APPENDIX O

DRAFT WETLAND STATEMENT OF FINDINGS

APPENDIX O

WETLAND STATEMENT OF FINDINGS FOR THE DRAFT MERCED WILD AND SCENIC RIVER COMPREHENSIVE MANAGEMENT PLAN

This Wetlands Statement of Findings (WSOF) characterizes the wetland resources that occur within the project area for the Merced Wild and Scenic River Comprehensive Management Plan (Merced River Plan), describes the impacts the project will likely have on wetland resources, and documents the steps the National Park Service (NPS) will take to avoid, minimize, and offset these impacts. This Wetland Statement of Findings is included in this document for public review to meet the obligations of Executive Order 11990 (Protection of Wetlands), Director's Order 77-1: Wetland Protection, and National Park Service Procedural Manual 77-1: Wetland Protection (2008).

PURPOSE OF THIS STATEMENT OF FINDINGS

Under Directors Order #77-1 for Wetland Protection, Part 2.5 states:

> Actions proposed by the NPS that have the potential to have adverse impacts on wetlands will be addressed in an Environmental Assessment (EA) or an Environmental Impact Statement (EIS). If the preferred alternative in an EA or EIS will result in adverse impacts on wetlands, a "Statement of Findings" documenting compliance with this Director's Order (D.O.) and Procedural Manual #77-1 will be completed. Actions that may be excepted from the Statement of Findings requirement are identified in the Procedural Manual.

In #77-1, Section 5.3.4 (3) states:

> "...A draft EIS that identifies a preferred alternative that will have adverse impacts on wetlands must be accompanied by a separately identifiable draft WSOF that explains why an alternative with such impacts was chosen and that meets the other requirements identified in Section 5.3.5 of these procedures."

The purpose of this Wetland Statement of Findings is to review the Merced River Plan in sufficient detail to:

- Avoid, to the extent possible, the short-and long-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative
- Describe the effects on wetland values associated with the proposed action
- Provide a thorough description and evaluation of mitigation measures developed to achieve compliance with Executive Order 11990 (Protection of Wetlands) and National Park Service Procedural Manual 77-1: Wetland Protection
- Ensure "no net loss" of wetland functions or values

CHARACTERISTICS OF EXISTING WETLANDS

Wetland Extent

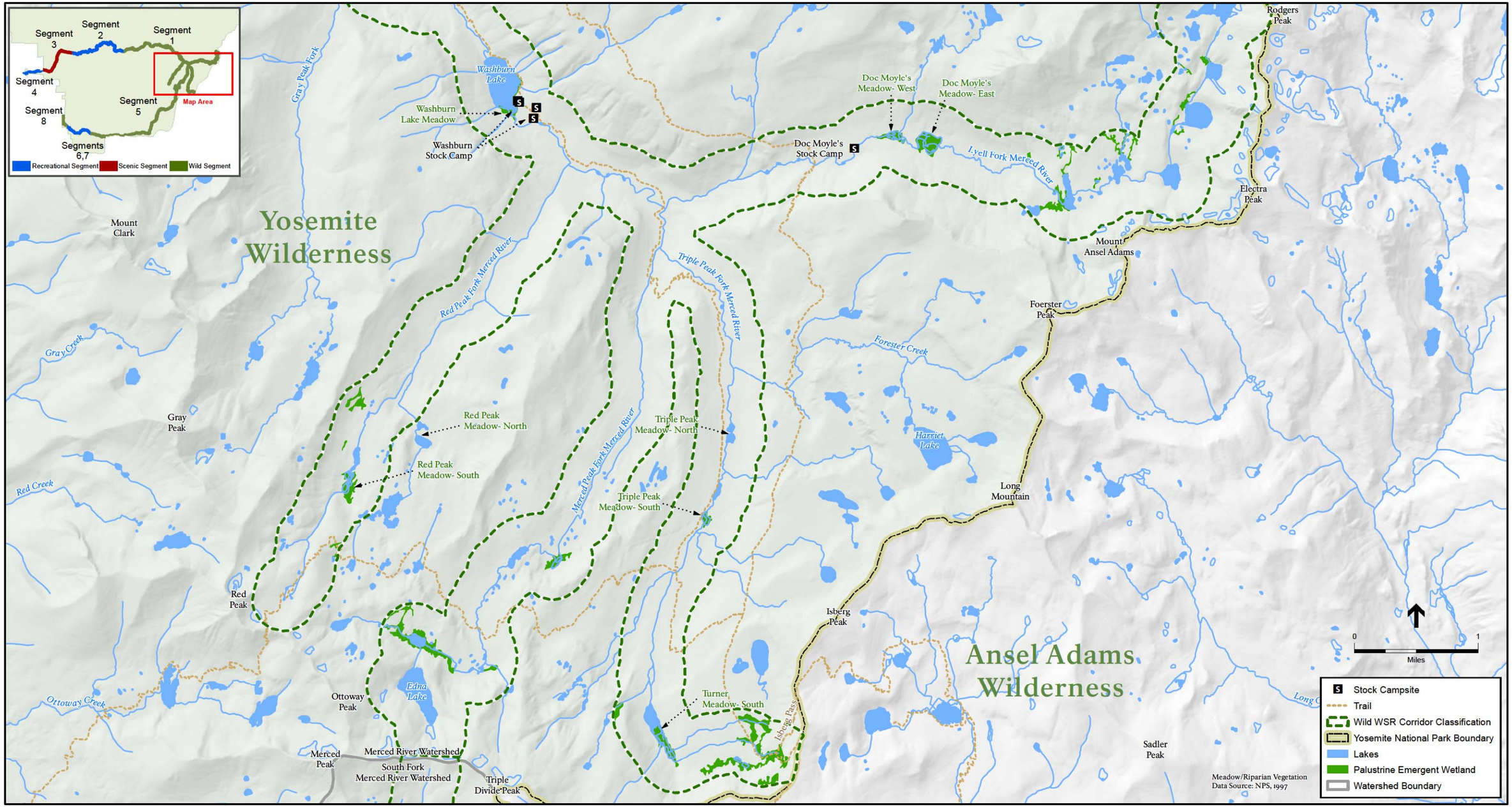
There are wetlands and/or riparian habitats in every segment of the Merced River corridor (**figures O-1** through **O-8**). Approximately 1,600 acres of wetland and/or riparian habitat occur within the Merced River corridor. **Table O-1** provides a summary of the classes and areal extent of wetland and riparian habitats by corridor segment. Wetland data were obtained from site-specific wetland delineations, if available. National Wetland Inventory data (USFWS 1995), supplemented with data from the Yosemite Parkwide Vegetation Map (1997), were used to describe wetlands in the Merced River corridor in areas where delineation data were not available (site-specific wetland delineation data was only available for limited areas in Yosemite Valley). Data on riparian habitats was taken from the *Merced River and Riparian Vegetation Assessment* (Cardno ENTRIX 2011) for the river corridor through Yosemite Valley. Data from the Yosemite Parkwide Vegetation Map (1997) were used to describe riparian habitats outside of Yosemite Valley. This provides a conservative estimate of wetlands in the project area.

TABLE O-1: CLASSES AND AREAL EXTENT OF WETLAND HABITATS IN THE MERCED RIVER CORRIDOR

Wetland Class	Area per Segment (acres)							
Cowardin Class	1	2	3	4	5	6	7	8
Riverine/Lacustrine	404.5	141.0	96.2	42.3	89.5	0.4	64.0	27.7
Palustrine Emergent Wetland (wet meadows)	216.5	261.2	0	1.7	69.8	0	0	0
Palustrine Forested Wetland	0	116.7	11.8	5.2	0.9	0	0	0
Palustrine Scrub Shrub Wetland	10.0	13.7	12.0	4.6	3.3	0	2.5	0
SOURCE: USFWS 1995; NPS 1997; NPS 2011								

The NPS classifies and maps wetland habitats using a system developed by wetland ecologists and an interagency team for the U.S. Fish and Wildlife Service (USFWS), which is often referred to as the Cowardin classification system (Cowardin et al. 1979). Wetlands, as defined by the USFWS, are transitional lands between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water (Cowardin et al. 1979). For purposes of this classification, wetlands must have one or more of the following attributes:

- The land predominantly supports hydrophytes, at least periodically. Hydrophytes are plants that grow in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.
- The substrate is predominantly undrained hydric soils. Hydric soils are wet long enough to periodically produce anaerobic conditions.
- The substrate is saturated with water or covered by shallow water at some time during the growing season of each year (Cowardin et al. 1979).



SOURCE: NPS, 1997, 2011

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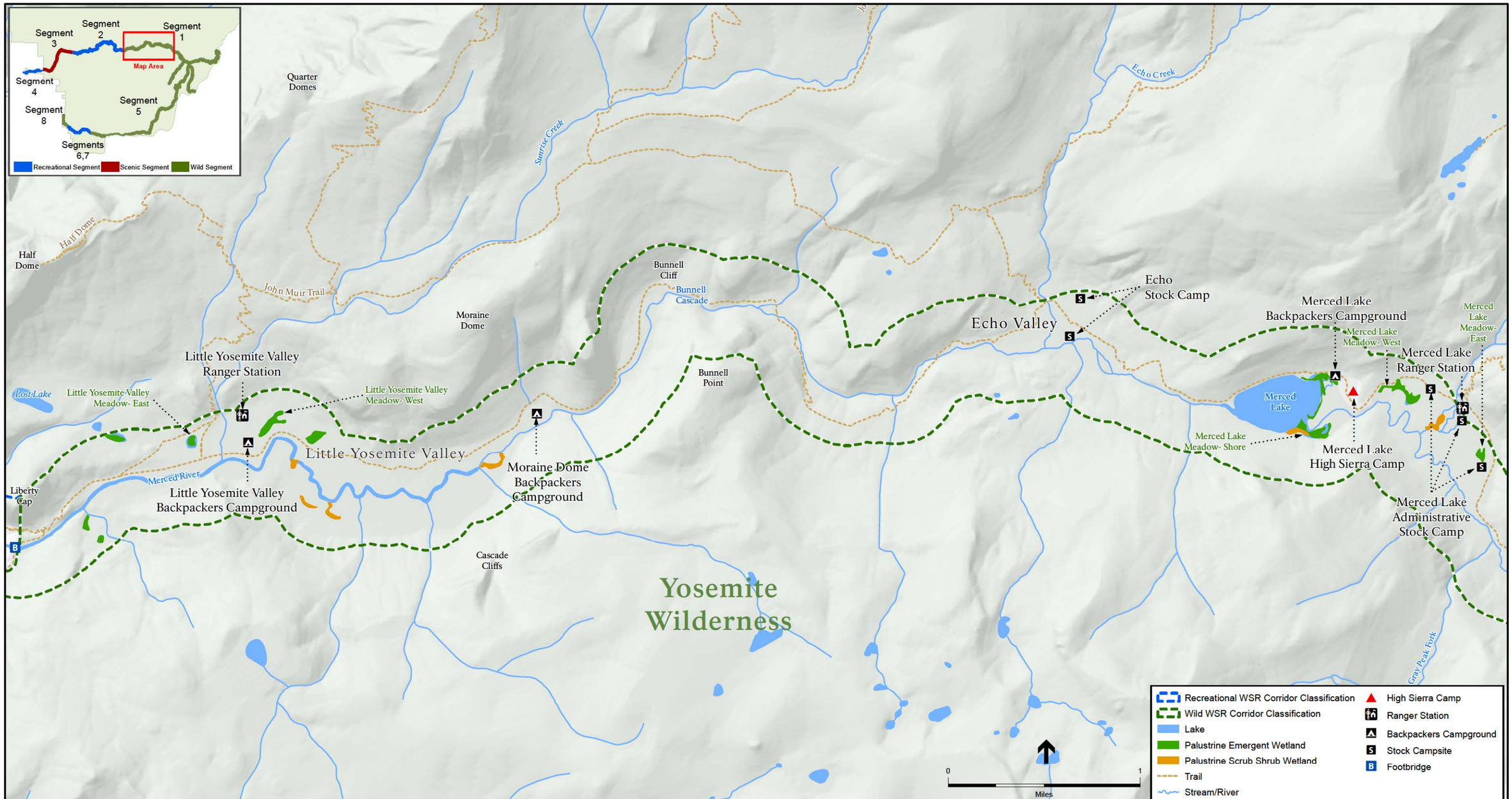
Figure O-1

Segment 1 - Merced River Above Nevada Fall Wetlands

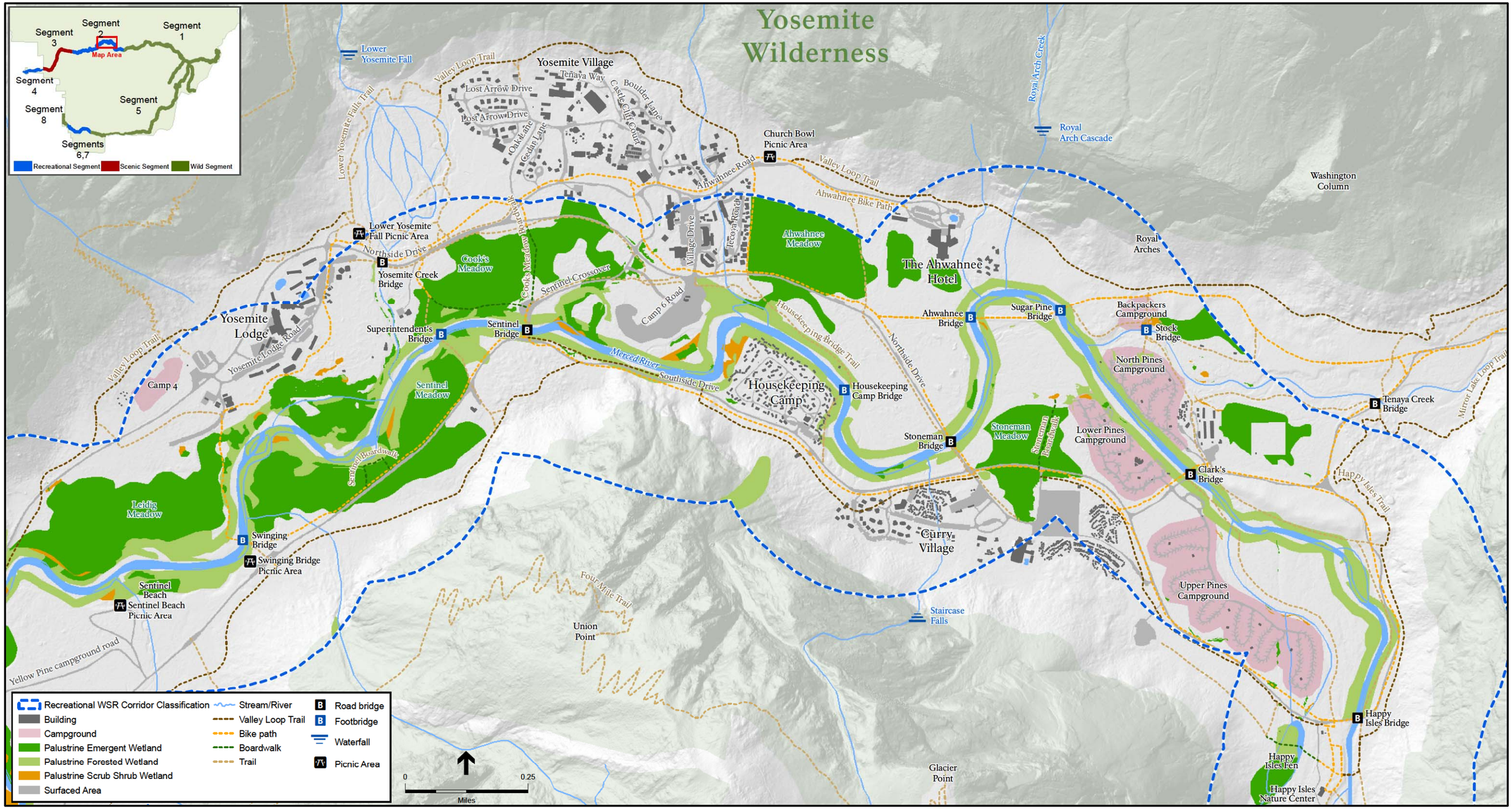


SOURCE: NPS, 1997, 2011

Merced River Comprehensive Management Plan and EIS . 210436

Figure O-2

Segment 1 - Little Yosemite Valley and Merced Lake High Sierra Camp Wetlands

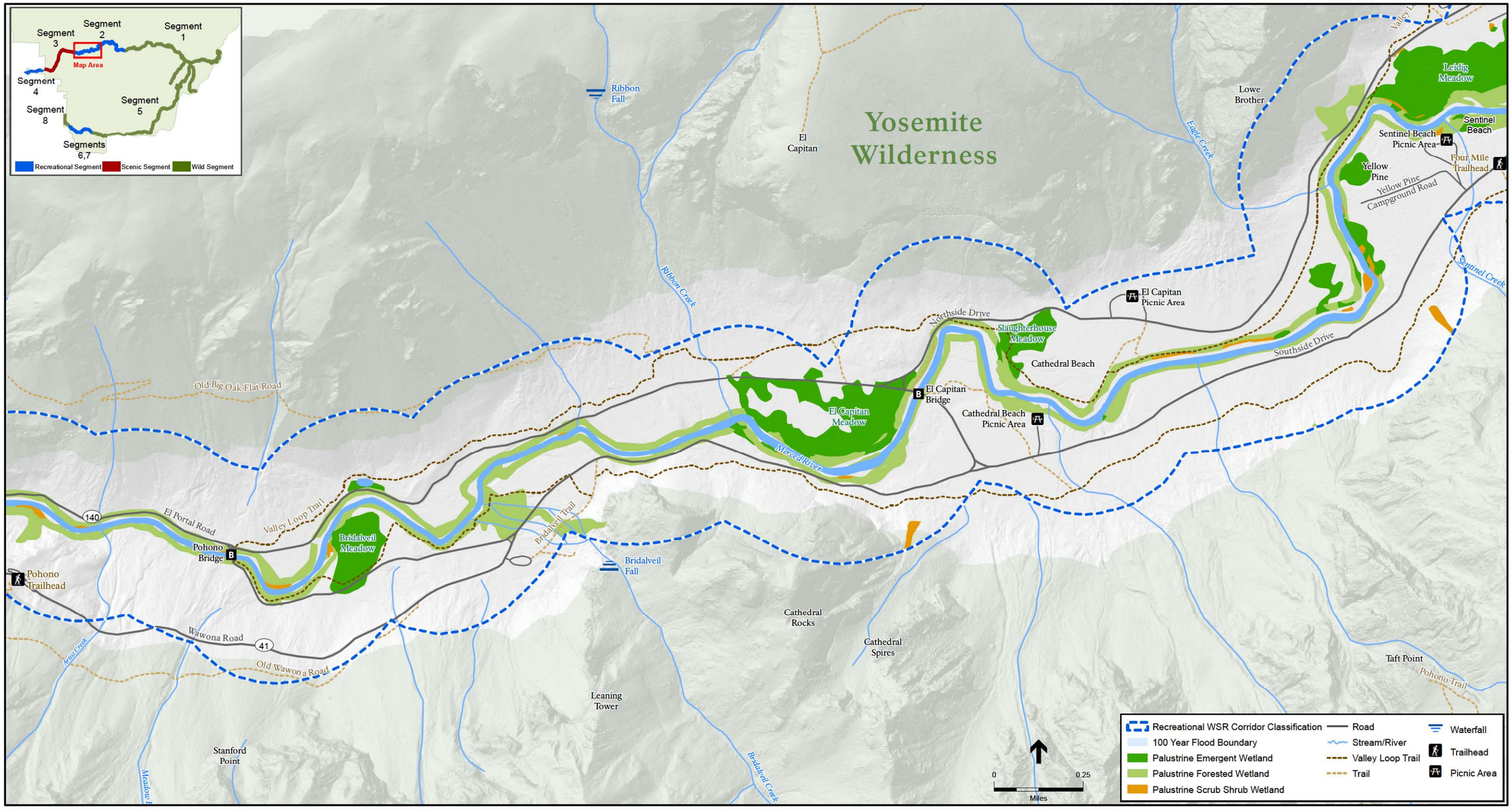


SOURCE: NPS, 1997, 2006, 2010, 2011

Merced River Comprehensive Management Plan and EIS . 210436

Figure O-3

Segment 2 - Yosemite Lodge, Yosemite Village, and The Ahwahnee Wetlands



SOURCE: NPS, 1997, 2010, 2011

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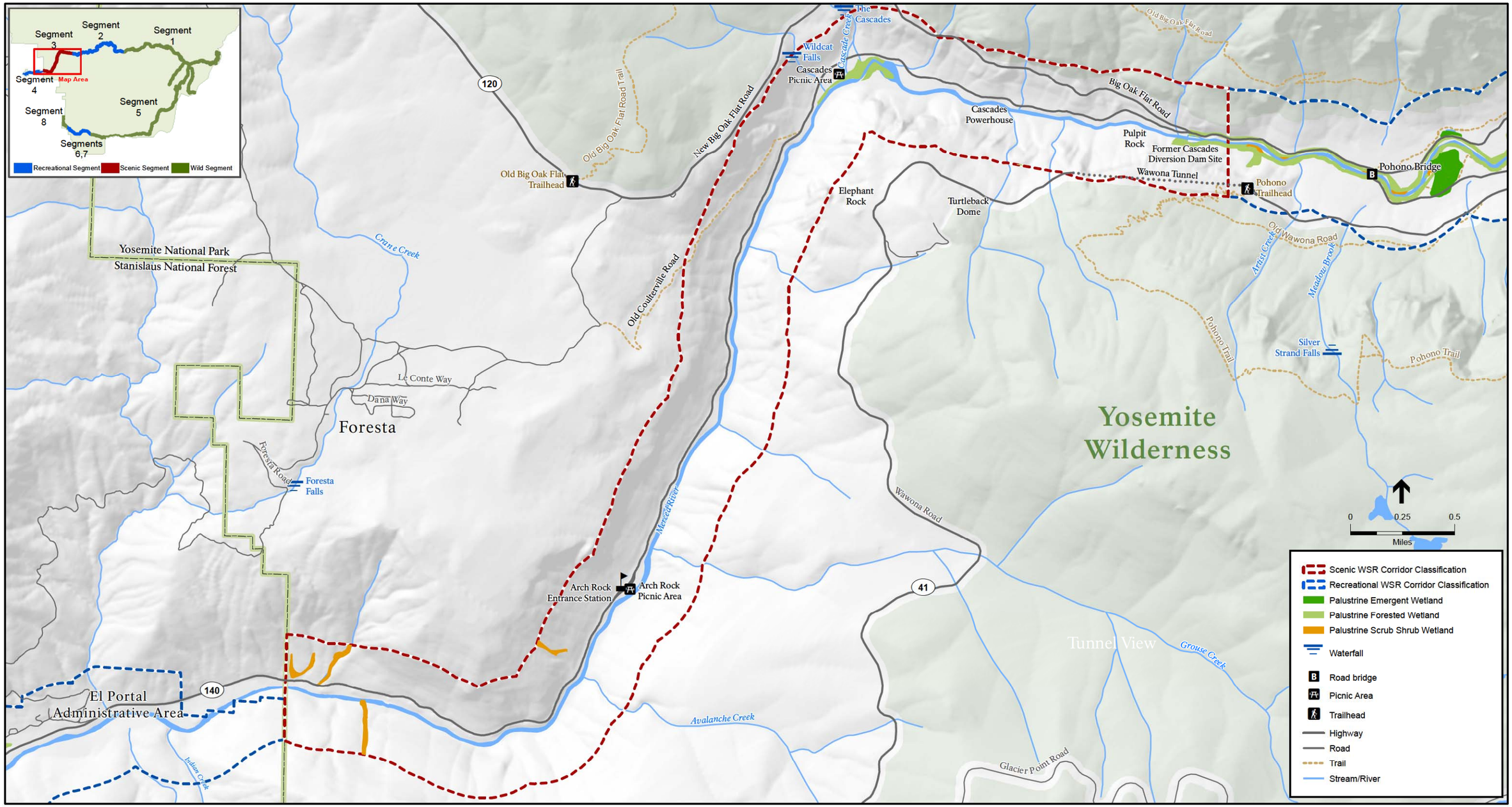
Figure O-4

Segment 2 - El Capitan Meadow, Cathedral Beach, and Sentinel Beach Wetlands



SOURCE: NPS, 1997, 2010, 2011

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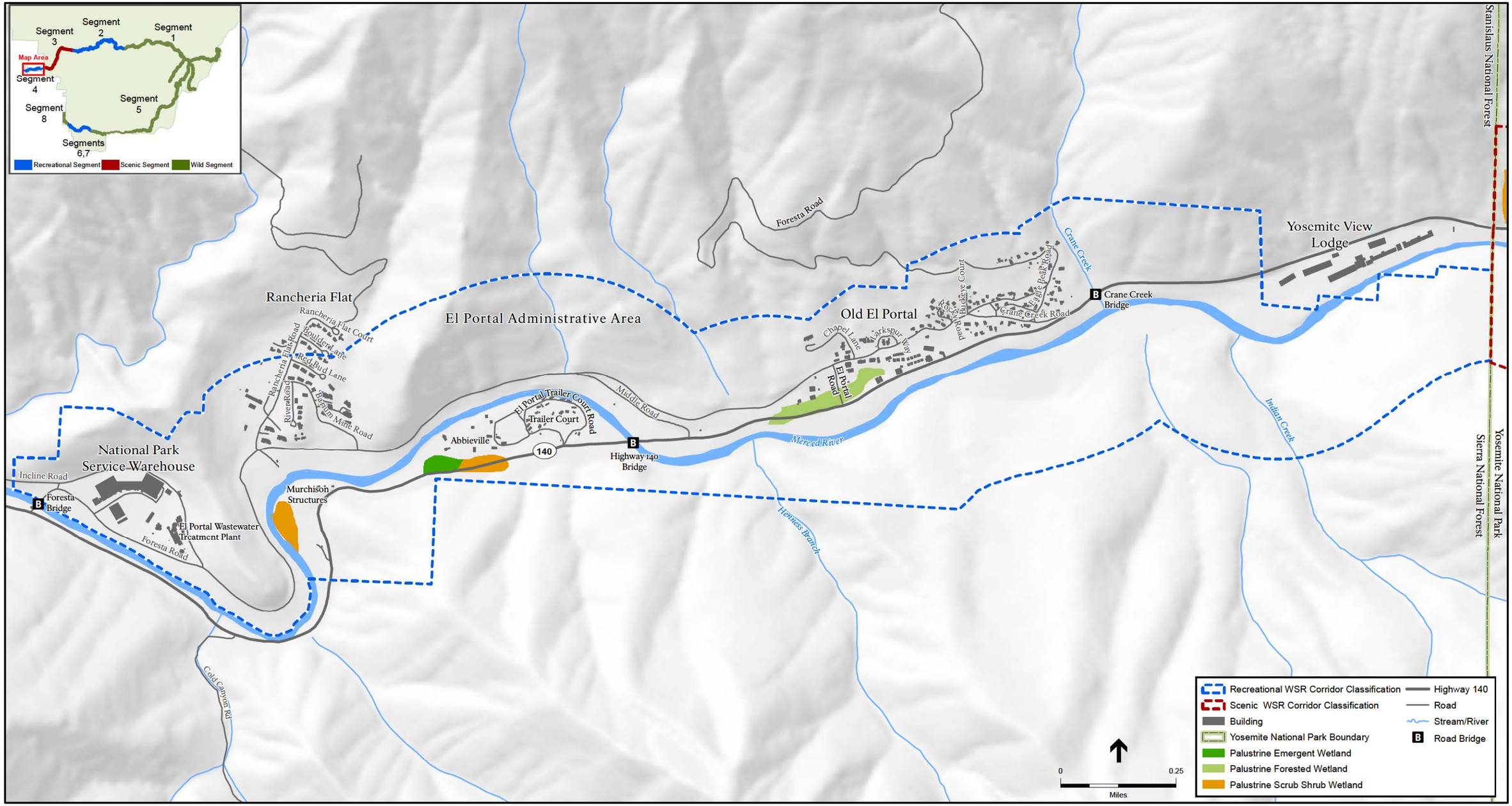
Figure O-5

Segment 3 - Merced Gorge Wetlands



SOURCE: NPS, 1997, 2011

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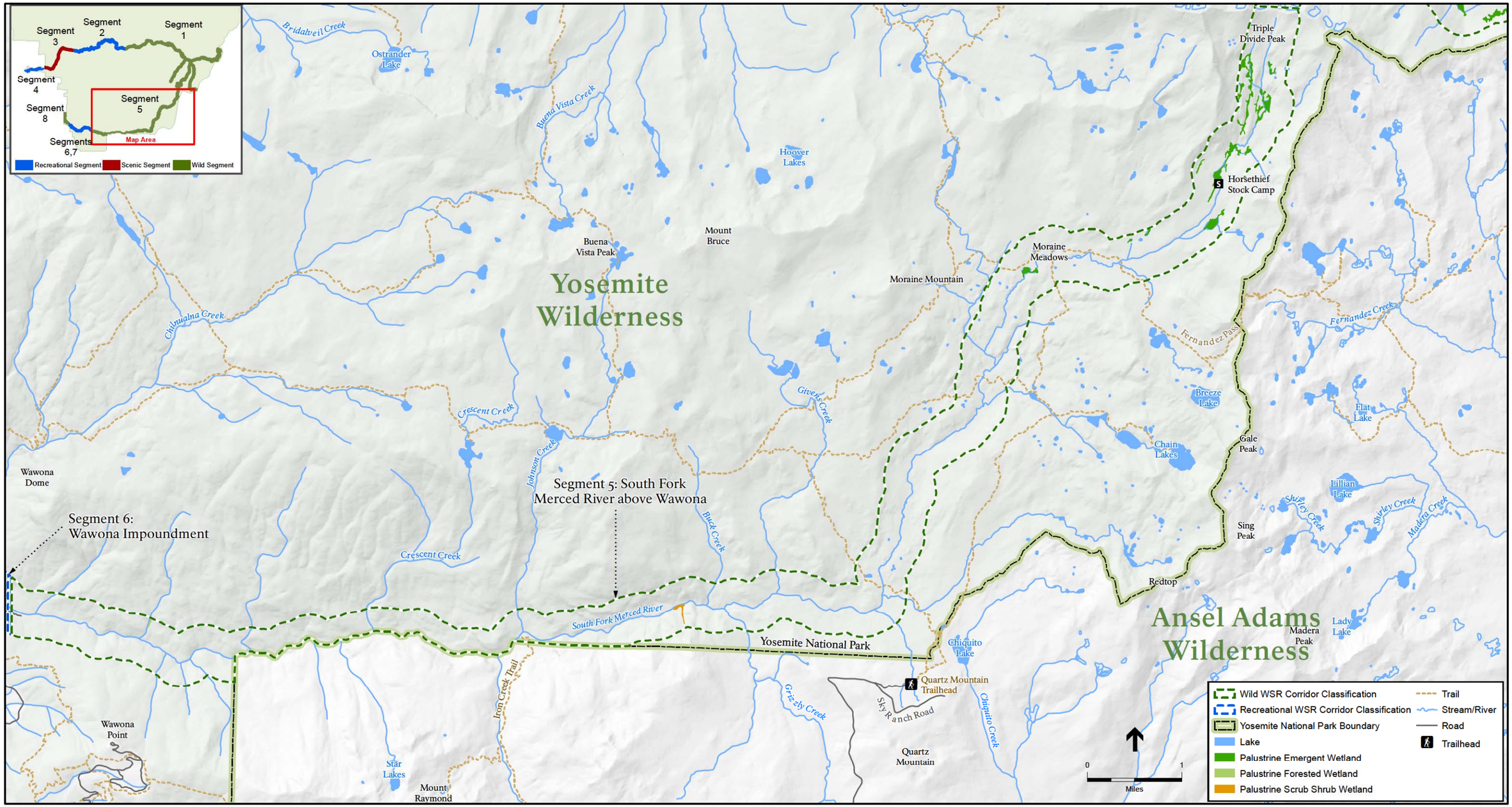
Figure O-6

Segment 4 – El Portal Wetlands

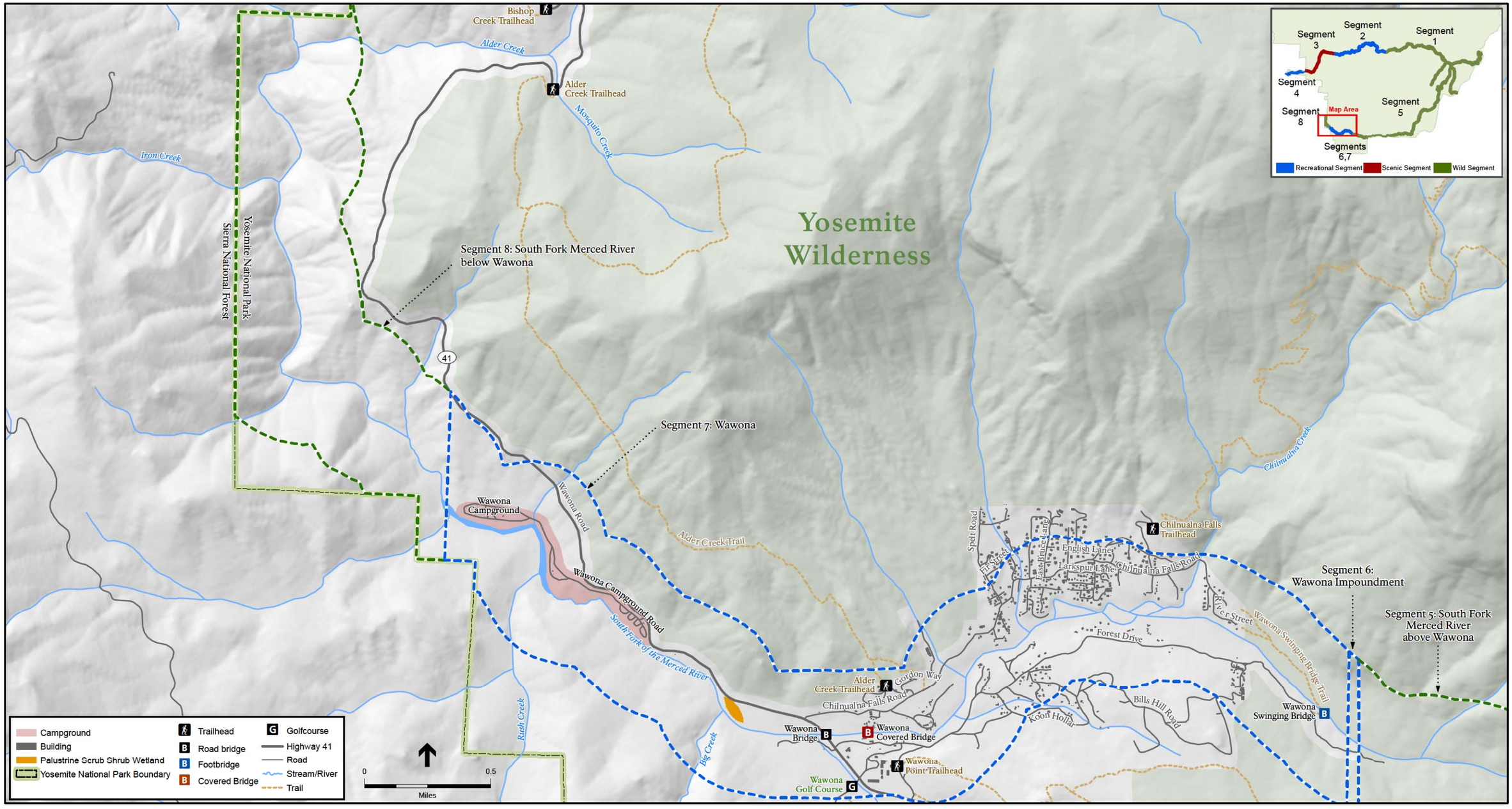


SOURCE: NPS, 1997, 2011

Merced River Comprehensive Management Plan and EIS . 210436

Figure O-7

Segment 5 - South Fork Merced River Above Wawona Wetlands



SOURCE: NPS, 1997, 2011

Merced River Comprehensive Management Plan and EIS . 210436

Figure O-8

Segments 6,7, and 8 - Wawona Impoundment, Wawona, and the South Fork Merced River Below Wawona Wetlands

The U.S. Army Corps of Engineers (Corps) uses three wetland parameters to define wetlands for regulatory purposes: hydrophytic vegetation, hydric soil, and wetland hydrology. When all three parameters are present, the wetland is considered a jurisdictional wetland. The Cowardin system defines more habitat types as wetlands than does the Corps definition as it recognizes many unvegetated sites (e.g., mudflats, stream shallows, saline lakeshores, playas) or sites lacking soil (e.g., rocky shores, gravel beaches) as wetland habitats if wetland hydrology is present. The reason these sites lack hydrophytic vegetation and/or hydric soil is due to natural chemical or physical factors. Although the Corps does not consider these sites to be wetlands, they are still subject to regulations under section 404 of the CWA as other waters of the United States. For purposes of this document, both Cowardin wetlands and waters of the United States as defined by the Corps are referred to as wetlands.

Wetland Characteristics

Specific wetland classes identified within the Merced River corridor include riverine (rivers, creeks, and streams), palustrine (shallow ponds, riparian wetlands, wet meadows, marshes), and lacustrine (lakes and ponds). Using the Cowardin classification system, specific wetland and deepwater classes within the Merced River corridor include:

- *Riverine upper perennial* – main channels of the Merced River and the South Fork Merced River (may be wetland or deepwater depending on depth)
- *Riverine intermittent* – intermittent tributaries to the Merced River and South Fork Merced River (wetlands)
- *Palustrine emergent* – emergent wetland habitat (marsh, meadow) along the Merced River and South Fork Merced River subject to various flooding regimes
- *Palustrine forested* – riparian forest wetland habitat along the Merced River and South Fork Merced River subject to various flooding regimes
- *Palustrine scrub shrub* – riparian scrub (e.g., willow) wetland habitat along the Merced River and South Fork Merced River and its tributaries subject to various flooding regimes
- *Lacustrine littoral* – shallow lake margins that are less than 2 meters deep at low water and have less than 30% vegetation cover*Lacustrine limnetic* – portions of lakes that are more than 2 meters deep at low water (e.g., Merced Lake, Washburn Lake) along the Merced River (deepwater habitat)

The following discussion provides general descriptions for each wetland class identified within the Merced River ecosystem.

Riverine Upper Perennial. Riverine upper perennial habitat within the corridor includes the open and flowing water of the Merced River and the South Fork Merced River. It is the permanently flooded rock-, cobble-, or sand-bottom channel with little to no in-stream vegetation. Occasional sandbars form within and at the channel edge and typically support willows and emergent (grasses and herbs) vegetation. Based on the NPS guidelines, the majority of the main stem of the Merced River and the South Fork Merced River would be classified as riverine upper perennial wetland. Channel portions that lie at a depth of 2

meters below low water would be considered deep water. The main channel of the Merced River and the South Fork Merced River would likely be considered as jurisdictional by the Corps under section 404 of the CWA, not as wetlands but as other waters of the United States.

Riverine Intermittent. Numerous riverine intermittent drainages (other waters of the United States) are tributary to the main stem Merced River and the South Fork Merced River. Almost all riverine intermittent drainages within the river corridor are classified as Cowardin wetlands and waters of the United States. These drainages often have a nonsoil substrate that is saturated and/or covered by shallow water at some time during the growing season. These wetlands are typically narrow and encompass the lowest portion of creekbeds. Very little wetland vegetation is found in these areas because of the intermittent nature of the flows within the drainage channels. All aboveground drainages within the river corridor are subject to the NPS protection policies under Executive Order 11990. These drainages are classified as other waters of the United States and would be subject to sections 401 and 404 of the CWA.

Palustrine Emergent. Palustrine emergent wetland habitat includes portions of alpine, subalpine, and montane meadows and seeps. These wetland soils are generally deep and peaty, remaining saturated year-round or on a seasonal basis. Vegetation is dominated by grasses, sedges, rushes, and perennial herbs. The meadow wetlands in Yosemite National Park play a particularly critical role in the Merced River ecosystem. High spring flows create wet areas in side channels, low-lying wetlands, meadows, and cutoff channels. These areas support the concentration of organic matter, nutrients, microorganisms, and aquatic invertebrates throughout the relatively dry summer. When the flush of winter or spring flooding occurs, this stored aquatic biomass is washed into the main river channel, forming the base of the aquatic food chain. Examples of palustrine wetlands include portions of Cook's Meadow and meadows adjacent to Washburn and Merced Lakes. These meadow portions are considered wetlands under the Cowardin system, and portions of meadows may also meet the Corps' wetland criteria. Delineated palustrine emergent wetlands are subject to the NPS protection policies under Executive Order 11990 and section 404 of the CWA.

Palustrine Forested. Palustrine forested wetlands are the riparian forest habitats along the main stem of the Merced River and South Fork Merced River that are regularly inundated by normal high-water or flood flows. Palustrine forests within the upper reaches of the main stem of the Merced River and South Fork Merced River consist mainly of evergreen pines and firs, with occasional aspens. In Yosemite Valley, where the river is broad, shallow, and slow-moving, deciduous cottonwoods, willows, and alders dominate the riparian corridor. Substrate under the palustrine forest community varies from rock, gravel, sand, clays, loams, and mud. These areas are classified as either wetland or other waters of the United States by the Corps, depending on site-specific vegetation, soils, and hydrologic conditions, and would be subject to section 401 and/or 404 of the CWA.

Palustrine Scrub Shrub. This habitat type occurs sporadically along the banks of the main stem of the Merced River, the South Fork Merced River, and at lake margins. It is regularly inundated by normal high-water or flood flows. This habitat is dominated by various willows and often intergrades with meadow (palustrine emergent) and riparian (palustrine forest) communities. These communities are typically considered wetlands under the Cowardin system, would be subject to the NPS protection policies under Executive Order 11990, and typically meet the Corps' wetland criteria. These areas may

meet the Corps' criteria of a wetland or other waters of the United States, depending on site-specific vegetation, soils, and hydrologic conditions, and may be subject to sections 401 and/or 404 of the CWA.

Lacustrine Littoral. Lacustrine littoral includes all wetland habitats within a lacustrine system. This classification extends from the shoreward boundary of the system to a depth of 2 meters below low water or to the maximum extent of emergent vegetation. These habitats are adjacent to deep-water lakes and reservoirs along the Merced River. These communities are typically considered wetlands under the Cowardin system, would be subject to the NPS protection policies under Executive Order 11990, and may meet the Corps' wetland criteria, depending on site-specific vegetation, soils, and hydrologic conditions, and may be subject to sections 401 and/or 404 of the CWA.

Lacustrine Limnetic. Lacustrine limnetic refers to deepwater lakes and reservoirs, such as Merced and Washburn lakes. Both lakes were formed along the Merced River by glacial activity. In-lake vegetation is typically limited to rooted aquatic grasses, floating vascular plants, and algae. Meadow (palustrine emergent) and riparian (palustrine forest and palustrine scrub shrub) communities generally border lake margins.

These lakes provide important habitat for fish, amphibians, reptiles, and other aquatic species. Substrate varies from rock, gravel, sand, and mud. Lacustrine limnetic (deepwater lakes and ponds) are classified as deepwater habitat based on the Cowardin system. These areas are typically classified as other waters of the United States by the Corps and would be subject to regulation under section 404 of the CWA.

Segment Descriptions

The characteristics of the individual segments within the Merced River corridor, including vegetation, connectivity and integrity have been summarized from the Draft EIS below.

Segment 1: Merced River Above Nevada Fall

Numerous small wetland meadows and adjacent riparian habitat are present in the upper Wilderness reaches of the Merced River corridor above Nevada Fall. These high-elevation meadows typically occur on fine-textured, permanently to semi-permanently wet soils generally associated with perennial streams, seeps, lake margins, or depressions. Vegetation consists of low-growing, native, tussock-forming grasses, sedges, rushes, and perennial herbs. Merced and Washburn lakes were formed where the Merced River canyon was carved by glaciers. In-lake vegetation is typically limited to rooted aquatic grasses, floating vascular plants, and algae. Meadow communities border lake margins. These wetland plant communities are hydrologically driven by the groundwater and flooding regime of the Merced River.

Much of the Merced River above Nevada Fall is bordered by a narrow riparian zone influenced by stream gradient, slope, sedimentation, and aspect. High-elevation tributaries to the Merced River are sparsely vegetated with scattered patches of alpine riparian scrub and alpine willow thickets. As the river descends and the gradient becomes gentler, lodgepole pines, aspens (*Populus tremuloides*), willows (*Salix* spp.), and alders (*Alnus* spp.) become more prevalent. Riparian communities of the upper Merced River are generally intact, except in a few locations where human use is intense.

Segment 2: Yosemite Valley

Wetlands in Yosemite Valley are formed in low-gradient land adjacent to the Merced River, its tributaries, or other bodies of water that are, at least periodically, influenced by flooding or high water tables. Wetlands within Yosemite Valley have undergone systematic alteration since the middle of the 19th century as they were grazed, farmed, and used as recreational sites and corridors for travel. Other alterations that took place in the early 20th century include drainage ditches that were constructed to dewater wet meadows to reduce mosquito breeding areas and provide open land for grazing and agriculture. Many of these drainage ditches have not been filled in and continue to dewater wet meadows in Yosemite Valley. Road construction has involved drainage measures and diversion of surface water adjacent to many of the valley's wetlands. This wetland complex was formerly much more interrelated and contiguous but has been fragmented by roads, trails, and infrastructure.

Riparian zones in Yosemite Valley extend outward from bank edges of the Merced River and its tributaries into adjacent meadow and forest communities. Situated at the interface between terrestrial and aquatic ecosystems, the riparian zone acts to buffer hydrology and erosional cycles, control and regulate biogeochemical cycles of nitrogen and other key nutrients, limit fire movements, and create unique microclimates for animal species. Riparian zones in Yosemite Valley are characterized by broadleaf deciduous trees, such as white alder (*Alnus rhombifolia)*, black cottonwood (*Populus trichocarpa*), big-leaf maple *(Acer macrophyllum)*, white fir, and willow species. Riparian vegetation is regularly disturbed by the deposition and removal of soil and the force of floodwaters. Plants in this zone colonize newly formed river-edge deposits readily. The distribution of riparian communities varies with soil saturation and frequency of disturbance.

Primary stressors on the condition of riparian habitats along the Merced River are related to high recreation use, channel stabilization measures, and dewatering due to infrastructure. Water, wastewater and electric lines and other utility infrastructure are located throughout Yosemite Valley (Segment 2), including some within wetland areas. Restoration efforts (prescribed burns, invasive plant eradication, fencing, and increasing inundation levels through restoration of natural drainage patterns, among others) have generally been successful at improving the overall condition of the Valley's riparian communities. However, certain riparian areas within the Valley continue to experience vegetation trampling and bank erosion from heavy recreation use. Additional riparian vegetation impacts are occurring along reaches that have been armored by revetments or other defensive structures for the protection of structures (i.e., bridges).

Segment 3 and 4: Merced Gorge and El Portal

As the Merced River cascades through the gorge, the channel gradient and bank slopes steepen, the river channel narrows, and the floodplains become considerably smaller than those of the Yosemite Valley. The steep gradient, combined with the boulders and cobbles of the riverbed and bank, forms a series of continuous rapids between Yosemite Valley and El Portal. The Merced River gorge is lined with a narrow band of riparian vegetation along the river course.

Flooding has been an important aspect of the development of riparian communities along the Merced River and its tributaries that intersect drier adjacent vegetation types of El Portal. Localized seasonal

flooding creates debris dams in tributary channels, thus furthering a diversity of scour and depositional soils for riparian species. On the Merced River, natural flooding and vegetative patterns are influenced by the construction of levees and application of riprap to confine the river. These structures have destroyed riparian vegetation and have limited their reestablishment in some places.

In the El Portal area, riparian communities occur along tributaries of the Merced River, on flat topographical shaded terraces above the river, in backwater channels, and in areas where runoff from upland sites collects in natural depressions. Native Oregon ash (*Fraxinus latifolia*), willow, and Fremont cottonwood (*Populus fremontii* ssp. *fremontii*) trees occur in the wetter areas, as well as orchard components in some locations. Foothill pines and valley oaks tend to dominate the drier terraces adjacent to riparian sites.

Oxbows, river terraces, and seasonal river channels were a part of the riparian wetlands of the area, but have been affected by early to mid-20th century development in what is now the El Portal Administrative Site. Many of the sites that would be characterized as palustrine have been affected to some degree. The remaining wetland areas that appear on the USFWS (1995) wetland inventory are riverine perennial wetlands and are in proximity to the Merced River or other stream drainages. Direct human intrusion into the riparian areas of this river zone, especially to the south, is minimal because of the topography and difficulty of access.

Segment 5 and 8: South Fork Merced River Above and Below Wawona

From its headwaters, the South Fork Merced River flows west at a relatively consistent but steep gradient through a glaciated alpine environment and then enters a V-shaped, unglaciated river valley. The upper South Fork supports limited riparian vegetation, primarily due to steep topography and high-velocity flows. The steep gradients along the upper and lower South Fork Merced River are not conducive to the establishment of an extensive riparian zone. Typical riparian species — willow, alder, aspen, and maple — are restricted to a narrow fringe along the river. High-elevation tributaries to the South Fork Merced River are either unvegetated, high-velocity, and rocky in nature or are only sparsely vegetated. Subalpine meadows along the South Fork Merced River are similar in composition to those described for the upper main stem of the Merced River. Vegetation in alpine lakes is typically limited to rooted aquatic grasses, floating vascular plants, and algae. The upper South Fork is generally pristine and remains virtually undisturbed by human-related effects. The steep gradient below Wawona along the South Fork prevents the establishment of an extensive riparian zone. The limited riparian vegetation along the lower reach remains relatively untouched by human intrusion.

Segment 6 and 7: Wawona

In the Wawona area, the Merced River meanders through a large floodplain meadow (part of a deep alluvial valley) and has substantial gravel bars within the channel. As the river descends and the gradient becomes gentler, riparian vegetation (willows and alders) becomes more prevalent. Willows often colonize sandbars that are deposited at the margins of or within the river channel. In this area, the riparian corridor resembles the riparian corridor seen along the Merced River as it flows through Yosemite Valley. As with certain points within Yosemite Valley, trampling of riparian vegetation and associated erosion does occur in this area, resulting from heavy use in the vicinity of the Wawona Campground.

THE PREFERRED ACTION IN THE MERCED RIVER PLAN

The Preferred Alternative of the *Merced River Plan/DEIS* would include significant restoration within 100 feet of the river and in meadow and riparian areas, maintaining daily visitation in Yosemite Valley to accommodate the same peak levels observed in recent years, reducing unnecessary facilities and services, and converting facilities from administrative use to public use where feasible. Alternative 5 envisions broad ecological restoration goals, including essential restoration of riverbanks and meadow and riparian habitat. Proposed restoration actions are feasible and achievable, and leverage engineering and design features to enhance meadow and floodplain connectivity and free-flowing condition. Much of the development footprint within 100 feet of the river is removed corridorwide. Targeted infrastructure within the bed and banks of the river is removed, and those areas ecologically restored.

Actions to manage visitor use and facilities under Alternative 5, specifically those concerning vehicle access and overnight accommodations, would result in a 2% increase in lodging accommodations. The campsite inventory would increase by 29% in the Merced River corridor and 37% in Yosemite Valley. All campsites within 100 feet of the river would be removed. Campsite losses would be offset with the addition of new camping adjacent to Upper Pines Campground and east of the Camp 4 Campground, as well as new sites west of Backpackers Campground, in the former Upper River Campground area, and east of El Capitan Picnic Area at Eagle Creek. Under Alternative 5, there would be a net increase of 13% in Yosemite Valley overnight use. This would largely result from the increase in units at Curry Village. Management actions related to lodging would focus on removing lodging from the ordinary high water mark and Housekeeping Camp, and slightly reducing lodging in wilderness. Tent cabins in the Boys Town area would be replaced with hard-sided lodging in Curry Village to increase the availability of year-round accommodations.

Alternative 5 would restore approximately 203 acres of vegetation, including 40.52 acres of wetlands, as a result of actions common to Alternatives 2-6 in conjunction with actions specific to Alternative 5. Actions to manage visitor use and facilities would result in the loss of approximately 36.89 acres of vegetation and 2.67 acres of wetlands as a result of actions specific to Alternative 5.

For a detailed description of the Preferred Alternative, refer to Vol. I, Chapter 8 of the *Draft Merced River Plan/DEIS* (NPS 2012).

ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION ON WETLANDS

The purpose of the Merced River Plan is to provide a comprehensive management plan for the protection of the Merced River's free-flowing condition, water quality, and the values that make the river worthy of designation. The preferred alternative, Alternative 5: Enhanced Visitor Experiences and Essential Riverbank Restoration, includes management action in Segments 1-8 of the Merced River corridor which would affect wetlands. Though the overall impact would be long-term and beneficial, some localized actions would have an adverse impact on wetlands. A more detailed description of Alternative 5 is included in the "Alternatives" (Chapter 8) of the *Merced River Plan/DEIS*. The following is a summary of actions that could have an effect on wetlands. A summary of cumulative impacts follows.

Proposed New Development in the Preferred Alternative of the *Merced River Plan/DEIS*

Segment 2: Yosemite Valley

Construction activities associated with new development in Segment 2 would result in direct, temporary and permanent losses of native vegetation as well as the redevelopment of existing developed areas. Outside of previously developed areas, the majority of new development in Segment 2 would occur in upland habitats and would not directly impact wetlands. However, direct impacts to wetlands would occur at Curry Village, Yosemite Village Day-use Parking Area, and Yosemite Lodge and Camp 4 (see **figures O-9** through **O-12** and **table O-2**). Construction activities at Curry Village would result in direct, permanent losses of federally protected wetlands. Impacts to wetlands would occur in palustrine emergent wetlands associated with Stoneman Meadow and intermittent channels flowing through the area. Approximately 0.06 acres of potentially jurisdictional wetland features would be directly and permanently impacted by the resigned overnight visitor accommodations at Boys Town in Curry Village under Alternative 5. Construction activities at the Yosemite Village Day-use Parking Area would result in direct, temporary and permanent losses of federally protected wetlands. Impacts to wetlands would occur in palustrine emergent wetlands located adjacent to the Northside Drive and Sentinel Crossover intersection, palustrine forested wetlands associated with the Merced River, and intermittent channels flowing through the area. Approximately 2.56 acres of potentially jurisdictional wetland features would be directly and permanently impacted by the redesign of the Yosemite Village Day-use Parking Area and associated intersection and roadway improvements by the proposed actions under Alternative 5. Construction activities at Yosemite Lodge and Camp 4 would result in direct, permanent losses of federally protected wetlands. Impacts to wetlands would occur in palustrine emergent wetlands and along the Merced River and in intermittent channels flowing through the area. Approximately 0.05 acres of potentially jurisdictional wetland features would be directly and permanently impacted by the Yosemite Lodge Parking Area and replacement of temporary housing at Highland Court with new permanent housing under Alternative 5.

TABLE O-2: SUMMARY OF WETLAND IMPACTS IN SEGMENT 2 – ALTERNATIVE 5

Wetland Type	Curry Village	Camp 6 and Yosemite Village	Yosemite Lodge and Camp 4	Total
Palustrine Emergent	0.04	1.21	0.01	1.26
Palustrine Forested	0	0.96	0	0.96
Riverine Intermittent	0.02	0.39	0.03	0.44
Riverine Perennial	0	0	0.01	0.01
SOURCE: NPS 2012c				

Losses to these wetlands would occur through site clearing, filling, grading, and subsequent development. Wetlands that cannot be avoided and would be permanently filled must be compensated to result in “no net loss” of wetlands. Adherence to proposed best management practices and

mitigation measures, and avoidance of wetlands during construction where possible, would reduce direct impacts to wetlands to local, long-term, moderate and adverse.

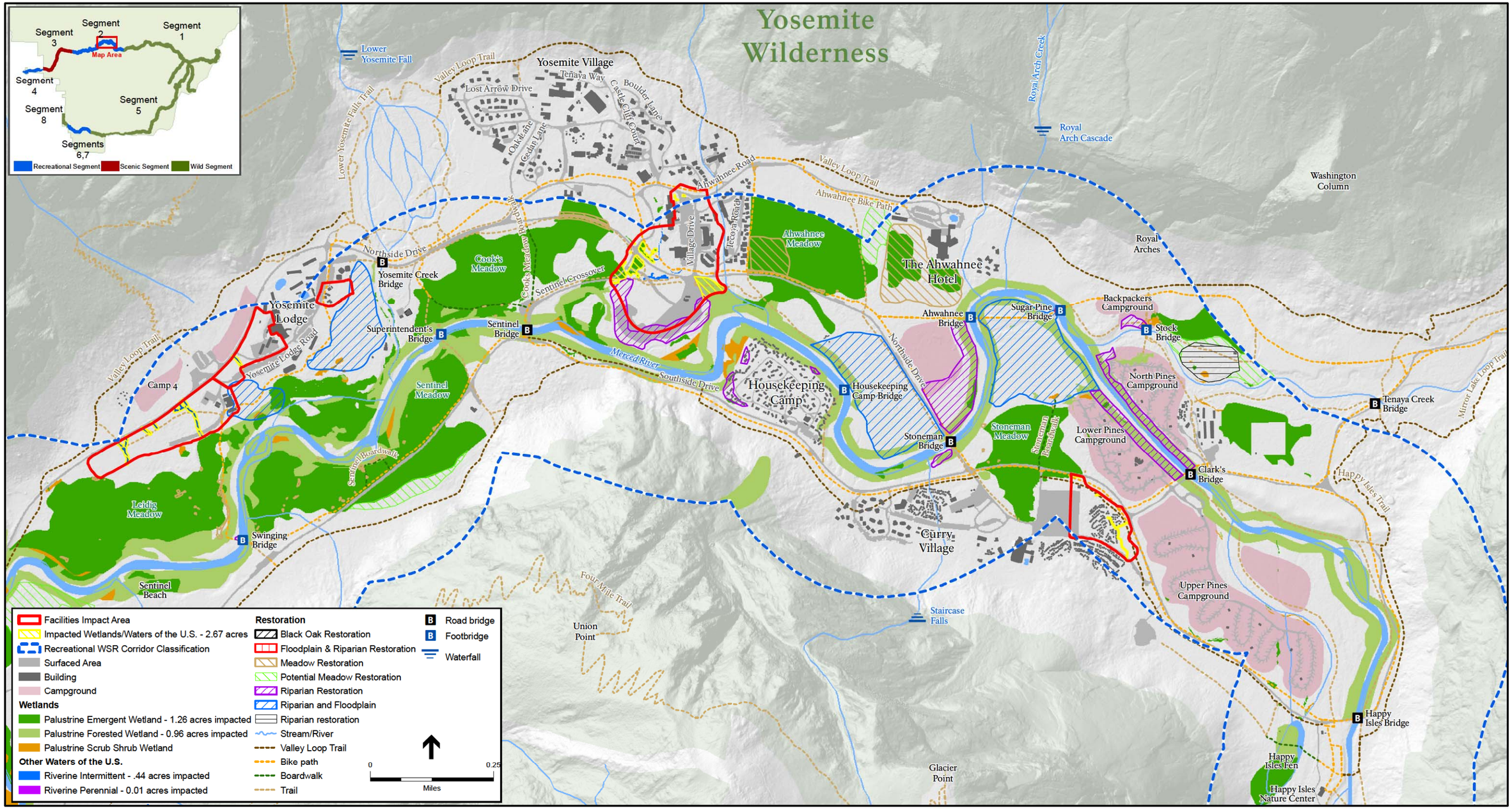
Construction activities associated with new development in Segment 2 may also generate indirect impacts to wetlands. Construction would involve activities such as grading and excavation that would generate loose, erodible soils. These activities could result in substantial erosion off-site to adjacent wetlands, resulting in decreases in water quality due to sedimentation. Other indirect impacts include potential modifications to flow, circulation, hydroperiod, or other aspects of the hydrologic regime; human intrusion into wetlands; and temporary impacts to wetlands. However, post-construction, temporarily impacted areas would be restored. Adherence to proposed best management practices and mitigation measures, and avoidance of wetlands during construction where possible, would reduce indirect impacts to wetlands to local, long-term, minor and adverse.

Segment 4: El Portal

Construction activities associated with new development in Segment 4 would result in direct, temporary and permanent losses of native vegetation as well as the redevelopment of existing developed areas. Outside of previously developed areas, new development in Segment 4 would occur in upland habitats and would not directly impact wetlands. However, construction activities associated with the El Portal Remote Visitor Parking, the removal of Odger's Fuel Storage Facility, and restoration of the Greenemeyer Sandpit may generate indirect impacts to wetlands. Construction would involve activities such as grading, excavation, and demolition that would generate loose, erodible soils. These activities could result in substantial erosion off-site to adjacent wetlands, resulting in decreases in water quality due to sedimentation. Other indirect impacts include potential modifications to flow, circulation, hydroperiod, or other aspects of the hydrologic regime; human intrusion into wetlands; and temporary impacts to wetlands. However, post-construction, temporarily impacted areas would be restored. Adherence to proposed best management practices and mitigation measures, and avoidance of wetlands during construction where possible, would reduce indirect impacts to wetlands to local, long-term, minor and adverse.

Segment 7: Wawona

Construction activities associated with new development in Segment 7 would result in direct, temporary and permanent losses of native vegetation as well as the redevelopment of existing developed areas. Outside of previously developed areas, new development in Segment 7 would occur in upland habitats and would not directly impact wetlands. However, construction activities associated with new development in Segment 7 may generate indirect impacts to channels and waters of the US. Construction would involve activities such as grading and excavation that would generate loose, erodible soils. These activities could result in substantial erosion off-site to adjacent wetlands, resulting in decreases in water quality due to sedimentation. Other indirect impacts include potential modifications to flow, circulation, hydroperiod, or other aspects of the hydrologic regime; human intrusion into wetlands; and temporary impacts to wetlands. However, post-construction, temporarily impacted areas would be restored. Adherence to proposed best management practices and mitigation measures, and avoidance of wetlands during construction where possible, would reduce indirect impacts to wetlands to local, long-term, minor and adverse.



SOURCE: NPS, 1997, 2006, 2010, 2011

Merced River Comprehensive Management Plan and EIS . 210436

Figure O-9

Segment 2 - Overview of Preferred Alternative Wetland Impacts

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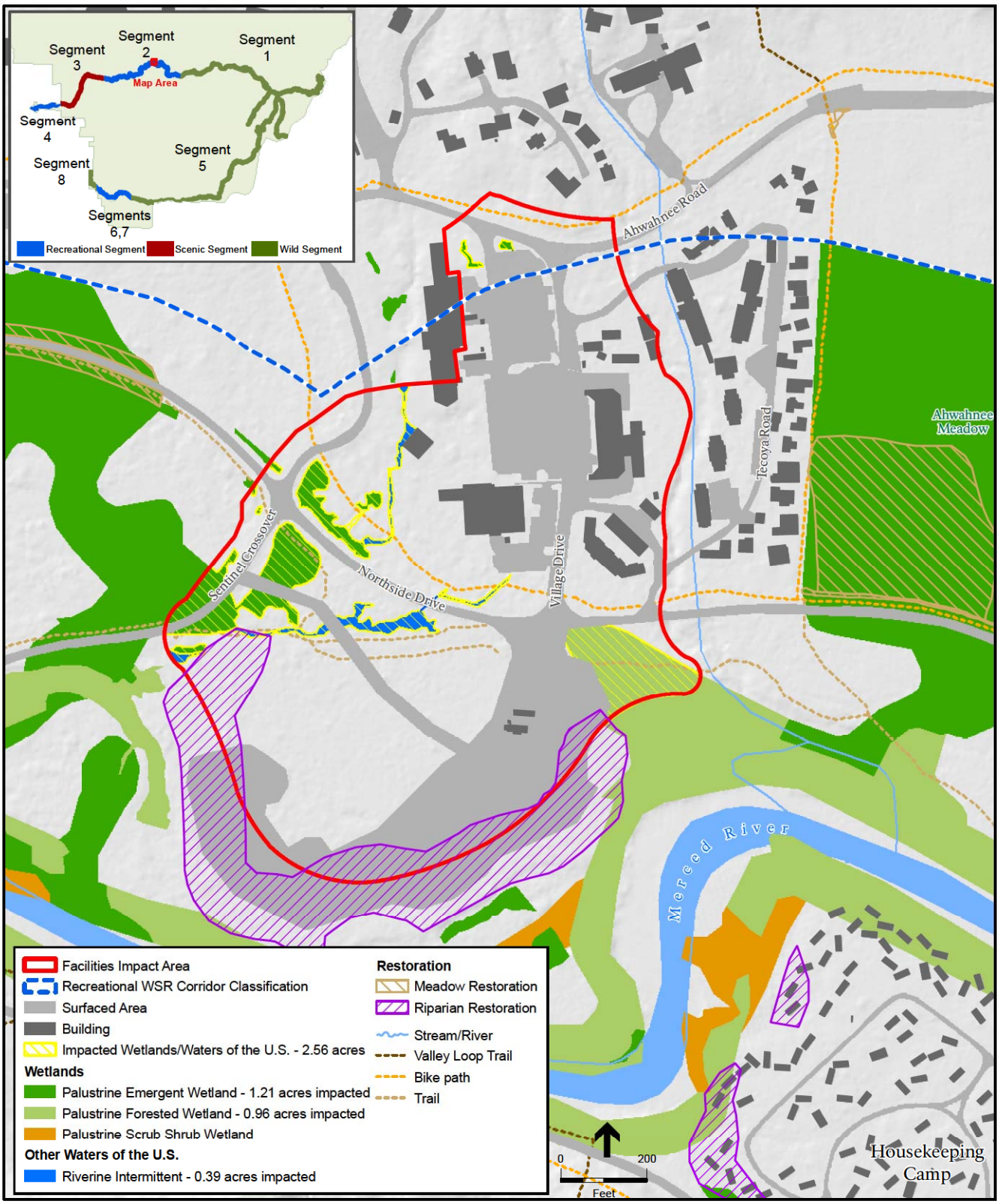
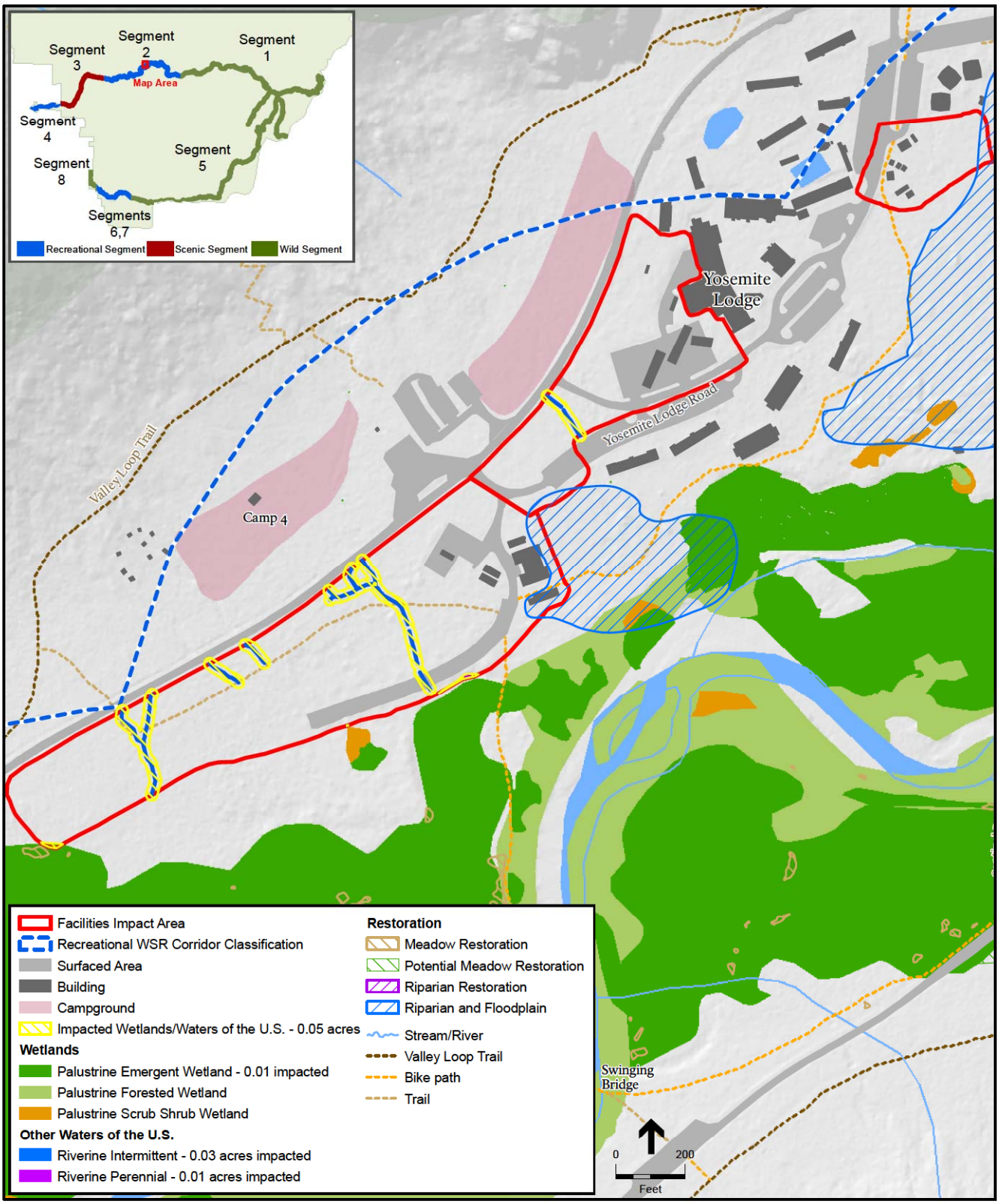


SOURCE: NPS, 1997, 2006, 2010, 2011

Merced River Comprehensive Management Plan and EIS . 210436

Figure O-10

Segment 2 - Preferred Alternative Camp 6 and Yosemite Village Wetland Impacts



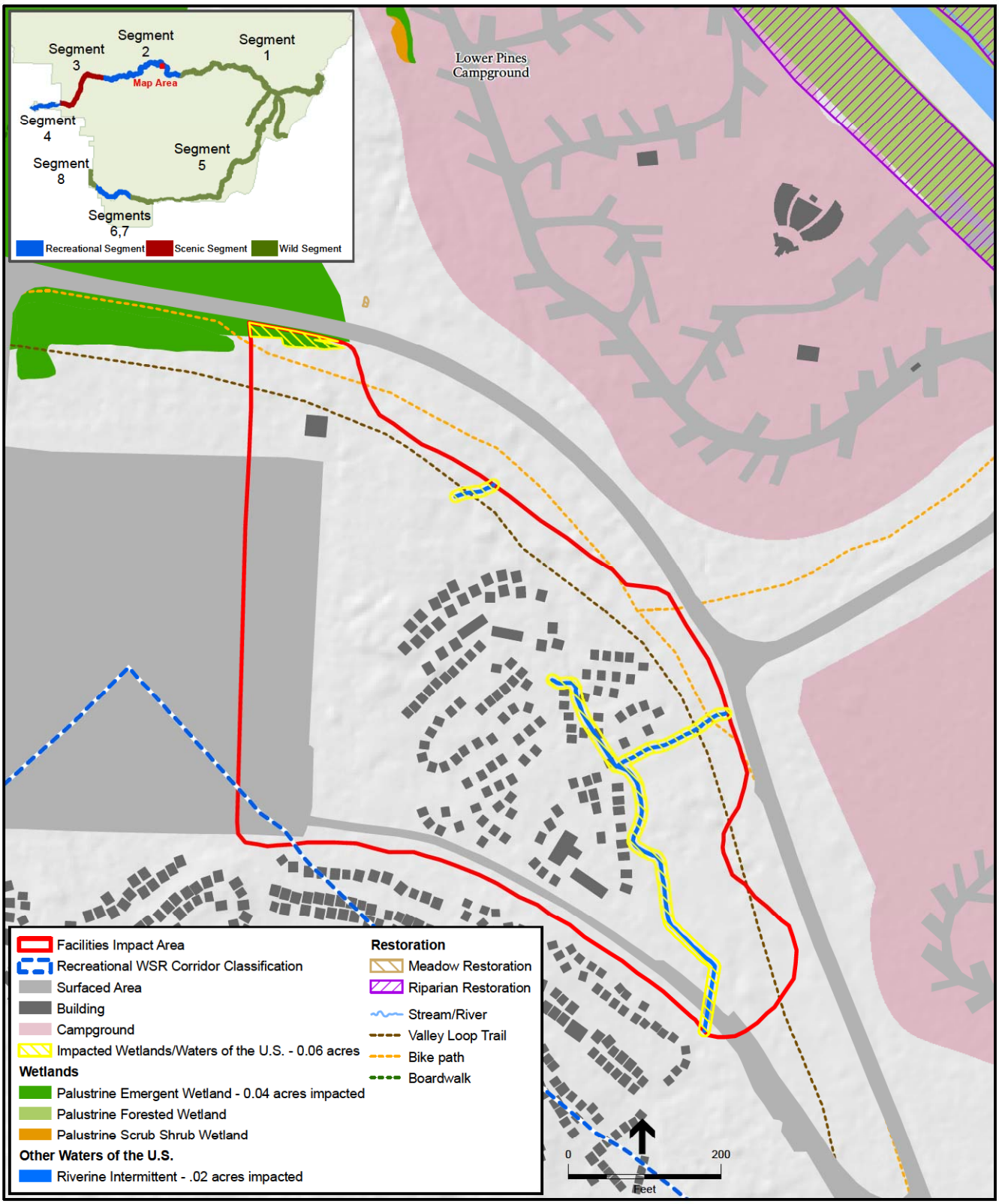
SOURCE: NPS, 1997, 2006, 2010, 2011

Merced River Comprehensive Management Plan and EIS . 210436

Figure O-11

Segment 2 - Preferred Alternative

Yosemite Lodge and Camp 4 Wetland Impacts



SOURCE: NPS, 1997, 2006, 2010, 2011

Merced River Comprehensive Management Plan and EIS . 210436

Figure O-12

Segment 2 - Preferred Alternative
Curry Village Wetland Impacts

Restoration

Proposed restoration management actions under Alternative 5 would improve hydrologic function and restore ecological integrity of the Merced River corridor, including associated plant communities and wetlands. Management actions under Alternative 5 would result in the restoration of approximately 40.52 acres of wetlands in Segments 2 and 4, which represents a corridorwide, long-term, moderate, beneficial impacts on wetlands.

The primary components which would benefit wetlands in all segments (Segments 1-8) in the long-term include the following:

- *Removal of Abandoned Infrastructure* – Abandoned underground infrastructure would be removed that alters hydrology, including remnants of abandoned sewer treatment facilities, sewer and water lines, and manholes. This infrastructure currently contributes to dewatering of meadows and wetlands, and alteration of the natural hydrologic regime of the Merced River. Areas of removed infrastructure would be restored to natural conditions, including revegetation with native plants.

- *Restoration of Eroded and Vulnerable Riverbanks* – Areas with denuded vegetation and areas susceptible to erosion would be stabilized and revegetated with native plants. Re-vegetated areas would be protected using closure signs, fencing, and/or other natural barriers such as rocks and logs as deterrents.

- *Protection of the Riparian Zone* – The riparian zone would be protected from new development within 150' from the ordinary high water mark. Campsites within 100' feet of the ordinary high water mark would be removed or relocated.

- *Removal and Replacement of Riprap* –Riprap would be removed where possible to restore natural river processes. Riprap would be replaced with native riparian vegetation, using bioengineering techniques if riverbank stabilization is still necessary for infrastructure protection.

- *Addressing Trails in Sensitive Habitat* – Trails would be rerouted out of sensitive habitats or boardwalks would be installed through wetlands. New trail routes should avoid wetlands and special status habitat.

In Segment 1, additional actions include requiring administrative pack stock to feed on pellet feed that is packed into the site instead of allowing pack stock to graze in meadow areas. This would help protect meadow vegetation from high levels of grazing by reducing the level of vegetation trampling by administrative pack stock and reducing the dispersal of manure and roll pits.

In Segment 2, the location of some roads and trails bisect or otherwise cross through meadows and cause fragmentation, soil compaction, and vegetation trampling of Valley meadows. Additionally, these roads and trails limit or disrupt meadow hydrologic connectivity. To address these issues, fill would be removed from wetlands and sensitive areas at the Ahwahnee Meadow, boardwalks would be installed in wet areas, and culverts would be added to improve hydrologic connectivity. Stoneman Meadow would be restored by removing roadside parking and unnatural fill material, and extending fencing to protect wetlands, and the Curry Orchard parking lot would be redesigned to promote water flow from the cliff walls to Stoneman Meadow. In addition, fencing would be installed along the

northern perimeter of El Capitan Meadow and boardwalks, and viewing platforms would be installed to reduce habitat fragmentation; boardwalks would be constructed at the Valley Loop Trail as well to reduce impacts on wet meadow habitat in Slaughterhouse Meadow. These actions would collectively improve meadow and wetland habitat integrity, and enhance contiguity of meadow habitats as well as hydrological connectivity between meadow, riparian, and floodplain habitats.

In Segment 4, the Greenemeyer Sandpit contains fill material that precludes natural flooding and regeneration of riparian plant communities. The Greenemeyer Sandpit would be restored to natural conditions. Fill material would be removed and the topography recontoured. Native riparian vegetation would be planted to restore the natural vegetation for the site. Abbieville and the Trailer Village contain impacts of former development, including paved roads and parking and compacted soils within 150 feet of the riverbanks. Asphalt and imported fill would be removed. The area would be recontoured and planted with native riparian species and oaks.

Overall, restoration activities have the potential to create localized, short-term, minor, adverse impacts. For example, construction activities associated with restoration management actions could result in damage to or removal of vegetation, and the potential introduction and spread of invasive nonnative species. However, restoration activities are anticipated to result in net long-term, beneficial impacts as natural ecological processes are restored.

FUNCTIONS AND VALUES

This section describes the functions and values of the wetland types impacted under Alternative 5: Palustrine emergent wetlands, palustrine forested wetlands, riverine intermittent wetlands, and riverine perennial wetlands. The following functions and values were evaluated based on those described in Procedural Manual #77-1:

- *Biotic functions,* including fish and wildlife habitat, plant productivity, native species, habitat diversity, threatened and endangered species;
- *Hydrologic functions,* including flood attenuation, streamflow maintenance, groundwater recharge and discharge, water supply, erosion and sediment control, water purification, and detrital export to downstream systems;
- *Cultural values,* including aesthetics, education, historical values, archaeological values, recreation, and interpretation;
- *Research/scientific values,* including potential references sites for scientific research; and
- *Economic values,* including flood protection, fisheries, and tourism.

Palustrine Habitats

Biotic Functions

The relatively dense layer of herbaceous vegetation in the palustrine emergent wetlands provides a variety of benefits for many wildlife species. In particular, the meadow communities provide foraging habitat for raptors and perennial range habitat for deer to bed and forage. The palustrine forested wetlands provide several benefits for wildlife species; specifically, it provides nesting and perching habitat for several species of birds, and leaf litter provides habitat for smaller animals. All the palustrine wetlands provide habitat for pollinators and other invertebrates.

Hydrologic Functions

Palustrine habitats could play an important role in flood attenuation and sediment retention. In addition, wetlands located below roads and other developed areas may serve to retain sediment and degrade nutrients before the runoff enters downstream systems.

Cultural Values

The palustrine habitats in the study area do not contain any known archaeological sites. Apparent cultural values inclue the significant aesthetic values that meadow and riparian wetlands provide, particularly in contrast to the steep, rocky walls of the valley. Interpretive guides and the meadow clearings that allow majestic views of the park have brought appreciation and awareness of wetlands to the millions of park visitors that have visited the area for decades.

Research/Scientific Values

Palustrine habitats, particularly emergent wetlands, provide rich opportunities for scientific research. Climate change, development, and vegetation management practices have caused changes in plant communities in the meadows. Such changes may be reflected in the floodplain sediments through charcoal debris and the pollen record, which may be amendable to scientific study.

Economic Values

For the reasons listed above, the palustrine habitats could provide significant economic value for flood protection, biological resources (in particular fisheries), and tourism.

Riverine Habitats

Biotic Functions

The Merced River provides a year-round water source for wildlife and habitat for fish and aquatic invertebrates. The intermittent channels provide a seasonal water source for wildlife and invertebrates.

Because the unconsolidated shore habitats lack vegetation and usually lack water, they may not provide significant habitat or food sources for wildlife.

Hydrologic Functions

The hydrologic functions of the Merced River are flood attenuation, streamflow maintenance, water supply, erosion control, sediment retention, water purification, and detrital export (including large woody debris) to downstream systems. Additionally, because of the coarse texture of the sediments that make up the Merced River channel, riverine habitats along the Merced River could offer some degree of groundwater recharge function. The intermittent channels are periodic water sources and therefore provide less function; however, they nevertheless contribute streamflow maintenance, water supply, erosion control, sediment retention, water purification, and detrital export to downstream systems.

Cultural Values

Because Native Americans are known to have focused some activities along streams, riverine habitats may provide archaeological value. Perennial channels also provide an aesthetic value. Visitors to the park enjoy the Merced River and engage in activities such as swimming, boating, fishing, and photography. The seasonal water flow and seasonal lack of vegetation in the intermittent channels limit the aesthetic value of these habitats.

Research/Scientific Values

The riverine habitats may provide opportunities for research in groundwater-vegetation relationships and in the effectiveness of riparian habitat restoration techniques.

Economic Values

For the reasons listed above, the riverine habitats could provide significant economic value for flood protection, biological resources (in particular fisheries), and tourism.

JUSTIFICATION

Alternatives Considered

The range of alternatives considered in the *Merced River Plan DEIS*, presented in the "Alternatives" (Chapter 8), include the No Action Alternative (Alternative 1), Self-Reliant Visitor Experiences and Extensive Floodplain Restoration (Alternative 2), Dispersed Visitor Experiences and Extensive Riverbank Restoration (Alternative 3), Resource-based Visitor Experiences and Targeted Riverbank Restoration (Alternative 4), and Diversified Visitor Experiences and Selective Riverbank Restoration (Alternative 6).

Alternative 1

Alternative 1 provides a baseline on which to compare impacts from Alternatives 2 through 6. However, with wetland impact minimization and various restoration measures included in the preferred alternative, Alternative 1 may not necessarily be less damaging overall to wetlands because it would forego numerous opportunities for restoration. Further, it does not accomplish the purpose of the project.

Alternative 2

The guiding principles of Alternative 2 include maximizing the restoration of the 100-year floodplain by removing infrastructure not essential to resource-related recreation, and creating a more self-reliant visitor experience, where less commercial services are available. Visitor-use levels are managed to allow for visitor experiences free of crowding or congestion. Alternative 2 would restore up to approximately 347 acres of vegetation, including 47.97 acres of wetlands, as a result of actions common to Alternatives 2-6 and those specific to Alternative 2. Actions to manage visitor use and facilities would result in the loss of approximately 32.37 acres of vegetation and the permanent loss of 2.87 acres of potentially jurisdictional wetlands as a result of actions specific to Alternative 2. This alternative includes large-scale wetland restoration actions including removal of the road through Stoneman Meadow, removal of Northside Drive through Ahwahnee Meadow, removal of parking outside the 10-year floodplain at the Yosemite Village Day Use Parking Area, the removal of roadside parking along Yosemite Valley meadows complete closure and ecological restoration of Housekeeping Camp, and the restoration of Wawona Golf Course to meadow habitat. These actions are possible when coupled with the decrease in daily Yosemite Valley visitation proposed under Alternative 2.

Alternative 3

The guiding principles of Alternative 3 include restoration of large portions of the floodplain and the riparian area within 150 feet of the river. This alternative accommodates much lower maximum visitor use levels than today, and offers fewer commercial services and facilities. Visitor use levels are managed to allow for dispersed visitor experiences free of crowding or congestion. Alternative 3 would restore approximately 302 acres of vegetation, including 46.79 acres of wetlands, as a result of actions common to Alternatives 2-6 in conjunction with actions specific to Alternative 3. Actions to manage visitor use and facilities would result in the loss of approximately 31.66 acres of vegetation and the permanent loss of 2.75 acres of potentially jurisdictional wetlands as a result of actions specific to Alternative 3. This alternative includes robust wetland restoration actions including removal of the road through Stoneman Meadow, removal of Northside Drive through Ahwahnee Meadow, removal of parking outside the 10-year floodplain at the Yosemite Village Day Use Parking Area, the removal of roadside parking along Yosemite Valley meadows and the restoration of Wawona Golf Course to meadow habitat.

Alternative 4

The guiding principles of Alternative 4 include restoration of portions of the floodplain and the riparian area within 150 feet of the river. This alternative focuses on providing only those commercial services and facilities that facilitate resource-based visitor experiences. It accommodates lower maximum visitor

use levels than today, with large increase in overnight camping capacity and moderate decreases in the overnight lodging capacity. Alternative 4 would restore approximately 223 acres of vegetation, including 44.57 acres of wetlands, as a result of actions common to Alternatives 2-6 and those specific to Alternative 4. Actions to manage visitor use and facilities would result in the loss of approximately 34.57 acres of vegetation and the permanent loss of 2.67 acres of potentially jurisdictional wetlands as a result of actions specific to Alternative 4. This alternative includes targeted wetland restoration actions including removal of the road through Stoneman Meadow, removal of parking 150 feet away from the river at the Yosemite Village Day Use Parking Area, and the removal of roadside parking along Yosemite Valley meadows.

Alternative 6

The guiding principles of Alternative 6 include limited restoration within 100 feet of the river and in meadow and riparian areas, infrastructure improvements to accommodate growth in peak daily visitation in Yosemite Valley, and expansion of facilities and services to allow for diversified visitor experiences. Alternative 6 would restore approximately 170 acres of vegetation, including 37.37 acres of wetlands, as a result of actions common to Alternatives 2-6 and those specific to Alternative 6. Actions to manage visitor use and facilities would result in the loss of approximately 36.89 acres of vegetation and the permanent loss of 2.67 acres of potentially jurisdictional wetlands as a result of actions specific to Alternative 6. This alternative includes focused wetland restoration actions including removal of parking 150 feet away from the river at the Yosemite Village Day-use Parking Area and the removal of roadside parking along Yosemite Valley meadows.

Nonwetland Alternatives to the Proposed Action

The *Merced River Plan/DEIS* involves comprehensive management within the Merced River corridor, which includes riverine, palustrine and lacustrine habitat. The purpose of the Merced River Plan is to provide a comprehensive management plan for the protection of the Merced River's free-flowing condition, water quality, and the values that make the river worthy of designation. There are no alternatives to the proposed action that could be located outside the floodplain or wetland and aquatic habitat of the Merced River corridor, as the plan is focused upon enhancements to aquatic habitats.

Design or Modifications to Minimize Harm to Wetlands

Mitigation Measures

A full list of mitigation measures prescribed for the *Merced River Plan/DEIS* are outlined in Appendix C. Mitigation measures specific to wetland resources are summarized below. The National Park Service (and its contractors) shall implement the following mitigation measures, as appropriate, prior to, during, and/or after construction activities. Specific tasks would include, but are not limited to, the following:

Hydrology and Water Quality

- **MM-HYD-1.** Contractor shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) that designates construction best management practices to be used to control the sources of fine sediment and to capture and filter it before entering the river. The SWPPP shall define the characteristics of the site, identify the type of construction that will be occurring, and describe the practices that will be implemented to control erosion and the release of pollutants in stormwater. At a minimum, the SWPPP shall address the following, as applicable:

  Stabilization Practices

  – The stabilization practices to be implemented shall specify the intended stabilization practices, which may include one or more of the following: temporary seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, erosion control mats, protection of trees, preservation of mature vegetation, etc. On the daily CQC Report, the Contractor shall record the dates when the major grading activities occur, (e.g., clearing and grubbing, excavation, embankment, and/or grading); when construction activities temporarily or permanently cease on a portion of the site; and when stabilization practices are initiated. Unless otherwise directed by the Contracting Officer for the reasons below (i.e., unsuitable conditions or no activity for less than 21 days), stabilization practices shall be initiated as soon as practicable, in any portion of the site where construction activities have temporarily or permanently ceased, but no more than 14 calendar days after the activities cease.

  – Unsuitable Conditions - Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceases is precluded by unsuitable conditions caused by the weather, stabilization practices shall be initiated as soon as practicable after conditions become suitable.

  – No Activity for Less Than 21 Days - Where construction activity will resume on a portion of the site within 21 days from when activities ceased (e.g., the total time period that construction activity is temporarily ceased is less than 21 days), then stabilization practices do not have to be initiated on that portion of the site by the 14th day after construction activity temporarily ceased.

  Structural Practices

  – The Contractor shall implement structural practices to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Structural practices shall be implemented in a timely manner during the construction process to minimize erosion and sediment runoff. Location and details of installation of structural practices shall be depicted on the construction drawings.

  Silt Fences

  – The Contractor shall provide silt fences as a temporary structural practice to minimize erosion and sediment runoff. Silt fences shall be properly installed to effectively retain sediment immediately after completing each phase of work where erosion would occur in the form of sheet and rill erosion (e.g. clearing and grubbing, excavation, embankment, and grading). Silt fences shall be installed in the locations indicated on the drawings or as needed based on Contractor operations. Final removal of silt fence barriers shall be upon approval by the Contracting Officer.

– Silt fences shall extend a minimum of 16 inches above the ground surface and shall not exceed 34 inches above the ground surface. Filter fabric shall be from a continuous roll cut to the length of the barrier to avoid the use of joints. When joints are unavoidable, filter fabric shall be spliced together at a support post, with a minimum 6-inch overlap, and securely sealed. A trench shall be excavated approximately 4 inches wide and 4 inches deep on the upslope side of the location of the silt fence. The 4-inch by 4-inch trench shall be backfilled and the soil compacted over the filter fabric. Silt fences shall be removed upon approval by the COR.

Straw Bales

– Straw bales are not authorized for use in storm water control in Yosemite National Park as they have the potential to introduce exotic species into the Park environment.

Diversion Dikes

– Diversion dikes shall have a maximum channel slope of 2 percent and shall be adequately compacted to prevent failure. The minimum height measured from the top of the dike to the bottom of the channel shall be 18 inches. The minimum base width shall be 6 feet and the minimum top width shall be 2 feet. The Contractor shall ensure that the diversion dikes are not damaged by construction operations or traffic. Diversion dikes shall be located as shown on the drawings or as needed based on Contractor operations. Location of diversion dikes shall be fully coordinated with cultural and natural environmental protection requirements described in Section 01355, Natural, Cultural, and Physical Resources Protection.

Filter Fabric

– The geotextile shall comply with the requirements of ASTM D 4439, and shall consist of polymeric filaments that are formed into a stable network such that filaments retain their relative positions. The filament shall consist of a long-chain synthetic polymer composed of at least 85 percent by weight of ester, propylene, or amide, and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistance to deterioration due to ultraviolet and heat exposure. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0 to 120 degrees F. The filter fabric shall meet the following requirements:

FILTER FABRIC FOR SILT SCREEN FENCE

Physical Property	Test Procedure	Strength Requirement
Grab Tensile	ASTM D 4632	100 lbs. min.
Elongation (%)		30 % max.
Trapezoid Tear	ASTM D 4533	55 lbs. min.
Permittivity	ASTM D 4491	0.2 sec^{-1}
AOS (U.S. Std Sieve)	ASTM D 4751	20-100

Silt Fence Stakes and Posts

– The Contractor may use either wooden stakes or steel posts for fence construction. Wooden stakes utilized for silt fence construction, shall have a minimum cross section of 2 inches by 2 inches when hardwood is used and 4 inches by 4 inches when softwood is used, and shall have a minimum length of 5 feet. Steel posts (standard "U" or "T" section)

utilized for silt fence construction, shall have a minimum weight of 1.33 pounds per linear foot and a minimum length of 5 feet.

Identification Storage and Handling

– Filter fabric shall be identified, stored and handled in accordance with ASTM D 4873.

Maintenance

– The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures. The following procedures shall be followed to maintain the protective measures.

– Silt fences shall be inspected in accordance with the below paragraph, Inspections. Any required repairs shall be made promptly. Close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits shall be removed when deposits reach one-third of the height of the barrier. When a silt fence is no longer required, it shall be removed with approval of COR. The immediate area occupied by the fence and any sediment deposits shall be shaped to an acceptable grade.

– Diversion dikes shall be inspected in accordance with the below paragraph, Inspections. Close attention shall be paid to the repair of damaged diversion dikes and necessary repairs shall be accomplished promptly. When diversion dikes are no longer required, they shall be shaped to an acceptable grade.

Inspections

– The Contractor shall inspect disturbed areas of the construction site, areas used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, and area where vehicles exit the site at least once every 7 calendar days and within 24 hours of the end of any storm that produces 0.5 inches or more rainfall at the site. Where sites have been finally stabilized, such inspection shall be conducted at least once every month.

– Disturbed areas and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the Storm Water Pollution Prevention Plan shall be observed to ensure that they are operating correctly. Discharge locations or points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles exit the site shall be inspected for evidence of offsite sediment tracking.

– For each inspection conducted, the Contractor shall prepare a report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the Storm Water Pollution Prevention Plan, maintenance performed, and actions taken. The report shall be furnished to the COR within 24 hours of the inspection as a part of the Contractor's daily CQC Report. A copy of the inspection report shall be maintained on the job site.

Wetlands

- **MM-VEG-4.** Delineate wetlands and apply protection measures during construction. Wetlands shall be delineated by qualified National Park Service staff or certified wetland specialists and clearly marked prior to work. Perform activities in a cautious manner to prevent damage caused by equipment, erosion, siltation, etc.

- **MM-VEG-5**. The Contractor shall adhere at all times to the conditions of U.S. Army Corps of Engineers Nationwide Permit No. 33, Temporary Construction, Access and Dewatering, with the following conditions as a minimum:

  – All work will be subject to the Standard and Technical Conditions of the Certification of the California Regional Water Quality Control Board, a copy which will be provided to the Contractor.

  – Work in streambeds is to be performed in periods of low water conditions. Contractor shall monitor stream flow conditions and weather forecasts at all times during the course of the work. During thunderstorms or other intense rain conditions, streambeds at Yosemite can fill rapidly.

  – Re-grade and restore disturbed areas to preexisting contours to maintain drainage patterns.

- **MM-VEG-6.** The Contractor shall fence construction areas adjacent to aquatic habitats to prohibit the movement of aquatic species into the construction area and to control siltation and disturbance in aquatic habitats.

  – The Contractor shall salvage and reuse wetland soils as fill to the maximum extent possible.

  – The Contractor shall use trench plugs where designated on the drawings in wetland areas to prevent changes to natural flow patterns.

  – During dewatering, intakes shall be completely screened with wire mesh not larger than 5 millimeters to prevent aquatic species from entering the pump system. Water shall be released or pumped downstream at an appropriate rate to maintain downstream flows during construction.

  – Access routes to and through work locations in the meadows and wetlands shall be planked with 1 1/8" plywood, stabilization mats or other method approved by the contracting officer.

Refer to Appendix C of the *Merced River Plan/ DEIS* for a complete list of resource-specific mitigation measures applicable to the preferred alternative. The Preferred Alternative has been designed to mitigate harmful effects to wetlands. The Merced River Plan/DEIS includes programmatic actions that will require preparation of a subsequent statement of findings for specific projects.

Site Restoration

Restoration of riverine habitat functions and values is an integral part of the preferred alternative in Segments 1-8 of the Merced River corridor. Restoration of 40.52 acres of wetland habitat would improve palustrine habitat functions and values in Segments 2 and 4. Additional restoration activities that are

incorporated into the preferred alternative are described above, under the subheading *Environmental Consequences of the Proposed Action on Wetlands*.

Proposed Compensation

The emphasis of the Merced River Plan is to avoid and minimize impacts to wetland resources. Approximately 2.67 acres of wetlands would be impacted by Alternative 5, including 1.26 acres of palustrine emergent wetlands, 0.96 acres of palustrine forested wetlands, 0.44 of riverine intermittent wetlands, and 0.01 acres of riverine perennial wetlands. Compensation will be required for the direct impact to 2.67 acres of wetlands at Curry Village, Camp 6 and Yosemite Village, and Yosemite Lodge and Camp 4. The wetland features that would be affected by the proposed activities provide important natural functions such as nutrient cycling, sediment entrapment, and habitat for wildlife. Because this project must ensure "no net loss" of wetland functions or values, compensation of a minimum of 2.67 acres of wetland would be required.

The NPS will provide compensation through the restoration of approximately 40.37 acres of wetlands in Segment 2 (see Figures 9-29 through 9-32 in Chapter 9). Figures O-9 through O-12 display the locations of proposed actions to restore and enhance wetland habitats in areas near where wetland impacts will occur. These restoration actions will provide compensation for the wetland losses described above, resulting in a 15:1 habitat compensation ratio. Restored wetland types include palustrine forested wetland and palustrine emergent wetland. Restored areas will provide equivalent, if not higher, wetland functions and values to those features impacted by the project. In general, in-kind mitigation is preferable to out-of-kind mitigation because it is most likely to compensate for the functions and values lost at the impact site. However, in the case of the impacted riverine wetlands (where the impacts are much less than those to the palustrine wetlands), this habitat type is already abundant in the region and a priority was placed on creating additional palustrine emergent and forested wetlands, as this habitat type would adequately compensate for the lost functions and values of the riverine wetlands.

CONCLUSION

The proposed action would have a beneficial impact on the extent, function, and value of wetlands by implementing restoration management actions for the Merced River corridor. These management actions would include the removal of abandoned infrastructure, restoration of eroded and vulnerable riverbanks, protection of the riparian zone within 150' of the ordinary high water mark, removal of campsites within 100' of the ordinary high water mark, removal and replacement of riprap, and the rerouting of trails from sensitive habitat, including wetlands. The removal of fill from wetland and riparian areas would result in the net creation of wetlands within Segments 2 and 4. The net result of these actions would be improved hydrologic function and the restoration of ecological integrity of the Merced River, including associated plant communities and wetlands.

Approximately 2.67 acres of wetlands will be impacted by implementation of Alternative 5, including 1.26 acres of palustrine emergent wetlands, 0.96 acres of palustrine forested wetlands, 0.44 of riverine

intermittent wetlands, and 0.01 acres of riverine perennial wetlands. The NPS will provide compensation through the restoration of approximately 40.37 acres of wetlands in Segment 2

The National Park Service has determined that there is no practicable alternative that could be located outside the floodplain or wetland habitat. Mitigation and compliance with regulations and policies to prevent impacts to water quality, wetland function and values, and loss of property or human life would be strictly adhered to during and after construction.

Subsequent project-level documentation may be required for future development projects. Individual permits with other federal and cooperating state and local agencies will be obtained or updated as appropriate prior to any development activities. Therefore, the National Park Service finds the proposed action to be acceptable under Executive Order 11990 for the protection of wetlands.

Recommended:

Superintendent, Yosemite National Park Date

Certification of Technical Adequacy and Servicewide Consistency:

Chief Water Resources Division Date
or Professional Wetland Scientist, National Park Service

Approved:

Regional Director Pacific West Region, National Park Service Date