7 DESIGN GUIDELINES AND BEST MANAGEMENT PRACTICES

7. DESIGN GUIDELINES AND BEST MANAGEMENT PRACTICES

7.1 DESIGN GUIDELINES

This section provides guidance for the design and construction of specific Parkway components, while allowing for flexibility and innovative design solutions.

The Parkway Master Plan Update presents conceptual locations for habitat enhancements, low-impact recreation and environmental education facilities and features on existing and potential public lands. These facilities would generally include vehicular access, parking and staging areas, kiosks, restrooms, a variety of trails, river access facilities for non-motorized boating, interpretive features including outdoor classrooms, and operations and management facilities. Parkway features may also include visitor and nature centers, on-site stewardship housing, and other improvements.

7.1.1 AMERICANS WITH DISABILITIES ACT

Parkway facilities shall meet the requirements of the American with Disabilities Act. The following standards apply to all Parkway features:

- United States Architectural and Transportation Barriers Compliance Board. *Architectural Barriers Act Accessibility Guidelines; Outdoor Developed Areas.* September 26, 2013 (effective November 25, 2013)
- California Department of Parks and Recreation. California State Parks Accessibility Guidelines, 2009 Edition.

Federal standards require newly designed or newly constructed and altered portions of existing trails connecting to designated staging areas or accessible trails to comply with the guidelines. The ADA guidelines recognize that the natural environment often prevents full implementation of certain technical provisions. Departures are permitted from certain technical provisions where at least one of four conditions is present:

- Where compliance would cause substantial harm to cultural, historic, religious, or significant natural features or characteristics;
- Where compliance would substantially alter the nature of the setting or the purpose of the facility, or portion of the facility;

- Where compliance would require construction methods or materials that are prohibited by federal, state, or local regulations or statutes; or
- Where compliance would not be feasible due to terrain or the prevailing construction practices.

Table 7-1 below lists the types of trail treads that could be used in the Parkway and their applicability to accessibility guidelines.

TABLE 7-1 TRAIL SURFACING

Surface Material	Firmness	Stability	Slip Resistance (Dry Conditions)
Asphalt	firm	stable	slip resistant
Concrete	firm	stable	slip resistant*
Soil with Stabilizer	firm	stable	slip resistant
Packed Soil without Stabilizer	firm	stable	not slip resistant
Packed Soil without Stabilizer	firm	stable	not slip resistant
Soil with High Organic Content	soft	unstable	not slip resistant
Crushed rock (19 mm (¾") minus) with Stabilizer	firm	stable	slip resistant
Crushed rock without Stabilizer	firm	stable	not slip resistant
Wood Planks	firm	stable	slip resistant
Engineered Wood Fibers that comply with ASTM F1951	moderately firm	moderately stable	not slip resistant
Grass or Vegetative Ground Cover	moderately firm	moderately stable	not slip resistant
Wood Chips (bark, cedar, generic)	moderately firm to soft	moderately stable to unstable	not slip resistant
Pea Gravel or 38 mm (1½") Minus Aggregate	soft	unstable	not slip resistant
Sand	soft	unstable	not slip resistant

7.1.2 UTILITIES AND INFRASTRUCTURE

The utilities and infrastructure necessary to support the Parkway's operations and recreational uses will be as low-impact as possible, allowing for efficient water and energy use and minimizing impacts to natural resources. All new utilities and infrastructure will be limited to that which is essential for providing high-quality visitor experiences.

LIGHTING

Parkway outdoor lighting will be limited to individual entrances of individual Parkway facilities, security lighting associated with structures, and for safety within any overnight campground areas. All lighting will be dark sky compliant, may be motion detection activated, and will not be directed into sensitive habitats to limit effects.

WATER STORAGE

Water storage will be in accordance with State regulations and will be evaluated based on the number of proposed service connections, the number of guests expected to be served and the production capacities of wells within any particular unit of the Parkway, and the need for fire suppression.

POTABLE WATER

Provided access to a community water main is feasible, drinking fountains will be located at Parkway staging areas, picnic grounds, features designed for school or student use, Parkway hubs, and along the Parkway multi-use trail at least every mile. All drinking fountains shall provide for wheelchair access. In areas allowing leashed dogs, shallow basins may be provided to provide the dogs with water. Watering facilities (potable or non-potable water) for horses shall be provided if feasible at specific equestrian resting and staging area locations.

SANITARY SEWER

Where feasible, new restroom facilities should be connected to municipal sanitary service collection systems. Where such connections cannot be made, new restroom facilities, whether a vault toilet or serviced by a septic tank and leach field system, should be located above the 100-year base flood elevation. In some circumstances this may involve facility construction on raised topography. In situations where site topography is not conducive to gravity flow, a wastewater lift station may be utilized. If a lift station is used, the lift stations within the 100-year floodplain will be equipped with mechanisms to terminate operation in the event of a flood.

7.1.3 STAGING AREAS

New staging areas would be located for access from existing public roads or easements and would typically include the following features:

- Identity, regulatory, and wayfinding signs
- Universal access information
- Parking areas with designated ADA-accessible parking spaces and bicycle parking
- Restrooms if not located within the 100-year floodplain
- Drinking water (if available)
- Water trough and hitching posts when developed for equestrians

Bicycle parking should be provided at all major facilities within the Parkway, at key entrance points, and in all parking areas. Bicycle racks should be galvanized steel U-racks, looped-racks, or racks with similar design, with metal or painted finish. If paint is necessary, racks should be painted with neutral tones.

All parking areas should be designed for efficient circulation and to maximize permeable surfaces. The surface for parking areas should be compatible with anticipated use. Parking areas that receive heavy and regular use should be paved with asphalt or porous paving systems such as open grid paving systems and permeable asphalt. For parking areas that experience lighter use, unpaved surfaces with road base material may be appropriate. Overflow parking areas for special event parking should be unpaved or planted with low growing grasses that can meet guidelines for non-point source pollution control.

Parking areas should all be designed to comply with the appropriate California Regional Water Quality Control Stormwater NPDES Permit post-construction requirements. These requirements promote on-site stormwater treatment and detention and emphasize infiltration, water harvesting and re-use. In addition to utilizing permeable surfaces that allow for infiltration, the use of swales and other stormwater best management practices should be used. Swales should have flat bottoms at least 18-inches wide, utilize rock cobble at points of concentrated flow, and be vegetated with native plants.

7.1.4 TRAILS

PARKWAY MULTI-PURPOSE TRAIL

The San Joaquin Parkway Master Plan Update envisions a Parkway multi-use trail for pedestrian, bicycle, and equestrian uses extending the entire 22-mile length of the Parkway. For continuity, the Parkway multi-use trail will cross the river in various locations. Figures 7-1 and 7-2 illustrate the portions of the Parkway multi-use trail that have been constructed in the City of Fresno and Fresno County, and other segments that have been planned within the Parkway. The Parkway multi-use trail is to be paved to support relatively intensive levels of use providing recreation, transportation, and health benefits. It is intended to connect with other Parkway trail systems within individual facilities of the Parkway.

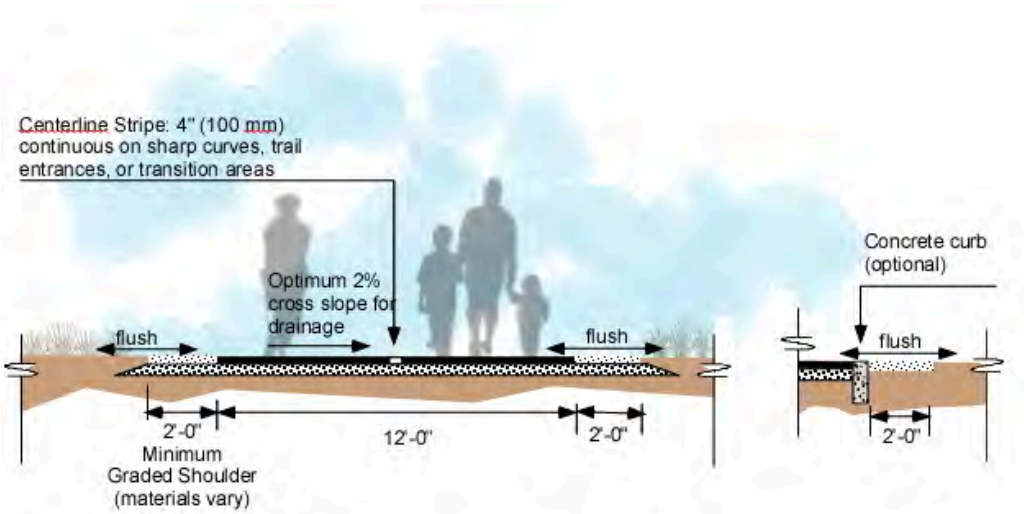
Equestrian use can be accommodated with an 8-foot-wide graded shoulder or as a separate 10-foot wide trail composed of natural surfaces. A natural-surface equestrian trail should be disked once each year.

Design recommendations for the Parkway multi-use trail and its signage are contained in:

- State of California, Department of Transportation (Caltrans): California Highway Design Manual Chapter 1000 — Bikeways (latest edition)
- State of California, Department of Transportation (Caltrans): California Manual on Uniform Traffic Control Devices (latest edition)
- American Association of State Highway Transportation Officials (AASHTO): Guide for the Development of Bicycle Facilities (latest edition)

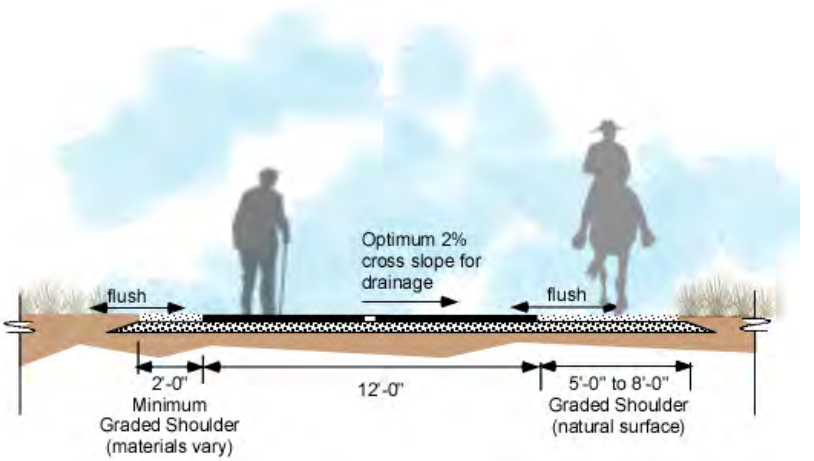
- Julie Bondurant, Laura Thompson, et al: Trail Planning for California Communities (Solano Press Books)

Figure 7-1 Parkway Multi-use Trail



Notes:
- Section shown illustrates optimum trail widths.
- Trail pavement surface and shoulder widths may vary based on specific site/use conditions and consistent with CalTrans design standards.
- Trail designed to accommodate use by maintenance and emergency access vehicles.

Figure 7-2 Parkway Multi-use Trail with Shoulder for Equestrian Use



Notes:
- Section shown illustrates optimum trail widths.
- Trail pavement surface and shoulder widths may vary based on specific site/use conditions and consistent with CalTrans design standards.
- Trail designed to accommodate use by maintenance and emergency access vehicles.

SECONDARY TRAILS

The State Department of Parks and Recreation's Trails Handbook (undated), is the primary document referenced for detailed design criteria for secondary trails. Secondary trails include interpretive trails and fishing access trails, and may be used by bicycles or equestrians; they may be paved or natural surfaced. In most cases secondary trails or segments of secondary trails would be ADA accessible. DPR's minimum trail characteristics of secondary trails that can serve as a guideline for similar trails in similar settings within the Parkway are outlined in Table 7-2.

TABLE 7-2 SECONDARY TRAILS

Setting	Typical Maximum Trail Grade	Optimum Trail Tread Width (One Way)	Optimum Trail Tread Width (Two Ways)
Riverbottom Lands	8.33%	5'-0"	5'-0"
Uplands	10%	4'-0"	5'-0"
Bluffs	12%	4'-0"	4'-0" – 6'-0"

TRAIL ACCESS

It is recognized that the Parkway multi-use trail and most secondary trails within the Parkway are intended to provide access to Parkway facilities. In the situations where it is not possible to provide ADA accessible trails, trails should strive to provide as much access as feasible and should follow the recommendations for universal access to the greatest extent possible. For example:

- The trail should be free of constructed barriers, and natural barriers should be removed if feasible.
- If the steepest grade on a trail cannot be less than 20 percent, the segment should be as short as possible and the remainder of the trail should comply with the recommendations.
- If there is a segment of trail that has a 10 percent grade for more than 30 feet a level rest interval should be provided as soon as possible, and the remainder of the trail should be designed according to the recommendations.
- If there is a segment of trail that has a cross slope of more than 5 percent, the segment should be as short as possible and the remainder of the trail should follow the recommended specifications; or
- If a trail travels along a bluff or bank, and a drop-off creates a tread width less than 36 inches wide, the narrow section should be made as wide as possible and the trail on either side of the narrow section should be designed according to the recommendations.

7.1.5 STRUCTURES

All new structures within the Parkway will incorporate sustainable design principles to reduce energy consumption. Structures include but are not limited to entrance stations, restrooms, picnic shelters, concession buildings, and the interpretive/nature/visitor centers. Energy saving measures include consideration of the following:

- LEED building certification based on the current U.S. Green Building Council certification criteria at the time of design.
- Compliance with the latest California Energy Commission building standards.
- Solar orientation, use of solar panels, employment of passive solar designs with a surrounding vegetation design not blocking solar access.
- Use of Energy Star roofs to exceed Title 24 requirements where possible.
- For non-roof surfaces, provide shade, light-colored/high-albedo materials, and open grid pervious pavement where possible.
- Use of recycled building and facility materials where possible.

All structures built within the Parkway should utilize an architectural style that is consistent with other structures in the Parkway or that are historically appropriate.

Structures that will be used by the public should be designed to highlight the Parkway's historical landscape. Structures may be designed to maximize views to the San Joaquin River, its riverine setting, and the Sierra Nevada to the east. Structures that will be used for Parkway operations, such as storage buildings, should be designed to complement the character of the riverbottom lands and use materials that blend with the landscape backdrop to minimize visual impacts.

7.1.6 ACCESS CONTROL: BOLLARDS, GATES AND FENCES

GATES

Parkway entrance and service roads gates should use pipe or other sturdy vehicular entrance gates. In some locations gates may be necessary to limit access to maintenance vehicles and personnel.

BOLLARDS

Access control bollards shall be used as necessary to control inappropriate vehicular access. Bollards should be removable and striped as per guidelines indicated for the Parkway multi-use trail.

FENCES

The main categories of fences that will be required for the Parkway are security fences, boundary fences, grazing fences, and low barriers. Low barriers may also include hedgerows or boulders as a substitute to constructed fences. Fences may be coupled with vegetative buffers of native plants that create aesthetically pleasing and high-functioning barriers. Fencing may be associated with the development of new staging areas, around use areas, or in selected locations to mark property boundaries and discourage trespass.

For staging areas, trails, and use areas that are highly visible to the general public, wood split-rail or composite fencing should be used.


Split Rail Vehicle Barrier


Split Rail Fencing

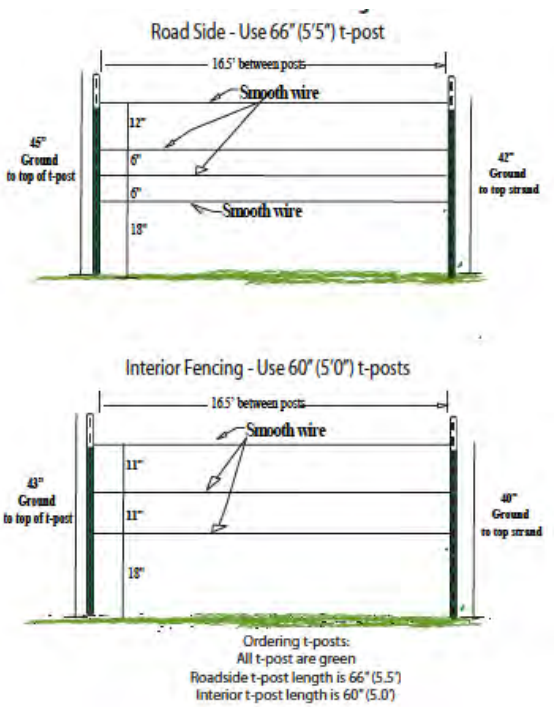

Split Rail Fencing with Wire Mesh

Chain link fencing may be used in areas where access control from adjacent land uses is important to the safety and security of the Parkway visitor or neighbors. Such conditions include, but are not limited to, active railroad facilities, mining operations, residential areas, or near the top edges of steep bluffs.

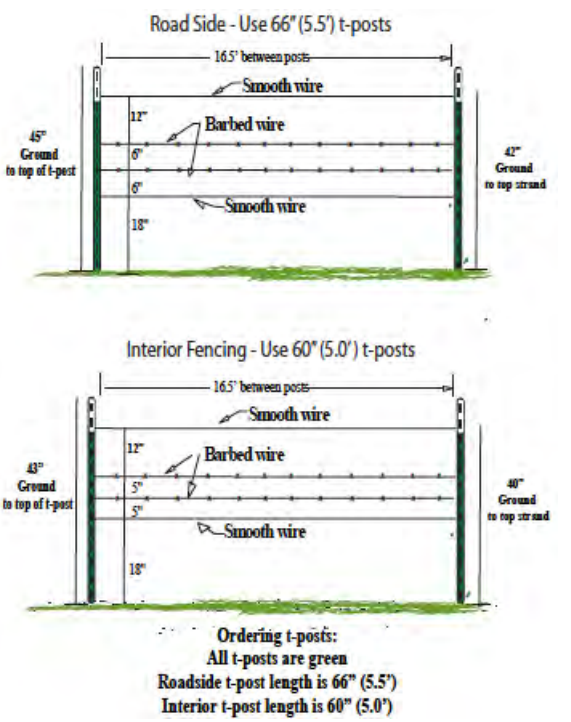
In other Parkway areas, fencing should be wildlife-friendly consisting of t-stakes with barbed or barbless wire depending on the circumstances. Examples of fences are illustrated in Figure 7-3.

Figure 7-3 Parkway Cattle Fencing

Limited use, limited grazing



Heavy use, standard cattle grazing



7.1.7 BENCHES

Benches will be placed to take advantage of views or shade. Along the Parkway multi-use trail benches should be placed at least at every one-half-mile interval.

7.1.8 PICNIC TABLES

Picnic tables will be pre-cast concrete or other sturdy construction, individually or clustered in groups to be used for family or group use. Based on the scale of the picnic area, appropriate numbers of tables should accommodate ADA requirements.

7.1.9 SIGNS

PARKWAY IDENTITY AND BRANDING

The Parkway consists of lands and facilities owned and managed by numerous agencies and organizations. A brand has been adopted by the Conservancy for use by the partner organizations. The San Joaquin River Parkway identity logo consists of an egret silhouette and the text "San Joaquin River Parkway, Explore. Experience. Enjoy!" The identity logo is intended to be incorporated into signs and collateral public outreach materials of many entities. Parkway facilities and activities are inherently cooperative, involving multiple partners in funding, development, promotions, operations, and programs. All efforts should be made to create the common Parkway-wide visual identity by prominently displaying the brand, and designing layouts that minimize clutters of confusing logos while appropriately recognizing the entities' contributions.

Ideally all Parkway units, regardless of ownership, will include the common logo and will be displayed at:

- Entrances.
- Staging area kiosks.
- Wayfinding and trail directional signs along the Parkway.

STANDARDS

All Parkway facility and trail signage should conform to the sign standards of California State Parks.

Selected segments of the Parkway multi-use trail and connecting trails leading to surrounding communities will cross or parallel the local road network. In those circumstances the following sign standards should be referenced:

- California Department of Transportation Sign Guidelines: State of California, Business, Transportation and Housing Agency Department of Transportation. *California Manual on Uniform Traffic Control Devices*, 2012 Edition.

SIGN TYPES

The following types of signs should be used within the Parkway.

- Entrance Signs: To be used at the entrances to each Parkway facility or staging areas naming the specific facility.
- Information Signs: To be used to provide a wide-range of information including fees, hours of operation, wayfinding, education and interpretation, rules and courtesies, sponsors/operators, and other pieces of information.
- Site Control and Safety: To be used to provide speed limits, property boundaries, prohibitions and other safety related information.
- Staging Area Kiosks: To be sited at each staging area in a prominent location so that may learn about the general use regulations and trail-related information.

The following are suggested points to include in kiosk signage and in printed material for public distribution. These may be condensed for use as text on signs. This information will not apply to all trails or all uses and should only be posted as necessary in appropriate locations.

- Be friendly and courteous.
- Take only pictures. Leave what you find.
- If you carry it in, carry it out.
- Stay on designated trails. Shortcutting and bypassing the trail destroys vegetation, leads to erosion, reduces habitat quality, and causes unsightly damage to the landscape.
- Respect wildlife. Keep your distance. Never feed wild animals.
- Respect private property.
- Respect other visitors and their experience. Avoid excessive noise.
- Use extra caution when using headphones. You may not be able to hear warnings.
- Keep your dog on leash at all times or noting if dogs are prohibited.
- Follow “Leave No Trace” principles.
- Keep yourself and your bike or horse under control and proceed at a safe speed and within your ability at all times. Anticipate other trail users around blind curves.
- Share trails. Keep to the right except to pass. When in doubt, give the other user the right of way. Warn people when you are planning to pass.
- Bicyclists yield to pedestrians and equestrians. Runners and hikers yield to equestrians.

Information-Bulletin Board: To be used at kiosks to provide specific information, for example, information about the trail and its universal access characteristics.

Objective information about the trail conditions (e.g., grade, cross slope, surface, width, obstacles, length) should be provided at trail staging area kiosks. This information is needed regardless of whether or not the trail is accessible. Objective information is preferable to subjective trail difficulty ratings (e.g., easier, most difficult) because subjective ratings of difficulty typically represent the perceptions of the person making the assessment and cannot be accurate or appropriate for the range of trail users. The following information should be objectively measured and conveyed to the trail user through appropriate information formats:

- Trail name
- Permitted users
- Trail length
- Change in elevation over the total trail length and maximum elevation obtained
- Average running grade and maximum grades that will be encountered
- Average and maximum cross slopes
- Average tread width and minimum clear width
- Type of surface
- Location and length of any soft or unstable surfaces
- Size, location, and frequency of obstacles

Trail Markers: To be used at all trail entry points and intersections with other trails. Permissible uses will be identified. Non-permissible uses should be identified where they present management challenges.

Street Signs:

- Road Crossings: Where the Parkway multi-use trail crosses a local road, stop signs would be directed to trail users and trail crossing signs directed to the motorists along with pavement markings.
- Roadways: If bicyclists or pedestrians are directed to use the local street system or Parkway access roads, “share the road signs” should be posted along the roads.

- Interpretive Signs: Selected segments of the parkway trail system should be developed as “interpretive trails.” Criteria for selecting these segments would include representation of the

various natural and cultural resources of the Parkway and anticipated level of use. Both traditional static and interactive interpretive panels should be used. Selected trail segments should be identified as “Quick Response (QR) Code” interpretive trails developed only with posts and web-based QR codes for smart phone users.

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TABLE 7-3 RECOMMENDED PLANT SPECIES

Plant		Location in Parkway									
Botanic Name	Common Name	Gray Pine/ Blue Oak Woodland	Mixed Riparian	Willow/ Cottonwood Riparian Forest	Seasonal Wetland/ Ponds	Valley Oak Riparian Forest	Riparian Forest Canopy	Mixed Forest Canopy	Buffer Areas	Native Grassland	Disturbed/ Developed Areas
Acer negundo ssp. californica	California box elder		X	X							
Aesculus californica	buckeye	X						X	X		
Alnus rhombifolia	white alder		X	X			X				
Amsinckia menziesii var. intermedia	ranchers fireweed				X					X	
Arctostaphylos uva-ursi	bearberry								X		
Aristolochia californica	Dutchman's pipe		X	X							
Artemisia douglasiana	California mugwort		X	X							
Avena fatua	wild oat		X	X						X	
Azolla filiculoides	mosquito fern				X						X
Baccharis pilularis	coyote brush					X			X		
Baccharis viminea	mulefat				X	X			X		
Bromus spp.	brome										X
Bromus diandrus	ripgut brome		X	X						X	
Ceanothus cuneatus var. cuneatus	buck brush	X									
Cephalanthus occidentalis	California buttonbush		X	X							
Cercis occidentalis	western redbud		X			X	X	X	X		

TABLE 7-3 RECOMMENDED PLANT SPECIES

Plant		Location in Parkway									
Botanic Name	Common Name	Gray Pine/ Blue Oak Woodland	Mixed Riparian	Willow/ Cottonwood Riparian Forest	Seasonal Wetland/ Ponds	Valley Oak Riparian Forest	Riparian Forest Canopy	Mixed Forest Canopy	Buffer Areas	Native Grassland	Disturbed/ Developed Areas
Clarkia purpurea	farewell-to-spring										X
Clematis lasiantha	chaparral clematis								X		
Clematis ligusticifolia	clematis		X								
Conyza canadensis	horseweed				X						
Danthonia californica	California wild oat grass										X
Distichlis spicata	saltgrass				X						
Elymus glaucus	blue wild rye										X
Epilobium spp.	willow herb				X						
Erodium cicutarium	redstem storksbill				X					X	X
Eschscholzia californica	California poppy										X
Euthamia occidentalis	western goldenrod				X						
Festuca californica	California fescue										X
Festuca idahoensis	blue bunch grass										X
Festuca rubra	creeping red fescue										X
Fraxinus latifolia	Oregon ash		X	X		X	X		X		
Grindelia camporum	gumplant				X						
Heleocharis acicularis	spike rush				X						

TABLE 7-3 RECOMMENDED PLANT SPECIES

Plant		Location in Parkway									
Botanic Name	Common Name	Gray Pine/ Blue Oak Woodland	Mixed Riparian	Willow/ Cottonwood Riparian Forest	Seasonal Wetland/ Ponds	Valley Oak Riparian Forest	Riparian Forest Canopy	Mixed Forest Canopy	Buffer Areas	Native Grassland	Disturbed/ Developed Areas
Helianthus sp.	sunflower				X						
Hordeum marinum ssp. gussoneanum	Mediterranean barley		X	X						X	
Juncus mexicanus	Mexican rush				X						
Lactuca serriola	wild lettuce				X					X	
Lasthemia californica	goldfields										X
Layia platyglossa	tidy tips										X
Leymus triticoides	creeping wildrye		X	X		X					
Lupinus ssp.	lupine										X
Lupinus bicolor	miniature lupine				X					X	
Muhlenbergia rigens	deer grass		X	X	X	X			X	X	
Nassella pulchra	purple needle grass										X
Otospermophilus beecheyi	California ground squirrel				X					X	
Picris echioides	bristly ox-tongue				X					X	
Pinus sabiniana	gray pine	X									
Plagiobothrys nothofulvus	popcorn flower				X					X	
Platanus racemosa	western sycamore		X	X		X	X	X	X		

TABLE 7-3 RECOMMENDED PLANT SPECIES

Plant		Location in Parkway									
Botanic Name	Common Name	Gray Pine/ Blue Oak Woodland	Mixed Riparian	Willow/ Cottonwood Riparian Forest	Seasonal Wetland/ Ponds	Valley Oak Riparian Forest	Riparian Forest Canopy	Mixed Forest Canopy	Buffer Areas	Native Grassland	Disturbed/ Developed Areas
Poa segunda	bluegrass										X
Polygonum spp.	smartweed				X						
Populus fremontii	Fremont cottonwood		X	X		X					
Prunus ilicifolia	holly-leaf cherry						X	X	X		
Quercus douglasii	blue oak	X						X	X		
Quercus kelloggii	California black oak		X						X		
Quercus lobata	valley oak		X			X	X	X	X		X
Quercus wislizenii	live oak	X									
Raphanus sativus	wild radish				X					X	
Rhamnus californica	coffeeberry			X		X	X	X	X		
Ribes speciosum	fuchsia-flowering gooseberry		X			X	X	X	X		
Rosa californica	California wild rose		X	X		X					
Rosa gymnocarpa	wild rose		X	X			X	X	X		
Rubus ursinus	California blackberry		X	X		X			X		
Rumex crispus	curly dock				X						X
Salix spp.	willow			X							
Salix exigua.	sandbar willow		X	X	X						

TABLE 7-3 RECOMMENDED PLANT SPECIES

Plant		Location in Parkway									
Botanic Name	Common Name	Gray Pine/ Blue Oak Woodland	Mixed Riparian	Willow/ Cottonwood Riparian Forest	Seasonal Wetland/ Ponds	Valley Oak Riparian Forest	Riparian Forest Canopy	Mixed Forest Canopy	Buffer Areas	Native Grassland	Disturbed/ Developed Areas
Salix gooddingii	Goodding's black willow		X	X							
Salix laevigata.	red willow		X	X	X						
Salix lasilepis.	arroyo willow		X	X	X						
Sambucus mexicana	blue elderberry	X									
Schoenoplectus acutus var. occidentalis	common tule				X						
Scripus spp.	tule				X						
Silybum marianum	milk thistle		X	X							
Sisymbrium irio	ripgut brome										X
Typha spp.	cattails				X						
Urtica dioica	stinging nettle		X	X							
Vitis californica	California wild grape		X	X		X					
Vulpia myuros	foxtail fescue									X	

7.2 PLANTING GUIDELINES

7.2.1 NEW VEGETATION

Revegetation, habitat enhancement, and amenity plantings within use areas, such as for shade and access control, should recognize the overall goals of the Parkway to enhance the habitats along the river corridor. All new vegetation in the Parkway should consist of plants native within the region. Goals of the vegetation program are to:

- Enhance the Parkway visitors experience and the overall image as a riverside setting.
- Provide shade for recreation use areas and for river- and water-dependent biotics.
- Screen views between selected use areas and surrounding land uses.
- Enhance habitat diversity.
- Reflect the river's dynamic hydrology over time.
- Replace existing non-native plants with native plants.

New vegetation shall include the species identified on Table 7-3, Master Plan Plant List. Plants are identified for each of eight general vegetation zones within the Parkway. Plants listed may be complemented with additional native species as appropriate for an individual area and site-specific design goals.

Normally temporary irrigation must be provided for native shrubs and trees for at least three years, and then the plants are weaned from irrigation for two to three more years, prior to discontinuing irrigation. Trees planted for shade or to screen use areas that do not survive within the first three years should be evaluated, and replaced as determined appropriate.

7.2.2 INVASIVE SPECIES

Invasive plants are those species that, once established, spread quickly from their introduced location and cuase harm by forcing out native species. The invasive plant species that were mapped in the study area during summer and fall 2012 are listed in Table 7-4. No planting in the Parkway shall include invasive species listed either in Table 7-4 or in the California Invasive Plant Council’s (Cal-IPC) list of invasive species in the Parkway region.

Cal-IPC’s mission is to protect California's lands and waters from ecologically-damaging invasive plants. They work with other agencies and non-profits to monitor the spread of invasive plant species in California. They publish a “Don’t Plant a Pest” list and keep lists of invasive species by region.

Removal of invasive plant species shall be included in all Parkway projects to the extent feasible and based on the scale of the project.

TABLE 7-4 **INVASIVE PLANT SPECIES IN THE STUDY AREA**

Scientific Name	Common Name
Ailanthus altissima	tree-of-heaven
Arundo donax	giant reed
Catalpa bignonioides	catalpa
Centaurea spp.	star thistles
Cirsium vulgare	bull thistle
Cynodon dactylon	Bermuda grass
Eichornia crassipes	water hyacinth
Elaeagnus angustifolia	Russian olive
Eucalyptus globulus	blue gum
Ficus carica	edible fig
Lepidium latifolium	perennial pepperweed
Limnobium spongia	sponge plant
Ludwigia hexapetala	water primrose
Melia azedarach	Chinaberry
Myriophyllum aquaticum	parrot feather
Myriophyllum spicatum	water milfoil
Nicotiana glauca	tree tobacco
Potamogeton crispus	curly leaf pond weed
Rubus discolor	Himalayan blackberry
Sapium sebiferum	Chinese tallow
Sesbania punicea	red sesbania
Tamarix ramosissima	salt cedar

Source: Existing Conditions, HT Harvey, October 18, 2012.

7.3 BEST MANAGEMENT PRACTICES (BMPS)

As individual facilities of the Parkway are implemented there are a number of best management practices that should be employed to minimize environmental impacts either during construction, operation, or maintenance. These are listed below.

7.3.1 AIR QUALITY

BMP AIR-1 Rule 9510 Compliance

Construction plans and specifications shall include measures to ensure compliance with San Joaquin Valley Air Pollution Control District Rules and Regulations, including Rule 9510 and Regulation VIII (Fugitive PM 10 Prohibitions). Rule 9510 requires that an Air Impact Assessment (AIA) be submitted to the District prior to filing for discretionary approval.

BMP AIR-2 Air Quality Plans

Construction plans and specifications shall comply with the Air District's current Air Quality Plans, and all District rules and regulations as deemed relevant through consultation with the District.

The following dust control practices shall be followed during the construction phase of the project to mitigate potential impacts from particulate matter and construction equipment:

- Water all active construction areas at least twice daily.
- Water or cover stockpiles of debris, soil, sand or other materials that can be blown by the wind.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of free board.
- Apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction-sites.
- Sweep daily (with water sweepers) any paved access roads, parking areas and
- staging areas at the site.
- Sweep streets on construction routes daily (with water sweepers) if visible soil material is carried onto them
- Use alternative fueled construction equipment.
- Minimize idling time (e.g. 5-minute max.).
- Maintain properly tuned equipment.
- Limit the hours of operation of heavy duty equipment and/or the amount of equipment in use.

- Replant vegetation and/or hydroseed disturbed areas as quickly as possible.

7.3.2 BIOLOGICAL RESOURCES

BMP BIO-1. Conduct Pre-Construction Protocol Surveys.

A qualified biologist shall conduct pre-construction protocol surveys to determine the presence or absence of listed or special-status species. If present, and in association with CDFW and the US Department of Fish & Wildlife Service, additional appropriate development or construction-related restrictions and mitigation requirements than what is outlined in these BMPs shall be determined.

BMP BIO-2. Prepare Wetland Delineations.

If federally protected waters of the U.S. or wetlands as defined by Section 404 of the Clean Water Act are present and the project may result in fill of those waters or wetlands:

- Coordinate with the US Army Corps of Engineers and prepare a wetland delineation of the area. Follow the Corp's mitigation protocol regarding jurisdictional waters and wetlands impacted by the project.
- Appropriate US Army Corps of Engineers permits shall be obtained prior to implementation of the project.
- Cumulatively, Parkway projects should result in beneficial management and protection of waters and wetlands.

BMP BIO-3. Prepare and Present a Worker Environmental Awareness Program

A qualified biologist shall prepare a Worker Environmental Awareness Program to be presented to all construction personnel and employees before any ground-disturbing activities commence at a project site. If special status species may be present, this presentation shall explain to construction personnel how best to avoid the accidental take of those species during construction. The program shall consist of a brief presentation explaining endangered species concerns to all personnel involved in the project. The program shall include a description of special-status species potentially on the project site and their habitat needs; an explanation of the status of the species and their protection under the FESA, the CESA, the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act, and the California Fish and Game Code; specific mitigation measures applicable to special-status species; and the penalties for take.

The program shall also explain to construction personnel how to avoid impacts on USACE and CDFW jurisdictional areas. The program shall include a description of these respective jurisdictional areas on the site, specifically permitted impacts, and avoidance measures to protect jurisdictional areas. It will include maps or field markers showing the location of jurisdictional areas and permitted impacts.

The Worker Environmental Awareness Program shall be implemented before the start of ground disturbance and shall be continued through the construction phase for all construction personnel.

BMP BIO-4. Avoid and Minimize Impacts on Special-Status Plants and Sensitive Natural Communities including Wetlands

All projects to install or construct trails, kiosks, restrooms, and other Parkway improvements shall be preceded by a pre-construction survey during which a qualified botanist will identify sensitive natural vegetation communities, including wetlands and other waters and elderberry shrubs, within the project footprint and clearly map or delineate them as needed in order to avoid and/or minimize disturbance. The botanist will use the results of the pre-construction survey, as well as information available from the CNDDB, the Master Plan Update EIR, and/or other suitable tools to determine whether habitat for special-status plants is present in or adjacent to the project area. If the qualified botanist determines that no special-status plants are reasonably expected to occur on the site, no further action will be warranted. If the biologist determines that suitable habitat for special-status plants is present, the botanist shall conduct a focused survey for special-status plants during the appropriate time of the year to adequately identify special-status plants that could occur on the site.

One or more of the following shall be implemented to avoid and/or minimize impacts on sensitive natural communities and special-status plants as appropriate, per the botanist's recommendation:

- Flag or otherwise delineate in the field the special-status plant populations and/or sensitive natural communities to be protected. All such areas to be avoided shall be clearly marked on construction plans and designated as "no construction" zones.
- Allow adequate buffers around plants or habitat; the location of the buffer zone shall be shown on the maintenance design drawings and marked in the field with stakes and/or flagging in such a way that exclusion zones are visible to maintenance personnel without excessive disturbance of the sensitive habitat or population itself (e.g., from installation of fencing).
- Time construction or other activities during dormant and/or non-critical life cycle period;
- Limit the operation of construction equipment to established roads wherever possible.

BMP BIO-5. Avoid and Minimize Impacts on Special-status Amphibian and Reptile Species

All projects to install or construct trails, kiosks, restrooms, and other Parkway improvements shall be preceded by an analysis of the results of the pre-construction survey (see BMP BIO-1), as well as information available from the CNDDB, the Master Plan Update EIR, and/or other suitable tools to determine whether suitable special-status amphibian or reptile habitat is present in or adjacent to the project area. For the assessment of the potential for California tiger salamanders

to occur in the project area, the analysis shall be conducted according to the guidelines provided in the *Interim Guidance on Conducting Site Assessments and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander* (USFWS 2003) or an updated version of this document.

If it is determined that no special-status amphibian or reptile is reasonably expected to occur on the site due to the absence of suitable habitat, no further action will be warranted.

If it is determined that suitable habitat for the California tiger salamander may be present, a site assessment shall be submitted to the USFWS and CDFW. If the USFWS and/or CDFW determines that surveys for the California tiger salamander are warranted then either (a) presence/absence surveys for California tiger salamanders shall be conducted according to approved protocols or (b) the presence of California tiger salamanders in the project area shall be assumed. If protocol surveys determine that no California tiger salamanders are present, no further action will be warranted. If surveys determine that California tiger salamanders are present, or if the presence of California tiger salamanders is assumed, a site-specific species protection plan shall be prepared for the project and delivered to the USFWS and CDFW. Similarly, if any other special-status amphibian or reptile could occur in the project area, the same process shall apply.

Elements of the plan may include: work rescheduling, training work crews, daily surveys, establishment of buffers and buffer fencing, on-site monitoring, habitat modification in advance of work activities, capture and relocation of individual special-status species (with USFWS and/or CDFW approval, depending on the listing status of the species in question), methods of documentation, and reporting of results. At a minimum, the Site-specific Species Protection Plan shall include the following measures:

- A qualified biologist will conduct one daytime and one nighttime survey within a 48-hour period preceding the onset of construction activities. Such surveys shall focus on wetlands, streams, ponds, riparian habitats, and areas within 200 feet of these features, but they shall also include a pedestrian survey of the entire impact area to survey for California tiger salamanders, western spadefoots, and western pond turtles in vegetation, under debris, in culverts, or in other areas that could provide refugia for these species.
- A qualified biologist shall conduct a special-status species survey on each morning of and prior to the scheduled work commencing.
- If no special-status amphibian or reptile is found within the activity area during a pre-activity survey, the work may proceed.
- If eggs or larvae of a special-status species are found, a buffer will be established around the location of the eggs/larvae and work may proceed outside of the buffer zone. No work will occur within the buffer zone. Work within the buffer zone will be rescheduled until the time that eggs have hatched and/or larvae have metamorphosed, at which time the following measure shall be implemented.

- If adults or non-larval juveniles of a special-status species are present, the individuals will be allowed to leave the activity area undisturbed or captured and relocated by a qualified biologist (with USFWS and/or CDFW approval, depending on the listing status of the species in question), after which work may proceed. The candidate sites for relocation shall be identified before construction begins and shall be selected based on the size and type of habitat present, the potential for negative interactions with resident species, and the species' range.

BMP BIO-6. Avoid and Minimize Impacts on Nesting Birds

Projects to install or construct trails, kiosks, restrooms, and other Parkway improvements and that occur between January 15 and August 31 shall be preceded by a survey for nesting birds. Activity areas will be checked by a qualified biologist for nesting birds no more than one week prior to starting work. If a lapse in project-related work of one week or longer occurs, another focused survey will be conducted before project work can be reinitiated.

If an active nest is found sufficiently close to the project work area (i.e., within 300 feet for raptors or 50 feet for non-raptors), a qualified biologist will determine the extent of a disturbance-free buffer zone to be established around the nest (typically 300 feet for raptors and 50 feet for non-raptors), to ensure that no nests of species protected by the MBTA and California Fish and Game Code will be disturbed during project construction. The buffer distance is measured as the straight-line distance between an active nest and the activity, taking both horizontal and vertical distance into account. No project-related activities shall be performed within the buffer until the young have fledged or the nest has been determined to be inactive by a qualified biologist. The boundary of each buffer zone will be marked with fencing, flagging, or other easily identifiable marking if work will occur immediately outside the buffer zone.

Reductions in the standard buffers (i.e., buffers less than 50 feet for non-raptors and less than 300 feet for raptors) may be allowed where circumstances suggest the birds will not abandon the active nest with a reduced buffer size. A qualified biologist will determine whether reducing the buffer is likely to substantially increase disturbance of nesting birds, taking into account the presence or absence of dense vegetation, topography, or structures that would block project activities from view; the life history and behavior of the bird species in question; and the nature of the proposed activity. If a reduced buffer is implemented, the biologist shall monitor bird behavior in relation to work activities. At a minimum, the biologist will monitor the baseline behavior of the birds for at least 30 minutes prior to the commencement of the activity (to determine the birds' behavior in the absence of the activity) and for at least one hour immediately following the initiation of the activity, when response by the nesting birds to the novel activity is expected to be greatest. If the birds exhibit abnormal nesting behavior which may cause reproductive failure (e.g., nest abandonment and loss of eggs and/or young), such as agitated/defensive flights and vocalizations directed towards project personnel, birds standing up from a brooding position, birds flushing from the active nest, or cessation of provisioning of young with food, the disturbance-free buffer shall immediately be adjusted out to the standard

buffer distance (300 feet for raptors and 50 feet for non-raptors) until the birds have resumed their normal behavior (e.g., incubation or feeding of young). After two hours with all work confined to the area outside the standard buffer, work would again be attempted in the area within the reduced buffer, and the process would be repeated to determine if the birds have habituated to the activity. If the process is repeated three times without the birds indicating that they are habituating to the activity, then the standard buffer will be maintained until the next day, when the process above would again be attempted. If the birds do not indicate that they are habituated to project activities during the initial two days of attempting work within a reduced buffer, the standard buffer shall be implemented. Project activities within the reduced buffers shall not resume until the qualified biologist confirms that the birds' behavior has normalized, or until the nest is no longer active.

BMP BIO-7. Avoid and Minimize Impacts on Burrowing Owls

All projects to install or construct trails, kiosks, restrooms, and other Parkway improvements shall be preceded by an analysis of the results of the pre-construction survey (see BMP BIO-1), as well as information available from the CNDDB, the Master Plan Update EIR, and/or other suitable tools to determine whether potentially suitable habitat for burrowing owls is present in or adjacent to the project activity area. If the qualified biologist determines that potentially suitable habitat for burrowing owls is present, the following measures shall be implemented:

- Pre-construction surveys for burrowing owls shall be performed before project-related ground-disturbing activities commence. A survey to determine presence or absence of burrowing owls may be performed at any time to facilitate passive relocation efforts [which generally occurs during the nonbreeding season (generally September 1 to January 31)]. In addition, a pre-construction survey must be conducted no more than 15 days prior to the commencement of ground disturbing activities, to confirm the absence of burrowing owls. This survey will be conducted in all areas on and within 500 feet of the impact area, where access allows, and will be conducted in accordance with the California Department of Fish and Wildlife's 2012 Staff Report on Burrowing Owl Mitigation or an updated version of this document.
- For burrowing owls present during the nonbreeding season (generally September to January 31), a 150-foot buffer zone will be maintained around the occupied burrow(s) if practicable. If such a buffer is not practicable, then a buffer adequate to avoid injury or mortality of owls will be maintained, or the birds will be passively relocated. During the breeding season (generally February 1 to August 31), a 250-foot buffer, within which no new impactful activity will be permissible, will be maintained between project activities and occupied burrows. Owls present on the site after February 1 will be assumed to be nesting unless evidence indicates otherwise. This protected buffer area will remain in effect until August 31, or based upon monitoring evidence, until the young owls are foraging independently or the nest is no longer active.

- If construction will directly impact occupied burrows, eviction of owls to prevent injury or mortality of individual owls should occur outside the nesting season. No burrowing owls will be evicted from burrows during the nesting season (February 1 through August 31) unless evidence indicates that nesting is not actively occurring (e.g., because the owls have not yet begun nesting early in the season, or because young have already fledged late in the season). Relocation of owls during the nonbreeding season will be performed by a qualified biologist using one-way doors, which should be installed in all burrows within the impact area and left in place for at least two nights. These one-way doors will then be removed and the burrows backfilled immediately prior to the initiation of grading.

BMP BIO-8. Protection of Bat Colonies

All projects to install or construct trails, kiosks, restrooms, and other Parkway improvements, no matter what time of year, shall be preceded by an analysis of the results of the pre-construction survey (see BMP BIO-1), as well as information available from the CNDDB, the Master Plan Update EIR, and/or other suitable tools to determine whether suitable habitat (i.e., appropriate roost trees or anthropogenic structures) is present for bat colonies within 100 feet of the work site, staging areas, or access routes.

If potential bat colony habitat is determined to be present, within two weeks prior to the onset of work activities a qualified bat biologist will conduct a survey to look for evidence of bat use. If evidence is observed, or if potential roost sites are present in areas where evidence of bat use might not be detectable (such as a tree cavity), an evening survey and/or nocturnal acoustic survey may be necessary to determine if the bat colony is active and to identify the specific location of the bat colony.

If an active bat maternity colony is present then the qualified biologist will make the following determinations:

- The work can proceed without unduly disturbing the bat colony.
- There is a need for a buffer zone to prevent disturbance to the bat colony, and implementation of the buffer zone (determined on a case-by-case basis by a qualified bat biologist) will reduce or eliminate the disturbance to an acceptable level.
- Work cannot proceed without unduly disturbing the active maternity colony; thus, construction work may only take place after July 31 and before March 1.

If a non-breeding bat hibernaculum is found in a tree or structure that must be removed or physically disturbed, the qualified biologist will consult with CDFW prior to initiating any removal or exclusion activities.

BMP BIO-9. Minimize Impacts on American Badgers

All projects to install or construct trails, kiosks, restrooms, and other Parkway improvements shall be preceded by an analysis of the results of the pre-construction survey (see BMP BIO-1), as well as information available from the CNDDB, the Master Plan Update EIR, and/or other suitable tools to determine whether potentially suitable habitat for American badgers is present in or adjacent to the project area. If the qualified biologist determines that potentially suitable habitat for badgers is present, the following measures shall be implemented:

- No more than 30 days before the start of construction activities, a qualified biologist shall conduct pre-construction surveys for American badgers within suitable habitat on the project site. If a potentially active den is found in a construction area, a burrow probe shall be used to determine the presence of badgers, or the den openings may be monitored with tracking medium or an infrared-beam camera for three consecutive nights to determine current use. Potential (inactive) dens within the limits of disturbance shall be blocked or excavated to prevent use during construction. If American badgers or active dens are detected during these surveys, the following measures shall be implemented.
- Disturbance of any American badger dens shall be avoided to the extent practicable. American badger dens are used for shelter, escape, cover, and reproduction, and are thus vital to the survival of American badgers. If present, occupied badger dens shall be flagged, and ground-disturbing activities avoided, within 50 feet of the occupied den during the nonbreeding season (July 1 through February 14). Dens determined to be occupied during the breeding season (February 15 through June 30) shall be flagged, and ground-disturbing activities avoided, within 200 feet to protect adults and nursing young. Buffers may be modified by the qualified biologist provided the badgers are protected.
- If avoidance of an active non-maternity den is not feasible, badgers shall be relocated by slowly excavating the burrow (either by hand or with mechanized equipment under the direct supervision of a qualified biologist) before or after the rearing season (February 15 through June 30). Any passive relocation of American badgers shall occur only under the direction of a qualified biologist.

BMP BIO-10. Construction Site Housekeeping

- Employees and contractors shall maintain the work site in neat and orderly conditions on a daily basis, and leave the site in a neat, clean, and orderly condition when work is complete.
- For activities that last more than one day, materials or equipment left on the site overnight shall be stored in a manner that avoids erosion, leaks, or other potential impacts to water quality.
- All trash that is brought to a project site (e.g., plastic water bottles, plastic lunch bags, cigarettes) shall be collected at the site daily and removed or stored in a secured container.

BMP BIO-11. Lighting

During construction and operation, any lights needed to illuminate construction areas, staging areas, recreational areas, interpretive centers, parking lots, kiosks, etc. shall be directed away from any adjacent sensitive wildlife habitat for sensitive wildlife.

Lighting in the Parkway shall be limited to reduce light pollution. Any lighting shall be Dark Sky certified or emit no light above horizontal. With the exception of public safety, lighting shall not occur in the vicinity of the wildlife corridor or a natural reserve, to the extent possible.

BMP BIO-12. Herbicide Use

A qualified biologist will determine presence/absence of sensitive resources in areas where the use of herbicides for invasive species management or habitat restoration is planned. A certified pest control advisor will then prepare a written recommendation including site-specific control methods (including the use of approved herbicides and surfactants), which shall include, but not be limited to, the following:

- All applications of herbicides and adjuvants shall occur in accordance with federal and state regulations.
- Herbicide application shall not occur when wind conditions may result in drift.

BMP BIO-13. Restore Temporarily Impacted Habitats

Habitat types that support herbaceous vegetation and can be reestablished within one growing season of the impacts may be temporarily impacted by Parkway projects.

Areas over .5 acres in size where temporary, construction-related impacts have taken place shall be restored in accordance with a project Habitat Restoration and Revegetation Plan (HRRP). The plan shall prescribe restoration actions needed to treat disturbed soils and vegetation. The HRRP shall be developed by a qualified restoration ecologist, knowledgeable in in restoration of habitats dominated by herbaceous vegetation. The HRRP shall detail the process or processes to be implemented to restore the target habitats and shall, at a minimum, include the following project-specific information:

- Habitat impacts summary and proposed habitat restoration actions.
- The location of the restoration sites and existing site conditions.
- Restoration design including:
    - Proposed restoration site schedule.
    - Description of existing and proposed soils and hydrology,
- Site preparation requirements including soil amendments, if required.

- Invasive species eradication plan, if applicable.
- Planting plan
- Maintenance plan.

- Monitoring measures, performance and success criteria.
- Monitoring methods, duration, and schedule.
- Contingency measures and remedial actions.

For projects under 0.5 acres in size where temporary, construction-related impacts have taken place, shall be restored to treat disturbed soils and plant herbaceous vegetation. .

7.3.3 CULTURAL RESOURCES

BMP Cult 1- Evaluate Cultural Resources for Eligibility for Inclusion in the California Register of Historic Resources (CRHR), and Implement Appropriate Measures for Eligible Resources

The Conservancy shall ensure that all cultural resources identified prior to or during construction of the various proposed Project components will be evaluated for eligibility for inclusion in the CHRR. Where implementation of the proposed Project necessitates ground disturbance, a records search and pedestrian survey shall be conducted prior to construction. Resource evaluations will be conducted by qualified individuals who meet professional standards in archeology and architectural history. If any of the resources that are identified during this evaluation meet the eligibility criteria identified in PRC Section 5024.1 or PRC Section 21083.2 the Conservancy will develop and implement mitigation measures according to CEQA Guidelines section 1526.4(b) before construction begins or resumes.

For resources eligible for listing in the CRHR that would be rendered ineligible by project construction, the Conservancy shall implement mitigation measures selected from the following: avoidance; dedication of sites within parks, green-space or other open space; capping the site; or date recovery excavation. Mitigation measures for archaeological resources shall be developed in consultation with responsible agencies, including but not limited to the State Office of Historic Preservation and, as appropriate, interested parties such as Native American tribes. Implementation of the approved mitigation would be required before beginning any construction activities with potential to affect identified eligible resources at the site.

BMP Cult-2 - Immediately Halt Construction if Cultural Resources are Discovered

If any cultural resources, such as structural features, unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, human remains, or architectural remains are encountered during any project construction activities, work shall be suspended immediately at the location of the find and within an appropriate radius of at least 50 feet. A qualified

archaeologist shall conduct a field investigation of the specific site and recommend mitigation necessary for the protection or recovery of any cultural resource concluded by the archaeologist to represent a historical resource or unique archaeological resource.

BMP Cult-3 - Immediately Halt Construction if Human Remains are Discovered and Implement California Health and Safety Code

If human remains are accidentally discovered during the proposed Project's construction activities, the requirements of California Health and Human Safety Code section 7050.5 must be followed. Potentially damaging excavation must halt in the area of the remains, with a minimum radius of 50 feet, and the local County Coroner must be notified. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (Health and Safety Code section 7050.50(b).) If the Coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (Health and Safety Code section 7050 (c)). Pursuant to the provisions of the PRC section 5097.98, the NAHC shall identify a Most Likely Descendant (MLD). The MLD designated by the NAHC shall have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods.

7.3.4 GEOLOGY AND SOILS

BMP GEO-1. Geology

During construction:

- Any excavated topsoil shall be stockpiled and reused on-site.
- The construction contractor shall develop and comply with the provisions of an approved Storm Water Pollution Prevention Plan (SWPPP).
- Disturbed slopes shall be hydroseeded and stabilized following disturbance.

7.3.5 AIR, NOISE, AND GREENHOUSE GAS EMISSIONS

BMP GHG-1. Air Quality

- Encourage contractors to use alternative fueled construction equipment, minimize idling time, and require that equipment is properly tuned.

7.3.6 RECYCLING

BMP RECYCLING-1. Recycling

- Reduce waste generation by providing for recycling.

7.3.7 WILDFIRE HAZARDS

BMP FIRE-1. Fire Prevention

- All structures shall comply with County and CAL FIRE standards.
- Fire prevention measures shall be implemented including mowing shoulders of roads, parking areas and trails, buffers around buildings, and buffers at boundaries of Parkway lands if adjacent to urban development; and clearing ladder fuels around structures.

7.3.8 HYDROLOGY AND WATER QUALITY

BMP WATER-1. NPDES

Comply with all Phase II Non Point Discharge Elimination System (NPDES) Permit requirements for the construction. Submit a Notice of Intent (NOI) with the State Water Resource Control Board's (SWRCB) Division of Water Quality. The contractor shall also be required to prepare a Storm Water Pollution Prevention Plan (SWPPP).

BMP WATER-2. SWPPP

Stormwater pollution prevention BMPs designed to prevent construction-related discharges into surface waters shall be implemented. These BMPs must consider erosion, sedimentation, and pollutant controls during construction and post-construction. These BMPs shall include, but not be limited to, the following:

- Requiring standard erosion control and slope stabilization measures in any area where erosion could lead to sedimentation of a waterbody;
- Performing major vehicle maintenance, repair jobs, and equipment washing at appropriate off-site locations;
- Regularly maintaining equipment to prevent fluid leaks. Any leaks shall be captured in containers until the equipment is moved to a repair location. A spill prevention and response plan shall be prepared prior to construction and shall be implemented immediately for cleanup of fluid or hazardous materials spills;
- Designating one area of the construction-site, well away from streams or storm drain inlets, for auto and equipment parking and routine vehicle and equipment maintenance;
- Cleaning-up spilled dry materials immediately. Spills are not to be "washed away" with water or buried;
- Using the minimum amount of water necessary for dust control;
- Cleaning-up liquid spills on paved or impermeable surfaces using "dry" cleanup methods (e.g. absorbent materials such as cat litter, and/or rags);

- Cleaning-up spills on dirt areas by removing and properly disposing of the contaminated soil;
- Storing stockpiled materials, wastes, containers and dumpsters under a temporary roof or secured plastic sheeting where they cannot enter into or be washed by rainfall or runoff into waters of the U.S./State or aquatic habitat.;
- Properly storing containers of paints, chemicals, solvents, and other hazardous materials in garages or sheds with double containment during rainy periods;
- Applying concrete, asphalt, and seal coat during dry weather. Keeping contaminants from fresh concrete and asphalt out of the storm drains and creeks by scheduling paving jobs during periods of dry weather and allowing new pavement to cure before storm water flows across it;
- Covering catch basins and manholes when applying seal coat, slurry seal and fog seal; and
- Operating no equipment in a live stream channel, unless unavoidable.

Post-construction, all runoff from new improvements shall be retained on-site. Engineered grading and drainage plans shall be prepared to show how additional stormwater will be managed.

Best management practices for treating, detaining, and percolating stormwater runoff, such as bioswales, bioretention areas and seasonal wetlands, shall be implemented.

BMP WATER-3. Wells

Prior to implementation any construction project, any existing wells currently in use and any future wells shall obtain the necessary water quality clearance and permits from the California Department of Public Health, Office of Drinking Water, and other California departments with jurisdiction of the testing and monitoring of potable water for a public water system.

BMP WATER-4. Flood Zone Work

Any work within designated flood zones shall conform to provisions established in local ordinances.

BMP WATER-5. Water Efficiency

New water fixtures shall be designed for low-flow and high-efficiency.

Parkway landscaped areas shall be designed to minimize water demand by using native and/or climate-appropriate plants where possible; limiting turf areas to areas that will be used as multiple-use meadows; and installing smart irrigation systems to avoid excessive water use.

BMP WATER-6. Trail Erosion

Trails shall be inspected periodically to ensure that any erosion issues are corrected.

7.3.9 HAZARDOUS MATERIALS

BMP HAZ-1. Construction Site Hazardous Materials and Waste Water Management

- An inventory of all hazardous materials used (and/or expected to be used) at the worksite and the end products that are produced (and/or expected to be produced) after their use shall be maintained by the worksite manager.
- As appropriate, containers shall be properly labeled with a "Hazardous Waste" label and hazardous waste will be properly recycled or disposed of off-site.
- Contact of chemicals with precipitation shall be minimized by storing chemicals in watertight containers with appropriate secondary containment to prevent any spillage or leakage.
- Quantities of toxic materials, such as equipment fuels and lubricants, shall be stored with secondary containment that is capable of containing 110 percent of the primary container(s).
- Petroleum products, chemicals, cement, fuels, lubricants, and non-storm drainage water or water contaminated with the aforementioned materials shall not contact soil and shall not be allowed to enter surface waters or a storm drainage system.
- All toxic materials, including waste disposal containers, shall be covered when they are not in use, and located as far away as possible from a direct connection to the storm drainage system or surface water.
- Sanitation facilities (e.g., portable toilets) shall be placed at least 100 feet away from the bank of a river, water channel, or pond.
- Sanitation facilities shall be regularly cleaned and/or replaced, and inspected daily for leaks and spills.

BMP HAZ-2. Parking Area Inspection

- Vehicle parking areas shall be periodically inspected for leaks. Offending vehicles shall be removed from the area when possible and leaked fluid shall be cleaned up using appropriate absorbent materials. Absorbent materials shall be placed in sealed containers and disposed of as hazardous waste.