlife, riparian vegetation, and the navigability of the waterway.

The Resources Element also contains policies that protect outstanding scenic vistas and views of waterways, including the objective "to recognize the surface waters of San Joaquin County as resources of State and national significance for which environmental and scenic values must be protected" (San Joaquin County 1992).

San Joaquin County has designated portions of roadways on Roberts Island, Bacon Island Road, SR 4, West Eight Mile Road, and I-5 in the Delta as scenic routes. These scenic routes are subject to local policies and differ from restrictions associated with officially designated State and county scenic highways. The following general plan policies relate to scenic routes (San Joaquin County 1992).

- **Policy 13:** Development proposals along scenic routes shall not detract from the visual and recreational experience.
- **Policy 23:** Scenic corridors along recreation travelways and scenic routes shall be protected from unsightly development.

Implementation measures for scenic route enhancement (San Joaquin County 1992) state San Joaquin County's responsibilities.

- **Measure (b):** Require landscape plans for development along scenic routes.
- **Measure (c):** Include in the Design Review Manual guidelines for development in the viewshed of the scenic route.

City of Lathrop General Plan

The *Comprehensive General Plan for the City of Lathrop* encourages the multipurpose use of water bodies, including for aesthetics, as policy in the *Resource Management Element*. Policies in the *Community Development Element* require the design and screening of industrial areas to avoid obtrusive visual impacts (City of Lathrop 2004).

City of Stockton General Plan

The Stockton General Plan 2035 includes the city's extensive riparian areas as among its most significant visual features (City of Stockton 2007). The *Community Design* and *Natural and Cultural Resources* elements include policies to promote visual access to waterways, protect scenic areas from incompatible development, and encourage planting of native vegetation to preserve the visual integrity of the landscape.

City of Tracy General Plan

The *City of Tracy General Plan* (City of Tracy 2006) includes *Community Character Element* policies intended to preserve and protect the city's visual character. The *Community Character Element* includes important concepts and guidelines that apply to the type, location, and character of both private and public development projects for new and existing areas of the city. This element identifies principles, goals, objectives, policies, actions, and concepts to maintain and enhance the

City of Tracy's unique character, or "sense of place," as it relates to both the physical design of the city and quality of life.

Solano County

Solano County General Plan

The *Solano County General Plan* addresses aesthetic resources in its *Resources* and *Public Facilities and Services* elements, noting the Delta and marshlands as among Solano County's abundant scenic vistas (Solano County 2008). The general plan also references agriculture as a land use that "defines much of the County's visual character" (Solano County 2008:AG-1). Solano County identifies a number of scenic roadways in the study area that are subject to local protection, including I-80, I-680, SR 12, SR 113, Grizzly Island Road, and Lake Herman Road. Goals and policies seek to protect unique scenic features (e.g., water bodies) and roadways and to minimize glare, light pollution, and disruption to scenic areas from transmission lines.

The general plan's *Suisun Marsh Policy Addendum* comprises the Local Protection Program required by BCDC's *Suisun Marsh Protection Plan*. The addendum contains policies specific to the preservation of designated scenic roadways, including the following policies relevant to the BDCP alternatives (Solano County 2008: Appendix C-17).

- **Policy 1:** Current general plan provisions of the county which designate foreground and distant view components of scenic roadways for agricultural and other open space uses should be retained.
- **Policy 2:** The number of man-made interruptions or incidents along a scenic roadway (housing, commercial uses, signs, driveways, etc.) should be limited to maintain the current visual values as the prevalent feature of the route.

The policy addendum also includes a foreground component, which regulates the area within a quarter-mile radius of a scenic roadway to preserve the delicate visual character of marshlands. Specific policies require areas immediately adjoining a marsh to remain as open space, protect habitat from encroachment because of its scenic value, and recommend the undergrounding of utility lines.

City of Rio Vista General Plan

The *City of Rio Vista General Plan 2001* contains numerous goals, policies, and implementing actions related to preserving scenic resources. The Resource Conservation Element contains a Visual Resources section with the goal "to protect the visual and scenic resources of Rio Vista—recognizing their importance in the quality of life for City residents and in promoting recreation and tourism" (City of Rio Vista 2002). The following policies are relevant to the BDCP alternatives (City of Rio Vista 2002).

- **Policy 10.11.A:** The City shall require new development in scenic areas (e.g., river banks, Highway 12 corridor, Sacramento River waterfront, and hillsides) to use planning, design, construction, and maintenance techniques that:
    - Incorporate design and screening measures to minimize the visibility of structures and graded areas.
    - Maximize views in sensitive viewing areas and corridors.

- Maintain the character and visual quality of the area.

- **Policy 10.11.B:** The City shall require that new development be designed to integrate natural landforms and vegetation in order to minimize alteration of scenic vistas. Figure 10-2 [of the general plan] shall be used to identify sensitive areas of particular concern during project design and development.
- **Policy 10.11.E:** The City shall require that new roads, parking, and utilities be designed to minimize visual impacts. Unless limited by geological or engineering constraints, utilities shall be installed underground, and roadways and parking areas shall be landscaped and designed to accommodate the natural terrain.

The *Community Character and Design* and *Open Space and Recreation* elements contain additional goals and policies that aim to protect waterways and scenic corridors, specifically SR 12, and minimize light pollution. The following goal and policy in the *Open Space and Recreation* element pertain specifically to the Sacramento River as an aesthetic resource (City of Rio Vista 2002).

- **Goal 9.1:** To provide public access and view opportunities on the Sacramento River to the maximum extent feasible.
  - **Policy 9.1.C:** The City shall enhance the Sacramento River and its waterfront as a scenic resource consistent with water-oriented recreation.

In addition, the following implementing action aims to preserve aesthetic resources (City of Rio Vista 2002).

- **Action OSR-14:** Environmental/Visual Constraints Map (Proposed). The City will require with each development proposal an environmental/visual constraints map, based on the findings of a project-specific biological assessment and consistent with General Plan goals and policies. These maps will consider the potential open space opportunities illustrated on Figure 9-1 [of the general plan] and on Figure 10-2 [of the general plan], the Sensitive Local Resource Areas Map.

City of Suisun City General Plan

The City of Suisun City General Plan's *Community Character and Design Element* (City of Suisun City 1992) states that the perceived character of a community is most strongly a reflection of the way a community looks and feels to residents, workers, and visitors passing through the community. Community character is greatly influenced by the pattern and fabric of development that has occurred over time. One's sense of community character is also shaped by reaction to the human environment and the interaction of human-created and natural features of a community. These natural features are often associated with so-called "quality of life" factors such as recreational opportunities, the preservation of natural resources, vegetation and landscaping, and the preservation of open areas for visual and recreational enjoyment. There is a strong interaction between the urban and natural habitats along the Suisun Marsh, which defines the southern edge of the city. Because the marsh represents a natural habitat border, development design along the marsh must be sensitive to the urban-wildland interface.

Yolo County

Yolo County General Plan

The *Yolo County General Plan* was adopted on November 10, 2009 (Yolo County 2009). Aesthetic resources are addressed in the *Land Use and Community Character Element*. Goals and policies seek to protect and enhance the rural landscape and night sky, important site features (e.g., watercourses), and scenic views, and to minimize the aesthetic impact of infrastructure and utility facilities (Yolo County 2009). The general plan Policy CC-1.13 designates local scenic roadways, including South River Road, which parallels the west bank of the Sacramento River from the West Sacramento city limits to the Sacramento County line. South River Road is referred to as CH E9 in this analysis. The following policies specific to the preservation of scenic roadways are relevant to the BDCP alternatives (Yolo County 2009).

- **Policy LU-3.7:** Prohibit the designation of new urban development in places with one or more of the following characteristics: Areas where there are significant natural resources (e.g., groundwater recharge, wildlife habitat, mineral or timber resources, scenic areas, etc.).
- **Policy CC-1.2**: Preserve and enhance the rural landscape as an important scenic feature of the County.
- **Policy CC-1.3:** Protect the rural night sky as an important scenic feature to the greatest feasible extent where lighting is needed.
- **Policy CC-1.4:** Identify and preserve, where possible, landmarks and icons which contribute to the identity and character of the rural areas.
- **Policy CC-1.5:** Significant site features, such as trees, water courses, rock outcroppings, historic structures and scenic views shall be used to guide site planning and design in new development. Where possible, these features shall become focal points of the development.
- **Policy CC-1.8:** Screen visually obtrusive activities and facilities such as infrastructure and utility facilities, storage yards, outdoor parking and display areas, along highways, freeways, roads and trails.
- **Policy CC-1.9:** In communities, place both new and existing line utilities and telecommunications infrastructure underground where feasible. Where underground utilities are not feasible, minimize the aesthetic impact by co-locating new improvements within existing lines and facilities where possible.
- **Policy CC-1.12:** Preserve and enhance the scenic quality of the County's rural roadway system. Prohibit projects and activities that would obscure, detract from, or negatively affect the quality of views from designated scenic roadways or scenic highways.
- **Policy CC-1.15:** The following features shall be protected and preserved along designated scenic roadways and routes except where there are health and safety concerns:
    - Trees and other natural or unique vegetation
    - Landforms and natural or unique features
    - Views and vistas
    - Historic structures (where feasible), including buildings, bridges, and signs

- **Policy CC-1.16:** The following features shall be stringently regulated along designated scenic roadways and routes with the intent of preserving and protecting the scenic qualities of the roadway or route:
    - Signage
    - Architectural design of adjoining structures
    - Construction, repair and maintenance operations
    - Landscaping
    - Litter control
    - Water quality
    - Power poles, towers, aboveground wire lines, wind power and solar power devices and antennae
- **Policy CC-1.17:** Existing trees and vegetation and natural landforms along scenic roadways and routes shall be retained to the greatest feasible extent. Landscaping shall be required to enhance scenic qualities and/or screen unsightly views and shall emphasize the use of native plants and habitat restoration to the extent possible. Removal of trees, particularly those with scenic and/or historic value, shall be generally prohibited along the roadway or route.
- **Policy CC-1.18:** Electric towers, solar power facilities, wind power facilities, communication transmission facilities and/or above ground lines shall be avoided along scenic roadways and routes, to the maximum feasible extent.

City of West Sacramento General Plan

The *City of West Sacramento General Plan* includes the goal "to enhance the relationship between the City and the Sacramento River" in its *Urban Structure and Design Element* (City of West Sacramento 2004). Related policies seek to promote the development of important scenic areas and preserve vegetation along the river. In addition, the *Public Facilities and Services Element* requires the undergrounding of electrical and overhead facilities and includes the following policy (City of West Sacramento 2004).

- **Policy 1:** Public facilities, such as utility substations, water storage or treatment plants, pumping plants, and sewer treatment plants, shall be located, designed, and maintained so that noise, light, glare, or odors associated with these facilities will not adversely affect nearby land uses. Building and landscaping materials that make these facilities compatible with neighboring properties shall be used.

17.3 Environmental Consequences

17.3.1 Methods for Analysis

Using the concepts and terminology described at the beginning of this chapter and the criteria for determining adverse effects described below, analysis of the visual effects of the BDCP alternatives is based on the factors summarized below.

- Direct field observation from vantage points, including neighboring buildings, property, and roadways as observed on a site visit conducted January 9-11, 2012 and July 29-30, 2013. These site visits represent the contrasting seasonal views of winter and summer.
- Photographic documentation of key observation points (KOPs) of the study area that provide site-specific and regional context.
- Review of the project alternatives in regard to compatibility with state and local ordinances and regulations and professional standards pertaining to visual quality, and the extent to which the affected environment contains places or features that have been designated in plans and policies for protection or special consideration (e.g., as designated scenic vistas or highways).
- The relative numbers of viewers, their sensitivity to changes in the visual environment, their activities, and the extent to which these activities are related to the aesthetic qualities affected by the expected changes.
- Review of project construction drawings.
- Evaluation of visual simulations.
- Specific changes in the affected visual environment's composition, its character, and any specially valued qualities.

The focus of this visual analysis is on the alternatives' potential to adversely affect views from publicly accessible locations. Publicly accessible locations in the communities from which residents would view the study area are therefore considered to be of primary importance in this analysis.

17.3.1.1 Site Inventory and Selection of Key Observation Points

To identify the potential effects of alternatives on Existing Conditions of the visual environment, key observation points (KOPs) where features could have visual effects were selected. The KOPs selected were determined to be most representative of the alternatives' potential effects based on the potential to change views available to sensitive receptors and from sensitive viewing areas.

KOPs are derived and selected from candidate KOPs (cKOPs). To determine cKOPs, first a 2-mile radius of the project sites were evaluated, which is the area that is considered to encompass discernible elements from the project alternatives that would be visible in the landscape. At distances of greater than 2 miles, the mass and visibility of the project elements would be reduced to be a less substantial portion of the total landscape.

Within this 2-mile radius, locations were then evaluated for their potential to have views of the project sites using Google Maps, overlain with engineering layers for each alternative, and Google Street View. These locations were evaluated for its landform, vegetation, water, and artificial features. After this, cKOPs were chosen for the purposes of surveying the project sites and surrounding area. The following criteria were used to select the cKOPs.

- Include at least one of a representative range of visible project features, including, for example, canals, intakes, pumping plants, bridges, access roads, and embankments, along with all other visible project features such as soil and borrow and reusable tunnel material (RTM) areas.
- Include locations where project features would be visually obtrusive, including undeveloped areas that possess at least moderate scenic values.
- Include areas that would be particularly sensitive to changes in the visual landscape, including officially designated scenic areas, publicly accessible areas where viewers spend extended

periods, and areas that are at least moderately traveled by the public or are especially sensitive to new sources of light and glare.

- Include the potential for indirect impacts from project elements such as soil and borrow areas, RTM areas, or dredging locations.

In the field, these cKOP locations were visited and photographed to document the presence or absence of views of the sites. Additional locations were also surveyed and photo documented by driving the roads surrounding the project alternatives and capturing the most descriptive views down the roadway corridors and toward the project alternatives at intersections or where a safe road pull-out was present along longer or winding roadways with direct views toward the sites. These were often documented in a 360° view to gain an understanding of available views from the perspective of both motorists and residents and to understand the visual setting.

Images from the cKOPs were photographed using a >10 megapixel digital single lens reflex camera equipped with a 50-millimeter equivalent focal length lens. This configuration is the de facto standard that approximates the average view cone and magnification of the human an eye. The camera positioning was determined with a sub-meter differentially corrected GPS.

Two hundred and fifty-five (255) cKOPs were photographed within the study area during an initial site visit on January 9–11, 2012. A list of the cKOPs and their latitudinal and longitudinal locations are included in Appendix 17A. The cKOP point locations were brought into GIS, a Google KML file was created, and then the cKOP locations were imported into Google Earth. Once in Google Earth, the cKOPs and associated photos were used as a tool, in correlation with the engineering data overlay for each alternative, to evaluate project effects based on their spatial relationship/proximity to the project sites.

Each cKOP was evaluated for its proximity/distance to the project, scenic quality, viewer concern levels, duration of the view, intactness, and number of viewers. This evaluation was completed using a matrix, also included Appendix 17A, that quantifies these qualities from the perspective of viewers at each cKOP toward the project area. These values are based on a 1 to 5 ascending scale, as defined by the *Candidate KOP Sensitivity Matrix Rating Scales* in Appendix 17A. The highest possible sensitivity would be a score of 30 and the lowest possible sensitivity would be a score of 0. Sensitivity in the project ranges from 27 as the highest sensitivity and 12 as the lowest sensitivity. cKOPs were selected and designated as KOPs to be used as the basis to describe the effects of the various features of the BDCP alternatives within this analysis because they were determined to be the most representative sampling of the proposed project's potential effects on the viewshed across all of the spectrum of sensitivity ranges. The KOPs are identified by their previous cKOP designations, 72 KOPs were selected for representative photographs. KOPs were re-photographed on July 29-30, 2013 to show the same view but in the summer. One new KOP was added to accommodate the revised Alternative 4 so that the total number of KOPs was increased to 73. All KOPs are shown in Figure 17-1, *Key Observation Point and Photosimulation Locations*. Photographs taken from these representative KOPs showing winter and summer views are presented in Figure 17-2 through 17-73. Note that KOP 258 does not have a winter view because Alternative 4 was modified after January 2012.

An important consideration in KOP selection was that visual impacts are generally based on public views (i.e., views from public roads, trails, towns, or bridges rather than from individual residences), as described above. However, views from individual private properties are also considered in evaluating overall change to the visual character of an area. In addition, another consideration is that late fall through early spring views generally possess the greatest potential for visual impact because many trees and shrubs are dormant and without leaves that act to partially or fully screen project features in the landscape during the late spring to early fall. Vegetation's ability to screen features is dependent upon viewer location in relation to the structure and intervening vegetation and distance from both (i.e., an intake will appear smaller if the viewer is farther away or larger if the viewer is closer to the structure).

17.3.1.2 Preparation of Visual Simulations

Computer-generated visual simulations were produced using digitized photographs and computer modeling and rendering techniques to document and evaluate the visual changes that would result from implementation of the action alternatives. The simulations illustrate specific project elements from eleven locations. Simulation vantage points were selected to provide representative public views from which specific project elements would be most visible, and 13 KOPs, mapped on Figure 17-1, were selected for simulating project features. Note that one KOP was simulated to show the change from January 2012 and July 2013 conditions and another KOP was simulated to show views in different directions toward different project features. Simulations are shown in Figures 17-76 through 17-89. Elements chosen for simulation were intakes on the Sacramento River; the intermediate forebay from SR 160; a tunnel shaft site from Isleton Road, the fish screen at Walnut Grove and Locke; canals that would be visible from I-5 near the Lambert Road overpass, SR 4 near Discovery Bay, SR 4 near South Whiskey Slough Road, and SR 12 near Guard Road; and the redirection of Old River near the Clifton Court Forebay. These simulation locations and features represent visual effects across the alternatives, illustrate a representative sample of potential visual changes, and serve to help readers correlate how visual effects would translate to other site-specific locations that were not simulated.

The before and after visual simulations provide clear images of the location, scale, and visual appearance of alternative features. The simulations were developed through an objective analytical and computer modeling process and are accurate within the constraints of the available site and alternative data (three-dimensional computer model was created using a combination of AutoCAD files and geographic information system [GIS] layers and exported to Autodesk's 3-dimensional Studio Max for production). Design data—engineering drawings, elevations and cross sections, site and topographical contour plans, concept diagrams, and reference pictures—were used as a platform from which digital models were created. In cases where detailed design data were unavailable, more general descriptions about alternative facilities and their locations were used to prepare the digital models. Data and assumptions used in the simulations are provided in Appendix 17B, Photo Simulation Data Sources and Assumptions.

The simulations were prepared using available design data. Although the project elements will continue to undergo design refinement through final design stages, these refinements would not be expected to result in substantial differences in individual features that would affect the outcome of the visual effects analysis. The planning is far enough along and engineers have developed preliminary design of the water conveyance facilities and related structures to meet the operational criteria for the alternatives. Some of the factors incorporated into these considerations include appropriate intake and pump capacities, foundation and housing facility dimensions, extent of levee modification and upgrades to prevent flooding of the intake facilities, conveyance pipe and canal dimensions, the amount of electricity needed to power the alternatives and the associated structures and placement of transmission lines, placement of temporary and permanent access roads, and estimates of landform modifications (cut-and-fill) to accommodate structures. Finally, the analysis assumes that any shifts in specific feature configurations or new alternative components would be minor. Therefore, the simulations are considered appropriate and representative of the type and extent of possible visual changes to the study area.

After the viewshed and sensitive receptors were established and visualization created, the visual impact assessment process, which identifies the existing scenic quality of the visual setting, was completed. For this analysis, an adaptation of the BLM's VRM visual resource inventory method was used because it allows the various landscape elements that make up scenic quality to be quantified and rated, with a minimum of ambiguity or subjectivity. BLM's VRM visual resource inventory assigns lands an A, B, or C rating based on the apparent scenic quality, determined by using seven key factors (landscape features): landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. The cKOP sensitivity matrix and the Scenic Quality evaluation form should not to be construed as interrelated from a quantification perspective. The sensitivity matrix uses visual quality as an evaluation criterion where the value is extrapolated from a regional overview perspective. The Scenic Quality evaluation however, uses additional criteria to evaluate place-based scenic quality; therefore the two values are independent of each other. These landscape features were evaluated by three reviewers (interdisciplinary team) and rated numerically on a comparative basis with similar features within the viewshed, and a total score of scenic quality was tabulated (see Appendix 17C). The three reviewers scores were averaged to determine the score used in the analysis.

A total of 32 points is possible according to the rating scheme. View scores are as follows.

- 29 to 32 points: A rating indicates a very high visual quality.
- 24 to 28 points: B rating indicates a high visual quality.
- 19 to 23 points: C rating indicates a moderately high visual quality.
- 14 to 18 points: D rating indicates a moderate visual quality.
- 9 to 13 points: E rating indicates a moderately low visual quality.
- 4 to 8 points: F rating indicates a low visual quality.
- 0 to 3 points: G rating indicates a very low visual quality.

The landscape was evaluated for its existing and simulated conditions. A reduction in the existing conditions to a lower Scenic Quality Rating constitutes an adverse effect.

17.3.1.3 Analysis of the Alternatives' Impact on Visual Resources

The alternatives' level of impact can be measured by assessing the existing physical environment, including *landscape sensitivity* and evaluating the *visual dominance* that features would have compared with major features in the existing landscape to determine the *overall effect on viewers* as a result of BDCP implementation. Visual impacts were evaluated by reviewing the alignments for Alternatives 1A, 1B, 1C, and 9 and grouping segments of the alignment by similar visual features and homogeneous character, including viewer groups present and viewer sensitivity levels. The existing visual character was determined for each of these areas, and changes to the visual environment were evaluated in accordance with criteria listed in Section 17.3.2, *Determination of Effects*. In addition, landscape sensitivity and visual dominance of project features were evaluated to determine the overall effect on viewers in that specific area. These areas include the various KOPs along or near the conveyance alignment. These discussions are presented in Appendix 17D, *Permanent Impacts after Construction is Complete*, in Tables 17D-1 through 17D-4. The remainder of the alternatives were evaluated using information gleaned from Alternatives 1A, 1B, 1C, and 9. Alternatives 1A, 1B, 1C, and 9 are the all-encompassing alternatives and all of the other alternatives are a reduced version of one of those four alternatives. The reduced alternatives share the same conveyance method and alignments, the same intake locations, the same shaft site locations, etc. and the primary difference, as it relates to aesthetic resources, is the number of intakes that are included under each reduced alternative. A more comprehensive discussion of feature- and site-specific visual effects on views and viewer groups is presented in Appendix 17E, *Permanent Features*.

Scenic vistas are also mapped and included in Appendix Figure 17D-1, *Key Observation Point and Photosimulation Locations*, which also includes all cKOPs, KOPs, and simulated KOPs. It is important to note that this mapping does not include all scenic vistas within the study area. The mapping focuses on vistas from public roadways only, with the exception of vistas mapped in proximity to Brannan Island State Recreation Area, that are in direct or very close proximity to alternative features and that were directly surveyed during the January 9–11, 2012, site evaluation of the cKOPs. Scenic vistas generally encompass a wide area with long-range views to surrounding elements in the landscape. Because of this, it is very common that residents and businesses in the immediate area, open agricultural lands, and roadways that run parallel and/or perpendicular to roadways mapped with a scenic vista are contained within and also have scenic vistas even though they are not mapped in Appendix Figure 17D-1. In addition, it is important to note that vistas have a directional range. That is to say that some areas have scenic vistas with a 360° view in all directions, while others may be limited in one direction in a manner that reduces the line of sight angle and amount of vista that is visible for a narrower vista view. Water-based vistas are not mapped.

Evaluation of Landscape Sensitivity

The BLM Visual Resource Inventory system involves evaluating sensitivity levels based on the measure of public concern over the scenic quality of a particular landscape. This concern is measured by considering the types of users, amount of use, public interest, adjacent land uses, special areas (e.g., scenic roadways), and other factors or special circumstances that may apply to a particular location that would affect sensitivity (Bureau of Land Management 1984:3). Landscape sensitivity levels help to determine the management actions that should be applied to various landscapes in order to maintain their visual integrity (Bureau of Land Management 1984:24–29). While the study area does not include lands under BLM jurisdiction, this method of inventory is helpful for identifying landscape sensitivity levels, and the following landscape sensitivity levels were defined for use in this analysis for the BDCP alternatives.

- **High Sensitivity:** There are special areas of interest, a higher number of viewers in the area, highly sensitive viewer groups present, high public interest in changes to the area, and high concern over how changes may affect adjacent land uses. The existing character of the landscape in areas of high sensitivity should be preserved. Natural ecological changes are preferred; however, this does not preclude very limited development activity. The level of change to the landscape should be very low and must not attract attention.

- **Moderate Sensitivity:** There are a moderate number of viewers in the area with moderate sensitivity, moderate public interest in changes to the area, and moderate concern over how changes may affect adjacent land uses. The existing character of the landscape in areas of high sensitivity should be preserved. The existing character of the landscape in areas of moderate sensitivity should be retained. The level of change to the characteristic landscape should be low. Development activities may be seen but should not attract the attention of the casual observer.

Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

- **Low Sensitivity:** There are few viewers in the area with moderate to low sensitivity, moderate to low public interest in changes to the area, and moderate to low concern over how changes may affect adjacent land uses. The existing character of the landscape in areas of high sensitivity should be preserved. The existing character of the landscape in areas of low sensitivity should be partially retained. The level of change to the characteristic landscape should be moderate. Development activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
- **Very Low Sensitivity:** There are few viewers in the area with low sensitivity, low public interest in changes to the area, and low concern over how changes may affect adjacent land uses. The level of change to the characteristic landscape in areas of very low sensitivity can be high. Development activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repetition of the basic elements.

Evaluation of Visual Dominance

Visual resource change is analyzed in terms of visual dominance of proposed facilities and features, together with change in visual quality. Viewer responses to these changes are interpreted on the basis of viewer types and viewer sensitivity. For evaluation of the BDCP alternatives, viewer types and their sensitivities were inferred on the basis of the characteristics, activities, and duration of views of various viewer groups.

Visual dominance refers to the contrast between BDCP features and their setting characterized in terms of vegetation, landform, and structural changes. Dominance is a function of how visually prominent the project is to the viewer and is described using the following terminology.

- **In-evident:** Project is visible but generally not visually prominent.
- **Subordinate:** Project is visually prominent, but attracts less attention than other components of the setting.
- **Co-dominant:** Project attracts attention equally with other components of the setting.
- **Dominant:** Project dominates the view and attracts more attention than other components of the setting.

As part of determining visual dominance, the relative degree of visual contrast that project features would create with the visual landscape is characterized. The determination of a project's overall effect on viewers is based largely on identifying the level of visual dominance a project feature would present over the landscape.

Evaluation of Overall Effect on Viewers

A project's level of visual dominance can be measured by comparing the project's features with major features in the existing landscape. The combination of the visual dominance rating (from FHWA guidelines) and the landscape sensitivity level (from BLM guidelines) was used to determine the overall effect of project-related landscape changes on viewers. The project's overall effect on viewers can be classified in one of the five following ways.

- **Negligible:** No visual change and no reduction or increase in visual quality, with no negative or positive viewer responses expected.
- **Minimally Noticeable:** A perceptible and tangible visual change and minimal reduction in visual quality, with minimal negative viewer responses expected.
- **Moderately Noticeable:** A tangible degree of visual change and some reduction in overall visual quality, with some moderately negative viewer responses expected.
- **Noticeable:** Moderate degrees of visual change and a reduction in the overall visual quality, with negative viewer responses expected.
- **Very Noticeable:** Substantial visual change and considerable reduction in the overall visual quality, with strongly negative viewer responses expected.

Table 17-1 illustrates how visual dominance ratings interact with landscape sensitivity levels, thereby determining the project's overall effect on viewers, detailed in Appendix 17D.

Table 17-1. Project's Overall Effect on Viewers

Project's Visual Dominance	Landscape Sensitivity Level			
	High	Moderate	Low	Very Low
In-evident	Negligible	Negligible	Minimally noticeable	Minimally noticeable
Subordinate	Noticeable	Moderately noticeable	Minimally noticeable	Minimally noticeable
Co-dominant	Very noticeable	Noticeable	Moderately noticeable	Minimally noticeable
Dominant	Very noticeable	Very Noticeable	Noticeable	Moderately noticeable

17.3.2 Determination of Effects

The impacts of the alternatives on aesthetics and visual resources may result from both construction and operation of BDCP features. In fashioning the thresholds set forth below, the lead agencies considered the questions on the subject of Aesthetics from Appendix G to the CEQA Guidelines, as well as professional judgment and commonly accepted professional standards. Further, for purposes of this analysis, the determination of whether a change in the visual conditions would be *substantial* was performed using the methods described in detail under section 17.3.1, *Methods for Analysis*, and considers site-specific landscape sensitivity (see Appendix 17A) and project feature visual dominance characteristics (see Table 17-1 and Appendix 17D), and the expected change in scenic quality ratings as determined through photo simulation evaluation (see 17.3.1.2 and Appendix 17C). This impact analysis assumes that an action alternative could have an adverse effect (under NEPA) and a significant impact (under CEQA) on aesthetics and visual resources if it would result in any one of the following conditions.

- Substantially alter the existing visual quality or character of the site and its surroundings. For purposes of this analysis, substantially alter the existing visual quality or character is defined as circumstances in which construction or operational activities would result in a reduction in the Scenic Quality Rating and/or introduce dominant visual elements that, based on the landscape sensitivity level, would result in noticeable to very noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes could be viewed by sensitive receptors (i.e., residents, recreationists) and from public viewing areas. Changes to visual quality and character could involve one or more of the following components.

  - Substantially alter existing viewsheds, including changing existing terrain, vegetative cover, or other natural or built features and introducing incompatible visual elements.
  - Substantially alter the existing visual quality of a site and/or the region or eliminate visual resources.
  - Substantially obstruct or permanently reduce visually important features.

- Have a substantial adverse effect on a scenic vista. For purposes of this analysis, a substantial adverse effect on a scenic vista is defined as circumstances in which construction or operational activities would result in a reduction in the Scenic Quality Rating and/or introduce dominant visual elements that, based on the landscape sensitivity level, would result in noticeable to very noticeable changes in the visual character of a vista viewshed that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes can be viewed by sensitive receptors (i.e., residents, recreationists) and from public viewing areas.
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. For the purposes of this analysis, substantial damage is defined as circumstances in which construction or operational activities would alter or change a scenic resource within a state scenic highway to the extent that it would result in a reduction in the Scenic Quality Rating and/or introduce dominant visual elements that, based on the landscape sensitivity level, would result in noticeable to very noticeable changes in the visual character of a state scenic highway's viewshed that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes can be viewed by sensitive receptors (i.e., residents, recreationists) and from public viewing areas.
- Create a new source of substantial light or glare that would adversely affect day or nighttime public views in the area. For purposes of this analysis, an adverse effect on day or nighttime public views is defined as circumstances in which construction or operational activities would result in a reduction in the Scenic Quality Rating and/or introduce dominant visual elements that, based on the landscape sensitivity level, would result in noticeable to very noticeable changes in the viewshed. Elements that could affect light or glare in the study area could involve one or more of the following.
  - Substantially increase light and glare in the project vicinity.
  - Substantially increase the backscatter of light into the nighttime sky.
  - Substantially reduce the amount sunlight present or the introduction of shadows in community areas.

Glare can be caused by a direct light source (direct glare) or, more commonly, by the reflection of the sun, moon, or artificial light source from a reflective surface (reflective glare). The intensity of direct glare is a function of the brightness of the surroundings and the intensity of the light source. Similarly, the intensity of reflective glare is a function of the reflectivity of the surface, the intensity of the light source, and the angle of the light source hitting the reflective surface. Highly reflective surfaces include water, glass, and metal. However, any surface may be a source of reflective glare based on its coloring and size. Lighter surfaces are more reflective than darker surfaces. For example, flat white has a reflectivity of 85–95%, whereas yellow has a reflectivity of 70%.

Reflectivity decreases as the color gets darker because lighter colors reflect light and darker colors absorb light. Similarly, larger surfaces have a bigger area from which light will reflect than do smaller surfaces (Smardon et al. 1986:126–128).

- Result in long-term (persisting for 2 years or more) adverse visual changes or contrasts to the existing landscape as viewed from areas with high visual sensitivity. For purposes of this analysis, adverse visual changes or contrasts are defined as circumstances in which construction or operational activities would result in a reduction in the Scenic Quality Rating and/or introduce dominant visual elements that do not blend and are not in keeping or are incompatible with the existing visual environment, based on the landscape sensitivity level, and would result in noticeable to very noticeable changes in the viewshed; and areas of high visual sensitivity are residences and recreation areas. Incompatibility with federal, state, or local plans, policies, or regulations dealing with the subject of aesthetics and visual impacts. Incompatibility alone would not result in an adverse effect or significant impact. If, however the incompatibility relates to an applicable plan, policy, or regulation adopted to avoid or mitigate visual effects, then an incompatibility might be indicative of a related significant or adverse effect under CEQA and NEPA, respectively.

For the purposes of this analysis, temporary effects are those that occur for a time period less than two years. Long-term effects refer to time periods greater than two years.

17.3.3 Effects and Mitigation Approaches

The visual resources analysis addresses primarily the study area, in which proposed intake and conveyance facilities and related structures and operations would be located. The analysis also addresses the proposed BDCP CM2–CM22, although the assessment is programmatic in scope, because specific plans have not been developed for those areas. No new structures are proposed upstream of the Delta or in the SWP and CVP export service areas under any of the proposed alternatives. In addition, no conservation actions are proposed under any of the alternatives in either of these regions.

As described in Section 17.3.1, *Methods for Analysis*, the evaluation of visual effects considers areas where the proposed BDCP facilities would be visually dominant features in the context of the evaluation topic being considered. Acreages and areas of the proposed features and facilities described in the impact analysis below are detailed in Chapter 3, *Description of Alternatives*, and Chapter 13, *Land Use*. BDCP features that would not result in a direct or indirect physical change to the visual environment are not discussed under the impact analysis. The conveyance pipelines and tunnels 1 and 2 would not be visible because they would be underground. Project features that would result in physical changes to the visual environment are listed below.

- Intake structures.
- Forebays with embankments.
- Pumping plants.
- Control structures.
- Soil spoil and borrow sites.
- RTM areas.
- Work/staging areas.

- Shaft sites (Alternatives 1A, 2A, 3, 4, 5, 6A, 7, and 8).
- Canals (Alternatives 1B, 1C, 2B, 2C, 6B, 6C, and 9).
- Bridges (Alternatives 1B, 1C, 2B, 2C, 6B, 6C, and 9).
- Operable barrier(s) (Alternatives 2A, 2B, 2C, 4, and 9).
- Temporary and permanent access roads.
- Transmission lines.
- Concrete batch plants and fuel stations.
- Restoration actions.

Impacts that would result in physical changes to the visual environment because of alternative features are discussed below in Impacts AES-1 through AES-6.

Operational changes would occur in the Upstream of the Delta Region and within the SWP and CVP Export Service Areas, and would result in noticeable changes in the visual setting. As described above, Trinity Lake, Shasta Lake, Lake Oroville, Folsom Lake, New Melones Lake, and San Luis Reservoir would experience slight variations in the storage and elevation patterns as a result of the operation of the alternatives. These effects would affect recreation viewer groups and are discussed in Chapter 15, *Recreation* under *Impact REC-6: Cause a change in reservoir or lake elevations resulting in substantial reductions in water-based recreation opportunities and experiences at north- and south-of-Delta reservoirs.* In addition, CALSIM modeling results indicate that effects, if any, to river flows are so minor as to have no effect. Each intake would take in up to 3,000 cfs of water at each location. Hydraulic measurements indicate that there would be a localized 1- to 2-inch drawdown, but this would be negligible compared to the 1-foot tidal variation seen at Freeport every day. Additionally, tidal variations are greater further downstream. Therefore, there would be no disruption of water-based views in the vicinity of the intakes and this is not discussed further.

17.3.3.1 No Action Alternative

The No Action Alternative includes continued implementation of SWP/CVP operations, maintenance, enforcement, and protection programs by federal, state, and local agencies and non-profit groups, as well as projects that are permitted or are assumed to be constructed by 2060. Climate change that would occur with or without the BDCP is also part of the No Action Alternative. A complete list and description of programs, plans, and other assumptions considered under the No Action Alternative is provided in Chapter 3, Appendix 3D, *Defining Existing Conditions, No Action Alternative, No Project Alternative, and Cumulative Impact Conditions*.

Changes to land use have the greatest potential to affect visual resources and viewer groups under continuation of existing policies and programs in the absence of the BDCP alternatives. Under the No Action Alternative, state and federal programs to preserve open space and agricultural lands would continue to be implemented, as described in Chapter 13, *Land Use*. The land uses in the Delta would be similar to those of today because only limited types of development are allowed in the Primary Zone of the Delta. However, some changes in the study area could occur as a result of localized population growth, continued land subsidence on Delta islands, levee instability and potential flood risk, sea level rise, and restoration activities. These changes could result in the conversion of additional agricultural land uses and would consequently affect the visual landscape.

Localized population growth would convert agricultural lands on the outskirts of towns and cities in the Delta, but would not entail new suburban developments in undeveloped areas because of the limits associated with the Primary Zone of the Delta[2]. This would limit the amount of agricultural land conversion to rural and suburban development perceived by viewers in the area but could result in site-specific adverse effects through temporary construction activities and the alteration of the existing visual character. The severity of such effects would depend on the density and appearance of new development. In addition, new rural and suburban development would increase the amount of light and glare present in these areas.

Land subsidence, sea level rise, catastrophic levee failure, or a combination thereof should they occur, would result in flooding and inundation that could significantly damage existing facilities and infrastructure, uproot and damage vegetation to an unknown extent, permanently flood Delta islands, and drastically alter the visual landscape of the Delta. Should such events occur, as anticipated, natural processes and vegetative succession would restore the visual environment to a certain degree over time. However, permanent scarring or visual remnants of damaged infrastructure could remain on the landscape. In addition, some Delta islands could become partially or completely submerged by water and be visible to varying degrees. Such an event could cause a substantial change in the existing study area visual character. Scenic vistas would also be significantly altered for an extended period of time or irreparably damaged, because views across this landscape could be visually changed and crops damaged. To reclaim land or rebuild levees after such an event would introduce considerable heavy equipment and associated vehicles, including dozers, excavators, water trucks, and haul trucks, into the viewshed of existing viewers. The visual effect of these activities may or may not be adverse based on the intervals of time during which viewers would be in visual contact with the site and extent of construction activities required. Potential catastrophic levee failure and the resulting submerged landscape would alter the visual character of affected areas. These potential effects cannot be quantified based on available information, but can be equated to similar events in recent history. (See Appendix 3E, *Potential Seismic and Climate Change Risks to SWP/CVP Water Supplies* for more detailed discussion)

Restoration and environmental enhancement projects may benefit visual resources within the Delta. These projects include recently completed, ongoing, or planned restoration and enhancement projects within the north Delta, Lower Yolo Bypass, and Suisun Marsh and implementation of land management plans for Stone Lakes National Wildlife Refuge, Yolo Bypass, and Lower Sherman Island. Additionally, the 2008 and 2009 Biological Opinions issued by NMFS and USFWS require 8,000 acres of tidal habitat restoration. Conversion of agricultural lands to restoration sites would typically involve some topographic grading, exposure of bare soil, and change in vegetation that could be visually adverse. However, the construction impacts on the visual landscape would be temporary. The visual changes associated with constructing a restoration site would be very similar to the visual character seen in much of the Delta with the ongoing agricultural and restoration operations that are already occurring. Agricultural activities include ground-clearing (disking and tilling) and planting activities. Restoration projects may enhance wildlife viewing, nonmotorized boating, and other passive recreation opportunities and visual access within the Delta by increasing wildlife habitat and public access. These areas may increase glare for a short period of time until

[2] Land Use Policy P-4 states "New non-agricultural residential development, if needed, shall be located within the existing Primary Zone communities where support infrastructure and flood protection are already provided" (Delta Protection Commission 2011).

vegetation becomes established, or if restoration projects include built facilities that produce glare or require lighting.

As described in Chapter 15, *Recreation*, ongoing projects and programs such as operation of the Delta Cross Channel, the South Delta Temporary Barriers Program, and the Georgiana Slough Nonphysical Fish Screen would also affect water-dependent recreation by hindering boat passage and access to portions of the Delta's waterways when in place. Other ongoing resource management plans such as controlling nonnative aquatic vegetation, Delta levee protection and repair programs, hatchery and stocking programs, maintenance of channels and sloughs, and other similar projects and programs help maintain access to Delta waterways, keep levees in working order, and keep lands protected. All these ongoing activities are a part of the existing visual environment and would not have adverse effects on the existing visual landscape.

Many of the ongoing programs include development of future projects that would require additional project-level environmental review. Future federal actions would be required to comply with NEPA, the federal Endangered Species Act, and other federal laws and regulations. Compliance and permit requirements would be implemented on a case-by-case basis. Overall, the No Action Alternative would result in an array of effects on existing visual quality and character in the Delta. Overall, implementing on-going programs and projects under the No Action Alternative, including changes in farmland are not expected to result in adverse changes to the visual environment because development in much of the study area is restricted by the primary zone designation and city and county ordinances.

CEQA Conclusion: In total, the ongoing programs and plans under the No Action Alternative would result in the potential for temporary and permanent effects on the study area visual environment that are not expected to substantially change visual resource elements in the Delta because of the current restrictions on development in the primary zone and city and county ordinances to preserve the visual quality of the Delta. Future state and local actions would be required to comply with CEQA, the California Endangered Species Act, and other state and/or local laws and regulations. This potential impact is considered less than significant. No mitigation is required.

17.3.3.2 Alternative 1A—Dual Conveyance with Pipeline/Tunnel and Intakes 1–5 (15,000 cfs; Operational Scenario A)

Table 17D-1 in Appendix 17D, *Permanent Impacts after Construction is Complete*, describes existing visual characteristics and the BDCP-related permanent effects of Alternative 1A on visual quality and character, scenic vistas, scenic roadways, and from light and glare sources after construction is complete and identifies the overall effect on viewers. Appendix E, *Permanent Features*, identifies the viewer groups and viewing locations that would be affected by permanent alternative features. Construction of all structural components under Alternative 1A would take 9 years. However, construction of each individual facility would be phased within that period and would occur over a shorter period. The estimated construction times for individual features are included below. The duration and schedule for construction of the water conveyance facilities (CM1) is provided in Appendix 3C, *Construction Assumptions for Water Conveyance Facilities*. In addition, Appendix 22A details the construction schedules and defines the length and sequence of each construction phase.

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

Construction of conveyance facilities under Alternative 1A would result in substantial alteration of the existing visual quality or character in the vicinity of project elements that can be viewed from local sensitive receptors and public viewing areas. Visual quality effects at Alternative 1A project element construction sites would take place beginning with construction mobilization through completion of project elements. Once construction mobilization under Alternative 1A occurs, all viewer groups would begin to see visual changes to the portions of the study area where project features would be built. Construction mobilization, as used herein, is defined as the moment approval has been given for any materials and supplies, construction equipment, construction facilities and staging, and staffing to be physically on-site and site modifications to begin. A generalized sequence of construction mobilization includes first clearing the work area sites and building and setting up staging areas, temporary field offices, worker parking, equipment and materials laydown and storage areas, and establishing other construction-related needs. This may occur after or simultaneously with construction of temporary and permanent transmission lines. Once the work areas are established, then there is a place set up to begin delivery of materials and additional equipment to build the alternative features, discussed in more detail below. However, in general, the sites would first be cleared of vegetation and structures, earthwork and grading would occur, the built structures and facilities would be constructed, and then landscaping would be installed. Once a project feature is completed, the work area would be removed and revegetated. This process would occur in phases, constructing different features at different times, until the project has been fully completed and would apply to all action alternatives.

Intakes

The Sacramento River channel and bank would be affected by construction of the five north Delta intake facilities (Intakes 1–5) between River Mile (RM) 44 (south of Freeport) and RM 37 (north of the town of Courtland) (Figure 3-2 and Mapbook Figure M3-1). Construction of each intake would take approximately 4 years to complete and would occur primarily Monday through Friday for up to 24 hours per day. In addition, because of the relatively high groundwater level at all intake locations and pumping plant sites, dewatering would be necessary to provide a dry workspace. Dewatering would also be needed where intake pipelines cross waterways and major irrigation canals east of the Sacramento River. Conveyance pipelines constructed for Intakes 2, 4, and 5 would not be anticipated to intersect with waterways or major irrigation canals. Dewatering would take place 7 days per week and 24 hours per day and would be initiated 1–4 weeks prior to excavation. Dewatering would continue until excavation is completed and the construction site is protected from areas with high groundwater levels (Chapter 3, *Description of Alternatives*). Scattered rural residences are located along County Highway (CH) E9 and SR 160 along both banks of the river, throughout the corridor between where Intakes 1–5 would be built; some of these would be near or directly adjacent to construction activities (KOPs 1, 3, 4, 18, 30, 41, and 49). The towns of Clarksburg, Hood, and Courtland have a higher concentration of residential viewers and are also near the intakes (KOPs 12, 38, 72, 73, and 74). Recreationists on local roadways and waterways, roadway users on local roadways, and nearby businesses would have direct views of intake construction.

Construction of five intake structures and associated facilities would introduce considerable heavy equipment—excavators, graders, dozers, sheepsfoot rollers, dump trucks, and end loaders, in addition to support pickups and water trucks—into the viewshed of all viewer groups in the vicinity, especially between Clarksburg and Walnut Grove. Work areas of approximately 125 acres would be located adjacent to each intake site and would be used for staging, temporary field offices, worker parking, equipment and materials laydown and storage, and would support other construction-related needs. While farm equipment is common in this area, the presence of long-term and large-scale construction is not common and would adversely affect viewers who would see work areas over an extended period of time where they once saw agricultural lands. Construction of all the intakes would require that properties first be acquired, resulting in the relocation of several residences and razing of buildings on these properties during construction. The intakes would dissect the parcels, disrupting the continuity of rural land and affecting free-flowing visual access from lands on either side of the intakes. In addition, residences and businesses may experience loss of landscaping, fencing, or other landscape features of personal importance. The landscape sensitivity level is high, and impacts on viewers are substantial because the residents would experience disruptive construction activities near to their homes.

Once the site is cleared of built features, earthmoving activities would result in the removal of mature vegetation and topographical changes to areas that are presently flat. Earthmoving activities and associated heavy equipment and vehicles would be readily visible throughout operation of these sites and have the potential to create dust clouds that would attract attention from visual receptors and reduce the availability of short-range views. As set forth in Chapter 22, *Air Quality and Greenhouse Gases*, the BDCP proponents have identified several environmental commitments (Appendix 3B, *Environmental Commitments*) to reduce emissions of construction-related criteria pollutants, including basic and enhanced fugitive dust control measures and measures for entrained road dust that would help to reduce the creation of dust clouds that would negatively affect short-range views. As described in Chapter 3, *Description of Alternatives*, revegetation of disturbed areas would occur as a part of the project and revegetation would be determined in accordance with guidance given by DWR's WREM No. 30a, *Architectural Motif, State Water Project* and through coordination with local agencies through an architectural review process. Because revegetation is included as part of Alternative 1A, it would help to lessen visual impacts. However, impacts may still be substantial, as described further in this analysis. This guidance from DWR WREM No 30a is set forth as follows and would apply to the other features described under Impact AES-1.

> If possible, the natural environment will be preserved. If not possible, a re-vegetation plan will be developed. Landscaping plans may be required if deemed appropriate to enhance facility attractiveness, for the control of dust/mud/wind/unauthorized access, for reducing equipment noise/glare, for screening of unsightly areas from visually sensitive areas. Planting will use low water-use plants native to the Delta or the local environment, with an organic/natural landscape theme without formal arrangements. For longevity and minimal visual impact, low maintenance plants and irrigation designs will be chosen. Planting plans will use native trees, shrubs or grasses and steps will be taken to avoid inducing growth of non-native invasive plant species/CA Plant Society weedy species. Planting of vegetation will be compatible with density and patterns of existing natural vegetation areas and will be placed in a manner that does not compromise facility safety and access. Planting will be done within the first year following the completion of the project and a plant establishment plan will be implemented.

Water-based construction would also be required to construct water intakes and levee modifications. Water-based recreational viewers would have the most direct views toward in-water construction, which would likely require partial channel closures and use of equipment within the waterways (KOP 26). All such construction would have temporary in-water construction zone speed restrictions where high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated. In-water construction activities would constrict boat passage, increase boat traffic congestion during peak use (primarily summer weekends), and extend viewing times of these facilities. In-water construction at all locations would result in adverse visual effects due to the elongated viewing times during periods of congestion, temporary partial channel closures that could impede recreational opportunities and create negative visual perceptions of these facilities, and a reduced recreational experience due to the industrial nature of views of such facilities.

Once construction of the conveyance facilities is complete, Intakes 1–5 would introduce large, industrial concrete and steel intake structures, approximately 55 feet from river bottom to the top of the structure with a total structure length of 700-2,300 feet, pumping plants that are approximately 70 feet tall, landscaping, fencing, and other similar anthropogenic features into an area with an existing rural visual character and a riparian, riverine, and agricultural nature. The design of the intakes and associated facilities could play a large part in helping to improve the quality of affected and degraded viewsheds. Landscaping that would be incorporated as part of the facility design would help to improve the quality of views. Because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, changes to topography through grading, and addition of large-scale industrial structures where none presently exist, this effect is considered adverse.

The intake facilities would result in adverse visual effects upon the landscape. As seen in Figure 17-76a, *Existing and Simulated Views of Intake 3 East from SR 160 in January 2012*, the removal of a substantial amount of riparian vegetation along the east bank acts to open up the vista but also increases the visual prominence of the pumping plant in the landscape. The introduction of tall, steel 230 kV transmission lines visually contrasts to existing views where there are no transmission lines and in an area where transmission lines primarily consist of wooden utility poles. The pumping plant introduces a large-scale building, similar in appearance to a warehouse facility, that is a focal point and visually discordant in scale and mass to the surrounding rural character within the vista. It also adds monotone solid color mass into a landscape where the natural colors of the landscape are earth-tones and more muted. Overall, the existing vista from KOP 34 on SR 160 toward Intake 3 would be substantially impaired by vegetation removal and introduction of the pumping plant and the Scenic Quality Rating would be reduced from a **D** to an **E**. A reduction in the Scenic Quality Rating associated with Intake 3 is representative of the effects that could occur to other vistas through the removal of vegetation, obscuring and limiting views beyond the foreground, and introducing large industrial features into a rural landscape and this effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3). However, as shown in Figure 17-76b, *Existing and Simulated Views of Intake 3 East from SR 160 in July 2013*, fast-growing poplar or cottonwood trees that were newly planted in January 2012 have since grown and would act to obscure portions of the pumping plant. However, the pumping plant would still be visually discordant in scale and mass to the surrounding rural character within the vista and the Scenic Quality Rating would be reduced from a **D** to an **E**. Note that, over time, the trees will continue to grow and views of Intake 3 from KOP 34 could be further limited.

Figure 17-77, *Existing and Simulated Views of Intake 2 West from SR 160*, shows an intake associated with the west alignment (Alternatives 1C, 2C, and 6C). However, this view is representative of how an intake under this alternative would look on the east bank of the river from CH E9. It is also representative of how intakes could affect this and other vista views from SR 160 and CH E9, as mapped in Appendix Figure 17D-1. The conversion of the riverbank that is grassy with riparian vegetation to the industrial looking on-bank intake is a stark visual and color contrast against the more natural colors and textures of a vegetated riverbank that is absent of structures. The pumping plant introduces a large warehouse type of building that is a focal point and visually discordant in scale and mass to the surrounding rural character within the vista. It also adds monotone solid color mass into a landscape where the natural colors of the landscape are earth-tones and more muted. The pumping plant and on-bank intake would limit and detract from the visual quality of views beyond the foreground. The introduction of tall, steel 230 kilovolt (kV) transmission lines visually contrasts to existing views of wooden utility poles. In addition, at a closer distance, views of available sky would be interrupted by the transmission lines and pumping plant. Overall, the existing vista from KOP 15 on SR 160 toward Intake 2 West, which would is representative of views looking toward the east bank of the river from CH E9, would be substantially impaired by vegetation removal and introduction of the pumping plant and the Scenic Quality Rating would be reduced from a **C** to an **E**. A reduction in the Scenic Quality Rating associated with Intake 2 West is representative of the effects that could occur to other vistas through the removal of vegetation, obscuring and limiting views beyond the foreground, and introducing large industrial features into a rural landscape, and this effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3).

Similarly, as seen in Figure 17-78, *Existing and Simulated Views of Intake 4 East from SR 160*, a substantial amount of riparian vegetation along east bank would be removed and landscaping associated with the residences along SR 160 would no longer be present. The removal of vegetation along the river serves to remove screening of the pumping plant and intake that could have been provided by that vegetation. The realigned roadway slightly increases the prominence of the roadway surface, but removal of roadside vegetation is what serves to increase the visual prominence of the roadway. The pumping plant introduces a large-scale building, similar in appearance to a warehouse facility, that is a focal point and visually discordant in scale and mass to the surrounding smaller scale rural structures. It also adds monotone solid color mass into a landscape where the colors of buildings do not detract from the viewshed because vegetation screens the buildings, softening their appearance and contributing to a unified view. However, the large scale of the pumping plant, combined with vegetation removal, precludes unified views with the surrounding landscape. The on-bank intake is not highly visible in from this vantage, due to distance, the bend in the river, and vegetation on the riverbank that helps to provide some screening. Overall, existing views from KOP 45 on SR 160 toward Intake 4 would be substantially impaired by vegetation removal, roadway realignment, and introduction of the pumping plant and the Scenic Quality Rating would be reduced from a **C** to an **E**. This effect would be adverse (see discussion under 17.3.1.2 and 17.3.1.3).

Forebays

Construction of a 760-acre intermediate forebay (south of Hood and west of Stone Lakes National Wildlife Refuge) (KOPs 41, 45, 54, and 86) and 600-acre Byron Tract Forebay (south of Clifton Court Forebay) (KOPs 103, 106, and 107) would take less than 2 years. Generally, construction would occur Monday through Friday for up to 24 hours per day. Dewatering is anticipated where the forebay pipelines cross waterways or major irrigation canals less than 0.25 mile north of the connection with the intermediate forebay. Dewatering would take place 7 days per week and 24 hours per day and would be initiated 1–4 weeks prior to excavation. After construction is complete, disturbed areas of exposed soil would be seeded for erosion control and would revegetate after a short time. The intermediate forebay would be constructed southeast of Intakes 4 and 5 and would be seen from SR 160 and Lambert Road, between Snodgrass Slough and Stone Lakes National Wildlife Refuge. Views from Lambert Road are obscured west of Snodgrass Slough by vineyards and riparian vegetation along Snodgrass Slough (KOPs 82–85). Because the intermediate forebay is in proximity to the towns of Clarksburg, Hood, and Courtland, there are a concentration of residential, recreational, and roadway viewers using those roadways. Rural residences would have construction occurring near or directly adjacent to their homes along SR 160 through construction of Intakes 4 and 5 and the intermediate forebay. Construction of the intermediate forebay would require that the residential property north of Lambert Road be acquired, resulting in the relocation of those residences and razing of buildings on that property during construction. The landscape sensitivity level is high, and impacts on viewers are substantial because the residents along SR 160 and north of Lambert Road, between Snodgrass Slough and Stone Lakes National Wildlife Refuge, would experience disruptive construction activities near their homes. The existing ground surface elevation at this location is -6 to +8 feet, while embankments surrounding the forebay would be approximately 32 feet above the ground surface.

Construction of the Byron Tract Forebay would be near residences and businesses in and near the Rivers End Marina & Storage, at the junction of Lindeman Road, CVP Canal, and Old River. Ground-level construction activities would not be visible from this area because of existing levees but would likely be visible from Byron Highway and Herdlyn and Lindeman Roads, where views are elevated. The existing ground surface elevation at this location is -5 to +5 feet, and embankments surrounding the forebay would also be approximately 32 feet above the ground surface.

Earthmoving activities would result in topographical changes to areas that are presently flat and would introduce heavy equipment and vehicles that would be readily visible throughout construction of the forebays and have the potential to create dust clouds that would attract attention from visual receptors and reduce the availability of short-range views. As set forth in Chapter 22, *Air Quality and Greenhouse Gases*, the BDCP proponents have identified several environmental commitments (Appendix 3B, *Environmental Commitments*) to reduce emissions of construction-related criteria pollutants, including basic and enhanced fugitive dust control measures and measures for entrained road dust that would help to reduce the creation of dust clouds that would negatively affect short-range views. Once construction of the intermediate forebay is complete, it would be immediately and prominently visible in the foreground from vantages surrounding it. This forebay would convert agricultural lands to a large, geometrically shaped water body that would conflict with the existing forms, patterns, colors, and textures associated with agricultural lands. As seen in Figure 17-79, *Existing and Simulated Views of Intermediate Forebay from SR 160*, the scenic vista across agricultural fields from SR 160 is fairly open but contains existing transmission lines. The forebay embankments would be tall enough to limit views of the existing patchwork of agricultural field it would occupy and the tree line on the horizon. The intermediate forebay embankments would add a man-made visual massing and the embankments would have a visible geometric shape. However, because embankments are approximately 0.5 mile away from both SR 160 and Lambert Road, the distance would reduce the apparent scale of the embankments, allowing them to blend somewhat with the grass field in the foreground. Overall, the existing vista from KOP 45 on SR 160 toward the intermediate forebay would alter and reduce the available views of agricultural lands and background views but would not substantially reduce the Scenic Quality Rating which would remain an **E**. This effect would not be adverse, when seen from SR 160 and Lambert Road (see discussions under 17.3.1.2 and 17.3.1.3). However, it may be adverse when seen from nearby residential properties along SR 160, which are in closer proximity to the intermediate forebay than SR 160.

The Byron Tract Forebay would have a similar effect on the existing visual quality and character as seen from Byron Highway. While Byron Tract Forebay would convert a large area of agricultural land, the forebay in this location would not have as great a negative effect on the landscape as the intermediate forebay, due to the predominance of the existing Clifton Court Forebay, other water conveyance features, and fewer sensitive viewers. However, the Byron Tract Forebay would result in noticeable changes that do not blend, are not in keeping or are incompatible with the existing visual environment, and could be viewed by sensitive receptors and from public viewing areas. This effect on visual quality and character would be adverse.

Overall, because of the large footprints of the forebays combined with the proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading resulting noticeable changes from public viewing areas, this effect would be adverse.

Spoil and Borrow Areas

There would be large spoil/borrow areas near Intakes 1 and 2 (202 acres) (KOPs 1, 4, and 15), the intermediate forebay (350 acres) (KOP 86), and south of Byron Highway (632 acres) (KOPs 103 and 106) that would be needed under Alternative 1A to store excess spoils from excavation and tunnel boring and to borrow material to construct levees and to meet other fill requirements. There would be a total of 1,185 acres of land affected by spoil/borrow areas under Alternative 1A. These sites would be near the intake structures and forebay locations and would consequently affect the same viewer groups described above for those features. Changes to the spoil/borrow areas south of Byron Highway near the proposed Byron Tract Forebay would primarily affect roadway users on the highway and nearby local roadways. Because these viewers are not as sensitive and there is nearby rolling terrain, these spoil/borrow areas would not appear as visually obtrusive as the other spoil/borrow areas for Alternative 1A. The spoil/borrow areas between Intakes 1 and 2 would have the greatest effect because they have available views from SR 160 and are near the town of Clarksburg with a higher concentration of residential, recreational, and roadway viewers (Mapbook Figure M3-1). In addition, the spoil/borrow area south of the intermediate forebay would affect views from Lambert Road. Views from Stone Lakes National Wildlife Refuge are not available because the levees and vegetation along Snodgrass Slough prevent views of the ground surface where this spoil/borrow area would be located. Recreationists on local roadways, roadways users on local roadways, residents, and nearby businesses would have direct views of construction activities at spoil/borrow areas. The landscape sensitivity level is moderate to high, and impacts on these viewers are substantial, especially for residences that would experience disruptive construction activities near their homes.

Earthmoving activities would likely result in the removal of mature vegetation and topographical changes to areas that are presently flat. Earthmoving activities and associated heavy equipment and vehicles would be readily visible throughout operation of these sites and have the potential to create slowly moving dust clouds that would attract attention from visual receptors and reduce the availability of short-range views. As set forth in Chapter 22, *Air Quality and Greenhouse Gases*, BDCP proponents have identified several environmental commitments (Appendix 3B, *Environmental Commitments*) to reduce emissions of construction-related criteria pollutants, including basic and enhanced fugitive dust control measures and measures for entrained road dust that would help to reduce the creation of dust clouds that would negatively affect short-range views. Spoil and borrow sites would be in use for close to 7.5 years, and construction operations at these locations would take place Monday through Friday for up to 24 hours per day. Because of the long-term nature of construction, proximity to sensitive receptors, removal of vegetation, and changes to topography through grading, this effect is considered adverse.

Once construction of the BDCP facilities is complete, the spoils/borrow area adjacent to the intermediate forebay would result in a large-scale landscape effect that would alter the agrarian visual character, further compounding the effect at this location. The spoil/borrow area between Intakes 1 and 2 would result in a large-scale landscape effect that would also alter the agrarian visual character. In addition to spoils/borrow in the study area, offsite borrow sites may be needed to provide suitable materials for intake pipeline foundations, berms around RTM storage areas and canal embankments. It is not known how much import material would be needed and where it would come from. It is assumed that effects at import borrow sites would be similar in scale and have similar adverse visual effects to those within the study area. Alterations at these locations would result in sunken or elevated landforms introduced into a landscape that is currently predominantly flat. These features would be visually discordant with the area's existing forms, patterns, colors, textures associated with the existing agrarian character in the study area. Accordingly, spoil and borrow areas would result in an adverse effect on visual resources. Mitigation Measure AES-1c is available to address this effect.

Reusable Tunnel Material Areas

RTM areas would be needed to store excess material from tunnel boring that would later be used to construct levees and to meet other fill requirements or be transported to spoils sites. Five RTM areas are proposed for Alternative 1A: one immediately north of Intake 2 (104 acres) (KOPs 1, 4, and 15) north of Scribner Road, east of the Sacramento River; one south of Isleton Road (303 acres) (KOP 95) on northern Brannan-Andrus Island; and one each on southeastern Tyler Island, eastern Bacon Island, and northwestern Victoria Island (288 acres, 329 acres, 572 acres, respectively) (see Mapbook Figure M3-1). There would be a total of 1,596 acres of land affected by RTM areas under Alternative 1A. The RTM areas near Intake 2 and Isleton Road would have the greatest effect because of proximity to nearby residents and visibility from nearby roadways. Activities associated with placing and spreading the RTM would occur near or directly adjacent to the homes of residential viewers. The RTM area near Intake 2 would be visible from SR 160. However, the RTM area near Isleton Road would not be visible from SR 160 because the construction area would be across the river, at a lower ground elevation than the raised roadway, and the RTM area would not be visible because of intervening vegetation along SR 160 and Isleton Road. The RTM areas on Tyler, Bacon, and Victoria Islands generally lack nearby sensitive viewers, and most views of these areas are in passing from rural roadways. The RTM area on Victoria Island would be visible from SR 4. The landscape sensitivity level is moderate to high, and impacts on viewers near Intake 2 and Isleton Road are substantial because the residents would experience disruptive construction activities near their homes.

Earthmoving activities would likely result in the removal of mature vegetation and topographical changes to areas that are presently flat. Earthmoving activities and associated heavy equipment and vehicles would be readily visible throughout operation of these sites and has the potential to create slowly moving dust clouds that would attract attention from visual receptors and reduce the availability of short-range views. As set forth in Chapter 22, *Air Quality and Greenhouse Gases*, BDCP proponents have identified several environmental commitments (Appendix 3B, *Environmental Commitments*) to reduce emissions of construction-related criteria pollutants, including basic and enhanced fugitive dust control measures and measures for entrained road dust that would help to reduce the creation of dust clouds that would negatively affect short-range views.

RTM areas would be in use for close to 7.5 years, and operations at these locations would take place Monday through Friday for up to 24 hours per day. Because of the long-term nature of construction, proximity to sensitive receptors, and changes to topography through grading, resulting in noticeable to very noticeable changes to the visual setting, this effect is considered adverse.

Once construction of the water conveyance facilities is complete, the RTM areas between Intakes 1 and 2 and near Isleton Road would result in large-scale landscape effects that would alter the agrarian visual character. The RTM areas on Tyler, Bacon, and Victoria Islands may be visible in passing from rural roadways and SR 4, but there is generally a lack of nearby sensitive viewers at these locations. Alterations at these locations would result in sunken or elevated landforms introduced into a landscape that is currently predominantly flat. These features would be visually discordant with the area's existing forms, patterns, colors, and textures associated with the existing agrarian character in the study area. Mitigation Measure AES-1c is available to address this effect.

Shaft Sites

Shaft sites distributed from Tyler Island south to the proposed Byron Tract Forebay are in areas where there are no immediate viewers and, therefore, have a low landscape sensitivity level (KOPs 15, 45, 86, 95, 98, and 107). Rural roadways pass near these sites, but views of construction activities would be fleeting as travelers or recreationists on these roadways travel by the sites. However, shaft sites between Intake 2 and just south of Isleton Road are in areas with nearby residences, and the landscape sensitivity level is moderate to high. Construction of the shaft sites would take just under 2.5 years; they would then be in operation for close to 7.5 years, Monday through Friday for up to 24 hours per day. This would introduce considerable heavy equipment, vehicles, and cranes needed to bore and construct the tunnel and remove excavated materials from the tunnels into the viewshed of sensitive viewers. The shaft sites would have associated work areas where materials would be stockpiled and pieces needed to construct the finished tunnel structure would be stored. In addition, launching, retrieval, and ventilation shaft sites would be built on raised earthen pads to elevate them above the flood level, and these pads would be approximately 16- to 20-feet high (or at the 100-year design flood elevation for each island). The shaft would rise approximately another 20 feet above the grade of the raised pad, and there would be construction office and storage buildings located at the base of the raised pad. The shaft site would be surrounded by fencing. Construction activities associated with the shaft sites may constitute an adverse effect on visual resources due to the physical introduction of these features and the duration of time that they would be visible in the landscape. Once construction is completed, the shaft site construction pads would be removed and the launch and retrieval shafts would be covered with earth. As seen in Figure 17-80, *Existing and Simulated Views of Launch/Retrieval Shaft Site near Isleton Road*, construction of shaft sites would convert agricultural lands for a period of time and may require the removal of landscaping or vegetation and structures and would introduce the raised pad, raised shaft, construction buildings, and fencing would be introduced into the viewshed, as illustrated in "Simulated View during Construction." As shown in "Simulated View after Construction," the raised pad would be left in place, but the construction buildings and fencing would be removed. In addition, the introduction of tall, steel 230 kV transmission lines visually contrasts to existing views where the existing transmission lines consist of wooden utility poles. Overall, existing views from KOP 95 on SR 160 toward the launch/retrieval site would be impaired by the removal of the building and vegetation and introduction of the transmission lines and the Scenic Quality Rating would be reduced from a **D** to an **E**. This effect would be adverse (see discussion under 17.3.1.2 and 17.3.1.3).

Shaft sites would be located just north of Hood (KOP 74), along SR 160, 0.85 mile northwest of Twin Cities Road, the northern portion of Tyler Island, north of SR 12 (KOP 98), on Mandeville Island, on the southern portion of Bacon Island, and north of Victoria Canal. Locations where viewer groups would be able to see shaft sites in the foreground include the site just north of Hood, along SR 160 0.85 mile northwest of Twin Cities Road, and north of SR 12. The Amtrak San Joaquin Oakland to Bakersfield route passes by the ventilation shaft site on southern portion of Bacon Island but the site would only be seen by passengers sitting in window seats on the north side of the train. In addition, trains would pass by at a high rate of speed, making views the steel plates indiscernible. All other locations are not in proximity to sensitive viewers.

Docks and Barge Traffic

New barge unloading facilities would be built in the viewshed of recreationists, businesses, public roadways, and residential properties that have views and vistas that include the sites, and would result in temporary long-term changes in views in the immediate area. These facilities would be constructed in areas where the landscape sensitivity levels range from low to high. New facilities would convert vegetated areas to large, unvegetated swaths of land and piles of sand and gravel with associated loading infrastructure, introducing these features into a viewshed where none presently exist. These features would contrast sharply with the more natural areas that were present prior to construction of the new facility. New facilities would convert agricultural and other open space lands to a land use that is industrial in nature and from one that is vegetated to one that is largely unvegetated, creating new landscape effects.

Alternative 1A includes six barge unloading facilities to be built on or near the pipeline/tunnel alignment at riverbank locations about 5–6 miles apart (except on Woodward Canal). As described in more detail in Chapter 15, *Recreation*, the facilities would be built on the following waterways: Sacramento River, North Fork Mokelumne River, San Joaquin River, Middle River, and Woodward Canal (which would have two facilities) and would affect water-based recreation. Water-based recreational viewers would have the most direct views toward barge traffic and loading/offloading activities involving equipment and materials for pipeline construction. Construction of the barge facilities may require partial channel closures and use of equipment within the waterways. All barge facilities would have temporary in-water construction zone speed restrictions where high-speed recreation (e.g., waterskiing, wakeboarding, tubing) would effectively be eliminated. Once built, docks would be in use for approximately 5 years. During this time, loading facilities and barge traffic would constrict boat passage, increase boat traffic congestion during peak use (primarily summer weekends), and extend viewing times of these facilities.

The North Fork Mokelumne River location is a known location for waterskiing and wakeboarding. The San Joaquin River location is very wide, so boats could avoid the loading facility entirely. The Middle River location could constrict boat traffic, which may be high at this location; however, alternative routes are available to avoid this location. The two Woodward Canal barge unloading facilities would be located across from one another and, if both facilities are in operation, the entire canal may be constricted and could prevent boat passage in a known location for waterskiing and wakeboarding area that supports high peak boat traffic volumes. Once construction of the conveyance facilities is complete, docks would be removed and barge traffic would cease.

Construction and use of barges and barge unloading facilities during construction at all locations would introduce dominant visual elements resulting in noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes may result in adverse visual effects due to the elongated viewing times during periods of congestion, temporary partial channel closures that could impede or eliminate recreational opportunities and create negative visual perceptions of these facilities, and a reduced recreational experience due the industrial nature of views of such facilities. Thus, this effect would be adverse.

Access Roads

Construction of temporary and permanent access roads would take less than 2 years and would follow linear paths; consequently, construction of these features would not be focused on one specific location for an extended period of time. Construction of access roads would occur Monday through Friday for up to 24 hours per day. Access roads would be located in areas in where the landscape sensitivity levels range from low to high. Most of the temporary and permanent access roads follow alignments that have previously been cleared and that serve as agricultural access routes. Construction would include improving the condition of these existing access routes to accommodate construction access. Vegetation removal would likely occur along the rights-of-way of access roads and would negatively affect views from SR 160, River Road, and other roadways in the study area. After construction is complete, disturbed areas of exposed soil would be seeded for erosion control and would revegetate after a short time. Because of the temporary nature of construction and the regular relocation of activities and because roads follow alignments that have previously been cleared and that serve as agricultural access routes, this would not constitute a long-term adverse effect.

Transmission Lines

Proposed transmission line corridors are shown in Mapbook Figure M3-1. Construction of the temporary 12 kV and 69 kV transmission lines would take less than 2 years and would require vegetation clearing along the linear ROWs. Construction of the permanent 69 and 230 kV transmission lines would also take less than 2 years and would require vegetation clearing along the linear ROWs. Construction of transmission lines would occur Monday through Friday for up to 24 hours per day, and transmission lines would be located in areas in where the landscape sensitivity levels range from low to high (KOPs 1, 3, 4, 15, 16, 18, 19, 20, 26, 30, 34, 41, 42, 49, 54, 69, 72, 73, 86, 89, 95, 98, 103, 107, 108, 254, and 255).

The temporary 12 kV lines would be wooden poles that are 40–45 feet tall and spaced 300 feet apart. The temporary and permanent 69 kV lines would be wooden or steel poles, depending on the utility, which are 60 feet tall and spaced 450 feet apart. The temporary 230 kV lines would be steel poles that are 95–100 feet tall and spaced 750 feet apart; however, lattice steel towers may be used at Western interconnections. Construction of transmission lines move along these linear ROW corridors that are 25–40 feet wide for 12 kV lines and 100 feet wide along the lines and 150 feet wide at poles for 69 kV and 230 kV lines. For every 2 miles of line and where the line takes a turn greater than 15 degrees, a conductor pulling location that is 50 feet wide with 200 feet of length along the corridor for 12 kV lines and 150 feet wide with 350 feet of length along the corridor for 69 kV and 230 kV lines would be required adjacent to the pole.

Construction would require clearing the corridor of vegetation, erecting the towers or poles, and then stringing the power lines using the conductor pulling locations. Construction of these features would move in a linear fashion and would not take place in any specific location for an extended period of time. Cranes would be used to string 12 kV and 69 kV lines, while towers, cranes and helicopters would be used for 230 kV lines. Site preparation, tower erection, and stringing would introduce disruptive visual elements, such as construction equipment and activity, into the landscape and temporarily detract from views. Construction of the 230 kV lines would be the most disruptive during construction because towers, cranes, and helicopters would be more visible and draw more attention toward construction activities because of movement associated with helicopters and cranes and noise associated with helicopters. Temporary power would be supplied by 69 kV transmission lines that would tap into the Hood, Grand Island, Middle River, and Herdlyn Substations and would run parallel to existing transmission corridors. These temporary lines would be in keeping with the existing visual character of the transmission corridor. In addition, 12 kV lines would supply temporary power by tapping into existing transmission routes, or the newly constructed 69 kV lines, extending power to construction sites. These would be new lines and would generally not run parallel to existing transmission corridors.

Permanent power would be supplied by the Banks Substation near the Banks pumping plant. Permanent 230 kV transmission lines are shown on Figure 3-25, indicated by the S-T1a (PTO) line for Alternative 1A, and would travel from the south to north. The line would not parallel existing transmission corridors and would introduce a transmission corridor into the landscape where none presently exists. This would create or add to the amount of visible transmission lines, based on location, and not be in keeping with the existing visual character. New permanent 69 kV lines would branch from the northern terminus of the 230 kV line to supply power to the intermediate forebay pumping plant and Intakes 1–5. Each intake would have an electrical substation and transformer located to the right of the sedimentation basins and intake pumping plants (refer to Figure 3-20).

Most of the transmission lines would follow access roads constructed for the BDCP conveyance facilities or other existing access roads and roadways that are within the study area. After construction is complete, disturbed areas of exposed soil would be seeded for erosion control and would revegetate after a short time. However, tree and shrub removal would likely occur within the ROWs and would negatively affect views from SR 160, River Road, and other roadways in the study area. Once the proposed 230 kV electrical power transmission lines are constructed, tall steel poles that would be highly visible landscape features would contrast strongly with their surroundings. The 69 kV electrical power transmission lines would also be larger than wood-poled transmission lines commonly seen in the Delta. While wood-poled transmission lines are part of most existing views, new 69 and 230 kV transmission lines and their cleared ROWs would adversely affect the existing visual character by introducing large towering structures in a linear pattern that appear to march through the landscape. The temporary nature of construction and movement of construction activities to different locations, combined with tree and shrub removal within ROWs and appearance of transmission lines once in place, would make changes in views associated with transmission lines adverse. Mitigation Measures AES-1a through AES-1c are available to address these effects.

The Banks Substation is immediately south of the California Aqueduct, and would require over 2 miles to connect to the Byron Tract Forebay area. A substation, office buildings, and warehouse facility buildings at the Banks pumping plant currently make this area industrial in nature. However, the new substation would increase utility infrastructure present at this location, and the new 230 kV electrical transmission lines would compound the amount of visible industrial elements and result in adverse visual effects.

Concrete Batch Plants and Fuel Stations

Approximately 2-acre concrete batch plants would be located at Intakes 2 and 4 and along the tunnel alignment on Byron Highway and 40-acre concrete batch plants 2.5 miles north of SR 12, and along the tunnel alignment approximately 8.5 miles south of SR 12 (Mapbook Figure M3-1). Concrete batch plants would have visible features that are likely to include silos to hold materials for mixes, material unloading areas and storage piles, concrete truck loading areas and washouts, liquid storage tanks, conveyors, heavy equipment and trucks for material movement and transport, lighting, and mixing equipment. Built features would be largely made of steel that is painted. Batch plants would convert agricultural lands to industrial facilities.

Approximately 2-acre fuel stations would be located at Intakes 2 and 4, 2.5 miles north of SR 12, along the tunnel alignment approximately 8.5 miles south of SR 12, and along the tunnel alignment on Byron Highway (KOP 106). Fuel stations may have aboveground storage tanks that are painted and fuel pumps that would be visible and would convert agricultural lands to industrial facilities.

Construction of a concrete batch plant and fuel station north of Intake 2 would have the greatest effect because construction would take place immediately adjacent to SR 160. Construction of a batch plant and fuel station south of Intake 4 (KOP 45) would also have adverse effects because construction would occur within the foreground of view from SR 160 but to a lesser degree because activities would be screened, in part, by the existing orchards to the west. Construction of the concrete batch plant and fuel station 2.5 miles north of SR 12 would be on Tyler Island and would not have a substantial effect because it would not occur in proximity to sensitive visual receptors. Elements of construction may be visible to recreationists on North Mokelumne River and agricultural workers on Tyler Island, but these viewers would only have intermittent visual access and construction would be temporary in nature, lasting less than 2 years. Construction of a concrete batch plant and fuel station east of Byron Highway, just south of the Mendota Canal would be located in close proximity to similar industrial looking facilities that are associated with the Clifton Court Forebay and existing transmission lines that course the area. The primary viewers of this area are roadway travelers on Byron Highway that pass by the site at highway speeds and would have intermittent visual access of temporary construction activities that would last less than 2 years. Once the project is complete, these facilities would be removed.

Construction of the concrete batch plants and fuel stations would introduce heavy equipment and vehicles that would be readily visible throughout construction of the facilities and have the potential to create dust clouds that would attract attention from visual receptors and reduce the availability of short-range views. As set forth in Chapter 22, *Air Quality and Greenhouse Gases*, the BDCP proponents have identified several environmental commitments (Appendix 3B, *Environmental Commitments*) to reduce emissions of construction-related criteria pollutants, including basic and enhanced fugitive dust control measures and measures for entrained road dust that would help to reduce the creation of dust clouds that would negatively affect short-range views. Once construction of the concrete batch plants and fuel stations are complete, these structures would be immediately and prominently visible in the foreground from surrounding vantages. Agricultural lands would be converted to industrial structures and facilities that conflict with the existing forms, patterns, colors, and textures associated with agricultural lands. Converting agricultural lands to industrial facilities, especially those in close proximity to SR 160 is considered adverse.

Summary

NEPA Effects: The primary features that would affect the existing visual quality and character under Alternative 1A, once the facility has been constructed, would be Intakes 1–5, the intermediate forebay and Byron Tract Forebay, transmission lines, and resulting landscape effects left behind from spoil/borrow and RTM areas, and concrete batch plants and fuel stations. These changes would be most evident in the northern portion of the study area, which would undergo extensive changes from the permanent establishment of large industrial facilities and the supporting infrastructure along and surrounding the 8.5-mile segment of the Sacramento River where the intakes would be situated.

Overall, construction would take 9 years, and the intensity of the activities in contrast to the current rural/agricultural nature of the area would be substantial. Construction of Intakes 1–5 and the accompanying pumping plants, surge towers, borrow/spoil areas, and RTM areas would introduce visually dominant and discordant features in the foreground and middleground views, and these elements would be very noticeable to all viewer groups. A construction shaft, tunnel work area, and RTM area and transmission lines would be visible from SR 4. While not officially designated state scenic highways, and therefore not discussed under *Impact AES-3: Permanent damage to scenic resources along a state scenic highway from construction of conveyance facilities*, this road is a San Joaquin County Scenic Route (see *Section 17.2.3.2, County and City General Plans – San Joaquin County*). These features would detract from the visual quality of views from these routes.

After construction, areas surrounding Intakes 1–5, spoil/borrow areas, RTM areas, shaft sites, and locations where concrete batch plants and fuel stations were located may be denuded of vegetation for a short period of time until the landscaping plans designed under WREM No. 30a are implemented. Once installed, the landscape would still appear to be denuded of vegetation or to have little vegetative cover because immature landscaping would be similar in appearance to tilled or newly planted agricultural fields. The sites would be in a transitional state, and over a period of a few years, plant species would mature and vegetation would recolonize the sites. These changes would happen in an area known for its open space, agricultural landscapes, and rural characteristics and would segment the visual landscape of the study area, reduce the amount of open space lands available to viewers, and eliminate valued visual resources. The effects of permanent access roads on visual resources would not be adverse. The effects of shaft site access hatches on the existing scenic character may be adverse. Operation of the intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and transmission lines would result in adverse effects on the existing visual character. In addition, construction of all of these features has the potential to negatively affect wildlife viewing and the overall enjoyment of scenic views in the study area. Therefore, because of the long-term nature of construction combined with the proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, this overall effect of conveyance facility construction on existing visual quality and character is considered adverse. Mitigation Measures AES-1a through AES-1g are available to address visual effects resulting from construction of Alternative 1A water conveyance facilities.

***CEQA Conclusion*:** Construction of Alternative 1A would substantially alter the existing visual quality and character present in the study area. The long-term nature of construction of the intakes, pipeline/tunnel, work areas, spoil/borrow and RTM areas, shaft sites, barge unloading facilities; presence and visibility of heavy construction equipment; proximity to sensitive receptors; relocation of residences and agricultural buildings; removal of riparian vegetation and other mature vegetation or landscape plantings; earthmoving and grading that result in changes to topography in areas that are predominantly flat; addition of large-scale industrial structures (intakes and related facilities); remaining presence of large-scale borrow/spoil and RTM area landscape effects; and introduction of tall, steel transmission lines would all contribute to this impact.

Overall, construction would last up to 9 years and would change the existing visual character in the vicinity of project elements from those of agricultural, rural residential, or riparian and riverine settings to areas involving heavy construction equipment, temporary construction structures, work crews, other support vehicles and other activities that would modify and disrupt short- and long-range views. These activities would be disruptive to some viewers. Once construction is complete, the alternative would result in the placement of large, multi-story industrial concrete and steel structures, pumping plants, fencing, and other similar anthropogenic features where none presently exist. Because of the landscape sensitivity and visual dominance of these features, these changes would result in reduced scenic quality throughout the study area (see 17.3.1.3, *Analysis of the Alternatives' Impact on Visual Resources*). Thus, Alternative 1A would result in significant impacts on the existing visual quality and character in the study area.

Mitigation Measures AES-1a through AES-1g would partially reduce impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, Alternative 1A would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

BDCP proponents will make site-specific design decisions to locate new transmission lines and access routes to minimize effects on vegetation where feasible. These efforts will include the following actions.

- Working with the design engineer, site-specific location adjustments will be identified to avoid adversely affecting mature tree and shrub groupings to the extent feasible and to avoid creating large, linear swaths of vegetation clearing through the construction of new transmission lines and access routes.
- Where new transmission lines are located near trees along designated scenic route portions of SR 160 and River Road, the construction contractor will be required to utilize selective pruning techniques to avoid hard pruning of tree canopies that would negatively affect those scenic resources and views along those routes.
- Existing transmission corridors will be evaluated for placement of the new transmission lines to avoid creating new transmission corridors to the extent feasible.
- Transmission lines will be placed underground except where it can be shown that the lines can be hidden in existing tree cover, thereby minimizing removal of mature trees.
- Undergrounding transmission lines will not be used where implementation would constitute an adverse effect on sensitive habitats or sensitive species that would outweigh the reduction of visual effects.

Implementation of this measure will minimize the effects on existing visual quality and character that would result from removal and pruning of mature vegetation within proposed new transmission lines and access road routes. This measure will provide for a reduction in the number of trees and shrubs removed from installation of transmission lines and development of access roads.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

The BDCP proponents will install visual barriers between construction work areas and sensitive receptors to reduce the impact on sensitive receptors from the change in existing visual quality. Barriers will be placed to obscure views of work areas where construction activity and equipment would be disruptive and lower the existing visual quality. These efforts will include the following actions and performance standards.

- Visual barriers will be installed to minimize sensitive receptors (i.e., residents and recreational areas) views of construction work areas.
    - The visual barriers will be placed to protect residents and recreational areas that are located within 0.25 mile of a BDCP-related construction site.
    - The visual barrier may be chain link fencing with privacy slats, fencing with windscreen material, wood or concrete barrier/soundwall, or other similar barrier.
    - The visual barrier will be a minimum of 6 feet high to help to maintain the privacy of residents and block long-term ground-level views toward construction activities.

While the visual barriers would introduce a visual intrusion, they would greatly reduce the visual effects associated with visible construction activities and screening construction activities and protecting privacy is deemed desirable. The visual barriers are an effective means of reducing the visibility of active construction work areas, thereby minimizing the impact on existing localized visual quality.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

The BDCP proponents will develop and implement a spoil/borrow and RTM area management plan consistent with the "Disposal and Reuse of Spoils, RTM, and Dredged Material," in Appendix 3B, *Environmental Commitments*, to reduce the extent of negative visual alteration of existing visual quality or character of spoil, and especially borrow, sites from construction through remediation of terrain, revegetation, and other practices as described below. The purpose of this measure is to prevent flattened, highly regular, or engineered slopes which create visual discordance and incongruence from native topography and to re-establish natural looking vegetative communities that are indigenous to the project environment. The exception to grading flattened, regular sites is if the intended use of the site is agriculture. This mitigation measure will complement and is related to activities described under Mitigation Measure SOILS-2b, Chapter 10, *Soils*.

Prior to construction mobilization, the BDCP proponents will develop a management plan that identifies site-specific measures to remediate exposed soil and terrain to make it suitable for planned development, agriculture, or reuse as natural habitat and to mitigate visual effects. Existing information, such as topographical maps, vegetative surveys or records, and historical and existing photographs, that show preexisting, site-specific (or reference site) conditions prior to the conversion to agriculture will be evaluated and used as tools for restoring disturbed sites. Where appropriate in light of the planned long-term uses of reclaimed sites, the management plan will incorporate recreational or mixed uses. In general, however, the majority of the sites will be evaluated for restoration to native habitat due to the amount of terrain alteration and vegetation and habitat loss resulting from construction of the water conveyance facilities. At a minimum, the management plan will meet the following performance standards.

- All plantings will be native and indigenous to the area, and no invasive plant species will be used under any conditions.
- In areas to be used for agriculture, the management grading plan will mimic the preexisting landform pattern to the greatest degree possible, given geotechnical constraints.
- In areas of habitat restoration, the terrain will be designed and graded to be undulating, avoiding large, flat-sloped areas.
- In areas of proposed development, a combination of terrains may be implemented to encourage visual variety.
- All terrain will be designed and graded to be rounded, avoiding sharp angles and steep or abrupt grade breaks.
- Special attention will be paid to transitions between undisturbed and disturbed terrains to ensure that the transition appears as natural as possible and to blend the lines between the two for a natural, organic appearance.
- In addition, the site will be visually surveyed prior to any vegetation removal for the presence of rock outcroppings, downed trees, or similar features.
- Features such as live and downed trees salvaged during site preparation and excavation activities will be placed to mimic natural patterns during reclamation to provide visual congruity once revegetation plantings mature and to restore the habitat values they provide.

Implementation of this measure would be expected to result in successful management of borrow/spoils and RTM areas, thereby reducing the overall impact on the visual quality in the study area.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

The BDCP proponents will restore barge unloading facility sites will to preconstruction conditions once the facilities are decommissioned and removed to minimize the impact on visual quality and character at these sites. Restoration of the decommissioned sites will meet the following performance standards.

- All disturbed terrain will be restored.
- Replacement plantings will be installed in areas where vegetation was removed.
    - All replacement plantings will be native and indigenous to the area.
    - No invasive plant species will be used under any conditions.

Implementation of this measure will result in restoration of the barge unloading facility sites.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

The BDCP proponents will use aesthetic design treatments, where and to the extent feasible, to minimize the impact on existing visual quality and character in the study area associated with the introduction of water conveyance structures.

The BDCP proponents will evaluate similar, local well-designed water conveyance structures, including those with historic value and use these features as design precedent to develop designs for the intake facilities, pumping plants, control structures, fish screens, operable barriers, and bridges, so that the resultant design will complement the natural landscape, be aesthetically pleasing, and minimize the effects of visual intrusion of the BDCP facilities on the landscape, to the extent feasible.

Where no local design precedent exists, the BDCP proponents will research structure designs outside the local area. For example, the Freeport Regional Water Project intake facility design incorporates aesthetic design treatments that create a landmark feature in the landscape. The BDCP proponents will consider design details to ensure that all intake structures are complementary of one another so that these facilities do not create further visual discordance in the landscape.

The following minimum performance standards will apply.

- New structures will be painted with a shade that is two to three shades darker than the general surrounding area, unless aesthetic design treatments indicate another color selection with the intent to specifically improve aesthetics. Otherwise, colors shall be chosen from the BLM Standard Environmental Colors Chart CC-001: June 2008. Because color selection will vary by location, the BDCP proponents, working with the facility designers, will employ the use of color panels evaluated from key observation points during common lighting conditions (front versus backlighting) to aid in the appropriate color selection. The BDCP proponents will select colors for the coloring of the most prevalent season. Panels will be a minimum of 3 by 2 feet in dimension and will be evaluated from various distances, but within 1,000 feet, to ensure the best possible color selection. Refer to http://www.blm.gov/bmp for more information on this technique and other best management practices and techniques for visual screening.
    - 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 only. Appropriate paint type will be selected for the finished structures to ensure long-term durability of the painted surfaces.
    - The BDCP proponents will maintain the paint color over time.
- These methods will also be applied to transmission poles and chain link fencing.
    - Transmission poles and towers, including substations, will be painted or powder coated with colors selected using the BLM selection techniques to make the structures recede into the visual landscape.

- Chain link fences will be plastic or vinyl coated with colors selected using the BLM selection techniques to make chain link fences to appear more see-through than non-treated, light grey fencing that acts as a visual barrier to a degree.
- Finishes will be selected for their ability to achieve the correct color selection, durability, and environmental safety.

- The BDCP proponents will implement aesthetic design features at concrete or shotcrete structures that are highly visible to the public. These features may include mimicking natural material (e.g., stone or rock surfacing) and integral color, in the same theme, to reduce visibility and to better blend with the landscape.
- The BDCP proponents will evaluate bridge crossing designs using lattice steel, consistent with other bridges in the Delta. Such a structure would be less visually confining than concrete structures, provide better visual access to points beyond, allow light to travel through the structure, and may appear less like a visual barrier within the landscape.
- The BDCP proponents will ensure that visible pipelines, guardrails, and signs will be of a material or color that helps surfaces to blend better with the surroundings. These elements will be constructed with low-sheen and non-reflective surface materials to reduce potential for glare, and the use of glossy paints or surfaces would be avoided.

Implementation of this measure and application of the aesthetic design treatments for alternative structure would help minimize the impact on visual quality from the development of the water conveyance structures in the study area, using techniques that serve to make the structures blend into the surrounding environment, to the extent possible. However, the overall change in visual character would still be substantial because physical structures of this scale do not presently exist.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

The BDCP proponents will locate concrete batch plants and fuel stations away from sensitive visual resources (i.e., state scenic highways) and receptors to minimize the impact on visual quality. In addition, these sites will be restored after construction to minimize the long-term impact on localized visual character. The relocation approach for the individual facilities is described below. The BDCP proponents will incorporate these facility location changes into the design plans prior to construction.

- Relocate the concrete batch plants and fuel stations that are proposed to be adjacent to SR 160, north of Intake 2, so that these operations are set back from the state scenic highway. These features will be located toward the east side of the intake, in closer proximity to the shaft site.
- In addition, the structures and storage piles associated with the concrete batch plants and fuel stations on Tyler and Bacon Islands will be set as far west from the North Mokelumne and Middle Rivers, as possible. The same principles will be applied to the concrete batch plants and fuel stations along the canal alignment just south of Snodgrass Slough and on Webb Tract north of False River.
- Structures and storage piles associated with the concrete batch plants and fuel stations east of Byron Highway will be set back off of the highway as much as possible and toward the

northern edge of the proposed sites. The same principles will be applied to the concrete batch plant and fuel station along Willow Point Road.

- Relocate the concrete batch plant and fuel station proposed between Intakes 3 and to an arrangement opposite each other along the agricultural access road, instead of adjacent to one another. They will be placed in closer proximity to the existing development at this location so that they appear to be more of a continuation of existing development.
- There are no suggested changes for the concrete batch plants and fuel stations to be located 1 mile south of the SR 84/SR 220 junction or along the canal alignment approximately 1 mile north of the Byron Highway.

All concrete batch plant and fuel station sites will be restored to preconstruction conditions once the facilities are decommissioned and removed.

- All disturbed terrain will be restored.
- Replacement plantings will be installed in areas where vegetation was removed.
    - All replacement plantings will be native and indigenous to the area or will match surrounding agricultural plantings.
    - No invasive plant species will be used under any conditions.

Implementation of this measure will minimize the impact on visual quality from the construction and use of the concrete batch plant and fuel station facilities. In addition, this measure will help restore the concrete batch plant and fuel station locations to a preconstruction condition.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

The BDCP proponents will apply additional landscape treatments and use best management practices as part of implementing the project landscaping plan (as set forth by DWR's WREM No. 30a requirements) to restore and maintain local character, improve aesthetics, and reduce the visual scale of the proposed water conveyance elements in the study area.

In addition to the guidance set forth in DWR's WREM No. 30a, *Architectural Motif, State Water Project,* the BDCP proponents will utilize landscaping treatments to visually enhance key gateways, major thoroughfares, and scenic roadway corridors by using the following: street trees, welcome signs, decorative lighting, and other streetscape design techniques. In addition, native trees, shrubs, and grasslands will be planted to preserve the visual integrity of the landscape, provide habitat conditions suitable for native vegetation and wildlife, and ensure that a maximum number and variety of well-adapted plants are maintained.

The following practices will be adhered to in implementing the project landscaping plan.

- Design and implement low impact development (LID) measures that disperse and reduce runoff by using such features as vegetated buffer strips between paved areas that catch and infiltrate runoff, bioswales, cisterns, and detention basins. In addition, the BDCP proponents will evaluate the potential use of pervious paving to improve infiltration and to reduce the amount of surface runoff from entering waterways and the stormwater system. However, LID measures will not be used where infiltration could result in adverse environmental effects.

- Vegetative accents and screening will be used to aid in a perceived reduction in the scale and mass of the built features, while accentuating the design treatments that will be applied to built features. Plant selection will be based on its ability to screen built features and provide aesthetic accents.
- Realignments of SR 160 and South River Road will be landscaped in a manner that visually ties the new alignment in to the old alignment by implementing roadside landscaping that helps achieve a continuation of the existing roadside vegetation while screening built features.
- Landscape berms, combined with tree and shrub plantings will be used to help screen built features from existing viewpoints by allowing for additional height. The landscape berms will be constructed in a manner that has a more natural form, as opposed to one that is highly regular and levee-like. The berms will be seeded with a native meadow erosion control seed mix and be planted to comply with directions set forth below.
    - One hundred percent of the species composition of open space areas will reflect species that are native and indigenous to the study area. The species list will include trees, shrubs, and an herbaceous understory of varying heights, as well as both evergreen and deciduous types. Plant variety will increase the effectiveness of revegetated areas by providing multiple layers, seasonality, diverse habitat, and reduced susceptibility to disease.
- The use of native grass and wildflower seed in erosion control measures will be required where such a measure would improve aesthetics.
    - Wildflowers will provide seasonal interest to areas where trees and shrubs are removed or grading has occurred.
    - Species will be chosen that are native and indigenous to the area and for their appropriateness to the surrounding habitat. For example, upland grass and wildflower species will be chosen for drier, upland areas and wetter grass species will be chosen for wetland areas.
    - If not appropriate to the surrounding habitat, wildflowers will not be included in the seed mix.
    - Under no circumstances will invasive plant species be used in any erosion control measures.
- Under no circumstances will any invasive plant species be used at any location.
- Vegetation will be planted within 2 years following project completion.
- Design of the landscaping plan will maximize the use of planting zones that do not need irrigation, such as seeding with a native grassland and wildflower meadow mix, which reduces or eliminates the need for a permanent irrigation system.
- If an irrigation system is required, an irrigation and maintenance program will be implemented during the plant establishment period and carried on, as needed, to ensure plant survival. Areas that are irrigated will use a smart watering system that evaluates the existing site conditions and plant material against weather conditions to avoid overwatering of such areas. To avoid undue water flows, the irrigation system will be managed in such a

manner that any broken spray heads, pipes, or other components are fixed within 1–2 days, or the zone or system will be shut down until it can be repaired.

- All measures prescribed above to screen facilities will not act to degrade or eliminate scenic vistas or be designed in a manner that negatively affects views from scenic roadways.
- These measures will not be implemented where implementation would constitute an adverse effect on sensitive habitats or sensitive species.

Implementation of this measure will reduce the effects on local visual quality from introduction of the water conveyance facilities.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

NEPA Effects: Scenic vistas are mapped and included in Appendix Figure 17D-1. Once built, permanent access roads and shaft sites would not adversely affect views available from scenic vistas. Permanent access roads generally follow ROWs that have already previously been cleared to serve as agricultural access routes and would be improved for BDCP-related activities. Because the permanent access routes follow preexisting routes, they would not result in perceived visual changes from scenic vistas.

Following completion of construction, shaft sites would only have low-profile access hatches to the tunnels that would be close to the ground surface and could be seen from vistas along Lambert Road (KOP 86), Twin Cities Road, Isleton Road (KOP 95), SR 12 (KOP 98), and SR 4. Mitigation Measure AES-1e is available to address this effect.

The primary features that would affect scenic vistas subsequent to completion of construction of Alternative 1A are Intakes 1–5, the intermediate forebay and Byron Tract Forebay, landscape effects remaining from spoil/borrow and RTM areas, and permanent transmission lines. These features would introduce visually dominant and discordant features in the foreground and middleground views in vistas that would be very noticeable to all viewer groups. Scenic vistas that would be affected are primarily views from roadways on levees and bridges that offer elevated vantages and views that extend from the foreground to the background of the surrounding landscape in areas with low to high landscape sensitivity levels. In addition, scenic vistas are available from ground-level views where vegetation, infrastructure, and atmospheric haze do not limit and preclude such views. Alternative 1A would result in a very noticeable effect on viewer experiences from scenic vista opportunities areas that encompass a total of about 8.5 miles of scenic vistas along public roads (SR 160 and CH E9). All facilities would require removal of visually important features such as mature trees and shrubs and agricultural land, which are scenic elements that contribute to the viewing experience from scenic vistas.

Intakes 1–5 would introduce large, multi-story industrial concrete and steel structures, pumping plants, landscaping, fencing, and other similar anthropogenic features along an 8.5-mile area and into rural vistas with riparian, riverine, and agricultural characteristics. KOPs falling within scenic vistas that be affected by Intakes 1–5 include KOPs 15, 18, 20, 34, 41, 42, and 45. Each intake facility would consist of the intake structure along the river and the intake pumping plant. The intake structures on the river would range from 700–2,300 feet long (total structure length–intake and transitions) by 40–60 feet wide and rise 55 feet from the river bottom to top of the structure. The 20-acre intake pumping plant facility would be built on a ground plane that is elevated 24–27 feet above the surrounding landscape to avoid flooding. The facility would contain a structure that is 262 feet long by 98 feet wide by 58–73 feet tall, and there would be 70 to 85-foot-tall concrete surge towers at Intakes 1–3. The design of the intakes and associated facilities could play a large part in helping to improve the quality of affected and degraded vista viewsheds. Landscaping that would be incorporated into the facility would help to slightly improve views. As seen in Figure 17-76a, *Existing and Simulated Views of Intake 3 East from SR 160 in January 2012*, the removal of a substantial amount of riparian vegetation along the east bank opens up the vista but also increases the visual prominence of the pumping plant in the landscape. The introduction of tall, steel 230 kV transmission lines visually contrasts to existing views where there are no transmission lines and in an area where transmission lines primarily consist of wooden utility poles. The pumping plant introduces a large building, similar in appearance to a warehouse facility, that is a focal point and visually discordant in scale and mass to the surrounding rural character within the vista. It also adds monotone solid color mass into a landscape where the natural colors of the landscape are earth-tones and more muted. Overall, the existing vista from KOP 34 on SR 160 toward Intake 3 would be substantially impaired by vegetation removal and introduction of the pumping plant and the Scenic Quality Rating would be reduced from a **D** to an **E**. A reduction in the Scenic Quality Rating associated with Intake 3 is representative of the effects that could occur to other vistas through the removal of vegetation, obscuring and limiting views beyond the foreground, and introducing large industrial features into a rural landscape and would be adverse (see discussions under 17.3.1.2 and 17.3.1.3). However, as shown in Figure 17-76b, *Existing and Simulated Views of Intake 3 East from SR 160 in July 2013*, fast-growing poplar or cottonwood trees that were newly planted in January 2012 have since grown and would act to obscure portions of the pumping plant. However, the pumping plant would still be visually discordant in scale and mass to the surrounding rural character within the vista and the Scenic Quality Rating would be reduced from a **D** to an **E**. Note that, over time, the trees will continue to grow and views of Intake 3 from KOP 34 could be further limited.

Figure 17-77, *Existing and Simulated Views of Intake 2 West from SR 160*, shows an intake associated with the west alignment (Alternatives 1C, 2C, and 6C). However, this view is representative of how an intake under this alternative would look from CH E9 and could affect vista views from that roadway. The conversion of the riverbank that is grassy with riparian vegetation to the industrial looking on-bank intake is a stark visual and color contrast against the more natural colors and textures of a vegetated riverbank that is absent of structures. The pumping plant introduces a large warehouse type of building that is a focal point and visually discordant in scale and mass to the surrounding rural character within the vista. It also adds monotone solid color mass into a landscape where the natural colors of the landscape are earth-tones and more muted. The pumping plant and on-bank intake would limit and detract from the visual quality of views beyond the foreground. The introduction of tall, steel 230 kV transmission lines visually contrasts to existing views of wooden utility poles. In addition, at a closer distance, views of available sky would be interrupted by the transmission lines and pumping plant. Overall, the existing vista from KOP 15 on SR 160 toward Intake 2 West, which would is representative of views looking toward the east bank of the river from CH E9, would be substantially impaired by vegetation removal and introduction of the pumping plant and the Scenic Quality Rating would be reduced from a **C** to an **E**. A reduction in the Scenic Quality Rating associated with Intake 2 West is representative of the effects that could occur to other vistas through the removal of vegetation, obscuring and limiting views beyond the foreground, and introducing large industrial features into a rural landscape, and this effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3).

Scenic vistas that would be affected by the intermediate forebay include those available from Lambert Road (KOP 86) and SR 160 (KOPs 41, 45, and 54). The intermediate forebay would be visible in the foreground from both of these scenic vistas, would encompass a 760-acre water surface area, and include a 92-acre pumping plant facility that would house a 76-foot tall structure. This forebay would convert agricultural lands to a large, geometrically shaped water body that would conflict with the existing forms, patterns, colors, and textures associated with agricultural lands. The water surface of the intermediate forebay may be partially visible in vistas from vantages that are elevated on levees, such as from where Lambert Road crosses over Snodgrass Slough. However, the majority of views would be from the ground-level and would be of the berms that would prevent views of the water surface within the vista. As seen in Figure 17-79, *Existing and Simulated Views of Intermediate Forebay from SR 160*, the scenic vista across agricultural fields from SR 160 is fairly open but contains existing transmission lines. The forebay embankments would be tall enough to limit views of the existing patchwork of agricultural field it would occupy and the tree line on the horizon. The intermediate forebay embankments would add a man-made visual massing and the embankments would have a visible geometric shape. However, because embankments are approximately 0.5 mile away from both SR 160 and Lambert Road, the distance would reduce the apparent scale of the embankments, allowing them to blend somewhat with the grass field in the foreground. Overall, the existing vista from KOP 45 on SR 160 toward the intermediate forebay would alter and reduce the available views of agricultural lands and background views in the vista but would not substantially reduce the Scenic Quality Rating which would remain an **E**. The effect of the forebay on the scenic quality would therefore not be adverse. The Byron Tract Forebay would have a similar or more prominent effect on scenic vistas available from Lindemann Road depending on location. Views from Lindemann Road that are closer to Herdlyn Road would be adversely affected because they would be in closer proximity to and would have more direct views of the forebay (KOP 107). The embankments would be prominent features that would replace agricultural fields and the water surface could be visible. Views from Lindemann Road that are closer to Rivers End Marina & Storage would be partially or fully obstructed by intervening roadside vegetation and infrastructure. The Byron Tract Forebay would encompass 600 acres. However, while it would convert a large area of agricultural land, the forebay in this location would not an adverse effect on the landscape intermediate forebay due to the predominance of the existing adjacent Clifton Court Forebay and other water conveyance features.

The spoils/borrow area south of the intermediate forebay would result in a large-scale landscape effect that would be within the scenic vistas available from Lambert Road, further compounding the effect on scenic vistas from this location (KOP 86). The spoil/borrow and RTM area between Intakes 1 and 2 would result in a contiguous, large-scale landscape effect that would be included within the two scenic vistas available from SR 160 between these two intakes (KOP 15). The RTM area near Isleton Road would not be visible from SR 160 because the work area would be across the river at a lower ground elevation than the raised roadway, and the RTM area would not be visible because of intervening vegetation along SR 160 and Isleton Road (KOP 95). It would be visible from Isleton Road, though. The RTM areas on Tyler, Bacon, and Victoria Islands may be visible from vista vantage points; however, there is generally a lack of nearby sensitive viewers, and most views of these areas are in passing from rural roadways and SR 4. Alterations at these locations would result in sunken or elevated landforms that would be introduced into a landscape that is currently predominantly flat. These features would be visually discordant with the area's existing forms, patterns, colors, and textures associated with views from scenic vistas of agricultural lands in the study area.

Most of the transmission lines would follow access roads constructed for the BDCP conveyance facilities or other existing access roads and roadways that are outside the immediate area (KOPs 15, 16, 18, 19, 20, 34, 41, 42, 54, 86, 89, 95, 98, and 255). Once the proposed 230 kV electrical power transmission lines are constructed, tall steel lattice structures that would be highly visible landscape features would contrast strongly with their surroundings. The 69 kV electrical power transmission lines would also be larger than wood-poled transmission lines commonly seen in the Delta. While wood-poled transmission lines are part of most existing views, new 69 and 230 kV transmission lines and their cleared ROWs would adversely affect the existing visual character by introducing large towering structures in a linear pattern that appear to march through the landscape.

The effects of permanent access roads on scenic vistas would not be adverse. The effects of shaft site access hatches on scenic vistas could be adverse. The large scale of intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and the presence of new transmission lines may result in adverse effects on scenic vistas. Overall, effects on scenic vistas associated with Alternative 1A would be adverse. Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

***CEQA Conclusion*:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the Scenic Quality Rating in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measure AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 1A would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

***NEPA Effects*:** Conveyance facilities under Alternative 1A would result in an overall noticeable effect on viewers relative to their current experience and enjoyment of the study area's scenic resources along SR 160 and River Road, where the landscape sensitivity level is high (KOPs 1, 4, 15, 18, 20, 34, 41, 45, 54, and 55). All five intakes, the spoils/borrow and RTM area north of Intake 2, and the intermediate forebay would be immediately and prominently visible in the foreground from SR 160, including construction activities described in Impact AES-1. These conveyance facility components would introduce visually dominant and discordant features into views available from scenic highways, and these elements would be very noticeable to all viewer groups.

As seen in Figure 17-76a, *Existing and Simulated Views of Intake 3 East from SR 160 in January 2012*, the removal of a substantial amount of riparian vegetation along the east bank acts to increase the visual prominence of the pumping plant in the landscape. Figure 17-76b, *Existing and Simulated Views of Intake 3 East from SR 160 in July 2013*, shows how fast-growing poplar or cottonwood trees that were newly planted in January 2012 have since grown and would act to obscure portions of the pumping plant. The introduction of tall, steel 230 kV transmission lines visually contrasts to existing views where there are no transmission lines and in an area where transmission lines primarily consist of wooden utility poles and would result in adverse visual effects. Overall, existing views from KOP 34 on SR 160 toward Intake 3 would also be substantially impaired by vegetation removal and introduction of the pumping plant and the Scenic Quality Rating would be reduced from a **D** to an **E**. In Figure 17-77, *Existing and Simulated Views of Intake 2 West from SR 160*, the pumping plant has the same visual effect as shown in Figures 17-76a and 17-76b because it introduces a large-scale building, similar in appearance to a warehouse facility, that is a focal point and visually discordant in scale and mass to the surrounding rural character. It also adds monotone solid color mass into a landscape where the natural colors of the landscape are earth-tones and more muted. The Scenic Quality Rating for KOP 15 would be reduced from a **C** to an **E** for Intake 2 West. A reduction in the Scenic Quality Ratings associated with Intakes 3 and 2 West are representative of the effects that would occur as a result of all intakes on SR 160 at each location through the removal of vegetation, obscuring and limiting views beyond the foreground, and introducing large industrial features into a rural landscape and this effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3). Each intake would result in an adverse visual effect on views from SR 160 and adverse effects on SR 160 would be substantially compounded by the presence of each additional intake to dramatically alter views associated with SR 160.

Similarly, as seen in Figure 17-78, *Existing and Simulated Views of Intake 4 East from SR 160*, a substantial amount of riparian vegetation along the east bank would be removed and landscaping associated with the residences along SR 160 would no longer be present. The removal of vegetation along the river serves to remove screening of the pumping plant and intake that could have been provided by that vegetation. The realigned roadway slightly increases the prominence of the roadway surface, but removal of roadside vegetation is what increases the visual prominence of the roadway. The pumping plant introduces a large-scale building, similar in appearance to a warehouse facility, that is a focal point and visually discordant in scale and mass to the surrounding smaller scale rural structures. It also adds monotone solid color mass into a landscape where the colors of buildings do not detract from the viewshed because vegetation screens the buildings, softening their appearance and contributing to a unified view. However, the large scale of the pumping plant, combined with vegetation removal, precludes unified views with the surrounding landscape. The on-bank intake is not highly visible from this vantage, due to distance, the bend in the river, and vegetation on the riverbank that helps to provide some screening. Overall, existing views from KOP 45 on SR 160 toward Intake 4 would be substantially impaired by vegetation removal, roadway realignment, and introduction of the pumping plant and the Scenic Quality Rating would be reduced from a **C** to an **E**. This effect would be adverse (see discussion under 17.3.1.2 and 17.3.1.3).

The intermediate forebay would be visible in foreground views across agricultural fields from SR 160 where the view is fairly open but contains existing transmission lines. As described under Impact AES-3 and shown in Figure 17-79, *Existing and Simulated Views of Intermediate Forebay from SR 160*, the forebay embankments would be tall enough to limit views of the existing patchwork of agricultural field it would occupy and the tree line on the horizon. The intermediate forebay embankments would add a man-made visual massing and the embankments would have a visible geometric shape. However, because embankments are approximately 0.5 mile away from SR 160, the distance would reduce the apparent scale of the embankments, allowing them to blend somewhat with the grass field in the foreground. Overall, the existing view from KOP 45 on SR 160 toward the intermediate forebay would alter and reduce the available views of agricultural lands and background views but would not substantially reduce the Scenic Quality Rating, which would remain an **E**. The effect of the forebay on the scenic quality from a state scenic highway would therefore not be adverse (see discussions under 17.3.1.2 and 17.3.1.3).

Spoil and borrow areas and RTM area between Intakes 1 and 2 would result in a large-scale landscape effect that would also alter the agrarian visual character and result in adverse visual effects when seen from SR 160. The RTM area near Isleton Road would not be visible from SR 160 because the work area would be across the river at a lower ground elevation than the raised roadway, and the RTM area would not be visible because of intervening vegetation along SR 160 and Isleton Road.

Implementation of this alternative would require removal of visually important features such as mature trees and shrubs and agricultural land, which are scenic elements that contribute to the viewing experience available to travelers along scenic highways in the study area. These features would be replaced by multi-story industrial concrete and steel structures, multiple-acre mounds of dirt, earthen embankments, and paved areas associated with the five intake facilities, pumping plant pads elevated 30 feet above the surrounding landscaping, fencing and security lights, and new access roads. These visual elements would conflict with the existing forms, patterns, colors, and textures along River Road and SR 160; would dominate riverfront views available from SR 160; and would alter broad views and the general nature of the visual experience presently available from River Road and SR 160 and would result in adverse effects. Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these adverse effects.

***CEQA Conclusion*:** Because visual elements associated with this alternative would conflict with the existing forms, patterns, colors, and textures along River Road and SR 160; would dominate riverfront views available from SR 160; and would alter broad views and the general nature of the visual experience presently available from River Road and SR 160 (thereby permanently damaging the scenic resources along a scenic highway), these impacts are considered significant. Mitigation Measures AES-1a, AES-1c, and AES-1e would help reduce these impacts through the application of aesthetic design treatments to all structures, to the extent feasible. However, impacts on visual resources resulting from damage to scenic resources that may be viewed from a state scenic highway would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes to the visual character of a scenic highway viewshed that do not blend or are not in keeping with the existing visual environment. Thus, overall, this impact would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

***NEPA Effects*:** The following NEPA effects would result from the introduction of new sources of daytime and nighttime glare and nighttime lighting.

Daytime and Nighttime Glare

BDCP conveyance facilities would result in new sources of glare if they were made of materials that easily reflect light. Intakes 1–5 and their associated pumping plants, surge towers, and facilities and the pumping plant at the intermediate forebay would create very noticeable effects relating to light and glare. This is illustrated in the simulations showing intake facilities in Figures 17-76 through 17-78, where light building colors over a large surface area would reflect off of those surfaces and increase glare, especially when combined with the removal of vegetation that absorbs light, provides shade, and screens glare. Sunlight would reflect off the new water surfaces of the forebay, creating new sources of glare where none presently exists. In addition, the use of nighttime lighting, described below, would result in nighttime glare of the lights reflecting off water surfaces. Because there are a large number of viewers in and around the waterways, intake structures, and forebay, effects associated with glare are considered adverse. Conversely, as vegetation and waterfowl become established following completion of the new forebays, some of these net visual impacts may be diminished.

Nighttime Lighting

Construction of each intake structure would take up to 4 years to complete and would occur Monday through Friday for up to 24 hours per day. As discussed in AES-1, dewatering near intakes, pumping plants, and certain pipeline construction areas and north of the intermediate forebay would take place 7 days per week and 24 hours per day. Evening and nighttime construction activities would require the use of extremely bright lights, and this would negatively affect nighttime views of and from the work area. Nighttime construction could also result in headlights flashing into nearby residents' homes when construction vehicles are turning onto or off of construction access routes. Proposed surge towers would require the use of safety lights that would alert low-flying aircraft to the presence of these structures because of their height.

Establishment of BDCP facilities in the Delta would require the use of safety lighting once built. Lighting equipment associated with BDCP facilities would increase the amount of nighttime lighting in the Delta above existing ambient light levels. In particular, security lighting for Intakes 1–5 and their associated pumping plants and facilities would create very noticeable effects relating to increased nighttime light at those locations. As described in Chapter 3, *Description of Alternatives*, lighting would be designed in accordance with guidance given by DWR's WREM No. 30a, *Architectural Motif, State Water Project* and through coordination with local agencies through an architectural review process. This guidance is set forth as follows.

> All artificial outdoor lighting is to be limited to safety and security requirements. All lighting is to provide minimum impact on the surrounding environment and is to be shielded to direct the light only towards objects requiring illumination. Lights shall be downcast, cut-off type fixtures with non-glare finishes set at a height that casts low-angle illumination to minimize incidental spillover of light onto adjacent properties, open spaces or backscatter into the nighttime sky. Lights shall provide good color rendering with natural light qualities with the minimum intensity feasible for security, safety and personnel access. All outdoor lighting will be high pressure sodium vapor with individual photocells. Lighting will be designed per the guidelines of the Illuminating Engineering Society (IES). Additionally, all lights shall be consistent with energy conservation and are to be aesthetically pleasing. Lights will have a timed on/off program or will have daylight sensors. Lights will be programmed to be on whether personnel is present or not.

Although the lighting would be designed to be shielded and oriented in such a manner as not to subject the immediate surroundings to extremes in the levels of light, these types of light generate an ambient nighttime luminesce that is visible for substantial distances from a large portion of the Delta. This glow contrasts with the rural character. Such a change would be particularly noticeable in rural areas where ambient light levels are currently low and there are nearby viewers. Because the study area currently experiences low levels of light because there are fewer light/glare producers than are typical in urban areas, and because there are a larger number of viewers in and around the waterways, intake structures, and intermediate forebay, effects associated with nighttime light are considered adverse. Mitigation Measures AES-4a through AES-4c are available to address these effects.

CEQA Conclusion: The impacts associated with light and glare under Alternative 1A are significant because there are a larger number of viewers in and around the waterways, intake structures, and intermediate forebay; BDCP facilities would increase the amount of nighttime lighting in the Delta above existing ambient light levels; and the study area currently experiences low levels of light because there are fewer light/glare producers than are typical in urban areas. Mitigation Measures AES-4a through AES-4c would help reduce these impacts by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences; however, these mitigation measures would not reduce impacts to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the new light and glare sources would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that do not blend or are not in keeping with the existing visual environment. Thus, the new sources of daytime and nighttime light and glare associated with Alternative 1A would result in significant and unavoidable impacts on public views in the project vicinity.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

The BDCP proponents will minimize the effect of nighttime construction light and glare on nearby residences by limiting construction hours within 0.25 mile of residents.

- Construction activities scheduled to occur between 7 a.m. or 7 p.m. will not take place before or past daylight hours (which varies according to season) within 0.25 mile of sensitive residential receptors.

Implementation of this mitigation measure will eliminate use of high-wattage lighting sources to operate in the dark and would minimize introduction of new nighttime light and glare sources in these areas to the extent feasible.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

The BDCP proponents will minimize fugitive light from portable lighting sources used during construction by adhering to the following practices.

- At a minimum, project-related light and glare will be minimized to the maximum extent feasible, given safety considerations.
- Color-corrected halide lights will be used.
- Portable lights will be operated at the lowest allowable wattage and height and will be raised to a height no greater than 20 feet.
- All lights will be screened and directed down toward work activities and away from the night sky and nearby residents to the maximum extent safely possible.
- The number of nighttime lights used will be minimized to the greatest extent possible.

Implementation of this measure will reduce—to the extent feasible as governed by site-specific safety requirements—the overall amount of new daytime and nighttime light and glare introduced to the project vicinity during construction.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

BDCP proponents will evaluate construction routes and identify portions of access routes where the use of visual barriers would minimize the introduction of new light and glare from construction truck headlights and the impact on nearby residents.

The BDCP proponents will install a visual barrier along portions of access routes where screening would prevent excessive light spill toward residents from truck headlights being used during nighttime construction activities. These visual barriers will meet the following performance criteria.

- The visual barrier will be a minimum of 5 feet high and will provide a continuous surface impenetrable by light. This height may be obtained by installing a temporary structure, such as fencing (e.g., chain link with privacy slats) or a semi-permanent structure, such as a concrete barrier (e.g., a roadway median barrier or architectural concrete wall system) retrofitted with an approved visual screen, if necessary, to meet the required height.
- The visual barriers will be of a material or have a color treatment appropriate for the location and traffic safety requirements. The use of glossy materials will be avoided.

Implementation of this measure will minimize the extent of construction truck headlight glare intruding into nearby residential areas.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

***NEPA Effects*:** Once in operation, visible maintenance activities on the intakes, tunnels, and forebays, and transmission lines would be required periodically. Intakes would require painting, cleaning, and repairs. These activities could be visible from the water or land. Forebays would be dredged to remove sediment at approximately 50-year intervals and embankments would receive vegetation removal and repairs. These activities would be visible from the area surrounding the forebays. Tunnels would require periodic inspection and would have vehicles parked near shaft sites while tunnels are accessed for inspection. Transmission lines would require periodic vegetation removal within the ROWs. The greatest visual effects resulting from operations would be maintenance of the intakes and dredging of the forebays. However, these temporary maintenance activities are anticipated to occur within a short period of time, and effects would not be adverse.

***CEQA Conclusion*:** Maintenance of the conveyance facilities (i.e., intakes, tunnels, forebays and transmission lines) would be required periodically and would involve painting, cleaning, and repair of structures; dredging at forebays (at approximately 50-year intervals); vegetation removal and care along embankments; tunnel inspection; and vegetation removal within transmission line ROWs. These visible maintenance activities would be temporary, intermittent, and short-term impacts and would be considered less than significant. Maintenance and operation of Alternative 1A, once constructed, would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features. Thus, overall, Alternative 1A would have a less-than-significant impact on existing visual quality and character during maintenance and operation of the facilities in the study area. No mitigation is required.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

Under Alternative 1A, CM3 (natural communities protection and restoration) would be the mechanism to preserve lands to aid in implementing measures CM4–CM11. CM12 (methylmercury management), CM13 (invasive aquatic vegetation control), and CM22 (avoidance and minimization measures) would be integrated into site-specific restoration designs and operations under CM3–CM11 (discussed below) and would appear to be an integrated part of those measures and not independent visual features. CM14 (operation of the Stockton Deep Water Ship Channel Aeration Facility), CM17 (illegal harvest reduction), CM19 (urban stormwater treatment), CM20 (recreational users invasive species program) are management measures that would not result in changes to the visual environment. Thus, CM14, CM17, CM19, and CM20 are not discussed further.

Existing Visual Quality and Character

Under Alternative 1A, CM2 could introduce many features that would be visible in the landscape; these are described in Chapter 3, *Description of Alternatives*. These features include fish management facilities (e.g., screens, ladders, ramps, barriers); realignment of waterways; additional hydrologic monitoring stations; a floodplain fish rearing pilot project at Knaggs Ranch; support facilities (operations buildings, parking lots, access facilities such as roads and bridges) necessary to provide safe access for maintenance and monitoring; modification, removal, and construction of berms, levees, and water control structures. These actions have the potential to have adverse visual effects because of their proximity to sensitive receptors, duration of construction activities, and changes to the visual environment resulting from these proposed actions.

The Yolo Bypass, under CM2, would also be flooded for longer periods to improve habitat and spawning for covered fish species and to reduce stranding. While the increase in duration of flooding is not known, it is anticipated that there would not be an adverse effect on visual resources because the flooding, which is an existing visual condition, would occur during the normal flood season of the bypass and just extend that season. Therefore, the extended flood duration is not considered adverse.

CM4–CM11 would result in the conversion of primarily agricultural lands to restored or enhanced habitat. Activities associated with the implementation of restoration and habitat enhancement would take place over 40 years across all conservation measures, often during a relatively short window each year, and the overall intensity and duration of each action would vary based on the individual project. CM15 (predator control) may result in temporary, localized changes by removing predator hiding spots, modifying channel geometry, physically removing predators, and utilizing other control methods as dictated by site-specific conditions. This could result in physical changes to the visual environment at site-specific locations that could be visible to water- and land-based recreationists and other viewer groups, based on location. This may have beneficial or adverse effects based on the size of proposed projects and pre-and post-project conditions (e.g., if restoration is implemented and improves pre-project conditions or if natural vegetation is removed and replaced with riprap which would degrade pre-project conditions). CM16 (nonphysical fish barriers) would use sound, light, and bubbles at Old River, the Delta Cross Channel, and Georgiana Slough and, potentially, at Turner Cut, Columbia Cut, the Delta-Mendota Canal intake, and Clifton Court Forebay to direct fish passage. The lights and bubbles may be visible to water-based recreationists, especially at dusk and night, and sound (if audible) could attract viewers' attention toward the nonphysical barriers. Small scale changes may be visible on the banks or in the water to be used for anchoring that could result in adverse visual effects. CM18 (conservation hatcheries) would result in visual changes to the environment by building a new hatchery that consists of a facility on the edge of the Sacramento River and a larger supplementation production facility nearby. This would require conversion of existing land uses along the river and nearby to a built facility. CM21 (nonproject diversions) would result in changes to the visual environment due to removal of individual diversions; consolidation of multiple unscreened diversions to a single or fewer screened diversions placed in lower quality habitat; relocation of diversions from high quality to lower quality habitat, in conjunction with screening; and reconfiguration and screening of individual diversions in high quality habitat. This could result in the removal and restoration at some locations that would result in beneficial effects or could introduce new structures where none presently exist that could be adverse.

Presently, it is not uncommon for heavy equipment to be seen, intermittently, for existing levee maintenance, agricultural, and dredging operations; site-specific construction; and use in managing wetlands and other land uses. Implementation of restoration and enhancement features would also introduce considerable heavy equipment and associated vehicles, including dozers, graders, scrapers, and trucks, into the viewshed of all viewer groups in the vicinity. Construction may include the creation of new levees; breeching existing levees; the creation of habitat levees; increasing connectivity between marshes and waterways; grading; planting; and redirecting intakes, discharges, and outfalls. In addition, acquiring public and private property to restore or enhance lands could displace occupants and would require infrastructure improvements such as roadways, parking lots, and utilities. These actions may also include the construction of new public features such as interpretive facilities and restrooms at some locations. These proposed actions would create changes in views of and from the study area throughout the construction period, which may last longer than 2 years depending on the specific project and effort required for construction. Because of the unknown location of site-specific restoration activities, potential presence of sensitive viewers, the potential for construction periods to last longer than 2 years, and varying intensity of construction, effects associated with implementation of these conservation measures are considered adverse.

Implementation of restoration actions and conservation measures under Alternative 1A would have a noticeable effect on the visual character and quality of the study area and its surroundings. Locations that are currently characterized by physical features associated with agricultural activities would be altered through the establishment of new wetlands, marshes, or restored riparian corridors. These areas may be denuded of vegetation, or may appear to be so from a distance because of immature planted vegetation that would be similar in appearance to tilled or newly planted agricultural fields. The sites would be in a transitional state, and over a period of from one to several years, plant species would mature and vegetation would recolonize the sites. Because these sites would be scattered throughout the conservation zones, they would not create a visual imposition on the landscape or be perceived as a centralized, large-scale visual change. In addition, restored/enhanced sites would increase the amount of native vegetative communities that attract wildlife, thus befitting the visual quality and diversity of the study area. The visual characteristics of these new landscapes would be consistent with other natural marsh or wetland areas of the Delta. In this sense, the BDCP would have a beneficial effect on the visual character and quality of the restoration areas and their surroundings.

Scenic Vistas

Under Alternative 1A, CM2 has the potential to visually alter scenic vistas depending on the location of various modifications, such as levee construction or removal. CM4–CM11 would result in the conversion of primarily agricultural lands to restored or enhanced habitat. CM16, CM18, CM15, and CM21 have the potential to introduce visually discordant features into scenic vistas, if they are located within a vista viewshed. Once constructed, large-scale changes to scenic vistas would result from conversion of agriculture lands to restored/enhanced areas that have more topographic variation and variable vegetative cover. Because exact locations of restoration/enhancement sites have not been identified, effects on site-specific scenic vistas cannot be determined. However, views of the large areas proposed for restoration/enhancement could likely change from agricultural or developed uses to areas with more natural features such as marshes and wetlands.

Depending on the location, the effect on scenic vistas could be beneficial or adverse. Beneficial effects would occur where flat agricultural lands and row crops are replaced by restored wetlands and riparian vegetation, because natural areas are rarer scenic features in the Delta and such a change would increase visual diversity. In general, wetlands would provide excellent vista opportunities because the restored vegetation cover would provide visual interest and would not block distant background views. However, at some sites, restoration/enhancement of agricultural lands to riparian forest could block long-distance vistas from scenic vista areas. For example, riparian forest plantings installed along a river segment where roadway travelers currently have open vistas of the waterway would mature and result in more restricted views of the river and vistas beyond. Restoration/enhancement actions could also result in the creation of new scenic vistas, perhaps through the removal of existing agricultural tree rows and the establishment of vista points at specific locations or viewing opportunity areas along newly created recreational trails.

After completion of construction activities necessary for restoration, areas surrounding the restored/enhanced area may be denuded of vegetation, or appear to be so from a distance because of immature planted vegetation would be similar in appearance to tilled or newly planted agricultural fields. The sites would be in a transitional state, and over a period of one to several years, plant species would mature and vegetation would recolonize the sites. The sites would be scattered throughout the conservation zones so would not create a visual imposition on the landscape or be perceived as a centralized, large-scale visual change. In addition, restored/enhanced sites would increase the amount of native vegetative communities that attract wildlife, thus helping to improve the visual quality and diversity of the restored areas. The visual characteristics of these restored/enhanced landscapes would be similar to other areas of the Delta that are in a natural marsh or wetland state and more limited in extent than the widespread areas of agricultural development. In this sense, the BDCP would have an overall beneficial effect related to the enhancement and creation of scenic vistas in the Delta. However, site-specific restoration information and plans need to be developed before the site-specific effects on scenic vistas can be determined.

Scenic Highways

No restoration actions are expected to be established in areas along SR 160. However, it is possible that actions proposed for some areas would be visible in the middleground and background views from SR 160. These areas are: the portions of CZ 3 on the west side of the Sacramento River that extends from Sacramento to the confluence with the Yolo Bypass; CZ 5, on the east/south side of the Sacramento River that extends from Intake 1 to Pittsburg; and CZ 10, just south of CZ 5 and spanning both sides of SR 4 near Antioch. In addition, CZ 7 would be visible in the middleground and background views from I-580, which is a state-designated scenic route in San Joaquin County. CM15, CM16, CM18, and CM21 have the potential to introduce visually discordant features as viewed from scenic highways, if they are located within the viewshed of a scenic highway. During the near term, changes to the visual environment resulting from vegetation removal may be noticeable to travelers along these routes. These areas may be denuded of vegetation, or appear to be so from a distance because of immature planted vegetation that would be similar in appearance to tilled or newly planted agricultural fields. The sites would be in a transitional state, and over a period of one to several years, plant species would mature and vegetation would recolonize the sites. The sites would be scattered throughout the conservation zones so would not create a visual imposition on the landscape or be perceived as a centralized, large-scale visual change. In addition, restored/enhanced sites would increase the amount of native vegetative communities that attract wildlife, thus helping to improve the visual quality and visual diversity of the restoration area. Due to the distance, changes associated with restoration activities would not affect the visual quality along these scenic highway corridors and would not result in adverse effects.

Light and Glare

The intent of the restoration actions would be to establish native vegetation along riparian corridors by allowing inundation of areas or by converting existing agricultural lands to tidal wetlands. Given the nature of CM2–CM22, only a few new project-related sources of light and glare would be expected to result from their implementation. Restored areas would largely be natural habitat areas. CM16 and CM18 have the potential to introduce new lighting sources through project features while it is not likely that CM15 and CM21 would introduce new sources of light. Limited lighting could be installed at some facilities, such as flood gates/pumping facilities, operations buildings, and visitor facilities. At this time, it is not known where these facilities would be proposed; however, it is anticipated that there would be a very limited number of such facilities and that the lighting would be reduced to the minimum necessary to provide safety and security and that effects would not be adverse.

Summary

NEPA Effects**:** There may be site-specific, localized adverse visual effects. These conservation measures would alter the Delta landscape by incrementally, and substantially, introducing elements into the study area over time. This could pave the way for the gradual transition of a much valued cultural and regional landscape and make it easier for other similar projects to be implemented over time because of the devalued baseline conditions, compared to Existing Conditions, if conservation measures are not planned and implemented in a manner that protects visual resources. CM2–CM22, when combined with CM1, could substantially alter the visual character of the study area, which is strongly identified by its agricultural and water-based Delta landscapes and communities. These landscapes and communities could be adversely affected by the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts associated with other development potentially setting a precedent for other development to occur. All of these effects would alter the visual character of the existing regional landscape. While many planning and regulatory documents recognize the unique visual resources of the Delta and the importance of this regional visual landscape as a shared and endangered resource, there is no comprehensive planning or regulatory document to aid in the preservation of this resource and to serve as guidance for development within this landscape.

Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-4a through AES-4c are available to address effects from habitat restoration and enhancement actions under CM2–CM22. In addition, Mitigation Measures AES-6a and AES-6b are available to help reduce adverse visual effects. Upon development of site-specific design information and plans, additional mitigation measures may be identified to address action-specific adverse effects. However, each individual project under CM2–CM22 would undergo the environmental compliance process that would be used to determine what additional mitigation measures, would be deemed appropriate to reduce adverse effects and to assess compliance with relevant regulations. Finally, Mitigation Measure AES-6c is available to help inventory, classify, and protect the unique visual landscape of the Delta.

CEQA Conclusion: Implementation of conservation measures under Alternative 1A has the potential to affect existing visual quality and character, views of scenic vistas, views from scenic highways, and introduce new sources of light and glare in the study area. Impacts on the existing visual quality and character would be significant where use of large numbers of heavy construction equipment, changes in topography, and introduction of new structures or facilities where none presently exist would take place in the vicinity of sensitive receptors. However, because a number of factors that would determine the level of change are unknown—the location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction—impacts associated with implementation of these conservation measures (CM2–CM22) on visual quality and character, scenic vistas, and light and glare sources, are considered significant. Because of the distance of implemented conservation measures from scenic highways, changes associated with these activities would not affect the visual quality along these scenic highway corridors and this impact would be less than significant. Site-specific restoration information and plans need to be developed before the site-specific effects on the existing visual character, scenic vistas, and light and glare can be determined.

Several mitigation measures are available to minimize the impacts on visual quality and character in the study area that could result from implementation of CM2–CM22. As summarized below, these measures could be applied to individual restoration projects or actions as appropriate for the site-specific conditions and design considerations. In addition, each restoration project or action would undergo an environmental compliance process that would be used to determine what additional mitigation measures would be deemed appropriate to reduce significant effects. Mitigation Measures AES-1a through AES-1g could be applied to minimize impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. Mitigation Measures AES-4a through AES-4c could be used to reduce the effects of new light and glare sources by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. In addition, Mitigation Measures AES-6a and AES-6b would further minimize impacts on visual resources by undergrounding new or relocated utility lines, where feasible, and through an evaluation of an afterhours low-intensity and lights off policy. Finally, implementation of Mitigation Measure AES-6c would provide a strategy for the protection of the unique visual landscape of the Delta.

While some of these conservation measures could result in beneficial impacts through the restoration of natural habitat and mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a less-than-significant level because of uncertainties associated with future implementation of Conservation Measures 2–22. In addition, the size of the study area and the nature of changes introduced by these conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend with or be in keeping with the existing visual environment. Thus, implementation of these conservation measures would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

BDCP proponents will underground new or relocated utility lines, where feasible, to reduce or improve adverse visual effects associated with the visual intrusion of such features in the landscape. New or relocated utility lines will not be underground where undergrounding would constitute an adverse effect on sensitive habitats or sensitive species or require the removal of healthy native trees that would fall under the definition of a native heritage tree. For the purpose of this mitigation measure, a native heritage tree is defined for this project using guidance set forth in the City of Sacramento Heritage Tree Ordinance, as follows.

- Any tree of any species with a trunk circumference of one hundred (100) inches or more, which is of good quality in terms of health, vigor of growth and conformity to generally accepted horticultural standards of shape and location for its species.
- Any native *Quercus* species, *Aesculus California,* or *Platanus Racemosa*, having a circumference of 36-inches or greater when a single trunk, or a cumulative circumference of 36-inches or greater when a multi-trunk, which is of good quality in terms of health, vigor of growth and conformity to generally accepted horticultural standards of shape and location for its species.
- Any tree 36-inches in circumference or greater in a riparian zone. The riparian zone is measured from the centerline of the water course to 30-feet beyond the high water line (City of Sacramento 2012).

Other trees may also be protected, as deemed appropriate by BDCP proponents to be of special historical or environmental value or of significant community benefit.

Implementation of this measure, where possible, will avoid the introduction of new aboveground utility lines and result in an improved view in areas where existing utility lines could be relocated underground.

Mitigation Measure AES-6b: Develop and Implement an Afterhours Low-Intensity and Lights Off Policy

The BDCP proponents will evaluate measures and develop and implement of a commercial and public buildings lighting policy to minimize the impact of building lighting on nearby sensitive viewers. The policy will include the following performance standards.

- Require building design to include low-intensity interior safety lighting for use during afterhours. This practice would decrease the amount of nighttime light that would occur from using standard interior lighting as safety lighting.
- Prevent unnecessary overuse of interior nighttime lighting, requiring that offices and businesses implement a "lights-off" policy. This practice requires that all non-safety lighting be turned off at night (such as in offices and hallways), after business hours. This standard can be accomplished through use of movement activated lighting systems.
- Prohibit use of harsh mercury vapor or low-pressure sodium bulbs.

Such a policy can greatly reduce the amount of nighttime light pollution that is created by standard office and business practices.

Mitigation Measure AES-6c: Implement a Comprehensive Visual Resources Management Plan for the Delta and Study Area

The BDCP project proponents will work with federal, state, and local stakeholders to implement a visual resources management plan for the Delta and study area. The visual resources management plan will be developed based on the following considerations and performance standards.

- The purpose of the visual resources management plan will be to protect and enhance the visual landscape and will not serve as a mechanism to allow for undue development or to facilitate advanced development of the Delta and study area.
- The visual resources management plan will implement a prescribed methodology for inventorying and classifying all visual landscapes within the study area. This methodology will utilize measures similar to BLM and USDA Forest Service inventorying techniques or will develop its own methodology for inventorying study area visual landscapes. This methodology will incorporate a quantifiable measure of visual landscapes that can be used to determine areas for preservation, enhancement, and smart development, and to measure and monitor visual effects on the study area landscape over time. This inventory will include an inventory of viewer groups and viewer responses to adequately identify publicly valued visual landscapes.
- The inventory of visual landscapes within the study area will be used as a tool to preserve the visual landscape and to guide smart growth and development.
- The visual resources management plan will implement regulatory language to protect visual resources of the study area, based on preserving important and sensitive visual landscapes. It will also identify design and management measures for avoidance of adverse effects.
- The visual resources management plan will identify and facilitate the preservation of sensitive visual landscapes through the planning and establishment of scenic easements and official federal and/or state designation for the protection of scenic resources (e.g., historic

and/or scenic trails, designated scenic areas, scenic highways/byways, and wild and scenic rivers).

- The visual resources management plan will serve to encourage the integrated use of environmental design arts, as outlined in Section 102(A) of NEPA, so that projects within the study area are designed to be self-mitigating instead of waiting until the environmental analysis process to establish design measures that mitigate a project's visual effects.
- The visual resources management plan will recognize and work with the evolving visual landscape as it relates to climate change and sea level rise. It will establish proactive design and management measures that protect the evolving landscape and visual integrity of the study area and will not facilitate reactive design and management measures that could adversely alter the visual landscape of the study area.
- The visual resources management plan for the study area will be an adaptive management tool and will undergo periodic updates every 20 years.
- CM2–CM22 will comply with this visual resources management plan.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

***NEPA Effects*:** Constructing conveyance facilities (CM1) and implementing CM2–CM22 under Alternative 1A could result in the potential for incompatibilities with plans and policies related to preserving the visual quality and character of the Delta. A number of plans and policies that coincide with the study area boundaries provide guidance for visual resource issues as overviewed in *Section 17.2, Regulatory Setting*. This overview of plan and policy compatibility evaluates whether Alternative 1A is compatible or incompatible with such enactments, rather than whether impacts are adverse or not adverse or significant or less than significant. If the incompatibility relates to an applicable plan, policy, or regulation adopted to avoid or mitigate visual effects, then an incompatibility might be indicative of a related significant or adverse effect under CEQA and NEPA, respectively. These physical effects of Alternative 1A on visual resources are addressed in Impacts AES-1 through AES-6, above. The following is a summary of compatibility evaluations related to visual resources for plans and policies relevant to the BDCP.

Conveyance Facilities

- The Sierra Resource and Cosumnes River Preserve Management Plans protect the Cosumnes River Preserve. Views within the Cosumnes River Preserve would not be affected by Alternative 1A because it is located east of I-5 and public views of the project site available from trails are obscured by riparian vegetation and I-5.
- The Suisun Marsh is protected by the San Francisco Bay Conservation and Development Commission Suisun Marsh Protection Plan. The eastern boundary of the Suisun Marsh extends to Collinsville Road in southern Solano County and falls within the westernmost portion of the study area. Views from Suisun Marsh would not be affected by this alternative because project features would be obscured by distance, the Altamont Hills, and intervening trees, infrastructure, and development.
- EBRPD parks within the study area include Browns Island, Antioch/Oakley Shoreline, and Big Break Parks (East Bay Regional Park District 2013b). Views from these parks would not be

affected by this alternative because project features would be obscured by distance, the Altamont Hills, and intervening trees, infrastructure, and development.

- The cities of Antioch, Brentwood, Oakley, Sacramento, Lathrop, Stockton, Tracy, Rio Vista, Suisun City, and West Sacramento would not be affected by this alternative because there are no project features within or visible from these cities. Therefore, this alternative would be consistent with the protection of visual resources covered under those general plans.

- The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta, Delta Plan, Brannan Island and Franks Tract State Recreation Areas General Plan are all focused on the protection of resources, including visual resources, within the Delta. While constructing and operating conveyance facilities under this alternative are intended to provide ecosystem benefits in the Delta, constructing these conveyance elements could be considered incompatible with measures to protect the unique visual environment of the Delta because agricultural lands and riverbanks would be converted to other uses and the scale of construction would result in changes to the landscape that may be considered disruptive to the current Delta environment and visual quality.

- Contra Costa, Sacramento, San Joaquin, and Solano Counties all have policies to preserve and protect the scenic qualities of the Delta as summarized in *Section 17.2 Regulatory Setting*. In addition, Alameda, Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties are focused on the protection of visual resources and preserving agricultural lands. The general plans for these counties include policies for the protection of visual resources, trees, waterways, and landscaping and for avoiding impacts such as the alteration of landforms and the introduction of utilities and new sources of light. These policies seek to minimize visual impacts and enhance scenic qualities and also encourage placing utility lines underground. The conversion of agricultural lands and riverbanks to intake facilities, conveyance facility changes and introduction of new lighting and transmission lines where none presently exist would substantially alter the landscape and could be considered incompatible with local policies aimed at protecting visual resources in these counties. Potential incompatibilities with Sacramento County and San Joaquin County policies would be most likely because most of the project features occur in these counties. Alameda and Contra Costa Counties have much smaller portions of project features that surround the Clifton Court Forebay. Yolo County would be affected by intakes located on the east bank of the Sacramento River that would affect views from South River Road. Alternative 1A would not be incompatible with Solano County policies because conveyance facilities would not be located in this area.

Other Conservation Measures

- The Yolo Bypass would be altered under CM2. Views of and from South River Road would not be affected. However, new fish screens, ladders, ramps, barriers, realignment of waterways, additional hydrologic monitoring stations, fish rearing pilot project at Knaggs Ranch, operations buildings, parking lots, access facilities such as roads and bridges, and modification, removal, and construction of berms, levees, and water control structures would result in changes to the landscape that may be incompatible with the Yolo County General Plan Policies LU-3.7, CC-1.2, CC-1.3, and CC-1.4 that protect scenic areas, the rural landscape character, and the night sky.

- CM4–CM11 would result in the conversion of primarily agricultural lands to restored or enhanced habitat across all 11 CZs, with specific focus on ROAs (refer to Figure 3-1). Therefore, associated regulations may apply. Restored areas would largely be natural habitat areas. Alterations such as channel and levee modifications, landform alteration from dredge spoil placement, and floodplain lowering could change the visual landscape. Restoring areas and views to natural, native habitat would likely be beneficial and would increase visual diversity. However, converting agricultural lands may be incompatible with one or more regulation protecting visual resources, although it may facilitate regulations set in place to protect and restore the Delta. If facilities, such as buildings, parking lots, or roads, are built, they would also have the potential to be incompatible with relevant regulations that protect scenic areas, the landscape character, the night sky, and the Delta.

- CM15 and CM21 would occur across all 11 CZs and could result in physical changes to the visual environment at a number of locations and where relevant regulations may apply. This may have beneficial or adverse effects based on the size of proposed projects and pre-and post-project conditions (e.g., if restoration is implemented and improves pre-project conditions or if natural vegetation is removed and replaced with rip rap or a new diversion structure that degrades pre-project conditions). Vegetation removal and replacement with rip rap or a diversion structure could be incompatible with be incompatible with relevant regulations that protect scenic areas, the landscape character, the night sky, and the Delta.
- CM16 could use sound, light, and bubbles at the head of the Delta Cross Channel and Georgiana Slough in Sacramento County; Old River, Turner Cut, and Columbia Cut in San Joaquin County, the Delta-Mendota Canal intake in Alameda County; and Clifton Court Forebay in Contra Costa County to direct fish passage. Small scale changes may be visible on the banks or in the water used for anchoring that could result in adverse visual effects, but it is anticipated that these changes would be consistent with County general plan policies that protect visual resources.
- Building a new hatchery that consists of a facility on the edge of the Sacramento River and a larger supplementation production facility nearby, through CM18, would result in visual changes and conversion of existing land uses along and near the river would be required to build facilities. These facilities could be located in Sacramento, Yolo, or Solano Counties and also fall within the Delta. Therefore, corresponding regulations may apply. The size and locations of these facilities are unknown, but it is likely that conversion of existing land uses, and potentially undeveloped land would alter the visual character along the Sacramento River and would be incompatible with one or more plans or policies for the protection of visual resources in these regions.

***CEQA Conclusion*:** The incompatibilities identified in the analysis indicate the potential for a physical consequence to the environment. The physical effects they suggest are discussed in impacts AES-1 through AES-6, above, and no additional CEQA conclusion is required related to the compatibility of Alternative 1A with relevant plans and policies.

17.3.3.3 Alternative 1B—Dual Conveyance with East Alignment and Intakes 1–5 (15,000 cfs; Operational Scenario A)

Table 17D-2 in Appendix 17D, *Permanent Impacts after Construction is Complete*, describes the existing visual characteristics and the BDCP-related permanent effects of Alternative 1B on visual quality and character, scenic vistas, scenic roadways, and from light and glare sources after construction is complete and identifies the overall effect on viewers. Appendix E, *Permanent Features*, identifies the viewer groups and viewing locations that would be affected by permanent alternative features. Construction of all structural components under Alternative 1B could potentially occur over a period of 9 years. However, construction of each individual facility would be phased within that period and would occur over a shorter period. The estimated construction times for individual features are included below. The duration and schedule for construction of the water conveyance facilities (CM1) is provided in Appendix 3C, *Construction Assumptions for Water Conveyance Facilities*. In addition, Appendix 22A details the construction schedules and defines the length and sequence of each construction phase.

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

Under Alternative 1B, effects related to Intakes 1–5 would be the same as those discussed under Alternative 1A, Impact AES-1, because they would be built in the same locations (see Figures 17-76 through 17-78 and Mapbook Figure M3-2). The primary conveyance, however, would be a lined or unlined canal in the east delta rather than pipelines/tunnels and there would be no intermediate forebay. After construction, areas surrounding Intakes 1–5, canals, spoil/borrow areas, RTM areas (tunnel siphons), and shaft sites may be denuded of vegetation for a short period of time until the landscaping plans designed under WREM No. 30a are implemented. Once installed, the landscape would still appear to be denuded of vegetation or to have little vegetative cover because immature landscaping would be similar in appearance to tilled or newly planted agricultural fields.

Because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, changes to topography through grading, and addition of large-scale industrial structures where none presently exist, this effect on existing visual quality and character of the study area is considered adverse.

Effects related to construction of access roads and transmission lines would occur within a 2-year period under this alternative and would be the same as those described for Alternative 1A, Impact AES-1, because the relevant components would be similar under both alternatives. However, substantial differences associated with other facilities are described below.

Canals

Construction of canals and pumping plants would introduce considerable heavy equipment—excavators, graders, dozers, sheepsfoot rollers, dump trucks, and end loaders, in addition to support pickups and water trucks—into the viewshed of all viewer groups in the vicinity. Work areas would be situated adjacent to the intake sites and would be used for staging, temporary field offices, worker parking, equipment and materials laydown and storage, and to support other construction-related needs. Canal construction would be performed in a linear pattern over a 5-year period and would occur primarily Monday through Friday for up to 24 hours per day. In addition, because of the relatively high groundwater level along the canal alignment, dewatering would be necessary to provide a dry workspace for excavation of the canal foundation. Dewatering would take place 7 days per week and 24 hours per day and would be initiated 1–4 weeks prior to excavation. Dewatering would continue until excavation is completed and the construction site is protected from areas with high groundwater levels (Chapter 3, *Description of Alternatives*). Construction of the canal would require that properties be acquired, resulting in the relocation of residences and razing of buildings on affected properties during construction. This effect is most prominent between Intake 1 and West Walnut Grove Road, near I-5 (KOP 74, 86, 113, 115, 119, and 120). South of West Walnut Grove Road fewer residences and buildings would be acquired and razed (KOPs 124, 136, 140, 141, 152, and 154). In addition, residences and businesses may experience loss of landscaping, fencing, or other landscape features of personal importance. Such losses would further evoke negative visual perceptions of the conveyance facilities. Scattered rural residences are present on CH E9 and SR 160, along both banks of the river throughout the corridor between where the canals would be built; construction would take place near or directly adjacent to some of these homes (KOPs 1, 3, 4, 15, 18, 20, 34, 41, and 49). The areas between Clarksburg and Hood have a higher concentration of residential viewers and are also near the intakes (KOPs 12, 72, 73, and 74). South of Lambert Road, the canal alignment jogs to the east and runs closer to I-5, allowing direct foreground and middleground views of construction from the interstate. This is generally the case until the northern limits of Stockton where I-5 enters the city and veers away from the alignment, which continues south until it jogs west after it crosses SR 4. The canal would also be visible from the Amtrak San Joaquin Oakland to Bakersfield route as it crosses by the canal near Holt. The canal would be seen by passengers sitting in window seats on the north and south sides of the train. The canal would dead end to the north and south of the railway and siphon under the tracks. While trains would pass by at a high rate of speed, the canal would be a unique and prominent feature that would draw viewers' attention as they pass by the feature that would appear as a brief pinch point in views.

Transmission lines following the canals would introduce tall, lattice steel structures that would draw more attention to the linearity of the canal and its industrial nature. Recreationists on local roadways and waterways, roadways users on local roadways, and nearby businesses would have direct views of canal construction. The landscape sensitivity level ranges from low to high and effects on these viewers would be substantial, especially for residences that would experience disruptive construction activities.

As seen in Figure 17-81, *Existing and Simulated Views of the East Canal from I-5 at Lambert Road*, construction of the canal would convert agricultural lands to a water conveyance facility and would require the removal of landscaping, vegetation, and structures and would introduce the raised canal embankments into the viewshed, as illustrated in "Simulated View". The canal would be located 1.9 miles away from I-5, decreasing the visual prominence of the canal embankments due to distance. However, the embankments would appear larger the closer they get to I-5, as seen in the simulation when comparing the embankment on the left side of the photo to the right side of the photo, where the canal would be farther away. The canal would be most prominent near Twin Cities Road where the nearest embankment would be 0.75 mile away. The canal would limit views to trees on horizon line. In addition, the introduction of tall, steel 230 kV transmission lines paralleling the canal would add to the amount of utility lines seen from I-5. Overall, existing views from KOP 113 on I-5 toward the canal would be impaired by the removal of the buildings and vegetation and introduction of the canal and transmission lines and the Scenic Quality Rating would be reduced from an **E** to an **F**. This effect would be adverse (see discussion under 17.3.1.2 and 17.3.1.3).

As seen in Figure 17-82, *Existing and Simulated Views of the East Canal from SR 12*, construction of the canal would displace agricultural lands and agrarian infrastructure and require the removal of vegetation. The canal would introduce a prominent visual massing into viewshed, as illustrated in "Simulated View". The canal embankments would limit views to the foreground and prevent views to the middleground. Trees lining SR 12 would also be removed to allow for construction. The roadway surface would be more visible as it ascends to bridge over the canal. In addition, the introduction of tall, steel 69 kV transmission lines add to the amount of utility lines present and visually contrasts to existing views where the existing transmission lines consist of wooden utility poles. Overall, existing views from KOP 128 on SR 12 toward the canal would be impaired by the removal of the agrarian structures and vegetation and introduction of the canal, bridging over the canal, and transmission lines that would alter the visual character of the roadway corridor. While the visual character would be lowered, the Scenic Quality Rating would remain an **E**. The effect of the east canal on the scenic quality would therefore not be adverse at this location (see discussions under 17.3.1.2 and 17.3.1.3).

As seen in Figure 17-83, *Existing and Simulated Views of the East Canal from SR 4*, construction of the canal would displace agricultural lands. The canal would introduce a visual massing into viewshed, as illustrated in "Simulated View". The canal embankments would limit views to the foreground and prevent views to the middleground. Infrastructure and buildings in the foreground of this view act to screen views of the canal and are foreground focal points that draw attention somewhat away from focusing on the canal. The roadway surface would be more visible as it ascends to bridge over the canal. In addition, the introduction of tall, steel 69 kV transmission lines add to the amount of utility lines present and visually contrasts to existing views where the existing transmission lines consist of wooden utility poles. Overall, existing views from KOP 114 on SR 4 toward the canal would be impaired by the alteration of agricultural lands and introduction of the canal, bridging over the canal, and transmission lines that would alter the visual character of the roadway corridor. While the visual character would be lowered, the Scenic Quality Rating would remain an **F**. The effect of the east canal on the scenic quality would therefore not be adverse at this location (see discussions under 17.3.1.2 and 17.3.1.3).

Earthmoving activities would result in the removal of mature vegetation and large-scale, linear topographical changes to areas that are presently flat. The canal would dissect numerous parcels, disrupting the continuity of rural land and affecting free-flowing visual access from lands on either side of the canal. Earthmoving activities and associated heavy equipment and vehicles would be readily visible throughout construction and have the potential to create slowly moving dust clouds that would attract attention from visual receptors and reduce the availability of short-range views. As set forth in Chapter 22, *Air Quality and Greenhouse Gases*, the BDCP proponents have identified several environmental commitments (Appendix 3B, *Environmental Commitments*) to reduce emissions of construction-related criteria pollutants, including basic and enhanced fugitive dust control measures and measures for entrained road dust that would help to reduce the creation of dust clouds that would negatively affect short-range views.

Canals, along with intakes, bridge crossings, and spoil/borrow and RTM areas would compound effects on available views in the study area. These views would be greatly altered by the presence of a large-scale, concrete lined and water filled channel traversing through the landscape between the intakes that would introduce a visually dominant conveyance facility that would be very noticeable within available views. Because the scale of landscape level changes, long-term nature of construction, proximity to sensitive receptors, removal of vegetation, and changes to topography through grading, would reduce the visual quality in some locations along the canal and result in noticeable changes that could be viewed by sensitive receptors and from public viewing areas, this effect on existing visual quality and character would be adverse.

Forebays

Under Alternative 1B, the intermediate forebay would not be constructed. The Byron Tract Forebay would take 3.5 years to construct and would encompass 600 acres (same as Alternative 1A). Other than the construction timeframe, the visual effects of construction would be the same as those described for Alternative 1A, Impact AES-1 because the proposed components would be similar under both alternatives. Because of the large footprint of the forebay, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, construction of the forebay would result in noticeable changes that could be viewed by sensitive receptors and from public viewing areas, this effect on visual quality and character would be adverse.

Bridges

Nineteen bridge crossings would be constructed under Alternative 1B along the conveyance alignment within a 2-year period. Bridges would be built on a residential access road south of Intake 2 and west of North Stone Lake; on River/Scribner, Lambert, Dierssen, Twin Cities, West Barber, West Walnut Grove, West Peltier, West Woodbridge, North Grand, West Eight Mile, West McDonald, West Kingston School, Cal Pack, and Clifton Court Roads; on SR 12 and SR 4; and on Tracy Boulevard (KOPs 73, 86, 115, 119, 120, 124, 141, 152, and 154). Construction activities would introduce considerable heavy equipment and associated vehicles, including dozers, graders, scrapers, and trucks, into the viewsheds of public roadways and residential and commercial properties. Safety and directional signage would also be a visible element. Nearby residences and businesses would have construction occurring in close proximity to them and some residences would have construction activities occurring directly adjacent to their properties. The landscape sensitivity level near residences is moderate to high, and effects on these viewers are substantial, especially because they would experience disruptive construction activities. In addition, residences may experience loss of landscaping, fencing, or other landscape features of personal importance, further evoking negative visual perceptions of these components. Some of these bridges would be constructed in areas where residences would be acquired and razed to construct the canal.

Bridges would create opportunities for views to the surrounding area, but would also introduce noticeable elevated structures and raised visual masses that would disrupt the continuity of views by preventing free flowing access from lands on either side of the bridges. This disrupted access would be both physical and visual. However, because the bridges are on existing roadways, they would be co-dominant visual features. Effects on roadway users would not be substantial because of the brief periods that they are in visual contact with the bridge site and because of familiarity with construction along roadways in the region. Effects on recreationists would not be substantial because of the brief periods that they are in visual contact with the bridge site. Nevertheless, construction of bridges would introduce a noticeable change from public viewing areas and could result in an adverse effect on existing visual quality and character in the study area.

Spoil and Borrow Areas

Effects related to spoil/borrow areas are similar to those described for Alternative 1A, Impact AES-1. However, under Alternative 1B, the extent of spoil/borrow areas would be much greater due to the amount of excavation required and the area needed to store excess spoils from canal construction (KOPs 45, 54, 55, 86, 103, 106, 119, 140, 141, 152, and 154). Spoil/borrow areas would take up a much greater area between Intake 1 and Dierssen Road. Under Alternative 1B, there would be a total of 1,931 acres within this area as compared to a total of 372 acres under Alternative 1A. These changes would have a much greater effect on available views from SR 160 and near the towns of Clarksburg and Hood, which have a higher concentration of residential, recreational, and roadway viewers. Because spoil/borrow areas between Dierssen Road and Terminous Tract (595 acres) generally hug the canal alignment, they would appear to be a visual extension of canal construction. Spoil/borrow areas south of Terminous Tract, from King Island to Byron Tract Forebay (8,142 acres), would cover large areas of land, similar to those in the northern portion of the alignment. There are fewer sensitive visual receptors in this area, but some residential, recreational, commercial, and roadway viewers are present. In addition, railway viewers would be able to see the spoil/borrow areas located to the north and south of the railway near Holt. These areas would be seen by passengers sitting in window seats on the north and south sides of the train. While trains would pass by at a high rate of speed, the landscape effects would be unique and prominent features that would draw viewers' attention as they pass by them. Spoil/borrow areas would result in large-scale, sunken or elevated landscape effects that would alter the existing visual character of a landscape that is predominantly flat. Under Alternative 1B there would be a total of 10,667 acres of land affected by spoil/borrow areas compared to a total of 1,185 acres under Alternative 1A. In addition to spoils/borrow in the study area, offsite borrow sites may be needed to provide suitable materials for intake pipeline foundations, berms around RTM storage areas and canal embankments. It is not known how much import material would be needed and where it would come from. It is assumed that effects at import borrow sites would be similar in scale and have similar adverse visual effects to those within the study area.

Overall, recreationists on local roadways, roadway users on local roadways, residents, and nearby businesses would have direct views of construction activities taking place at spoil/borrow areas. Impacts on these viewers would substantial and introduce noticeable to very noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment, especially for residences that would experience disruptive construction activities near their homes. Because of the scale of landscape-level changes, long-term nature of construction, proximity to sensitive receptors, removal of vegetation, and changes to topography through grading, and the introduction of noticeable changes that could be viewed by sensitive receptors and from public viewing areas, this effect on existing visual quality and character would be adverse.

Resuable Tunnel Material Areas

RTM areas would be greatly reduced under this alternative but would be needed to store excess material from tunnel siphon boring under Snodgrass Slough and the Mokelumne River, near Twin Cities Road (274 acres); the San Joaquin River near Stockton (137 acres); and near the Byron Tract Forebay (28 acres). The RTM area near Twin Cities Road would mostly be visible from scattered rural residences, local roadways, and I-5 to the east (KOP 113 and 119). The RTM area near the San Joaquin River would mostly be visible from West Rindge Road, a levee road, on Rindge Tract. This area generally lacks sensitive land-based viewers that would see the area, and the levee obscures water-based views. The RTM area near Byron Tract Forebay lacks sensitive viewers. RTM areas would be in use for close to 7.5 years; operations at these locations would take place Monday through Friday for up to 24 hours per day. If evening and nighttime construction activities are conducted they would require the use of extremely bright lights, which would adversely affect nighttime views of and from the construction area. Under Alternative 1B there would be a total of 438 acres of land affected by RTM areas compared to a total of 1,549 acres under Alternative 1A. Because the long-term nature of construction, proximity to sensitive receptors, and changes to topography through grading would introduce noticeable changes that could be viewed by sensitive receptors and from public viewing areas, this effect on visual quality and character would be adverse.

Shaft Sites

Effects related to shaft sites are similar to those described for Alternative 1A, Impact AES-1 (see Figure 17-80). However, Under Alternative 1B, there would be fewer shaft sites because there would be only three main tunnel siphons, under Snodgrass Slough and the Mokelumne River, near Twin

Cities Road; the San Joaquin River near Stockton; and near the Byron Tract Forebay, as described above under *Reusable Tunnel Material Areas*.

Transmission Lines

Proposed transmission line corridors are shown in Figure M3-2. The effects of 12 kV, 69 kV and 230 kV transmission lines would be similar under Alternative 1B to those under Alternative 1A, Impact AES-1 (see Figures 17-76, 17-77, and 17-80). The permanent transmission lines would be located in areas in where the landscape sensitivity levels range from low to high (KOPs 1, 3, 4, 15, 16, 18, 19, 20, 26, 30, 34, 41, 42, 49, 54, 72, 73, 86, 103, 107, 108, 115, 119, 120, 124, 136, 140, 141, 152, and 154). Temporary power would be supplied by 69 kV transmission lines that would tap into the Hood, New Hope, Terminous, Stagg, North Hooper Street, and Herdlyn Substations and would run parallel to existing transmission corridors. Two of these 69 kV transmission line tie-ins for temporary power would enter the Stockton city limits. One would traverse through Brookside and be located north of West March Lane and tie into the Stagg Substation west of Feather River Drive. The other would traverse through Rough and Ready Island, north of West Fyffe Street and tie into an existing substation east of North Hooper Street. These temporary lines would be visible to a large number of viewers in all viewer groups but the transmission lines would be in keeping with the existing visual character of the transmission corridor. In addition to the 69 kV transmission lines, 12 kV lines would supply temporary power by tapping into existing transmission routes, or the newly constructed 69 kV lines, extending power to construction sites. These would be new lines and would generally not run parallel to existing transmission corridors.

Permanent power would be supplied by the Banks Substation near the Banks pumping plant. Permanent 230 kV transmission lines shown on Figure 3-25, indicated by the S-E1 (East) line for Alternative 1B, would travel from the south to north. The line would parallel existing transmission corridors south of SR 4 and then turn north and cross SR 4, after which it would not parallel an existing transmission corridor. It would travel north for 1.5 miles and would introduce a transmission corridor into the landscape where none presently exists. New permanent 69 kV lines would start at the northern terminus of the 230 kV lines, at a new switchyard at the intermediate pumping plant north of Holt, and parallel the canal to supply power to the intakes. Effects at these locations would be the same as described for Alternative 1A. The presence of temporary and permanent transmission lines would constitute an adverse effect where they do not run parallel to an existing transmission corridor.

Concrete Batch Plants and Fuel Stations

Effects related to concrete batch plants and fuel stations are similar to those described for Alternative 1A, Impact AES-1. However, under Alternative 1B, the location of some concrete batch plants and fuel stations would differ. Approximately 2-acre concrete plants would be located at Intakes 2 and 4, 0.4 mile southeast of SR 4 south of Holt, and north of Byron Highway and a 25-acre concrete plant would be located along the canal alignment just south of Snodgrass Slough. Approximately 2-acre fuel stations would be located at Intakes 2 and 4 (KOP 45), 0.4 mile southeast of SR 4 south of Holt, along the canal alignment just south of Snodgrass Slough, along the canal alignment approximately 8.5 miles south of SR 12, and north of Byron Highway. Construction of the concrete batch plant and fuel station south of Snodgrass Slough would be within 200 feet of the slough's levee and in close proximity to and south of a residence. Elements of construction may be visible to recreationists on Snodgrass Slough, agricultural workers in the area, and the nearby residence but construction would be temporary in nature, lasting less than 2 years. Converting agricultural lands to industrial facilities, especially those in close proximity to SR 160, would introduce a noticeable change in the existing visual quality and character and would be an adverse effect.

Summary

***NEPA Effects*:** The construction period would last for 9 years and the intensity of the activities in contrast to the current rural/agricultural nature of the area would be substantial. Construction of Intakes 1–5 and the accompanying pumping plants, surge towers, canals, borrow/spoil areas, RTM areas, forebay, access roads, transmission lines, and concrete batch plants and fuel stations would introduce visually discordant features into foreground and middleground views with low to high landscape sensitivity level. These elements would introduce visually dominant features that would be very noticeable to all viewer groups and would segment the visual landscape of the study area, reduce the amount of open space lands available to viewers, and eliminate valued visual resources. Accordingly, because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, this effect on existing visual quality and character would be adverse. In San Joaquin County, the canal would be visible in the middleground from I-5; the canal and a bridge would cross West Eight Mile Road; and the canal, a bridge, and borrow/spoil areas would cross and be in foreground views from roads on Roberts Island north of SR 4 and SR 4. While not officially designated state scenic highways, and therefore not discussed under *Impact AES-3: Permanent damage to scenic resources along a state scenic highway from construction of conveyance facilities*, these roads are San Joaquin County Scenic Routes (see *Section 17.2.3.2, County and City General Plans – San Joaquin County*). These features would detract from the visual quality of views from these routes. In addition, construction of all these features has the potential to adversely affect wildlife viewing and the overall enjoyment of scenic views in the study area. Effects on the existing visual character under Alternative 1B would be greater than under Alternative 1A due to the extent of the canals visible on the landscape surface, landscape effects left behind by spoil/borrow areas, and introduction of bridges. Overall, effects on the existing visual character associated with construction of Alternative 1B would be adverse because the alternative would result in reductions to the visual quality in some locations and introduce dominant visual elements that would result in very noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes would be viewed by sensitive receptors and from public viewing areas. Mitigation Measures AES-1a through AES-1g are available to address these adverse effects.

***CEQA Conclusion*:** Because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, the impacts associated with constructing Intakes 1–5 and the accompanying pumping plants, surge towers, canals, borrow/spoil areas, RTM areas, forebay, access roads, and transmission lines are considered significant. These changes under Alternative 1B would result in reductions to the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes would be viewed by sensitive receptors and from public viewing areas. Impacts on the existing visual quality and character under Alternative 1B would be greater than under Alternative 1A due to the extent of the canals visible on the landscape surface, landscape effects left behind by spoil/borrow areas, and introduction of bridges.

Mitigation Measures AES-1a through AES-1g would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, Alternative 1B would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Resuable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

NEPA Effects: Scenic vistas are mapped and included in Appendix Figure 17D-1. Permanent effects on scenic vistas related to the presence of Intakes 1–5 and permanent access routes would be the same as those described for Alternative 1A, Impact AES-2 (see Figures 17-76, 17-77, and 17-78). Effects related to shaft sites, RTM areas, and forebays under Alternative 1B would be substantially decreased relative to Alternative 1A. The spoil/borrow areas near Lambert Road would be visible in vistas available from Lambert Road (KOP 86) and I-5 (KOP 113), east of the canal. The RTM area south of Snodgrass Slough would mostly be visible in the vista available from North Vail and Blossom Roads (KOP 119), where there are few roadway users that would have low visual sensitivity to changes. However, there are residences in the area that would be highly sensitive to changes. The RTM area on Rindge Tracts has a small number of sensitive viewers. The RTM area near Byron Tract Forebay may be partially visible from scenic vistas available from Clifton Court Road but lacks a large number of sensitive viewers (KOP 154). The shaft sites would not be noticeable in views from scenic vistas due to distance from viewing distance and their low-profile nature in a disturbed landscape. Effects on scenic vistas from the presence of forebays would also be reduced under this alternative, relative to Alternative 1A. The intermediate forebay would not be constructed. However, effects on scenic vistas related to bridges, canals, and spoil/borrow areas during operation would differ under this alternative may adversely affect available views from scenic vistas.

Scenic vistas available from SR 160 (KOPs 18, 20, 34, 41, and 45), SR 4 South Tracy Boulevard (KOP 152), and Lambert (KOP 86), Twin Cities (KOP 115), North Vail, Blossom (KOP 119 and 124), North Rio Blanco, North Holt, Windmill Cove, and Clifton Court (KOP 154) Roads would be greatly altered by the presence of a large-scale, concrete-lined and water-filled channel traversing the landscape within vista views. South of Lambert Road, the canal alignment jogs to the east and runs closer to I-5, allowing direct foreground and middleground views of the canal from the interstate. Recreationists on local roadways and waterways, roadways users on local roadways, and nearby businesses would have direct views of the canal that would introduce visually discordant features in the foreground and middleground views of scenic vistas. The large-scale canal would considerably change the nature of these scenic vistas by introducing large, industrial structures that would conflict in form, pattern, color, texture, and general character with existing surroundings and landscape features that comprise scenic vista opportunities. In addition, transmission lines following the canals would introduce tall, lattice steel structures that would draw more attention to the linearity of the canal and its industrial nature.

As seen in Figure 17-81, *Existing and Simulated Views of the East Canal from I-5 at Lambert Road*, construction of the canal would convert agricultural lands to a water conveyance facility and would require the removal of landscaping, vegetation, and structures and would introduce the raised canal embankments into the available scenic vista, as illustrated in “Simulated View”. The canal would be located 1.9 miles away from I-5, decreasing the visual prominence of the canal embankments due to distance. However, the embankments would appear larger the closer they get to I-5, as seen in the simulation when comparing the embankment on the left side of the photo to the right side of the photo, where the canal would be farther away. The canal would be most prominent near Twin Cities Road where the nearest embankment would be 0.75 mile away. The canal would limit views to trees on horizon line. In addition, the introduction of tall, steel 230 kV transmission lines paralleling the canal would add to the amount of utility lines seen from I-5. Overall, existing views from KOP 113 on I-5 toward the canal would be impaired by the removal of the buildings and vegetation and introduction of the canal and transmission lines and the Scenic Quality Rating would be reduced from an **E** to an **F**. This effect on scenic vistas would be adverse (see discussions under 17.3.1.2 and 17.3.1.3).

As seen in Figure 17-83, *Existing and Simulated Views of the East Canal from SR 4*, construction of the canal would displace agricultural lands. The canal would introduce a visual massing into viewshed, as illustrated in "Simulated View". The canal embankments would limit views to the foreground and prevent views to the middleground. Infrastructure and buildings in the foreground of this view act to limit vista views along this portion of SR 4 and screen views of the canal and are foreground focal points that draw attention somewhat away from focusing on the canal. The roadway surface would be more visible as it ascends to bridge over the canal. In addition, the introduction of tall, steel 69 kV transmission lines add to the amount of utility lines present and visually contrasts to existing views where the existing transmission lines consist of wooden utility poles. Overall, existing views from KOP 114 on SR 4 toward the canal would be impaired by the alteration of agricultural lands and introduction of the canal, bridging over the canal, and transmission lines that would alter the visual character of the roadway corridor. While the visual character would be lowered, the Scenic Quality Rating would remain an **F**. The effect of the east canal on the scenic vista would therefore not be adverse at this location (see discussions under 17.3.1.2 and 17.3.1.3). Spoil/borrow areas would take up a much greater area between Intake 1 and Dierssen Road than under Alternative 1A. These changes would have a much greater effect on available views from SR 160 and near the towns of Clarksburg and Hood, which have a higher concentration of residential, recreational, and roadway viewers. Spoil/borrow areas between Dierssen Road and King Island generally hug the canal alignment, so would appear to be more of a visual extension of canal construction. Spoil/borrow areas south of King Island to Byron Tract Forebay would cover large areas of land, like those in the northern portion of the alignment. There are fewer sensitive visual receptors in this area, but some residential, recreational, commercial, and roadway viewers are present. Spoil/borrow areas would result in large-scale, sunken or elevated landscape effects that would be visible in the scenic vistas available from these locations.

Bridges would create opportunities for vista views, but would also introduce elevated structures and raised visual masses that would disrupt the continuity of vista views by preventing free-flowing access from lands on either side of the bridges. This disrupted access would be both physical and visual.

Operations and maintenance activities in these areas would occur at existing facilities but would not require substantial new structures or changes to the landscape that would have noticeable visual effects on vistas. Overall, permanent effects on scenic vistas associated with the large scale of intakes, visual presence of large-scale borrow/spoil and RTM area landscape effects, and presence of new transmission lines may result in adverse effects on scenic vistas under Alternative 1B. Effects on scenic vistas under Alternative 1B would be greater than under Alternative 1A due to the extent of the canals visible on the landscape surface, landscape effects left behind by spoil/borrow areas, and introduction of bridges. Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

CEQA Conclusion: Permanent impacts on scenic vistas associated with Alternative 1B would be significant because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas. Impacts on scenic vistas under Alternative 1B would be greater than those under Alternative 1A due to the extent of the canals visible on the landscape surface, landscape effects left behind by spoil/borrow areas, and introduction of bridges.

Mitigation Measures AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because the changes would remain noticeable and introduce elements that do not blend with the existing visual character of the vista viewsheds. Thus, impacts on scenic vistas associated with Alternative 1B would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

NEPA Effects: Effects on scenic highways related to the presence of Intakes 1–5 and permanent access routes would be the same as those described for Alternative 1A, Impact AES-3 (see Figures 17-76, 17-77, and 17-78) and would result in an overall noticeable effect on viewers relative to their current experience and enjoyment of the study area's scenic resources. The intermediate forebay would not be constructed. However, bridges, canals, and spoil/borrow areas may compound adverse effects on available views from SR 160. These views would be greatly altered by the presence of a large-scale, concrete-lined and water-filled channel traversing the landscape. Spoil/borrow areas would take up a much greater area between Intake 1 and Dierssen Road under this alternative than under Alternative 1A. These changes would have a much greater effect on available views from SR 160. In addition, transmission lines following the canals would introduce tall, lattice steel structures that would draw more attention to the linearity of the canal and its industrial nature. Bridges that would be built on River/Scribner Road and a residential access road south of Intake 2 and west of North Stone Lake would be visible from SR 160. These bridges would introduce elevated structures into a landscape that is predominantly flat. This disrupted access would be both physical and visual. Because of the introduction of large obtrusive artificial elements into the viewshed of a designated scenic highway, this may be an adverse effect. Mitigation Measures AES-1a, AES-1c, and AES-1e would be available to address this effect.

***CEQA Conclusion*:** Impacts on scenic highways associated with the presence of conveyance facilities under Alternative 1B would be significant because visual elements associated with the alternative would conflict with the existing forms, patterns, colors, and textures visible from SR 160; would dominate riverfront views available from SR 160; and would alter broad views and the general nature of the visual experience presently available from SR 160 (thereby permanently damaging the scenic resources along the scenic highway). Impacts on scenic highways under Alternative 1B would be greater than those under Alternative 1A due to the extent of the canals visible on the landscape surface, landscape effects left behind by spoil/borrow areas, and introduction of bridges. Mitigation Measures AES-1a, AES-1c, and AES-1e would help to reduce these impacts through the application of aesthetic design treatments to all structures, to the extent feasible. However, impacts on visual resources resulting from damage to scenic resources that may be viewed from a state scenic highway would not be reduced to a less-than-significant level. Thus, overall, this impact on views from a scenic highway would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes to the visual character of a scenic highway viewshed that do not blend or are not in keeping with the existing visual environment. Thus, overall, this impact would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

NEPA Effects**:** Light and glare effects related to construction and operation of Intakes 1–5 and permanent access routes would be the same as those described for Alternative 1A, Impact AES-4. Intakes 1–5 and their associated pumping plants, surge towers, and facilities would create very noticeable effects relating to light and glare (see Figures 17-76 through 17-78). Effects related to shaft sites, RTM areas, and forebay would be substantially decreased. The spoils/borrow areas would be denuded of vegetation, similar to tilled agricultural fields. The intermediate forebay would not be constructed, but the presence of canals would increase glare over a greater area. Light and glare effects related to the presence of bridges, canals, and transmission lines during operation would differ under this alternative and would adversely affect daytime and nighttime views.

Daytime and Nighttime Glare

Sunlight would reflect off the new water surfaces created by the canals, creating new sources of glare where none presently exists. In addition, the use of nighttime lighting of conveyance facilities would result in nighttime glare of the lights reflecting off water surfaces. Because of the areal extent of the canals and introduction of a substantial glare-producing water body, this effect would be adverse.

Nighttime Lighting

In addition to the lighting of intakes and pumping plants described under Alternative 1A, Alternative 1B would necessitate the establishment of safety lighting along the canals as part of normal operations and maintenance, resulting in the introduction of new sources of light to parts of the study area that currently experience low levels of light and glare due to the lesser number of light/glare producers compared to those found in urban areas. Transmission lines would have lighting for aircraft safety that would draw attention to the alignment. Because the study area currently experiences low levels of light and because there would be a larger number of viewers in and around the waterways, intake structures, forebay, and canals, effects associated with nighttime light would be adverse. Mitigation Measures AES-4a through AES-4c are available to address these effects.

CEQA Conclusion**:** The impacts associated with light and glare under Alternative 1B are significant because there are a larger number of viewers in and around the waterways, intake structures, forebay, and canals; alternative facilities would create new sources of substantial nighttime lighting in the Delta above existing ambient light levels; and the study area currently experiences no or very low levels of light. Mitigation Measures AES-4a through AES-4c would help reduce impacts by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. However, these mitigation measures would not reduce impacts to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the new light and glare sources would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that do not blend or are not in keeping with the existing visual environment. Thus, the new sources of daytime and nighttime light and glare associated with Alternative 1B would result in significant and unavoidable impacts on public views in the project vicinity.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

***NEPA Effects*:** As described under Alternative 1A, once the facility is in operation, visible regular and periodic maintenance would be required on all major structures. Activities such as painting, cleaning, vegetation maintenance (removal), repairs, and inspections would be visible from viewpoints on water and land. Operations under Alternative 1B would be very similar to those under Alternative 1A. Although under Alternative 1B there would not be an intermediate forebay, the canal and Byron Tract Forebay would require cleaning and dredging. The greatest visual effects resulting from operations would be maintenance of the intakes and cleaning of the canals. However, these temporary maintenance activities are anticipated to occur within short periods of time, and effects would not be adverse.

***CEQA Conclusion*:** Maintenance of the conveyance facilities (i.e., intakes, canals, forebay, transmission lines, and operable barrier) would be required periodically and would involve painting, cleaning, and repair of structures; dredging at the Byron Tract forebay, cleaning canals; vegetation removal and care along embankments; canal inspection; and vegetation removal within transmission line ROWs. These visible maintenance activities would be temporary, intermittent, and short-term impacts and would be considered less than significant. Maintenance and operation of Alternative 1B, once constructed, would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanent reduce visually important features. Thus, overall, Alternative 1B would have a less-than-significant impact on existing visual quality and character during maintenance and operation of the facilities in the study area. No mitigation is required.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

***NEPA Effects*:** Under Alternative 1B, these conservation measures would be identical to those under Alternative 1A. Therefore, visual effects related to the existing visual character, scenic vistas, scenic highways, and light and glare resulting from conservation measures would be the same as those described under Alternative 1A, Impact AES-6. There may be site-specific, localized adverse visual effects. These conservation measures would alter the Delta landscape by incrementally, and substantially, introducing elements into the study area over time. CM2–CM22, when combined with CM1, could substantially alter the visual character of the study area, which is strongly identified by its agricultural and water-based Delta landscapes and communities. These landscapes and communities could be adversely affected by the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts associated with other development potentially setting a precedent for other development to occur. All of these effects would alter the visual character of the existing regional landscape.

Because of the unknown location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction, effects associated with implementation of CM2–CM22 are considered adverse. However, the visual characteristics of restored/enhanced landscapes would be similar to other areas of the Delta that are in a natural marsh or wetland state and more limited in extent than the widespread areas of agricultural development. In this sense, the BDCP would have an overall beneficial effect related to the enhancement and creation of scenic vistas in the Delta.

Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-4a through AES-4c are available to address effects from habitat restoration and enhancement actions under CM2–CM22. In addition, Mitigation Measures AES-6a and AES-6b are available to help reduce adverse visual effects. Upon development of site-specific design information and plans, additional mitigation measures may be identified to address action-specific adverse effects. However, each individual project under CM2–CM22 would undergo the environmental compliance process that would be used to determine what additional mitigation measures, would be deemed appropriate to reduce adverse effects and to assess compliance with relevant regulations. Finally, Mitigation Measure AES-6c is available to help inventory, classify, and protect the unique visual landscape of the Delta.

CEQA Conclusion: Implementation of conservation measures under Alternative 1B has the potential to affect existing visual quality and character, views of scenic vistas, views from scenic highways, and introduce new sources of light and glare in the study area. Impacts on the existing visual quality and character would be significant where use of large numbers of heavy construction equipment, changes in topography, and introduction of new structures or facilities where none presently exist would take place in the vicinity of sensitive receptors. However, because a number of factors that would determine the level of change are unknown—the location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction—impacts associated with implementation of CM2–CM22 on visual quality and character, scenic vistas, and light and glare sources, are considered significant. Because of the distance of implemented conservation measures from scenic highways, changes associated with these activities would not affect the visual quality along these scenic highway corridors and this impact would be less than significant. Site-specific restoration information and plans need to be developed before the site-specific effects on the existing visual character, scenic vistas, and light and glare can be determined.

Several mitigation measures are available to minimize the impacts on visual quality and character in the study area that could result from implementation of these conservation measures. As summarized below, these measures could be applied to individual restoration projects or actions as appropriate for the site-specific conditions and design considerations. In addition, each restoration project or action would undergo an environmental compliance process that would be used to determine what additional mitigation measures would be deemed appropriate to reduce significant effects. Mitigation Measures AES-1a through AES-1g could be applied to minimize impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. Mitigation Measures AES-4a through AES-4c could be used to reduce the effects of new light and glare sources by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. In addition, Mitigation Measures AES-6a and AES-6b would further minimize impacts on visual resources by undergrounding new or relocated utility lines, where feasible, and through an evaluation of an afterhours low-intensity and lights off policy. Finally, implementation of Mitigation Measure AES-6c would provide a strategy for the protection of the unique visual landscape of the Delta.

While some of the conservation measures could result in beneficial impacts through the restoration of natural habitat and these mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a less-than-significant level because of uncertainties associated with future implementation of CM2–CM22. In addition, the size of the study area and the nature of changes introduced by these conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend with or be in keeping with the existing visual environment. Thus, implementation of these conservation measures would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6b: Develop and Implement an Afterhours Low-Intensity and Lights Off Policy

Please refer to Mitigation Measure AES-6b under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6c: Implement a Comprehensive Visual Resources Management Plan for the Delta and study area

Please refer to Mitigation Measure AES-6c under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

***NEPA Effects*:** Constructing conveyance facilities and implementing CM2–CM22 under Alternative 1B could result in the potential for incompatibilities with plans and policies related to preserving the visual quality and character of the Delta. A number of plans and policies that coincide with the study area boundaries provide guidance for visual resource issues as overviewed in *Section 17.2, Regulatory Setting*. This overview of plan and policy compatibility evaluates whether Alternative 1B is compatible or incompatible with such enactments, rather than whether impacts are adverse or not adverse or significant or less than significant. If the incompatibility relates to an applicable plan, policy, or regulation adopted to avoid or mitigate visual effects, then an incompatibility might be indicative of a related significant or adverse effect under CEQA and NEPA, respectively. These physical effects of Alternative 1B on visual resources are addressed in Impacts AES-1 through AES-6, above. The following is a summary of compatibility evaluations related to visual resources for plans and policies relevant to the BDCP.

Conveyance Facilities

- The Sierra Resource and Cosumnes River Preserve Management Plans protect the Cosumnes River Preserve. Views within the Cosumnes River Preserve would not be affected by Alternative 1B because it is located east of I-5 and public views of the project site available from trails are obscured by riparian vegetation and I-5.
- The Suisun Marsh is protected by the San Francisco Bay Conservation and Development Commission Suisun Marsh Protection Plan. The eastern boundary of the Suisun Marsh extends to Collinsville Road in southern Solano County and falls within the westernmost portion of the study area. Views from Suisun Marsh would not be affected by this alternative because project features would be obscured by distance, the Altamont Hills, and intervening trees, infrastructure, and development.
- EBRPD parks within the study area include Browns Island, Antioch/Oakley, and Big Break Parks (East Bay Regional Park District 2013b). Views from these parks would not be affected by this alternative because project features would be obscured by distance, the Altamont Hills, and intervening trees, infrastructure, and development.
- The cities of Antioch, Brentwood, Oakley, Sacramento, Lathrop, Tracy, Rio Vista, Suisun City, and West Sacramento would not be affected by this alternative because there are no project features

within or visible from these cities. Therefore, this alternative would be consistent with the protection of visual resources covered under those general plans.

- Alternative 1B would involve construction of two 12 kV temporary power transmission lines along existing corridors in the city of Stockton: one through Brookside, north of West March Lane with a tie in at the Stagg Substation west of Feather River Drive, and the other through Rough and Ready Island, north of West Fyffe Street with a tie in at an existing substation east of North Hopper Street. These temporary lines would be in keeping with the existing visual character of the transmission corridor. Therefore, this alternative would be compatible with the protection of visual resources covered under the general plan.
- The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta, Delta Plan, Brannan Island and Franks Tract State Recreation Areas General Plan are all focused on the protection of resources, including visual resources, within the Delta. While constructing and operating conveyance facilities under this alternative are intended to provide ecosystem benefits in the Delta, constructing these conveyance elements could be considered incompatible with measures to protect the unique visual environment of the Delta because agricultural lands and riverbanks would be converted to other uses and the scale of construction would result in changes to the landscape that may be considered disruptive to the current Delta environment and visual quality.
- Contra Costa, Sacramento, San Joaquin, and Solano Counties all have policies to preserve and protect the scenic qualities of the Delta as summarized in *Section 17.2 Regulatory Setting*. In addition, Alameda, Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties are focused on the protection of visual resources and preserving agricultural lands. The general plans for these counties include policies for the protection of visual resources, trees, waterways, and landscaping and for avoiding impacts such as the alteration of landforms and the introduction of utilities and new sources of light. These policies seek to minimize visual impacts and enhance scenic qualities and also encourage placing utility lines underground. The conversion of agricultural lands and riverbanks to intake facilities, canal and related conveyance facility changes, landscape effects, and introduction of new lighting and transmission lines where none presently exist would substantially alter the landscape and could be considered incompatible with local policies aimed at protecting visual resources in these counties. Potential incompatibilities with Sacramento County and San Joaquin County policies would be most likely because most of the project features occur in these counties. Alameda and Contra Costa Counties have much smaller portions of project features that surround the Clifton Court Forebay. Yolo County would be affected by intakes located on the east bank of the Sacramento River that would affect views from South River Road. Alternative 1B would not be incompatible with Solano County policies because conveyance facilities would not be located in this area.

Other Conservation Measures

- The Yolo Bypass would be altered under CM2. Views of and from South River Road would not be affected. However, new fish screens, ladders, ramps, barriers, realignment of waterways, additional hydrologic monitoring stations, fish rearing pilot project at Knaggs Ranch, operations buildings, parking lots, access facilities such as roads and bridges, and modification, removal, and construction of berms, levees, and water control structures would result in changes to the landscape that may be incompatible with the Yolo County General Plan Policies LU-3.7, CC-1.2, CC-1.3, and CC-1.4 that protect scenic areas, the rural landscape character, and the night sky.

- CM4–CM11 would result in the conversion of primarily agricultural lands to restored or enhanced habitat across all 11 CZs, with specific focus on ROAs (refer to Figure 3-1). Therefore, associated regulations may apply. Restored areas would largely be natural habitat areas. Alterations such as channel and levee modifications, landform alteration from dredge spoil placement, and floodplain lowering could change the visual landscape. Restoring areas and views to natural, native habitat would likely be beneficial and would increase visual diversity. However, converting agricultural lands may be incompatible with one or more regulation protecting visual resources, although it may facilitate regulations set in place to protect and restore the Delta. If facilities, such as buildings, parking lots, or roads, are built, they would also have the potential to be incompatible with relevant regulations that protect scenic areas, the landscape character, the night sky, and the Delta.
- CM15 and CM21 would occur across all 11 CZs and could result in physical changes to the visual environment at a number of locations and where relevant regulations may apply. This may have beneficial or adverse effects based on the size of proposed projects and pre-and post-project conditions (e.g., if restoration is implemented and improves pre-project conditions or if natural vegetation is removed and replaced with rip rap or a new diversion structure that degrades pre-project conditions). Vegetation removal and replacement with rip rap or a diversion structure could be incompatible with be incompatible with relevant regulations that protect scenic areas, the landscape character, the night sky, and the Delta.
- CM16 could use sound, light, and bubbles at the head of the Delta Cross Channel and Georgiana Slough in Sacramento County; Old River, Turner Cut, and Columbia Cut in San Joaquin County, the Delta-Mendota Canal intake in Alameda County; and Clifton Court Forebay in Contra Costa County to direct fish passage. Small scale changes may be visible on the banks or in the water used for anchoring that could result in adverse visual effects, but it is anticipated that these changes would be consistent with County general plan policies that protect visual resources.
- Building a new hatchery that consists of a facility on the edge of the Sacramento River and a larger supplementation production facility nearby, through CM18, would result in visual changes and conversion of existing land uses along and near the river would be required to build facilities. These facilities could be located in Sacramento, Yolo, or Solano Counties and also fall within the Delta. Therefore, corresponding regulations may apply. The size and locations of these facilities are unknown, but it is likely that conversion of existing land uses, and potentially undeveloped land would alter the visual character along the Sacramento River and would be incompatible with one or more plans or policies for the protection of visual resources in these regions.

CEQA Conclusion: The incompatibilities identified in the analysis indicate the potential for a physical consequence to the environment. The physical effects they suggest are discussed in impacts AES-1 through AES-6 above, and no additional CEQA conclusion is required related to the compatibility of Alternative 1B with relevant plans and policies.

17.3.3.4 Alternative 1C—Dual Conveyance with West Alignment and Intakes W1–W5 (15,000 cfs; Operational Scenario A)

Table 17D-3, in Appendix 17D, *Permanent Impacts after Construction is Complete*, describes existing visual characteristics and the BDCP-related permanent effects of Alternative 1A on visual quality and character, scenic vistas, scenic roadways, and from light and glare sources after construction is complete and identifies the overall effect on viewers. Appendix E, *Permanent Features*, identifies the viewer groups and viewing locations that would be affected by permanent alternative features. Construction of all structural components under Alternative 1C could potentially occur over a period of 9 years. However, construction of each individual facility would be phased within that period and would occur over a shorter period. The estimated construction times for individual features are included below. The duration and schedule for construction of the water conveyance facilities (CM1) is provided in Appendix 3C, *Construction Assumptions for Water Conveyance Facilities*. In addition, Appendix 22A details the construction schedules and defines the length and sequence of each construction phase. A map and schematic depicting the conveyance facilities associated with Alternative 1C are provided in Figures 3-6 and 3-7.

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

Visual effects related to Intakes W1–W5, canals, spoils/borrow areas, RTM areas, shaft sites, Byron Tract Forebay, access roads, and transmission lines would be similar to those described under Alternative 1B, Impact AES-1. While site-specific locations of features under Alternative 1C differ, these components would result in the same visual effects across the same landscape types and would have the same or similar effects on visual resources and viewer groups (see Figures 17-76 through 17-78 and Figure 17-80 and Mapbook Figure M3-3). The conveyance facilities would be visible throughout the construction areas from various local roadways and would have concentrated viewers in some locations. Site-specific differences associated with the locations of the various features are described below.

Intakes

Intakes W1–W5 would essentially be built in the same order and size directly across the Sacramento River from the locations established for Intakes 1–5 (see Figures 17-76 through 17-78 and Mapbook Figure M3-3). Construction of each intake would take approximately 4 years to complete and would occur primarily Monday through Friday for up to 24 hours per day. In addition, because of the relatively high groundwater level at all intake locations and pumping plant sites, dewatering would be necessary to provide a dry workspace. Dewatering would also be needed where intake pipelines cross waterways and major irrigation canals west of the Sacramento River. Dewatering would take place 7 days per week and 24 hours per day and would be initiated 1–4 weeks prior to excavation. Dewatering would continue until excavation is completed and the construction site is protected from areas with high groundwater levels (Chapter 3, *Description of Alternatives*). Construction of the west intakes would be visible from SR 160. Intake W2 is immediately south of Clarksburg, exposing a concentration of sensitive viewers in the immediate vicinity surrounding the construction area to views of this intake (KOPs 1, 3, 4, 12, 16, 18, 30, 38, 49, and 56).

Canals

A conveyance pipeline between Intakes W1 and W2 would require wide, linear trenching to install. The proposed canal alignment starts near Intake W2, passes by Intakes W3–W5, and then heads west toward the Sacramento River Deep Water Ship Channel where it turns and heads south to the control structure 1 mile south of SR 220 (KOPs 16, 19, 20, 42, 158, 165, 168, 173, 174, 176, 177, 179, and 180). The conveyance alignment would be in a tunnel south from this structure for approximately 17 miles, where it would daylight back into a canal 0.5 mile south of East Cypress Road. The alignment continues south through a fairly developed area, crosses SR 4, and then jogs east to the Byron Tract Forebay, which would be constructed on the northwest side of the Clifton

Court Forebay (KOPs 184, 189, 192, 197, 198, 103, and 106). The top width of the isolated conveyance canal would be approximately 700 feet. See Table 3-7.

The canal is considered as northern and southern segments (i.e., separated by the tunnel) for the purposes of discussing visual impacts. Construction would be performed in a linear pattern over a 5-year period and would occur primarily Monday through Friday for up to 24 hours per day. In addition, because of the relatively high groundwater level along the canal alignment, dewatering would be necessary to provide a dry workspace for excavation of the canal foundation. Dewatering would take place 7 days per week and 24 hours per day and would be initiated 1–4 weeks prior to excavation. Dewatering would continue until excavation is completed and the construction site is protected from areas with high groundwater levels (Chapter 3, *Description of Alternatives*). Construction of the northern segment would require the relocation of several residents and razing of residential and agricultural buildings, although much of the area within the alignment is not developed. The southern canal segment, however, is more developed. The relocation of residents and businesses and the razing of residential, commercial, and agricultural buildings would be most concentrated immediately east of Byron Highway, between Delta Road and just south of SR 4 to 0.5 mile east of Bixler Road. This area has fairly dense rural development, in addition to nearby suburban development associated with Discovery Bay. This development increases the number of sensitive viewers that would be directly adjacent or very close to the construction activities associated with building the canal in this location. In addition, the canal would also be visible from Amtrak San Joaquin Oakland to Bakersfield route as it crosses by the canal north of Orwood Road and east of Byron Highway. The canal would be seen by passengers sitting in window seats on the north and south sides of the train. The canal would dead end to the north and south of the railway and siphon under the tracks. While trains would pass by at a high rate of speed, the canal would be a unique and prominent feature that would draw viewers' attentions as they pass by the feature that would appear as a brief pinch point in views. Transmission lines following the canals would introduce tall, lattice steel structures that would draw more attention to the linearity of the canal and its industrial nature.

As seen in Figure 17-84, *Existing and Simulated Views of the West Canal from SR 4*, construction of the canal would displace agricultural lands and agrarian infrastructure and require the removal of vegetation. The canal would introduce a prominent visual massing into viewshed, as illustrated in "Simulated View", which limits views to the foreground and prevents views to the suburban development, beyond. However, landscape appears more rural because suburban development is obscured by the large, human-made levee. Trees and shrubs lining the south side of SR 4 would also be removed to allow for construction. The roadway, roadway signage, and relocated wooden transmission lines would be more prominent because there would be no more vegetation to screen and reduce the apparent scale of these features. In addition, the roadway surface would be more visible as it ascends to a bridge over the canal. Overall, existing views from KOP 195 on SR 4 toward the canal would be impaired by the removal of the agrarian structures and vegetation and introduction of the canal, bridging over the canal, and transmission lines that would alter the visual character of the roadway corridor. The Scenic Quality Rating would be reduced from an **E** to an **F**. This effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3).

Byron Tract Forebay

Under Alternative 1C, the Byron Tract Forebay would take just over 3 years to construct. The visual effects of construction would be similar to those discussed under Alternatives 1A and 1B, Impact AES-1, except that the forebay would be constructed northwest of the Clifton Court Forebay (KOP

101). Construction activities would still be visible from Byron Highway, although from a different portion of the highway, and would be visible to more sensitive viewers because the forebay is south of the development in the Discovery Bay area. The Byron Tract Forebay would convert a large area of agricultural land but is beside the Clifton Court Forebay in an area that already has a visual predominance of water conveyance features. Nevertheless, construction of the forebay would result in noticeable changes associated with the presence of expanded conveyance features that could be viewed by sensitive receptors and from public viewing areas. This effect on visual quality and character would be considered adverse.

Bridges

Effects related to construction of bridges would occur within a 2-year period and would be similar to those described for Alternative 1B, Impact AES-1, because the proposed components would be similar but would be constructed in different locations west of the Sacramento River. Under Alternative 1C, up to sixteen bridges would be built on CR 142 and CR 161; SR 84, SR 220, and SR 4 (Taylor Lane); Jefferson Boulevard; Elevator, Delta, Orwood, Balfour, Point of Timber, Marsh Creek, and Bixler Roads; Cow Poke and Eagle Lanes; and Byron Highway (KOPs 165, 168, 177, 179, 184, 189, 192, and 198). Construction activities would introduce considerable heavy equipment and associated vehicles, including dozers, graders, scrapers, and trucks, into the viewsheds of public roadways and residential and commercial properties. Safety and directional signage would also be a visible element. Bridges would create opportunities for views to the surrounding area, but would also introduce noticeable elevated structures and raised visual masses that would disrupt the continuity of views by preventing free flowing access from lands on either side of the bridges. This disrupted access would be both physical and visual. Overall, construction of bridges would introduce a noticeable change from public viewing areas and could result in an adverse effect on existing visual quality and character in the study area.

Spoil and Borrow Areas

There would be vast areas of spoil/borrow near Intakes W1–W5 and the northern canal segment near the Sacramento River Deep Water Ship Channel (5,105 acres). Large spoil/borrow areas would also be situated along the southern canal segment (699 acres) and surrounding and south of the Byron Tract Forebay (967 acres) (KOPs 16, 19, 101, 162, 165, 168, 173, 176, 180, 189, and 192). Spoil/borrow areas along the northern canal segment may be visible from some locations along SR 160, and they would be visible from CH E9, SR 84, SR 220, and other smaller local roadways in the area. Spoil/borrow areas along the southern canal segment would be visible from multiple roadways in the area, as listed in Table 17D-3 in Appendix 17D. Railway viewers would also be able to see the spoil/borrow areas located to the north and south of the railway between Bixler Road and Byron Highway. These areas would be seen by passengers sitting in window seats on the north and south sides of the train. While trains would pass by at a high rate of speed, the landscape effects would be unique and prominent features that would draw viewers' attentions as they pass by them. Under Alternative 1C there would be a total of 6,770 acres of land affected by spoil/borrow areas compared to a total of 1,185 acres under Alternative 1A and 10,667 acres under Alternative 1B. In addition to spoils/borrow in the study area, offsite borrow sites may be needed to provide suitable materials for intake pipeline foundations, berms around RTM storage areas and canal embankments. It is not known how much import material would be needed and where it would come from. It is assumed that effects at import borrow sites would be similar in scale and have similar adverse visual effects to those within the study area. The spoils/borrow areas would introduce large sunken or elevated landforms into a landscape that is predominantly flat. Because of the scale of landscape-level changes, long-term nature of construction, proximity to sensitive receptors, removal of vegetation, and changes to topography through grading, and the introduction of noticeable changes that could be viewed by sensitive receptors and from public viewing areas, this effect on existing visual quality and character would be adverse.

Resusable Tunnel Material Areas

RTM areas would be more extensive under this alternative than under Alternative 1B but would be considerably less than under Alternative 1A. A dual-bore tunnel would be constructed from the control structure 1 mile south of SR 220 (KOP 180) to 0.5 mile south of East Cypress Road. RTM areas to store excess material from tunnel boring would be established near the control structure (181 acres), north of SR 12 on Brannan Island (334 acres) (KOP 181), and north of Delta Road (400 acres). Railway viewers would be able to see the RTM area located north of Delta Road, to the east. These areas would be seen by passengers sitting in window seats on the eastern side of the train. While trains would pass by at a high rate of speed, the landscape effects would be unique and prominent features that would draw viewers' attentions as they pass by them. Under Alternative 1C there would be a total of 914 acres of land affected by RTM areas compared to a total of 1,549 acres under Alternative 1A and 438 acres under Alternative 1B. RTM areas would be in use for close to 7.5 years; operations at these locations would take place Monday through Friday for up to 24 hours per day. If evening and nighttime construction activities are conducted they would require the use of extremely bright lights, which would adversely affect nighttime views of and from the construction area. Because the long-term nature of construction, proximity to sensitive receptors, and changes to topography through grading would introduce noticeable changes that could be viewed by sensitive receptors and from public viewing areas, this effect on visual quality and character would be adverse.

Shaft Sites

Effects related to shaft sites would be similar to those described for Alternative 1A, Impact AES-1. However, under Alternative 1C, there would be fewer shaft sites because the tunnel segment would be roughly half as long as under Alternative 1A (see Figure 17-80). Nevertheless, construction activities associated with the shaft sites would constitute an adverse effect on visual resources. Air vents and access shafts would be located on Twitchell and Bethel Islands and only the ones on Bethel Island would have fencing that would be visible in the foreground from Bethel Island Road, to the east.

Transmission Lines

Proposed transmission line corridors are shown in Mapbook Figure M3-3. Construction of 69 kV and 230 kV transmission lines would take less than 2 years and would require vegetation clearing along the linear ROWs. As under Alternative 1A, Impact AES-1, the effects would be adverse, although the specific locations of these lines would differ (see Figures 17-76, 17-77, and 17-80). The permanent transmission lines would be located in areas in where the landscape sensitivity levels range from low to high (KOPs 1, 3, 4, 15, 16, 18, 19, 20, 26, 30, 34, 38, 41, 42, 45, 49, 56, 158, 162, 165, 168, 173, 174, 176, 177, 179, and 180). Temporary power would be supplied by 12kV and 69 kV transmission lines that would tap into the Grand Island, EBMUD Pumping Plant, and Herdlyn Substations and would run parallel to existing transmission corridors. The 69 kV transmission lines tap into existing 115/69 kV lines off of SR 160, south of Grand Island Road, and north of SR 12. In addition to the 69 kV transmission lines, 12 kV lines would supply temporary power by tapping into existing transmission routes, or the newly constructed 69 kV lines, extending power to construction sites. These would be new lines and would generally not run parallel to existing transmission corridors.

Permanent power for Alternative 1C would be supplied by the Lambie Substation. Permanent 230 kV transmission lines are shown on Figure 3-25, indicated by the W–W1 (West) line for Alternative 1C, and would travel from the west to east where it terminates at the proposed pumping plant east of SR 84 and south of SR 220. The Lambie Substation is located approximately 1 mile northeast of SR 113/12, immediately north of Lambie Road and just west of Bithell Lane. The new substation would be located at an existing substation and would be of a similar industrial nature. This location would require more than 25 miles of 230 kV electrical transmission lines to connect this substation to the northern study area, would introduce a transmission corridor into the landscape where none presently exists, and would be visible from local roadways and SR 113/12, SR 84, and SR 220. New permanent 69 kV lines would start at the northern terminus of the 230 kV lines, at a new switchyard at the pumping plant, and parallel the canal and head north to supply power to the intakes. The proposed permanent 69 kV and 230 kV electrical power transmission lines would be carried on tall steel poles that would be highly visible landscape features contrasting strongly with their surroundings, resulting in adverse visual effects. The type of effects at these locations would be the same as described for Alternative 1A, Impact AES-1. The presence of temporary and permanent transmission lines would constitute an adverse effect where they do not run parallel to an existing transmission corridor.

Concrete Batch Plants and Fuel Stations

Effects related to concrete batch plants and fuel stations are similar to those described for Alternative 1A, Impact AES-1, except that locations would differ. Approximately 2-acre concrete plants would be located along the canal alignment adjacent to Willow Point Road, between Intakes 3 and 4 (KOP 42), and along the canal alignment approximately 1 mile north of the Byron Highway and an approximately 40-acre concrete plant along the canal alignment approximately 1 mile south of the SR 84/SR 220 junction (KOP 180) and along the canal alignment just north of Franks Tract. Approximately 2-acre fuel stations would be located along the canal alignment adjacent to Willow Point Road, between Intakes 3 and 4, along the canal alignment approximately 1 mile south of the SR 84/SR 220 junction, along the canal alignment just north of Franks Tract, and along the canal alignment approximately 1 mile north of the Byron Highway.

Construction of a concrete batch plant and fuel station along Willow Point Road would be immediately visible from the roadway with unobstructed views. Construction of the concrete batch plant and fuel station proposed between Intakes 3 and 4 would be partially screened by existing buildings and vegetation but would still be visible from CH E9, down the agricultural access road they are located along. Construction of a concrete batch plant and fuel station along the canal alignment approximately 1 mile south of the SR 84/SR 220 junction would occur in the middle of agricultural lands and not along or in immediate proximity to a roadway or waterway and would be seen by the nearby residence to the northwest, agricultural workers, and roadway users on SR 84. Construction of a concrete batch plant and fuel station along the canal alignment just north of Franks Tract would not have a substantial effect because it would not occur in proximity to sensitive visual receptors. Elements of construction may be visible to recreationists on False River and agricultural workers on Franks Tract, but these viewers would only have intermittent visual access and construction would be temporary in nature, lasting less than 2 years. Construction of a concrete batch plant and fuel station along the canal alignment approximately 1 mile north of the Byron Highway would be located in close proximity to similar industrial looking facilities that are associated with the Clifton Court Forebay and existing transmission lines that course the area. The primary viewers of this area are roadway travelers on Byron Highway that pass by the site at highway speeds that would have intermittent visual access of temporary construction activities that would last less than 2 years. Once the project is complete, these facilities would be removed.

Summary

***NEPA Effects*:** The construction period would last for 9 years and the intensity of activities in contrast to the current rural/agricultural nature of the area would be substantial. Construction of Intakes W1–W5 and accompanying pumping plants, surge towers, canals, borrow/spoil areas, RTM areas, forebay, access roads, transmission lines, and concrete batch plants and fuel stations would introduce visually discordant features in the foreground and middleground views of scenic vistas and from scenic roadways, and these elements would be visible to all viewer groups. The existing visual character would be greatly altered by the presence of a large-scale intakes and concrete-lined and water-filled channels traversing the landscape. In addition, construction of all these features has the potential to adversely affect wildlife viewing and the overall enjoyment and segment the visual landscape of the study area, reduce the amount of open space lands available to viewers, and eliminate valued visual resources within scenic views in the study area Because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, this effect is considered adverse. Effects on the existing visual quality and character under Alternative 1C would be greater than those under Alternatives 1A and 1B due to the extent of the canals visible on the landscape surface, landscape effects left behind by spoil/borrow areas, introduction of bridges, and closer proximity to a greater number of sensitive viewers. Overall, effects on the existing visual character associated with construction of Alternative 1C would be adverse because the alternative would result in reductions to the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes would be viewed by sensitive receptors and from public viewing areas. Mitigation Measures AES-1a through AES-1g are available to address these effects.

***CEQA Conclusion*:** Because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, the impacts associated with constructing Intakes W1–W5 and accompanying pumping plants, surge towers, canals, borrow/spoil areas, RTM areas, and forebays are considered significant. These changes under Alternative 1C would result in reductions to the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes would be viewed by sensitive receptors and from public viewing areas. Impacts on the existing visual quality and character under Alternative 1C would be greater than those under Alternative 1A and 1B due to the extent of the canals visible on the landscape, landscape effects left behind by spoil/borrow areas, introduction of bridges, and closer proximity to a greater number of sensitive viewers.

Mitigation Measures AES-1a through AES-1g would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, Alternative 1C would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

***NEPA Effects*:** Scenic vistas are mapped and included in Appendix Figure 17D-1. Effects on scenic vistas related to operation of Intakes W1–W5, canals, spoils/borrow areas, RTM areas, shaft sites, Byron Tract Forebay, permanent access roads, and transmission lines would be similar to those described under Alternative 1B, Impact AES-2 (see Figures 17-76, 17-77, and 17-79). While specific locations of components under Alternative 1C differ, they would introduce the same features across the same landscape types and would have the same or similar effects on visual resources and viewer groups. Site-specific differences associated with the location of the various features are described below.

Scenic vistas available from SR 160, SR 84, SR 220, SR 12, CH E9, SR 4, and Byron Highway would be noticeably altered by the presence of a large-scale intakes and concrete-lined and water-filled channels traversing the landscape. Intakes W1–W5 would be prominent visual features in vista views from SR 160 and CH E9. The spoil/borrow areas would mostly be visible in the vistas from CH E9, SR 84, SR 220, SR 4, and Byron Highway. The RTM area on Ryer Island would mostly be visible in the vista from SR 84 and SR 220, where there are few roadway users with low visual sensitivity to changes. The RTM area on Brannan Island would mostly be visible in the vista from SR 160 and SR 12, where there are few roadway users with low visual sensitivity to changes. The shaft sites would not be noticeable in views from scenic vistas due to viewing distance and their low-profile nature in a disturbed landscape.

The intermediate forebay would not be constructed. The Byron Tract Forebay would encompass 600 acres—the same size as Alternative 1A—but would be in a different location. Like Alternative 1A, it would convert a large area of agricultural land but would be next to the Clifton Court Forebay in an area that already has a visual predominance of water conveyance features. Nevertheless, construction of the forebay may result in adverse visual effects associated with the presence of expanded conveyance features in views.

Bridges would create opportunities for vista views, but would also introduce elevated structures and raised visual masses that would disrupt the continuity of vista views by preventing free-flowing access from lands on either side of the bridges. This disrupted access would be both physical and visual.

Operations and maintenance activities in these areas would occur at existing facilities but would not require substantial new structures or changes to the landscape that would have noticeable visual effects on vistas. Overall, permanent effects on scenic vistas associated with the large scale of intakes, visual presence of large-scale borrow/spoil and RTM area landscape effects, and presence of new transmission lines may result in adverse effects on scenic vistas under Alternative 1C. Effects on scenic vistas under Alternative 1C would be greater than those under Alternatives 1A and 1B due to the extent of the canals visible on the landscape, landscape effects left behind by spoil/borrow areas, introduction of bridges, and closer proximity to a greater number of sensitive viewers. Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

CEQA Conclusion: Permanent impacts on scenic vistas associated with operation of Alternative 1C would be significant because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas. Impacts on scenic vistas under Alternative 1C would be greater than under Alternatives 1A and 1B due to the extent of the canals visible on the landscape surface, landscape effects left behind by spoil/borrow areas, introduction of bridges, and closer proximity to a greater number of sensitive viewers.

Mitigation Measures AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because the changes would remain noticeable and introduce elements that do not blend with the existing visual character of the vista viewsheds. Thus, impacts on scenic vistas associated with Alternative 1C would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

NEPA Effects: Effects on scenic highways related to the presence of Intakes W1–W5, canals, spoils/borrow areas, bridges, permanent access roads, and transmission lines would be similar to those described under Alternatives 1A and 1B, Impact AES-3 (see Figures 17-76, 17-78, and 17-79) and would result in an overall noticeable effect on viewers relative to their current experience and enjoyment of the study area's scenic resources. While specific locations of features under Alternative 1C differ, these components would introduce the same features across the same landscape types and would have the same or similar effects on visual resources and viewer groups. The intakes would be visible from SR 160. However, bridges, canals, and spoil/borrow areas may or may not be visible from SR 160 because the work areas would be across the river at a lower ground elevation than the raised roadway, and the views could be obscured by intervening vegetation along SR 160 and CH E9. Where visible, views would be greatly altered by the presence of large-scale, concrete-lined and water-filled channels traversing the landscape, large sunken or elevated landforms, and elevated structures between the intakes. In addition, transmission lines following the canals would introduce tall, lattice steel structures that would draw more attention to the linearity of the canal and its industrial nature and would be visible from SR 160. Effects on scenic highways under Alternative 1C may not be as great as those under Alternative 1B, due to the potential for obscured views of the bridges, canals, and spoil/borrow areas from SR 160; however, these effects may be adverse. Mitigation Measures AES-1a, AES-1c, and AES-1e would be available to address these effects.

***CEQA Conclusion*:** Impacts on scenic highways associated with the presence of conveyance facilities under Alternative 1C would be significant because visual elements associated with the alternative would conflict with the existing forms, patterns, colors, and textures visible from SR 160; would dominate riverfront views available from SR 160; and would alter broad views and the general nature of the visual experience presently available from SR 160 (thereby permanently damaging the scenic resources along the scenic highway). Impacts on scenic highways under Alternative 1C may not be as great as Alternative 1B due to the potential for obscured views of the bridges, canals, and spoil/borrow areas from SR 160. However, the intakes would be very visible. Mitigation Measures AES-1a, AES-1c, and AES-1e would help to reduce these impacts through the application of aesthetic design treatments to all structures, to the extent feasible. However, impacts on visual resources resulting from damage to scenic resources that may be viewed from a state scenic highway would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes to the visual character of a scenic highway viewshed that do not blend or are not in keeping with the existing visual environment. Thus, overall, this impact would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

***NEPA Effects*:** Light and glare effects related to operation of Intakes W1–W5, canals, spoils/borrow areas, RTM areas, shaft sites, Byron Tract Forebay, permanent access roads, and transmission lines would be similar to those described for Alternatives 1A and 1B, Impact AES-4. Intakes W1–W5 and their associated pumping plants, surge towers, and facilities would create very noticeable effects relating to light and glare (see Figures 17-76 through 17-78). While specific locations of components under Alternative 1C would differ, these features would introduce the same light and glare effects across the same landscape types and would have the same or very similar effects on visual resources and viewer groups. The spoils/borrow areas would be denuded of vegetation, similar to tilled agricultural fields. The presence of canals and the Byron Tract Forebay would increase glare over a large area. Light and glare effects related to the operation of intakes, bridges, canals, forebay, and transmission lines during operation would adversely affect daytime and nighttime views.

Daytime and Nighttime Glare

Sunlight would reflect off the new water surfaces created by the canals, creating new sources of glare where none presently exists. In addition, the use of nighttime lighting of conveyance facilities would result in nighttime glare of the lights reflecting off water surfaces. Because of the extent of the canals and introduction of a substantial glare-producing water body, this effect would be adverse.

Nighttime Lighting

In addition to the lighting of intakes and pumping plants, Alternative 1C would entail the establishment of safety lighting along the canals as part of normal operations and maintenance and would result in the introduction of new sources of light to parts of the study area that currently experience low levels of light and glare. Transmission lines would be required to have lighting for aircraft safety, drawing attention to the alignment. Because the study area currently experiences low levels of light and because there are a larger number of viewers in and around the waterways, intake structures, forebay, and canals, effects associated with nighttime light would be adverse. Mitigation Measures AES-4a through AES-4c are available to address these effects.

***CEQA Conclusion*:** The impacts associated with light and glare under Alternative 1C are significant because there are a larger number of viewers in and around the waterways, intake structures, forebay, and canals; alternative facilities would increase the amount of nighttime lighting in the Delta above existing ambient light levels; and the study area currently experiences low levels of light Mitigation Measures AES-4a through AES-4c would help reduce impacts by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. However, these mitigation measures would not reduce impacts to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the new light and glare sources would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that do not blend or are not in keeping with the existing visual environment. Thus, the new sources of daytime and nighttime light and glare associated with Alternative 1C would result in significant and unavoidable impacts on public views in the project vicinity.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

***NEPA Effects*:** Operations under Alternative 1C would be very similar to those under Alternatives 1A and 1B and once the facility is in operation, visible regular and periodic maintenance would be required on all major structures. Activities such as painting, cleaning, vegetation maintenance (removal), repairs, and inspections would be visible from viewpoints on water and land. Although under Alternative 1C there would not be an intermediate forebay (same as Alternative 1B), the canal and Byron Tract Forebay would require cleaning and dredging. The greatest visual effects resulting from operations would be maintenance of the intakes and cleaning the canals. However, these temporary maintenance activities are anticipated to occur within short periods of time, and effects would not be adverse.

***CEQA Conclusion*:** Maintenance of the conveyance facilities (i.e., intakes, canals, forebay, transmission lines, and operable barrier) would be required periodically and would involve painting, cleaning, and repair of structures; dredging at the Byron Tract forebay, cleaning canals; vegetation removal and care along embankments; canal inspection; and vegetation removal within transmission line ROWs. These visible maintenance activities would be temporary, intermittent, and short-term impacts and would be considered less than significant. Maintenance and operation of Alternative 1C, once constructed, would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features. Thus, overall, Alternative 1C would have a less-than-significant impact on existing visual quality and character during maintenance and operation of the facilities in the study area. No mitigation is required.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

***NEPA Effects*:** Under Alternative 1C, these conservation measures would be identical to those under Alternatives 1A and 1B. Therefore, visual effects related to the existing visual character, scenic vistas, scenic highways, and light and glare resulting from conservation measures would be the same as those described under Alternative 1A, Impact AES-6. There may be site-specific, localized adverse visual effects. These conservation measures would alter the Delta landscape by incrementally, and substantially, introducing elements into the study area over time. CM2–CM22, when combined with CM1, could substantially alter the visual character of the study area, which is strongly identified by its agricultural and water-based Delta landscapes and communities. These landscapes and communities could be adversely affected by the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts associated with other development potentially setting a precedent for other development to occur. All of these effects would alter the visual character of the existing regional landscape.

Because of the unknown location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction, effects associated with implementation of CM2–CM22 are considered adverse. However, the visual characteristics of restored/enhanced landscapes would be similar to other areas of the Delta that are in a natural marsh or wetland state and more limited in extent than the widespread areas of agricultural development. In this sense, the BDCP would have an overall beneficial effect related to the enhancement and creation of scenic vistas in the Delta.

CEQA Conclusion: Implementation of conservation measures under Alternative 1C has the potential to affect existing visual quality and character, views of scenic vistas, views from scenic highways, and introduce new sources of light and glare in the study area. Impacts on the existing visual quality and character would be significant where use of large numbers of heavy construction equipment, changes in topography, and introduction of new structures or facilities where none presently exist would take place in the vicinity of sensitive receptors. However, because a number of factors that would determine the level of change are unknown—the location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction—impacts associated with implementation of CM2–CM22 on visual quality and character, scenic vistas, and light and glare sources, are considered significant. Because of the distance of implemented conservation measures from scenic highways, changes associated with these activities would not affect the visual quality along these scenic highway corridors and this impact would be less than significant. Site-specific restoration information and plans need to be developed before the site-specific effects on the existing visual character, scenic vistas, and light and glare can be determined.

Several mitigation measures are available to minimize the impacts on visual quality and character in the study area that could result from implementation of these conservation measures. As summarized below, these measures could be applied to individual restoration projects or actions as appropriate for the site-specific conditions and design considerations. In addition, each restoration project or action would undergo an environmental compliance process that would be used to determine what additional mitigation measures would be deemed appropriate to reduce significant effects. Mitigation Measures AES-1a through AES-1g could be applied to minimize impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. Mitigation Measures AES-4a through AES-4c could be used to reduce the effects of new light and glare sources by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. In addition, Mitigation Measures AES-6a and AES-6b would further minimize impacts on visual resources by undergrounding new or relocated utility lines, where feasible, and through an evaluation of an afterhours low-intensity and lights off policy. Finally, implementation of Mitigation Measure AES-6c would provide a strategy for the protection of the unique visual landscape of the Delta.

While some of the conservation measures could result in beneficial impacts through the restoration of natural habitat and these mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a less-than-significant level because of uncertainties associated with future implementation of CM2–CM22. In addition, the size of the study area and the nature of changes introduced by these conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend or be in keeping with the existing visual environment. Thus, implementation of these conservation measures would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6b: Develop and Implement an Afterhours Low-Intensity and Lights Off Policy

Please refer to Mitigation Measure AES-6b under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6c: Implement a Comprehensive Visual Resources Management Plan for the Delta and study area

Please refer to Mitigation Measure AES-6c under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

NEPA Effects**:** Constructing water conveyance facilities (CM1) and implementing CM2–CM22 under Alternative 1C could result in the potential for incompatibility with plans and policies related to preserving the visual quality and character of the Delta. A number of plans and policies that coincide with the study area boundaries provide guidance for visual resource issues as overviewed in *Section 17.2, Regulatory Setting*. This overview of plans and policies evaluates whether Alternative 1C is compatible with such enactments, rather than whether impacts are adverse or not adverse or significant or less than significant. If an incompatibility relates to an applicable plan, policy, or regulation adopted to avoid or mitigate visual effects, then it might be indicative of a related significant or adverse effect under CEQA and NEPA, respectively. These physical effects of Alternative 1C on visual resources are addressed in Impacts AES-1 through AES-6, above. The following is a summary of the compatibility evaluation related to visual resources for plans and policies relevant to the BDCP.

Conveyance Facilities

- The Sierra Resource and Cosumnes River Preserve Management Plans protect the Cosumnes River Preserve. Views within the Cosumnes River Preserve would not be affected by Alternative 1C because it is located east of I-5 and public views of the project site available from trails are obscured by riparian vegetation and I-5.
- The Suisun Marsh is protected by the San Francisco Bay Conservation and Development Commission Suisun Marsh Protection Plan. The eastern boundary of the Suisun Marsh extends to Collinsville Road in southern Solano County and falls within the westernmost portion of the study area. Views from Suisun Marsh could be altered by this alternative and potentially incompatible with Policy 8(g) of the plan because a new permanent transmission line would be constructed and follow Flannery, Goose Haven, and Lambie Roads and tie into the existing Lambie Substation.
- EBRPD parks within the study area include Browns Island, Antioch/Oakley, and Big Break Parks (East Bay Regional Park District 2013b). Views from these parks would not be affected by this alternative because project features would be obscured by distance, the Altamont Hills, and intervening trees, infrastructure, and development.
- The cities of Antioch, Brentwood, Oakley, Sacramento, Lathrop, Tracy, Rio Vista, Suisun City, and West Sacramento would not be affected by this alternative because there are no project features within or visible from these cities. Therefore, this alternative would be consistent with the protection of visual resources covered under those general plans.
- Alternative 1C would involve construction of two 12 kV temporary power transmission lines along existing corridors in the city of Stockton: one through Brookside, north of West March Lane with a tie in at the Stagg Substation west of Feather River Drive, and the other through Rough and Ready Island, north of West Fyffe Street with a tie in at an existing substation east of North Hopper Street. These temporary lines would be in keeping with the existing visual character of the transmission corridor. Therefore, this alternative would be consistent with the protection of visual resources covered under the general plan.

- The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta, Delta Plan, Brannan Island and Franks Tract State Recreation Areas General Plan are all focused on the protection of resources, including visual resources, within the Delta. While constructing and operating conveyance facilities under this alternative are intended to provide ecosystem benefits in the Delta, constructing these conveyance elements could be considered incompatible with measures to protect the unique visual environment of the Delta because agricultural lands and riverbanks would be converted to other uses and the scale of construction would result in changes to the landscape that may be considered disruptive to the current Delta environment and visual quality.

- Contra Costa, Sacramento, San Joaquin, and Solano Counties all have policies to preserve and protect the scenic qualities of the Delta as summarized in *Section 17.2 Regulatory Setting*. In addition, Alameda, Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties are focused on the protection of visual resources and preserving agricultural lands. The general plans for these counties include policies for the protection of visual resources, trees, waterways, and landscaping and for avoiding impacts such as the alteration of landforms and the introduction of utilities and new sources of light. These policies seek to minimize visual impacts and enhance scenic qualities and also encourage placing utility lines underground. The conversion of agricultural lands and riverbanks to intake facilities, canal and related conveyance facility changes, landscape effects, and introduction of new lighting and transmission lines where none presently exist would substantially alter the landscape and could be considered incompatible with local policies aimed at protecting visual resources in these counties. Potential incompatibilities with Yolo, Solano, and Contra Costa Counties policies would be most likely because most of the alternative features occur in these counties. Sacramento County would be affected by intakes located on the west bank of the Sacramento River that would affect views from SR 160 and views within the county would also be affected by the shaft site and RTM areas that are on Brannan Island and the shaft site on Twitchell Island. Alameda County has a much smaller portion of project features that tie into the Delta-Mendota Canal, south of Byron Highway. Alternative 1C would not be incompatible with San Joaquin County policies because alternative facilities would not be located in this area.

Other Conservation Measures

- The Yolo Bypass would be altered under CM2. Views of and from South River Road would not be affected. However, new fish screens, ladders, ramps, barriers, realignment of waterways, additional hydrologic monitoring stations, fish rearing pilot project at Knaggs Ranch, operations buildings, parking lots, access facilities such as roads and bridges, and modification, removal, and construction of berms, levees, and water control structures would result in changes to the landscape that may be incompatible with the Yolo County General Plan Policies LU-3.7, CC-1.2, CC-1.3, and CC-1.4 that protect scenic areas, the rural landscape character, and the night sky.

- CM4–CM11 would result in the conversion of primarily agricultural lands to restored or enhanced habitat across all 11 CZs, with specific focus on ROAs (refer to Figure 3-1). Therefore, associated regulations may apply. Restored areas would largely be natural habitat areas. Alterations such as channel and levee modifications, landform alteration from dredge spoil placement, and floodplain lowering could change the visual landscape. Restoring areas and views to natural, native habitat would likely be beneficial and would increase visual diversity. However, converting agricultural lands may be incompatible with one or more regulation protecting visual resources, although it may facilitate regulations set in place to protect and restore the Delta. If facilities, such as buildings, parking lots, or roads, are built, they would also have the potential to be incompatible with relevant regulations that protect scenic areas, the landscape character, the night sky, and the Delta.

- CM15 and CM21 would occur across all 11 CZs and could result in physical changes to the visual environment at a number of locations and where relevant regulations may apply. This may have beneficial or adverse effects based on the size of proposed projects and pre-and post-project conditions (e.g., if restoration is implemented and improves pre-project conditions or if natural vegetation is removed and replaced with rip rap or a new diversion structure that degrades pre-project conditions). Vegetation removal and replacement with rip rap or a diversion structure could be incompatible with be incompatible with relevant regulations that protect scenic areas, the landscape character, the night sky, and the Delta.

- CM16 could use sound, light, and bubbles at the head of the Delta Cross Channel and Georgiana Slough in Sacramento County; Old River, Turner Cut, and Columbia Cut in San Joaquin County, the Delta-Mendota Canal intake in Alameda County; and Clifton Court Forebay in Contra Costa County to direct fish passage. Small scale changes may be visible on the banks or in the water used for anchoring that could result in adverse visual effects, but it is anticipated that these changes would be compatible with county general plan policies that protect visual resources.

- Building a new hatchery that consists of a facility on the edge of the Sacramento River and a larger supplementation production facility nearby, through CM18, would result in visual changes and conversion of existing land uses along and near the river would be required to build facilities. These facilities could be located in Sacramento, Yolo, or Solano Counties and also fall within the Delta. Therefore, corresponding regulations may apply. The size and locations of these facilities are unknown, but it is likely that conversion of existing land uses, and potentially undeveloped land would alter the visual character along the Sacramento River and would be incompatible with one or more plans or policies for the protection of visual resources in these regions.

CEQA Conclusion: The incompatibilities identified in the analysis indicate the potential for a physical consequence to the environment. The physical effects they suggest are discussed in impacts AES-1 through AES-6, above and no additional CEQA conclusion is required related to the compatibility of Alternative 1C with relevant plans and policies.

17.3.3.5 Alternative 2A—Dual Conveyance with Pipeline/Tunnel and Five Intakes (15,000 CFS; Operational Scenario B)

Table 17D-1 in Appendix 17D, *Permanent Impacts after Construction is Complete*, describes existing visual characteristics and the BDCP-related permanent effects of Alternative 1A on visual quality and character, scenic vistas, scenic roadways, and from light and glare sources after construction is complete and identifies the overall effect on viewers. Appendix E, *Permanent Features*, identifies the viewer groups and viewing locations that would be affected by permanent alternative features. Effects would be similar for this alternative. The only differences between Alternative 2A and Alternative 1A pertaining to visual resources is the possible variance in the location of two intakes and the addition of an operable barrier at the head of Old River (see Figures 3-2 and 3-3). Alternative 2A would entail construction of Intakes 1–5 or Intakes 1–3, 6, and 7 (KOPs 62, 65, and 68). The effects associated with construction of Intakes 1–5 is discussed under Alternative 1A, and those effects would be the same if Intakes 1–5 would be constructed under this alternative.

Accordingly, only the effects related to the differing intake locations, specifically in regards to Intakes 6 and 7, and the operable barrier are discussed below.

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

NEPA Effects: Effects related to visual resources under this alternative would be similar to those described for Alternative 1A, Impact AES-1. Intakes 6 and 7 would be located farther south than Intakes 4 and 5, between Grand Island Road and the town of Vorden, 3.5–4 miles southwest of the intermediate forebay. Substantial effects on existing visual quality and character would result if intakes are constructed at these locations, as described for Alternative 1A. These effects would include introduction of considerable heavy equipment into the viewshed for all viewer groups where visual character was predominantly agricultural; removal of residences and other buildings dissecting parcels and disrupting the continuity of rural land; loss of landscaping and other mature vegetation; and topographical changes from earthwork. Construction dust would be addressed by using basic and enhanced fugitive dust control measures and measures for entrained road dust (Chapter 22, *Air Quality and Greenhouse Gases*, and Appendix 3B, *Environmental Commitments*). Revegetation and landscaping would be determined in accordance with DWR's WREM No. 30a, *Architectural Motif, State Water Project* and through coordination with local agencies through an architectural review process. In addition, in-water construction at all intake locations would result in adverse visual effects for recreationists and other water-based views because of the elongated viewing times during periods of boating-related congestion, temporary partial channel closures that could impede recreational opportunities and create negative visual perceptions of these facilities, and a reduced recreational experience due the industrial nature of views of such facilities. Because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, changes to topography through grading, and addition of large-scale industrial structures where none presently exist, the visual quality would be reduced and there would be noticeable to very noticeable changes. This effect is considered adverse (see discussions under 17.3.1.2 and 17.3.1.3).

The operable barrier at the head of Old River would take up to 3 years to construct, introducing a large structure across the existing channel that would limit physical and visual access to views of the horizon beyond. Mount Diablo would still be visible over the structure. Because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, this effect is considered adverse.

The primary features that would affect the existing visual quality and character under Alternative 2A, once the facility has been constructed, would be Intakes 1–5 (or Intakes 1–3, 6, and 7), the intermediate forebay and Byron Tract Forebay, transmission lines, the operable barrier, and resulting landscape effects left behind from spoil/borrow and RTM areas, and concrete batch plants and fuel stations. These changes would be most evident in the northern portion of the study area, which would undergo extensive changes from the permanent establishment of large industrial facilities and the supporting infrastructure along and surrounding the segment of the Sacramento River where the intakes would be situated.

Overall, construction would take 9 years, and the intensity of the activities in contrast to the current rural/agricultural nature of the area would be substantial. Construction of Intakes 1–5 (or Intakes 1–3, 6, and 7) and the accompanying pumping plants, surge towers, borrow/spoil areas, and RTM areas would introduce visually dominant and discordant features in the foreground and middleground views, and these elements would be very noticeable to all viewer groups. A construction shaft, tunnel work area, and RTM area and transmission lines would be visible from SR 4. While not officially designated state scenic highways, and therefore not discussed under *Impact AES-3: Permanent damage to scenic resources along a state scenic highway from construction of conveyance facilities*, this road is a San Joaquin County Scenic Route (see *Section 17.2.3.2, County and City General Plans – San Joaquin County*). These features would detract from the visual quality of views from these routes.

After construction, areas surrounding Intakes 1–5 (or Intakes 1–3, 6, and 7), spoil/borrow areas, RTM areas, shaft sites, and locations where concrete batch plants and fuel stations were located may be denuded of vegetation for a short period of time until the landscaping plans designed under WREM No. 30a are implemented. Once installed, the landscape would still appear to be denuded of vegetation or to have little vegetative cover because immature landscaping would be similar in appearance to tilled or newly planted agricultural fields. The sites would be in a transitional state, and over a period of a few years, plant species would mature and vegetation would recolonize the sites. These changes would happen in an area known for its open space, agricultural landscapes, and rural characteristics and would segment the visual landscape of the study area, reduce the amount of open space lands available to viewers, and eliminate valued visual resources. The effects of permanent access roads on visual resources would not be adverse. The effects of shaft site access hatches on the existing scenic character may be adverse. Operation of the intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and transmission lines would result in adverse effects on the existing visual character. In addition, construction of all of these features has the potential to negatively affect wildlife viewing and the overall enjoyment of scenic views in the study area. Therefore, because of the long-term nature of construction combined with the proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, this overall effect of conveyance facility construction on existing visual quality and character is considered adverse. Mitigation Measures AES-1a through AES-1g are available to address visual effects resulting from construction of Alternative 2A water conveyance facilities.

***CEQA Conclusion*:** Construction of Alternative 2A would substantially alter the existing visual quality and character present in the study area. The long-term nature of construction of the intakes, pipeline/tunnel, work areas, spoil/borrow and RTM areas, shaft sites, barge unloading facilities; presence and visibility of heavy construction equipment; proximity to sensitive receptors; relocation of residences and agricultural buildings; removal of riparian vegetation and other mature vegetation or landscape plantings; earthmoving and grading that result in changes to topography in areas that are predominantly flat; addition of large-scale industrial structures (intakes and related facilities); remaining presence of large-scale borrow/spoil and RTM area landscape effects; and introduction of tall, steel transmission lines would all contribute to this impact.

Overall, construction would last up to 9 years and would change the existing visual character in the vicinity of project elements from those of agricultural, rural residential, or riparian and riverine settings to areas involving heavy construction equipment, temporary construction structures, work crews, other support vehicles and other activities that would modify and disrupt short- and long-range views. These activities would be disruptive to some viewers. Once construction is complete, the alternative would result in the placement of large, multi-story industrial concrete and steel structures, pumping plants, fencing, and other similar anthropogenic features where none presently exist. Because of the landscape sensitivity and visual dominance of these features, these changes would result in reduced scenic quality throughout the study area (see 17.3.1.3, *Analysis of the Alternatives' Impact on Visual Resources*). Thus, Alternative 2A would result in significant impacts on the existing visual quality and character in the study area.

Mitigation Measures AES-1a through AES-1g would partially reduce impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, Alternative 2A would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities.

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

NEPA Effects**:** Scenic vistas are mapped and included in Appendix Figure 17D-1. Effects on scenic vistas under this alternative would be similar to those under Alternative 1A, with the exception of the possible variance in the location of two intakes and the addition of an operable barrier at the head of Old River. Intakes 6 and 7, located farther south, would affect vista views. Substantial visual effects would result from intake construction at these locations, as described for Alternative 1A, Impact AES-2. During construction the introduction of construction equipment and removal of vegetation would alter the scenic elements that contribute to the viewing experience from scenic vistas. The intakes would introduce visually dominant and discordant features in the foreground and middleground views in vistas that would be very noticeable to all viewer groups in areas of low to high landscape sensitivity levels. The operable barrier at the head of Old River would introduce a large structure across the existing channel that would limit physical and visual access to vista views toward Frank's Tract, beyond. Mount Diablo would still be visible over the structure. The large scale of intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, the operable barrier, and transmission lines may result in adverse effects on scenic vistas (see discussions under 17.3.1.2 and 17.3.1.3). Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

CEQA Conclusion**:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, the operable barrier, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measure AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 2A would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Resuable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

***NEPA Effects*:** Effects on state scenic highways under this alternative would be similar to those described for Alternative 1A, Impact AES-3. Intakes 1–5, the spoils/borrow and RTM area north of Intake 2, and the intermediate forebay would be immediately and prominently visible in the foreground from SR 160 and would result in an overall noticeable effect on viewers relative to their current experience and enjoyment of the study area's scenic resources along SR 160 and River Road, where the landscape sensitivity level is high. Intakes 6 and 7, if constructed, would also be visible from SR 160 and would result in the same adverse effects, only farther south. As described under Alternative 1A, the visual elements introduced by the intakes, spoil/borrow and RTM areas north of Intake 2, and intermediate forebay would conflict with the existing forms, patterns, colors, and textures along River Road and SR 160; would dominate riverfront views available from SR 160; and would alter broad views and the general nature of the visual experience presently available from River Road and SR 160. These changes would reduce the visual quality near intake structure locations and result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas. This effect would be adverse (see discussion under 17.3.1.2 and 17.3.1.3). The operable barrier on the head of Old River would not be visible from a scenic route. Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

***CEQA Conclusion*:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measures AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 2A would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

NEPA Effects**:** Effects resulting from light and glare under this alternative would be similar to those described for Alternative 1A, Impact AES-4. Intakes 1–5 and their associated pumping plants, surge towers, and facilities and the pumping plant at the intermediate forebay would create very noticeable effects relating to light and glare (Figures 17-76 through 17-78). Light building colors over a large surface area would reflect off of those surfaces and increase glare, especially when combined with the removal of vegetation that absorbs light, provides shade, and screens glare.

Sunlight would reflect off the new water surfaces of the forebay, creating new sources of glare where none presently exist. Nighttime construction could also result in headlights flashing into nearby residents' homes when construction vehicles are turning onto or off of construction access routes. Proposed surge towers would require the use of safety lights that would alert low-flying aircraft to the presence of these structures because of their height. If Intakes 6 and 7 were constructed, these facilities would result in the same adverse effects as Intakes 4 and 5, only areas farther south would be affected. The operable barrier at the head of Old River may have limited safety lighting. Overall, because the study area currently experiences low levels of light and because there are a larger number of viewers in and around the waterways, intake structures, operable barrier, and forebay that would be affected by these noticeable changes that contrast with the existing rural character, effects associated with new sources of daytime and nighttime light and glare are considered adverse. Mitigation Measures AES-4a through AES-4c are available to address these effects.

CEQA Conclusion**:** The impacts associated with light and glare under Alternative 2A are significant because there are a larger number of viewers in and around the waterways, intake structures, and intermediate forebay; BDCP facilities would increase the amount of nighttime lighting in the Delta above existing ambient light levels; and the study area currently experiences low levels of light because there are fewer light/glare producers than are typical in urban areas. Mitigation Measures AES-4a through AES-4c would help reduce these impacts by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences; however, these mitigation measures would not reduce impacts to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the new light and glare sources would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that do not blend or are not in keeping with the existing visual environment. Thus, the new sources of daytime and nighttime light and glare associated with Alternative 2A would result in significant and unavoidable impacts on public views in the project vicinity.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

***NEPA Effects*:** Effects on the visual environment through operations and maintenance of the water conveyance facilities (CM1) under this alternative would be similar to those described for Alternative 1A, Impact AES-5. Once the facility is in operation, visible regular and periodic maintenance would be required on all major structures, including the operable barrier at the head of Old River. Activities such as painting, cleaning, vegetation maintenance (removal), repairs, and inspections would be visible from viewpoints on water and land. If Intakes 6 and 7 are constructed, activities at these sites would result in the same effects as Intakes 4 and 5, only farther south. The greatest visual effects resulting from operations would be maintenance of the intakes and dredging the forebays. The operable barrier would also require periodic dredging. However, these temporary maintenance activities are anticipated to occur within a short period of time, and effects would not be adverse because the activities would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features.

***CEQA Conclusion*:** Maintenance of the conveyance facilities (i.e., intakes, tunnels, forebays and transmission lines) would be required periodically and would involve painting, cleaning, and repair of structures; dredging at forebays (at approximately 50-year intervals); vegetation removal and care along embankments; tunnel inspection; and vegetation removal within transmission line ROWs. These visible maintenance activities would be temporary, intermittent, and short-term impacts and would be considered less than significant. Maintenance and operation of Alternative 2A once constructed, would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features. Thus, overall, Alternative 2A would have a less-than-significant impact on existing visual quality and character during maintenance and operation of the facilities in the study area. No mitigation is required.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

***NEPA Effects*:** Under Alternative 2A, these conservation measures would be identical to those under Alternative 1A. Therefore, visual effects related to the existing visual character, scenic vistas, scenic highways, and light and glare resulting from implementation of CM2–CM22 would be the same as those described under Alternative 1A, Impact AES-6. There may be site-specific, localized adverse visual effects. These conservation measures would alter the Delta landscape by incrementally, and substantially, introducing elements into the study area over time. CM2–CM22, when combined with CM1, could substantially alter the visual character of the study area, which is strongly identified by its agricultural and water-based Delta landscapes and communities. These landscapes and communities could be adversely affected by the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts associated with other development potentially setting a precedent for other development to occur. All of these effects would alter the visual character of the existing regional landscape.

Because of the unknown location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction, effects associated with implementation of CM2–CM22 are considered adverse. However, the visual characteristics of restored/enhanced landscapes would be similar to other areas of the Delta that are in a natural marsh or wetland state and more limited in extent than the widespread areas of agricultural development. In this sense, the BDCP would have an overall beneficial effect related to the enhancement and creation of scenic vistas in the Delta.

Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-4a through AES-4c are available to address effects from habitat restoration and enhancement actions under CM2–CM22. In addition, Mitigation Measures AES-6a and AES-6b are available to help reduce adverse visual effects. Upon development of site-specific design information and plans, additional mitigation measures may be identified to address action-specific adverse effects. However, each individual project under CM2–CM22 would undergo the environmental compliance process that would be used to determine what additional mitigation measures, would be deemed appropriate to reduce adverse effects and to assess compliance with relevant regulations. Finally, Mitigation Measure AES-6c is available to help inventory, classify, and protect the unique visual landscape of the Delta.

CEQA Conclusion: Implementation of conservation measures under Alternative 2A has the potential to affect existing visual quality and character, views of scenic vistas, views from scenic highways, and introduce new sources of light and glare in the study area. Impacts on the existing visual quality and character would be significant where use of large numbers of heavy construction equipment, changes in topography, and introduction of new structures or facilities where none presently exist would take place in the vicinity of sensitive receptors. However, because a number of factors that would determine the level of change are unknown—the location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction—impacts associated with implementation of CM2–CM22 on visual quality and character, scenic vistas, and light and glare sources, are considered significant. Because of the distance of implemented conservation measures from scenic highways, changes associated with these activities would not affect the visual quality along these scenic highway corridors and this impact would be less than significant. Site-specific restoration information and plans need to be developed before the site-specific effects on the existing visual character, scenic vistas, and light and glare can be determined.

Several mitigation measures are available to minimize the impacts on visual quality and character in the study area that could result from implementation of these conservation measures. As summarized below, these measures could be applied to individual restoration projects or actions as appropriate for the site-specific conditions and design considerations. In addition, each restoration project or action would undergo an environmental compliance process that would be used to determine what additional mitigation measures would be deemed appropriate to reduce significant effects. Mitigation Measures AES-1a through AES-1g could be applied to minimize impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. Mitigation Measures AES-4a through AES-4c could be used to reduce the effects of new light and glare sources by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. In addition, Mitigation Measures AES-6a and AES-6b would further minimize impacts on visual resources by undergrounding new or relocated utility lines, where feasible, and through an evaluation of an afterhours low-intensity and lights off policy. Finally, implementation of Mitigation Measure AES-6c would provide a strategy for the protection of the unique visual landscape of the Delta.

While some of the conservation measures could result in beneficial impacts through the restoration of natural habitat and these mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a less-than-significant level because of uncertainties associated with future implementation of CM2–CM22. In addition, the size of the study area and the nature of changes introduced by these conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend or be in keeping with the existing visual environment. Thus, implementation of CM2–CM22 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6b: Develop and Implement an Afterhours Low-Intensity and Lights Off Policy

Please refer to Mitigation Measure AES-6b under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6c: Implement a Comprehensive Visual Resources Management Plan for the Delta and Study Area

Please refer to Mitigation Measure AES-6c under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

***NEPA Effects*:** Constructing conveyance facilities (CM1) and implementing CM2–CM22 under Alternative 2A would generally have the same potential for incompatibilities with one or more plans and policies related to preserving the visual quality and character of the Delta as described for Alternative 1A, Impact AES-7. Variation would result from two potentially different intake locations and inclusion of an operable barrier at the head of Old River. However, Intakes 6 and 7 and the operable barrier would fall under the same jurisdictions as discussed under Alternative 1A, and so, overall the potential for incompatibility is the same. As described under Alternative 1A, there would be potential for the alternative to be incompatible with plans and policies related to preserving the visual quality and character of the Delta (i.e., The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta, Delta Plan, Brannan Island and Franks Tract State Recreation Areas General Plan). In addition, with the exception of Solano County, the alternative may be incompatible with county general plan policies that protect visual resources in the study area.

CEQA Conclusion**:** The incompatibilities identified in the analysis indicate the potential for a physical consequence to the environment. The physical effects they suggest are discussed in impacts AES-1 through AES-6, above and no additional CEQA conclusion is required related to the compatibility of Alternative 2A with relevant plans and policies.

17.3.3.6 Alternative 2B—Dual Conveyance with East Alignment and Five Intakes (15,000 cfs; Operational Scenario B)

Table 17D-2 in Appendix 17D, *Permanent Impacts after Construction is Complete*, describes existing visual characteristics and the BDCP-related permanent effects of Alternative 1A on visual quality and character, scenic vistas, scenic roadways, and from light and glare sources after construction is complete and identifies the overall effect on viewers. Appendix E, *Permanent Features*, identifies the viewer groups and viewing locations that would be affected by permanent alternative features. Effects would be similar under Alternative 2B. Under Alternative 2B, the conveyance alignment from the intakes to the Byron Tract Forebay, along with the associated shaft sites, access road, transmission line, pumping plants, canals, and spoil/borrow and RTM areas would be identical to those under Alternative 1B. Conservation measures would be identical to those under Alternative 1A. The only differences between Alternative 2B and Alternative 1B pertaining to visual resources is the possible variance in the location of two intakes and the addition of an operable barrier at the head of Old River. Alternative 2B would entail construction of Intakes 1–5 or Intakes 1–3, 6, and 7 (KOPs 62, 65, and 68). The effects associated with construction of Intakes 1–5 is discussed in detail under Alternative 1B, and those effects would be the same if Intakes 1–5 would be constructed under this alternative. The effects associated with Intakes 6 and 7 and the operable barrier at the head of Old River would be the same as discussed under Alternative 2A. All other effects, including construction of Intakes 1–5 and other major features would be the same as under Alternative 1B.

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

NEPA Effects**:** Effects related to visual resources under this alternative would be similar to those described for Alternative 1B and Alternative 2A. Intakes 6 and 7 would be located farther south than Intakes 4 and 5, between Grand Island Road and the town of Vorden. The operable barrier at the head of Old River would take up to 3 years to construct, introducing a large structure across the existing channel that would limit physical and visual access to views of the horizon beyond. Mount Diablo would still be visible over the structure.

The construction period would last for 9 years and the intensity of the activities in contrast to the current rural/agricultural nature of the area would be substantial. Construction of Intakes 1–5 (or Intakes 1–3, 6, and 7) and the accompanying pumping plants, surge towers, canals, borrow/spoil areas, RTM areas, forebay, operable barrier, access roads, transmission lines, and concrete batch plants and fuel stations would introduce visually discordant features into foreground and middleground views with low to high landscape sensitivity level. These elements would introduce visually dominant features that would be very noticeable to all viewer groups and would segment the visual landscape of the study area, reduce the amount of open space lands available to viewers, and eliminate valued visual resources. Accordingly, because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, this effect on existing visual quality and character would be adverse. In San Joaquin County, the canal would be visible in the middleground from I-5; the canal and a bridge would cross West Eight Mile Road; and the canal, a bridge, and borrow/spoil areas would cross and be in foreground views from roads on Roberts Island north of SR 4 and SR 4. While not officially designated state scenic highways, and therefore not discussed under *Impact AES-3: Permanent damage to scenic resources along a state scenic highway from construction of conveyance facilities*, these roads are San Joaquin County Scenic Routes (see *Section 17.2.3.2, County and City General Plans – San Joaquin County*). These features would detract from the visual quality of views from these routes. In addition, construction of all features has the potential to adversely affect wildlife viewing and the overall enjoyment of scenic views in the study area. Effects on the existing visual character under Alternative 2B would be greater than under Alternative 2A due to the extent of the canals visible on the landscape surface, landscape effects left behind by spoil/borrow areas, and introduction of bridges.

Overall, effects on the existing visual character associated with construction of Alternative 2B would be adverse because the alternative would result in reductions to the visual quality in some locations and introduce dominant visual elements that would result in very noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes would be viewed by sensitive receptors and from public viewing areas. Mitigation Measures AES-1a through AES-1g are available to address visual effects resulting from construction of Alternative 2B water conveyance facilities.

CEQA Conclusion: Because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, the impacts associated with constructing intakes and the accompanying pumping plants, surge towers, canals, borrow/spoil areas, RTM areas, forebay, operable barrier, access roads, and transmission lines are considered significant. These changes under Alternative 2B would result in reductions to the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes would be viewed by sensitive receptors and from public viewing areas. Impacts on the existing visual quality and character under Alternative 2B would be greater than under Alternative 2A because of the extent of the canals visible on the landscape surface, landscape effects left behind by spoil/borrow areas, and introduction of bridges.

Mitigation Measures AES-1a through AES-1g would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, Alternative 2B would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

NEPA Effects: Scenic vistas are mapped and included in Appendix Figure 17D-1. Effects on scenic vistas under this alternative would be similar to those under Alternative 1B, with the exception of the possible variance in the location of two intakes and the addition of an operable barrier at the head of Old River, which would be similar to 2A. Intakes 6 and 7, located farther south, would affect vista views. Substantial visual effects would result from intake construction at these locations, as described for Alternative 1A, Impact AES-2. During construction the introduction of construction equipment and removal of vegetation would alter the scenic elements that contribute to the viewing experience from scenic vistas. The intakes would introduce visually dominant and discordant features in the foreground and middleground views in vistas that would be very noticeable to all viewer groups in areas of low to high landscape sensitivity levels. The operable barrier at the head of Old River would introduce a large structure across the existing channel that would limit physical and visual access to vista views toward Frank's Tract, beyond. Mount Diablo would still be visible over the structure. The large scale of intakes, the visual presence of large-scale borrow/spoil area landscape effects, the canals, the operable barrier, transmission lines, and introduction of bridges may result in adverse effects on scenic vistas (see discussions under 17.3.1.2 and 17.3.1.3). Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

CEQA Conclusion: Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil area landscape effects, the canals, the operable barrier, transmission lines and the introduction of bridges would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measure AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 2B would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

***NEPA Effects*:** Effects on state scenic highways under this alternative would be similar to those described for Alternatives 1A and 1B, Impact AES-3. Intakes 1–5, the spoils/borrow and RTM area north of Intake 2, and the intermediate forebay would be immediately and prominently visible in the foreground from SR 160 and would result in an overall noticeable effect on viewers relative to their current experience and enjoyment of the study area's scenic resources along SR 160 and River Road, where the landscape sensitivity level is high. Intakes 6 and 7, if constructed, would also be visible from SR 160 and would result in the same adverse effects, only farther south. As described under Alternative 1A, the visual elements introduced by the intakes, spoil/borrow and RTM areas north of Intake 2, and intermediate forebay would conflict with the existing forms, patterns, colors, and textures along River Road and SR 160; would dominate riverfront views available from SR 160; and would alter broad views and the general nature of the visual experience presently available from River Road and SR 160. These changes would reduce the visual quality near intake structure locations and result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas. This effect would be adverse (see discussion under 17.3.1.2 and 17.3.1.3). The operable barrier on the head of Old River would not be visible from a scenic route. Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

***CEQA Conclusion*:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measures AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 2B would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

***NEPA Effects*:** Effects resulting from light and glare under this alternative would be similar to those described for Alternatives 1A, Impact AES-4. Intakes 1–5 and their associated pumping plants, surge towers, and facilities and the pumping plant at the intermediate forebay would create very noticeable effects relating to light and glare (Figures 17-76 through 17-78). Light building colors over a large surface area would reflect off of those surfaces and increase glare, especially when combined with the removal of vegetation that absorbs light, provides shade, and screens glare. Sunlight would reflect off the new water surfaces of the forebay, creating new sources of glare where none presently exist. Nighttime construction could also result in headlights flashing into nearby residents' homes when construction vehicles are turning onto or off of construction access routes. Proposed surge towers would require the use of safety lights that would alert low-flying aircraft to the presence of these structures because of their height. If Intakes 6 and 7 were constructed, these facilities would result in the same adverse effects as Intakes 4 and 5, only areas farther south would be affected. The operable barrier at the head of Old River may have limited safety lighting. Overall, because the study area currently experiences low levels of light and because there are a larger number of viewers in and around the waterways, intake structures, operable barrier, and forebay that would be affected by these noticeable changes that contrast with the existing rural character, effects associated with new sources of daytime and nighttime light and glare are considered adverse. Mitigation Measures AES-4a through AES-4c are available to address these effects.

***CEQA Conclusion*:** The impacts associated with light and glare under Alternative 2B are significant because there are a larger number of viewers in and around the waterways, intake structures, and intermediate forebay; BDCP facilities would increase the amount of nighttime lighting in the Delta above existing ambient light levels; and the study area currently experiences low levels of light because there are fewer light/glare producers than are typical in urban areas. Mitigation Measures AES-4a through AES-4c would help reduce these impacts by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences; however, these mitigation measures would not reduce impacts to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the new light and glare sources would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that do not blend or are not in keeping with the existing visual environment. Thus, the new sources of daytime and nighttime light and glare associated with Alternative 2B would result in significant and unavoidable impacts on public views in the project vicinity.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

***NEPA Effects*:** Effects on the visual environment through operations and maintenance of the water conveyance facilities (CM1) under this alternative would be similar to those described for Alternative 1A and 1B, Impact AES-5. Once the facility is in operation, visible regular and periodic maintenance would be required on all major structures, including the operable barrier at the head of Old River. Activities such as painting, cleaning, vegetation maintenance (removal), repairs, and inspections would be visible from viewpoints on water and land. If Intakes 6 and 7 are constructed, activities at these sites would result in the same effects as Intakes 4 and 5, only farther south. Although under Alternative 2B there would not be an intermediate forebay, the canal, operable barrier on the head of Old River, and Byron Tract Forebay would require cleaning and periodic dredging. The greatest visual effects resulting from operations would be maintenance on the intakes and cleaning the canals. However, these temporary maintenance activities are anticipated to occur within short periods of time, and effects would not be adverse because the activities would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features.

CEQA Conclusion: Maintenance of the conveyance facilities (i.e., intakes, canals, forebay, transmission lines, and operable barrier) would be required periodically and would involve painting, cleaning, and repair of structures; dredging at the Byron Tract Forebay and operable barrier, cleaning canals; vegetation removal and care along embankments; canal inspection; and vegetation removal within transmission line ROWs. These visible maintenance activities would be temporary, intermittent, and short-term impacts and would be considered less than significant. Maintenance and operation of Alternative 2B, once constructed, would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanent reduce visually important features. Thus, overall, Alternative 2B would have a less-than-significant impact on existing visual quality and character during maintenance and operation of the facilities in the study area. No mitigation is required.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

NEPA Effects: Under Alternative 2B, these conservation measures would be identical to those under Alternative 1A. Therefore, visual effects related to the existing visual character, scenic vistas, scenic highways, and light and glare resulting from implementation of CM2–CM22 would be the same as those described under Alternative 1A, Impact AES-6. There may be site-specific, localized adverse visual effects. These conservation measures would alter the Delta landscape by incrementally, and substantially, introducing elements into the study area over time. CM2–CM22, when combined with CM1, could substantially alter the visual character of the study area, which is strongly identified by its agricultural and water-based Delta landscapes and communities. These landscapes and communities could be adversely affected by the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts associated with other development potentially setting a precedent for other development to occur. All of these effects would alter the visual character of the existing regional landscape.

Because of the unknown location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction, effects associated with implementation of CM2–CM22 are considered adverse. However, the visual characteristics of restored/enhanced landscapes would be similar to other areas of the Delta that are in a natural marsh or wetland state and more limited in extent than the widespread areas of agricultural development. In this sense, the BDCP would have an overall beneficial effect related to the enhancement and creation of scenic vistas in the Delta.

Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-4a through AES-4c are available to address effects from habitat restoration and enhancement actions under CM2–CM22. In addition, Mitigation Measures AES-6a and AES-6b are available to help reduce adverse visual effects. Upon development of site-specific design information and plans, additional mitigation measures may be identified to address action-specific adverse effects. However, each individual project under CM2–CM22 would undergo the environmental compliance process that would be used to determine what additional mitigation measures, would be deemed appropriate to reduce adverse effects and to assess compliance with relevant regulations. Finally, Mitigation Measure AES-6c is available to help inventory, classify, and protect the unique visual landscape of the Delta.

CEQA Conclusion: Implementation of conservation measures under Alternative 2B has the potential to affect existing visual quality and character, views of scenic vistas, views from scenic highways, and introduce new sources of light and glare in the study area. Impacts on the existing visual quality and character would be significant where use of large numbers of heavy construction equipment, changes in topography, and introduction of new structures or facilities where none presently exist would take place in the vicinity of sensitive receptors. However, because a number of factors that would determine the level of change are unknown—the location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction—impacts associated with implementation of CM2–CM22 on visual quality and character, scenic vistas, and light and glare sources, are considered significant. Because of the distance of implemented conservation measures from scenic highways, changes associated with these activities would not affect the visual quality along these scenic highway corridors and this impact would be less than significant. Site-specific restoration information and plans need to be developed before the site-specific effects on the existing visual character, scenic vistas, and light and glare can be determined.

Several mitigation measures are available to minimize the impacts on visual quality and character in the study area that could result from implementation of these conservation measures. As summarized below, these measures could be applied to individual restoration projects or actions as appropriate for the site-specific conditions and design considerations. In addition, each restoration project or action would undergo an environmental compliance process that would be used to determine what additional mitigation measures would be deemed appropriate to reduce significant effects. Mitigation Measures AES-1a through AES-1g could be applied to minimize impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. Mitigation Measures AES-4a through AES-4c could be used to reduce the effects of new light and glare sources by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. In addition, Mitigation Measures AES-6a and AES-6b would further minimize impacts on visual resources by undergrounding new or relocated utility lines, where feasible, and through an evaluation of an afterhours low-intensity and lights off policy. Finally, implementation of Mitigation Measure AES-6c would provide a strategy for the protection of the unique visual landscape of the Delta.

While some of the conservation measures could result in beneficial impacts through the restoration of natural habitat and these mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a less-than-significant level because of uncertainties associated with future implementation of CM2–CM22. In addition, the size of the study area and the nature of changes introduced by these conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend or be in keeping with the existing visual environment. Thus, implementation of CM2–CM22 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6b: Develop and Implement an Afterhours Low-Intensity and Lights Off Policy

Please refer to Mitigation Measure AES-6b under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6c: Implement a Comprehensive Visual Resources Management Plan for the Delta and Study Area

Please refer to Mitigation Measure AES-6c under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

***NEPA Effects*:** Constructing conveyance facilities (CM1) and implementing CM2–CM22 under Alternative 2B would generally have the same potential for incompatibilities with one or more plans and policies related to preserving the visual quality and character of the Delta as described for Alternative 1B, Impact AES-7. Intakes 6 and 7 would be located farther south than Intakes 4 and 5, between Grand Island Road and the town of Vorden, and the operable barrier would be at the head of Old River. These features would fall under the same jurisdictions as discussed under Alternative 1B, and so, overall the potential for incompatibility is the same. As described under Alternative 1B, there would be potential for the alternative to be incompatible with plans and policies related to preserving the visual quality and character of the Delta (i.e., The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta, Delta Plan, Brannan Island and Franks Tract State Recreation

Areas General Plan). In addition, with the exception of Solano County, the alternative may be incompatible with county general plan policies that protect visual resources in the study area.

***CEQA Conclusion*:** The incompatibilities identified in the analysis indicate the potential for a physical consequence to the environment. The physical effects they suggest are discussed in impacts AES-1 through AES-6, above and no additional CEQA conclusion is required related to the compatibility of Alternative 2B with relevant plans and policies.

17.3.3.7 Alternative 2C—Dual Conveyance with West Alignment and Intakes W1–W5 (15,000 cfs; Operational Scenario B)

Table 17D-3 in Appendix 17D, *Permanent Impacts after Construction is Complete*, describes existing visual characteristics and the BDCP-related permanent effects of Alternative 1A on visual quality and character, scenic vistas, scenic roadways, and from light and glare sources after construction is complete and identifies the overall effect on viewers. Appendix E, *Permanent Features*, identifies the viewer groups and viewing locations that would be affected by permanent alternative features. Effects would be similar for Alternative 2C (see Figures 3-6 and 3-7 and Mapbook Figure M3-3). Under Alternative 2C, Intakes W1–W5, the conveyance alignment from the intakes to the Byron Tract Forebay, along with the associated shaft sites, access road, transmission line, pumping plants, canals, and spoil/borrow and RTM areas would be identical to those under Alternative 1C. Conservation measures would be identical to those under Alternative 1A. The only difference between Alternative 1C and Alternative 2C in the context of visual resources is the addition of an operable barrier at the head of Old River. The location of the operable barrier is the same as under Alternative 2A and, therefore, the visual effects of the operable barrier on visual resources would be the same as discussed under Alternative 2A.

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

***NEPA Effects*:** The construction period would last up to 9 years and the intensity of activities in contrast to the current rural/agricultural nature of the area would be substantial. Construction of Intakes W1–W5 and accompanying pumping plants, surge towers, canals, borrow/spoil areas, RTM areas, forebay, operable barrier, access roads, and transmission lines would introduce visually discordant features in the foreground and middleground views of scenic vistas and from scenic roadways, and these elements would be visible to all viewer groups. The existing visual character would be greatly altered by the presence of large-scale intakes and concrete-lined and water-filled channels traversing the landscape. In addition, construction of all features has the potential to adversely affect wildlife viewing and the overall enjoyment and segment the visual landscape of the study area, reduce the amount of open space lands available to viewers, and eliminate valued visual resources within scenic views in the study area.

After construction, areas surrounding Intakes W1–W5, spoil/borrow areas, RTM areas, and shaft sites may be denuded of vegetation for a short period of time until the landscaping plans designed under WREM No. 30a are implemented. Once installed, the landscape would still appear to be denuded of vegetation from a distance because of immature planted vegetation would be similar in appearance to tilled or newly planted agricultural fields. The operable barrier at the head of Old River would take up to 3 years to construct, introducing a large structure across the existing channel that would limit physical and visual access to views of the horizon beyond. Mount Diablo would still be visible over the structure.

Because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, this effect is considered adverse. Effects on the existing visual quality and character under Alternative 2C would be greater than those under Alternatives 2A and 2B because of the extent of the canals visible on the landscape surface, landscape effects left behind by spoil/borrow areas, introduction of bridges, and closer proximity to a greater number of sensitive viewers. Overall, effects on the existing visual character associated with construction of Alternative 2C would be adverse because the alternative would result in reductions to the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes would be viewed by sensitive receptors and from public viewing areas. Mitigation Measures AES-1a through AES-1g are available to address these effects.

***CEQA Conclusion*:** Because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, the impacts associated with constructing Intakes W1–W5 and accompanying pumping plants, surge towers, canals, borrow/spoil areas, RTM areas, the operable barrier, and forebay are considered significant. These changes under Alternative 2C would result in reductions to the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes would be viewed by sensitive receptors and from public viewing areas. Impacts on the existing visual character under Alternative 2C would be greater than those under Alternatives 2A and 2B due to the extent of the canals visible on the landscape, landscape effects left behind by spoil/borrow areas, introduction of bridges, and closer proximity to a greater number of sensitive viewers.

Mitigation Measures AES-1a through AES-1g would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, Alternative 2C would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

NEPA Effects**:** Scenic vistas are mapped and included in Appendix Figure 17D-1. Overall, permanent effects on scenic vistas associated with operation of Alternative 2C may be adverse. During construction the introduction of construction equipment and removal of vegetation would alter the scenic elements that contribute to the viewing experience from scenic vistas. The intakes would introduce visually dominant and discordant features in the foreground and middleground views in vistas that would be very noticeable to all viewer groups in areas of low to high landscape sensitivity levels. As under Alternatives 2A and 2B, the operable barrier at the head of Old River would introduce a large structure across the existing channel that would limit physical and visual access to vista views toward Frank's Tract, beyond. Mount Diablo would still be visible over the structure. The large scale of intakes, the visual presence of large-scale borrow/spoil area landscape effects, the canals, the operable barrier, transmission lines and introduction of bridges may result in adverse effects on scenic vistas (see discussions under 17.3.1.2 and 17.3.1.3). Effects on scenic vistas under Alternative 2C would be greater than those under Alternatives 2A and 2B (Impact AES-2) because of the extent of the canals visible on the landscape, landscape effects left behind by spoil/borrow areas, introduction of bridges, and closer proximity to a greater number of sensitive viewers. Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

CEQA Conclusion**:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil area landscape effects, the canals, the operable barrier, transmission lines and introduction of bridges would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas. Impacts on scenic vistas under Alternative 2C would be greater than under Alternatives 2A and 2B due to the extent of the canals visible on the landscape surface, landscape effects left behind by spoil/borrow areas, introduction of bridges, and closer proximity to a greater number of sensitive viewers.

Mitigation Measures AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because the changes would remain noticeable and introduce elements that do not blend with the existing visual character of the vista viewsheds. Thus, impacts on scenic vistas associated with Alternative 2C would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

NEPA Effects**:** Effects on scenic highways related to the presence of Intakes W1–W5, canals, spoils/borrow areas, bridges, permanent access roads, and transmission lines would be similar to those described under Alternative 1C, Impact AES-3, with the addition of the operable barrier at the head of Old River and would result in an overall noticeable effect on viewers relative to their current experience and enjoyment of the study area's scenic resources. The intakes would be visible from SR 160. However, bridges, canals, and spoil/borrow areas may or may not be visible from SR 160 because the work areas would be across the river at a lower ground elevation than the raised roadway, and the views could be obscured by intervening vegetation along SR 160 and CH E9. Where visible, views would be greatly altered by the presence of large-scale, concrete-lined and water-filled channels traversing the landscape, large sunken or elevated landforms, and elevated structures between the intakes. In addition, transmission lines following the canals would introduce tall, lattice steel structures that would draw more attention to the linearity of the canal and its industrial nature and would be visible from SR 160. Effects on scenic highways under Alternative 2C may not be as great as those under Alternative 2B, due to the potential for obscured views of the bridges, canals, and spoil/borrow areas from SR 160; however, these effects may be adverse. Mitigation Measures AES-1a, AES-1c, and AES-1e would be available to address these effects.

CEQA Conclusion**:** Impacts on scenic highways associated with the presence of conveyance facilities under Alternative 2C would be significant because visual elements associated with the alternative would conflict with the existing forms, patterns, colors, and textures visible from SR 160; would dominate riverfront views available from SR 160; and would alter broad views and the general nature of the visual experience presently available from SR 160 (thereby permanently damaging the scenic resources along the scenic highway). Impacts on scenic highways under Alternative 2C may not be as great as those under Alternative 2B due to the potential for obscured views of the bridges, canals, and spoil/borrow areas from SR 160. However, the intakes would be very visible and result in a very noticeable change in the viewshed. Mitigation Measures AES-1a, AES-1c, and AES-1e would help to reduce these impacts through the application of aesthetic design treatments to all structures, to the extent feasible. However, impacts on visual resources resulting from damage to scenic resources that may be viewed from a state scenic highway would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes to the visual character of a scenic highway viewshed that do not blend or are not in keeping with the existing visual environment. Thus, overall, this impact would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

***NEPA Effects*:** Light and glare effects related to operation of Intakes W1–W5, canals, spoils/borrow areas, RTM areas, shaft sites, Byron Tract Forebay, permanent access roads, and transmission lines would be the same as those described for Alternative 1C, Impact AES-4. Intakes W1–W5 and the associated pumping plants, surge towers, and facilities would create very noticeable effects relating to light and glare (Figures 17-76 through 17-78). Light building colors over a large surface area would reflect off of those surfaces and increase glare, especially when combined with the removal of vegetation that absorbs light, provides shade, and screens glare. Sunlight would reflect off the new water surfaces of the canals, creating new sources of glare where none presently exist. Because of the extent of the canals and introduction of a substantial glare-producing water body, the effect associated with daytime and nighttime glare is considered adverse. Nighttime construction could also result in headlights flashing into nearby residents' homes when construction vehicles are turning onto or off of construction access routes. Proposed surge towers would require the use of safety lights that would alert low-flying aircraft to the presence of these structures because of their height. The operable barrier at the head of Old River may have limited safety lighting. Overall, because the study area currently experiences low levels of light and because there are a larger number of viewers in and around the waterways, intake structures, operable barrier, forebay, and canals, that would be affected by these noticeable changes that contrast with the existing rural character, effects associated with new sources of daytime and nighttime light and glare are considered adverse. Mitigation Measures AES-4a through AES-4c are available to address these effects.

***CEQA Conclusion*:** The impacts associated with light and glare under Alternative 2C are significant because there are a larger number of viewers in and around the waterways, intake structures, forebay, and canals; alternative facilities would increase the amount of nighttime lighting in the Delta above existing ambient light levels; and the study area currently experiences low levels of light. Mitigation Measures AES-4a through AES-4c would help reduce impacts by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. However, these mitigation measures would not reduce impacts to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the new light and glare sources would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that do not blend or are not in keeping with the existing visual environment. Thus, the new sources of daytime and nighttime light and glare associated with Alternative 2C would result in significant and unavoidable impacts on public views in the project vicinity.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

***NEPA Effects*:** Effects on the visual environment through operations and maintenance of the water conveyance facilities (CM1) under this alternative would be similar to those described for Alternatives 1A and 1C, Impact AES-5. Once the facility is in operation, visible regular and periodic maintenance would be required on all major structures, including the operable barrier at the head of Old River. Activities such as painting, cleaning, vegetation maintenance (removal), repairs, and inspections would be visible from viewpoints on water and land. Although under Alternative 2C there would not be an intermediate forebay, the canal, operable barrier on the head of Old River, and Byron Tract Forebay would require cleaning and periodic dredging. The greatest visual effects resulting from operations would be maintenance on the intakes and cleaning the canals. However, these temporary maintenance activities are anticipated to occur within short periods of time, and effects would not be adverse because the activities would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features.

***CEQA Conclusion*:** Maintenance of the conveyance facilities (i.e., intakes, canals, forebay, transmission lines, and operable barrier) would be required periodically and would involve painting, cleaning, and repair of structures; dredging at the Byron Tract Forebay and operable barrier, cleaning canals; vegetation removal and care along embankments; canal inspection; and vegetation removal within transmission line ROWs. These visible maintenance activities would be temporary, intermittent, and short-term impacts and would be considered less than significant. Maintenance and operation of Alternative 2C, once constructed, would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanent reduce visually important features. Thus, overall, Alternative 2C would have a less-than-significant impact on existing visual quality and character during maintenance and operation of the facilities in the study area. No mitigation is required.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

NEPA Effects: Under Alternative 2C, these conservation measures would be identical to those under Alternative 1A. Therefore, visual effects related to the existing visual character, scenic vistas, scenic highways, and light and glare resulting from implementation of CM2–CM22 would be the same as those described under Alternative 1A, Impact AES-6. There may be site-specific, localized adverse visual effects. These conservation measures would alter the Delta landscape by incrementally, and substantially, introducing elements into the study area over time. CM2–CM22, when combined with CM1, could substantially alter the visual character of the study area, which is strongly identified by its agricultural and water-based Delta landscapes and communities. These landscapes and communities could be adversely affected by the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts associated with other development potentially setting a precedent for other development to occur. All of these effects would alter the visual character of the existing regional landscape.

Because of the unknown location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction, effects associated with implementation of CM2–CM22 are considered adverse. However, the visual characteristics of restored/enhanced landscapes would be similar to other areas of the Delta that are in a natural marsh or wetland state and more limited in extent than the widespread areas of agricultural development. In this sense, the BDCP would have an overall beneficial effect related to the enhancement and creation of scenic vistas in the Delta.

Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-4a through AES-4c are available to address effects from habitat restoration and enhancement actions under CM2–CM22. In addition, Mitigation Measures AES-6a and AES-6b are available to help reduce adverse visual effects. Upon development of site-specific design information and plans, additional mitigation measures may be identified to address action-specific adverse effects. However, each individual project under CM2–CM22 would undergo the environmental compliance process that would be used to determine what additional mitigation measures, would be deemed appropriate to reduce adverse effects and to assess compliance with relevant regulations. Finally, Mitigation Measure AES-6c is available to help inventory, classify, and protect the unique visual landscape of the Delta.

CEQA Conclusion: Implementation of conservation measures under Alternative 2C has the potential to affect existing visual quality and character, views of scenic vistas, views from scenic highways, and introduce new sources of light and glare in the study area. Impacts on the existing visual quality and character would be significant where use of large numbers of heavy construction equipment, changes in topography, and introduction of new structures or facilities where none presently exist would take place in the vicinity of sensitive receptors. However, because a number of factors that would determine the level of change are unknown—the location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction—impacts associated with implementation of CM2–CM22 on visual quality and character, scenic vistas, and light and glare sources, are considered significant. Because of the distance of implemented conservation measures from scenic highways, changes associated with these activities would not affect the visual quality along these scenic highway corridors and this impact would be less than significant. Site-specific restoration information and plans need to be developed before the site-specific effects on the existing visual character, scenic vistas, and light and glare can be determined.

Several mitigation measures are available to minimize the impacts on visual quality and character in the study area that could result from implementation of these conservation measures. As summarized below, these measures could be applied to individual restoration projects or actions as appropriate for the site-specific conditions and design considerations. In addition, each restoration project or action would undergo an environmental compliance process that would be used to determine what additional mitigation measures would be deemed appropriate to reduce significant effects. Mitigation Measures AES-1a through AES-1g could be applied to minimize impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. Mitigation Measures AES-4a through AES-4c could be used to reduce the effects of new light and glare sources by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. In addition, Mitigation Measures AES-6a and AES-6b would further minimize impacts on visual resources by undergrounding new or relocated utility lines, where feasible, and through an evaluation of an afterhours low-intensity and lights off policy. Finally, implementation of Mitigation Measure AES-6c would provide a strategy for the protection of the unique visual landscape of the Delta.

While some of the conservation measures could result in beneficial impacts through the restoration of natural habitat and these mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a less-than-significant level because of uncertainties associated with future implementation of CM2–CM22. In addition, the size of the study area and the nature of changes introduced by these conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend or be in keeping with the existing visual environment. Thus, implementation of CM2–CM22 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6b: Develop and Implement an Afterhours Low-Intensity and Lights Off Policy

Please refer to Mitigation Measure AES-6b under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6c: Implement a Comprehensive Visual Resources Management Plan for the Delta and Study Area

Please refer to Mitigation Measure AES-6c under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

***NEPA Effects*:** Constructing conveyance facilities (CM1) and implementing CM2–CM22 under Alternative 2C would generally have the same potential for incompatibilities with one or more plans and policies related to preserving the visual quality and character of the Delta as described for Alternative 1C, Impact AES-7. Variation would result from construction of an operable barrier at the head of Old River. However, the operable barrier would fall under the same jurisdictions as discussed under Alternative 1C, and so, overall the potential for incompatibility is the same. As described under Alternative 1C, there would be potential for the alternative to be incompatible with plans and policies related to preserving the visual quality and character of the Delta (i.e., The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta, Delta Plan, Brannan Island and Franks Tract State Recreation Areas General Plan). In addition, with the exception of San Joaquin County, the alternative may be incompatible with county general plan policies that protect visual resources in the study area.

***CEQA Conclusion*:** The incompatibilities identified in the analysis indicate the potential for a physical consequence to the environment. The physical effects they suggest are discussed in impacts AES-1 through AES-6, above and no additional CEQA conclusion is required related to the compatibility of Alternative 2C with relevant plans and policies.

17.3.3.8 Alternative 3—Dual Conveyance with Pipeline/Tunnel and Intakes 1 and 2 (6,000 cfs; Operational Scenario A)

Table 17D-1 in Appendix 17D, *Permanent Impacts after Construction is Complete*, describes existing visual characteristics and the BDCP-related permanent effects of Alternative 1A on visual quality and character, scenic vistas, scenic roadways, and from light and glare sources after construction is complete and identifies the overall effect on viewers. Appendix E, *Permanent Features*, identifies the viewer groups and viewing locations that would be affected by permanent alternative features. Effects would be similar for this alternative. Under Alternative 3, the conveyance alignment from the intakes to the Byron Tract Forebay, along with the associated shaft site, access road, transmission line, pumping plants, barge unloading facility sites, and spoil/borrow and RTM areas, would be identical to Alternative 1A. The difference between this alternative and Alternative 1A in the context of visual resources is the number of intakes. Alternative 3 would use only two intakes: Intakes 1 and 2 (see Figures 3-2 and 3-8). The effects associated with construction of Intakes 1 and 2 are discussed in detail under Alternative 1A, and those effects would be the same under Alternative 3.

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

NEPA Effects**:** Effects related to visual resources under this alternative would be similar to those described for Alternative 1A. However, the severity of these effects would be decreased because there would be two intake structures instead of five. The primary features that would affect the existing visual quality and character under Alternative 3, once the facility has been constructed, would be the intakes, the intermediate forebay and Byron Tract Forebay, transmission lines, and resulting landscape effects left behind from spoil/borrow and RTM areas, and concrete batch plants and fuel stations. These changes would be most evident in the northern portion of the study area, which would undergo extensive changes from the permanent establishment of large industrial facilities and the supporting infrastructure along and surrounding the segment of the Sacramento River where the intakes would be situated.

Overall, construction would take 9 years, and the intensity of the activities in contrast to the current rural/agricultural nature of the area would be substantial. Construction of intakes, and the accompanying pumping plants, surge towers, borrow/spoil areas, and RTM areas would introduce visually dominant and discordant features in the foreground and middleground views, and these elements would be very noticeable to all viewer groups.

After construction, areas surrounding the intakes, spoil/borrow areas, RTM areas, shaft sites, and locations where concrete batch plants and fuel stations were located may be denuded of vegetation for a short period of time until the landscaping plans designed under WREM No. 30a are implemented. Once installed, the landscape would still appear to be denuded of vegetation or to have little vegetative cover because immature landscaping would be similar in appearance to tilled or newly planted agricultural fields. The sites would be in a transitional state, and over a period of a few years, plant species would mature and vegetation would recolonize the sites. These changes would happen in an area known for its open space, agricultural landscapes, and rural characteristics and would segment the visual landscape of the study area, reduce the amount of open space lands available to viewers, and eliminate valued visual resources. The effects of permanent access roads on visual resources would not be adverse. The effects of shaft site access hatches on the existing scenic character may be adverse. Operation of the intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and transmission lines would result in adverse effects on the existing visual character. In addition, construction of all of these features has the potential to negatively affect wildlife viewing and the overall enjoyment of scenic views in the study area. Therefore, because of the long-term nature of construction combined with the proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, this overall effect of conveyance facility construction on existing visual quality and character is considered adverse. Mitigation Measures AES-1a through AES-1g are available to address visual effects resulting from construction of Alternative 3 water conveyance facilities.

CEQA Conclusion**:** Construction of Alternative 3 would substantially alter the existing visual quality and character present in the study area. The long-term nature of construction of the intakes, pipeline/tunnel, work areas, spoil/borrow and RTM areas, shaft sites, barge unloading facilities; presence and visibility of heavy construction equipment; proximity to sensitive receptors; relocation of residences and agricultural buildings; removal of riparian vegetation and other mature vegetation or landscape plantings; earthmoving and grading that result in changes to topography in areas that are predominantly flat; addition of large-scale industrial structures (intakes and related facilities);

remaining presence of large-scale borrow/spoil and RTM area landscape effects; and introduction of tall, steel transmission lines would all contribute to this impact.

Overall, construction would last up to 9 years and would change the existing visual character in the vicinity of project elements from those of agricultural, rural residential, or riparian and riverine settings to areas involving heavy construction equipment, temporary construction structures, work crews, other support vehicles and other activities that would modify and disrupt short- and long-range views. These activities would be disruptive to some viewers. Once construction is complete, the alternative would result in the placement of large, multi-story industrial concrete and steel structures, pumping plants, fencing, and other similar anthropogenic features where none presently exist. Because of the landscape sensitivity and visual dominance of these features, these changes would result in reduced scenic quality throughout the study area (see 17.3.1.3, *Analysis of the Alternatives' Impact on Visual Resources*). Thus, Alternative 3 would result in significant impacts on the existing visual quality and character in the study area.

Mitigation Measures AES-1a through AES-1g would partially reduce impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, Alternative 3 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

NEPA Effects**:** Scenic vistas are mapped and included in Appendix Figure 17D-1. Effects related to scenic vistas under this alternative would be similar to those described for Alternative 1A, Impact AES-2. During construction the introduction of construction equipment and removal of vegetation would alter the scenic elements that contribute to the viewing experience from scenic vistas. The intakes would introduce visually dominant and discordant features in the foreground and middleground views in vistas that would be very noticeable to all viewer groups in areas of low to high landscape sensitivity levels. However, the severity of these effects related to the north Delta intakes along the Sacramento River would be decreased because there would only be two intake structures instead of five. As described for Alternative 1A, the effects of permanent access roads effects on scenic vistas would not be adverse. The effects of shaft site access hatches on scenic vistas could be adverse. The large scale of intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and transmission lines may result in adverse effects on scenic vistas (see discussions under 17.3.1.2 and 17.3.1.3). Overall, effects on scenic vistas associated with Alternative 3, although reduced in scale for the north Delta intakes relative to Alternative 1A, may be adverse. Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

CEQA Conclusion**:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measure AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 3 would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

***NEPA Effects*:** Effects on state scenic highways under this alternative would be similar to those described for Alternative 1A, Impact AES-3. Intakes 1 and 2, the spoils/borrow and RTM area north of Intake 2, and the intermediate forebay would be immediately and prominently visible in the foreground from SR 160 and would result in an overall noticeable effect on viewers relative to their current experience and enjoyment of the study area's scenic resources along SR 160 and River Road, where the landscape sensitivity level is high. However, the severity of these effects related to the north Delta intakes along the Sacramento River would be decreased because there would only be two intake structures instead of five. Nevertheless, as described for Alternative 1A, these visual elements introduced by the intakes, spoil/borrow and RTM areas north of Intake 2, and intermediate forebay would conflict with the existing forms, patterns, colors, textures along River Road and SR 160; would dominate riverfront available from SR 160; and would alter broad views and the general nature of the visual experience presently available from River Road and SR 160. These changes would reduce the visual quality near intake structure locations and result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas. This effect would be adverse (see discussion under 17.3.1.2 and 17.3.1.3). Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

***CEQA Conclusion*:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measures AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 3 would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

***NEPA Effects*:** Effects resulting from light and glare under this alternative would be similar to those described for Alternative 1A, Impact AES-4. Intakes 1 and 2 and their associated pumping plants, surge towers, and facilities and the pumping plant at the intermediate forebay would create very noticeable effects relating to light and glare (Figures 17-76 through 17-78). Light building colors over a large surface area would reflect off of those surfaces and increase glare, especially when combined with the removal of vegetation that absorbs light, provides shade, and screens glare. Sunlight would reflect off the new water surfaces of the forebay, creating new sources of glare where none presently exist. However, the severity of these effects related to the north Delta intakes on the Sacramento River would be decreased because there would only be two intake structures instead of five. Nighttime construction could also result in headlights flashing into nearby residents' homes when construction vehicles are turning onto or off of construction access routes. Proposed surge towers would require the use of safety lights that would alert low-flying aircraft to the presence of these structures because of their height. Overall, because the study area currently experiences low levels of light and because there are a larger number of viewers in and around the waterways, intake structures, and forebay that would be affected by these noticeable changes that contrast with the existing rural character, effects associated with new sources of daytime and nighttime light and glare are considered adverse. Mitigation Measures AES-4a through AES-4c are available to address these effects.

***CEQA Conclusion*:** The impacts associated with light and glare under Alternative 3 are significant because there are a larger number of viewers in and around the waterways, intake structures, and intermediate forebay; BDCP facilities would increase the amount of nighttime lighting in the Delta above existing ambient light levels; and the study area currently experiences low levels of light because there are fewer light/glare producers than are typical in urban areas. Mitigation Measures AES-4a through AES-4c would help reduce these impacts by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences; however, these mitigation measures would not reduce impacts to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the new light and glare sources would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that do not blend or are not in keeping with the existing visual environment. Thus, the new sources of daytime and nighttime light and glare associated with Alternative 3 would result in significant and unavoidable impacts on public views in the project vicinity.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

NEPA Effects: Effects on the visual environment through operations and maintenance of the water conveyance facilities (CM1) under this alternative would be similar to those described for Alternative 1A, Impact AES-5. Once the facility is in operation, visible regular and periodic maintenance would be required on all major structures. Activities such as painting, cleaning, vegetation maintenance (removal), repairs, and inspections would be visible from viewpoints on water and land. The greatest visual effects resulting from operations would be maintenance of the intakes and dredging the forebays. However, under Alternative 3, the severity of these effects in the vicinity of the north Delta intakes relative to Alternative 1A would be decreased because there would only be two intake structures instead of five. Because temporary maintenance activities are anticipated to occur within a short period of time, these effects would not be adverse because the activities would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features.

CEQA Conclusion: Maintenance of the conveyance facilities (i.e., intakes, tunnels, forebays and transmission lines) would be required periodically and would involve painting, cleaning, and repair of structures; dredging at forebays (at approximately 50-year intervals); vegetation removal and care along embankments; tunnel inspection; and vegetation removal within transmission line ROWs. These visible maintenance activities would be temporary, intermittent, and short-term impacts and would be considered less than significant. Maintenance and operation of Alternative 3 once constructed, would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features. Thus, overall, Alternative 3 would have a less-than-significant impact on existing visual quality and character during maintenance and operation of the facilities in the study area. No mitigation is required.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

NEPA Effects: Under Alternative 3, these conservation measures would be identical to those under Alternative 1A. Therefore, visual effects related to the existing visual character, scenic vistas, scenic highways, and light and glare resulting from implementation of CM2–CM22 would be the same as those described under Alternative 1A, Impact AES-6. There may be site-specific, localized adverse visual effects. These conservation measures would alter the Delta landscape by incrementally, and substantially, introducing elements into the study area over time. CM2–CM22, when combined with CM1, could substantially alter the visual character of the study area, which is strongly identified by its agricultural and water-based Delta landscapes and communities. These landscapes and communities could be adversely affected by the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts associated with other development potentially setting a precedent for other development to occur. All of these effects would alter the visual character of the existing regional landscape.

Because of the unknown location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction, effects associated with implementation of CM2–CM22 are considered adverse. However, the visual characteristics of restored/enhanced landscapes would be similar to other areas of the Delta that are in a natural marsh or wetland state and more limited in extent than the widespread areas of agricultural development. In this sense, the BDCP would have an overall beneficial effect related to the enhancement and creation of scenic vistas in the Delta.

Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-4a through AES-4c are available to address effects from habitat restoration and enhancement actions under CM2–CM22. In addition, Mitigation Measures AES-6a and AES-6b are available to help reduce adverse visual effects. Upon development of site-specific design information and plans, additional mitigation measures may be identified to address action-specific adverse effects. However, each individual project under CM2–CM22 would undergo the environmental compliance process that would be used to determine what additional mitigation measures, would be deemed appropriate to reduce adverse effects and to assess compliance with relevant regulations. Finally, Mitigation Measure AES-6c is available to help inventory, classify, and protect the unique visual landscape of the Delta.

CEQA Conclusion: Implementation of conservation measures under Alternative 3 has the potential to affect existing visual quality and character, views of scenic vistas, views from scenic highways, and introduce new sources of light and glare in the study area. Impacts on the existing visual quality and character would be significant where use of large numbers of heavy construction equipment, changes in topography, and introduction of new structures or facilities where none presently exist would take place in the vicinity of sensitive receptors. However, because a number of factors that would determine the level of change are unknown—the location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction—impacts associated with implementation of CM2–CM22 on visual quality and character, scenic vistas, and light and glare sources, are considered significant. Because of the distance of implemented conservation measures from scenic highways, changes associated with these activities would not affect the visual quality along these scenic highway corridors and this impact would be less than significant. Site-specific restoration information and plans need to be developed before the site-specific effects on the existing visual character, scenic vistas, and light and glare can be determined.

Several mitigation measures are available to minimize the impacts on visual quality and character in the study area that could result from implementation of these conservation measures. As summarized below, these measures could be applied to individual restoration projects or actions as appropriate for the site-specific conditions and design considerations. In addition, each restoration project or action would undergo an environmental compliance process that would be used to determine what additional mitigation measures would be deemed appropriate to reduce significant effects. Mitigation Measures AES-1a through AES-1g could be applied to minimize impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. Mitigation Measures AES-4a through AES-4c could be used to reduce the effects of new light and glare sources by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. In addition, Mitigation Measures AES-6a and AES-6b would further minimize impacts on visual resources by undergrounding new or relocated utility lines, where feasible, and through an evaluation of an afterhours low-intensity and lights off policy. Finally, implementation of Mitigation Measure AES-6c would provide a strategy for the protection of the unique visual landscape of the Delta.

While some of the conservation measures could result in beneficial impacts through the restoration of natural habitat and these mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a less-than-significant level because of uncertainties associated with future implementation of CM2–CM22. In addition, the size of the study area and the nature of changes introduced by these conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend or be in keeping with the existing visual environment. Thus, implementation of CM2–CM22 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6b: Develop and Implement an Afterhours Low-Intensity and Lights Off Policy

Please refer to Mitigation Measure AES-6b under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6c: Implement a Comprehensive Visual Resources Management Plan for the Delta and Study Area

Please refer to Mitigation Measure AES-6c under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

NEPA Effects: Constructing conveyance facilities (CM1) and implementing CM2–CM22 under Alternative 3 would generally have the same potential for incompatibilities with one or more plans and policies related to preserving the visual quality and character of the Delta as described for Alternative 1A, Impact AES-7. The primary difference under Alternative 3 is that only Intakes 1 and 2 would be constructed. As described under Alternative 1A, there would be potential for the alternative to be incompatible with plans and policies related to preserving the visual quality and character of the Delta (i.e., The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta, Delta Plan, Brannan Island and Franks Tract State Recreation Areas General Plan). In addition, with the exception of Solano County, the alternative may be incompatible with county general plan policies that protect visual resources in the study area.

CEQA Conclusion: The incompatibilities identified in the analysis indicate the potential for a physical consequence to the environment. The physical effects they suggest are discussed in impacts AES-1 through AES-6, above and no additional CEQA conclusion is required related to the compatibility of Alternative 3 with relevant plans and policies.

17.3.3.9 Alternative 4—Dual Conveyance with Modified Pipeline/Tunnel and Intakes 2, 3, and 5 (9,000 cfs; Operational Scenario H)

The BDCP-related permanent effects of the proposed project, Alternative 4, would be similar to those presented in Table 17D-1 in Appendix 17D, *Permanent Impacts after Construction is Complete,* for Alternative 1A. Appendix 17D describes existing visual characteristics and the BDCP-related permanent effects on visual quality and character, scenic vistas, scenic roadways, and from light and glare sources after construction is complete and identifies the overall effect on viewers. Appendix E, *Permanent Features*, identifies the viewer groups and viewing locations that would be affected by permanent alternative features. Alternative 4 includes a modified pipeline/tunnel conveyance alignment from Intakes 2, 3, and 5 on the Sacramento River between Clarksburg and Walnut Grove to the expanded Clifton Court Forebay, associated shaft sites, an intermediate forebay and control structure, access roads, transmission lines, pumping plants, barge unloading facility sites, an operable barrier at the head of Old River, and spoil/borrow and RTM areas. Construction of all structural components under Alternative 4 would take 9 years. However, construction of each individual facility would be phased within that period and would take place over a shorter period. The estimated construction times for individual features are included in the discussion of impacts below. The duration and schedule for construction of the water conveyance facilities (CM1) is provided in Appendix 3C, *Construction Assumptions for Water Conveyance Facilities*. In addition, Appendix 22A details the construction schedules and defines the length and sequence of each construction phase.

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

Construction of conveyance facilities under Alternative 4 would result in substantial alteration of the existing visual quality or character in the vicinity of project elements that can be viewed from local sensitive receptors and public viewing areas. Visual quality effects at Alternative 4 project element construction sites would take place beginning with construction mobilization through completion of project elements. Once construction mobilization under the alternative occurs, all viewer groups would begin to see visual changes to the portions of the study area where project features would be built.

Intakes

The Sacramento River channel and bank would be affected by construction of three north Delta intake facilities (Intakes 2, 3, and 5) between RM 41 and RM 37 (Figure 3-9 and Mapbook Figure M3-4). Construction of each intake would take approximately 4 years to complete and would occur primarily Monday through Friday for up to 24 hours per day. In addition, because of the relatively high groundwater level at all intake locations and pumping plant sites, dewatering would be necessary to provide a dry workspace. Dewatering would also be needed where intake pipelines cross waterways and major irrigation canals east of the Sacramento River. Conveyance pipelines constructed for Intakes 2, and 5 would not be anticipated to intersect with waterways or major irrigation canals. Dewatering would take place 7 days per week and 24 hours per day and would be initiated 1–4 weeks prior to excavation. Dewatering would continue until excavation is completed and the construction site is protected from areas with high groundwater levels (Chapter 3, *Description of Alternatives*). Scattered rural residences are located along CH E9 and SR 160 along both banks of the river, throughout the corridor between where Intakes 2, 3, and 5 would be built; some of these would be near or directly adjacent to construction activities (KOPs 16, 18, 19, 20, 26, and 30). The towns of Clarksburg and Hood have a higher concentration of residential viewers and are also near the intakes (KOPs 12, 38, 72, 73, and 74). Recreationists on local roadways and waterways, roadway users on local roadways, and nearby businesses would have direct views of intake construction.

Construction of the three intake structures and associated facilities would introduce considerable heavy equipment—excavators, graders, dozers, sheepsfoot rollers, dump trucks, and end loaders, in addition to support pickups and water trucks—into the viewshed of all viewer groups in the vicinity, especially between Clarksburg and Walnut Grove. Work areas of approximately 125 acres would be located adjacent to each intake site and south of Hood and would be used for staging, temporary field offices, worker parking, equipment and materials laydown and storage, and would support other construction-related needs. While farm equipment is common in this area, the presence of long-term and large-scale construction is not common and would adversely affect viewers who would see work areas over an extended period of time where they once saw agricultural lands.

Construction of all intakes would require that properties first be acquired, resulting in the relocation of several residences and razing of buildings on these properties during construction. The intakes would dissect the parcels, disrupting the continuity of rural land and affecting free-flowing visual access from lands on either side of the intakes. In addition, residences and businesses may experience loss of landscaping, fencing, or other landscape features of personal importance. The landscape sensitivity level is high, and impacts on viewers are substantial because the residents would experience disruptive construction activities near to their homes.

Once the site is cleared of built features, earthmoving activities would result in the removal of mature vegetation and topographical changes to areas that are presently flat. Earthmoving activities and associated heavy equipment and vehicles would be readily visible throughout operation of these sites and have the potential to create dust clouds that would attract attention from visual receptors and reduce the availability of short-range views. As set forth in Chapter 22, *Air Quality and*

Greenhouse Gases, the BDCP proponents have identified several environmental commitments (Appendix 3B, *Environmental Commitments*) to reduce emissions of construction-related criteria pollutants, including basic and enhanced fugitive dust control measures and measures for entrained road dust that would help to reduce the creation of dust clouds that would negatively affect short-range views. As described in Chapter 3, *Description of Alternatives,* revegetation of disturbed areas would occur as a part of the project and revegetation would be determined in accordance with guidance given by DWR's WREM No. 30a, *Architectural Motif, State Water Project* and through coordination with local agencies through an architectural review process. Because revegetation is included as part of Alternative 4, it would help to lessen visual impacts. However, impacts may still be substantial, as described further in this analysis. This guidance from DWR WREM No 30a is set forth as follows and would apply to the other features described under Impact AES-1.

> If possible, the natural environment will be preserved. If not possible, a re-vegetation plan will be developed. Landscaping plans may be required if deemed appropriate to enhance facility attractiveness, for the control of dust/mud/wind/unauthorized access, for reducing equipment noise/glare, for screening of unsightly areas from visually sensitive areas. Planting will use low water-use plants native to the Delta or the local environment, with an organic/natural landscape theme without formal arrangements. For longevity and minimal visual impact, low maintenance plants and irrigation designs will be chosen. Planting plans will use native trees, shrubs or grasses and steps will be taken to avoid inducing growth of non-native invasive plant species/CA Plant Society weedy species. Planting of vegetation will be compatible with density and patterns of existing natural vegetation areas and will be placed in a manner that does not compromise facility safety and access. Planting will be done within the first year following the completion of the project and a plant establishment plan will be implemented.

Water-based construction would also be required to construct water intakes and levee modifications. Water-based recreational viewers would have the most direct views toward in-water construction, which would likely require partial channel closures and use of equipment within the waterways (KOP 26). All such construction would have temporary in-water construction zone speed restrictions where high-speed recreation (e.g., waterskiing, wakeboarding, and tubing) would effectively be eliminated. In-water construction activities would constrict boat passage, increase boat traffic congestion during peak use (primarily summer weekends), and extend viewing times of these facilities. In-water construction at all locations would result in adverse visual effects due to the elongated viewing times during periods of congestion, temporary partial channel closures that could impede recreational opportunities and create negative visual perceptions of these facilities, and a reduced recreational experience due the industrial nature of views of such facilities.

Once construction of the conveyance facilities is complete, Intakes 2, 3, and 5 would introduce large, industrial concrete and steel intake structures, approximately 55 feet from river bottom to the top of the structure with a total structure length of 700-2,300 feet depending on the location, pumping plants that are 59 feet tall, surge towers that are 43-70 feet tall, landscaping, fencing, and other similar anthropogenic features into an area with an existing rural visual character and a riparian, riverine, and agricultural nature. The design of the intakes and associated facilities could play a large part in helping to improve the quality of affected and degraded viewsheds. Landscaping that would be incorporated as part of the facility design would help to improve the quality of views. Because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, changes to topography through grading, and addition of large-scale industrial structures where none presently exist, this effect is considered adverse.

The intake facilities would result in adverse visual effects upon the landscape, and the intakes proposed for Alternative 4 are larger than those analyzed under Alternative 1A. As seen in Figure

17-85, *Existing and Simulated Views of Intake 2 East from South River Road*, the removal of a substantial amount of riparian vegetation along the east bank provides an unobscured view of the intake facility, pumping plant, and associated features making the intake facility the prominent visual feature in the landscape. A substation would also be introduced at the intake facility where none presently exists. The pumping plant introduces a large-scale building, similar in appearance to a warehouse facility, that is a focal point and visually discordant in scale and mass to the surrounding rural character. It also adds monotone solid color mass into a landscape where the natural colors of the landscape are earth-tones and more muted. The surge tower would be 100 feet in diameter and the top of the rim would be at 105 feet NAVD88 for Intake 2, making the tower 75 feet tall at this location because the pumping plant finished floor elevation would be at approximately 35 feet NAVD88. Overall, the existing vista from KOP 256 on SR 160 toward Intake 2 would be substantially impaired by vegetation removal and introduction of the pumping plant and the Scenic Quality Rating would be reduced from a **C** to an **F**. A reduction in the Scenic Quality Rating associated with Intake 2 is representative of the effects that could occur to other views associated with intakes through the removal of vegetation, obscuring and limiting views beyond the foreground, and introducing large industrial features into a rural landscape and this effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3).

As seen in Figure 17-86a, *Existing and Simulated Views of Intake 3 East from SR 160 in January 2012*, the removal of a substantial amount of riparian vegetation along the east bank acts to open up the vista but also increases the visual prominence of the pumping plant in the landscape. The pumping plant introduces a large-scale building, similar in appearance to a warehouse facility, that is a focal point and visually discordant in scale and mass to the surrounding rural character within the vista. It also adds monotone solid color mass into a landscape where the natural colors of the landscape are earth-tones and more muted. When compared to Figure 17-76a that shows Intake 3 East for Alternatives 1A, 1B, 2A, 2B, 6A, 6B, 7 and 8 (PTO alternatives), the intake pad would be larger than under this alternative than for the PTO alternatives. In addition, the surge tower would be 100 feet in diameter and the top of the rim would rise above the pumping plant at 96 feet NAVD88 for Intake 3, making the tower 62 feet tall at this location because the pumping plant finished floor elevation would be at approximately 34 feet NAVD88 for this intake. While steel 230 kV transmission lines would not be introduced under this alternative, there would be a substation that would also visible and would further add to the industrial look of the intake facilities and detract from the existing rural character. Overall, the existing vista from KOP 34 on SR 160 toward Intake 3 would be substantially impaired by vegetation removal and introduction of the pumping plant and the Scenic Quality Rating would be reduced from a **D** to an **E** under this alternative. A reduction in the Scenic Quality Rating associated with Intake 3 is representative of the effects that could occur to other vistas through the removal of vegetation, obscuring and limiting views beyond the foreground, and introducing large industrial features into a rural landscape and this effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3). However, as shown in Figure 17-86b, *Existing and Simulated Views of Intake 3 East from SR 160 in July 2013*, fast-growing poplar or cottonwood trees that were newly planted in January 2012 have since grown and act to obscure large portions of the intake pad and portions of the pumping plant surge tower, and substation. While the substation would not be as noticeable, the pumping plant and surge tower would still be visually discordant in scale and mass to the surrounding rural character within the vista and the Scenic Quality Rating would be reduced from a **D** to an **E**. Note that, over time, the trees will continue to grow and views of Intake 3 from KOP 34 could be further limited.

Figure 17-77, *Existing and Simulated Views of Intake 2 West from SR 160*, shows an intake associated with the west alignment. However, this view is representative of how an intake under this alternative would look on the east bank of the river from CH E9. It is also representative of how intakes could affect this and other vista views from SR 160 and CH E9, as mapped in Appendix Figure 17D-1. The conversion of the riverbank that is grassy with riparian vegetation to the industrial looking on-bank intake is a stark visual and color contrast against the more natural colors and textures of a vegetated riverbank that is absent of structures. The pumping plant introduces a large warehouse type of building that is a focal point and visually discordant in scale and mass to the surrounding rural character within the vista. It also adds monotone solid color mass into a landscape where the natural colors of the landscape are earth-tones and more muted. The pumping plant and on-bank intake would limit and detract from the visual quality of views beyond the foreground. The introduction of tall, steel 230 kV transmission lines visually contrasts to existing views of wooden utility poles. In addition, at a closer distance, views of available sky would be interrupted by the transmission lines and pumping plant. Overall, the existing vista from KOP 15 on SR 160 toward Intake 2 would be substantially impaired by vegetation removal and introduction of the pumping plant and the Scenic Quality Rating would be reduced from a **C** to an **E**. A reduction in the Scenic Quality Rating associated with Intake 2 is representative of the effects that could occur to other vistas through the removal of vegetation, obscuring and limiting views beyond the foreground, and introducing large industrial features into a rural landscape, and this effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3).

Forebays

Construction of a 40-acre intermediate forebay (north of Twin Cities Road and east of Snodgrass Slough and the southerly most portion of Stone Lakes National Wildlife Refuge) (KOPs 115 and 257) and the 700 acre Clifton Court Forebay expansion to the south of the existing forebay (KOPs 103, 106, and 107) would take less than 2 years. Generally, construction would occur Monday through Friday for up to 24 hours per day. Dewatering is anticipated where the forebay pipelines cross waterways or major irrigation canals less than 0.25 mile north of the connection with the intermediate forebay. Dewatering would take place 7 days per week and 24 hours per day and would be initiated 1–4 weeks prior to excavation. After construction is complete, disturbed areas of exposed soil would be seeded for erosion control and would revegetate after a short time. The intermediate forebay would be constructed southeast of Intake 5 and would be seen from Twin Cities Road, immediately north of the road and abutting Snodgrass Slough. Views from Twin Cities Road are obscured west of Snodgrass Slough by vineyards and riparian vegetation along Snodgrass Slough. Because it is in proximity to Walnut Grove there is a concentration of residential, recreational, and roadway viewers using Twin Cities Road. Rural residences, located south of Twin Cities Road and the intermediate forebay, would have construction occurring near their homes through construction of the intermediate forebay. The landscape sensitivity level is high, and impacts on viewers are substantial because the residents south of the intermediate forebay would experience disruptive construction activities near their homes. In addition, residents of Walnut Grove using Twin Cities Road that are also highly sensitive to the proposed project would view the construction as they use the roadway. The existing ground surface elevation at this location is -6 to +11 feet, while embankments surrounding the forebay would be just over 32 feet above the ground surface.

Construction to expand the Clifton Court Forebay to the south would occur near residences and businesses in and near the Rivers End Marina & Storage, at the junction of Lindeman Road, CVP Canal, and Old River. Ground-level construction activities would not be visible from this area because of existing levees but would likely be visible from Byron Highway and Herdlyn and Lindeman Roads, where views are elevated. The existing ground surface elevation at this location is -5 to 0 feet, which would be degraded to -10 feet in certain locations, and embankments surrounding the forebay would be approximately 30-35 feet above the proposed ground surface.

Earthmoving activities would result in topographical changes to areas that are presently flat and would introduce heavy equipment and vehicles that would be readily visible throughout construction of the forebays and have the potential to create dust clouds that would attract attention from visual receptors and reduce the availability of short-range views. As set forth in Chapter 22, *Air Quality and Greenhouse Gases*, the BDCP proponents have identified several environmental commitments (Appendix 3B, *Environmental Commitments*) to reduce emissions of construction-related criteria pollutants, including basic and enhanced fugitive dust control measures and measures for entrained road dust that would help to reduce the creation of dust clouds that would negatively affect short-range views. Once construction of the intermediate forebay is complete, it would be immediately and prominently visible in the foreground from vantages surrounding it. While the water surface of the this forebay would not be visible, it would convert agricultural lands to a large, geometrically shaped levee embankment system that would conflict with the existing forms, patterns, colors, and textures associated with agricultural lands. As seen in Figure 17-87, *Existing and Simulated Views of Intermediate Forebay from Twin Cities Road*, the scenic view across agricultural fields from Twin Cities Road is fairly open but contains existing transmission lines. The forebay embankments would be tall enough to limit views of the existing tree line on the horizon. The intermediate forebay embankments would add a man-made visual massing and the embankments would have a visible geometric shape immediately adjacent to the roadway. Overall, the existing vista from KOP 257 on Twin Cities Road toward the intermediate forebay would alter and reduce the available views of agricultural lands and foreground views and would reduce the Scenic Quality Rating from an **E** to an **F**. This effect would be adverse, when seen from Twin Cities Road (see discussions under 17.3.1.2 and 17.3.1.3).

The expanded Clifton Court Forebay would have a similar effect on the existing visual quality and character as seen from Byron Highway. While expanding Clifton Court Forebay would convert a large area of agricultural land, the forebay in this location would not have as great a negative effect on the landscape as the intermediate forebay, due to the predominance of the existing Clifton Court Forebay, other water conveyance features, and fewer sensitive viewers. However, the expanded Clifton Court Forebay would result in noticeable changes that do not blend, are not in keeping or are incompatible with the existing visual environment, and could be viewed by sensitive receptors and from public viewing areas. This effect on visual quality and character would be adverse.

Overall, because of the large footprints of the forebays combined with the proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading resulting in noticeable changes from public viewing areas, this effect would be adverse.

Spoil and Borrow Areas

There would be a large spoil/borrow areas near Intake 2 (200 acres) (KOP 15) that would be needed under Alternative 4 to store excess spoils from excavation and tunnel boring and to borrow material to construct levees, the intake pads, and to meet other fill requirements. This site would be near the intake structures and would consequently affect the same viewer groups described above for intakes. A spoil/borrow area near Intake 2 would affect available views from SR 160 and is near the town of Clarksburg, with a higher concentration of residential, recreational, and roadway viewers (Mapbook Figure M3-4). Recreationists on local roadways, roadway users on local roadways, residents, and nearby businesses would have direct views of construction activities at the spoil/borrow area. The landscape sensitivity level is high, and impacts on these viewers are substantial, especially for residences that would experience disruptive construction activities near their homes.

Earthmoving activities would likely result in the removal of mature vegetation and topographical changes to areas that are presently flat. Earthmoving activities and associated heavy equipment and vehicles would be readily visible throughout operation of these sites and have the potential to create slowly moving dust clouds that would attract attention from visual receptors and reduce the availability of short-range views. As set forth in Chapter 22, *Air Quality and Greenhouse Gases*, the BDCP proponents have identified several environmental commitments (Appendix 3B, *Environmental Commitments*) to reduce emissions of construction-related criteria pollutants, including basic and enhanced fugitive dust control measures and measures for entrained road dust that would help to reduce the creation of dust clouds that would negatively affect short-range views. The spoil and borrow site would be in use for close to 7.5 years, and construction operations at these locations would take place Monday through Friday for up to 24 hours per day. Because of the long-term nature of construction, proximity to sensitive receptors, removal of vegetation, and changes to topography through grading, this effect is considered adverse.

Once construction of the BDCP facilities is complete, the spoils/borrow area north of Intake 2 would result in a large-scale landscape effect that would also alter the agrarian visual character. In addition to spoils/borrow in the study area, offsite borrow sites may be needed to provide suitable materials for intake pipeline foundations, berms around RTM storage areas and canal embankments. It is not known how much import material would be needed and where it would come from. It is assumed that effects at import borrow sites would be similar in scale and have similar adverse visual effects to those within the study area. Alterations at these locations would result in sunken or elevated landforms introduced into a landscape that is currently predominantly flat. These features would be visually discordant with the area's existing forms, patterns, colors, textures associated with the existing agrarian character in the study area. Accordingly, spoil and borrow areas would result in an adverse effect on visual resources. Mitigation Measure AES-1c is available to address this effect.

Reusable Tunnel Material Areas

RTM areas would be needed to store excess material from tunnel boring that would later be used to construct levees and to meet other fill requirements or be transported to spoils sites. Five RTM areas are proposed for Alternative 4: one immediately north of Intake 2 (25 acres) (KOPs 1, 4, and 15) south of Scribner Road, east of the Sacramento River; four south of Lambert Road and north of Dierssen Road (46 and 33 acres); two north of Twin Cities Road (39 and 43 acres) (KOP 115); one south of Twin Cities Road (114 acres) (KOP 115); one west of the intermediate forebay (131 acres); two on Staten Island (213 and 1,061 acres); one south of SR 12 (809 acres) (KOP 98) and two west of Clifton Court Forebay (704 and 157 acres) (KOP 101) (see Mapbook Figure M3-4). There would be a total of 3,375 acres of land affected by RTM areas under Alternative 4. The RTM areas near Intake 2; Lambert, Dierssen, Twin Cities Roads; and SR 12 would have negative effects because of proximity to nearby residents and visibility from nearby roadways. Activities associated with placing and spreading the RTM would occur near or directly adjacent to the homes of residential viewers. The RTM area near Intake 2 would be visible from SR 160. The RTM areas on Staten Island would be seen by nearby sensitive residents, recreationists, and viewers passing on rural roadways, including Staten Island and Gas Well Roads. Staten Island is owned by The Nature Conservancy and serves as sandhill crane wintering habitat and wildlife viewing. The southern RTM area on Staten Island would be visible from the SR 12 bridge crossing over Little Potato Slough that provides for views out and over the RTM area. The RTM area south of SR 12 would be visible to roadway users on this busy roadway but views of construction activities would be fleeting as travelers on these roadways travel by the site. The landscape sensitivity level is moderate to high, and impacts on viewers of RTM areas are substantial because residents would experience construction activities near their homes and because of their visibility from nearby roadways that have views of the existing rural landscape. Changes to the RTM area east of Byron Highway near the Clifton Court Forebay would primarily affect roadway users on the highway and nearby local roadways. Because these viewers are not as sensitive and there is nearby rolling terrain, these RTM areas would not appear as visually obtrusive as the other RTM areas for Alternative 4. This RTM area is also just over 2 miles away from Discovery Bay. As seen in Figure 17-61 (KOP 197), the RTM area would be in the general area of the transmission lines seen in front of the Black Hills and the RTM area would not be distinguishable when seen from Discovery Bay.

Earthmoving activities would likely result in the removal of mature vegetation and topographical changes to areas that are presently flat. Earthmoving activities and associated heavy equipment and vehicles would be readily visible throughout operation of these sites and has the potential to create slowly moving dust clouds that would attract attention from visual receptors and reduce the availability of short-range views. As set forth in Chapter 22, *Air Quality and Greenhouse Gases*, the BDCP proponents have identified several environmental commitments (Appendix 3B, *Environmental Commitments*) to reduce emissions of construction-related criteria pollutants, including basic and enhanced fugitive dust control measures and measures for entrained road dust that would help to reduce the creation of dust clouds that would negatively affect short-range views.

RTM areas would be in use for close to 7.5 years, and operations at these locations would take place Monday through Friday for up to 24 hours per day. Because of the long-term nature of construction, proximity to sensitive receptors, and changes to topography through grading, resulting in noticeable to very noticeable changes to the visual setting, this effect is considered adverse. Effects may be reduced at various RTM areas if the material is reused for other purposes, reducing the amount of material on the site.

Once construction of the water conveyance facilities is complete, the RTM areas would result in large-scale landscape effects that would alter the agrarian visual character. Alterations at these locations would result in sunken or elevated landforms introduced into a landscape that is currently predominantly flat. These features would be visually discordant with the area's existing forms, patterns, colors, and textures associated with the existing agrarian character in the study area. Mitigation Measure AES-1c is available to address this effect.

Shaft Sites

Retrieval and Launch shaft sites on Mandeville and Bacon Islands and near Clifton Court Forebay are in areas where there are no immediate viewers and, therefore, have a low landscape sensitivity level. However, shaft sites between Intakes 2 and 3 and north of Lambert Road (KOP 86), south of Walnut Grove Road (KOP 258), and on Staten Island are in areas with nearby residences and near frequently traveled roadways, and the landscape sensitivity level is moderate to high. Walnut Grove Road serves as primary access route to Walnut Grove from I-5 so would be seen by a large number of roadways users. Rural roadways pass near shaft sites on Staten Island, which is noted for its sandhill crane wintering habitat and wildlife viewing, The shaft sites south of SR 12 (KOP 98) and north of SR 4 would be visible to roadway users on these busy roadways, but views of construction activities would be fleeting as travelers on these roadways travel by the site. Construction of the shaft sites would take just under 2.5 years; they would then be in operation for close to 7.5 years, Monday through Friday for up to 24 hours per day. This would introduce considerable heavy equipment, vehicles, and cranes needed to bore and construct the tunnel and remove excavated materials from the tunnels into the viewshed of sensitive viewers. The shaft sites would have associated work areas where materials would be stockpiled and pieces needed to construct the finished tunnel structure would be stored. In addition, the shaft sites would be built on raised earthen pads to elevate them above the flood level, and these pads would be approximately 16- to 20-feet high or at the 100-year design flood elevation for each island). The shaft would rise approximately another 20 feet above the grade of the raised pad, and there would be construction office and storage buildings located at the base of the raised pad. The shaft site would be surrounded by fencing. Construction activities associated with the shaft sites may constitute an adverse effect on visual resources due to the physical introduction of these features and the duration of time that they would be visible in the landscape. Once construction is completed, the shaft site construction pads would be removed and the launch and retrieval shafts would be covered with earth. This effect can been seen in Figure 17-80, *Existing and Simulated Views of Launch/Retrieval Shaft Site near Isleton Road*, which is representative of the same effects that would result under construction of Alternative 4. Construction of shaft sites would convert agricultural lands for a period of time and may require the removal of landscape or vegetation and structures and would introduce the raised pad into viewshed, as illustrated in "Simulated View during Construction." In addition, the introduction of tall, steel 230 kV transmission lines would occur that could visually contrast to existing views depending on if the existing transmission lines consist of wooden utility poles or steel transmission lines. Overall, existing views from KOP 95 on SR 160, which are representative of Alternative 4, toward the launch/retrieval site would be impaired by the removal of the building and vegetation and introduction of the transmission lines. The Scenic Quality Rating would be reduced from a **D** to an **E**. This effect would be adverse (see discussion under 17.3.1.2 and 17.3.1.3).

Docks and Barge Traffic

New barge unloading facilities would be built in the viewshed of recreationists, businesses, public roadways, and residential properties that have views and vistas that include the sites, and would result in temporary long-term changes in views in the immediate area. These facilities would be constructed in areas where the landscape sensitivity levels range from low to high. New facilities would convert vegetated areas to large, unvegetated swaths of land and piles of sand and gravel with associated loading infrastructure, introducing these features into a viewshed where none presently exist. These features would contrast sharply with the more natural areas that were present prior to construction of the new facility. New facilities would convert agricultural and other open space lands to a land use that is industrial in nature and from one that is vegetated to one that is largely unvegetated, creating new landscape effects.

Alternative 4 includes five barge unloading facilities to be built on or near the modified pipeline/tunnel alignment at riverbank locations about 5–6 miles apart. As described in more detail in Chapter 15, *Recreation*, the facilities would be built on the following waterways: South Mokelumne River near the southern RTM area on Staten Island, San Joaquin River adjacent to the RTM area south of SR 12, Connection Slough near the safe haven work area on Bacon Island, Old River west of the ventilation shaft north of SR 4, and Italian Slough near the RTM area near Clifton Court Forebay and would affect water-based recreation. Water-based recreational viewers would have the most direct views toward barge traffic and loading/offloading activities involving equipment and materials for pipeline construction. Construction of the barge facilities may require partial channel closures and use of equipment within the waterways. All barge facilities would have temporary in-water construction zone speed restrictions where high-speed recreation (e.g., waterskiing, wakeboarding, tubing) would effectively be eliminated. Once built, docks would be in use for approximately 5 years. During this time, loading facilities and barge traffic would constrict boat passage, increase boat traffic congestion during peak use (primarily summer weekends), and extend viewing times of these facilities.

The South Mokelumne River location could constrict boat traffic, which may be high at this location due to its proximity to Tower Park Marina Resort and Westgate Landing Recreational Area and because Staten Island is sandhill crane wintering habitat and there may be water-based wildlife viewing. The San Joaquin River location is very wide, so boats could avoid the loading facility entirely. The Connection Slough and Old River locations could constrict boat traffic, which may be high at these locations; however, while circuitous, alternative routes are available to avoid this location, Italian Slough dead ends west of the barge unloading facility, close to Lazy M Marina. Because there is no other means of access, boats going to and from Lazy M Marina would need to pass by the barge unloading facility to access other waterways east of Clifton Court Forebay. While this area may not be as highly traveled, boat access could be constricted at this location because it serves as the only access to Lazy M Marina. Once construction of the conveyance facilities is complete, docks would be removed and barge traffic would cease.

Construction and use of barges and barge unloading facilities during construction at all locations would introduce dominant visual elements resulting in noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes may result in adverse visual effects due to the elongated viewing times during periods of congestion, temporary partial channel closures that could impede or eliminate recreational opportunities and create negative visual perceptions of these facilities, and a reduced recreational experience due the industrial nature of views of such facilities. Thus, this effect would be adverse.

Access Roads

Construction of temporary and permanent access roads would take less than 2 years and would follow linear paths; consequently, construction of these features would not be focused on one specific location for an extended period of time. Construction of access roads would occur Monday through Friday for up to 24 hours per day. Access roads would be located in areas in where the landscape sensitivity levels range from low to high. Most of the temporary and permanent access roads follow alignments that have previously been cleared and that serve as agricultural access routes. Construction would include improving the condition of these existing access routes to accommodate construction access. Vegetation removal would likely occur along the rights-of-way of access roads and would negatively affect views from SR 160, River Road, and other roadways in the study area. After construction is complete, disturbed areas of exposed soil would be seeded for erosion control and would revegetate after a short time. Because of the temporary nature of construction and the regular relocation of activities and because roads follow alignments that have previously been cleared and that serve as agricultural access routes, this would not constitute an adverse effect.

Transmission Lines

Proposed transmission line corridors are shown in Mapbook Figure M3-4. Construction of the temporary 69 kV transmission lines would take less than 2 years and would require vegetation clearing along the linear ROWs. Construction of the permanent 69 and 230 kV transmission lines would also take less than 2 years and would require vegetation clearing along the linear ROWs. Construction of transmission lines would occur Monday through Friday for up to 24 hours per day, and transmission lines would be located in areas where the landscape sensitivity levels range from low to high (KOPs 15, 16, 18, 19, 20, 26, 30, 34, 41, 42, 49, 54, 72, 73, 74, 86, 98, 101, 103, 106, 107, 115, 254, 255, 257, and 258).

The temporary and permanent 69 kV lines would be wooden or steel poles, depending on the utility, which are 60 feet tall and spaced 450 feet apart. The temporary 230 kV lines would be steel poles that are 95–100 feet tall and spaced 750 feet apart; however, lattice steel towers may be used at Western interconnections. Construction of transmission lines move along these linear ROW corridors that are 150 feet wide at poles for 69 kV and 230 kV lines. For every 2 miles of line and where the line takes a turn greater than 15 degrees, a conductor pulling location that is 150 feet wide with 350 feet of length along the corridor for 69 kV and 230 kV lines would be required adjacent to the pole.

Construction would require clearing the corridor of vegetation, erecting the towers or poles, and then stringing the power lines using the conductor pulling locations. Construction of these features would move in a linear fashion and would not take place in any specific location for an extended period of time. Cranes would be used to string 69 kV lines, while towers, cranes and helicopters would be used for 230 kV lines. Site preparation, tower erection, and stringing would introduce disruptive visual elements, such as construction equipment and activity, into the landscape and temporarily detract from views. Construction of the 230 kV lines would be the most disruptive during construction because towers, cranes, and helicopters would be more visible and draw more attention toward construction activities because of movement associated with helicopters and cranes and noise associated with helicopters. Temporary power would be supplied by 69 kV and 230 kV transmission lines that would tap into the Banks Substation near the Banks pumping plant or a substation located off of Sellers Avenue near Brentwood in the southern end of the alignment, and a point on the existing electrical grid north of an area of the Cosumnes River Preserve, approximately 1 mile west of Highway 99 and 5 miles south of Elk Grove, in the northern end of the alignment. These would be new lines and would generally not run parallel to existing transmission corridors. The Banks Substation is immediately south of the California Aqueduct, and would require over 2 miles to connect to the Clifton Court Forebay area. There is already a substation, office buildings, and warehouse facility buildings at the Banks pumping plant that make this area industrial in nature. However, the new substation in the Banks Substation area would increase utility infrastructure present at this location, and the new 230 kV electrical transmission lines would compound the amount of visible industrial elements and result in adverse visual effects.

Permanent power would be supplied by the line connecting to an area near the Cosumnes River Preserve, described above. Permanent 230 kV transmission lines are shown on Figure 3-25. This transmission line would not parallel existing transmission corridors and would introduce a transmission corridor into the landscape where none or few presently exist. This would create or add to the amount of visible transmission lines, based on location, and not be in keeping with the existing visual character. New permanent 69 kV lines would branch from the northern terminus of the 230 kV line to supply power to the intermediate forebay control structure and Intakes 2, 3, and

5. Each intake would have an electrical substation and transformer located near the sedimentation basins and intake pumping plants (refer to Figure 3-20).

This 230 kV line would pass through areas with and without existing transmission lines. The line would extend approximately 3 miles through or adjacent to agricultural lands and agricultural access roads until reaching Lambert Road where it intersects with a large agricultural operation. The line would then follow Lambert Road just over 6 miles and then extend north to a new substation and south to the intermediate forebay control structure. New permanent 69 kV lines would branch from the substation at the northern terminus of the 230 kV line to supply power to Intakes 2, 3, and 5. Each intake would have an electrical substation and transformer located near the sedimentation basins and intake pumping plants (refer to Figure 3-20).

Most of the transmission lines would follow access roads constructed for the BDCP conveyance facilities or other existing access roads and roadways that are within the study area. After construction is complete, disturbed areas of exposed soil would be seeded for erosion control and would revegetate after a short time. However, tree and shrub removal would likely occur within the ROWs and would negatively affect views from SR 160, River Road, Lambert Road (under the east-west option) and other roadways in the study area. Once the proposed 230 kV electrical power transmission lines are constructed, tall steel poles that would be highly visible landscape features would contrast strongly with their surroundings. The 69 kV electrical power transmission lines would also be larger than wood-poled transmission lines commonly seen in the Delta. While wood-poled transmission lines are part of most existing views, new 69 and 230 kV transmission lines and their cleared ROWs would adversely affect the existing visual character by introducing large towering structures in a linear pattern that appear to march through the landscape. The temporary nature of construction and movement of construction activities to different locations, combined with tree and shrub removal within ROWs, and appearance of transmission lines once in place, would make changes in views associated with transmission lines adverse. The transmission line alignment in combination with other temporary and permanent transmission lines throughout the study area would contribute to adverse changes in the visual quality and character. Mitigation Measures AES-1a through AES-1c are available to address these effects.

Concrete Batch Plants and Fuel Stations

Approximately 2-acre concrete batch plants and 2-acre fuel stations would be located within the work areas for Intakes 2 and 5 (KOPs 15, 16, 18, 49, 54, 55, and 256), 40-acre concrete batch plants and a 2-acre fuel station on an RTM area north of Twin Cities Road (KOP 115), and a 40-acre concrete batch plant and a 2-acre fuel station on an RTM area near Clifton Court Forebay (KOP 101) (Mapbook Figure M3-4). Concrete batch plants would have visible features that are likely to include silos to hold materials for mixes, material unloading areas and storage piles, concrete truck loading areas and washouts, liquid storage tanks, conveyors, heavy equipment and trucks for material movement and transport, lighting, and mixing equipment. Built features would be largely made of steel that is painted. Batch plants would convert agricultural lands to industrial facilities. Fuel stations may have aboveground storage tanks that are painted and fuel pumps that would be visible and would convert agricultural lands to industrial facilities.

Construction of a concrete batch plants and fuel stations at Intakes 2 and 5 would have the greatest effect because construction would take place immediately adjacent to SR 160. Construction of the concrete batch plant and fuel station on Twin Cities Road would also have a substantial effect because it would be in proximity to a roadway that is highly traveled by sensitive visual receptors.

Construction of a concrete batch plant and fuel station near Clifton Court Forebay would be located in close proximity to similar industrial looking facilities that are associated with the forebay and existing transmission lines that course the area. The primary viewers of this area are roadway travelers on Byron Highway that pass by the site at highway speeds that would have intermittent visual access of temporary construction activities that would last less than 2 years. Once the project is complete, these facilities would be removed.

Construction of the concrete batch plants and fuel stations would introduce heavy equipment and vehicles that would be readily visible throughout construction of the facilities and have the potential to create dust clouds that would attract attention from visual receptors and reduce the availability of short-range views. As set forth in Chapter 22, *Air Quality and Greenhouse Gases*, the BDCP proponents have identified several environmental commitments (Appendix 3B, *Environmental Commitments*) to reduce emissions of construction-related criteria pollutants, including basic and enhanced fugitive dust control measures and measures for entrained road dust that would help to reduce the creation of dust clouds that would negatively affect short-range views. Once construction of the concrete batch plants and fuel stations are complete, these structures would be immediately and prominently visible in the foreground from surrounding vantages. Agricultural lands would be converted to industrial structures and facilities that conflict with the existing forms, patterns, colors, and textures associated with agricultural lands. Converting agricultural lands to industrial facilities, especially those in close proximity to SR 160, is considered adverse.

Head of Old River Operable Barrier

The operable barrier at the head of Old River would be constructed to control fish passage. It would include a fishway approximately 40 feet long and 10 feet wide, constructed of reinforced concrete. Construction of the barrier would last up to 3 years and primarily take place Monday through Friday for up to 24 hours per day. The large structure across the existing channel would limit physical and visual access to views of the horizon beyond. Mount Diablo would still be visible over the structure. Because of the long-term nature of construction, proximity to sensitive receptors, removal of vegetation, and changes to topography through grading, this effect is considered adverse.

Summary

***NEPA Effects*:** The primary features that would affect the existing visual quality and character under Alternative 4, once the facility has been constructed, would be Intakes 2, 3, and 5, the intermediate forebay and expanded Clifton Court Forebay, resulting landscape effects left behind from spoil/borrow and RTM areas, the operable barrier and transmission lines. These changes would be most evident in the northern portion of the study area, which would undergo extensive changes from the permanent establishment of large industrial facilities and the supporting infrastructure along and surrounding the segment of the Sacramento River from Clarksburg to north of Courtland where the intakes would be situated.

Overall, construction would take 9 years, and the intensity of the activities in contrast to the current rural/agricultural nature of the area would be substantial. Construction of Intakes 2, 3, and 5 and the accompanying intake structure, pumping plants, surge towers, borrow/spoil areas, and RTM areas would introduce visually dominant and discordant features in the foreground and middleground views, and these elements would be very noticeable to all viewer groups. A ventilation shaft, tunnel work area, and RTM area and transmission lines would be visible from SR 4. While not officially designated state scenic highways, and therefore not discussed under *Impact AES-3: Permanent damage to scenic resources along a state scenic highway from construction of* *conveyance facilities*, this road is a San Joaquin County Scenic Route (see *Section 17.2.3.2, County and City General Plans – San Joaquin County*). These features would detract from the visual quality of views from these routes.

After construction, areas surrounding the intakes, operable barrier, spoil/borrow areas, RTM areas, and shaft sites may be denuded of vegetation for a short period of time until the landscaping plans designed under WREM No. 30a are implemented. Once installed, the landscape would still appear to be denuded of vegetation or to have little vegetative cover because immature landscaping would be similar in appearance to tilled or newly planted agricultural fields. The sites would be in a transitional state, and over a period of a few years, plant species would mature and vegetation would recolonize the sites. These changes would happen in an area known for its open space, agricultural landscapes, and rural characteristics and would segment the visual landscape of the study area, reduce the amount of open space lands available to viewers, and eliminate valued visual resources. The effects of permanent access roads on visual resources would not be adverse. The effects of shaft site access hatches on the existing scenic character may be adverse. Operation of the intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and transmission lines would result in adverse effects on the existing visual character. In addition, construction of all of these features has the potential to negatively affect wildlife viewing and the overall enjoyment of scenic views in the study area. Therefore, because of the long-term nature of construction combined with the proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, this overall effect of conveyance facility construction on existing visual quality and character is considered adverse. Mitigation Measures AES-1a through AES-1g are available to address visual effects resulting from construction of Alternative 4 water conveyance facilities.

***CEQA Conclusion*:** Construction of Alternative 4 would substantially alter the existing visual quality and character present in the study area. The long-term nature of construction of the intakes, operable barrier, pipeline/tunnel, work areas, spoil/borrow and RTM areas, shaft sites, barge unloading facilities, and operable barrier; presence and visibility of heavy construction equipment; proximity to sensitive receptors; relocation of residences and agricultural buildings; removal of riparian vegetation and other mature vegetation or landscape plantings; earthmoving and grading that result in changes to topography in areas that are predominantly flat; addition of large-scale industrial structures (intakes and related facilities); remaining presence of large-scale borrow/spoil and RTM area landscape effects; and introduction of tall, steel transmission lines would all contribute to this impact.

Overall, construction would last up to 9 years and would change the existing visual character in the vicinity of project elements from those of agricultural, rural residential, or riparian and riverine settings to areas involving heavy construction equipment, temporary construction structures, work crews, other support vehicles and other activities that would modify and disrupt short- and long-range views. These activities would be disruptive to some viewers. Once construction is complete, the alternative would result in the placement of large, industrial concrete and steel intake structures, pumping plants, surge towers, fencing, and other similar anthropogenic features where none presently exist. Because of the landscape sensitivity and visual dominance of these features, these changes would result in reduced scenic quality throughout the study area (see 17.3.1.3, *Analysis of the Alternatives' Impact on Visual Resources*). Thus, Alternative 4 would result in significant impacts on the existing visual quality and character in the study area.

Mitigation Measures AES-1a through AES-1g would partially reduce impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, Alternative 4 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

BDCP proponents will make site-specific design decisions to locate new transmission lines and access routes to minimize effects on vegetation where feasible. These efforts will include the following actions.

- Working with the design engineer, site-specific location adjustments will be identified to avoid adversely affecting mature tree and shrub groupings to the extent feasible and to avoid creating large, linear swaths of vegetation clearing through the construction of new transmission lines and access routes.
- Where new transmission lines are located near trees along designated scenic route portions of SR 160 and River Road, the construction contractor will be required to utilize selective pruning techniques to avoid hard pruning of tree canopies that would negatively affect those scenic resources and views along those routes.
- Existing transmission corridors will be evaluated for placement of the new transmission lines to avoid creating new transmission corridors to the extent feasible.
- Transmission lines will be placed underground except where it can be shown that the lines can be hidden in existing tree cover, thereby minimizing removal of mature trees.
- Undergrounding transmission lines will not be used where implementation would constitute an adverse effect on sensitive habitats or sensitive species that would outweigh the reduction of visual effects.

Implementation of this measure will minimize the effects on existing visual quality and character that would result from removal and pruning of mature vegetation within proposed new transmission lines and access road routes. This measure will provide for a reduction in the number of trees and shrubs removed from installation of transmission lines and development of access roads.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

The BDCP proponents will install visual barriers between construction work areas and sensitive receptors to reduce the impact on sensitive receptors from the change in existing visual quality. Barriers will be placed to obscure views of work areas where construction activity and equipment would be disruptive and lower the existing visual quality. These efforts will include the following actions and performance standards.

- Visual barriers will be installed to minimize sensitive receptors (i.e., residents and recreational areas) views of construction work areas.
  - The visual barriers will be placed to protect residents and recreational areas that are located within 0.25 mile of a BDCP-related construction site.
  - The visual barrier may be chain link fencing with privacy slats, fencing with windscreen material, wood or concrete barrier/soundwall, or other similar barrier.
  - The visual barrier will be a minimum of 6 feet high to help to maintain the privacy of residents and block long-term ground-level views toward construction activities.

While the visual barriers would introduce a visual intrusion, they would greatly reduce the visual effects associated with visible construction activities and screening construction activities and protecting privacy is deemed desirable. The visual barriers are an effective means of reducing the visibility of active construction work areas, thereby minimizing the impact on existing localized visual quality.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

The BDCP proponents will develop and implement a spoil/borrow and RTM area management plan consistent with the "Disposal and Reuse of Spoils, RTM, and Dredged Material," in Appendix 3B, *Environmental Commitments*, to reduce the extent of negative visual alteration of existing visual quality or character of spoil, and especially borrow, sites from construction through remediation of terrain, revegetation, and other practices as described below. The purpose of this measure is to prevent flattened, highly regular, or engineered slopes which create visual discordance and incongruence from native topography and to re-establish natural looking vegetative communities that are indigenous to the project environment. The exception to grading flattened, regular sites is if the intended use of the site is agriculture. This mitigation measure will complement and is related to activities described under Mitigation Measure SOILS-2b, Chapter 10, *Soils*.

Prior to construction mobilization, the BDCP proponents will develop a management plan that identifies site-specific measures to remediate exposed soil and terrain to make it suitable for planned development, agriculture, or reuse as natural habitat and to mitigate visual effects. Existing information, such as topographical maps, vegetative surveys or records, and historical and existing photographs, that show preexisting, site-specific (or reference site) conditions prior to the conversion to agriculture will be evaluated and used as tools for restoring disturbed sites. Where appropriate in light of the planned long-term uses of reclaimed sites, the management plan will incorporate recreational or mixed uses. In general, however, the majority of the sites will be evaluated for restoration to native habitat due to the amount of terrain alteration and vegetation and habitat loss resulting from construction of the water conveyance facilities. At a minimum, the management plan will meet the following performance standards.

- All plantings will be native and indigenous to the area, and no invasive plant species will be used under any conditions.
- In areas to be used for agriculture, the management grading plan will mimic the preexisting landform pattern to the greatest degree possible, given geotechnical constraints.
- In areas of habitat restoration, the terrain will be designed and graded to be undulating, avoiding large, flat-sloped areas.
- In areas of proposed development, a combination of terrains may be implemented to encourage visual variety.
- All terrain will be designed and graded to be rounded, avoiding sharp angles and steep or abrupt grade breaks.
- Special attention will be paid to transitions between undisturbed and disturbed terrains to ensure that the transition appears as natural as possible and to blend the lines between the two for a natural, organic appearance.
- In addition, the site will be visually surveyed prior to any vegetation removal for the presence of rock outcroppings, downed trees, or similar features.
- Features such as live and downed trees salvaged during site preparation and excavation activities will be placed to mimic natural patterns during management to provide visual congruity once revegetation plantings mature and to restore the habitat values they provide.

Implementation of this measure would be expected to result in successful management of borrow/spoils and RTM areas, thereby reducing the overall impact on the visual quality in the study area.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

The BDCP proponents will restore barge unloading facility sites will to preconstruction conditions once the facilities are decommissioned and removed to minimize the impact on visual quality and character at these sites. Restoration of the decommissioned sites will meet the following performance standards.

- All disturbed terrain will be restored.
- Replacement plantings will be installed in areas where vegetation was removed.
  - All replacement plantings will be native and indigenous to the area.
  - No invasive plant species will be used under any conditions.

Implementation of this measure will result in restoration of the barge unloading facility sites.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

The BDCP proponents will use aesthetic design treatments, where and to the extent feasible, to minimize the impact on existing visual quality and character in the study area associated with the introduction of water conveyance structures.

The BDCP proponents will evaluate similar, local well-designed water conveyance structures, including those with historic value and use these features as design precedent to develop designs for the intake facilities, pumping plants, control structures, fish screens, operable barriers, and bridges, so that the resultant design will complement the natural landscape, be aesthetically pleasing, and minimize the effects of visual intrusion of the BDCP facilities on the landscape, to the extent feasible.

Where no local design precedent exists, the BDCP proponents will research structure designs outside the local area. For example, the Freeport Regional Water Project intake facility design incorporates aesthetic design treatments that create a landmark feature in the landscape. The BDCP proponents will consider design details to ensure that all intake structures are complementary of one another so that these facilities do not create further visual discordance in the landscape.

The following minimum performance standards will apply.

- New structures will be painted with a shade that is two to three shades darker than the general surrounding area, unless aesthetic design treatments indicate another color selection with the intent to specifically improve aesthetics. Otherwise, colors shall be chosen from the BLM Standard Environmental Colors Chart CC-001: June 2008. Because color selection will vary by location, the BDCP proponents, working with the facility designers, will employ the use of color panels evaluated from key observation points during common lighting conditions (front versus backlighting) to aid in the appropriate color selection. The BDCP proponents will select colors for the coloring of the most prevalent season. Panels will be a minimum of 3 by 2 feet in dimension and will be evaluated from various distances, but within 1,000 feet, to ensure the best possible color selection. Refer to http://www.blm.gov/bmp for more information on this technique and other best management practices and techniques for visual screening.
    - 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 only. Appropriate paint type will be selected for the finished structures to ensure long-term durability of the painted surfaces.
    - The BDCP proponents will maintain the paint color over time.
- These methods will also be applied to transmission poles and chain link fencing.
    - Transmission poles and towers, including substations, will be painted or powder coated with colors selected using the BLM selection techniques to make the structures recede into the visual landscape.
    - Chain link fences will be plastic or vinyl coated with colors selected using the BLM selection techniques to make chain link fences to appear more see-through than non-treated, light grey fencing that acts as a visual barrier to a degree.
    - Finishes will be selected for their ability to achieve the correct color selection, durability, and environmental safety.
- The BDCP proponents will implement aesthetic design features at concrete or shotcrete structures that are highly visible to the public. These features may include mimicking

natural material (e.g., stone or rock surfacing) and integral color, in the same theme, to reduce visibility and to better blend with the landscape.

- The BDCP proponents will evaluate bridge crossing designs using lattice steel, consistent with other bridges in the Delta. Such a structure would be less visually confining than concrete structures, provide better visual access to points beyond, allow light to travel through the structure, and may appear less like a visual barrier within the landscape.
- The BDCP proponents will ensure that visible pipelines, guardrails, and signs will be of a material or color that helps surfaces to blend better with the surroundings. These elements will be constructed with low-sheen and non-reflective surface materials to reduce potential for glare, and the use of glossy paints or surfaces would be avoided.

Implementation of this measure and application of the aesthetic design treatments for alternative structure would help minimize the impact on visual quality from the development of the water conveyance structures in the study area, using techniques that serve to make the structures blend into the surrounding environment, to the extent possible. However, the overall change in visual character would still be substantial because physical structures of this scale do not presently exist.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

The BDCP proponents will locate concrete batch plants and fuel stations away from sensitive visual resources (i.e., state scenic highways) and receptors to minimize the impact on visual quality. In addition, these sites will be restored after construction to minimize the long-term impact on localized visual character. The relocation approach for the individual facilities is described below. The BDCP proponents will incorporate these facility location changes into the design plans prior to construction.

- Relocate the concrete batch plants and fuel stations that are proposed to be adjacent to SR 160, north of Intake 2, so that these operations are set back from the state scenic highway. These features will be located toward the east side of the intake, in closer proximity to the shaft site.
- In addition, the structures and storage piles associated with the concrete batch plants and fuel stations on Tyler and Bacon Islands will be set as far west from the North Mokelumne and Middle Rivers, as possible. The same principles will be applied to the concrete batch plants and fuel stations along the canal alignment just south of Snodgrass Slough and on Webb Tract north of False River.
- Structures and storage piles associated with the concrete batch plants and fuel stations east of Byron Highway will be set back off of the highway as much as possible and toward the northern edge of the proposed sites. The same principles will be applied to the concrete batch plant and fuel station along Willow Point Road.
- Relocate the concrete batch plant and fuel station proposed between Intakes 3 and to an arrangement opposite each other along the agricultural access road, instead of adjacent to one another. They will be placed in closer proximity to the existing development at this location so that they appear to be more of a continuation of existing development.

- There are no suggested changes for the concrete batch plants and fuel stations to be located 1 mile south of the SR 84/SR 220 junction or along the canal alignment approximately 1 mile north of the Byron Highway.

  All concrete batch plant and fuel station sites will be restored to preconstruction conditions once the facilities are decommissioned and removed.

- All disturbed terrain will be restored.
- Replacement plantings will be installed in areas where vegetation was removed.
  - All replacement plantings will be native and indigenous to the area or will match surrounding agricultural plantings.
  - No invasive plant species will be used under any conditions.

Implementation of this measure will minimize the impact on visual quality from the construction and use of the concrete batch plant and fuel station facilities. In addition, this measure will help restore the concrete batch plant and fuel station locations to a preconstruction condition.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

The BDCP proponents will apply additional landscape treatments and use best management practices as part of implementing the project landscaping plan (as set forth by DWR's WREM No. 30a requirements) to restore and maintain local character, improve aesthetics, and reduce the visual scale of the proposed water conveyance elements in the study area.

In addition to the guidance set forth in DWR's WREM No. 30a, *Architectural Motif, State Water Project,* the BDCP proponents will utilize landscaping treatments to visually enhance key gateways, major thoroughfares, and scenic roadway corridors by using the following: street trees, welcome signs, decorative lighting, and other streetscape design techniques. In addition, native trees, shrubs, and grasslands will be planted to preserve the visual integrity of the landscape, provide habitat conditions suitable for native vegetation and wildlife, and ensure that a maximum number and variety of well-adapted plants are maintained.

The following practices will be adhered to in implementing the project landscaping plan.

- Design and implement low impact development (LID) measures that disperse and reduce runoff by using such features as vegetated buffer strips between paved areas that catch and infiltrate runoff, bioswales, cisterns, and detention basins. In addition, the BDCP proponents will evaluate the potential use of pervious paving to improve infiltration and to reduce the amount of surface runoff from entering waterways and the stormwater system. However, LID measures will not be used where infiltration could result in adverse environmental effects.
- Vegetative accents and screening will be used to aid in a perceived reduction in the scale and mass of the built features, while accentuating the design treatments that will be applied to built features. Plant selection will be based on its ability to screen built features and provide aesthetic accents.
- Realignments of SR 160 and South River Road will be landscaped in a manner that visually ties the new alignment in to the old alignment by implementing roadside landscaping that

helps achieve a continuation of the existing roadside vegetation while screening built features.

- Landscape berms, combined with tree and shrub plantings will be used to help screen built features from existing viewpoints by allowing for additional height. The landscape berms will be constructed in a manner that has a more natural form, as opposed to one that is highly regular and levee-like. The berms will be seeded with a native meadow erosion control seed mix and be planted to comply with directions set forth below.
    - One hundred percent of the species composition of open space areas will reflect species that are native and indigenous to the study area. The species list will include trees, shrubs, and an herbaceous understory of varying heights, as well as both evergreen and deciduous types. Plant variety will increase the effectiveness of revegetated areas by providing multiple layers, seasonality, diverse habitat, and reduced susceptibility to disease.
- The use of native grass and wildflower seed in erosion control measures will be required where such a measure would improve aesthetics.
    - Wildflowers will provide seasonal interest to areas where trees and shrubs are removed or grading has occurred.
    - Species will be chosen that are native and indigenous to the area and for their appropriateness to the surrounding habitat. For example, upland grass and wildflower species will be chosen for drier, upland areas and wetter grass species will be chosen for wetland areas.
    - If not appropriate to the surrounding habitat, wildflowers will not be included in the seed mix.
    - Under no circumstances will invasive plant species be used in any erosion control measures.
- Under no circumstances will any invasive plant species be used at any location.
- Vegetation will be planted within 2 years following project completion.
- Design of the landscaping plan will maximize the use of planting zones that do not need irrigation, such as seeding with a native grassland and wildflower meadow mix, which reduces or eliminates the need for a permanent irrigation system.
- If an irrigation system is required, an irrigation and maintenance program will be implemented during the plant establishment period and carried on, as needed, to ensure plant survival. Areas that are irrigated will use a smart watering system that evaluates the existing site conditions and plant material against weather conditions to avoid overwatering of such areas. To avoid undue water flows, the irrigation system will be managed in such a manner that any broken spray heads, pipes, or other components are fixed within 1–2 days, or the zone or system will be shut down until it can be repaired.
- All measures prescribed above to screen facilities will not act to degrade or eliminate scenic vistas or be designed in a manner that negatively affects views from scenic roadways.
- These measures will not be implemented where implementation would constitute an adverse effect on sensitive habitats or sensitive species.

Implementation of this measure will reduce the effects on local visual quality from introduction of the water conveyance facilities.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

***NEPA Effects*:** Scenic vistas are mapped and included in Appendix Figure 17D-1. Once built, permanent access roads and shaft sites would not adversely affect views available from scenic vistas. Permanent access roads generally follow ROWs that have already previously been cleared to serve as agricultural access routes and would be improved for BDCP-related activities. Because the permanent access routes follow preexisting routes, they would not result in perceived visual changes from scenic vistas.

Following completion of construction, shaft sites would only have low-profile access hatches to the tunnels that would be close to the ground surface and could be seen from vistas along Lambert Road (KOP 86), Twin Cities Road (KOPs 115 and 257), Walnut Grove Road (KOP 258), SR 12 (KOP 98), and SR 4. Under Alternative 4 the shaft hatch sites could be larger than under Alternative 1A; however, the view of the site after construction would not differ substantially. Mitigation Measure AES-1e is available to address this effect.

The primary features that would affect scenic vistas subsequent to completion of construction of Alternative 4 are Intakes 2, 3, and 5, the intermediate forebay and expanded Clifton Court Forebay, landscape effects remaining from spoil/borrow and RTM areas, and permanent transmission lines. These features would introduce visually dominant and discordant features in the foreground and middleground views in vistas that would be very noticeable to all viewer groups. Scenic vistas that would be affected are primarily views from roadways on levees and bridges that offer elevated vantages and views that extend from the foreground to the background of the surrounding landscape in areas with low to high landscape sensitivity levels. In addition, scenic vistas are available from ground-level views where vegetation, infrastructure, and atmospheric haze do not limit and preclude such views. Alternative 4 would result in a very noticeable effect on viewer experiences from scenic vista opportunities along public roads (SR 160 and CH E9). All facilities would require removal of visually important features such as mature trees and shrubs and agricultural land, which are scenic elements that contribute to the viewing experience from scenic vistas.

Intakes 2, 3, and 5 would introduce large, industrial concrete and steel intake structures, pumping plants, surge towers landscaping, fencing, and other similar anthropogenic features and into rural vistas with riparian, riverine, and agricultural characteristics. KOPs falling within scenic vistas that could be affected by Intakes 2, 3, and 5 include KOPs 15, 18, 20, 34, and 45. Each intake facility would consist of the intake structure along the river and the intake pumping plant. The intake structure on the river would be 700-2,300 feet long (total structure length–intake and transitions) by 40–60 feet wide and rise 55 feet from the river bottom to top of the structure. The 20-acre intake pumping plant facility would be built on a ground plane that is elevated approximately 30 feet above the surrounding landscape to avoid flooding. The pumping plants are 59 feet tall and surge towers would be 43-70 feet tall. The design of the intakes and associated facilities could play a large part in helping to improve the quality of affected and degraded vista viewsheds. Landscaping that would be incorporated into the facility would help to slightly improve views. As seen in Figure 17-85, *Existing and Simulated Views of Intake 2 East from South River Road*, the removal of a substantial amount of riparian vegetation along the east bank provides an unobscured view of the intake facility, pumping plant, and associated features making the intake facility the prominent visual feature in the landscape. A substation would also be introduced at the intake facility where none presently exists. The pumping plant introduces a large-scale building, similar in appearance to a warehouse facility, that is a focal point and visually discordant in scale and mass to the surrounding rural character. It also adds monotone solid color mass into a landscape where the natural colors of the landscape are earth-tones and more muted. The surge tower would be 100 feet in diameter and the top of the rim would be at 105 feet NAVD88 for Intake 2, making the tower 75 feet tall at this location because the pumping plant finished floor elevation would be at approximately 35 feet NAVD88. Overall, the existing vista from KOP 256 on SR 160 toward Intake 2 would be substantially impaired by vegetation removal and introduction of the pumping plant and the Scenic Quality Rating would be reduced from a **C** to an **F**. A reduction in the Scenic Quality Rating associated with Intake 2 is representative of the effects that could occur to other views associated with intakes through the removal of vegetation, obscuring and limiting views beyond the foreground, and introducing large industrial features into a rural landscape and this effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3).

As seen in Figure 17-86a, *Existing and Simulated Views of Intake 3 East from SR 160 in January 2012*, the removal of a substantial amount of riparian vegetation along the east bank opens up the vista but also increases the visual prominence of the pumping plant in the landscape. The pumping plant introduces a large building, similar in appearance to a warehouse facility, that is a focal point and visually discordant in scale and mass to the surrounding rural character within the vista. It also adds monotone solid color mass into a landscape where the natural colors of the landscape are earth-tones and more muted. When compared to Figure 17-76a that shows Intake 3 East for Alternatives 1A, 1B, 2A, 2B, 6A, 6B, 7 and 8 (PTO alternatives), the intake pad would be larger than under this alternative than for the PTO alternatives. In addition, the surge tower would be 100 feet in diameter and the top of the rim would rise above the pumping plant at 96 feet NAVD88 for Intake 3, making the tower 62 feet tall at this location because the pumping plant finished floor elevation would be at approximately 34 feet NAVD88 for this intake. While steel 230 kV transmission lines would not be introduced under this alternative, there would be a substation that would also visible and would further add to the industrial look of the intake facilities and detract from the existing rural character. Overall, the existing vista from KOP 34 on SR 160 toward Intake 3 would be substantially impaired by vegetation removal and introduction of the pumping plant and the Scenic Quality Rating would be reduced from a **D** to an **E**. A reduction in the Scenic Quality Rating associated with Intake 3 is representative of the effects that could occur to other vistas through the removal of vegetation, obscuring and limiting views beyond the foreground, and introducing large industrial features into a rural landscape and would be adverse (see discussions under 17.3.1.2 and 17.3.1.3). However, as shown in Figure 17-86b, *Existing and Simulated Views of Intake 3 East from SR 160 in July 2013*, fast-growing poplar or cottonwood trees that were newly planted in January 2012 have since grown and act to obscure large portions of the intake pad and portions of the pumping plant surge tower, and substation. While the substation would not be as noticeable, the pumping plant and surge tower would still be visually discordant in scale and mass to the surrounding rural character within the vista and the Scenic Quality Rating would be reduced from a **D** to an **E**. Note that, over time, the trees will continue to grow and views of Intake 3 from KOP 34 could be further limited.

Figure 17-77, *Existing and Simulated Views of Intake 2 West from SR 160*, shows an intake associated with the west alignment. However, this view is representative of how an intake under this alternative would look from CH E9 and could affect vista views from that roadway. The conversion of the riverbank that is grassy with riparian vegetation to the industrial looking on-bank intake is a stark visual and color contrast against the more natural colors and textures of a vegetated riverbank that is absent of structures. The pumping plant introduces a large warehouse type of building that is a focal point and visually discordant in scale and mass to the surrounding rural character within the vista. It also adds monotone solid color mass into a landscape where the natural colors of the landscape are earth-tones and more muted. The pumping plant and on-bank intake would limit and detract from the visual quality of views beyond the foreground. The introduction of tall, steel 230 kV transmission lines visually contrasts to existing views of wooden utility poles. In addition, at a closer distance, views of available sky would be interrupted by the transmission lines and pumping plant. Overall, the existing vista from KOP 15 on SR 160 toward Intake 2 would be substantially impaired by vegetation removal and introduction of the pumping plant and the Scenic Quality Rating would be reduced from a **C** to an **E**. A reduction in the Scenic Quality Rating associated with Intake 3 is representative of the effects that could occur to other vistas through the removal of vegetation, obscuring and limiting views beyond the foreground, and introducing large industrial features into a rural landscape, and this effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3).

Scenic vistas that would be affected by the intermediate forebay include those available from Twin Cities Road (KOPs 115 and 257). The intermediate forebay would be visible in the foreground from both of these scenic vistas, would encompass a 40-acre water surface area, and include a control structure to channel water to the tunnels. While the water surface of the This forebay would not be visible, it would convert agricultural lands to a large, geometrically shaped levee embankment system that would conflict with the existing forms, patterns, colors, and textures associated with agricultural lands. However, the majority of views would be from the ground-level and would be of the berms that would prevent views of the water surface within the vista. As seen in Figure 17-87, *Existing and Simulated Views of Intermediate Forebay from Twin Cities Road*, the scenic vista across agricultural fields from Twin Cities Road is fairly open but contains existing transmission lines. As for Alternative 1A, under Alternative 4, the forebay embankments would be tall enough to limit views of the tree line on the horizon. The intermediate forebay embankments would add a man-made visual massing and the embankments would have a visible geometric shape immediately adjacent to the roadway. Overall, the existing vista from KOP 257 on Twin Cities Road toward the intermediate forebay would alter and reduce the available views of agricultural lands and foreground views and would reduce the Scenic Quality Rating from an **E** to an **F**. This effect would be adverse when seen from Twin Cities Road. The expanded Clifton Court Forebay would have a similar or more prominent effect on scenic vistas available from Lindemann Road depending on location. Views from Lindemann Road that are closer to Herdlyn Road would be adversely affected because they would be in closer proximity to and would have more direct views of the forebay (KOP 107). The embankments would be prominent features that would replace agricultural fields and the water surface could be visible. Views from Lindemann Road that are closer to Rivers End Marina & Storage would be partially or fully obstructed by intervening roadside vegetation and infrastructure. The Clifton Court Forebay would be expanded by 700 acres. However, while it would convert a large area of agricultural land, the forebay in this location would not an adverse effect on the landscape intermediate forebay due to the predominance of the existing adjacent Clifton Court Forebay and other water conveyance features.

The spoil/borrow and RTM area north of Intake 2 along SR 160 (KOP 15), south of Lambert Road and north of Dierssen Road, north of Twin Cities Road (KOP 115), and on Staten Island, south of SR 12 (KOP 98) would result in a contiguous, large-scale landscape effect that would be included within the scenic vistas available from adjacent roadways. Alterations at these locations would result in sunken or elevated landforms that would be introduced into a landscape that is currently predominantly flat. These features would be visually discordant with the area's existing forms, patterns, colors, and textures associated with views from scenic vistas of agricultural lands in the study area.

Shaft sites visible within vistas including the shaft sites by the intakes, north of Lambert Road (KOP 86), south of Walnut Grove Road (KOP 258), and on Staten Island would result in alterations at these locations and would result in elevated landforms that would be introduced into a landscape that is currently predominantly flat. These features would be visually discordant with the area's existing forms, patterns, colors, and textures associated with views from scenic vistas of agricultural lands in the study area. Shaft sites located south of SR 12 (KOP 98) and north of SR 4 would have the same affect; however, these would mostly be visible to roadway users on local roadways, and views of construction activities would be fleeting as travelers on these roadways travel by the site. Construction activities associated with the shaft sites may constitute an adverse effect on visual resources due to the physical introduction of these features and the duration of time that they would be visible in the landscape. Once construction is completed, the shaft site construction pads would be removed and the launch and retrieval shafts would be covered with earth. This effect would be adverse.

Most of the transmission lines would follow access roads constructed for the BDCP conveyance facilities or other existing access roads and roadways that are outside the immediate area (KOPs 15, 16, 18, 19, 20, 26, 30, 34, 41, 42, 49, 54, 72, 73, 74, 86, 98, 101, 103, 106, 107, 115, 254, 255, 257, and 258). Once the proposed 230 kV electrical power transmission lines are constructed, tall steel lattice structures that would be highly visible landscape features would contrast strongly with their surroundings. The 69 kV electrical power transmission lines would also be larger than wood-poled transmission lines commonly seen in the Delta. While wood-poled transmission lines are part of most existing views, new 69 and 230 kV transmission lines and their cleared ROWs would adversely affect the existing visual character by introducing large towering structures in a linear pattern that appear to march through the landscape.

The effects of permanent access roads on scenic vistas would not be adverse. The effects of shaft site access hatches on scenic vistas could be adverse. The large scale of intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, the new operable barrier at the head of Old River, and the presence of new transmission lines may result in adverse effects on scenic vistas. Overall, effects on scenic vistas associated with Alternative 4 would be adverse. Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

***CEQA Conclusion*:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures, pumping plants, surge towers, large-scale borrow/spoil and RTM area landscape effects, shaft sites, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measure AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Impacts on scenic vistas associated with structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 4 would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

NEPA Effects**:** Conveyance facilities under Alternative 4 would result in an overall noticeable effect on viewers relative to their current experience and enjoyment of the study area's scenic resources along SR 160 and River Road, where the landscape sensitivity level is high (KOPs 15, 18, 20, 34, 45, and 54). All three intakes (2, 3, and 5), and the spoils/borrow and RTM area north of Intake 2 would be immediately and prominently visible in the foreground from SR 160, including construction activities described in Impact AES-1. These conveyance facility components would introduce visually dominant and discordant features into vistas, and these elements would be very noticeable to all viewer groups.

As seen in Figure 17-85, *Existing and Simulated Views of Intake 2 East from South River Road*, the removal of a substantial amount of riparian vegetation along the east bank provides an unobscured view of the intake facility, pumping plant, and associated features making the intake facility the prominent visual feature in the landscape. A substation would also be introduced at the intake facility where none presently exists. The pumping plant introduces a large-scale building, similar in appearance to a warehouse facility, that is a focal point and visually discordant in scale and mass to the surrounding rural character. It also adds monotone solid color mass into a landscape where the natural colors of the landscape are earth-tones and more muted. The surge tower would be 100 feet in diameter and the top of the rim would be at 105 feet NAVD88 for Intake 2, making the tower 75 feet tall at this location because the pumping plant finished floor elevation would be at approximately 35 feet NAVD88. Overall, the existing vista from KOP 256 on SR 160 toward Intake 2 would be substantially impaired by vegetation removal and introduction of the pumping plant and the Scenic Quality Rating would be reduced from **C** to an **F**. A reduction in the Scenic Quality Rating associated with Intake 2 is representative of the effects that could occur to other views associated with intakes through the removal of vegetation, obscuring and limiting views beyond the foreground, and introducing large industrial features into a rural landscape and this effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3).

As seen in Figure 17-86a, *Existing and Simulated Views of Intake 3 East from SR 160 in January 2012*, the removal of a substantial amount of riparian vegetation along the east bank acts to increase the visual prominence of the pumping plant in the landscape. In Figure 17-77, the pumping plant has the same visual effect as shown in Figure 17-86a because it introduces a large-scale building, similar in appearance to a warehouse facility, that is a focal point and visually discordant in scale and mass to the surrounding rural character. It also adds monotone solid color mass into a landscape where the natural colors of the landscape are earth-tones and more muted. When compared to Figure 17-76a that shows Intake 3 East for Alternatives 1A, 1B, 2A, 2B, 6A, 6B, 7 and 8 (PTO alternatives), the intake pad would be larger than under this alternative than for the PTO alternatives. In addition, the surge tower would be 100 feet in diameter and the top of the rim would rise above the pumping plant at 96 feet NAVD88 for Intake 3, making the tower 62 feet tall at this location because the pumping plant finished floor elevation would be at approximately 34 feet NAVD88 for this intake. While steel 230 kV transmission lines would not be introduced under this alternative, there would be a substation that would also be visible and would further add to the industrial look of the intake facilities and detract from the existing rural character. Overall, existing views from KOP 34 on SR 160 toward Intake 3 would also be substantially impaired by vegetation removal and introduction of the pumping plant and the Scenic Quality Rating would be reduced from a **D** to an **E**. A reduction in the Scenic Quality Ratings associated with Intake 3 is representative of the effects that would occur as a result of all intakes on SR 160 at each location through the removal of vegetation, obscuring and limiting views beyond the foreground, and introducing large industrial features into a rural landscape and this effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3). However, as shown in Figure 17-86b, *Existing and Simulated Views of Intake 3 East from SR 160 in July 2013*, fast-growing poplar or cottonwood trees that were newly planted in January 2012 have since grown and act to obscure large portions of the intake pad and portions of the pumping plant surge tower, and substation. While the substation would not be as noticeable, the pumping plant and surge tower would still be visually discordant in scale and mass to the surrounding rural character within the vista and the Scenic Quality Rating would be reduced from a **D** to an **E**. Note that, over time, the trees will continue to grow and views of Intake 3 from KOP 34 could be further limited. While trees would obscure some of the views along SR 160, such as at this location, they would not do so for the entire scenic corridor. Each intake would result in an adverse visual effect on views from SR 160 and adverse effects on SR 160 would be substantially compounded by the presence of each additional intake to dramatically alter views associated with SR 160.

The spoils and borrow and RTM areas near Intake 2 would be visible from SR 160 and result in the removal of mature vegetation and topographical changes to areas that are presently flat. Once construction of the BDCP facilities is complete, these areas would result in a large-scale landscape effect that would also alter the agrarian visual character. Alterations at these locations would result in sunken or elevated landforms introduced into a landscape that is currently predominantly flat. These features would be visually discordant with the area's existing forms, patterns, colors, textures associated with the existing agrarian character in the study area. Accordingly, spoil and borrow and RTM areas would result in an adverse effect on visual resources.

Implementation of this alternative would require removal of visually important features such as mature trees and shrubs and agricultural land, which are scenic elements that contribute to the viewing experience available to travelers along scenic highways in the study area. These features would be replaced by multi-story industrial concrete and steel structures, multiple-acre mounds of dirt, earthen embankments, and paved areas associated with the intake facilities, pumping plants elevated 30 feet above the surrounding landscaping, fencing and security lights, and new access roads. These visual elements would conflict with the existing forms, patterns, colors, and textures along River Road and SR 160; would dominate riverfront views available from SR 160; and would alter broad views and the general nature of the visual experience presently available from River Road and SR 160 and would result in adverse effects. Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these adverse effects.

***CEQA Conclusion*:** Because visual elements associated with this alternative would conflict with the existing forms, patterns, colors, and textures along River Road and SR 160; would dominate riverfront views available from SR 160; and would alter broad views and the general nature of the visual experience presently available from River Road and SR 160 (thereby permanently damaging the scenic resources along a scenic highway), these impacts are considered significant. Mitigation Measures AES-1a, AES-1c, and AES-1e would help reduce these impacts through the application of aesthetic design treatments to all structures, to the extent feasible. However, impacts on visual resources resulting from damage to scenic resources that may be viewed from a state scenic highway would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes to the visual character of a scenic highway viewshed that do not blend or are not in keeping with the existing visual environment. Thus, overall, this impact would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

NEPA Effects: The following NEPA effects would result from the introduction of new sources of daytime and nighttime glare and nighttime lighting.

Daytime and Nighttime Glare

BDCP conveyance facilities would result in new sources of glare if they were made of materials that easily reflect light. Intakes 2, 3, and 5 and their associated pumping plants, surge towers, and facilities would create very noticeable effects relating to light and glare. Alternative 4 would result in a reduced amount of new sources of light or glare relative to Alternative 1A because there would only be three intakes instead of five, and there would not be a pumping plant at the intermediate forebay. The effects are illustrated in the simulations showing intake facilities in Figures 17-76 through 17-78, where light building colors over a large surface area would reflect off of those surfaces and increase glare, especially when combined with the removal of vegetation that absorbs light, provides shade, and screens glare. Sunlight would reflect off the new water surfaces of the forebay, creating new sources of glare where none presently exists. In addition, the use of nighttime lighting, described below, would result in nighttime glare of the lights reflecting off water surfaces. Because there are a large number of viewers in and around the waterways, intake structures, and forebay, effects associated with glare are considered adverse. Conversely, as vegetation and waterfowl become established following completion of the new forebays, some of these net visual impacts may be diminished.

Nighttime Lighting

Construction of each intake structure would take up to 4 years to complete and would occur Monday through Friday for up to 24 hours per day. As discussed in Impact AES-1, dewatering near intakes, pumping plants, and certain pipeline construction areas and north of the intermediate forebay would take place 7 days per week and 24 hours per day. If evening and nighttime construction activities take place, they would require the use of extremely bright lights, and this would negatively affect nighttime views of and from the work area. Nighttime construction could also result in headlights flashing into nearby residents' homes when construction vehicles are turning onto or off of construction access routes. Proposed surge towers would require the use of safety lights that would alert low-flying aircraft to the presence of these structures because of their height.

Establishment of BDCP facilities in the Delta would require the use of safety lighting once built. Lighting equipment associated with BDCP facilities would increase the amount of nighttime lighting in the Delta above existing ambient light levels. In particular, security lighting for the intakes and their associated pumping plants and facilities would create very noticeable effects relating to increased nighttime light at those locations. As described in Chapter 3, *Description of Alternatives*, lighting would be designed in accordance with guidance given by DWR's WREM No. 30a, *Architectural Motif, State Water Project* and through coordination with local agencies through an architectural review process. This guidance is set forth as follows.

> All artificial outdoor lighting is to be limited to safety and security requirements. All lighting is to provide minimum impact on the surrounding environment and is to be shielded to direct the light only towards objects requiring illumination. Lights shall be downcast, cut-off type fixtures with non-glare finishes set at a height that casts low-angle illumination to minimize incidental spillover of light onto adjacent properties, open spaces or backscatter into the nighttime sky. Lights shall provide good color rendering with natural light qualities with the minimum intensity feasible for security, safety

and personnel access. All outdoor lighting will be high pressure sodium vapor with individual photocells. Lighting will be designed per the guidelines of the IES. Additionally, all lights shall be consistent with energy conservation and are to be aesthetically pleasing. Lights will have a timed on/off program or will have daylight sensors. Lights will be programmed to be on whether personnel is present or not.

Although the lighting would be designed to be shielded and oriented in such a manner as not to subject the immediate surroundings to extremes in the levels of light, these types of light generate an ambient nighttime luminesce that is visible for substantial distances from a large portion of the Delta. This glow contrasts with the rural character. Such a change would be particularly noticeable in rural areas where ambient light levels are currently low and there are nearby viewers. Because the study area currently experiences low levels of light because there are fewer light/glare producers than are typical in urban areas, and because there are a larger number of viewers in and around the waterways, intake structures, and intermediate forebay, effects associated with nighttime light are considered adverse. Mitigation Measures AES-4a through AES-4c are available to address these effects.

CEQA Conclusion**:** The impacts associated with light and glare under Alternative 4 are significant because there are a larger number of viewers in and around the waterways, intake structures, and intermediate forebay; BDCP facilities would increase the amount of nighttime lighting in the Delta above existing ambient light levels; and the study area currently experiences low levels of light because there are fewer light/glare producers than are typical in urban areas. Mitigation Measures AES-4a through AES-4c would help reduce these impacts by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences; however, these mitigation measures would not reduce impacts to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the new light and glare sources would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that do not blend or are not in keeping with the existing visual environment. Thus, the new sources of daytime and nighttime light and glare associated with Alternative 4 would result in significant and unavoidable impacts on public views in the project vicinity.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

The BDCP proponents will minimize the effect of nighttime construction light and glare on nearby residences by limiting construction hours within 0.25 mile of residents.

- Construction activities scheduled to occur between 7 a.m. or 7 p.m. will not take place before or past daylight hours (which varies according to season) within 0.25 mile of sensitive residential receptors.

Implementation of this mitigation measure will eliminate use of high-wattage lighting sources to operate in the dark and would minimize introduction of new nighttime light and glare sources in these areas to the extent feasible.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

The BDCP proponents will minimize fugitive light from portable lighting sources used during construction by adhering to the following practices.

- At a minimum, project-related light and glare will be minimized to the maximum extent feasible, given safety considerations.
- Color-corrected halide lights will be used.
- Portable lights will be operated at the lowest allowable wattage and height and will be raised to a height no greater than 20 feet.
- All lights will be screened and directed down toward work activities and away from the night sky and nearby residents to the maximum extent safely possible.
- The number of nighttime lights used will be minimized to the greatest extent possible.

Implementation of this measure will reduce—to the extent feasible as governed by site-specific safety requirements—the overall amount of new daytime and nighttime light and glare introduced to the project vicinity during construction.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

BDCP proponents will evaluate construction routes and identify portions of access routes where the use of visual barriers would minimize the introduction of new light and glare from construction truck headlights and the impact on nearby residents.

The BDCP proponents will install a visual barrier along portions of access routes where screening would prevent excessive light spill toward residents from truck headlights being used during nighttime construction activities. These visual barriers will meet the following performance criteria.

- The visual barrier will be a minimum of 5 feet high and will provide a continuous surface impenetrable by light. This height may be obtained by installing a temporary structure, such as fencing (e.g., chain link with privacy slats) or a semi-permanent structure, such as a concrete barrier (e.g., a roadway median barrier or architectural concrete wall system) retrofitted with an approved visual screen, if necessary, to meet the required height.
- The visual barriers will be of a material or have a color treatment appropriate for the location and traffic safety requirements. The use of glossy materials will be avoided.

Implementation of this measure will minimize the extent of construction truck headlight glare intruding into nearby residential areas.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

NEPA Effects: Once in operation, visible maintenance activities on the intakes, tunnels, and forebays, and transmission lines would be required periodically. Intakes would require painting, cleaning, and repairs. These activities could be visible from the water or land. Forebays would be dredged to remove sediment at approximately 50-year intervals and embankments would receive vegetation removal and repairs. These activities would be visible from the area surrounding the forebays.

Tunnels would require periodic inspection and would have vehicles parked near shaft sites while tunnels are accessed for inspection. Transmission lines would require periodic vegetation removal within the ROWs. The greatest visual effects resulting from operations would be maintenance of the intakes and dredging of the forebays. However, these temporary maintenance activities are anticipated to occur within a short period of time, and effects would not be adverse.

***CEQA Conclusion*:** Maintenance of the conveyance facilities (i.e., intakes, tunnels, forebays and transmission lines) would be required periodically and would involve painting, cleaning, and repair of structures; dredging at forebays (at approximately 50-year intervals); vegetation removal and care along embankments; tunnel inspection; and vegetation removal within transmission line ROWs. These visible maintenance activities would be temporary, intermittent, and short-term impacts and would be considered less than significant. Maintenance and operation of Alternative 4, once constructed, would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features. Thus, overall, Alternative 4 would have a less-than-significant impact on existing visual quality and character during maintenance and operation of the facilities in the study area. No mitigation is required.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

Under Alternative 4, CM3 (natural communities protection and restoration) would be the mechanism to preserve lands to aid in implementing measures CM4–CM11. CM12 (methylmercury management), CM13 (invasive aquatic vegetation control), and CM22 (avoidance and minimization measures) would be integrated into site-specific restoration designs and operations under CM3–CM11 (discussed below) and would appear to be an integrated part of those measures and not independent visual features. CM14 (operation of the Stockton Deep Water Ship Channel Aeration Facility), CM17 (illegal harvest reduction), CM19 (urban stormwater treatment), CM20 (recreational users invasive species program) are management measures that would not result in changes to the visual environment. Thus, CM14, CM17, CM19, and CM20 are not discussed further.

Existing Visual Quality and Character

Under Alternative 4, CM2 could introduce many features that would be visible in the landscape; these are described in Chapter 3, *Description of Alternatives*. These features include fish management facilities (e.g., screens, ladders, ramps, barriers); realignment of waterways; additional hydrologic monitoring stations; a floodplain fish rearing pilot project at Knaggs Ranch; support facilities (operations buildings, parking lots, access facilities such as roads and bridges) necessary to provide safe access for maintenance and monitoring; modification, removal, and construction of berms, levees, and water control structures. These actions have the potential to have adverse visual effects because of their proximity to sensitive receptors, duration of construction activities, and changes to the visual environment resulting from these proposed actions.

The Yolo Bypass, under CM2, would also be flooded for longer periods to improve habitat and spawning for covered fish species and to reduce stranding. While the increase in duration of flooding is not known, it is anticipated that there would not be an adverse effect on visual resources because the flooding, which is an existing visual condition, would occur during the normal flood season of the bypass and just extend that season. Therefore, the extended flood duration is not considered adverse.

CM4–CM11 would result in the conversion of primarily agricultural lands to restored or enhanced habitat. Activities associated with the implementation of restoration and habitat enhancement would take place over 40 years across all conservation measures, often during a relatively short window each year, and the overall intensity and duration of each action would vary based on the individual project. CM15 (predator control) may result in temporary, localized changes by removing predator hiding spots, modifying channel geometry, physically removing predators, and utilizing other control methods as dictated by site-specific conditions. This could result in physical changes to the visual environment at site-specific locations that could be visible to water- and land-based recreationists and other viewer groups, based on location. This may have beneficial or adverse effects based on the size of proposed projects and pre-and post-project conditions (e.g., if restoration is implemented and improves pre-project conditions or if natural vegetation is removed and replaced with riprap which would degrade pre-project conditions). CM16 (nonphysical fish barriers) would use sound, light, and bubbles at Old River, the Delta Cross Channel, and Georgiana Slough and, potentially, at Turner Cut, Columbia Cut, the Delta-Mendota Canal intake, and Clifton Court Forebay to direct fish passage. The lights and bubbles may be visible to water-based recreationists, especially at dusk and night, and sound (if audible) could attract viewers' attention toward the nonphysical barriers. Small scale changes may be visible on the banks or in the water to be used for anchoring that could result in adverse visual effects. CM18 (conservation hatcheries) would result in visual changes to the environment by building a new hatchery that consists of a facility on the edge of the Sacramento River and a larger supplementation production facility nearby. This would require conversion of existing land uses along the river and nearby to a built facility. CM21 (nonproject diversions) would result in changes to the visual environment due to removal of individual diversions; consolidation of multiple unscreened diversions to a single or fewer screened diversions placed in lower quality habitat; relocation of diversions from high quality to lower quality habitat, in conjunction with screening; and reconfiguration and screening of individual diversions in high quality habitat. This could result in the removal and restoration at some locations that would result in beneficial effects or could introduce new structures where none presently exist that could be adverse.

Presently, it is not uncommon for heavy equipment to be seen, intermittently, for existing levee maintenance, agricultural, and dredging operations; site-specific construction; and use in managing wetlands and other land uses. Implementation of restoration and enhancement features would also introduce considerable heavy equipment and associated vehicles, including dozers, graders, scrapers, and trucks, into the viewshed of all viewer groups in the vicinity. Construction may include the creation of new levees; breeching existing levees; the creation of habitat levees; increasing connectivity between marshes and waterways; grading; planting; and redirecting intakes, discharges, and outfalls. In addition, acquiring public and private property to restore or enhance lands could displace occupants and would require infrastructure improvements such as roadways, parking lots, and utilities. These actions may also include the construction of new public features such as interpretive facilities and restrooms at some locations. These proposed actions would create changes in views of and from the study area throughout the construction period, which may last longer than 2 years depending on the specific project and effort required for construction. Because of the unknown location of site-specific restoration activities, potential presence of sensitive viewers, the potential for construction periods to last longer than 2 years, and varying intensity of construction, effects associated with implementation of these conservation measures are considered adverse.

Implementation of restoration actions and conservation measures under Alternative 4 would have a noticeable effect on the visual character and quality of the study area and its surroundings. Locations that are currently characterized by physical features associated with agricultural activities would be altered through the establishment of new wetlands, marshes, or restored riparian corridors. These areas may be denuded of vegetation, or may appear to be so from a distance because of immature planted vegetation that would be similar in appearance to tilled or newly planted agricultural fields. The sites would be in a transitional state, and over a period of from one to several years, plant species would mature and vegetation would recolonize the sites. Because these sites would be scattered throughout the conservation zones, they would not create a visual imposition on the landscape or be perceived as a centralized, large-scale visual change. In addition, restored/enhanced sites would increase the amount of native vegetative communities that attract wildlife, thus befitting the visual quality and diversity of the study area. The visual characteristics of these new landscapes would be consistent with other natural marsh or wetland areas of the Delta. In this sense, the BDCP would have a beneficial effect on the visual character and quality of the restoration areas and their surroundings.

Scenic Vistas

Under Alternative 4, CM2 has the potential to visually alter scenic vistas depending on the location of various modifications, such as levee construction or removal. CM4–CM11 would result in the conversion of primarily agricultural lands to restored or enhanced habitat. CM16, CM18, CM15, and CM21 have the potential to introduce visually discordant features into scenic vistas, if they are located within a vista viewshed. Once constructed, large-scale changes to scenic vistas would result from conversion of agriculture lands to restored/enhanced areas that have more topographic variation and variable vegetative cover. Because exact locations of restoration/enhancement sites have not been identified, effects on site-specific scenic vistas cannot be determined. However, views of the large areas proposed for restoration/enhancement could likely change from agricultural or developed uses to areas with more natural features such as marshes and wetlands.

Depending on the location, the effect on scenic vistas could be beneficial or adverse. Beneficial effects would occur where flat agricultural lands and row crops are replaced by restored wetlands and riparian vegetation, because natural areas are rarer scenic features in the Delta and such a change would increase visual diversity. In general, wetlands would provide excellent vista opportunities because the restored vegetation cover would provide visual interest and would not block distant background views. However, at some sites, restoration/enhancement of agricultural lands to riparian forest could block long-distance vistas from scenic vista areas. For example, riparian forest plantings installed along a river segment where roadway travelers currently have open vistas of the waterway would mature and result in more restricted views of the river and vistas beyond. Restoration/enhancement actions could also result in the creation of new scenic vistas, perhaps through the removal of existing agricultural tree rows and the establishment of vista points at specific locations or viewing opportunity areas along newly created recreational trails.

After completion of construction activities necessary for restoration, areas surrounding the restored/enhanced area may be denuded of vegetation, or appear to be so from a distance because of immature planted vegetation would be similar in appearance to tilled or newly planted agricultural fields. The sites would be in a transitional state, and over a period of one to several years, plant species would mature and vegetation would recolonize the sites. The sites would be scattered throughout the conservation zones so would not create a visual imposition on the landscape or be perceived as a centralized, large-scale visual change. In addition, restored/enhanced sites would increase the amount of native vegetative communities that attract wildlife, thus helping to improve the visual quality and diversity of the restored areas. The visual characteristics of these restored/enhanced landscapes would be similar to other areas of the Delta that are in a natural marsh or wetland state and more limited in extent than the widespread areas of agricultural development. In this sense, the BDCP would have an overall beneficial effect related to the enhancement and creation of scenic vistas in the Delta. However, site-specific restoration information and plans need to be developed before the site-specific effects on scenic vistas can be determined.

Scenic Highways

No restoration actions are expected to be established in areas along SR 160. However, it is possible that actions proposed for some areas would be visible in the middleground and background views from SR 160. These areas are: the portions of CZ 3 on the west side of the Sacramento River that extends from Sacramento to the confluence with the Yolo Bypass; CZ 5, on the east/south side of the Sacramento River that extends from Intake 1 to Pittsburg; and CZ 10, just south of CZ 5 and spanning both sides of SR 4 near Antioch. In addition, CZ 7 would be visible in the middleground and background views from I-580, which is a state-designated scenic route in San Joaquin County. CM15, CM16, CM18, and CM21 have the potential to introduce visually discordant features as viewed from scenic highways, if they are located within the viewshed of a scenic highway. During the near term, changes to the visual environment resulting from vegetation removal may be noticeable to travelers along these routes. These areas may be denuded of vegetation, or appear to be so from a distance because of immature planted vegetation that would be similar in appearance to tilled or newly planted agricultural fields. The sites would be in a transitional state, and over a period of one to several years, plant species would mature and vegetation would recolonize the sites. The sites would be scattered throughout the conservation zones so would not create a visual imposition on the landscape or be perceived as a centralized, large-scale visual change. In addition, restored/enhanced sites would increase the amount of native vegetative communities that attract wildlife, thus helping to improve the visual quality and visual diversity of the restoration area. Due to the distance, changes associated with restoration activities would not affect the visual quality along these scenic highway corridors and would not result in adverse effects.

Light and Glare

The intent of the restoration actions would be to establish native vegetation along riparian corridors by allowing inundation of areas or by converting existing agricultural lands to tidal wetlands. Given the nature of CM2–CM22, only a few new project-related sources of light and glare would be expected to result from their implementation. Restored areas would largely be natural habitat areas. CM16 and CM18 have the potential to introduce new lighting sources through project features while it is not likely that CM15 and CM21 would introduce new sources of light. Limited lighting could be installed at some facilities, such as flood gates/pumping facilities, operations buildings, and visitor facilities. At this time, it is not known where these facilities would be proposed; however, it is anticipated that there would be a very limited number of such facilities and that the lighting would be reduced to the minimum necessary to provide safety and security and that effects would not be adverse.

Summary

NEPA Effects: There may be site-specific, localized adverse visual effects. These conservation measures would alter the Delta landscape by incrementally, and substantially, introducing elements into the study area over time. This could pave the way for the gradual transition of a much valued cultural and regional landscape and make it easier for other similar projects to be implemented over time because of the devalued baseline conditions, compared to Existing Conditions, if conservation measures are not planned and implemented in a manner that protects visual resources. CM2–CM22, when combined with CM1, could substantially alter the visual character of the study area, which is strongly identified by its agricultural and water-based Delta landscapes and communities. These landscapes and communities could be adversely affected by the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts associated with other development potentially setting a precedent for other development to occur. All of these effects would alter the visual character of the existing regional landscape. While many planning and regulatory documents recognize the unique visual resources of the Delta and the importance of this regional visual landscape as a shared and endangered resource, there is no comprehensive planning or regulatory document to aid in the preservation of this resource and to serve as guidance for development within this landscape.

Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-4a through AES-4c are available to address effects from habitat restoration and enhancement actions under CM2–CM22. In addition, Mitigation Measures AES-6a and AES-6b are available to help reduce adverse visual effects. Upon development of site-specific design information and plans, additional mitigation measures may be identified to address action-specific adverse effects. However, each individual project under CM2–CM22 would undergo the environmental compliance process that would be used to determine what additional mitigation measures, would be deemed appropriate to reduce adverse effects and to assess compliance with relevant regulations. Finally, Mitigation Measure AES-6c is available to help inventory, classify, and protect the unique visual landscape of the Delta.

CEQA Conclusion: Implementation of conservation measures under Alternative 4 has the potential to affect existing visual quality and character, views of scenic vistas, views from scenic highways, and introduce new sources of light and glare in the study area. Impacts on the existing visual quality and character would be significant where use of large numbers of heavy construction equipment, changes in topography, and introduction of new structures or facilities where none presently exist would take place in the vicinity of sensitive receptors. However, because a number of factors that would determine the level of change are unknown—the location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction—impacts associated with implementation of these conservation measures (CM2–CM22) on visual quality and character, scenic vistas, and light and glare sources, are considered significant. Because of the distance of implemented conservation measures from scenic highways, changes associated with these activities would not affect the visual quality along these scenic highway corridors and this impact would be less than significant. Site-specific restoration information and plans need to be developed before the site-specific effects on the existing visual character, scenic vistas, and light and glare can be determined.

Several mitigation measures are available to minimize the impacts on visual quality and character in the study area that could result from implementation of these conservation measures. As summarized below, these measures could be applied to individual restoration projects or actions as appropriate for the site-specific conditions and design considerations. In addition, each restoration project or action would undergo an environmental compliance process that would be used to determine what additional mitigation measures would be deemed appropriate to reduce significant effects. Mitigation Measures AES-1a through AES-1g could be applied to minimize impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. Mitigation Measures AES-4a through AES-4c could be used to reduce the effects of new light and glare sources by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. In addition, Mitigation Measures AES-6a and AES-6b would further minimize impacts on visual resources by undergrounding new or relocated utility lines, where feasible, and through an evaluation of an afterhours low-intensity and lights off policy. Finally, implementation of Mitigation Measure AES-6c would provide a strategy for the protection of the unique visual landscape of the Delta.

While some of these conservation measures could result in beneficial impacts through the restoration of natural habitat and these mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a less-than-significant level because of uncertainties associated with future implementation of CM2–CM22. In addition, the size of the study area and the nature of changes introduced by these conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend or be in keeping with the existing visual environment. Thus, implementation of CM2–CM22 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

BDCP proponents will underground new or relocated utility lines, where feasible, to reduce or improve adverse visual effects associated with the visual intrusion of such features in the landscape. New or relocated utility lines will not be underground where undergrounding would constitute an adverse effect on sensitive habitats or sensitive species or require the removal of healthy native trees that would fall under the definition of a native heritage tree. For the purpose of this mitigation measure, a native heritage tree is defined for this project using guidance set forth in the City of Sacramento Heritage Tree Ordinance, as follows.

- Any tree of any species with a trunk circumference of one hundred (100) inches or more, which is of good quality in terms of health, vigor of growth and conformity to generally accepted horticultural standards of shape and location for its species.
- Any native *Quercus* species, *Aesculus California,* or *Platanus Racemosa*, having a circumference of 36-inches or greater when a single trunk, or a cumulative circumference of 36-inches or greater when a multi-trunk, which is of good quality in terms of health, vigor of growth and conformity to generally accepted horticultural standards of shape and location for its species.
- Any tree 36-inches in circumference or greater in a riparian zone. The riparian zone is measured from the centerline of the water course to 30-feet beyond the high water line (City of Sacramento 2012).

Other trees may also be protected, as deemed appropriate by BDCP proponents to be of special historical or environmental value or of significant community benefit.

Implementation of this measure, where possible, will avoid the introduction of new aboveground utility lines and result in an improved view in areas where existing utility lines could be relocated underground.

Mitigation Measure AES-6b: Develop and Implement an Afterhours Low-Intensity and Lights Off Policy

The BDCP proponents will evaluate measures and develop and implement of a commercial and public buildings lighting policy to minimize the impact of building lighting on nearby sensitive viewers. The policy will include the following performance standards.

- Require building design to include low-intensity interior safety lighting for use during afterhours. This practice would decrease the amount of nighttime light that would occur from using standard interior lighting as safety lighting.
- Prevent unnecessary overuse of interior nighttime lighting, requiring that offices and businesses implement a "lights-off" policy. This practice requires that all non-safety lighting be turned off at night (such as in offices and hallways), after business hours. This standard can be accomplished through use of movement activated lighting systems.
- Prohibit use of harsh mercury vapor or low-pressure sodium bulbs.

Such a policy can greatly reduce the amount of nighttime light pollution that is created by standard office and business practices.

Mitigation Measure AES-6c: Implement a Comprehensive Visual Resources Management Plan for the Delta and Study Area

The BDCP project proponents will work with federal, state, and local stakeholders to implement a visual resources management plan for the Delta and study area. The visual resources management plan will be developed based on the following considerations and performance standards.

- The purpose of the visual resources management plan will be to protect and enhance the visual landscape and will not serve as a mechanism to allow for undue development or to facilitate advanced development of the Delta and study area.
- The visual resources management plan will implement a prescribed methodology for inventorying and classifying all visual landscapes within the study area. This methodology will utilize measures similar to BLM and USDA Forest Service inventorying techniques or will develop its own methodology for inventorying study area visual landscapes. This methodology will incorporate a quantifiable measure of visual landscapes that can be used to determine areas for preservation, enhancement, and smart development, and to measure and monitor visual effects on the study area landscape over time. This inventory will include an inventory of viewer groups and viewer responses to adequately identify publicly valued visual landscapes.
- The inventory of visual landscapes within the study area will be used as a tool to preserve the visual landscape and to guide smart growth and development.

- The visual resources management plan will implement regulatory language to protect visual resources of the study area, based on preserving important and sensitive visual landscapes. It will also identify design and management measures for avoidance of adverse effects.
- The visual resources management plan will identify and facilitate the preservation of sensitive visual landscapes through the planning and establishment of scenic easements and official federal and/or state designation for the protection of scenic resources (e.g., historic and/or scenic trails, designated scenic areas, scenic highways/byways, and wild and scenic rivers).
- The visual resources management plan will serve to encourage the integrated use of environmental design arts, as outlined in Section 102(A) of NEPA, so that projects within the study area are designed to be self-mitigating instead of waiting until the environmental analysis process to establish design measures that mitigate a project's visual effects.
- The visual resources management plan will recognize and work with the evolving visual landscape as it relates to climate change and sea level rise. It will establish proactive design and management measures that protect the evolving landscape and visual integrity of the study area and will not facilitate reactive design and management measures that could adversely alter the visual landscape of the study area.
- The visual resources management plan for the study area will be an adaptive management tool and will undergo periodic updates every 20 years.
- CM2–CM22 will comply with this visual resources management plan.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

NEPA Effects**:** Constructing conveyance facilities (CM1) and implementing CM2–CM22 under Alternative 4 would be similar to Alternative 1A, Impact AES-7, with the key difference related to construction of only Intakes 2, 3, and 5 and could result in the potential for some incompatibilities with plans and policies related to preserving the visual quality and character of the Delta. A number of plans and policies that coincide with the study area boundaries provide guidance for visual resource issues as overviewed in *Section 17.2, Regulatory Setting*. This overview of plan and policy compatibility evaluates whether Alternative 4 is compatible or incompatible with such enactments, rather than whether impacts are adverse or not adverse or significant or less than significant. If the incompatibility relates to an applicable plan, policy, or regulation adopted to avoid or mitigate visual effects, then an incompatibility might be indicative of a related significant or adverse effect under CEQA and NEPA, respectively. These physical effects of Alternative 4 on visual resources are addressed in Impacts AES-1 through AES-6, above. The following is a summary of compatibility evaluations related to visual resources for plans and policies relevant to the BDCP.

Conveyance Facilities

- The Sierra Resource and Cosumnes River Preserve Management Plans protect the Cosumnes River Preserve. Views within the Cosumnes River Preserve would not be affected by Alternative 4 because it is located east of I-5 and public views of the project site available from trails are obscured by riparian vegetation and I-5.

- The Suisun Marsh is protected by the San Francisco Bay Conservation and Development Commission Suisun Marsh Protection Plan. The eastern boundary of the Suisun Marsh extends to Collinsville Road in southern Solano County and falls within the westernmost portion of the study area. Views from Suisun Marsh would not be affected by this alternative because project features would be obscured by distance, the Altamont Hills, and intervening trees, infrastructure, and development.
- EBRPD parks within the study area include Browns Island, Antioch/Oakley, and Big Break Parks (East Bay Regional Park District 2013b). Views from these parks would not be affected by this alternative because project features would be obscured by distance, the Altamont Hills, and intervening trees, infrastructure, and development.
- The cities of Antioch, Brentwood, Oakley, Sacramento, Lathrop, Stockton, Tracy, Rio Vista, Suisun City, and West Sacramento would not be affected by this alternative because there are no project features within or visible from these cities. Therefore, this alternative would be consistent with the protection of visual resources covered under those general plans.
- The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta, Delta Plan, Brannan Island and Franks Tract State Recreation Areas General Plan are all focused on the protection of resources, including visual resources, within the Delta. While constructing and operating conveyance facilities under this alternative are intended to provide ecosystem benefits in the Delta, constructing these conveyance elements could be considered incompatible with measures to protect the unique visual environment of the Delta because agricultural lands and riverbanks would be converted to other uses and the scale of construction would result in changes to the landscape that may be considered disruptive to the current Delta environment and visual quality.
- Contra Costa, Sacramento, San Joaquin, and Solano Counties all have policies to preserve and protect the scenic qualities of the Delta as summarized in *Section 17.2 Regulatory Setting*. In addition, Alameda, Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties are focused on the protection of visual resources and preserving agricultural lands. The general plans for these counties include policies for the protection of visual resources, trees, waterways, and landscaping and for avoiding impacts such as the alteration of landforms and the introduction of utilities and new sources of light. These policies seek to minimize visual impacts and enhance scenic qualities and also encourage placing utility lines underground. The conversion of agricultural lands and riverbanks to intake facilities, conveyance facility changes and introduction of new lighting and transmission lines where none presently exist would substantially alter the landscape and could be considered incompatible with local policies aimed at protecting visual resources in these counties. Potential incompatibilities with Sacramento County and San Joaquin County policies would be most likely because most of the project features occur in these counties. Alameda and Contra Costa Counties have much smaller portions of project features that surround the Clifton Court Forebay. Yolo County would be affected by intakes located on the east bank of the Sacramento River that would affect views from South River Road. Alternative 4 would not be incompatible with Solano County policies because conveyance facilities would not be located in this area.

Other Conservation Measures

- The Yolo Bypass would be altered under CM2. Views of and from South River Road would not be affected. However, new fish screens, ladders, ramps, barriers, realignment of waterways, additional hydrologic monitoring stations, fish rearing pilot project at Knaggs Ranch, operations buildings, parking lots, access facilities such as roads and bridges, and modification, removal, and construction of berms, levees, and water control structures would result in changes to the landscape that may be incompatible with the Yolo County General Plan Policies LU-3.7, CC-1.2, CC-1.3, and CC-1.4 that protect scenic areas, the rural landscape character, and the night sky.
- CM4–CM11 would result in the conversion of primarily agricultural lands to restored or enhanced habitat across all 11 CZs, with specific focus on ROAs (refer to Figure 3-1). Therefore, associated regulations may apply. Restored areas would largely be natural habitat areas. Alterations such as channel and levee modifications, landform alteration from dredge spoil placement, and floodplain lowering could change the visual landscape. Restoring areas and views to natural, native habitat would likely be beneficial and would increase visual diversity. However, converting agricultural lands may be incompatible with one or more regulation protecting visual resources, although it may facilitate regulations set in place to protect and restore the Delta. If facilities, such as buildings, parking lots, or roads, are built, they would also have the potential to be incompatible with relevant regulations that protect scenic areas, the landscape character, the night sky, and the Delta.
- CM15 and CM21 would occur across all 11 CZs and could result in physical changes to the visual environment at a number of locations and where relevant regulations may apply. This may have beneficial or adverse effects based on the size of proposed projects and pre-and post-project conditions (e.g., if restoration is implemented and improves pre-project conditions or if natural vegetation is removed and replaced with rip rap or a new diversion structure that degrades pre-project conditions). Vegetation removal and replacement with rip rap or a diversion structure could be incompatible with be incompatible with relevant regulations that protect scenic areas, the landscape character, the night sky, and the Delta.
- CM16 could use sound, light, and bubbles at the head of the Delta Cross Channel and Georgiana Slough in Sacramento County; Old River, Turner Cut, and Columbia Cut in San Joaquin County, the Delta-Mendota Canal intake in Alameda County; and Clifton Court Forebay in Contra Costa County to direct fish passage. Small scale changes may be visible on the banks or in the water used for anchoring that could result in adverse visual effects, but it is anticipated that these changes would be compatible with County general plan policies that protect visual resources.
- Building a new hatchery that consists of a facility on the edge of the Sacramento River and a larger supplementation production facility nearby, through CM18, would result in visual changes and conversion of existing land uses along and near the river would be required to build facilities. These facilities could be located in Sacramento, Yolo, or Solano Counties and also fall within the Delta. Therefore, corresponding regulations may apply. The size and locations of these facilities are unknown, but it is likely that conversion of existing land uses, and potentially undeveloped land would alter the visual character along the Sacramento River and would be incompatible with one or more plans or policies for the protection of visual resources in these regions.

***CEQA Conclusion*:** The incompatibilities identified in the analysis indicate the potential for a physical consequence to the environment. The physical effects they suggest are discussed in impacts

AES-1 through AES-6, above and no additional CEQA conclusion is required related to the compatibility of Alternative 4 with relevant plans and policies.

17.3.3.10 Alternative 5—Dual Conveyance with Pipeline/Tunnel and Intake 1 (3,000 cfs; Operational Scenario C)

Table 17D-1 in Appendix 17D, *Permanent Impacts after Construction is Complete*, describes existing visual characteristics and the BDCP-related permanent effects of Alternative 1A on visual quality and character, scenic vistas, scenic roadways, and from light and glare sources after construction is complete and identifies the overall effect on viewers. Appendix E, *Permanent Features*, identifies the viewer groups and viewing locations that would be affected by permanent alternative features. Effects would be similar for this alternative. Under Alternative 5, the conveyance alignment from the intakes to the Byron Tract Forebay, along with the associated shaft site, access road, transmission line, pumping plants, barge unloading facility sites, and spoil/borrow and RTM areas would be identical to Alternative 1A. The difference between this alternative and Alternative 1A on visual resources is the location and number of intakes. Alternative 5 would use only one intake: Intake 1. The effects associated with construction of Intake 1 are discussed in detail under Alternative 1A, and those effects would be the same under Alternative 5. In addition, the Byron Tract Forebay would be 200-acres instead of 600-acres.

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

***NEPA Effects*:** Effects related to visual resources under this alternative would be similar to those described for Alternative 1A. However, the severity of these effects would be decreased because there would only be one intake structure instead of five. The primary features that would affect the existing visual quality and character under Alternative 5, once the facility has been constructed, would be the intake, the intermediate forebay and Byron Tract Forebay, transmission lines, and resulting landscape effects left behind from spoil/borrow and RTM areas, and concrete batch plants and fuel stations.

Overall, construction would take 9 years, and the intensity of the activities in contrast to the current rural/agricultural nature of the area would be substantial. Construction of intakes, and the accompanying pumping plants, surge towers, borrow/spoil areas, and RTM areas would introduce visually dominant and discordant features in the foreground and middleground views, and these elements would be very noticeable to all viewer groups.

After construction, areas surrounding the intake, spoil/borrow areas, RTM areas, shaft sites, and locations where concrete batch plants and fuel stations were located may be denuded of vegetation for a short period of time until the landscaping plans designed under WREM No. 30a are implemented. Once installed, the landscape would still appear to be denuded of vegetation or to have little vegetative cover because immature landscaping would be similar in appearance to tilled or newly planted agricultural fields. The sites would be in a transitional state, and over a period of a few years, plant species would mature and vegetation would recolonize the sites. These changes would happen in an area known for its open space, agricultural landscapes, and rural characteristics and would segment the visual landscape of the study area, reduce the amount of open space lands available to viewers, and eliminate valued visual resources. The effects of permanent access roads on visual resources would not be adverse. The effects of shaft site access hatches on the existing scenic character may be adverse. Operation of the intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and transmission lines would result in adverse effects on the existing visual character. In addition, construction of all of these features has the potential to negatively affect wildlife viewing and the overall enjoyment of scenic views in the study area. Therefore, because of the long-term nature of construction combined with the proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, this overall effect of conveyance facility construction on existing visual quality and character is considered adverse. Mitigation Measures AES-1a through AES-1g are available to address visual effects resulting from construction of Alternative 5 water conveyance facilities.

CEQA Conclusion: Construction of Alternative 5 would substantially alter the existing visual quality and character present in the study area. The long-term nature of construction of the intake, pipeline/tunnel, work areas, spoil/borrow and RTM areas, shaft sites, barge unloading facilities; presence and visibility of heavy construction equipment; proximity to sensitive receptors; relocation of residences and agricultural buildings; removal of riparian vegetation and other mature vegetation or landscape plantings; earthmoving and grading that result in changes to topography in areas that are predominantly flat; addition of large-scale industrial structures (intakes and related facilities); remaining presence of large-scale borrow/spoil and RTM area landscape effects; and introduction of tall, steel transmission lines would all contribute to this impact.

Overall, construction would last up to 9 years and would change the existing visual character in the vicinity of project elements from those of agricultural, rural residential, or riparian and riverine settings to areas involving heavy construction equipment, temporary construction structures, work crews, other support vehicles and other activities that would modify and disrupt short- and long-range views. These activities would be disruptive to some viewers. Once construction is complete, the alternative would result in the placement of large, multi-story industrial concrete and steel structures, pumping plants, fencing, and other similar anthropogenic features where none presently exist. Because of the landscape sensitivity and visual dominance of these features, these changes would result in reduced scenic quality throughout the study area (see 17.3.1.3, *Analysis of the Alternatives' Impact on Visual Resources*). Thus, Alternative 5 would result in significant impacts on the existing visual quality and character in the study area.

Mitigation Measures AES-1a through AES-1g would partially reduce impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, Alternative 5 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

NEPA Effects**:** Scenic vistas are mapped and included in Appendix Figure 17D-1. Effects related to scenic vistas under this alternative would be similar to those described for Alternative 1A Impact AES-2. During construction the introduction of construction equipment and removal of vegetation would alter the scenic elements that contribute to the viewing experience from scenic vistas. The intake would introduce visually dominant and discordant features in the foreground and middleground views in vistas that would be very noticeable to all viewer groups in areas of high landscape sensitivity levels. However, the severity of these effects related to the north Delta intakes along the Sacramento River would be decreased because there would only be one intake structure instead of five. As described for Alternative 1A, the effects of permanent access roads effects on scenic vistas would not be adverse. The effects of shaft site access hatches on scenic vistas could be adverse. The large scale of intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and transmission lines may result in adverse effects on scenic vistas (see discussions under 17.3.1.2 and 17.3.1.3). Overall, effects on scenic vistas associated with Alternative 5, although reduced in scale for the north Delta intakes relative to Alternative 1A, may be adverse. Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

CEQA Conclusion: Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measure AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 5 would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

NEPA Effects**:** Effects on state scenic highways under this alternative would be similar to those described for Alternative 1A, Impact AES-3. Intake 1, the spoils/borrow and RTM area south of Intake 1, and the intermediate forebay would be immediately and prominently visible in the foreground from SR 160 and would result in an overall noticeable effect on viewers relative to their current experience and enjoyment of the study area's scenic resources along SR 160 and River Road, where the landscape sensitivity level is high. However, the severity of these effects related to the north Delta intakes along the Sacramento River would be decreased because there would only be one intake structure instead of five. Nevertheless, as described for Alternative 1A, these visual elements introduced by the intake, spoil/borrow and RTM areas south of Intake 1, and intermediate forebay would conflict with the existing forms, patterns, colors, and textures along River Road and SR 160; would dominate the riverfront available from SR 160; and would alter broad views and the general nature of the visual experience presently available from River Road and SR 160 and may result in adverse effects. These changes would reduce the visual quality near the intake structure location and result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas. This effect would be adverse (see discussion under 17.3.1.2 and 17.3.1.3). Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

CEQA Conclusion**:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structure and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measures AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 5 would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

***NEPA Effects*:** Effects resulting from light and glare under this alternative would be similar to those described for Alternative 1A, Impact AES-4. Intake 1 and associated pumping plant, surge tower, and facilities and the pumping plant at the intermediate forebay would create very noticeable effects relating to light and glare (Figures 17-76 through 17-78). Light building colors over a large surface area would reflect off of those surfaces and increase glare, especially when combined with the removal of vegetation that absorbs light, provides shade, and screens glare. Sunlight would reflect off the new water surfaces of the forebay, creating new sources of glare where none presently exist. However, the severity of these effects related to the north Delta intakes on the Sacramento River would be decreased because there would only be one intake structure instead of five. Nighttime construction could also result in headlights flashing into nearby residents' homes when construction vehicles are turning onto or off of construction access routes. Proposed surge towers would require the use of safety lights that would alert low-flying aircraft to the presence of these structures because of their height. Overall, because the study area currently experiences low levels of light and because there are a larger number of viewers in and around the waterways, intake structure, and forebay that would be affected by these noticeable changes that contrast with the existing rural character, effects associated with new sources of daytime and nighttime light and glare are considered adverse. Mitigation Measures AES-4a through AES-4c are available to address these effects.

***CEQA Conclusion*:** The impacts associated with light and glare under Alternative 5 are significant because there are a larger number of viewers in and around the waterways, intake structures, and intermediate forebay; BDCP facilities would increase the amount of nighttime lighting in the Delta above existing ambient light levels; and the study area currently experiences low levels of light because there are fewer light/glare producers than are typical in urban areas. Mitigation Measures

AES-4a through AES-4c would help reduce these impacts by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences; however, these mitigation measures would not reduce impacts to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the new light and glare sources would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that do not blend or are not in keeping with the existing visual environment. Thus, the new sources of daytime and nighttime light and glare associated with Alternative 5 would result in significant and unavoidable impacts on public views in the project vicinity.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

***NEPA Effects*:** Effects on the visual environment through operations and maintenance of the water conveyance facilities (CM1) under this alternative would be similar to those described for Alternative 1A, Impact AES-5. Once the facility is in operation, visible regular and periodic maintenance would be required on all major structures. Activities such as painting, cleaning, vegetation maintenance (removal), repairs, and inspections would be visible from viewpoints on water and land. The greatest visual effects resulting from operations would be maintenance of the intake and dredging the forebays. However, under Alternative 5, the severity of these effects in the vicinity of the north Delta intakes and Byron Tract Forebay relative to Alternative 1A would be decreased because there would only be one intake structure instead of five and the Byron Tract Forebay would be reduced from 600 to 200 acres. Because temporary maintenance activities are anticipated to occur within a short period of time, these effects would not be adverse because the activities would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features.

***CEQA Conclusion*:** Maintenance of the conveyance facilities (i.e., intake, tunnels, forebays and transmission lines) would be required periodically and would involve painting, cleaning, and repair of structures; dredging at forebays (at approximately 50-year intervals); vegetation removal and care along embankments; tunnel inspection; and vegetation removal within transmission line ROWs. These visible maintenance activities would be temporary, intermittent, and short-term impacts and would be considered less than significant. Maintenance and operation of Alternative 5 once constructed, would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features. Thus, overall, Alternative 5 would have a less-than-significant impact on existing visual quality and character during maintenance and operation of the facilities in the study area. No mitigation is required.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

***NEPA Effects*:** Under Alternative 5, these conservation measures would be identical to those under Alternative 1A. Therefore, visual effects related to the existing visual character, scenic vistas, scenic highways, and light and glare resulting from implementation of CM2–CM22 would be the same as those described under Alternative 1A, Impact AES-6. There may be site-specific, localized adverse visual effects. These conservation measures would alter the Delta landscape by incrementally, and substantially, introducing elements into the study area over time. CM2–CM22, when combined with CM1, could substantially alter the visual character of the study area, which is strongly identified by its agricultural and water-based Delta landscapes and communities. These landscapes and communities could be adversely affected by the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts associated with other development potentially setting a precedent for other development to occur. All of these effects would alter the visual character of the existing regional landscape.

Because of the unknown location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction, effects associated with implementation of CM2–CM22 are considered adverse. However, the visual characteristics of restored/enhanced landscapes would be similar to other areas of the Delta that are in a natural marsh or wetland state and more limited in extent than the widespread areas of agricultural development. In this sense, the BDCP would have an overall beneficial effect related to the enhancement and creation of scenic vistas in the Delta.

Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-4a through AES-4c are available to address effects from habitat restoration and enhancement actions under CM2–CM22. In addition, Mitigation Measures AES-6a and AES-6b are available to help reduce adverse visual effects. Upon development of site-specific design information and plans, additional mitigation measures may be identified to address action-specific adverse effects. However, each individual project under CM2–CM22 would undergo the environmental compliance process that would be used to determine what additional mitigation measures, would be deemed appropriate to reduce adverse effects and to assess compliance with relevant regulations. Finally, Mitigation Measure AES-6c is available to help inventory, classify, and protect the unique visual landscape of the Delta.

CEQA Conclusion: Implementation of conservation measures under Alternative 5 has the potential to affect existing visual quality and character, views of scenic vistas, views from scenic highways, and introduce new sources of light and glare in the study area. Impacts on the existing visual quality and character would be significant where use of large numbers of heavy construction equipment, changes in topography, and introduction of new structures or facilities where none presently exist would take place in the vicinity of sensitive receptors. However, because a number of factors that would determine the level of change are unknown—the location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction—impacts associated with implementation of CM2–CM22 on visual quality and character, scenic vistas, and light and glare sources, are considered significant. Because of the distance of implemented conservation measures from scenic highways, changes associated with these activities would not affect the visual quality along these scenic highway corridors and this impact would be less than significant. Site-specific restoration information and plans need to be developed before the site-specific effects on the existing visual character, scenic vistas, and light and glare can be determined.

Several mitigation measures are available to minimize the impacts on visual quality and character in the study area that could result from implementation of these conservation measures. As summarized below, these measures could be applied to individual restoration projects or actions as appropriate for the site-specific conditions and design considerations. In addition, each restoration project or action would undergo an environmental compliance process that would be used to determine what additional mitigation measures would be deemed appropriate to reduce significant effects. Mitigation Measures AES-1a through AES-1g could be applied to minimize impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. Mitigation Measures AES-4a through AES-4c could be used to reduce the effects of new light and glare sources by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. In addition, Mitigation Measures AES-6a and AES-6b would further minimize impacts on visual resources by undergrounding new or relocated utility lines, where feasible, and through an evaluation of an afterhours low-intensity and lights off policy. Finally, implementation of Mitigation Measure AES-6c would provide a strategy for the protection of the unique visual landscape of the Delta.

While some of the conservation measures could result in beneficial impacts through the restoration of natural habitat and these mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a less-than-significant level because of uncertainties associated with future implementation of CM2–CM22. In addition, the size of the study area and the nature of changes introduced by these conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend or be in keeping with the existing visual environment. Thus, implementation of CM2–CM22 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6b: Develop and Implement an Afterhours Low-Intensity and Lights Off Policy

Please refer to Mitigation Measure AES-6b under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6c: Implement a Comprehensive Visual Resources Management Plan for the Delta and Study Area

Please refer to Mitigation Measure AES-6c under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

NEPA Effects**:** Constructing conveyance facilities (CM1) and implementing CM2–CM22 under Alternative 5 would generally have the same potential for incompatibilities with one or more plans and policies related to preserving the visual quality and character of the Delta as described for Alternative 1A, Impact AES-7. The primary differences under Alternative 5 are that only Intake 1 would be constructed and the Byron Tract Forebay would be 200 acres instead of 600 acres. As described under Alternative 1A, there would be potential for the alternative to be incompatible with plans and policies related to preserving the visual quality and character of the Delta (i.e., The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta, Delta Plan, Brannan Island and Franks Tract State Recreation Areas General Plan). In addition, with the exception of Solano County, the alternative may be incompatible with county general plan policies that protect visual resources in the study area.

CEQA Conclusion**:** The incompatibilities identified in the analysis indicate the potential for a physical consequence to the environment. The physical effects they suggest are discussed in impacts AES-1 through AES-6, above, and no additional CEQA conclusion is required related to the compatibility of Alternative 5 with relevant plans and policies.

17.3.3.11 Alternative 6A—Isolated Conveyance with Pipeline/Tunnel and Intakes 1–5 (15,000 cfs; Operational Scenario D)

Table 17D-1 in Appendix 17D, *Permanent Impacts after Construction is Complete*, describes existing visual characteristics and the BDCP-related permanent effects of Alternative 1A on visual quality and character, scenic vistas, scenic roadways, and from light and glare sources after construction is complete and identifies the overall effect on viewers. Appendix E, *Permanent Features*, identifies the viewer groups and viewing locations that would be affected by permanent alternative features. Effects would be similar for this alternative. Under Alternative 6A, the conveyance alignment from the intakes to the Byron Tract Forebay, along with the associated shaft site, access road, transmission line, pumping plants, barge unloading facility sites, and spoil/borrow and RTM areas would be identical to Alternative 1A. This alternative would not make use of the existing SWP and CVP south Delta export facilities for Clifton Court Forebay and Jones pumping plant; however, this change would not result in different effects on visual resources.

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

NEPA Effects: Effects related to visual resources under this alternative would be the same as those described for Alternative 1A. The primary features that would affect the existing visual quality and character under Alternative 6A, once the facility has been constructed, would be the intakes, the intermediate forebay and Byron Tract Forebay, transmission lines, and resulting landscape effects left behind from spoil/borrow and RTM areas, and concrete batch plants and fuel stations. These changes would be most evident in the northern portion of the study area, which would undergo extensive changes from the permanent establishment of large industrial facilities and the supporting infrastructure along and surrounding the segment of the Sacramento River where the intakes would be situated.

Overall, construction would take 9 years, and the intensity of the activities in contrast to the current rural/agricultural nature of the area would be substantial. Construction of intakes, and the accompanying pumping plants, surge towers, borrow/spoil areas, and RTM areas would introduce visually dominant and discordant features in the foreground and middleground views, and these elements would be very noticeable to all viewer groups.

After construction, areas surrounding the intakes, spoil/borrow areas, RTM areas, shaft sites, and locations where concrete batch plants and fuel stations were located may be denuded of vegetation for a short period of time until the landscaping plans designed under WREM No. 30a are implemented. Once installed, the landscape would still appear to be denuded of vegetation or to have little vegetative cover because immature landscaping would be similar in appearance to tilled or newly planted agricultural fields. The sites would be in a transitional state, and over a period of a few years, plant species would mature and vegetation would recolonize the sites. These changes would happen in an area known for its open space, agricultural landscapes, and rural characteristics and would segment the visual landscape of the study area, reduce the amount of open space lands available to viewers, and eliminate valued visual resources. The effects of permanent access roads on visual resources would not be adverse. The effects of shaft site access hatches on the existing scenic character may be adverse. Operation of the intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and transmission lines would result in adverse effects on the existing visual character. In addition, construction of all of these features has the potential to negatively affect wildlife viewing and the overall enjoyment of scenic views in the study area.

Therefore, because of the long-term nature of construction combined with the proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, this overall effect of conveyance facility construction on existing visual quality and character is considered adverse. Mitigation Measures AES-1a through AES-1g are available to address visual effects resulting from construction of Alternative 6A water conveyance facilities.

***CEQA Conclusion*:** Construction of Alternative 6A would substantially alter the existing visual quality and character present in the study area. The long-term nature of construction of the intakes, pipeline/tunnel, work areas, spoil/borrow and RTM areas, shaft sites, barge unloading facilities; presence and visibility of heavy construction equipment; proximity to sensitive receptors; relocation of residences and agricultural buildings; removal of riparian vegetation and other mature vegetation or landscape plantings; earthmoving and grading that result in changes to topography in areas that are predominantly flat; addition of large-scale industrial structures (intakes and related facilities); remaining presence of large-scale borrow/spoil and RTM area landscape effects; and introduction of tall, steel transmission lines would all contribute to this impact.

Overall, construction would last up to 9 years and would change the existing visual character in the vicinity of project elements from those of agricultural, rural residential, or riparian and riverine settings to areas involving heavy construction equipment, temporary construction structures, work crews, other support vehicles and other activities that would modify and disrupt short- and long-range views. These activities would be disruptive to some viewers. Once construction is complete, the alternative would result in the placement of large, multi-story industrial concrete and steel structures, pumping plants, fencing, and other similar anthropogenic features where none presently exist. Because of the landscape sensitivity and visual dominance of these features, these changes would result in reduced scenic quality throughout the study area (see 17.3.1.3, *Analysis of the Alternatives' Impact on Visual Resources*). Thus, Alternative 6A would result in significant impacts on the existing visual quality and character in the study area.

Mitigation Measures AES-1a through AES-1g would partially reduce impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, Alternative 6A would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

***NEPA Effects*:** Scenic vistas are mapped and included in Appendix Figure 17D-1. Effects on scenic vistas under this alternative would be similar to those under Alternative 1A, Impact AES-2. During construction the introduction of construction equipment and removal of vegetation would alter the scenic elements that contribute to the viewing experience from scenic vistas. The intakes would introduce visually dominant and discordant features in the foreground and middleground views in vistas that would be very noticeable to all viewer groups in areas of low to high landscape sensitivity levels. The large scale of intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and transmission lines may result in adverse effects on scenic vistas (see discussions under 17.3.1.2 and 17.3.1.3). Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

CEQA Conclusion**:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measure AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 6A would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

NEPA Effects**:** Effects on state scenic highways under this alternative would be similar to those described for Alternative 1A, Impact AES-3. Intakes 1–5, the spoils/borrow and RTM area north of Intake 2, and the intermediate forebay would be immediately and prominently visible in the foreground from SR 160 and would result in an overall noticeable effect on viewers relative to their current experience and enjoyment of the study area's scenic resources along SR 160 and River Road, where the landscape sensitivity level is high. As described for Alternative 1A, visual elements associated with the conveyance facilities would conflict with the existing forms, patterns, colors, and textures along River Road and SR 160; would dominate riverfront available from SR 160; and would alter broad views and general nature of the visual experience presently available from River Road and SR 160. These changes would reduce the visual quality near intake structure locations and result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas. This effect would be adverse (see discussion under 17.3.1.2 and 17.3.1.3). Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

CEQA Conclusion**:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measures AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 6A would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

***NEPA Effects*:** Effects resulting from light and glare under this alternative would be similar to those described for Alternative 1A, Impact AES-4. Intakes 1–5 and their associated pumping plants, surge towers, and facilities and the pumping plant at the intermediate forebay would create very noticeable effects relating to light and glare (Figures 17-76 through 17-78). Light building colors over a large surface area would reflect off of those surfaces and increase glare, especially when combined with the removal of vegetation that absorbs light, provides shade, and screens glare. Sunlight would reflect off the new water surfaces of the forebay, creating new sources of glare where none presently exist. Nighttime construction could also result in headlights flashing into nearby residents' homes when construction vehicles are turning onto or off of construction access routes. Proposed surge towers would require the use of safety lights that would alert low-flying aircraft to the presence of these structures because of their height. Overall, because the study area currently experiences low levels of light and because there are a larger number of viewers in and around the waterways, intake structures, and forebay that would be affected by these noticeable changes that contrast with the existing rural character, effects associated with new sources of daytime and nighttime light and glare are considered adverse. Mitigation Measures AES-4a through AES-4c are available to address these effects.

***CEQA Conclusion*:** The impacts associated with light and glare under Alternative 6A are significant because there are a larger number of viewers in and around the waterways, intake structures, and intermediate forebay; BDCP facilities would increase the amount of nighttime lighting in the Delta above existing ambient light levels; and the study area currently experiences low levels of light because there are fewer light/glare producers than are typical in urban areas. Mitigation Measures AES-4a through AES-4c would help reduce these impacts by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences; however, these mitigation measures would not reduce impacts to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the new light and glare sources would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that do not blend or are not in keeping with the existing visual environment. Thus, the new sources of daytime and nighttime light and glare associated with Alternative 6A would result in significant and unavoidable impacts on public views in the project vicinity.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

NEPA Effects: Effects on the visual environment through operations and maintenance of the water conveyance facilities under this alternative would be similar to those described for Alternative 1A, Impact AES-5. Once the facility is in operation, visible regular and periodic maintenance would be required on all major structures, including the operable barrier at the head of Old River. Activities such as painting, cleaning, vegetation maintenance (removal), repairs, and inspections would be visible from viewpoints on water and land.

The greatest visual effects resulting from operations would be maintenance of the intakes and dredging the forebays. The operable barrier would also require periodic dredging. However, these temporary maintenance activities are anticipated to occur within a short period of time, and effects would not be adverse because the activities would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features.

CEQA Conclusion: Maintenance of the conveyance facilities (i.e., intakes, tunnels, forebays and transmission lines) would be required periodically and would involve painting, cleaning, and repair of structures; dredging at forebays (at approximately 50-year intervals); vegetation removal and care along embankments; tunnel inspection; and vegetation removal within transmission line ROWs. These visible maintenance activities would be temporary, intermittent, and short-term impacts and would be considered less than significant. Maintenance and operation of Alternative 6A once constructed, would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features. Thus, overall, Alternative 6A would have a less-than-significant impact on existing visual quality and character during maintenance and operation of the facilities in the study area. No mitigation is required.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

***NEPA Effects*:** Under Alternative 6A, these conservation measures would be identical to those under Alternative 1A. Therefore, visual effects related to the existing visual character, scenic vistas, scenic highways, and light and glare resulting from implementation of CM2–CM22 would be the same as those described under Alternative 1A, Impact AES-6. There may be site-specific, localized adverse visual effects. These conservation measures would alter the Delta landscape by incrementally, and substantially, introducing elements into the study area over time. CM2–CM22, when combined with CM1, could substantially alter the visual character of the study area, which is strongly identified by its agricultural and water-based Delta landscapes and communities. These landscapes and communities could be adversely affected by the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts associated with other development potentially setting a precedent for other development to occur. All of these effects would alter the visual character of the existing regional landscape.

Because of the unknown location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction, effects associated with implementation of CM2–CM22 are considered adverse. However, the visual characteristics of restored/enhanced landscapes would be similar to other areas of the Delta that are in a natural marsh or wetland state and more limited in extent than the widespread areas of agricultural development. In this sense, the BDCP would have an overall beneficial effect related to the enhancement and creation of scenic vistas in the Delta.

Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-4a through AES-4c are available to address effects from habitat restoration and enhancement actions under CM2–CM22. In addition, Mitigation Measures AES-6a and AES-6b are available to help reduce adverse visual effects. Upon development of site-specific design information and plans, additional mitigation measures may be identified to address action-specific adverse effects. However, each individual project under CM2–CM22 would undergo the environmental compliance process that would be used to determine what additional mitigation measures, would be deemed appropriate to reduce adverse effects and to assess compliance with relevant regulations. Finally, Mitigation Measure AES-6c is available to help inventory, classify, and protect the unique visual landscape of the Delta.

CEQA Conclusion: Implementation of conservation measures under Alternative 6A has the potential to affect existing visual quality and character, views of scenic vistas, views from scenic highways, and introduce new sources of light and glare in the study area. Impacts on the existing visual quality and character would be significant where use of large numbers of heavy construction equipment, changes in topography, and introduction of new structures or facilities where none presently exist would take place in the vicinity of sensitive receptors. However, because a number of factors that would determine the level of change are unknown—the location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction—impacts associated with implementation of CM2–CM22 on visual quality and character, scenic vistas, and light and glare sources, are considered significant. Because of the distance of implemented conservation measures from scenic highways, changes associated with these activities would not affect the visual quality along these scenic highway corridors and this impact would be less than significant. Site-specific restoration information and plans need to be developed before the site-specific effects on the existing visual character, scenic vistas, and light and glare can be determined.

Several mitigation measures are available to minimize the impacts on visual quality and character in the study area that could result from implementation of these conservation measures. As summarized below, these measures could be applied to individual restoration projects or actions as appropriate for the site-specific conditions and design considerations. In addition, each restoration project or action would undergo an environmental compliance process that would be used to determine what additional mitigation measures would be deemed appropriate to reduce significant effects. Mitigation Measures AES-1a through AES-1g could be applied to minimize impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. Mitigation Measures AES-4a through AES-4c could be used to reduce the effects of new light and glare sources by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. In addition, Mitigation Measures AES-6a and AES-6b would further minimize impacts on visual resources by undergrounding new or relocated utility lines, where feasible, and through an evaluation of an afterhours low-intensity and lights off policy. Finally, implementation of Mitigation Measure AES-6c would provide a strategy for the protection of the unique visual landscape of the Delta.

While some of the conservation measures could result in beneficial impacts through the restoration of natural habitat and these mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a less-than-significant level because of uncertainties associated with future implementation of CM2–CM22. In addition, the size of the study area and the nature of changes introduced by these conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend or be in keeping with the existing visual environment. Thus, implementation of CM2–CM22 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6b: Develop and Implement an Afterhours Low-Intensity and Lights Off Policy

Please refer to Mitigation Measure AES-6b under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6c: Implement a Comprehensive Visual Resources Management Plan for the Delta and Study Area

Please refer to Mitigation Measure AES-6c under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

***NEPA Effects*:** Constructing conveyance facilities (CM1) and implementing CM2–CM22 under Alternative 6A would generally have the same potential for incompatibilities with one or more plans and policies related to preserving the visual quality and character of the Delta as described for Alternative 1A, Impact AES-7. As described under Alternative 1A, there would be potential for the alternative to be incompatible with plans and policies related to preserving the visual quality and character of the Delta (i.e., The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta, Delta Plan, Brannan Island and Franks Tract State Recreation Areas General Plan). In addition, with the exception of Solano County, the alternative may be incompatible with county general plan policies that protect visual resources in the study area.

***CEQA Conclusion*:** The incompatibilities identified in the analysis indicate the potential for a physical consequence to the environment. The physical effects they suggest are discussed in impacts AES-1 through AES-6, above and no additional CEQA conclusion is required related to the compatibility of Alternative 6A with relevant plans and policies.

17.3.3.12 Alternative 6B—Isolated Conveyance with East Alignment and Intakes 1–5 (15,000 cfs; Operational Scenario D)

Table 17D-2 in Appendix 17D, *Permanent Impacts after Construction is Complete*, describes existing visual characteristics and the BDCP-related permanent effects of Alternative 1A on visual quality and character, scenic vistas, scenic roadways, and from light and glare sources after construction is complete and identifies the overall effect on viewers. Appendix E, *Permanent Features*, identifies the viewer groups and viewing locations that would be affected by permanent alternative features. Effects would be similar for this alternative. Under Alternative 6B, the conveyance alignment from the intakes to the Byron Tract Forebay, along with the associated shaft sites, access road, transmission line, pumping plants, canals, and spoil/borrow and RTM areas would be identical to Alternative 1B. Conservation measures would be identical to Alternative 1A. This alternative would not make use of the existing SWP and CVP south Delta export facilities for Clifton Court Forebay and Jones pumping plant; however, this change would not result in different effects on visual resources.

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

***NEPA Effects*:** Effects related to visual resources under this alternative would be similar to those described for Alternative 1B. The construction period would last for 9 years and the intensity of the activities in contrast to the current rural/agricultural nature of the area would be substantial. Construction of intakes and the accompanying pumping plants, surge towers, canals, borrow/spoil areas, RTM areas, forebay, operable barrier, access roads, transmission lines, and concrete batch plants and fuel stations would introduce visually discordant features into foreground and middleground views with low to high landscape sensitivity level. These elements would introduce visually dominant features that would be very noticeable to all viewer groups and would segment the visual landscape of the study area, reduce the amount of open space lands available to viewers, and eliminate valued visual resources. Accordingly, because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, this effect on existing visual quality and character would be adverse. In San Joaquin County, the canal would be visible in the middleground from I-5; the canal and a bridge would cross West Eight Mile Road; and the canal, a bridge, and borrow/spoil areas would cross and be in foreground views from roads on Roberts Island north of SR 4 and SR 4. While not officially designated state scenic highways, and therefore not discussed under *Impact AES-3: Permanent damage to scenic resources along a state scenic highway from construction of conveyance facilities*, these roads are San Joaquin County Scenic Routes (see Section 17.2.3.2, *County and City General Plans – San Joaquin County*). These features would detract from the visual quality of views from these routes. In addition, construction of all features has the potential to adversely affect wildlife viewing and the overall enjoyment of scenic views in the study area. Effects on the existing visual character under Alternative 6B would be greater than under Alternative 6A because of the extent of the canals visible on the landscape surface, landscape effects left behind by spoil/borrow areas, and introduction of bridges.

Overall, effects on the existing visual character associated with construction of Alternative 6B would be adverse because the alternative would result in reductions to the visual quality in some locations and introduce dominant visual elements that would result in very noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes would be viewed by sensitive receptors and from public viewing areas. Mitigation Measures AES-1a through AES-1g are available to address visual effects resulting from construction of Alternative 6B water conveyance facilities.

***CEQA Conclusion*:** Because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, the impacts associated with constructing intakes and the accompanying pumping plants, surge towers, canals, borrow/spoil areas, RTM areas, forebay, operable barrier, access roads, and transmission lines are considered significant. These changes under Alternative 6B would result in reductions to the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes would be viewed by sensitive receptors and from public viewing areas. Impacts on the existing visual quality and character under Alternative 6B would be greater than under Alternative 6A because of the extent of the canals visible on the landscape surface, landscape effects left behind by spoil/borrow areas, and introduction of bridges.

Mitigation Measures AES-1a through AES-1g would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, Alternative 6B would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

***NEPA Effects*:** Effects on scenic vistas under this alternative would be similar to those under Alternative 1B, Impact AES-2. During construction the introduction of construction equipment and removal of vegetation would alter the scenic elements that contribute to the viewing experience from scenic vistas. The intakes would introduce visually dominant and discordant features in the foreground and middleground views in vistas that would be very noticeable to all viewer groups in areas of low to high landscape sensitivity levels. The large scale of intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and transmission lines may result in adverse effects on scenic vistas (see discussions under 17.3.1.2 and 17.3.1.3). Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

***CEQA Conclusion*:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measure AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 6B would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

NEPA Effects**:** Effects on state scenic highways under this alternative would be similar to those described for Alternative 1B Impact AES-3. Intakes 1–5, the spoils/borrow and RTM area north of Intake 2, and the intermediate forebay would be immediately and prominently visible in the foreground from SR 160 and would result in an overall noticeable effect on viewers relative to their current experience and enjoyment of the study area's scenic resources along SR 160 and River Road, where the landscape sensitivity level is high. The visual elements introduced by the intakes, spoil/borrow and RTM areas north of Intake 2 associated with Alternative 6B would conflict with the existing forms, patterns, colors, and textures along River Road and SR 160; would dominate riverfront views available from SR 160; and would alter broad views and the general nature of the visual experience presently available from River Road and SR 160. These changes would reduce the visual quality near intake structure locations and result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas. This effect would be adverse (see discussion under 17.3.1.2 and 17.3.1.3). Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

CEQA Conclusion**:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measures AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 6B would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

***NEPA Effects*:** Effects resulting from light and glare under this alternative would be similar to those described for Alternatives 1A and 1B, Impact AES-4. Intakes 1–5 and their associated pumping plants, surge towers, and facilities and the pumping plant at the intermediate forebay would create very noticeable effects relating to light and glare (Figures 17-76 through 17-78). Light building colors over a large surface area would reflect off of those surfaces and increase glare, especially when combined with the removal of vegetation that absorbs light, provides shade, and screens glare. Sunlight would reflect off the new water surfaces of the forebay and canals, creating new sources of glare where none presently exist. Nighttime construction could also result in headlights flashing into nearby residents' homes when construction vehicles are turning onto or off of construction access routes. Proposed surge towers would require the use of safety lights that would alert low-flying aircraft to the presence of these structures because of their height. Overall, because the study area currently experiences low levels of light and because there are a larger number of viewers in and around the waterways, intake structures, and forebay that would be affected by these noticeable changes that contrast with the existing rural character, effects associated with new sources of daytime and nighttime light and glare are considered adverse. Mitigation Measures AES-4a through AES-4c are available to address these effects.

***CEQA Conclusion*:** The impacts associated with light and glare under Alternative 6B are significant because there are a larger number of viewers in and around the waterways, intake structures, and intermediate forebay; BDCP facilities would increase the amount of nighttime lighting in the Delta above existing ambient light levels; and the study area currently experiences low levels of light because there are fewer light/glare producers than are typical in urban areas. Mitigation Measures AES-4a through AES-4c would help reduce these impacts by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences; however, these mitigation measures would not reduce impacts to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the new light and glare sources would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that do not blend or are not in keeping with the existing visual environment. Thus, the new sources of daytime and nighttime light and glare associated with Alternative 6B would result in significant and unavoidable impacts on public views in the project vicinity.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

***NEPA Effects*:** Effects on the visual environment through operations and maintenance of the water conveyance facilities (CM1) under this alternative would be similar to those described for Alternative 1A and 1B, Impact AES-5. Once the facility is in operation, visible regular and periodic maintenance would be required on all major structures. Activities such as painting, cleaning, vegetation maintenance (removal), repairs, and inspections would be visible from viewpoints on water and land. Although under Alternative 6B there would not be an intermediate forebay, the canal and Byron Tract Forebay would require cleaning and periodic dredging. The greatest visual effects resulting from operations would be maintenance on the intakes and cleaning the canals. However, these temporary maintenance activities are anticipated to occur within short periods of time, and effects would not be adverse because the activities would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features.

***CEQA Conclusion*:** Maintenance of the conveyance facilities (i.e., intakes, canals, forebay, transmission lines, and operable barrier) would be required periodically and would involve painting, cleaning, and repair of structures; dredging at the Byron Tract Forebay and operable barrier, cleaning canals; vegetation removal and care along embankments; canal inspection; and vegetation removal within transmission line ROWs. These visible maintenance activities would be temporary, intermittent, and short-term impacts and would be considered less than significant. Maintenance and operation of Alternative 6B, once constructed, would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanent reduce visually important features. Thus, overall, Alternative 6B would have a less-than-significant impact on existing visual quality and character during maintenance and operation of the facilities in the study area. No mitigation is required.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

***NEPA Effects*:** Under Alternative 6B, these conservation measures would be identical to those under Alternative 1A. Therefore, visual effects related to the existing visual character, scenic vistas, scenic highways, and light and glare resulting from implementation of CM2–CM22 would be the same as those described under Alternative 1A, Impact AES-6. There may be site-specific, localized adverse visual effects. These conservation measures would alter the Delta landscape by incrementally, and substantially, introducing elements into the study area over time. CM2–CM22, when combined with CM1, could substantially alter the visual character of the study area, which is strongly identified by its agricultural and water-based Delta landscapes and communities. These landscapes and communities could be adversely affected by the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts associated with other development potentially setting a precedent for other development to occur. All of these effects would alter the visual character of the existing regional landscape.

Because of the unknown location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction, effects associated with implementation of CM2–CM22 are considered adverse. However, the visual characteristics of restored/enhanced landscapes would be similar to other areas of the Delta that are in a natural marsh or wetland state and more limited in extent than the widespread areas of agricultural development. In this sense, the BDCP would have an overall beneficial effect related to the enhancement and creation of scenic vistas in the Delta.

Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-4a through AES-4c are available to address effects from habitat restoration and enhancement actions under CM2–CM22. In addition, Mitigation Measures AES-6a and AES-6b are available to help reduce adverse visual effects. Upon development of site-specific design information and plans, additional mitigation measures may be identified to address action-specific adverse effects. However, each individual project under CM2–CM22 would undergo the environmental compliance process that would be used to determine what additional mitigation measures, would be deemed appropriate to reduce adverse effects and to assess compliance with relevant regulations. Finally, Mitigation Measure AES-6c is available to help inventory, classify, and protect the unique visual landscape of the Delta.

CEQA Conclusion: Implementation of conservation measures under Alternative 6B has the potential to affect existing visual quality and character, views of scenic vistas, views from scenic highways, and introduce new sources of light and glare in the study area. Impacts on the existing visual quality and character would be significant where use of large numbers of heavy construction equipment, changes in topography, and introduction of new structures or facilities where none presently exist would take place in the vicinity of sensitive receptors. However, because a number of factors that would determine the level of change are unknown—the location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction—impacts associated with implementation of CM2–CM22 on visual quality and character, scenic vistas, and light and glare sources, are considered significant. Because of the distance of implemented conservation measures from scenic highways, changes associated with these activities would not affect the visual quality along these scenic highway corridors and this impact would be less than significant. Site-specific restoration information and plans need to be developed before the site-specific effects on the existing visual character, scenic vistas, and light and glare can be determined.

Several mitigation measures are available to minimize the impacts on visual quality and character in the study area that could result from implementation of these conservation measures. As summarized below, these measures could be applied to individual restoration projects or actions as appropriate for the site-specific conditions and design considerations. In addition, each restoration project or action would undergo an environmental compliance process that would be used to determine what additional mitigation measures would be deemed appropriate to reduce significant effects. Mitigation Measures AES-1a through AES-1g could be applied to minimize impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. Mitigation Measures AES-4a through AES-4c could be used to reduce the effects of new light and glare sources by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. In addition, Mitigation Measures AES-6a and AES-6b would further minimize impacts on visual resources by undergrounding new or relocated utility lines, where feasible, and through an evaluation of an afterhours low-intensity and lights off policy. Finally, implementation of Mitigation Measure AES-6c would provide a strategy for the protection of the unique visual landscape of the Delta.

While some of the conservation measures could result in beneficial impacts through the restoration of natural habitat and these mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a less-than-significant level because of uncertainties associated with future implementation of CM2–CM22. In addition, the size of the study area and the nature of changes introduced by these conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend or be in keeping with the existing visual environment. Thus, implementation of

CM2–CM22 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6b: Develop and Implement a Afterhours Low-Intensity and Lights Off Policy

Please refer to Mitigation Measure AES-6b under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6c: Implement a Comprehensive Visual Resources Management Plan for the Delta and Study Area

Please refer to Mitigation Measure AES-6c under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

NEPA Effects: Constructing conveyance facilities (CM1) and implementing CM2–CM22 under Alternative 6B would generally have the same potential for incompatibilities with one or more plans and policies related to preserving the visual quality and character of the Delta as described for Alternative 1B, Impact AES-7. These features would fall under the same jurisdictions as discussed under Alternative 1B, and so, overall the potential for incompatibility is the same. As described under Alternative 1B, there would be potential for the alternative to be incompatible with plans and policies related to preserving the visual quality and character of the Delta (i.e., The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta, Delta Plan, Brannan Island and Franks Tract State Recreation Areas General Plan). In addition, with the exception of Solano County, the alternative may be incompatible with county general plan policies that protect visual resources in the study area.

CEQA Conclusion: The incompatibilities identified in the analysis indicate the potential for a physical consequence to the environment. The physical effects they suggest are discussed in impacts AES-1 through AES-6, above and no additional CEQA conclusion is required related to the compatibility of Alternative 6B with relevant plans and policies.

17.3.3.13 Alternative 6C—Isolated Conveyance with West Alignment and Intakes W1–W5 (15,000 cfs; Operational D)

Table 17D-3 in Appendix 17D, *Permanent Impacts after Construction is Complete*, describes existing visual characteristics and the BDCP-related permanent effects of Alternative 1A on visual quality and character, scenic vistas, scenic roadways, and from light and glare sources after construction is complete and identifies the overall effect on viewers. Appendix E, *Permanent Features*, identifies the viewer groups and viewing locations that would be affected by permanent alternative features. Effects would be similar for Alternative 6C (see Figures 3-6 and 3-7 and Mapbook Figure M3-3). Under Alternative 6C, the conveyance alignment from the intakes to the Byron Tract Forebay, along with the associated shaft sites, access road, transmission line, pumping plants, canals, and spoil/borrow and RTM areas would be identical to those under Alternative 1C. Conservation measures would be identical to those under Alternative 1A. This alternative would not make use of the existing SWP and CVP south Delta export facilities for Clifton Court Forebay and Jones pumping plant; however, this change would not result in different effects on visual resources.

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

NEPA Effects: Effects related to visual resources under this alternative would be similar to those described for Alternative 1C. The construction period would last up to 9 years and the intensity of activities in contrast to the current rural/agricultural nature of the area would be substantial. Construction of Intakes W1–W5 and accompanying pumping plants, surge towers, canals, borrow/spoil areas, RTM areas, forebay, operable barrier, access roads, and transmission lines would introduce visually discordant features in the foreground and middleground views of scenic vistas and from scenic roadways, and these elements would be visible to all viewer groups. The existing visual character would be greatly altered by the presence of a large-scale intakes and concrete-lined and water-filled channels traversing the landscape. In addition, construction of all features has the potential to adversely affect wildlife viewing and the overall enjoyment and segment the visual landscape of the study area, reduce the amount of open space lands available to viewers, and eliminate valued visual resources within scenic views in the study area.

After construction, areas surrounding Intakes W1–W5, spoil/borrow areas, RTM areas, and shaft sites may be denuded of vegetation for a short period of time until the landscaping plans designed under WREM No. 30a are implemented. Once installed, the landscape would still appear to be denuded of vegetation from a distance because of immature planted vegetation would be similar in appearance to tilled or newly planted agricultural fields.

Because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, this effect is considered adverse. Effects on the existing visual quality and character under Alternative 6C would be greater than those under Alternatives 6A and 6B because of the extent of the canals visible on the landscape surface, landscape effects left behind by spoil/borrow areas, introduction of bridges, and closer proximity to a greater number of sensitive viewers. Overall, effects on the existing visual character associated with construction of Alternative 6C would be adverse because the alternative would result in reductions to the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes would be viewed by sensitive receptors and from public viewing areas. Mitigation Measures AES-1a through AES-1g are available to address these effects.

***CEQA Conclusion*:** Because of the long-term nature of construction, proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, the impacts associated with constructing Intakes W1–W5 and accompanying pumping plants, surge towers, canals, borrow/spoil areas, RTM areas, and forebay are considered significant. These changes under Alternative 6C would result in reductions to the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes would be viewed by sensitive receptors and from public viewing areas. Impacts on the existing visual character under Alternative 6C would be greater than those under Alternatives 6A and 6B because of the extent of the canals visible on the landscape, landscape effects left behind by spoil/borrow areas, introduction of bridges, and closer proximity to a greater number of sensitive viewers.

Mitigation Measures AES-1a through AES-1g would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, Alternative 6C would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

NEPA Effects**:** Scenic vistas are mapped and included in Appendix Figure 17D-1. Effects on scenic vistas under this alternative would be similar to those under Alternative 1C, Impact AES-2. During construction the introduction of construction equipment and removal of vegetation would alter the scenic elements that contribute to the viewing experience from scenic vistas. The intakes would introduce visually dominant and discordant features in the foreground and middleground views in vistas that would be very noticeable to all viewer groups in areas of low to high landscape sensitivity levels. The large scale of intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and transmission lines may result in adverse effects on scenic vistas (see discussions under 17.3.1.2 and 17.3.1.3). Effects on scenic vistas under Alternative 6C would be greater than those under Alternatives 6A and 6B (Impact AES-2) because of the extent of the canals visible on the landscape, landscape effects left behind by spoil/borrow areas, introduction of bridges, and closer proximity to a greater number of sensitive viewers. Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

CEQA Conclusion**:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas. Impacts on scenic vistas under Alternative 6C would be greater than under Alternatives 6A and 6B due to the extent of the canals visible on the landscape surface, landscape effects left behind by spoil/borrow areas, introduction of bridges, and closer proximity to a greater number of sensitive viewers.

Mitigation Measures AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because the changes would remain noticeable and introduce elements that do not blend with the existing visual character of the vista viewsheds. Thus, impacts on scenic vistas associated with Alternative 6C would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

NEPA Effects: Effects on state scenic highways under this alternative would be similar to those described for Alternative 1C, Impact AES-3, and would result in an overall noticeable effect on viewers relative to their current experience and enjoyment of the study area's scenic resources. The intakes would be visible from SR 160. However, bridges, canals, and spoil/borrow areas may or may not be visible from SR 160 because the work areas would be across the river at a lower ground elevation than the raised roadway, and the views could be obscured by intervening vegetation along SR 160 and CH E9. Where visible, views would be greatly altered by the presence of large-scale, concrete-lined and water-filled channels traversing the landscape, large sunken or elevated landforms, and elevated structures between the intakes. In addition, transmission lines following the canals would introduce tall, lattice steel structures that would draw more attention to the linearity of the canal and its industrial nature and would be visible from SR 160. Effects on scenic highways under Alternative 6C may not be as great as those under Alternative 6B, due to the potential for obscured views of the bridges, canals, and spoil/borrow areas from SR 160; however, these effects may be adverse. Mitigation Measures AES-1a, AES-1c, and AES-1e would be available to address these effects.

***CEQA Conclusion*:** Impacts on scenic highways associated with the presence of conveyance facilities under Alternative 6C would be significant because visual elements associated with the alternative would conflict with the existing forms, patterns, colors, and textures visible from SR 160; would dominate riverfront views available from SR 160; and would alter broad views and the general nature of the visual experience presently available from SR 160 (thereby permanently damaging the scenic resources along the scenic highway). Impacts on scenic highways under Alternative 6C may not be as great as those under Alternative 6B due to the potential for obscured views of the bridges, canals, and spoil/borrow areas from SR 160. However, the intakes would be very visible and result in a very noticeable change in the viewshed. Mitigation Measures AES-1a, AES-1c, and AES-1e would help to reduce these impacts through the application of aesthetic design treatments to all structures, to the extent feasible. However, impacts on visual resources resulting from damage to scenic resources that may be viewed from a state scenic highway would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes to the visual character of a scenic highway viewshed that do not blend or are not in keeping with the existing visual environment. Thus, overall, this impact would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

***NEPA Effects*: ** Light and glare effects related to operation of Intakes W1–W5, canals, spoils/borrow areas, RTM areas, shaft sites, Byron Tract Forebay, permanent access roads, and transmission lines would be the same as those described for Alternative 1C, Impact AES-4. Intakes W1–W5 and the associated pumping plants, surge towers, and facilities would create very noticeable effects relating to light and glare (Figures 17-76 through 17-78). Light building colors over a large surface area would reflect off of those surfaces and increase glare, especially when combined with the removal of vegetation that absorbs light, provides shade, and screens glare. Sunlight would reflect off the new water surfaces of the canals, creating new sources of glare where none presently exist. Because of the extent of the canals and introduction of a substantial glare-producing water body, the effect associated with daytime and nighttime glare is considered adverse. Nighttime construction could also result in headlights flashing into nearby residents' homes when construction vehicles are turning onto or off of construction access routes. Proposed surge towers would require the use of safety lights that would alert low-flying aircraft to the presence of these structures because of their height. Overall, because the study area currently experiences low levels of light and because there are a larger number of viewers in and around the waterways, intake structures, forebay, and canals that would be affected by these noticeable changes that contrast with the existing rural character, effects associated with new sources of daytime and nighttime light and glare are considered adverse. Mitigation Measures AES-4a through 4c are available to address these effects.

***CEQA Conclusion*: ** The impacts associated with light and glare under Alternative 6C are significant because there are a larger number of viewers in and around the waterways, intake structures, forebay, and canals; alternative facilities would increase the amount of nighttime lighting in the Delta above existing ambient light levels; and the study area currently experiences low levels of light. Mitigation Measures AES-4a through AES-4c would help reduce impacts by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. However, these mitigation measures would not reduce impacts to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the new light and glare sources would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that do not blend or are not in keeping with the existing visual environment. Thus, the new sources of daytime and nighttime light and glare associated with Alternative 6C would result in significant and unavoidable impacts on public views in the project vicinity

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

***NEPA Effects*:** Effects on the visual environment through operations and maintenance of the water conveyance facilities (CM1) under this alternative would be similar to those described for Alternatives 1A and 1C, Impact AES-5. Once the facility is in operation, visible regular and periodic maintenance would be required on all major structures. Activities such as painting, cleaning, vegetation maintenance (removal), repairs, and inspections would be visible from viewpoints on water and land Although under Alternative 6C there would not be an intermediate forebay, the canal and Byron Tract Forebay would require cleaning and periodic dredging. The greatest visual effects resulting from operations would be maintenance on the intakes and cleaning the canals. However, these temporary maintenance activities are anticipated to occur within short periods of time, and effects would not be adverse because the activities would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features.

***CEQA Conclusion*:** Maintenance of the conveyance facilities (i.e., intakes, canals, forebay, transmission lines, and operable barrier) would be required periodically and would involve painting, cleaning, and repair of structures; dredging at the Byron Tract Forebay; cleaning canals; vegetation removal and care along embankments; canal inspection; and vegetation removal within transmission line ROWs. These visible maintenance activities would be temporary, intermittent, and short-term impacts and would be considered less than significant. Maintenance and operation of Alternative 6C, once constructed, would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanent reduce visually important features. Thus, overall, Alternative 6C would have a less-than-significant impact on existing visual quality and character during maintenance and operation of the facilities in the study area. No mitigation is required.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

***NEPA Effects*:** Under Alternative 6C, these conservation measures would be identical to those under Alternative 1A. Therefore, visual effects related to the existing visual character, scenic vistas, scenic highways, and light and glare resulting from implementation of CM2–CM22 would be the same as those described under Alternative 1A, Impact AES-6. There may be site-specific, localized adverse visual effects. These conservation measures would alter the Delta landscape by incrementally, and substantially, introducing elements into the study area over time. CM2–CM22, when combined with CM1, could substantially alter the visual character of the study area, which is strongly identified by its agricultural and water-based Delta landscapes and communities. These landscapes and communities could be adversely affected by the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts associated with other development potentially setting a precedent for other development to occur. All of these effects would alter the visual character of the existing regional landscape.

Because of the unknown location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction, effects associated with implementation of CM2–CM22 are considered adverse. However, the visual characteristics of restored/enhanced landscapes would be similar to other areas of the Delta that are in a natural marsh or wetland state and more limited in extent than the widespread areas of agricultural development. In this sense, the BDCP would have an overall beneficial effect related to the enhancement and creation of scenic vistas in the Delta.

Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-4a through AES-4c are available to address effects from habitat restoration and enhancement actions under CM2–CM22. In addition, Mitigation Measures AES-6a and AES-6b are available to help reduce adverse visual effects. Upon development of site-specific design information and plans, additional mitigation measures may be identified to address action-specific adverse effects. However, each individual project under CM2–CM22 would undergo the environmental compliance process that would be used to determine what additional mitigation measures, would be deemed appropriate to reduce adverse effects and to assess compliance with relevant regulations. Finally, Mitigation Measure AES-6c is available to help inventory, classify, and protect the unique visual landscape of the Delta.

CEQA Conclusion: Implementation of conservation measures under Alternative 6C has the potential to affect existing visual quality and character, views of scenic vistas, views from scenic highways, and introduce new sources of light and glare in the study area. Impacts on the existing visual quality and character would be significant where use of large numbers of heavy construction equipment, changes in topography, and introduction of new structures or facilities where none presently exist would take place in the vicinity of sensitive receptors. However, because a number of factors that would determine the level of change are unknown—the location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction—impacts associated with implementation of CM2–CM22 on visual quality and character, scenic vistas, and light and glare sources, are considered significant. Because of the distance of implemented conservation measures from scenic highways, changes associated with these activities would not affect the visual quality along these scenic highway corridors and this impact would be less than significant. Site-specific restoration information and plans need to be developed before the site-specific effects on the existing visual character, scenic vistas, and light and glare can be determined.

Several mitigation measures are available to minimize the construction and operation impacts on visual quality and character in the study area that could result from implementation of these conservation measures. As summarized below, these measures could be applied to individual restoration projects or actions as appropriate for the site-specific conditions and design considerations. In addition, each restoration project or action would undergo an environmental compliance process that would be used to determine what additional mitigation measures would be deemed appropriate to reduce significant effects. Mitigation Measures AES-1a through AES-1g could be applied to minimize impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. Mitigation Measures AES-4a through AES-4c could be used to reduce the effects of new light and glare sources by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. In addition, Mitigation Measures AES-6a and AES-6b would further minimize impacts on visual resources by undergrounding new or relocated utility lines, where feasible, and through an evaluation of an afterhours low-intensity and lights off policy. Finally, implementation of Mitigation Measure AES-6c would provide a strategy for the protection of the unique visual landscape of the Delta.

While some of the conservation measures could result in beneficial impacts through the restoration of natural habitat and these mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a less-than-significant level because of uncertainties associated with future implementation of CM2–CM22. In addition, the size of the study area and the nature of changes introduced by these conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend or be in keeping with the existing visual environment. Thus, implementation of CM2–CM22 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6b: Develop and Implement an Afterhours Low-Intensity and Lights Off Policy

Please refer to Mitigation Measure AES-6b under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6c: Implement a Comprehensive Visual Resources Management Plan for the Delta and Study Area

Please refer to Mitigation Measure AES-6c under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

NEPA Effects: Constructing conveyance facilities (CM1) and implementing CM2–CM22 under Alternative 6C would generally have the same potential for incompatibilities with one or more plans and policies related to preserving the visual quality and character of the Delta as described for Alternative 1C, Impact AES-7. As described under Alternative 1C, there would be potential for the alternative to be incompatible with plans and policies related to preserving the visual quality and character of the Delta (i.e., The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta, Delta Plan, Brannan Island and Franks Tract State Recreation Areas General Plan). In addition, with the exception of San Joaquin County, the alternative may be incompatible with county general plan policies that protect visual resources in the study area.

CEQA Conclusion: The incompatibilities identified in the analysis indicate the potential for a physical consequence to the environment. The physical effects they suggest are discussed in impacts AES-1 through AES-6, above and no additional CEQA conclusion is required related to the compatibility of Alternative 6C with relevant plans and policies.

17.3.3.14 Alternative 7—Dual Conveyance with Pipeline/Tunnel, Intakes 2, 3, and 5, and Enhanced Aquatic Conservation (9,000 cfs; Operational Scenario E)

Table 17D-1 in Appendix 17D, *Permanent Impacts after Construction is Complete*, describes existing visual characteristics and the BDCP-related permanent effects of Alternative 1A on visual quality and character, scenic vistas, scenic roadways, and from light and glare sources after construction is complete and identifies the overall effect on viewers. Appendix E, *Permanent Features*, identifies the viewer groups and viewing locations that would be affected by permanent alternative features. Effects would be similar for this alternative. Under Alternative 7, the conveyance alignment from the intakes to the Byron Tract Forebay, along with the associated shaft site, access road, transmission line, pumping plants, barge unloading facility sites, and spoil/borrow and RTM areas would be identical to those under Alternative 1A. Alternative 7 would use the same three intakes as under Alternative 4: Intakes 2, 3, and 5. The effects associated with construction of Intakes 2, 3, and 5 are discussed in detail under Alternative 4, and those effects would be the same under Alternative 7. In addition, implementation of the other conservation measures under Alternative 7 would enhance 40 linear miles rather than 20 linear miles of channel margin habitat, and restore approximately 20,000 acres rather than 10,000 acres of seasonally inundated floodplain.

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

NEPA Effects: Effects related to visual resources under this alternative would be similar to those described for Alternatives 1A and 4. Effects associated with the intake structures would be the same as described for Alternative 4 (Intakes 2, 3, and 5) and decreased relative to Alternative 1A (Intakes 1–5). The primary features that would affect the existing visual quality and character under Alternative 7, once the facility has been constructed, would be the intakes, the intermediate forebay and Byron Tract Forebay, transmission lines, and resulting landscape effects left behind from spoil/borrow and RTM areas, and concrete batch plants and fuel stations. These changes would be most evident in the northern portion of the study area, which would undergo extensive changes from the permanent establishment of large industrial facilities and the supporting infrastructure along and surrounding the segment of the Sacramento River where the intakes would be situated.

Overall, construction would take 9 years, and the intensity of the activities in contrast to the current rural/agricultural nature of the area would be substantial. Construction of intakes, and the accompanying pumping plants, surge towers, borrow/spoil areas, and RTM areas would introduce visually dominant and discordant features in the foreground and middleground views, and these elements would be very noticeable to all viewer groups.

After construction, areas surrounding the intakes, spoil/borrow areas, RTM areas, shaft sites, and locations where concrete batch plants and fuel stations were located may be denuded of vegetation for a short period of time until the landscaping plans designed under WREM No. 30a are implemented. Once installed, the landscape would still appear to be denuded of vegetation or to have little vegetative cover because immature landscaping would be similar in appearance to tilled or newly planted agricultural fields. The sites would be in a transitional state, and over a period of a few years, plant species would mature and vegetation would recolonize the sites. These changes would happen in an area known for its open space, agricultural landscapes, and rural characteristics and would segment the visual landscape of the study area, reduce the amount of open space lands available to viewers, and eliminate valued visual resources. The effects of permanent access roads on visual resources would not be adverse. The effects of shaft site access hatches on the existing scenic character may be adverse. Operation of the intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and transmission lines would result in adverse effects on the existing visual character. In addition, construction of all of these features has the potential to negatively affect wildlife viewing and the overall enjoyment of scenic views in the study area. Therefore, because of the long-term nature of construction combined with the proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, this overall effect of conveyance facility construction on existing visual quality and character is considered adverse. Mitigation Measures AES-1a through AES-1g are available to address visual effects resulting from construction of Alternative 7 water conveyance facilities.

***CEQA Conclusion*:** Construction of Alternative 7 would substantially alter the existing visual quality and character present in the study area. The long-term nature of construction of the intakes, pipeline/tunnel, work areas, spoil/borrow and RTM areas, shaft sites, barge unloading facilities; presence and visibility of heavy construction equipment; proximity to sensitive receptors; relocation of residences and agricultural buildings; removal of riparian vegetation and other mature vegetation or landscape plantings; earthmoving and grading that result in changes to topography in areas that are predominantly flat; addition of large-scale industrial structures (intakes and related facilities); remaining presence of large-scale borrow/spoil and RTM area landscape effects; and introduction of tall, steel transmission lines would all contribute to this impact.

Overall, construction would last up to 9 years and would change the existing visual character in the vicinity of project elements from those of agricultural, rural residential, or riparian and riverine settings to areas involving heavy construction equipment, temporary construction structures, work crews, other support vehicles and other activities that would modify and disrupt short- and long-range views. These activities would be disruptive to some viewers. Once construction is complete, the alternative would result in the placement of large, multi-story industrial concrete and steel structures, pumping plants, fencing, and other similar anthropogenic features where none presently exist. Because of the landscape sensitivity and visual dominance of these features, these changes would result in reduced scenic quality throughout the study area (see 17.3.1.3, *Analysis of the Alternatives' Impact on Visual Resources*). Thus, Alternative 7 would result in significant impacts on the existing visual quality and character in the study area.

Mitigation Measures AES-1a through AES-1g would partially reduce impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, Alternative 7 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

NEPA Effects: Scenic vistas are mapped and included in Appendix Figure 17D-1. Effects related to scenic vistas under this alternative would be the same as those described for Alternative 4, Impact AES-2. During construction the introduction of construction equipment and removal of vegetation would alter the scenic elements that contribute to the viewing experience from scenic vistas. The intakes would introduce visually dominant and discordant features in the foreground and middleground views in vistas that would be very noticeable to all viewer groups in areas of low to high landscape sensitivity levels. However, the severity of these effects related to the north Delta intakes along the Sacramento River would be decreased because there would only be three intake structures instead of five. As described for Alternative 4, the effects of permanent access roads effects on scenic vistas would not be adverse. The effects of shaft site access hatches on scenic vistas could be adverse. The large scale of intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and transmission lines may result in adverse effects on scenic vistas (see discussions under 17.3.1.2 and 17.3.1.3). Overall, effects on scenic vistas associated with Alternative 7 may be adverse. Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

CEQA Conclusion: Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measure AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 7 would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

***NEPA Effects*:** Effects on state scenic highways under this alternative would be similar to those described for Alternative 4, Impact AES-3. Intakes 2, 3, and 5, the spoils/borrow and RTM area north of Intake 2, and the intermediate forebay would be immediately and prominently visible in the foreground from SR 160 and would result in an overall noticeable effect on viewers relative to their current experience and enjoyment of the study area's scenic resources along SR 160 and River Road, where the landscape sensitivity level is high. As described for Alternative 4, the visual elements introduced by the intakes, spoil/borrow and RTM areas north of Intake 2, and intermediate forebay associated with Alternative 7 would conflict with the existing forms, patterns, colors, and textures along River Road and SR 160; would dominate riverfront available from SR 160; and would alter broad views and the general nature of the visual experience presently available from River Road and SR 160. These changes would reduce the visual quality near intake structure locations and result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas. This effect would be adverse (see discussion under 17.3.1.2 and 17.3.1.3). Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

***CEQA Conclusion*:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measures AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 7 would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

***NEPA Effects*:** Effects resulting from light and glare under this alternative would be similar to those described for Alternative 4, Impact AES-4. Intakes 2, 3, and 5 and their associated pumping plants, surge towers, and facilities and the pumping plant at the intermediate forebay would create very noticeable effects relating to light and glare (Figures 17-76 through 17-78). Light building colors over a large surface area would reflect off of those surfaces and increase glare, especially when combined with the removal of vegetation that absorbs light, provides shade, and screens glare. Sunlight would reflect off the new water surfaces of the forebay, creating new sources of glare where none presently exist. However, the severity of these effects related to the north Delta intakes on the Sacramento River would be decreased because there would only be three intake structures instead of five. Nighttime construction could also result in headlights flashing into nearby residents' homes when construction vehicles are turning onto or off of construction access routes. Proposed surge towers would require the use of safety lights that would alert low-flying aircraft to the presence of these structures because of their height. Overall, because the study area currently experiences low levels of light and because there are a larger number of viewers in and around the waterways, intake structures, and forebay that would be affected by these noticeable changes that contrast with the existing rural character, effects associated with new sources of daytime and nighttime light and glare are considered adverse. Mitigation Measures AES-4a through AES-4c are available to address these effects.

***CEQA Conclusion*:** The impacts associated with light and glare under Alternative 7 are significant because there are a larger number of viewers in and around the waterways, intake structures, and intermediate forebay; BDCP facilities would increase the amount of nighttime lighting in the Delta above existing ambient light levels; and the study area currently experiences low levels of light because there are fewer light/glare producers than are typical in urban areas. Mitigation Measures AES-4a through AES-4c would help reduce these impacts by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences; however, these mitigation measures would not reduce impacts to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the new light and glare sources would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that do not blend or are not in keeping with the existing visual environment. Thus, the new sources of daytime and nighttime light and glare associated with Alternative 7 would result in significant and unavoidable impacts on public views in the project vicinity.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

***NEPA Effects*:** Effects on the visual environment through operations and maintenance of the water conveyance facilities (CM1) under this alternative would be similar to those described for Alternative 4, Impact AES-5. Once the facility is in operation, visible regular and periodic maintenance would be required on all major structures. Activities such as painting, cleaning, vegetation maintenance (removal), repairs, and inspections would be visible from viewpoints on water and land. The greatest visual effects resulting from operations would be maintenance of the intakes and dredging the forebays. Because temporary maintenance activities are anticipated to occur within a short period of time, these effects would not be adverse because the activities would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features.

***CEQA Conclusion*:** Maintenance of the conveyance facilities (i.e., intakes, tunnels, forebays and transmission lines) would be required periodically and would involve painting, cleaning, and repair of structures; dredging at forebays (at approximately 50-year intervals); vegetation removal and care along embankments; tunnel inspection; and vegetation removal within transmission line ROWs. These visible maintenance activities would be temporary, intermittent, and short-term impacts and would be considered less than significant. Maintenance and operation of Alternative 7 once constructed, would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features. Thus, overall, Alternative 7 would have a less-than-significant impact on existing visual quality and character during maintenance and operation of the facilities in the study area. No mitigation is required.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

***NEPA Effects*:** Under Alternative 7, these conservation measures would be similar to those under Alternative 1A, Impact AES-6, but up to an additional 20 miles of channel margin habitat enhancement and 10,000 acres seasonally inundated floodplain restoration would take place under this alternative compared to Alternative 1A. Effects on the existing visual character, scenic vistas, scenic highways, and light and glare would be similar those under Alternative 1A because restored/enhanced lands would result in incremental and site-specific changes to changes in views. There may be site-specific, localized adverse visual effects. These conservation measures would alter the Delta landscape by incrementally, and substantially, introducing elements into the study area over time. CM2–CM22, when combined with CM1, could substantially alter the visual character of the study area, which is strongly identified by its agricultural and water-based Delta landscapes and communities. These landscapes and communities could be adversely affected by the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts associated with other development potentially setting a precedent for other development to occur. All of these effects would alter the visual character of the existing regional landscape.

Because of the unknown location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction, effects associated with implementation of CM2–CM22 could be adverse. However, the visual characteristics of restored/enhanced landscapes would be similar to areas of the Delta that are in a natural marsh or wetland state and more limited in extent than the widespread areas of agricultural development. In this sense, the BDCP would have an overall beneficial effect related to the enhancement and creation of scenic vistas in the Delta.

Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-4a through AES-4c are available to address effects from habitat restoration and enhancement actions under CM2–CM22. In addition, Mitigation Measures AES-6a and AES-6b are available to help reduce adverse visual effects. Upon development of site-specific design information and plans, additional mitigation measures may be identified to address action-specific adverse effects. However, each individual project under CM2–CM22 would undergo the environmental compliance process that would be used to determine what additional mitigation measures, would be deemed appropriate to reduce adverse effects and to assess compliance with relevant regulations. Finally, Mitigation Measure AES-6c is available to help inventory, classify, and protect the unique visual landscape of the Delta.

CEQA Conclusion: Implementation of conservation measures under Alternative 7 has the potential to affect existing visual quality and character, views of scenic vistas, views from scenic highways, and introduce new sources of light and glare in the study area. Impacts on the existing visual quality and character would be significant where use of large numbers of heavy construction equipment, changes in topography, and introduction of new structures or facilities where none presently exist would take place in the vicinity of sensitive receptors. However, because a number of factors that would determine the level of change are unknown—the location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction—impacts associated with implementation of CM2–CM22 on visual quality and character, scenic vistas, and light and glare sources, are considered significant. Because of the distance of implemented conservation measures from scenic highways, changes associated with these activities would not affect the visual quality along these scenic highway corridors and this impact would be less than significant. Site-specific restoration information and plans need to be developed before the site-specific effects on the existing visual character, scenic vistas, and light and glare can be determined.

Several mitigation measures are available to minimize the impacts on visual quality and character in the study area that could result from implementation of these conservation measures. As summarized below, these measures could be applied to individual restoration projects or actions as appropriate for the site-specific conditions and design considerations. In addition, each restoration project or action would undergo an environmental compliance process that would be used to determine what additional mitigation measures would be deemed appropriate to reduce significant effects. Mitigation Measures AES-1a through AES-1g could be applied to minimize impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. Mitigation Measures AES-4a through AES-4c could be used to reduce the effects of new light and glare sources by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. In addition, Mitigation Measures AES-6a and AES-6b would further minimize impacts on visual resources by undergrounding new or relocated utility lines, where feasible, and through an evaluation of an afterhours low-intensity and lights off policy. Finally, implementation of Mitigation Measure AES-6c would provide a strategy for the protection of the unique visual landscape of the Delta.

While some of the conservation measures could result in beneficial impacts through the restoration of natural habitat and these mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a less-than-significant level because of uncertainties associated with future implementation of CM2–CM22. In addition, the size of the study area and the nature of changes introduced by these conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend or be in keeping with the existing visual environment. Thus, implementation of CM2–CM22 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6b: Develop and Implement an Afterhours Low-Intensity and Lights Off Policy

Please refer to Mitigation Measure AES-6b under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6c: Implement a Comprehensive Visual Resources Management Plan for the Delta and Study Area

Please refer to Mitigation Measure AES-6c under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

***NEPA Effects*:** Constructing conveyance facilities (CM1) and implementing CM2–CM22 under Alternative 7 would generally have the same potential for incompatibilities with one or more plans and policies related to preserving the visual quality and character of the Delta as described for Alternative 1A, Impact AES-7. The primary differences under Alternative 7 are that only Intakes 2, 3 and 5 would be constructed and there would be larger areas of enhancement of channel margin habitat (40 linear miles rather than 20 linear miles) and restoration of seasonally inundated floodplain (approximately 20,000 acres rather than 10,000 acres). As described under Alternative 1A, there would be potential for the alternative to be incompatible with plans and policies related to preserving the visual quality and character of the Delta (i.e., The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta, Delta Plan, Brannan Island and Franks Tract State Recreation Areas General Plan). In addition, with the exception of Solano County, the alternative may be incompatible with county general plan policies that protect visual resources in the study area.

***CEQA Conclusion*:** The incompatibilities identified in the analysis indicate the potential for a physical consequence to the environment. The physical effects they suggest are discussed in impacts AES-1 through AES-6, above and no additional CEQA conclusion is required related to the compatibility of Alternative 7 with relevant plans and policies.

17.3.3.15 Alternative 8—Dual Conveyance with Pipeline/Tunnel, Intakes 2, 3, and 5, and Increased Delta Outflow (9,000 cfs; Operational Scenario F)

Table 17D-1 in Appendix 17D, *Permanent Impacts after Construction is Complete*, describes existing visual characteristics and the BDCP-related permanent effects of Alternative 1A on visual quality and character, scenic vistas, scenic roadways, and from light and glare sources after construction is complete and identifies the overall effect on viewers. Appendix 17E, *Permanent Features*, identifies the viewer groups and viewing locations that would be affected by permanent alternative features. Effects would be similar under this alternative. Under Alternative 8, the conveyance alignment from the intakes to the Byron Tract Forebay, along with the associated shaft site, access road, transmission line, pumping plants, barge unloading facility sites, and spoil/borrow and RTM areas would be identical to those under Alternative 1A. Alternative 8 would use the same three intakes as under Alternative 4: Intakes 2, 3, and 5. The effects associated with construction of Intakes 2, 3, and 5 are discussed in detail under Alternative 4, and those effects would be the same under Alternative 8. Other conservation measures (CM2–CM22) under Alternative 8 would be the same as those under Alternative 1A.

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

***NEPA Effects*:** Effects related to visual resources under this alternative would be similar to those described for Alternative 4. Effects associated with the intake structures would be the same as described for Alternative 4 (Intakes 2, 3, and 5) and decreased relative to Alternative 1A (Intakes 1–5). The primary features that would affect the existing visual quality and character under Alternative 8, once the facility has been constructed, would be the intakes, the intermediate forebay and Byron Tract Forebay, transmission lines, and resulting landscape effects left behind from spoil/borrow and RTM areas, and concrete batch plants and fuel stations. These changes would be most evident in the northern portion of the study area, which would undergo extensive changes from the permanent establishment of large industrial facilities and the supporting infrastructure along and surrounding the segment of the Sacramento River where the intakes would be situated.

Overall, construction would take 9 years, and the intensity of the activities in contrast to the current rural/agricultural nature of the area would be substantial. Construction of intakes, and the accompanying pumping plants, surge towers, borrow/spoil areas, and RTM areas would introduce visually dominant and discordant features in the foreground and middleground views, and these elements would be very noticeable to all viewer groups.

After construction, areas surrounding the intakes, spoil/borrow areas, RTM areas, shaft sites, and locations where concrete batch plants and fuel stations were located may be denuded of vegetation for a short period of time until the landscaping plans designed under WREM No. 30a are implemented. Once installed, the landscape would still appear to be denuded of vegetation or to have little vegetative cover because immature landscaping would be similar in appearance to tilled or newly planted agricultural fields. The sites would be in a transitional state, and over a period of a few years, plant species would mature and vegetation would recolonize the sites. These changes would happen in an area known for its open space, agricultural landscapes, and rural characteristics and would segment the visual landscape of the study area, reduce the amount of open space lands available to viewers, and eliminate valued visual resources. The effects of permanent access roads on visual resources would not be adverse. The effects of shaft site access hatches on the existing scenic character may be adverse. Operation of the intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and transmission lines would result in adverse effects on the existing visual character. In addition, construction of all of these features has the potential to negatively affect wildlife viewing and the overall enjoyment of scenic views in the study area. Therefore, because of the long-term nature of construction combined with the proximity to sensitive receptors, razing of residences and agricultural buildings, removal of vegetation, and changes to topography through grading, this overall effect of conveyance facility construction on existing visual quality and character is considered adverse. Mitigation Measures AES-1a through AES-1g are available to address visual effects resulting from construction of Alternative 8 water conveyance facilities.

***CEQA Conclusion*:** Construction of Alternative 8 would substantially alter the existing visual quality and character present in the study area. The long-term nature of construction of the intakes, pipeline/tunnel, work areas, spoil/borrow and RTM areas, shaft sites, barge unloading facilities; presence and visibility of heavy construction equipment; proximity to sensitive receptors; relocation of residences and agricultural buildings; removal of riparian vegetation and other mature vegetation or landscape plantings; earthmoving and grading that result in changes to topography in areas that are predominantly flat; addition of large-scale industrial structures (intakes and related facilities); remaining presence of large-scale borrow/spoil and RTM area landscape effects; and introduction of tall, steel transmission lines would all contribute to this impact.

Overall, construction would last up to 9 years and would change the existing visual character in the vicinity of project elements from those of agricultural, rural residential, or riparian and riverine settings to areas involving heavy construction equipment, temporary construction structures, work crews, other support vehicles and other activities that would modify and disrupt short- and long-range views. These activities would be disruptive to some viewers. Once construction is complete, the alternative would result in the placement of large, multi-story industrial concrete and steel structures, pumping plants, fencing, and other similar anthropogenic features where none presently exist. Because of the landscape sensitivity and visual dominance of these features, these changes would result in reduced scenic quality throughout the study area (see 17.3.1.3, *Analysis of the Alternatives' Impact on Visual Resources*). Thus, Alternative 8 would result in significant impacts on the existing visual quality and character in the study area.

Mitigation Measures AES-1a through AES-1g would partially reduce impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, Alternative 8 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

***NEPA Effects*:** Scenic vistas are mapped and included in Appendix Figure 17D-1. Effects related to scenic vistas under this alternative would be similar to those described for Alternative 4, Impact AES-2. During construction the introduction of construction equipment and removal of vegetation would alter the scenic elements that contribute to the viewing experience from scenic vistas. The intakes would introduce visually dominant and discordant features in the foreground and middleground views in vistas that would be very noticeable to all viewer groups in areas of low to high landscape sensitivity levels. As described for Alternative 4, the effects of permanent access roads effects on scenic vistas would not be adverse. The effects of shaft site access hatches on scenic vistas could be adverse. The large scale of intakes, the visual presence of large-scale borrow/spoil and RTM area landscape effects, and transmission lines may result in adverse effects on scenic vistas (see discussions under 17.3.1.2 and 17.3.1.3). Overall, effects on scenic vistas associated with Alternative 8 may be adverse. Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

***CEQA Conclusion*:** Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measure AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 8 would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

NEPA Effects: Effects on state scenic highways under this alternative would be similar to those described for Alternative 4, Impact AES-3. Intakes 2, 3, and 5, the spoils/borrow and RTM area north of Intake 2, and the intermediate forebay would be immediately and prominently visible in the foreground from SR 160 and would result in an overall noticeable effect on viewers relative to their current experience and enjoyment of the study area's scenic resources along SR 160 and River Road, where the landscape sensitivity level is high. As described for Alternative 4, the visual elements introduced by the intakes, spoil/borrow and RTM areas north of Intake 2, and intermediate forebay associated with Alternative 8 would conflict with the existing forms, patterns, colors, and textures along River Road and SR 160; would dominate riverfront available from SR 160; and would alter broad views and the general nature of the visual experience presently available from River Road and SR 160. These changes would reduce the visual quality near intake structure locations and result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas. This effect would be adverse (see discussion under 17.3.1.2 and 17.3.1.3 Mitigation Measure AES-1e is available to address these effects.

CEQA Conclusion: Because proposed permanent access roads generally follow existing ROWs, they would have less-than-significant impacts on scenic vistas. The presence of the intake structures and pumping plants, large-scale borrow/spoil and RTM area landscape effects, shaft site access hatches, and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measures AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 8 would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

NEPA Effects: Effects resulting from light and glare under this alternative would be similar to those described for Alternative 4, Impact AES-4. Intakes 2, 3, and 5 and their associated pumping plants, surge towers, and facilities and the pumping plant at the intermediate forebay would create very noticeable effects relating to light and glare (Figures 17-76 through 17-78). Light building colors over a large surface area would reflect off of those surfaces and increase glare, especially when combined with the removal of vegetation that absorbs light, provides shade, and screens glare. Sunlight would reflect off the new water surfaces of the forebay, creating new sources of glare where none presently exist. However, the severity of these effects related to the north Delta intakes on the Sacramento River would be decreased because there would only be three intake structures instead of five. Nighttime construction could also result in headlights flashing into nearby residents' homes when construction vehicles are turning onto or off of construction access routes. Proposed surge towers would require the use of safety lights that would alert low-flying aircraft to the presence of these structures because of their height. Overall, because the study area currently experiences low levels of light and because there are a larger number of viewers in and around the waterways, intake structures, and forebay that would be affected by these noticeable changes that contrast with the existing rural character, effects associated with new sources of daytime and nighttime light and glare are considered adverse. Mitigation Measures AES-4a through AES-4c are available to address these effects.

***CEQA Conclusion*:** The impacts associated with light and glare under Alternative 8 are significant because there are a larger number of viewers in and around the waterways, intake structures, and intermediate forebay; BDCP facilities would increase the amount of nighttime lighting in the Delta above existing ambient light levels; and the study area currently experiences low levels of light because there are fewer light/glare producers than are typical in urban areas. Mitigation Measures AES-4a through AES-4c would help reduce these impacts by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences; however, these mitigation measures would not reduce impacts to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the new light and glare sources would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that do not blend or are not in keeping with the existing visual environment. Thus, the new sources of daytime and nighttime light and glare associated with Alternative 8 would result in significant and unavoidable impacts on public views in the project vicinity.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

***NEPA Effects*:** Effects on the visual environment through operations and maintenance of the water conveyance facilities (CM1) under this alternative would be similar to those described for Alternative 4, Impact AES-5. Once the facility is in operation, visible regular and periodic maintenance would be required on all major structures. Activities such as painting, cleaning, vegetation maintenance (removal), repairs, and inspections would be visible from viewpoints on water and land. The greatest visual effects resulting from operations would be maintenance of the intakes and dredging the forebays. Because temporary maintenance activities are anticipated to occur within a short period of time, these effects would not be adverse because the activities would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features.

***CEQA Conclusion*:** Maintenance of the conveyance facilities (i.e., intakes, tunnels, forebays and transmission lines) would be required periodically and would involve painting, cleaning, and repair of structures; dredging at forebays (at approximately 50-year intervals); vegetation removal and care along embankments; tunnel inspection; and vegetation removal within transmission line ROWs. These visible maintenance activities would be temporary, intermittent, and short-term impacts and would be considered less than significant. Maintenance and operation of Alternative 8 once constructed, would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features. Thus, overall, Alternative 8 would have a less-than-significant impact on existing visual quality and character during maintenance and operation of the facilities in the study area. No mitigation is required.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

***NEPA Effects*:** Under Alternative 8, these conservation measures would be the same as those under Alternative 4, Impact AES-6. Effects on the existing visual character, scenic vistas, scenic highways, and light and glare would be similar those under Alternative 4 because restored/enhanced lands would result in incremental and site-specific changes to changes in views. There may be site-specific, localized adverse visual effects. These conservation measures would alter the Delta landscape by incrementally, and substantially, introducing elements into the study area over time. CM2–CM22, when combined with CM1, could substantially alter the visual character of the study area, which is strongly identified by its agricultural and water-based Delta landscapes and communities. These landscapes and communities could be adversely affected by the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts associated with other development potentially setting a precedent for other development to occur. All of these effects would alter the visual character of the existing regional landscape.

Because of the unknown location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction, effects associated with implementation of CM2–CM22 could be adverse. However, the visual characteristics of restored/enhanced landscapes would be similar to areas of the Delta that are in a natural marsh or wetland state and more limited in extent than the widespread areas of agricultural development. In this sense, the BDCP would have an overall beneficial effect related to the enhancement and creation of scenic vistas in the Delta.

Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-4a through AES-4c are available to address effects from habitat restoration and enhancement actions under CM2–CM22. In addition, Mitigation Measures AES-6a and AES-6b are available to help reduce adverse visual effects. Upon development of site-specific design information and plans, additional mitigation measures may be identified to address action-specific adverse effects. However, each individual project under CM2–CM22 would undergo the environmental compliance process that would be used to determine what additional mitigation measures, would be deemed appropriate to reduce adverse effects and to assess compliance with relevant regulations. Finally, Mitigation Measure AES-6c is available to help inventory, classify, and protect the unique visual landscape of the Delta.

CEQA Conclusion: Implementation of conservation measures under Alternative 8 has the potential to affect existing visual quality and character, views of scenic vistas, views from scenic highways, and introduce new sources of light and glare in the study area. Impacts on the existing visual quality and character would be significant where use of large numbers of heavy construction equipment, changes in topography, and introduction of new structures or facilities where none presently exist would take place in the vicinity of sensitive receptors. However, because a number of factors that would determine the level of change are unknown—the location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction—impacts associated with implementation of CM2–CM22 on visual quality and character, scenic vistas, and light and glare sources, are considered significant. Because of the distance of implemented conservation measures from scenic highways, changes associated with these activities would not affect the visual quality along these scenic highway corridors and this impact would be less than significant. Site-specific restoration information and plans need to be developed before the site-specific effects on the existing visual character, scenic vistas, and light and glare can be determined.

Several mitigation measures are available to minimize the impacts on visual quality and character in the study area that could result from implementation of these conservation measures. As summarized below, these measures could be applied to individual restoration projects or actions as appropriate for the site-specific conditions and design considerations. In addition, each restoration project or action would undergo an environmental compliance process that would be used to determine what additional mitigation measures would be deemed appropriate to reduce significant effects. Mitigation Measures AES-1a through AES-1g could be applied to minimize impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. Mitigation Measures AES-4a through AES-4c could be used to reduce the effects of new light and glare sources by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. In addition, Mitigation Measures AES-6a and AES-6b would further minimize impacts on visual resources by undergrounding new or relocated utility lines, where feasible, and through an evaluation of an afterhours low-intensity and lights off policy. Finally, implementation of Mitigation Measure AES-6c would provide a strategy for the protection of the unique visual landscape of the Delta.

While some of the conservation measures could result in beneficial impacts through the restoration of natural habitat and these mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a less-than-significant level because of uncertainties associated with future implementation of CM2–CM22. In addition, the size of the study area and the nature of changes introduced by these conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend or be in keeping with the existing visual environment. Thus, implementation of CM2–CM22 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6b: Develop and Implement an Afterhours Low-Intensity and Lights Off Policy

Please refer to Mitigation Measure AES-6b under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6c: Implement a Comprehensive Visual Resources Management Plan for the Delta and Study Area

Please refer to Mitigation Measure AES-6c under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

***NEPA Effects*:** Constructing conveyance facilities (CM1) and implementing CM2–CM22 under Alternative 8 would generally have the same potential for incompatibilities with one or more plans and policies related to preserving the visual quality and character of the Delta as described for Alternative 1A, Impact AES-7. The primary differences under Alternative 8 are that only Intakes 2, 3 and 5 would be constructed. As described under Alternative 1A, there would be potential for the alternative to be incompatible with plans and policies related to preserving the visual quality and character of the Delta (i.e., The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, Delta

Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta, Delta Plan, Brannan Island and Franks Tract State Recreation Areas General Plan). In addition, with the exception of Solano County, the alternative may be incompatible with county general plan policies that protect visual resources in the study area.

CEQA Conclusion: The incompatibilities identified in the analysis indicate the potential for a physical consequence to the environment. The physical effects they suggest are discussed in impacts AES-1 through AES-6, above and no additional CEQA conclusion is required related to the compatibility of Alternative 8 with relevant plans and policies.

17.3.3.16 Alternative 9—Through Delta/Separate Corridors (15,000 cfs; Operational Scenario G)

Table 17D-4 in Appendix 17D, *Permanent Impacts after Construction is Complete*, describes existing visual characteristics and the BDCP-related permanent effects of Alternative 9 on visual quality and character, scenic vistas, scenic roadways, and from light and glare sources after construction is complete and identifies the overall effect on viewers. Appendix E, *Permanent Features*, identifies the viewer groups and viewing locations that would be affected by permanent alternative features. Construction of all structural components under Alternative 9 could potentially occur over a period of 9 years. However, construction of each individual facility would be phased within that period and would occur over a shorter period. The estimated construction times for individual features are included below. The duration and schedule for construction of the water conveyance facilities (CM1) is provided in Appendix 3C, *Construction Assumptions for Water Conveyance Facilities*. In addition, Appendix 22A details the construction schedules and defines the length and sequence of each construction phase.

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

Fish Screens

Construction of on-bank fish screens near Locke and Walnut Grove on the Delta Cross Channel and Georgiana Slough (KOPs 208, 209, 212, 217, 221, 222, 228, 235, and 236) would introduce considerable heavy equipment—excavators, graders, dozers, dump trucks, and end loaders, in addition to support pickups and water trucks—into the viewshed of all viewer groups in the vicinity. Work areas would be located adjacent to the fish screens and would be used for staging, temporary field offices, worker parking, equipment and materials laydown and storage, and would support other construction-related needs. Scattered rural residences are located along River Road and SR 160 along both banks of the river to the north and south of Locke, Walnut Grove, and Grand Island Estates. Development along River Road is denser in Locke and Walnut Grove, and residents and businesses along these levee roads would be near or directly adjacent to construction activities. Residents and businesses along SR 160 through Grand Island Estates would have direct views of construction activities occurring across the river. Recreationists and roadway users on River Road and SR 160 and recreationists using waterways and marinas in the area would have direct views of fish screen construction. The landscape sensitivity level is high, and impacts on viewers are substantial because the residents, businesses, travelers on SR 160, and recreationists using marinas would be very near to disruptive construction activities and could diminish recreational enjoyment. Construction of the fish screens would displace the Boathouse Marina at Locke and several other smaller boat docks and landings, resulting in the relocation of businesses and structures and razing of buildings on these properties during construction. In addition, vegetation would be removed along the eastern riverbank to construct the fish screen.

As seen in Figure 17-88, *Existing and Simulated Views of the Delta Cross Canal Intake at Walnut Grove*, a substantial amount of riparian vegetation along the east bank would be removed and the boat dock would no longer be present. The removal of vegetation along the river hardens the line of the river's edge and reduces visual variety that vegetation provides and of the water's reflections. The conversion of the riverbank that is grassy with riparian vegetation to the industrial looking on-bank intake with fish screen is a stark visual and color contrast against the more natural colors and textures of a vegetated riverbank that is absent of structures. The intake becomes a focal point and is visually discordant in scale and mass to the surrounding smaller scale structures of Walnut Grove. It also adds monotone solid color mass into a landscape where the colors of buildings do not detract from the viewshed because vegetation screens the buildings, softening their appearance and contributing to a unified view. The large scale of the intake, combined with vegetation removal, precludes unified views with the surrounding landscape. Overall, existing views from KOP 216 on River Road toward the intake and fishscreen would be substantially impaired by vegetation removal and introduction of the industrial looking intake and the Scenic Quality Rating would be reduced from a **C** to an **E**. This effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3).

Construction of fish screens would take up to 3.5 years, and construction activities would take place Monday through Friday for up to 24 hours per day. In addition, because of the relatively high groundwater levels, dewatering would be necessary to provide a dry workspace for the construction of on-bank diversions (and fish screens) on Georgiana Slough and the Delta Cross-Channel. The addition of channel sections would likely require groundwater dewatering. The construction of a pumping plant on the San Joaquin River at the Head of Old River and a pumping plant on Middle River upstream of Victoria Canal would also require potentially substantial dewatering activities. Dewatering would take place 7 days per week and 24 hours per day and would be initiated 1–4 weeks prior to excavation. Dewatering would continue until excavation is completed and the construction site is protected from areas with high groundwater levels (Chapter 3, *Description of Alternatives*). Each fish screen would be 2,800 feet (more than 0.5 mile) long, 50 feet wide, and 15 feet above the water's surface. Once construction is complete, the fish screens would introduce large, industrial concrete and steel structures and other similar anthropogenic features into an area with an existing rural Delta riverfront community and alter the riparian, riverine, and rural riverfront community visual character. The design of the fish screens and associated facilities could play a large part in helping to improve the quality of affected and degraded viewsheds. Because of the long-term nature of construction; proximity to sensitive receptors; razing of the marina, docks, and landings; removal of vegetation; and addition of large-scale industrial structures where none presently exist, resulting in a reduction of the visual quality and noticeable change to the existing visual quality and character, this effect would be adverse.

Operable Barriers

Construction of operable barriers would introduce considerable heavy equipment—excavators, graders, dozers, dump trucks, and end loaders, as well as support pickups and water trucks—into the viewshed of all viewer groups in the vicinity. Work areas adjacent to the operable barrier sites would be used for staging, temporary field offices, worker parking, equipment and materials laydown and storage, and support other construction-related needs. The operable barriers near Walnut Grove have a higher concentration of nearby residential viewers. Isolated or scattered rural or recreational residences are located near the operable barriers at Fisherman's Cut, the head of Old

River, Old River connection to Middle River, and Victoria Canal. The Old River connection to Middle River operable barrier would also be visible from Amtrak San Joaquin Oakland to Bakersfield route as it crosses over barrier between Bacon and Woodward Islands. The operable barrier would be seen by passengers sitting in window seats on the north and south sides of the train. While trains would pass by at a high rate of speed, the operable barrier would be a unique and prominent feature that would draw viewers' attentions as they pass by the feature that would be industrial in nature.

As seen in Figure 17-89, *Existing and Simulated Views of Operable Barrier Site on Three Mile Slough at Brannan Island State Recreation Area*, the conversion of Threemile Slough waters and removal of vegetation on its banks to the industrial looking operable barrier with a facility building and parking area is a stark visual and color contrast against the more natural colors and textures of a vegetated riverbank and waterway that is absent of structures. The operable barrier and support facilities becomes a focal point, limits views of water in the slough, and is visually discordant in scale and mass to the surrounding rural and riverine landscape. It also adds a large monotone solid color mass into a landscape where the colors of buildings and concrete and metal structures detract from the mostly earth-tone viewshed. The large scale of the operable barrier, combined with vegetation removal, precludes unified views with the surrounding landscape. Overall, existing views from KOP 252 on Brannan Island State Recreation Area toward the operable barrier would be substantially impaired by introduction of the operable barrier across Threemile Slough and the Scenic Quality Rating would be reduced from a **D** to an **E**. This effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3).

Operable barriers would introduce large structures across the existing channels that would limit physical and visual access to views beyond (KOP 255). The addition of large industrial facilities across waterways and limits to physical and visual access would result in a reduction of the visual quality and a noticeable change from public viewing areas. This would result in adverse visual effects.

Pumping Plants

Pumping plants would be built on the San Joaquin River at the head of Old River and on Middle River upstream of Victoria Canal and would take 2.5 years to construct. Each 16-acre pumping plant facility would be built on a ground plane elevated above the surrounding landscape to avoid flooding. The pumping plants would introduce large concrete multi-level, industrial structures into an agricultural and riverine landscape, resulting in a reduction of the visual quality and a noticeable change from public viewing areas. This would result in adverse visual effects.

Docks and Barge Traffic

New barge unloading facilities would be built in the viewshed of recreationists, businesses, public roadways, and residential properties, and would result in temporary long-term changes in views in the immediate area. These facilities would be constructed in areas where the landscape sensitivity levels range from low to high. New facilities would convert vegetated areas to large, unvegetated swaths of land and piles of sand and gravel with associated loading infrastructure, introducing these features into a viewshed where none presently exist. These features would contrast sharply with the more natural areas that were present prior to construction of the new facility. New facilities would convert agricultural and other open space lands to a land use that is industrial in nature and from one that is vegetated to one that is largely unvegetated, creating new landscape effects.

Alternative 9 includes seven barge unloading facilities; two would be built near the operable barriers at Fisherman's Cut and the head of Old River on the San Joaquin River, two near Old River, one near Woodward Canal, one north of Trapper Slough on the Middle River, and one on Victoria Canal. As described in more detail in Chapter 15, *Recreation*, the facilities at these locations would affect water-based recreation. Water-based recreational viewers would have the most direct views toward barge traffic and loading/offloading activities involving equipment and materials for pipeline construction. Construction of the barge unloading facilities may require partial channel closures and use of equipment within the waterways. All barge unloading facilities would have temporary in-water construction zone speed restrictions where high-speed recreation (e.g., waterskiing, wakeboarding, tubing) would effectively be eliminated. Once built, docks would be in use throughout construction. During this time, loading facilities and barge traffic would constrict boat passage, increase boat traffic congestion during peak use (primarily summer weekends), and extend viewing times of these facilities.

The San Joaquin River is very wide at the barge unloading facility locations, so boats could avoid the facilities entirely. The Middle River facility could constrict boat traffic, which may be high at this location; however, alternative routes are available to avoid this location. The Victoria Canal facility could also constrict traffic because the canal is narrower. Once construction of the operable barriers is complete, docks would be removed and barge traffic would cease.

Construction and use of barges and barge unloading facilities during construction at all locations would introduce dominant visual elements that would result in noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes may result in adverse visual effects because of the elongated viewing times during periods of congestion, temporary partial channel closures that could impede eliminate recreational opportunities and create negative visual perceptions of these facilities, and a reduced recreational experience due to the industrial nature of such facilities. This effect would be adverse.

Dredging Operations

Dredging activities proposed on the Middle River between Empire Cut and Victoria Canal and in Victoria Canal/North Canal would take up to 3.5 years to complete (KOP 254). Dredging in these waterways would require the establishment of safety zones around the dredge while it is in operation. The dredge and any associated barges or pipeline used for sediment disposal would be marked with signage and lights as required by U.S. Coast Guard regulations. All these elements would be visible to recreationists using waterways and to roadway users on local roadways such as Bacon Island Road and SR 4. In addition, dredging would be seen by railway viewers on the Amtrak San Joaquin Oakland to Bakersfield route as it crosses down the middle of the Old River connection to Middle River between Bacon and Woodward Islands. Dredging on narrow reaches of the Middle River channel and on Victoria Canal/North Canal may require temporary closure of the channel in the vicinity of the dredge, which would limit visual access during dredging. A side channel that would not be dredged would be available alongside most portions of the reach of Middle River to be dredged, allowing unimpeded boat passage. Similarly, the parallel channels of Victoria and North Canals, each about 200 feet wide, would allow continued boat passage at most times because the dredger would be used on only one side of the waterway at a time. Dredging, use of barges, dredging pipelines, and other equipment needed to remove and place dredged material would introduce dominant visual elements that would result in noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes may result in adverse visual effects due to the elongated viewing times during periods of congestion, temporary partial channel closures that could affect recreational opportunities and create negative visual perceptions of these facilities, and a reduced recreational experience due to the industrial nature of such facilities. This effect would be adverse.

Canal

A canal extension from the end of Victoria Canal to the Clifton Court Forebay and the Clifton Court Forebay spillway into the new canal to the CVP Canal would alter the area's existing character by introducing large-scale industrial structures that are visually discordant with the area's existing characteristics (KOP 107). These views would be greatly altered by the presence of a large-scale, concrete-lined and water-filled channels traversing the landscape between the intakes, introducing a visually co-dominant conveyance facility that would be very noticeable in available views. The landscape sensitivity level is low in these areas, however, and effects on the limited numbers of viewers would not be substantial because the area is presently flat agricultural lands. However, because of the visual scale of the canal, the long-term nature of construction, removal of vegetation, and changes to topography through grading that would introduce dominant visual elements and result in noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment, this effect would be adverse.

Bridges

Effects related to construction of bridges would occur within a 2-year period and would be similar to those described for Alternative 1B, because the proposed components would be similar but would be constructed on River Road over the new outlet for The Meadows Slough, near Locke. The bridges would likely be at grade with the existing River Road but would introduce a new structure that could disrupt the continuity of views by preventing free-flowing access from lands on either side of the bridges. There would also be two bridges south of the Clifton Court Forebay: one across the spillway into the new canal and one across the canal at Herdlyn Road. These bridges would alter the area's existing character by introducing large-scale industrial structures that are visually discordant with the area's existing characteristics. These would constitute adverse effects.

Spoil and Borrow Areas

Large spoil/borrow areas would be needed under Alternative 9 to store excess spoils from dredged material from the Middle River and Victoria Canal and to build operable barriers and the canals near the Clifton Court Forebay. Dredge storage sites (1,169 acres) would be established on lands opposite dredging locations and would consequently affect the same viewer groups described above for those activities. These would primarily be on Bacon Island (338 acres), Woodward Island (333 acres), Upper Jones Tract (224 acres), and Victoria Island (775 acres). Operable barriers would have spoil/borrow areas that are between 5 and 8 acres at each site. The spoil/borrow areas on Bacon and Woodward Islands would be seen by railway viewers on the Amtrak San Joaquin Oakland to Bakersfield route as it crosses down the middle of the Old River connection to Middle River between Bacon and Woodward Islands. The canals near the Clifton Court Forebay would require 295 acres of spoil/borrow. There would be a total of 375 acres of spoil/borrow, in addition to dredge disposal. The landscape sensitivity level is low in these areas, and impacts on these viewers would not be substantial because the area is presently flat agricultural lands. Disposal of dredge spoils would likely result in raising the elevation of affected lands. Earthmoving activities and associated heavy equipment and vehicles would be readily visible throughout operation of these sites that would attract attention from visual receptors. Spoil/borrow sites would be in use for the duration of dredging operations. Because of the long-term nature of construction and changes to topography through grading, this effect is considered adverse. Under Alternative 9 there would be a total of 2,044 acres of land affected by spoil/borrow areas compared to a total of 1,185 acres under Alternative 1A, 10,667 acres under Alternative 1B, and 6,770 acres under Alternative 1C. Approximately 0.6% (12 acres) of the spoils from operable barrier and canal construction may be disposed of in an unknown offsite landfill, which would be negligible and part of the existing visual environment at a landfill already in operation. In addition to spoils/borrow in the study area, offsite borrow sites may be needed to provide suitable materials for canal embankments and levees for the channel modifications at Hammer Island. It is not known how much import material would be needed and where it would come from. It is assumed that effects at import borrow sites would be similar in scale and have similar adverse visual effects to those within the study area. Once construction of the BDCP facilities is complete, the study area spoils/borrow areas would result in large-scale landscape elevation changes that would also alter the agrarian visual character and result in elevated landforms introduced into a landscape that is currently predominantly flat. These features would be visually discordant with the area's existing forms, patterns, colors, and textures associated with the existing agrarian character in the study area. Accordingly, alteration of the landscape through spoils disposal would result in an adverse effect on visual resources.

On-Channel Levee at Hammer Island

Construction of the on-channel levee at Hammer Island would introduce considerable heavy equipment—excavators, graders, dozers, sheepsfoot rollers, dump trucks, and end loaders, in addition to support pickups and water trucks—into the viewshed of all viewer groups in the vicinity. Work areas would be located adjacent to the fish screens and would be used for staging, temporary field offices, worker parking, equipment and materials laydown and storage, and would support other construction-related needs. These activities would affect views from Hammer Island, Rivers End Marina & Storage, and river-based residences located nearby.

As seen in Figure 17-90, *Existing and Simulated Views of the Channel Modification at Hammer Island*, a substantial amount of riparian vegetation along Old River and Hammer Island would be removed and residences and buildings on Hammer Island would no longer be present. The removal of vegetation along the river serves to alter the visual landscape and reduce visual variety that was provided by the vegetation. Removal of the vegetation serves to increase the visual prominence of utility lines in the area. In addition, vegetation removal acts to open views to the background and increases the amount of visible sky, as seen from this vantage. The realigned channel would not be visible from this location, but the levee would be slightly visible. Overall, existing views from KOP 109 on Lindemann Road toward channel modifications would be substantially altered by vegetation and the Scenic Quality Rating would be reduced from a **D** to an **E**. This effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3).

Island dredging and fill to build the levee would remove buildings, boat slips, and vegetation to create a landform across the CVP Canal and Old River that would obstruct access to West Canal and the Victoria Canal area. Old River would be realigned to allow boat traffic to pass. Because of the long-term nature of construction; proximity to sensitive receptors; razing of the residents, docks, and landings; removal of vegetation; and addition of landform where none presently exist, this effect would be adverse.

Access Roads

Construction of temporary and permanent access roads would take less than 2 years and would follow linear paths; consequently, construction of these features would not be focused on one specific location for an extended period of time. Construction of access roads would occur Monday through Friday for up to 24 hours per day. Access roads would be located in areas in where the landscape sensitivity levels range from low to high. Most of the temporary and permanent access roads follow alignments that have previously been cleared and that serve as agricultural access routes. Construction would include improving the condition of these existing access routes to accommodate construction access. Vegetation removal may occur along the rights-of-way of access roads and would negatively affect views from SR 160, River Road, and other roadways in the study area. After construction is complete, disturbed areas of exposed soil would be seeded for erosion control and would revegetate after a short time. Because of the temporary nature of construction and the regular relocation of activities, this would not constitute an adverse effect.

Transmission Lines

Proposed transmission line corridors are shown in Figure M3-5. Construction of 12 kV and 480 volt transmission lines to operate the fish screens and operable barriers would take less than 2 years and would require vegetation clearing along the linear ROWs. The transmission lines would be located in areas in where the landscape sensitivity levels range from low to high. Because construction operations would move along these linear ROW corridors, construction of these features would not take place in any specific location for an extended period. Most of the transmission lines would follow access roads constructed for the BDCP conveyance facilities or other existing access roads and roadways that are outside the immediate area. After construction is complete, disturbed areas of exposed soil would be seeded for erosion control and would revegetate after a short time. However, tree and shrub removal would likely occur within the ROWs and would negatively affect views from SR 160, River Road, and West Walnut Grove Road.

Smaller segments of transmission lines would tie into nearby existing transmission lines to supply power to the operable barriers. Construction of transmission lines would occur Monday through Friday for up to 24 hours per day. Once the proposed 12 kV and 480 volt electrical power transmission lines are constructed, wood-poled transmission lines would be visible. While these are features commonly seen in the Delta, they would add to the amount of infrastructure that is present in the landscape. While wood-poled transmission lines are part of most existing views, new 12 kV and 480 volt transmission lines and their cleared ROWs would adversely affect the existing visual character by the introduction of more utility lines in the landscape, making changes in views associated with construction of transmission lines adverse.

Summary

NEPA Effects: Visual effects of Alternative 9 would be substantial—primarily in the areas surrounding the fish screens, operable barriers, pumping plants, channel modifications, spoil/borrow areas, transmission lines, and the on-channel levee at Hammer Island. Construction of the alternative would result in reductions in the visual quality and introduce dominant visual elements that would result in noticeable changes that do not blend and are not in keeping or are incompatible with the existing visual environment. These changes would be most evident near Locke and Walnut Grove, which would undergo extensive changes from the permanent establishment of large industrial facilities and the supporting infrastructure along and surrounding the 1.2-mile segment of the Sacramento River where the fish screen would be situated, in addition to the operable barriers, bridges, and transmission lines that would be introduced. In San Joaquin County, the operable barrier across Old River on the Middle River and dredging activities would be visible from Bacon Island Road. While not officially designated as a state scenic highway, and therefore not discussed under *Impact AES-3: Permanent damage to scenic resources along a state scenic highway from construction of conveyance facilities*, this road is a San Joaquin County Scenic Route (see *Section 17.2.3.2, County and City General Plans – San Joaquin County*). These features would detract from the visual quality of views from this route. Alternative 9 would introduce visually dominant and discordant features in the foreground and middleground views that would be very noticeable to all viewer groups. These changes would occur in an area known for its open space, agricultural landscapes, and rural characteristics. Therefore, because of the long-term nature of construction; proximity to sensitive receptors; razing of the marina, docks, and landings; removal of vegetation; changes to topography through grading; transmission lines; and addition of large-scale industrial structures where none presently exist, this effect would be adverse.

Mitigation Measures AES-1a through AES-1e are available to address visual effects resulting from construction of Alternative 9 water conveyance facilities. No concrete batch plants or fuel stations have been identified for Alternative 9.

***CEQA Conclusion*:** Construction of Alternative 9 would substantially alter the existing visual quality and character present in the study area. The long-term nature of construction of the fish screens, operable barriers, pumping plants, work areas, spoil/borrow areas, barge unloading facilities, and dredging operations; presence and visibility of heavy construction equipment; proximity to sensitive receptors, razing of the marina, docks, and landings; removal of riparian vegetation and other mature vegetation or landscape plantings; earthmoving and grading that result in changes to topography in areas that are predominantly flat; addition of industrial structures (fish screens, operable barriers); remaining presence of large-scale borrow/spoil area effects; and addition of tall, steel transmission lines would all contribute to impacts on the existing visual quality and character.

Overall, construction would last up to 9 years and would change the existing visual character in the vicinity of project elements from those of agricultural, rural residential, or riparian and riverine settings to areas involving heavy construction equipment, temporary construction structures, work crews, other support vehicles and other activities that would modify and disrupt short- and long-range views. These activities would be disruptive to some viewers. Once construction is complete, the alternative would result in the placement of large industrial concrete and steel structures, pumping plants, fencing, and other similar anthropogenic features where none presently exist. Because of the landscape sensitivity and visual dominance of these features, these changes would result in reduced scenic quality throughout the study area (see 17.3.1.3, *Analysis of the Alternatives' Impact on Visual Resources*). Thus, Alternative 9 would result in significant impacts on the existing visual quality and character in the study area.

Mitigation Measures AES-1a through AES-1e would partially reduce impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, and applying aesthetic design treatments to all structures to the extent feasible. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, Alternative 9 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

***NEPA Effects*:** Many of the permanent visual effects of Alternative 9 would affect scenic vistas because the areas of the greatest change would be near Locke and Walnut Grove, where scenic vistas have been identified along SR 160 and River Road, and from waterways in the vicinity of the operable barriers and pumping plants. Implementation of Alternative 9 would result in a very noticeable effect on viewer experiences from SR 160 and River Road. The operable barriers would introduce large structures across the existing channels that would limit physical and visual access from waterways to vista views beyond. However, where views to the hills in the background exist, such as toward Mount Diablo, the hills would still be visible over the structures.

As seen in Figure 17-89, the conversion of Threemile Slough waters and removal of vegetation on its banks to the industrial looking operable barrier with a facility building and parking area is a stark visual and color contrast against the more natural colors and textures of a vegetated riverbank and waterway that is absent of structures. The operable barrier and support facilities becomes a focal point, limits views of water in the slough, and is visually discordant in scale and mass to the surrounding rural and riverine landscape. Creation of such a focal point detracts from views of the surrounding scenic vista. It also adds a large monotone solid color mass into a landscape where the colors of buildings and concrete and metal structures detract from the mostly earth toned viewshed. The large scale of the operable barrier, combined with vegetation removal, precludes unified views with the surrounding landscape. Overall, existing views from KOP 252 on Brannan Island State Recreation Area toward the operable barrier would be substantially impaired by introduction of the operable barrier across Threemile Slough and the Scenic Quality Rating would be reduced from a **D** to an **E**. This effect would be adverse (see discussions under 17.3.1.2 and 17.3.1.3).

As seen in Figure 17-90, *Existing and Simulated Views of the Channel Modification at Hammer Island*, a substantial amount of riparian vegetation along Old River and Hammer Island would be removed and residences and buildings on Hammer Island would no longer present. The removal of vegetation along the river serves to alter the visual landscape and reduce visual variety that was provided by the vegetation. Removal of the vegetation serves to increase the visual prominence of utility lines in the area. However, scenic vistas are limited along Lindemann Road when looking in this direction due to existing vegetation, and removal of this existing vegetation acts to open vista views to the background. It also increases the amount of visible sky, as seen from KOP 109.

Alternative 9 would result in a very noticeable effect on viewer experiences from SR 160 and River Road near Walnut Grove. The large scale of operable barriers and support facilities, the visual presence of large-scale borrow/spoil landscape effects, removal of substantial areas of riparian vegetation, and the presence of new transmission lines may result in adverse effects on scenic vistas in the study area. Overall, effects on scenic vistas associated with Alternative 9 would be adverse. Mitigation Measures AES-1a, AES-1c, and AES-1e are available to address these effects.

***CEQA Conclusion*:** The presence of the operable barriers and support facilities, pumping plants, large-scale borrow/spoil area landscape effects; and transmission lines would result in significant impacts on scenic vistas because construction and operation would result in a reduction in the visual quality in some locations and introduce dominant visual elements that would result in noticeable changes in the visual character of scenic vista viewsheds in the study area. These changes would not blend, would not be in keeping or would be incompatible with the existing visual environment, and could be viewed by sensitive receptors or from public viewing areas.

Mitigation Measures AES-1a, AES-1c, and AES-1e would partially reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow area management plan, and applying aesthetic design treatments to all structures to the extent feasible, but may not reduce them to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, impacts on scenic vistas associated with Alternative 9 would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

***NEPA Effects*:** Alternative 9 would result in an overall noticeable effect on viewers relative to their current experience and enjoyment of the study area's scenic resources. Implementation of this alternative would require removal of visually important features, such as mature trees and shrubs, which are scenic elements that contribute to the viewing experience available to travelers along SR 160 and River Road in the area of this alternative. These features would be replaced by concrete and steel structures, earthen embankments, and paved areas associated with operable barriers and fish screens, fencing and security lights, and new access roads. These visual elements would conflict with the forms, patterns, colors, textures, and general nature of the visual experience presently available from River Road and SR 160 and would obstruct views of Locke and Walnut Grove and riparian habitat alongside rivers and creeks (thereby permanently damaging the scenic resources along a scenic highway). Overall, implementation of Alternative 9 would result in effects on views in the foreground or middleground from River Road near Walnut Grove and Locke and from SR 160 near Walnut Grove, Locke, and Brannan Island State Recreation Area; would lessen the visual quality of those views; and would replace those views with views of operable barriers and fish screens that would dominate the riverfront and could impinge on the downtown area of those communities and may result in adverse effects. Mitigation Measures AES-1a, AES-1c, AES-1e, and AES-3 are available to address these effects.

***CEQA Conclusion*:** Because visual elements associated with this alternative would conflict with the existing forms, patterns, colors, and textures and general nature of the visual experience along River Road and SR 160 and would result in effects on views in the foreground or middleground from River Road near Walnut Grove and Locke and from SR 160 near Walnut Grove, Locke, and Brannan Island State Recreation Area; would lessen the visual quality of those views; and would replace those views with views of operable barriers and fish screens that would dominate the riverfront and could impinge on the downtown area of those communities (thereby permanently damaging the scenic resources along a scenic highway), these impacts are considered significant.

Mitigation Measures AES-1a, AES-1c, AES-1e, and AES-3 would help reduce these impacts through the application of aesthetic design treatments to all structures, to the extent feasible and through the design and implementation of an overlook with interpretative signage at the operable barrier on Threemile Slough near Brannan Island State Recreation Area. However, impacts on visual resources resulting from damage to scenic resources that may be viewed from a state scenic highway would not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes to the visual character of a scenic highway viewshed that do not blend or are not in keeping with the existing visual environment. Thus, overall this impact would be significant and unavoidable.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-3: Design and Implement an Overlook with Interpretative Signage at the Operable Barrier on Threemile Slough Near Brannan Island State Recreation Area

The BDCP proponents will design and implement an overlook with interpretative signage at the operable barrier on Threemile Slough to reduce the effects of Alternative 9 on viewing experiences for visitors of the Brannan Island State Recreation Area. This facility will meet the following minimum performance standards.

- The overlook will provide an Americans with Disabilities Act–compliant trail connecting the south end of the existing campground to an overlook near the operable barrier.
- A kiosk with interpretive signage will be installed at this location to educate visitors; the kiosk will address the Delta ecosystem, endangered species, and the purpose of the barrier.
- The design will make use of existing tree canopy cover for shading the overlook area or trees will be planted to provide shade as they mature.
- All plantings will be native and indigenous to the area, and no invasive plant species will be used under any conditions.

- Plantings installed near the barrier will be designed and installed in a manner that reflects existing vegetative conditions at this location and will not be installed in a manner that would screen or obscure views of Threemile Slough, as this would limit and prevent valued views over the waterway.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

NEPA Effects: The following NEPA effects would result from the introduction of new sources of daytime and nighttime glare and nighttime lighting.

Daytime and Nighttime Glare

Sunlight would reflect off the new water surfaces created by the canal and expanded water surfaces on Middle River and Victoria Canal, adding to the amount of glare at these locations. The structures associated with this alternative would result in new sources of glare if they were made of materials that easily reflect light. Reflected glare could constitute an adverse effect. In addition, the use of nighttime lighting, described below, would result in nighttime glare caused by lights reflecting off water surfaces. Because the number of viewers in and around the waterways at night is expected to be low, this impact is not considered adverse.

Nighttime Lighting

In addition to the lighting of the fish screens and pumping plants, Alternative 9 would entail the establishment of safety lighting along the operable barriers and canal as part of normal operations and maintenance and would result in the introduction of new sources of light to parts of the study area that currently experience low levels of light and glare. Because the study area currently experiences low levels of light and because there are a larger number of viewers in and around the facilities, effects associated with nighttime lighting are considered adverse. Mitigation Measures AES-4a through 4c are available to address these effects.

***CEQA Conclusion*:** The impacts associated with light and glare under Alternative 9 are significant because the alternative would introduce new light sources to places in the study area that currently experience low levels of light and glare and have a large number of viewers around the proposed facilities. Fish screens, pumping plants, operable barriers, and the canal would increase the amount of nighttime lighting in the Delta above existing ambient light levels for viewers in and around the waterways in areas that currently experience low levels of light Mitigation Measures AES-4a through AES-4c would help reduce these impacts by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. However, these mitigation measures would not reduce impacts to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the new light and glare sources would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that do not blend or are not in keeping with the existing visual environment. Thus, the new sources of daytime and nighttime light and glare associated with Alternative 9 would result in significant and unavoidable impacts on public views in the project vicinity.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

***NEPA Effects*:** Operations under Alternative 9 would be similar to those under Alternatives 1A through 1C. Therefore, effects related to visual impacts resulting from maintenance activities would be similar to those described under Alternatives 1A through 1C, Impact AES-5. The primary difference would be that there would not be an intermediate forebay needing dredging, but there would be one canal. The greatest visual effects resulting from operations would be maintenance on the fish screen, operable barriers, and cleaning of the canals. These activities would be visible from the water or land. However, these temporary maintenance activities are anticipated to occur within short periods of time, and effects would not be adverse because the activities would not result in further substantial changes to the existing natural viewshed or terrain, alter existing visual quality of the region or eliminate visual resources, or obstruct or permanently reduce visually important features. Additionally, as discussed under Alternative 1A, operation of the intakes would not affect river water levels to an extent that would be visible or result in changes to the existing visual quality or character.

***CEQA Conclusion*:** Maintenance of the facilities (i.e., fish screens, operable barriers, pumping plant and transmission lines) would be required periodically and would involve painting, cleaning, and repair of structures; dredging; vegetation removal and care along embankments, and vegetation removal within transmission line ROWs. These visible maintenance activities would be temporary, intermittent, and short-term impacts and would be considered less than significant. Thus, overall, Alternative 9 would have a less-than-significant impact on existing visual quality and character during maintenance and operation of the facilities in the study area. No mitigation is required.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

***NEPA Effects*:** Under Alternative 9, these conservation measures would be similar to those under Alternative 1A, but could result in changes to the south Delta to accommodate modified corridors compared to Alternative 1A. There may be site-specific, localized adverse visual effects. These conservation measures would alter the Delta landscape by incrementally, and substantially, introducing elements into the study area over time. CM2–CM22, when combined with CM1, could substantially alter the visual character of the study area, which is strongly identified by its agricultural and water-based Delta landscapes and communities. These landscapes and communities could be adversely affected by the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts associated with other development potentially setting a precedent for other development to occur. All of these effects would alter the visual character of the existing regional landscape.

Because of the unknown location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction, effects associated with implementation of CM2–CM22 are considered adverse. However, the visual characteristics of restored/enhanced landscapes would be similar to other areas of the Delta that are in a natural marsh or wetland state and more limited in extent than the widespread areas of agricultural development. In this sense, the BDCP would have an overall beneficial effect related to the enhancement and creation of scenic vistas in the Delta.

Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-4a through AES-4c are available to address effects from habitat restoration and enhancement actions under CM2–CM22. In addition, Mitigation Measures AES-6a and AES-6b are available to help reduce adverse visual effects. Upon development of site-specific design information and plans, additional mitigation measures may be identified to address action-specific adverse effects. However, each individual project under CM2–CM22 would undergo the environmental compliance process that would be used to determine what additional mitigation measures, would be deemed appropriate to reduce adverse effects and to assess compliance with relevant regulations. Finally, Mitigation Measure AES-6c is available to help inventory, classify, and protect the unique visual landscape of the Delta.

While some of these conservation measures could result in beneficial impacts through the restoration of natural habitat and these mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a not adverse level because of uncertainties associated with future implementation of CM2–CM22. In addition, the size of the study area and the nature of changes introduced by thee conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend with or be in keeping with the existing visual environment. Thus, implementation of CM2–CM22 would result in adverse impacts on the existing visual quality and character in the study area.

CEQA Conclusion: Implementation of conservation measures under Alternative 9 has the potential to affect existing visual quality and character, views of scenic vistas, views from scenic highways, and introduce new sources of light and glare in the study area. Impacts on the existing visual quality and character would be significant where use of large numbers of heavy construction equipment, changes in topography, and introduction of new structures or facilities where none presently exist would take place in the vicinity of sensitive receptors. However, because a number of factors that would determine the level of change are unknown—the location of site-specific restoration activities, potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction—impacts associated with implementation of CM2–CM22 on visual quality and character, scenic vistas, and light and glare sources, are considered significant. Because of the distance of implemented conservation measures from scenic highways, changes associated with these activities would not affect the visual quality along these scenic highway corridors and this impact would be less than significant. Site-specific restoration information and plans need to be developed before the site-specific effects on the existing visual character, scenic vistas, and light and glare can be determined.

Several mitigation measures are available to minimize the impacts on visual quality and character in the study area that could result from implementation of these conservation measures. As summarized below, these measures could be applied to individual restoration projects or actions as appropriate for the site-specific conditions and design considerations. In addition, each restoration project or action would undergo an environmental compliance process that would be used to determine what additional mitigation measures would be deemed appropriate to reduce significant effects. Mitigation Measures AES-1a through AES-1g could be applied to minimize impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, and using best management practices to implement a project landscaping plan. Mitigation Measures AES-4a through AES-4c could be used to reduce the effects of new light and glare sources by limiting construction to daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, and installing visual barriers along access routes, where necessary, to prevent light spill from truck headlights toward residences. In addition, Mitigation Measures AES-6a and AES-6b would further minimize impacts on visual resources by undergrounding new or relocated utility lines, where feasible, and through an evaluation and implementation of an afterhours low-intensity and lights off policy. Finally, implementation of Mitigation Measure AES-6c would provide a strategy for the protection of the unique visual landscape of the Delta.

While some of the conservation measures could result in beneficial impacts through the restoration of natural habitat and these mitigation measures would reduce the severity of impacts, it is unknown whether they would be reduced to a less-than-significant level because of uncertainties associated with future implementation of CM2–CM22. In addition, the size of the study area and the nature of changes introduced by these conservation measures would result in permanent changes to the regional landscape such that there would be noticeable changes to the visual character that may or may not blend or be in keeping with the existing visual environment. Thus, implementation of CM2–CM22 would result in significant and unavoidable impacts on the existing visual quality and character in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6b: Develop and Implement an Afterhours Low-Intensity and Lights Off Policy

Please refer to Mitigation Measure AES-6b under Impact AES-6 in the discussion of Alternative 1A.

Mitigation Measure AES-6c: Implement a Comprehensive Visual Resources Management Plan for the Delta and Study Area

Please refer to Mitigation Measure AES-6c under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

***NEPA Effects*:** Constructing conveyance facilities and implementing CM2–CM22 under Alternative 9 could result in the potential for some incompatibilities with plans and policies related to preserving the visual quality and character of the Delta. A number of plans and policies that coincide with the study area boundaries provide guidance for visual resource issues as overviewed in *Section 17.2, Regulatory Setting*. This overview of plan and policy compatibility evaluates whether Alternative 9 is compatible or incompatible with such enactments, rather than whether impacts are adverse or not adverse or significant or less than significant. If the incompatibility relates to an applicable plan, policy, or regulation adopted to avoid or mitigate visual effects, then an incompatibility might be indicative of a related significant or adverse effect under CEQA and NEPA, respectively. These physical effects of Alternative 9 on visual resources are addressed in Impacts AES-1 through AES-6, above. The following is a summary of compatibility evaluations related to visual resources for plans and policies relevant to the BDCP.

Conveyance Facilities

- The Sierra Resource and Cosumnes River Preserve Management Plans protect the Cosumnes River Preserve. Views within the Cosumnes River Preserve would not be affected by Alternative 9 because it is located east of I-5 and public views of the project site available from trails are obscured by riparian vegetation and I-5.
- The Suisun Marsh is protected by the San Francisco Bay Conservation and Development Commission Suisun Marsh Protection Plan. The eastern boundary of the Suisun Marsh extends to Collinsville Road in southern Solano County and falls within the westernmost portion of the study area. Views from Suisun Marsh would not be affected by this alternative because project features would be obscured by distance, the Altamont Hills, and intervening trees, infrastructure, and development.
- EBRPD parks within the study area include Browns Island, Antioch/Oakley, and Big Break Parks (East Bay Regional Park District 2013b). Views from these parks would not be affected by this alternative because project features would be obscured by distance, the Altamont Hills, and intervening trees, infrastructure, and development.
- The cities of Antioch, Brentwood, Oakley, Sacramento, Lathrop, Stockton, Tracy, Rio Vista, Suisun City, and West Sacramento would not be affected by this alternative because there are no

project features within or visible from these cities. Therefore, this alternative would be consistent with the protection of visual resources covered under those general plans.

- The Johnston-Baker-Andal-Boatwright Delta Protection Act of 1992, Delta Protection Commission Land Use and Resource Management Plan for the Primary Zone of the Delta, Delta Plan, Brannan Island and Franks Tract State Recreation Areas General Plan are all focused on the protection of resources, including visual resources, within the Delta. While constructing and operating conveyance facilities under this alternative are intended to provide ecosystem benefits in the Delta, constructing these conveyance elements could be considered incompatible with measures to protect the unique visual environment of the Delta because agricultural lands and riverbanks would be converted to other uses and the scale of construction would result in changes to the landscape that may be considered disruptive to the current Delta environment and visual quality.
- Contra Costa, Sacramento, San Joaquin, and Solano Counties all have policies to preserve and protect the scenic qualities of the Delta as summarized in *Section 17.2 Regulatory Setting*. In addition, Alameda, Contra Costa, Sacramento, San Joaquin, Solano, and Yolo Counties are focused on the protection of visual resources and preserving agricultural lands. The general plans for these counties include policies for the protection of visual resources, trees, waterways, and landscaping and for avoiding impacts such as the alteration of landforms and the introduction of utilities and new sources of light. These policies seek to minimize visual impacts and enhance scenic qualities and also encourage placing utility lines underground. The conversion of agricultural lands and riverbanks to intake facilities, conveyance facility changes and introduction of new lighting and transmission lines where none presently exist would substantially alter the landscape and could be considered incompatible with local policies aimed at protecting visual resources in these counties. Potential incompatibilities with Sacramento County and San Joaquin County policies would be most likely because most of the project features occur in these counties. Alameda and Contra Costa Counties have much smaller portions of project features that surround the Clifton Court Forebay. Yolo County would be affected by intakes located on the east bank of the Sacramento River that would affect views from South River Road. Alternative 9 would not be incompatible with Yolo County and Solano County policies because conveyance facilities would not be located in these areas.

Other Conservation Measures

- The Yolo Bypass would be altered under CM2. Views of and from South River Road would not be affected. However, new fish screens, ladders, ramps, barriers, realignment of waterways, additional hydrologic monitoring stations, fish rearing pilot project at Knaggs Ranch, operations buildings, parking lots, access facilities such as roads and bridges, and modification, removal, and construction of berms, levees, and water control structures would result in changes to the landscape that may be incompatible with the Yolo County General Plan Policies LU-3.7, CC-1.2, CC-1.3, and CC-1.4 that protect scenic areas, the rural landscape character, and the night sky.
- CM4–CM11 would result in the conversion of primarily agricultural lands to restored or enhanced habitat across all 11 CZs, with specific focus on ROAs (refer to Figure 3-1). Therefore, associated regulations may apply. Restored areas would largely be natural habitat areas. Alterations such as channel and levee modifications, landform alteration from dredge spoil placement, and floodplain lowering could change the visual landscape. Restoring areas and views to natural, native habitat would likely be beneficial and would increase visual diversity. However, converting agricultural lands may be incompatible with one or more regulation

protecting visual resources, although it may facilitate regulations set in place to protect and restore the Delta. If facilities, such as buildings, parking lots, or roads, are built, they would also have the potential to be incompatible with relevant regulations that protect scenic areas, the landscape character, the night sky, and the Delta.

- CM15 and CM21 would occur across all 11 CZs and could result in physical changes to the visual environment at a number of locations and where relevant regulations may apply. This may have beneficial or adverse effects based on the size of proposed projects and pre-and post-project conditions (e.g., if restoration is implemented and improves pre-project conditions or if natural vegetation is removed and replaced with rip rap or a new diversion structure that degrades pre-project conditions). Vegetation removal and replacement with rip rap or a diversion structure could be incompatible with be incompatible with relevant regulations that protect scenic areas, the landscape character, the night sky, and the Delta.
- CM16 could use sound, light, and bubbles at the head of the Delta Cross Channel and Georgiana Slough in Sacramento County; Old River, Turner Cut, and Columbia Cut in San Joaquin County, the Delta-Mendota Canal intake in Alameda County; and Clifton Court Forebay in Contra Costa County to direct fish passage. Small scale changes may be visible on the banks or in the water used for anchoring that could result in adverse visual effects, but it is anticipated that these changes would be compatible with County general plan policies that protect visual resources.
- Building a new hatchery that consists of a facility on the edge of the Sacramento River and a larger supplementation production facility nearby, through CM18, would result in visual changes and conversion of existing land uses along and near the river would be required to build facilities. These facilities could be located in Sacramento, Yolo, or Solano Counties and also fall within the Delta. Therefore, corresponding regulations may apply. The size and locations of these facilities are unknown, but it is likely that conversion of existing land uses, and potentially undeveloped land would alter the visual character along the Sacramento River and would be incompatible with one or more plans or policies for the protection of visual resources in these regions.

CEQA Conclusion: The incompatibilities identified in the analysis indicate the potential for a physical consequence to the environment. The physical effects they suggest are discussed in impacts AES-1 through AES-6, above and no additional CEQA conclusion is required related to the compatibility of Alternative 9 with relevant plans and policies.

17.3.3.17 Cumulative Analysis

Assessment Methodology

This cumulative impact analysis considers projects that could affect the same resources and, where relevant, in the same time frame as the BDCP alternatives, resulting in a cumulative impact. The visual environment is expected to change as a result of past, present, and reasonably foreseeable future projects related to changes in land use (see Chapter 13, *Land Use*). It is expected that changes to the existing visual environment will take place, even though it is assumed that reasonably foreseeable future projects would include typical design and construction practices to avoid or minimize potential impacts.

Proposed projects and plans that have the potential to contribute to cumulative visual impacts in the vicinity of the BDCP alternatives project areas are listed in Table 17-2. This table includes projects, as included in Appendix 3D, which are identified to be considered a cumulative project. Table 17-2 further identifies projects that would result in visible changes to the landscape and those that would not.

Only projects that would result in visible changes to the landscape are included in the cumulative analysis below. Projects that would not result in visible changes to the landscape include such plans or programs that monitor or implement existing regulations and programs (e.g., implementing stormwater regulations, Fish Screen and Passage Program), plans or programs that are currently in operation and are a part of the existing visual environment (e.g., invasive species control programs), and programs that would manage water flows for identified species because variable flows are already a naturally occurring climatic condition. For descriptions of cumulative projects, refer to Appendix 3D.

Table 17-2. Cumulative Projects considered in the Aesthetics and Visual Resources Analysis

Project	Primary Agencies	Considered in analysis (Y/N)
Bay Area Water Quality and Supply Reliability Program	Bay Area Integrated Regional Water Management Plan participants representing Bay Area agencies	N
Bay Area Stormwater Management Programs (SMP)	Bay Area Stormwater Management Association member agencies	N
Egeria Densa Control Program	California Department of Boating and Waterways (CDBW)	N
Water Hyacinth Control Program	CDBW	N
Invasive Species Program	CDFW	N
California Aquatic Invasive Species Management Plan	CDFW	N
Aquatic Invasive Species Draft California Rapid Response Plan	CDFW	N
Zebra Mussel Rapid Watch Program and Response Plan for California	CDFW, California Department of Water Resources (DWR), and California State Lands Commission	N
Fish Screen and Passage Program	CDFW	N
Delta-Bay Enhanced Enforcement Program	CDFW	N
Ecosystem Restoration Program Conservation Strategy	CDFW	Y
Fremont Landing Conservation Bank	CDFW	Y
Fish Screen Project at Sherman and Twitchell Islands	CDFW and DWR	Y
Lower Sherman Island Wildlife Area Land Management Plan (LMP)	CDFW	Y
Yolo Bypass Wildlife Area LMP	CDFW	Y
Staten Island Wildlife-Friendly Farming Demonstration	CDFW	N
Restoring Ecosystem Integrity in the Northwest Delta	CDFW	Y
Population Biology, Life History, Distribution, and Environmental Optima of Green Sturgeon	CDFW	N
Operations as for Listing of Longfin Smelt under CESA	California Fish and Game Commission	N
Hatchery and Stocking Program	CDFW and U.S. Fish and Wildlife Service (USFWS)	N
Hatchery and Stocking Program Proposed Changes	CDFW and USFWS	N
Watercraft Inspection Programs	CDFW, California Department of Food and Agriculture, California State Parks	N
Suisun Marsh Habitat Management, Preservation, and Restoration Plan	CDFW, USFWS, Bureau of Reclamation (Reclamation), and Suisun Marsh Charter Group	Y
Central Valley Vision	California State Parks	Y

Project	Primary Agencies	Considered in analysis (Y/N)
California Water Plan Update 2013	DWR	N
Central Valley Flood Protection Plan	DWR	Y
Delta Levees Flood Protection Program	DWR	Y
Delta Risk Management Strategy	DWR	Y
FloodSAFE California	DWR	Y
Levee Repair-Levee Evaluation Program	DWR	Y
Interagency Ecological Program	DWR	N
Mayberry Farms Subsidence Reversal and Carbon Sequestration Project	DWR	Y
North Delta Flood Control and Ecosystem Restoration Project	DWR	Y
Oroville Facilities Relicensing	DWR	N
South Delta Temporary Barriers Project	DWR	N
Stockton Deep Water Ship Channel Demonstration Dissolved Oxygen Project	DWR	N
Zebra Mussel Watch Program	DWR	N
Cache Slough Area Restoration	DWR and CDFW	Y
Delta Fish Agreement (Four Pumps Project)	DWR and CDFW	Y
North Bay Aqueduct Alternative Intake Project	DWR and Solano County Water Agency (SCWA)	Y
Dutch Slough Tidal Marsh Restoration Project	DWR and California State Coastal Conservancy	Y
Franks Tract Project	DWR and Reclamation	Y
In-Delta Storage Project	DWR and Reclamation	Y
Lower Yuba River Accord	DWR and Yuba County Water Agency	N
Upper Yuba River Studies Program	DWR, CALFED, and National Marine Fisheries Service (NMFS)	N
CALFED Levee System Integrity Program	DWR, CDFW, U.S. Army Corps of Engineers (USACE)	Y
Element 2: Release Site Predation Study (Collection Handling, transport, and release [CHTR] New Technologies Proposal: Phase 1 Baseline Conditions)	DWR, CDFW, Reclamation	N
Altamont Corridor Rail Project	California High Speed Rail Authority (CHSRA) and Federal Railroad Administration (FRA)	Y
California High-Speed Rail System Sacramento to Merced Section	CHSRA and FRA	Y
Riparian Habitat Joint Venture Project	California Partners In Flight	Y
Delta Vision	California Resources Agency	Y
Marine Invasive Species Program	California State Lands Commission	N
Central Valley Joint Venture Program	Central Valley Joint Venture	Y
Cache Creek, Bear Creek, Sulfur Creek, Harley Gulch Mercury TMDL	Central Valley Regional Water Quality Control Board (Central Valley Water Board)	Y
Irrigated Lands Regulatory Program	Central Valley Water Board	N
Sacramento-San Joaquin Delta Estuary TMDL for Methylmercury	Central Valley Water Board	Y
East Contra Costa County Habitat Conservation Plan (HCP)/Natural Community Conservation Plan (NCCP)	Contra Costa County and East Contra Costa County Habitat Conservancy	Y
Contra Costa Canal Fish Screen Project	Contra Costa Water District (CCWD)	Y
Contra Costa Canal Replacement Project	CCWD	Y
Los Vaqueros Reservoir Expansion Project	CCWD and Reclamation	Y
Alternative Intake Project	CCWD, Reclamation, and DWR	Y
Davis-Woodland Water Supply Project	Davis, Woodland, and University of California, Davis (UC Davis)	Y

Project	Primary Agencies	Considered in analysis (Y/N)
Delta Protection Commission Land Use and Resource Management Plan Update	Delta Protection Commission (DPC)	Y
Delta Plan	Delta Stewardship Council	Y
EBMUD Camanche Permit Extension	East Bay Municipal Utility District (EBMUD)	N
Lower Mokelumne River Spawning Habitat Improvement Project	EBMUD	Y
Water Supply Management Program 2040	EBMUD	N
Bay Area Regional Desalination Project	EBMUD, CCWD, Santa Clara Valley Water District (SCVWD), and San Francisco Public Utility Commission	Y
Folsom Lake Temperature Control Device	El Dorado Irrigation District and Reclamation	Y
Supplemental Water Rights Project	El Dorado Water and Power Authority	N
Freeport Regional Water Project	Freeport Regional Water Authority and Reclamation	Y
Eastern San Joaquin Integrated Conjunctive Use Program	Northeastern San Joaquin County Groundwater Banking Authority	N
Canada-Northwest-California Transmission Project	Pacific Gas and Electric Company (PG&E)	Y
American River Pumping plant and Restoration Project	Placer County Water Agency (PCWA) and Reclamation	N
Sacramento River Water Reliability Study	PCWA and Reclamation	Y
Liberty Island Conservation Bank	Reclamation District 2093	Y
Flood Management Program	Sacramento Area Flood Control Agency (SAFCA), Central Valley Flood Protection Board (CVFPB), and USACE	Y
Sacramento County General Plan Update	Sacramento County	Y
Sacramento International Airport Master Plan	Sacramento County	Y
South Sacramento HCP	Sacramento County and USFWS	Y
Sacramento Stormwater Quality Partnership	Sacramento County, Sacramento, Citrus Heights, Elk Grove, Folsom, Galt, and Rancho Cordova	N
San Francisco Bay Plan Amendment and Special Programs	San Francisco Bay Conservation and Development Commission	Y
San Francisco Bay Mercury TMDL	San Francisco Bay Regional Water Quality Control Board	Y
Alameda Watershed HCP	San Francisco Public Utilities Commission, USFWS, and NMFS.	Y
San Joaquin County Multi-Species Habitat Conservation and Open Space Plan	San Joaquin Council of Governments	Y
San Joaquin County General Plan Update	San Joaquin County	Y
San Joaquin County, Stockton, and Tracy SMP	San Joaquin County Department of Public Works, Stockton Municipal Utilities Department, Tracy Water Resources Department, and State Water Resources Control Board (State Water Board)	N
Delta Wetlands Project	Semitropic Water Storage District	Y
Solano Multispecies HCP	SCWA	Y
Delta Water Supply Project (Phase 1)	Stockton	Y
Battle Creek Salmon and Steelhead Restoration Project	Reclamation and State Water Board	Y
Delta Dredged Sediment Long-Term Management Strategy	USACE	Y
Lower San Joaquin Feasibility Study	USACE	Y
Suisun Bay Channel Operations and Maintenance	USACE	Y
Suisun Channel (Slough) Operation and Maintenance	USACE	Y

Project	Primary Agencies	Considered in analysis (Y/N)
Delta Islands and Levees Feasibility Study	USACE and DWR	Y
San Francisco Bay to Stockton Deep Water Ship Channel Project	USACE, Port of Stockton, and Contra Costa County Water Agency	Y
Sacramento Deep Water Ship Channel Project	USACE and Port of Sacramento	Y
Delta-Mendota Canal/California Aqueduct Intertie	Reclamation	Y
Shasta Lake Water Resources Investigation	Reclamation	Y
Delta-Mendota Canal Recirculation Feasibility Study	Reclamation and DWR	N
North-of-the-Delta Offstream Storage Investigation	Reclamation and DWR	Y
Sacramento Valley Water Management Plan	Reclamation and DWR	N
Upper San Joaquin River Basin Storage Investigation	Reclamation and DWR	Y
Water Year 2010 Interim Flows Project	Reclamation and DWR	N
Grassland Bypass Project, 2010 - 2019	Reclamation and San Luis & Delta Mendota Water Authority (SLDMWA)	N
Agricultural Drainage Selenium Management Program	Reclamation, SLDMWA	N
2-Gates Project	Reclamation, SLDMWA	Y
Red Bluff Diversion Dam Fish Passage Project	Reclamation and Tehama Colusa Canal Authority	Y
Anadromous Fish Screen Program	Reclamation and USFWS	Y
American Basin Fish Screen and Habitat Improvement Project	Reclamation, CDFW, and Natomas Central Mutual Water Company	Y
San Luis Reservoir Low Point Improvement	Reclamation, SCVWD, SLDMWA	N
Folsom Dam Safety and Flood Damage Reduction Project	Reclamation, USACE, SAFCA, and CVFPB	Y
San Joaquin River Restoration Program	Reclamation, USFWS, NMFS, DWR and CDFW	Y
Ballast Water Management Program	U.S. Coast Guard	N
Biological Opinion and Conference Opinion on the Long-term Operations of the Central Valley Project and State Water Project	U.S. Department of Commerce, NMFS, Reclamation, and DWR	Y
Biological Opinion on the Long-Term Operations of the Central Valley Project and State Water Project (Delta smelt)	Reclamation, USFWS, and DWR	Y
North American Waterfowl Management Plan	USFWS	Y
Stone Lakes National Wildlife Refuge Comprehensive Conservation Plan	USFWS	Y
San Joaquin Basin Action Plan	Reclamation, USFWS, and CDFW	Y
Lower American River Temperature Reduction Modeling Project (Formerly the Lake Natoma Temperature Curtains Pilot Project)	USFWS, Anadromous Fish Restoration Program, Reclamation, Sacramento Water Forum	Y
UCD Fish Conservation and Cultural Lab	UC Davis, DWR, and Reclamation	N
Delta Smelt Refuge Population and Delta Smelt Interim Refuge	UC Davis, DWR, CDFW, USFWS, and Reclamation	N
Delta Smelt Permanent Refuge	UC Davis, DWR, CDFW, USFWS, and Reclamation	Y
Lower American River Flow Management Standard Implementation	Sacramento Water Forum and Reclamation	N
West Sacramento Levee Improvements Program	West Sacramento Area Flood Control Agency and USACE	Y
Lower Yolo Bypass Planning Forum	Yolo Basin Foundation and Commission	N
Yolo County General Plan Update	Yolo County	Y
Yolo County HCP/NCCP	Yolo County Joint Powers Authority	Y
Yolo County SMP	Yolo County Public Works Division	N
South Bay Aqueduct Improvement and Enlargement Project	Zone 7 Water Agency and DWR	Y

Cumulative Effects of the No Action Alternative

The cumulative effect of the No Action Alternative (including climate change that would occur with or without the BDCP) would result in an array of effects on existing visual quality and character in the Delta. Changes to land use have the greatest potential to affect visual resources and viewer groups under continuation of existing policies and programs in the absence of the BDCP alternatives. The severity of site-specific adverse effects through temporary construction activities and the alteration of the existing visual character from conversion of agricultural land to rural and suburban development would depend on the density and appearance of new development. Land subsidence, sea level rise, catastrophic levee failure, or a combination thereof should they occur, would result in flooding and inundation that could significantly damage existing facilities and infrastructure, uproot and damage vegetation to an unknown extent, permanently flood Delta islands, and drastically alter the visual landscape of the Delta. While similar risks would occur under implementation of the action alternatives, these risks may be reduced by BDCP-related levee improvements along with those projects identified for the purposes of flood protection in Table 17-2. Recently completed, ongoing, or planned restoration and enhancement projects within the Delta may benefit visual resources within it. Overall, implementing on-going programs and projects under the No Action Alternative, including changes in farmland are not expected to result in adverse changes to the visual environment because development in much of the study area is restricted by the primary zone designation and city and county ordinances.

Cumulative Effects of the Action Alternatives

Impact AES-1: Substantial Alteration in Existing Visual Quality or Character during Construction of Conveyance Facilities

Alternatives 1A through 9

***NEPA Effects*:** A number of proposed projects and plans have the potential to contribute to cumulative visual impacts in the vicinity of the BDCP alternatives project areas and on concurrent time frames. Proposed projects and plans that have the potential to contribute to cumulative visual impacts in the vicinity of the BDCP alternatives project areas are listed in Table 17-2.

The Altamont Corridor Rail Project and California High Speed Train Project from Sacramento to Merced would introduce long, linear transportation corridors across the landscape that would require grading, the removal of vegetation, and the introduction of bridges and culverts into the viewshed of sensitive viewer groups. Similarly, the Canada-Northwest-California Transmission Project would introduce a large scale, linear transmission line project that would extend over 1,000 miles between British Columbia, Washington, Oregon, and California. This would require extensive vegetation clearing and would likely adversely affect a large number of sensitive visual resources due to the length and scale of the proposed project.

The Los Vaqueros Reservoir Expansion Project would increase storage capacity from 100,000 to 250,000 acre-feet; this expansion could result in inundation of lands surrounding the reservoir and conversion of those open space lands to water.

Sacramento County, San Joaquin County, and Yolo County general plan updates would result in the expansion of development into unincorporated agricultural landscapes or the conversion of existing land uses to support adaptive re-use, altering the existing visual character. In addition, visual resources would be conserved through the protection of sensitive habitats, preservation of open space, and protection of county scenic roadways.

Lower Sherman Island Wildlife Area Land Management Plan (LMP), Yolo Bypass Wildlife Area LMP, Delta Vision, East Contra Costa County Habitat Conservation Plan (HCP)/Natural Community Conservation Plan (NCCP), Delta Protection Commission Land Use and Resource Management Plan Update, Delta Plan, South Sacramento HCP, San Francisco Bay Plan Amendment and Special Programs, Alameda Watershed HCP, Solano Multispecies HCP, Biological Opinion and Conference Opinion on the Long-term Operations of the Central Valley Project and State Water Project, Biological Opinion on the Long-Term Operations of the Central Valley Project and State Water Project (Delta smelt), North American Waterfowl Management Plan, and Stone Lakes National Wildlife Refuge Comprehensive Conservation Plan are all planning documents that, while they do not include site-specific projects, do contain land use programming and management measures that would result in changes to the visual environment. These planning documents would give rise to actual projects that would affect the visual landscape. These visual changes would result in a combination of both beneficial and adverse visual effects. Beneficial visual effects could result where restoration and enhancement activities improve existing visual conditions and increase visual diversity. Adverse visual effects could result where restoration, enhancement, and management measures require built elements that detract from the visual landscape.

Liberty Island Conservation Bank, San Joaquin County Multi-Species Habitat Conservation and Open Space Plan, Delta Wetlands Project, Fremont Landing Conservation Bank, North Delta Flood Control and Ecosystem Restoration Project, Dutch Slough Tidal Marsh Restoration Project, Mayberry Farms Subsidence Reversal and Carbon Sequestration Project, Ecosystem Restoration Program Conservation Strategy, Staten Island Wildlife-Friendly Farming Demonstration, Restoring Ecosystem Integrity in the Northwest Delta, Suisun Marsh Habitat Management, Preservation, and Restoration Plan, Cache Slough Area Restoration, Riparian Habitat Joint Venture Project, Central Valley Joint Venture Program, Liberty Island Conservation Bank, Battle Creek Salmon and Steelhead Restoration Project, San Joaquin River Restoration Program, and San Joaquin Basin Action Plan all include measures to restore, enhance, and/or preserve habitats for sensitive species and open space uses. These projects would result in the conversion of existing land uses, predominantly agriculture, to restored habitat and the enhancement of marginal habitats to increase habitat value. These projects could result in beneficial effects through the reintroduction of habitats that had been lost through the original conversion of natural lands to agriculture and could increase biodiversity that would result in benefits to wildlife and scenery viewing. The Mayberry Farms project has the dual purpose of not only creating habitat but also providing subsidence reversal and benefitting the climate by sequestering atmospheric carbon dioxide.

The North Bay Aqueduct Alternative Intake Project, Alternative Intake Project, Davis-Woodland Water Supply Project, Bay Area Regional Desalination Project, Freeport Regional Water Project, Delta Water Supply Project (Phase 1), Delta-Mendota Canal/California Aqueduct Intertie, and South Bay Aqueduct Improvement and Enlargement Project would construct and operate additional water intakes on the Sacramento River and Victoria Canal, large desalination plant on the San Joaquin River near Antioch, and alteration of water conveyance facilities. This would introduce considerable industrial facilities on the rivers where none presently exist and would create or expand existing water conveyance facilities. This would alter the existing visual character at this location and could result in adverse effects on nearby viewer groups through construction and operation.

Fish Screen Project at Sherman and Twitchell Islands, Delta Fish Agreement (Four Pumps Project), Franks Tract Project, In-Delta Storage Project, Contra Costa Canal Fish Screen Project, Contra Costa Canal Replacement Project, Folsom Lake Temperature Control Device, Sacramento River Water Reliability Study, Shasta Lake Water Resources Investigation, North-of-the-Delta Offstream Storage Investigation, Upper San Joaquin River Basin Storage Investigation, 2-Gates Project, Red Bluff Diversion Dam Fish Passage Project, Anadromous Fish Screen Program, American Basin Fish Screen and Habitat Improvement Project, Folsom Dam Safety and Flood Damage Reduction Project, and Lower American River Temperature Reduction Modeling, Project (Formerly the Lake Natoma Temperature Curtains Pilot Project) would construct and operate fish screens, operable barriers, outlets, bypass channels, and dam raises to benefit fish species. These projects would range from incremental additions that would add to the cumulative whole of the amount of infrastructure seen on water bodies and waterways in the study area, such as individual fish screens and operable barriers. Other projects would increase the visual prominence of existing elements, such as dam height increases. Other projects would introduce industrial looking facilities on the water bodies and waterways where none presently exist. This would alter the existing visual character at this location and could result in adverse effects on nearby viewer groups through construction and operation. Some of these projects also contain habitat restoration and enhancement elements that could produce beneficial visual effects where such activities improve existing visual conditions and increase visual diversity.

Central Valley Vision is a long-term vision for California State Parks to develop a strategic plan for State Parks' 20-year expansion in the Central Valley that would increase service to valley residents and visitors. Under this plan, new and improved recreation opportunities would be developed through the acquisition of new parklands. This increase in the amount of public visual access available in the Central Valley would be a beneficial effect.

The Delta Levees Flood Protection, Levee Repair–Levee Evaluation Programs, Central Valley Flood Protection Plan, Delta Levees Flood Protection Program, Delta Risk Management Strategy, FloodSAFE California, CALFED Levee System Integrity Program, Flood Management Program, Lower San Joaquin Feasibility Study, Delta Islands and Levees Feasibility Study, and West Sacramento Levee Improvements Program would maintain and improve the flood control system in the Delta and Central Valley. These programs would result in site-specific repairs or levee upgrades over areas of varying sizes. Some projects would repair levees in a way that would appear visually similar to adjacent levees. However, there would be larger levee rehabilitation projects that would raise levees to protect public and private lands that would result in adverse visual effects through vegetation removal and increased levee heights. Some of these projects also contain habitat restoration and enhancement elements that could produce beneficial visual effects where such activities improve existing visual conditions and increase visual diversity.

Cache Creek, Bear Creek, Sulfur Creek, Harley Gulch Mercury TMDL, Sacramento-San Joaquin Delta Estuary TMDL for Methylmercury, and San Francisco Bay Mercury TMDL would result in measures to improve water quality that could result in visual changes to the landscape. These measures could include erosion and sediment control features or mine reclamations that alter the existing visual character. These measures could result in adverse visual impacts if they introduce discordant visual features into the landscape or they could result in beneficial effects if they act to restore the visual environment by re-contouring the topography and revegetating the landscape, thereby reducing the amount of scarring upon the landscape and restoring natural plant communities to soften the visual appearance of such landscapes and improving aesthetics.

Lower Mokelumne River Spawning Habitat Improvement Project, Delta Dredged Sediment Long-Term Management Strategy, Suisun Bay Channel Operations and Maintenance, Suisun Channel (Slough) Operation and Maintenance, San Francisco Bay to Stockton Deep Water Ship Channel Project, and Sacramento Deep Water Ship Channel Project are projects that involve the movement and placement of gravels or dredged material for spawning habitat improvement and boat passage. While these to management measures have vastly different goals, they both result in streambed alteration from the placement or removal of materials. Dredging and gravels placement operations require short term construction activities to perform the actions, but are short-term in nature. Dredging may alter the visual landscape by removing areas of sediment accumulation where vegetation has established, and removal of such features could result in adverse visual effects. Dredge material placement also poses the potential to adversely affect the visual landscape if measures are not taken to blend such elements into the landscape or to use design measures to improve the landscape within which they are disposed. Excavations to expand ship channels would require more intensive and longer-term construction operations that would result in more direct visual changes to existing facilities that would in adverse visual effects.

Sacramento International Airport Master Plan would result in a site-specific increase in the amount of infrastructure seen while driving by the airport, while at the airport, and within close range in the air. This would alter the existing visual landscape by converting lands that appear to be rural in nature and could result in adverse visual effects. However, beneficial effects could result from smart expansion and building clusterings to reduce site-specific sprawl and by creating a gateway entry into Sacramento through effective design measures. The Delta Smelt Permanent Refuge could potentially introduce a new building into the landscape at the USFWS Science Center in Rio Vista. If a new building is proposed, this would increase the amount of infrastructure at this location, resulting in adverse visual effects.

While beneficial changes are likely to result from the aforementioned projects, the amount of development that would cumulatively result in adverse visual effects in the study area outweighs the amount of beneficial effects. Cumulative changes to the visual environment would result from conversion of existing land uses; introduction of discordant visual elements into the landscape; substantial degradation of existing form, line, color, and texture of the visual landscape that would substantially decrease the visual quality of the landscape including vividness, intactness, and unity; and would ultimately altering our cultural and regional landscapes.

Cumulative changes to the visual environment would involve temporary and permanent conversion of agricultural land to nonagricultural uses. Agricultural and open space land conversions could occur through linear rail transportation and transmission projects, urban development expansion, restoration and enhancement projects, aqueduct expansion, new parks, levee improvements, water supply, water quality, and flood control projects. The actual amount of agricultural and open space lands that may be converted by all cumulative projects is not known, but this cumulative conversion of the existing visual landscape is considered an adverse effect. Large-scale utility, intake, development, and water conveyance projects and their associated infrastructure such as roads and bridges would segment the visual landscape of the study area, reduce the amount of open space lands available to viewers, and eliminate valued visual resources. Levee projects have the potential to denude many miles of levees for compliance with non-vegetative levee prism policies, which would substantially alter water based recreational viewing experiences for which the Delta is noted. Operable barriers would also have such an effect by substantially altering access to visual resources by preventing boat passage past such barriers. These projects have the potential to aid in the conversion of the study area to a highly engineered conveyance facility that would continue to expand in scope and scale to address such complex issues of balancing sea level rise with flood protection and preservation of habitat and wildlife. These projects also have the potential to aid in the substantial alteration of the cultural landscape of the study area because the study area is strongly identified by its agricultural and water-based Delta landscapes and communities that would be adversely affected by projects that directly affect their visual resources through the introduction of discordant visual features, removal of existing buildings and landscape elements of value, and through the potential for indirect impacts that come along with such development potentially opening the door for other development to occur. All of these effects would alter the visual character of the existing regional landscape. Overall, substantial cumulative visual effects associated with past, present, and reasonably foreseeable future projects within the study area are anticipated. The BDCP's incremental contributions to substantial cumulative effects are cumulatively considerable and unavoidable because they would result in reduced visual quality and introduce dominant visual elements that would result in noticeable changes that do not blend, are not in keeping or are incompatible with the existing visual environment, and could be viewed by sensitive receptors and from public viewing areas. These changes would contribute to the substantial alteration of the existing visual quality and character of the study area and result in cumulative adverse effects. Mitigation Measures AES-1a through AES-1g and Mitigation Measure AES-6a are available to address these adverse effects.

***CEQA Conclusion*:** The projects in Table 17-2 and the BDCP would result in cumulative changes to the visual environment that would involve temporary and permanent conversion of agricultural land to nonagricultural uses. Agricultural and open space land conversions could occur through linear rail transportation projects, urban development expansion, restoration and enhancement projects, aqueduct expansion, new parks, levee improvements, and flood control projects. The actual amount of agricultural and open space lands that may be converted by all cumulative projects is not known, but this cumulative conversion of the existing visual landscape is considered a significant impact because of the landscape sensitivity and visual dominance of project features that would result in reduced scenic quality throughout the region. Overall, cumulative visual effects associated with past, present, and reasonably foreseeable future projects within the study area are anticipated. The BDCP's incremental contributions to substantial cumulative effects are cumulatively considerable and unavoidable because they would result in reduced visual quality and introduce dominant visual elements that would result in noticeable changes that do not blend, are not in keeping or are incompatible with the existing visual environment, and could be viewed by sensitive receptors and from public viewing areas. These changes would contribute to the substantial alteration of the existing visual quality and character of the study area and are considered significant impacts.

Mitigation Measures AES-1a through AES-1g and AES-6a would partially reduce impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, installing visual barriers between construction work areas and sensitive receptors, developing and implementing a spoil/borrow and RTM area management plan, restoring barge unloading facility sites once decommissioned, applying aesthetic design treatments to all structures to the extent feasible, locating concrete batch plants and fuel stations away from sensitive visual resources and receptors and restoring the sites upon removal of facilities, using best management practices to implement a project landscaping plan, and placing new or relocated utility lines underground where feasible. However, impacts may not be reduced to a less-than-significant level because even though mitigation measures would reduce some aspects of the impact on visual quality and character, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-2: Permanent Effects on a Scenic Vista from Presence of Conveyance Facilities

Alternatives 1A through 9

***NEPA Effects*:** Proposed projects and plans that have the potential to contribute to cumulative visual impacts in the vicinity of the BDCP alternatives project areas are listed in Table 17-2. Appendix 3D includes descriptions of cumulative projects. Operations and maintenance activities associated with all of the projects discussed under *Impact AES-1: Substantial alteration in existing visual quality or character during construction of conveyance facilities* could have noticeable visual effects on vistas. Cumulative changes to the scenic vistas would involve temporary and permanent conversion of agricultural land to nonagricultural uses. Agricultural and open space land conversions could occur through linear rail transportation projects, urban development expansion, restoration and enhancement projects, aqueduct expansion, new parks, levee improvements, and flood control projects. The actual amount of agricultural and open space lands that may be converted by all cumulative projects is not known, but this cumulative conversion of the existing visual landscape of scenic vistas is considered an adverse effect. Overall, cumulative visual effects on scenic vistas associated with past, present, and reasonably foreseeable future projects within the study area are anticipated. The BDCP's incremental contributions to substantial cumulative effects are cumulatively considerable and unavoidable because they contribute to the substantial alteration of the scenic vistas in the study area and result in cumulative adverse effects. Mitigation Measures AES-1a through AES-1g and Mitigation Measure AES-6a are available to address these adverse effects.

***CEQA Conclusion*:** The projects in Table 17-2 and this project would result in cumulative changes to the scenic vistas would involve temporary and permanent conversion of agricultural land to nonagricultural uses. Agricultural and open space land conversions could occur through linear rail transportation projects, urban development expansion, restoration and enhancement projects, aqueduct expansion, new parks, levee improvements, and flood control projects. Overall, cumulative visual effects on scenic vistas associated with past, present, and reasonably foreseeable future projects within the study area are anticipated. The actual amount of agricultural and open space lands that may be converted by all cumulative projects is not known, but this cumulative conversion of the existing visual landscape of scenic vistas is considered a significant impact.

Mitigation Measures AES-1a, AES-1c, AES-1d, AES-1e, AES-1g, and Mitigation Measure AES-6a would reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible as well as undergrounding new or relocated utility lines where feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level under the BDCP because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, the BDCP's incremental contributions to significant cumulative effects are cumulatively considerable and unavoidable because they contribute to the substantial alteration of the scenic vistas in the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-3: Permanent Damage to Scenic Resources along a State Scenic Highway from Construction of Conveyance Facilities

Alternatives 1A through 9

NEPA Effects: Proposed projects and plans that have the potential to contribute to cumulative visual impacts in the vicinity of the BDCP alternatives project areas are listed in Table 17-2. Appendix 3D includes descriptions of cumulative projects. Operations and maintenance activities associated with all of the projects discussed under *Impact AES-1: Substantial alteration in existing visual quality or character during construction of conveyance facilities* could have noticeable visual effects to scenic highways. Cumulative changes to scenic highways would involve temporary and permanent conversion of agricultural land to nonagricultural uses. Agricultural and open space land conversions could occur through linear rail transportation projects, urban development expansion, restoration and enhancement projects, aqueduct expansion, new parks, levee improvements, and flood control projects. The actual amount of agricultural and open space lands that may be converted by all cumulative projects is not known, but this cumulative conversion of the existing visual landscape seen from scenic highways is considered an adverse effect. Overall, cumulative visual effects on scenic vistas associated with past, present, and reasonably foreseeable future projects within the study area are anticipated. The BDCP's incremental contributions to substantial cumulative effects are cumulatively considerable and unavoidable because they would contribute to the substantial alteration of the existing visual quality and character along state scenic highways of the study area and result in cumulative adverse effects. Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-6a are available to address these adverse effects.

CEQA Conclusion: The projects in Table 17-2 and this project would result in cumulative changes to the scenic highways would involve temporary and permanent conversion of agricultural land to nonagricultural uses. Agricultural and open space land conversions could occur through linear rail transportation projects, urban development expansion, restoration and enhancement projects, aqueduct expansion, new parks, levee improvements, and flood control projects. Overall, cumulative visual effects on scenic vistas associated with past, present, and reasonably foreseeable future projects within the study area are anticipated. The actual amount of agricultural and open space lands that may be converted by all cumulative projects is not known, but this cumulative conversion of the existing visual landscape seen from scenic highways is considered a significant impact.

Mitigation Measures AES-1a, AES-1c, AES-1d, AES-1e, AES-1g, and Mitigation Measure AES-6a would reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible as well as undergrounding new or relocated utility lines where feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level under the BDCP because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, the BDCP's incremental contributions to significant cumulative effects are cumulatively considerable and unavoidable because they contribute to the substantial alteration of the existing visual quality and character along state scenic highways of the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-4: Creation of a New Source of Light or Glare That Would Adversely Affect Views in the Area as a Result of Construction and Operation of Conveyance Facilities

Alternatives 1A through 9

***NEPA Effects*:** Proposed projects and plans that have the potential to contribute to cumulative visual impacts in the vicinity of the BDCP alternatives project areas are listed in Table 17-2. Appendix 3D includes descriptions of cumulative projects. All of the cumulative projects also have the potential to contribute to a cumulative increase of light and glare in the study area due to increased rural and suburban development, lighting of facilities and buildings, removal of vegetation, and increased water surfaces. However, the restoration and enhancement projects have the potential to reduce glare by introducing trees and shrubs into a landscape that was in agricultural production, lacking mature vegetative cover that would absorb light and reduce the potential for glare. While this effect would be beneficial, the amount of new artificial sources of light and glare through development and introduction of anthropogenic features is considered adverse. The BDCP's incremental contributions to substantial cumulative effects are cumulatively considerable and unavoidable because they contribute to increase of light and glare in the study area.

***CEQA Conclusion*:** The projects in Table 17-2 have the potential to contribute to a cumulative increase of light and glare in the study area due to increased rural and suburban development, lighting of facilities and buildings, removal of vegetation, and increased water surfaces. However, the restoration and enhancement projects have the potential to reduce glare by introducing trees and shrubs into a landscape that was in agricultural production, lacking mature vegetative cover that would absorb light and reduce the potential for glare. While this would be beneficial, the amount of new artificial sources of light and glare through development and introduction of anthropogenic features is considered significant. Mitigation Measures AES-4a through 4c and Mitigation Measure 6b would help reduce impacts by limiting construction daylight hours within 0.25 mile of residents, minimizing fugitive light from portable sources used for construction, installing visual barriers to prevent light spill from truck headlights toward residences, and evaluating implementation of an afterhours low-intensity and lights off policy. However, the amount of new artificial sources of light and glare through development and introduction of anthropogenic features would still remain significant. Thus, the BDCP's incremental contributions to significant cumulative effects are cumulatively considerable and unavoidable because they contribute to increase of light and glare in the study area.

Mitigation Measure AES-4a: Limit Construction to Daylight Hours Within 0.25 Mile of Residents

Please refer to Mitigation Measure AES-4a under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4b: Minimize Fugitive Light from Portable Sources Used for Construction

Please refer to Mitigation Measure AES-4b under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-4c: Install Visual Barriers along Access Routes, Where Necessary, to Prevent Light Spill from Truck Headlights toward Residences

Please refer to Mitigation Measure AES-4c under Impact AES-4 in the discussion of Alternative 1A.

Mitigation Measure AES-6b: Develop and Implement an Afterhours Low-Intensity and Lights Off Policy

Please refer to Mitigation Measure AES-6b under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-5: Substantial Alteration in Existing Visual Quality or Character during Operation

Alternatives 1A through 9

NEPA Effects: Proposed projects and plans that have the potential to contribute to cumulative visual impacts in the vicinity of the BDCP alternatives project areas are listed in Table 17-2. Appendix 3D includes descriptions of cumulative projects. All of the cumulative projects also have the potential to contribute to a cumulative decline in the existing visual character during operation in the study area due to increased rural and suburban development, infrastructure, and restoration projects that would require maintenance over time where no maintenance or operations presently exist. The BDCP's incremental contributions to substantial cumulative effects are cumulatively considerable and unavoidable because they contribute to the substantial alteration of the existing visual quality and character of the study area during operation and would result in cumulative adverse effects. Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-6a are available to address these adverse effects.

CEQA Conclusion: The projects in Table 17-2 and this project have the potential to contribute to a cumulative decline in the existing visual character during operation in the study area due to increased rural and suburban development, infrastructure, and restoration projects that would require maintenance over time where no maintenance or operations presently exist. The cumulative decline in the existing visual character is considered a significant impact.

Mitigation Measures AES-1a, AES-1c, AES-1d, AES-1e, AES-1g, and Mitigation Measure AES-6a would reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible as well as undergrounding new or relocated utility lines where feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level under the BDCP because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. The BDCP's incremental contributions to significant cumulative effects are cumulatively considerable and unavoidable because they contribute to the substantial alteration of the existing visual quality and character of the study area during operation.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-6: Substantial Alteration in Existing Visual Quality or Character during Implementation of CM2–CM22

Alternatives 1A through 9

NEPA Effects**:** Proposed projects and plans that have the potential to contribute to cumulative visual impacts in the vicinity of the BDCP alternatives project areas are listed in Table 17-2. Appendix 3D includes descriptions of cumulative projects. The location of site-specific restoration activities are unknown but sites have the potential presence of sensitive viewers, potential for construction periods to last longer than 2 years, and varying intensity of construction. In addition, these measures contain features such as fish management facilities (e.g., screens, ladders, ramps, barriers); realignments of waterways; hydrologic monitoring stations; support facilities (operations buildings, parking lots, access facilities such as roads and bridges) necessary to provide safe access for maintenance and monitoring; and modification, removal, and construction of berms, levees, and water control structures. Cumulative changes to the visual environment would involve temporary and permanent conversion of agricultural land to nonagricultural uses. Agricultural and open space land conversions could occur through linear rail transportation projects, urban development expansion, restoration and enhancement projects, aqueduct expansion, new parks, levee improvements, and flood control projects. The actual amount of agricultural and open space lands that may be converted by all cumulative projects is not known, but this cumulative conversion of the existing visual landscape is considered an adverse effect. Overall, cumulative visual effects associated with past, present, and reasonably foreseeable future projects within the study area are anticipated. The BDCP's incremental contributions to substantial cumulative effects are cumulatively considerable and unavoidable because they would contribute to the substantial alteration of the existing visual quality and character of the study area and result in cumulative adverse effects. Mitigation Measures AES-1a through AES-1g and Mitigation Measures AES-6a are available to address these adverse effects.

***CEQA Conclusion*:** The type of cumulative effects for Impact AES-6 would be the same as those described under *Impact AES-1: Substantial alteration in existing visual quality or character during construction of conveyance facilities.* Cumulative changes to the visual environment would involve temporary and permanent conversion of agricultural land to nonagricultural uses. Agricultural and open space land conversions could occur through linear rail transportation projects, urban development expansion, restoration and enhancement projects, aqueduct expansion, new parks, levee improvements, and flood control projects. The actual amount of agricultural and open space lands that may be converted by all cumulative projects is not known, but this cumulative conversion of the existing visual landscape is considered a significant impact. Overall, cumulative visual effects associated with past, present, and reasonably foreseeable future projects within the study area are anticipated.

Mitigation Measures AES-1a, AES-1c, AES-1d, AES-1e, AES-1g, and Mitigation Measure AES-6a would reduce these impacts by locating new transmission lines and access routes to minimize the removal of trees and shrubs and pruning needed where feasible, developing and implementing a spoil/borrow and RTM area management plan, and applying aesthetic design treatments to all structures to the extent feasible as well as undergrounding new or relocated utility lines where feasible. Shaft site access hatches would be constructed near ground level; Mitigation Measure AES-1e requires the use of aesthetic design treatments to all structures and would reduce the impact of shaft site access hatches to less than significant. However, the impacts on scenic vistas associated with other structures would not be reduced to a less-than-significant level under the BDCP because even though mitigation measures would reduce some aspects of the impact, it is not certain the mitigation would reduce the level of the impact to less than significant in all instances. In addition, the size of the study area and the nature of changes introduced by the alternative would result in permanent changes to the regional landscape such that there would be noticeable to very noticeable changes that do not blend or are not in keeping with the existing visual environment. Thus, the BDCP's incremental contributions to significant cumulative effects are cumulatively considerable and unavoidable because they contribute to the substantial alteration of the existing visual quality and character of the study area.

Mitigation Measure AES-1a: Locate New Transmission Lines and Access Routes to Minimize the Removal of Trees and Shrubs and Pruning Needed to Accommodate New Transmission Lines and Underground Transmission Lines Where Feasible

Please refer to Mitigation Measure AES-1a under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1b: Install Visual Barriers between Construction Work Areas and Sensitive Receptors

Please refer to Mitigation Measure AES-1b under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1c: Develop and Implement a Spoil/Borrow and Reusable Tunnel Material Area Management Plan

Please refer to Mitigation Measure AES-1c under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1d: Restore Barge Unloading Facility Sites Once Decommissioned

Please refer to Mitigation Measure AES-1d under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1e: Apply Aesthetic Design Treatments to All Structures to the Extent Feasible

Please refer to Mitigation Measure AES-1e under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1f: Locate Concrete Batch Plants and Fuel Stations Away from Sensitive Visual Resources and Receptors and Restore Sites upon Removal of Facilities

Please refer to Mitigation Measure AES-1f under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-1g: Implement Best Management Practices to Implement Project Landscaping Plan

Please refer to Mitigation Measure AES-1g under Impact AES-1 in the discussion of Alternative 1A.

Mitigation Measure AES-6a: Underground New or Relocated Utility Lines Where Feasible

Please refer to Mitigation Measure AES-6a under Impact AES-6 in the discussion of Alternative 1A.

Impact AES-7: Compatibility of the Proposed Water Conveyance Facilities and Other Conservation Measures with Federal, State, or Local Plans, Policies, or Regulations Addressing Aesthetics and Visual Resources

Alternatives 1A through 9

NEPA Effects: Proposed projects and plans that have the potential to contribute to cumulative visual impacts in the vicinity of the BDCP alternatives project areas are listed in Table 17-2. Appendix 3D includes descriptions of cumulative projects. All of the cumulative projects also have the potential for incompatibilities with one or more plans and policies related to preserving the visual quality and character of the Delta.

***CEQA Conclusion*:** The potential for cumulative incompatibilities with plans and policies indicates potential for a physical consequence to the environment. Such physical effects are discussed in the individual action alternative analyses under impacts AES-1 through AES-6, and for cumulative projects above. No additional CEQA conclusion is required related to the compatibility of cumulative conditions relevant plans and policies.

17.4 References

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