2.0 Description of Proposed Action (Project) and Alternatives

This section describes the proposed Plan and alternatives that would allow the Water Authority to meet its mission and comply with endangered species regulations. Because the proposed action is issuance of permits for incidental take, the reasonable range of alternatives considered is limited to permitting options for the Water Authority and Wildlife Agencies. After the description of alternatives considered but eliminated is a discussion of Alternative 1: the No Action/No Permit Alternative; Alternative 2: Proposed Plan, and Alternative 3: Full Species List Alternative; and Alternative 4: Reduced Plan Area Alternative. The discussion of alternatives is followed by a comparison of alternatives and identification of the Water Authority's and USFWS's preferred alternative.

Alternative 1: No Action/No Permit describes the current process for carrying out Water Authority projects and activities. Without an approved NCCP/HCP in place, the Water Authority would continue to pursue take authorizations for construction, O&M, and rights-of-way activities on a project-by-project basis, which represents a piecemeal approach to conservation and mitigation. USFWS would be responsible for reviewing the incidental take permit applications for each individual project. Alternative 2: Proposed Plan provides an overview of the proposed NCCP/HCP, which was developed in order to provide greater certainty as it relates to environmental permitting and regional conservation. The Water Authority would continue to comply with existing commitments (e.g., Biological Opinions (BO), planning documents, and environmental programs), but would provide comprehensive conservation to species and their habitats. Upon approval of the proposed Plan, USFWS would issue an incidental take permit for 63 Covered Species and rely on annual monitoring and reporting to verify Plan implementation and status of impacts. Alternative 3: Full Species List is similar to Alternative 2 in that the Water Authority would implement the proposed NCCP/HCP prepared for the Plan Area; however, Alternative 3 would make it possible for the Water Authority to receive coverage under the Plan for the full list of 89 species analyzed (see Appendix B of the Plan). Finally, Alternative 4: Reduced Plan would call for a reduced Plan Area that only encompasses the PIZ and a reduced species list that covers only those 39 species that are known to occur in the PIZ.

2.1 Existing Environmental Programs and Commitments

The Water Authority's actions are governed by a number of existing environmental programs (e.g., Quagga and Zebra Mussel Response and Control Plan), state and

federal regulations, and legislative mandates designed to ensure protection of environmental quality while allowing the Water Authority to meet its obligations to provide a safe and reliable water supply. As background for discussion of alternatives, information is provided on existing environmental programs and permits. Since the Water Authority is not a general land use agency and does not have broad land use authority, the primary way that the Water Authority can participate in regional efforts is through the acquisition and preservation of land (i.e., Preserve Area). The Water Authority Water Resources Department is responsible for ensuring that Water Authority activities conform to environmental policies and regulations described below.

2.1.1 Existing Biological Opinions

BOs are documents that describe the results of USFWS section 7 consultations pursuant to the ESA. Environmental review and ESA compliance for Water Authority projects have resulted in the issuance of five BOs from USFWS and the establishment and/or acquisition of mitigation properties (also called the Preserve Area). The existing Water Authority BOs discussed in Section 1.1.4 of the Plan include:

- BO (1-6-93-F-28), issued in 1993, addressed impacts to the coastal California gnatcatcher (*Polioptila californica;* gnatcatcher) from 12 CIP projects, one of which is within the Water Authority right-of-way on Marine Corps Air Station (MCAS) Miramar. The BO was issued as part of a section 7 consultation between the Navy and USFWS. The projects include: Ramona Pipeline; Sweetwater Bypass and Flow/Pressure Control Facility; San Marcos Pipeline; La Mesa/Lemon Grove Pipeline; Scripps Ranch Pipeline; Lower Otay Pipeline; Mission Trails Pipeline and Flow Regulatory Structure; Pipeline 2A and Pump Station; San Diego Pipeline No. 6; Rancho Peñasquitos Pipeline and Diversion Structure; Helix Treatment Plant Expansion; and the North County Distribution Pipeline. Two of these projects (Sweetwater Bypass and Ramona Pipeline) had already been completed at the time of BO issuance, yet were mitigated as though they had not been constructed. This BO outlined measures to avoid and minimize construction and operation impacts to the gnatcatcher and the coastal sage scrub vegetation community. In addition, the BO included a habitat-based compensation program for impacts to Diegan coastal sage scrub. The BO concluded that the listed CIP projects would not likely jeopardize the continued existence of the gnatcatcher. Measures were identified to avoid and minimize adverse effects resulting from project construction and operation. A total of 195.8 credits (acres) was deducted from the Crestridge HMA to satisfy the requirements of this BO.

- BO (1-6-97-F-13), issued in 1997, addressed impacts to 14 species resulting from the Water Authority's Emergency Water Storage Project (ESP) for issuance of a section 404 permit from USACE. Of the 14 species addressed, the BO

concluded that the ESP project is not likely to jeopardize the continued existence of the 13 evaluated species; one species was determined not to be within the project's boundaries. Measures were identified to avoid and minimize adverse effects resulting from project construction and operation. This BO included an extensive habitat-based compensation program for impacts to species and habitats. A total of 200 credits (acres) was deducted from the San Miguel HMA to satisfy the requirements of this BO.

- BO (FWS-SD 1373.2), issued in 2001, related to the Moreno-Lakeside Pipeline project and addressed impacts to the gnatcatcher and arroyo toad (*Bufo californicus)* resulting from the Water Authority's Moreno-Lakeside Pipeline Project for issuance of a section 404 permit from USACE. The BO concluded that the project was not likely to jeopardize the continued existence of the gnatcatcher or arroyo toad. Measures were identified to avoid and minimize adverse effects resulting from project construction. A total of 3.23 credits (acres) were deducted from the Crestridge HMA to partially satisfy the requirements of this BO.

- BO (2007-B-14/2007-F-22), issued in 2007, addressed impacts to the least Bell's vireo (*Vireo bellii pusillus*; vireo), San Diego fairy shrimp (*Branchinecta sandiegonensis*), and Quino checkerspot butterfly (*Euphydryas editha quino*; Quino) from related CIP projects at Mission Trails Regional Park. The projects included the Water Authority's Flow Regulatory Structure, Pipeline Tunnel, and Stabilized Crossing Project for issuance of a section 404 permit from USACE. The BO concluded that the project is not likely to adversely affect the gnatcatcher or Quino; is not likely to jeopardize the continued existence of the vireo or San Diego fairy shrimp; is not likely to result in adverse modification of vireo critical habitat; and does not affect designated or proposed critical habitat for the San Diego fairy shrimp. Measures were identified to avoid and minimize adverse effects resulting from project construction and operation. Mitigation credit (equaling 0.73 acre) at the Crestridge HMA has been reserved for the project to satisfy the requirements of this BO. Mitigation credit will be deducted at the time the Water Authority issues a Notice to Proceed with project construction.

- BO (2008B0061-2008F0732), issued in 2008, addressed impacts to the gnatcatcher, vireo, and arroyo toad related to the Carryover Storage and San Vicente Dam Raise Project (CSP) for issuance of a section 404 permit from USACE. The BO concluded that the project as designed may affect, but is not likely to adversely affect, San Diego thornmint (*Acanthomintha ilicifolia*); and is not likely to jeopardize the continued existence of the Quino, gnatcatcher, vireo, or arroyo toad. In 2009, Quino was recorded during a pre-construction survey; therefore, USFWS amended the BO to cover this species. Measures were identified to avoid and minimize adverse effects resulting from project construction and operation. A total of 220.72 credits (acres) was deducted from

the San Miguel HMA, and an additional 18.96 credits are specifically held in reserve at the HMA to satisfy the requirements of this BO.

2.1.2 Preserve Area and MMAs

As discussed in Section 1.3.4 (Planning Areas) of this draft EIR/EIS, the Preserve Area consists of the combined area of the HMAs, while the MMAs are properties acquired by the Water Authority as biological resource mitigation for previously authorized projects and cannot be used to mitigate Covered Activities. The Water Authority has established Preserve Area and MMAs as conserved habitat lands for permanent habitat/species conservation and management. Although purchased by the Water Authority, the perpetual management of the Preserve Area and MMAs has been transferred to the Wildlife Agencies or local land use agencies. The Preserve Area contains lands (acres) which are available or will be created to be used as mitigation credits (e.g., suitable and/or occupied habitat) to compensate for project impacts associated with the proposed NCCP/HCP. MMAs are permanently conserved lands which were acquired to mitigate previous projects. As such, they contribute to the existing regional habitat conservation and are evaluated in the context of the proposed Plan. The MMAs do not have acres or credits available for future mitigation under the Plan.

2.1.2.1 Habitat Management Areas (HMA)

The Preserve Area has suitable and/or Covered Species-occupied habitat to provide mitigation credits for Covered Activities defined in the proposed Plan. The Water Authority has acquired mitigation credits or mitigation rights in three existing upland properties and one wetland property, and has two more wetland creation projects in process. Lands within the Preserve Area were acquired by the Water Authority as mitigation for previously approved projects while others were strategic acquisitions as part of the Water Authority's commitment to regional conservation efforts. Therefore, the amount (number of acres) of mitigation credits at each of the HMAs available to offset Plan impacts may be less than the total area indicated below, because portions of these properties have already been designated to mitigate specific approved projects. Refer to Figure 1-2 for the location of the Preserve Area and Section 6.8 of the Plan for a full account of the type of available mitigation credits at each HMA. Finally, some HMAs are in the process of being constructed and will provide wetland mitigation credits depending on the success and size of the restoration areas.

- Crestridge HMA is a 261.05-acre area which provides as-needed pre-approved mitigation for CIP project impacts. The multiple-parcel site is located south of Interstate 8 (I-8) at the eastern edge of the city of El Cajon in San Diego County. Crestridge HMA is owned and managed by CDFG. Approximately 215 credits have been used and the remaining 33.14 credits are available for mitigating Covered Activities as described by the proposed Plan.

- San Miguel HMA is a 1,186-acre area which is part of the larger 1,852-acre San Miguel Ranch conserved land, located north of the city of Chula Vista near Mother Miguel and San Miguel Mountains. The HMA is part of the San Diego National Wildlife Refuge Complex (Refuge) and is managed in accordance with the management plan prepared for the property by the USFWS. The Water Authority acquired 820.85 credits of the San Miguel HMA in 2003 in anticipation of mitigation requirements under the proposed Plan. Approximately 581 credits remain, and these are available for mitigating Covered Activities as described by the proposed Plan.

- Rancho Cañada HMA is a 390-acre site situated between the coastal mesas and the mountains of the Peninsular Ranges in west-central San Diego County and is part of a proposed network of open-space under the San Diego MSCP. Rancho Cañada HMA, in conjunction with adjacent lands owned by CDFG, San Diego County Parks and Recreation, and Bureau of Land Management (BLM), is an important core habitat conservation area. The property is also part of an identified wildlife corridor between larger non-contiguous areas of open space to the southwest that are managed by MCAS Miramar, CDFG, the city of San Diego, and the county of San Diego, and lands to the northeast that are managed by the county of San Diego, BLM, and Cleveland National Forest (The Nature Conservancy [TNC] 2006). Although classified as an HMA, Rancho Cañada HMA will not provide debitable mitigation credits for Plan impacts because it is intended specifically to meet the requirements of the NCCPA for an additional conservation contribution beyond mitigation required for impacts to Covered Species.

- Manchester HMA, completed in 2005, created approximately 7.83 acres of wetland habitats. The Manchester HMA is on Lux Canyon Creek in the city of Encinitas. Monitoring conducted in April 2008 showed that performance of the site exceeded all of the year-three success standards. The county of San Diego, per a cooperative agreement with the Water Authority, will manage the Manchester HMA developed by the Water Authority on county of San Diego property. Approximately 1.73 credits remain, and these are available for mitigating Covered Activities as described by the proposed Plan.

- Tijuana River Valley HMA is a wetland creation project currently in the design phase. The site is currently a relatively flat area of agricultural fields and does not support native habitat. Tijuana River Valley HMA is expected to be completed in 2010. Once constructed, the wetland area is anticipated to provide approximately 40 acres of wetlands and riparian habitats. Approximately 19 acres of created habitat would be allocated to mitigate impacts for CSP and ESP. Similar to the arrangement with the Manchester HMA, the county of San Diego would manage the Tijuana River Valley HMA developed by the Water Authority. Approximately

21 credits would be available for mitigating Covered Activities as described by the proposed Plan.

- San Luis Rey River HMA is a planned wetland creation project anticipated to be under construction in 2012. The San Luis Rey River HMA project is anticipated to create approximately 33 acres of wetlands and riparian habitats along the San Luis Rey River. The Water Authority would either manage the San Luis Rey River HMA or enter into a management and funding agreement with a natural lands manager entity approved by the Wildlife Agencies. All created credits would be available to address mitigation required for Covered Activities as described by the proposed Plan.

2.1.2.2 Managed Mitigation Areas (MMA)

MMAs are conserved habitat lands acquired to satisfy the mitigation requirements of previously permitted or authorized projects; MMAs do not provide mitigation credits for impacts associated with Covered Activities that are implemented pursuant to the proposed Plan. Although the Water Authority cannot use these lands as mitigation for Covered Activities, the lands contribute to the baseline of regional habitat conservation and conservation of Covered Species by protecting contiguous blocks of suitable habitat.

- The Myers property is a 35-acre site located in the south-central portion of the city of Oceanside. It is owned and managed by the city of Oceanside and serves as part of the last remaining western/coastal wildlife corridor link between northern Carlsbad and Marine Corps Air Station (MCAS) Camp Pendleton.

- The Montaña Mirador property is located on a 538-acre site within the southern portion of the 1,314-acre Black Mountain Open Space Park in the community of Rancho Los Peñasquitos in the city of San Diego. A 325-acre portion of the Montaña Mirador parcel was purchased by the Water Authority for the city of San Diego and dedicated as open space, and the remaining 213 acres were purchased through a Wildlife Conservation Board grant for inclusion in the Black Mountain Open Space Park. The Black Mountain Open Space Park is owned and managed by the city of San Diego.

- The Escondido Creek Uplands located in the vicinity of Escondido Creek in the northern part of San Diego County are made up of two properties: the 24-acre Meyerhoff property and 13-acre Rohan property. They are owned and managed by the county of San Diego.

- The Water Authority owns the 750-acre Elfin Forest Recreational Reserve (Elfin Forest Reserve) located in the city of San Marcos. Olivenhain Municipal Water District, with funding provided by the Water Authority, operates and manages the

property. Portions of the Elfin Forest Reserve encompass the area immediately surrounding the Olivenhain Reservoir.

2.2 Alternatives Considered but Eliminated

2.2.1 No Take

A “No Take” Alternative was considered as part of the planning process. This alternative was eliminated from further review because it is considered to be infeasible. The Water Authority is responsible for providing a safe, reliable water supply. In doing so, the Water Authority must conduct activities which have the potential for significant environmental impacts, including impacts to listed species. The No Take Alternative would preclude the Water Authority from effectively implementing its CIP and O&M Activities to provide a safe, reliable water supply because of the unpredictable nature of future listings and potential lengthy processing of individual project take permits. The No Take Alternative would not meet the needs of USFWS since it would result in a fragmented and unmanaged landscape. In these fragmented landscapes, habitat would eventually degrade due to benign neglect, or become highly modified through succession of non-native plant communities to the point where habitat would not support listed species and may well lead to the decline of many species not currently listed. Therefore, the No Take Alternative is not a reasonable or feasible alternative and does not warrant detailed analysis as part of this draft EIR/EIS.

2.2.2 Participation in Existing Conservation Plans Alternative

Under the Participation in Existing Conservation Plans Alternative, the Water Authority would voluntarily participate in one or more of the existing conservation plans in the region in order to resolve ESA and CESA sensitive species and habitat issues resulting from Water Authority actions. A federal section 10(a)(1)(B) permit and state Section 2835 take authorization would not be issued for the proposed Water Authority Plan, but ESA/CESA compliance and associated take authorization would be obtained instead by participating in an already existing conservation plan or plans.

The Water Authority would continue to balance its mission of providing safe and reliable water to the region, with regional sensitive species and habitat conservation goals. Because of the linear and wide-ranging scale of the proposed Covered Activities and the diverse list of plant and wildlife species needing coverage, the Water Authority would likely be required to participate in multiple plans, including the San Diego MSCP, San Diego MHCP, the draft North County MSCP, and the Western Riverside County Multiple Species Habitat Conservation Program (MSHCP). In order to participate in existing subregional plans, the Water Authority would be required to request amendments to

permitted subregional and subarea plans to include its Covered Activities. The Water Authority would prepare subarea plans that would be consistent with these subregional plans. This would require cooperation by those plans' permitees. However, participation in these plans would require the Water Authority to implement multiple permits that could create timing and consistency problems. In some cases, where the alignment of a linear project (e.g., pipeline) crosses multiple jurisdictions, coordination and compliance during planning and implementation phases could require the Water Authority to conform to different measures and permit conditions for different segments of the project. USFWS would also be required to administer multiple permits and IAs associated with the Water Authority's activities throughout the Plan Area.

Despite participation in multiple plans, the Water Authority might not be able to obtain the same coverage for species as requested in this proposed Plan. If the Covered Species are not currently covered under existing plans, the Water Authority would need to request amendment to each existing subregional or subarea plan to include incidental take of proposed Covered Species that could result from Water Authority activities, or apply for separate take authorizations from the Wildlife Agencies. These plans may not allow or support use of the Water Authority's existing mitigation credits, thus requiring the Water Authority to purchase new preserve areas or mitigation credits. Similar to the other alternatives considered and analyzed, the Water Authority would comply with its existing BOs, planning documents, and established environmental programs.

Participation in existing plans could require a separate permit and IA for each subarea plan the Water Authority develops. Under this alternative, the Water Authority would relinquish its independence from the land-use based agencies. Implementation of multiple subarea plans throughout its Service Area could also result in cumbersome and inconsistent approaches to biological mitigation and conservation. Although the Water Authority is not the only water agency to undertake the planning process for an NCCP/HCP, the Water Authority is unique in that it is a regional entity with many Member Water Agencies and a complex system for water supply and distribution that stretches across multiple jurisdictions. For these reasons, the Participation in Existing Conservation Plans Alternative does not meet the purpose and needs of the Water Authority or USFWS, and is not a reasonable or feasible alternative and does not warrant detailed analysis as part of this draft EIR/EIS.

2.3 Alternatives to be Evaluated in the Draft EIR/EIS

Initial development of the alternatives focused on meeting established objectives for Water Authority lands, blending elements of Water Authority activities and Plan measures for species and their habitats in a way that would be mutually beneficial and maximize positive effects of the Plan at a regional level. Six alternatives were initially

developed, but the No Take and Participation in Existing Conservation Plan Alternatives were eliminated as infeasible and not meeting the purpose and need of the Water Authority or the Wildlife Agencies, as described above. The result is the four alternatives evaluated in this document: Alternative 1: No Action/No Permit Alternative; Alternative 2: Proposed Plan; Alternative 3: Full Species List; and Alternative 4: Reduced Plan Area Alternative.

2.3.1 Alternative 1: No Action/No Permit

Under the No Action/No Permit Alternative, the Water Authority would continue to comply with applicable environmental programs and prior agreements to address impacts to biological species and habitats that might result from Water Authority activities. The Water Authority would remain subject to take prohibitions of the ESA and CESA, and would continue to obtain individual permits and management authorizations for listed species on a project-by-project basis. The Water Authority would continue to comply with existing and future BOs.

The No Action/No Permit Alternative would continue the current project-by-project, species-by-species approach used by the Water Authority to obtain federal and state incidental take permits and authorizations. There are several ways in which the Water Authority would seek compliance with the federal ESA and state CESA. Where feasible, the Water Authority would attempt to redesign or modify its actions to avoid impacts to either state- or federally listed species. Where impacts from proposed activities are unavoidable, the Water Authority may obtain coverage for impacts to federally listed species through a section 7 consultation for projects that also are federal actions. If the Water Authority proposes activities which could result in the incidental take of a federally listed specie(s), but where there is no federal action associated with the project, the Water Authority may be required to prepare a project-specific HCP that addresses take of federally listed species under section 10(a)(1)(B) of the ESA (e.g., “Low-Effect” HCP). Similarly, unavoidable impacts to state-listed species would require the Water Authority to obtain a permit under Section 2081 of CESA.

The No Action/No Permit Alternative would not implement comprehensive measures to address endangered and threatened species issues arising as a result of Water Authority activities. It would not be required to apply the same levels of mitigation and conservation to unlisted species (or possibly not have to explicitly mitigate for impacts to certain unlisted species), would not necessarily mitigate for impacts to certain vegetation communities (certain chaparral and non-native grassland communities), and potentially could elect to mitigate in areas that are not specifically part of the regional conservation effort.

Under this alternative, the Water Authority would meet the demands of regional water supply by continuing to construct, expand, operate, and maintain facilities and rights-of-

way while obtaining individual take permits for each activity. Current and future activities of the Water Authority under the No Action/No Permit Alternative would be the same as those described under the Proposed NCCP/HCP Alternative. Individual project construction and expansion would be implemented through the Water Authority's CIP as guided by the Master Plan. Construction and expansion of CIP Projects and O&M Activities would be conducted in accordance with the Water Authority's existing protocols for industry-accepted planning, engineering, construction, and environmental impact minimization practices.

The Water Authority has already acquired mitigation/conservation properties (i.e., the Preserve Area). These properties were strategic purchases that provide mitigation for previously approved projects and support regional conservation efforts. Under Alternative 1, management of the Preserve Area would be conducted in accordance with the requirements of existing BOs. Because the Water Authority has already secured the Preserve Area, those HMAs which have available mitigation credits could be used to offset impacts from Planned and Future Projects. The Water Authority could also pursue the sale of available mitigation credits from San Miguel HMA to other public or private entities.

2.3.2 Alternative 2: Proposed Plan

The proposed action is issuance of a section 10(a)(1)(B) permit by USFWS and Section 2835 take authorization by CDFG for incidental take of Covered Species in the Plan Area, after USFWS and CDFG approval of the proposed NCCP/HCP and adoption of the IA by the Water Authority and the Wildlife Agencies. Under this alternative, the Water Authority would also continue to comply with its existing BOs, planning documents, and environmental programs as discussed in Section 2.1 of this draft EIR/EIS. The terms and conditions of existing BOs are not altered by the terms and conditions of the proposed Plan. The Water Authority is not a general land use agency, but a special purpose governmental agency that has a general set of project and activity types that traverse many other agencies' conservation plan reserves, and it assembled its conservation plan primarily by providing additional habitat lands to complement those reserves rather than creating a stand-alone preserve system. The following provides an overview of the proposed Plan's conservation strategy, Covered Activities, and conservation plan as presented in greater detail within Sections 5.0 and 6.0 of the Plan (see Appendix B).

2.3.2.1 Plan Overview

The proposed Plan Area covers 992,000 acres where Water Authority Covered Activities would take place (see Figure 1-3). Covered Activities are defined in Section 5.0 of the Plan and include those Water Authority activities and projects that would receive take authorization for Covered Species impacts under the Plan. The majority of the activities covered under the proposed Plan would occur in the PIZ which covers the 64,600-acre

area around existing Water Authority infrastructure and within associated rights-of-way (see Section 1.3.4 and Figure 1-3 in this EIR/EIS).

To address potential impacts to sensitive species and habitat associated with existing and future installation, use, maintenance, expansion, and repair water storage, treatment, and delivery systems, the Water Authority proposes a Plan to cover 63 species (26 plant species and 37 wildlife species), 19 of which are narrow endemic. Three additional species are known to primarily occur in the Plan's Major Amendment Area in Riverside County and would not be included in the proposed incidental take permits, but are considered Major Amendment Species.

In addition to identifying the types of Water Authority activities covered under the proposed Plan and Permits, the Plan requires that Covered Activities demonstrate compliance with the implementation commitments, in particular measures to avoid, minimize, and mitigate impacts. All permanent impacts will be mitigated by deducting appropriate upland and wetland habitat acres (credits) from the Preserve Area or by obtaining credits from other banks within the Plan Area, or by acquiring and protecting additional qualifying habitat within the Plan Area that contributes to the Preserve Area or other regional preserve lands.

Within the 992,000-acre Plan Area, Covered Activities are estimated to impact up to 373 acres of habitat that will require mitigation (Table 2-1). Additional impacts will occur to disturbed habitats, agricultural lands, or non-native vegetation communities (e.g., Eucalyptus woodlands) that do not require habitat-specific mitigation pursuant to the Plan. The Plan provides a habitat-based impact summary for Planned and Future Projects and O&M Activities of the anticipated permanent impacts from Covered Activities. Take of the Covered Species, typically quantified in terms of acres of actual or potential habitat impacted by Covered Activities, is summarized in Table 2-1 and described in greater detail within Section 5.5 of the Plan. Impacts to Covered Species associated with Preserve Area management are presumed to be minimal and temporary, and overall will provide a net benefit to Covered Species.

Of the 373 acres of impacts that will require mitigation, impacts from Future CIP Projects are estimated to be 149.8 acres. Although the impacts from Future Projects cannot be measured exactly at this time, the estimated impacts given in Table 2-1 are based on the assumption that impacts from Future Projects would be similar in scope/extent on a per-year basis to the Planned Projects. The estimate of impacts from O&M Activities (totaling approximately 33 acres) accounts for uncertainties regarding those impacts throughout the Permit term.

TABLE 2-1
ALTERNATIVES 2, 3, AND 4: IMPACT SUMMARIES FOR COVERED ACTIVITIES (acres)
(EXCLUDING EXISTING PROJECTS)

Vegetation Community/Land Cover Type and Subcommunities	Estimated Impacts from Pipeline 6 Alternative Alignment[1]	Estimated Impacts from Planned CIP Projects[2]	Estimated Impacts from Future CIP[1] Projects[3]	Estimated Impacts from O&M[4]	Total Impacts Requiring Mitigation
Upland Habitats					
Agricultural	**185.0**	**139.8**	**293.5**	--	**--**
General Agriculture/Extensive Agriculture (Row Crops, Pastures)/Intensive Agriculture (Dairies, Nurseries, Chicken Ranches)	23.6	99.6	209.1	--	--
Orchards and Vineyards	161.4	40.2	84.4	--	--
Chaparral, Coastal	**30.1**	**16.3**	**34.3**	**7.6**	**88.3**
Chamise Chaparral (Granitic Chamise Chaparral)	0.0	0.1	0.1	--	--
Chaparral	0.0	0.0	0.0	--	--
Ceanothus Crassifolius Chaparral	0.0	0.0	0.0	--	--
Interior Live Oak Chaparral	0.0	0.0	0.0	--	--
Northern Mixed Chaparral	0.0	0.0	0.0	--	--
Northern Mixed Chaparral (Granitic)	0.0	0.0	0.0	--	--
Northern Mixed Chaparral (Mafic)	0.0	0.0	0.0	--	--
Scrub Oak Chaparral	0.0	0.0	0.0	--	--
Southern Maritime Chaparral	0.0	0.0	0.0	--	--
Southern Mixed Chaparral	30.1	16.2	34.2	--	--
Southern Mixed Chaparral (Granitic)	0.0	0.0	0.0	--	--
Southern Mixed Chaparral (Mafic)	0.0	0.0	0.0	--	--
Chaparral, Montane/Trans-montane	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Montane Chaparral	0.0	0.0	0.0	--	--
Redshank Chaparral	0.0	0.0	0.0	--	--
Coastal	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Open Beach	0.0	0.0	0.0	--	--
Southern Foredunes	0.0	0.0	0.0	--	--
Coniferous Forest	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Big Cone Spruce-Canyon Oak Forest	0.0	0.0	0.0	--	--
Mixed Coniferous Forest	0.0	0.0	0.0	--	--
Southern Interior Cypress Forest, Tecate Cypress Forest	0.0	0.0	0.0	--	--
Torrey Pine Forest	0.0	0.0	0.0	--	--
Disturbed/Developed	**103.2**	**71.8**	**150.8**	**--**	**--**
Bare Ground	0.0	0.0	0.0	--	--
Disturbed	0.0	10.1	21.3	--	--
Urban/Developed Land	103.2	61.7	129.5	--	--
Exotic Landscapes	**0.0**	**0.7**	**1.4**	**--**	**--**
Eucalyptus/Non-native vegetation	0.0	0.7	1.4	--	--
Ornamental	0.0	0.0	0.0	--	--
Grasslands	**28.3**	**7.9**	**16.5**	**3.6**	**56.3**
Native Grassland (Valley Needle Grassland, Valley, and Foothill Grassland)	0.0	0.0	0.0	--	--
Non-Native Grassland (Grassland)	28.3	7.9	16.5	--	--
Oak Woodland and Forest	**11.5**	**3.9**	**8.2**	**1.7**	**25.3**
Black Oak Forest	0.0	0.0	0.0	--	--
Black Oak Woodland	0.0	0.0	0.0	--	--
Coast Live Oak Forest (Dense Coast Live Oak Woodland)	0.0	0.0	0.0	--	--
Coast Live Oak Woodland (Open Coast Live Oak Woodland)	11.5	3.9	8.2	--	--

TABLE 2-1
ALTERNATIVES 2, 3, AND 4: IMPACT SUMMARIES FOR COVERED ACTIVITIES (acres)
(EXCLUDING EXISTING PROJECTS)
(continued)

Vegetation Community/Land Cover Type and Subcommunities	Estimated Impacts from Pipeline 6 Alternative Alignment[1]	Estimated Impacts from Planned CIP Projects[2]	Estimated Impacts from Future CIP[1] Projects[3]	Estimated Impacts from O&M[4]	Total Impacts Requiring Mitigation
Engelmann Oak Forest (Dense Engelmann Oak Woodland)	0.0	0.0	0.0	--	--
Engelmann Oak Woodland (Open Engelmann Oak Woodland)	0.0	0.0	0.0	--	--
Mixed Oak Woodland (Oak Woodland)	0.0	0.0	0.0	--	--
Sage-Scrub, Coastal	**42.2**	**30.4**	**63.8**	**14.1**	**150.5**
Alluvial Fan Scrub	0.0	0.0	0.0	--	--
Cactus Scrub	0.0	0.0	0.0	--	--
Coastal Sage-Chaparral Scrub	0.0	8.6	18.1	--	--
Coastal Sage Scrub (Diegan)	42.2	21.8	45.7	--	--
Coastal Sage Scrub (Inland)	0.0	0.0	0.0	--	--
Flat-topped Buckwheat Scrub	0.0	0.0	0.0	--	--
Maritime Succulent Scrub	0.0	0.0	0.0	--	--
Riversidean Alluvial Fan Scrub	0.0	0.0	0.0	--	--
Riversidean Sage Scrub	0.0	0.0	0.0	--	--
Southern Coastal Bluff Scrub	0.0	0.0	0.0	--	--
Sage-Scrub, Montane/Trans-montane	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Big Sagebrush Scrub (Great Valley)	0.0	0.0	0.0	--	--
Wetland Habitats					
Aquatic, Freshwater	**0.0**	**0.5**	**1.0**	**0.0**	**1.5**
Non-vegetated Floodplain, Channel, Lakeshore Fringe	0.0	0.0	0.0	--	--
Open Freshwater (Freshwater, Open Water, Water)	0.0	0.5	1.0	--	--
Aquatic, Marine	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Open Saltwater (Brackish Water, Deep Bay, Estuarine, Intertidal, Shallow Bay, Subtidal)	0.0	0.0	0.0	--	--
Saltpan/Mudflats	0.0	0.0	0.0	--	--
Riparian	**6.80**	**11.9**	**25.0**	**6.0**	**49.7**
Arrowweed Scrub	0.0	0.0	0.0	--	--
Mule Fat Scrub	1.84	0.1	0.2	--	--
Southern Arroyo Willow Riparian Forest	0.0	0.0	0.0	--	--
Southern Coast Live Oak Riparian Forest	0.0	7.4	15.4	--	--
Southern Cottonwood-Willow Riparian Forest	3.61	0.0	0.0	--	--
Southern Sycamore Woodland	0.0	0.0	0.0	--	--
Southern Sycamore-Alder Riparian Woodland	0.0	1.0	2.2	--	--
Southern Willow Scrub	1.35	3.4	7.2	--	--
White Alder Riparian Forest	0.0	0.0	0.0	--	--
Riparian (Disturbed)	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Arundo Scrub	0.0	0.0	0.0	--	--
Tamarisk Scrub	0.0	0.0	0.0	--	--
Wetland	**0.0**	**0.5**	**1.0**	**0.0**	**1.5**
Alkali Wetlands (Alkali Seep, Alkali Marsh, Cismontane Alkali Marsh)	0.0	0.0	0.0	--	--
Freshwater Meadow or Seep	0.0	0.0	0.0	--	--
Freshwater Marsh (Coastal and Valley Freshwater Marsh, Emergent Wetland)	0.0	0.5	1.0	--	--
Montane Meadow	0.0	0.0	0.0	--	--
Southern Coastal Salt Marsh	0.0	0.0	0.0	--	--
Wetland (Disturbed)	0.0	0.0	0.0	--	--
Alkali Vernal Pools	0.0	0.0	0.0	--	--

TABLE 2-1
ALTERNATIVES 2, 3, AND 4: IMPACT SUMMARIES FOR COVERED ACTIVITIES (acres)
(EXCLUDING EXISTING PROJECTS)
(continued)

Vegetation Community/Land Cover Type and Subcommunities	Estimated Impacts from Pipeline 6 Alternative Alignment[1]	Estimated Impacts from Planned CIP Projects[2]	Estimated Impacts from Future CIP[1] Projects[3]	Estimated Impacts from O&M[4]	Total Impacts Requiring Mitigation
San Diego Mesa Claypan Vernal Pools	0.0	0.0	0.0	--	--
San Diego Mesa Hardpan Vernal Pools	0.0	0.0	0.0	--	--
Vernal Lake	0.0	0.0	0.0	--	--
Subtotal -- Communities/Land Covers not subject to mitigation	**288.2**	**212.3**	**445.7**	**N/A**	**--**
Subtotal – Communities subject to mitigation	**118.9**	**71.4**	**149.8**	**33.0**	**373.1**
Total	**407.1**	**283.7**	**595.5**	**33.0**	**--**

[1] Possible Pipeline 6 alternative alignment impacts to mitigatable vegetation communities addressed by this Plan. Current Pipeline 6 alignment impacts are treated as an Existing Project, are covered under that project's individual permit, and are not addressed by this Plan.
[2] Permanent impacts to mitigatable vegetation communities from Planned Projects included in the CIP project list, as fully described in Appendix C.
[3] Permanent impacts to mitigatable vegetation communities from Future Projects were estimated assuming the same rate of project build-out (on an acres/year basis) in the remaining 35 years of the full Permit term as during the 20-year period of the CIP projects, and increased by 20 percent to account for future project planning uncertainties. Impacts were assigned to the same vegetation community types as for the Planned Projects.
[4] Permanent Impacts to mitigatable vegetation communities from O&M Activities were calculated assuming 0.5 acres/year for the full 55-year Permit term, and increased by 20 percent to account for future project uncertainties.

The proposed term of the Plan's Permits is 55 years. Throughout the term of the Permits, the Water Authority will monitor the implementation of the Plan and report to the Wildlife Agencies on an annual basis. In addition, the Preserve Area will be managed and monitored in perpetuity to demonstrate that suitable conditions are maintained on those lands to support Covered Species. Permit amendments are anticipated to be necessary to adjust to changes in geographic scope, types of projects covered, or incidental take authorization. Minor and Major Amendments are categorized and described in more detail in Section 8.0 of the Plan. As described in the Plan and Section 1.3.4 of this draft EIR/EIS, future Covered Activities in Riverside County will require a Major Amendment.

2.3.2.2 Conservation Strategy

The overall conservation strategy for Covered Species under the proposed NCCP/HCP focuses on establishing and ensuring the permanent management of a regionally significant Preserve Area that supports Covered Species and that provides conservation above the anticipated required compensation for future impacts. It also includes avoiding, minimizing, and mitigating impacts to Covered Species and sensitive habitats, full compensation for all new impacts to conserved habitats and any incidental take of covered species, potentially additional habitat land contributions, and funding to ensure monitoring and management of the Preserve Area in perpetuity.

The conservation strategy for covered plant species focuses on avoidance/minimization of impacts to major plant populations, narrow endemic species, and important locations in Water Authority rights-of-way where feasible, and mitigation within conservation areas for unavoidable impacts. Species-specific management actions will be implemented as necessary to enhance or protect habitat quality and increase population size. These may include measures such as enhancing declining populations, restoring damaged habitat, and establishing seed banks (see Appendix B of the draft NCCP/HCP).

The conservation strategy for covered wildlife species focuses on avoidance/minimization of occupied habitat within rights-of-way when feasible and mitigation for unavoidable impacts through preservation of occupied and potential habitat within the Preserve Area. Maintenance of existing rights-of-way habitat and minimization of and mitigation for impacts within rights-of-way habitat will maintain linkages between habitat blocks that consist of upland and riparian vegetation types suitable for breeding, foraging, and dispersal of covered wildlife species.

As part of its conservation strategy and commitments, the Water Authority has acquired or created approximately 3,067 acres of regionally significant habitat which support Covered Species (1,920 acres in the Preserve Area and 1,147 acres in the MMAs). A number of the HMA properties include habitat acreage credits in excess of current and already planned mitigation needs, which can be credited towards offsetting impacts

associated with the proposed Plan. The Water Authority's Plan is and will continue to stay ahead of its anticipated mitigation needs (see Section 6.5.1.1 in the Plan).

The Plan provides further assurance that during the 55-year permit term, the available upland or wetland habitat credits will be sufficient to satisfy the projected mitigation obligation requirements for the next two years, based on estimated impacts from Covered Activities for that period (see Section 6.5.1.2 in the Plan). That is, the Plan will "look ahead" and project the anticipated mitigation needs for the next two years, and ensure that sufficient credits exist in the HMAs or will acquire additional credits or additional property to add to the Preserve Area to fully satisfy the anticipated need. This will be done every two years, concurrent with the Water Authority's two-year budget cycle.

2.3.2.3 Plan Goals and Objectives

The Water Authority will protect Covered Species and their habitats by meeting the Plan goals and implementing habitat conservation measures. The following goals were developed to guide implementation of the Plan:

1. Ensure habitat and species diversity through the identification and protection of lands for the benefit of Covered Species. To accomplish this, the Water Authority will provide the Preserve Area to support Covered Species and their habitats.

2. Provide and implement conservation measures that meet the environmental needs of the Covered Species, based on the best available scientific information. To accomplish this goal, the Water Authority will document the conserved habitats and credits (acres) available for mitigation at the Preserve Area.

3. Identify and implement environmentally sensitive methods for planning, construction, and O&M Activities (Covered Activities) that minimize project impacts and ensure that activities are compatible with the habitats and species conservation and ecological functions. To accomplish this goal, the Water Authority will implement the minimization and protection measures outlined in the Plan and document that management plans developed for the Preserve Area specify procedures and practices to minimize impacts.

4. Provide and implement an adaptive management program with measurable objectives for vegetation types and Covered Species, where appropriate. To accomplish this, the Water Authority will document that each HMA within the Preserve Area has (or will have) a management plan that is adequately funded and contains an adaptive management element.

5. Provide and implement a monitoring and reporting process. To accomplish this, the Water Authority will provide an annual report which summarizes impacts and

mitigation, conservation, and management/monitoring which has occurred under the Plan and indicates the timeline or status of the annual monitoring and reporting plan for the Preserve Area.

2.3.2.4 Covered Activities

The Water Authority owns, operates, and maintains pipelines and numerous ancillary facilities along the aqueduct pipeline corridors (see Figure 1-1). Routine maintenance is required to assure a safe and reliable supply of water to its Member Water Agencies whose service areas are generally within western San Diego County. The Plan identifies certain projects and maintenance activities as Covered Activities. Covered Activities serve a public need (providing a safe and reliable water supply) and are considered compatible uses when implemented by the Water Authority in conformance with the Plan, even when required within existing preserves.

As detailed in Section 5.0 of the Plan, the activities to be covered by the Plan Area are organized into the following categories:

1. CIP Projects covered for construction and expansion (i.e., Planned or Future CIP projects that have not already been authorized/permitted by Wildlife Agencies);
2. O&M for Planned and Future Projects constructed pursuant to the Plan, and the O&M of Existing Projects and Water Authority facilities, where their maintenance, repair, and operation has not already been authorized pursuant to an existing BO; and
3. Preserve Area Management, Monitoring, and Adaptive Management.

Covered Activities, which are summarized below and described in more detail in Section 5.0 of the Plan, are expected to result in take of Covered Species and loss of habitat. The extent of impacts to Covered Species and native habitats varies based on several factors, including the location, duration, and magnitude of the projects. The Water Authority will make all feasible efforts to avoid or minimize impacts from Covered Activities to Covered Species and their conserved habitats (vegetation communities). Included in the summary of Covered Activities is a description of the typical or expected impacts to Covered Species and their habitats as well as the additional protections and design considerations that would be included in project design and construction practices to avoid or minimize impacts to Covered Species and their habitats. Unavoidable impacts from Covered Activities will be mitigated by compliance with a set of habitat-based compensation criteria that reflect the biological significance of the impact and mitigation sites, as well as by meeting species-specific conditions.

It is important to distinguish between those projects that are already permitted and those projects that require coverage under the Plan. Water Authority projects are classified as

Existing, Planned, and Future Projects. Each of these project categories is described below. Certain projects within the CIP have existing approvals and/or permits under separate actions. Take for species previously authorized by an existing BO for a project cannot be permitted under the Plan. Existing BOs are described above in Section 2.1.1 of this EIR/EIS. Incidental take of Covered Species not previously authorized may be permitted for Covered Activities under the Plan. In addition, the Water Authority would seek permit coverage under the Plan if there are changes to a project that would result in take to a Covered Species that is not authorized by the existing BOs. Table 2-2 summarizes the existing permit status of Existing and Planned Projects based on their type.

- Existing Projects refer to those facilities and water system components which are constructed or in the process of being constructed under existing permits and approvals. Existing Projects were permitted based on an agreed-upon site, design, project footprint, or alignment. If the Water Authority proposes project changes that could result in new or previously unidentified impacts, these projects would be reclassified as Planned Projects, as described below.

- Planned Projects apply to facilities and water system components that are in the planning or design phase for which a purpose and need, as well as approximate or definite project locations, have been identified. Planned Projects could apply to new construction or modification of existing facilities and include the current CIP. Planned Projects may or may not require environmental review through CEQA, review through NEPA if a federal nexus exists, and/or permits through the Wildlife Agencies depending on their location and the impacts identified.

- Future Projects and/or Activities are those that were not designated as CIP budgeted projects at the time of Plan development. Site-specific impacts and take information were not available to analyze, but the impact acres and potential impact are estimated in the Plan. Future Projects and/or Activities proposed outside the Survey Area/PIZ would be subject to the amendment process for take coverage.

- Planned Projects and Existing Projects that may need coverage under the Plan are described in more detail in Section 5.1 and Appendix C of the Plan. Future Projects could involve Covered Activities for existing or new facilities and associated O&M Activities.

2.3.2.4.1 Capital Improvement Program (CIP) Activities

The CIP includes, but is not limited to, buried pipelines with above-ground hydraulic structures and access roads; pump station, flow control, and metering facilities; and water treatment and regulatory storage facilities of various sizes.

TABLE 2-2
SUMMARY OF PROPOSED COVERED PROJECTS AND PERMIT STATUS

Projects	Project Status	Permit Status
Flow control facilities (FCF)		
San Diego 12 Expansion	Planned	--
San Diego 24/25/26 FCF	Planned	--
System Regulatory Storage		--
Hubbard Hill FRS	Planned	--
North County Distribution Pipeline FRS	Planned	--
Slaughterhouse Terminal Reservoir Tank	Planned	--
First and Second Aqueduct and other Pipelines		
Second Crossover Pipeline	Planned	
Pipeline 6[4]	Existing	Permitted under BO 1-6-93-F-28[1]
Restore Untreated Water Delivery in La Mesa-Sweetwater Extension	Planned	--
Ramona Reservoir Bypass	Planned	--
Conversion of Pipeline 3 to Untreated Water; Crossover to Miramar	Planned	--
Long-Term Replacement/Relining of Pre-stressed Concrete Cylinder Pipeline	Existing	Permitted under BO 1-6-93-F-28[1]
Pipeline 4 Relining	Existing	Permitted under BO 1-6-93-F-28[1]
Pipeline 3 Relining	Existing	Permitted under BO 1-6-93-F-28[1]
Escondido-Vista WTP Connection		
a. Escondido-Vista Pipeline Connection	Planned	--
b. Escondido-Vista Pump Station	Planned	--
c. Escondido-Dixon Pipeline	Planned	--
Poway Pump Station and Treated Water Connection	Planned	--
Pump Stations		
San Diego 17 Pump Station	Planned[1]	--
Lower Otay Pump Station	Planned	--
Pump Stations for Pipeline 3 and Pipeline 4	Existing	Permitted under 1-6-97-F-13[1]
Padre Dam Pump Station Expansion	Planned	--
Water Treatment Plants		
Twin Oaks Valley Water Treatment Plant	Existing	No permits required
Dam/ Reservoir		
San Vicente Dam Raise	Existing	A portion of this project associated with the ESP is permitted under BO 1-6-97-F-13, and under BO 2008B0061-2008F0732; implementing this project as one action requires coverage under the Plan.[2]
Olivenhain-Hodges Pumped Storage O&M	Existing	Permitted under BO 1-6-97-F-13[3]
Lake Hodges and San Vicente	Existing	Permitted under BO 1-6-97-F-13[3]
Wetland Mitigation		
Tijuana River Valley (MHA) Wetlands Mitigation Project	Planned	--
San Luis Rey River (MHA) Wetland Mitigation Project	Planned	--

[1] Species covered: coastal California gnatcatcher.

[2] Species covered: coastal California gnatcatcher, least Bell's vireo, and arroyo toad.

[3] Species covered: coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, arroyo toad, and quino checkerspot butterfly. Olivenhain Reservoir is not covered under BO 1-6-97-F-13.

[4] An alternative alignment is being considered for this project.

Site preparation for CIP projects may involve grubbing and brushing of vegetation, and grading or excavation, depending on topography. Temporary construction staging areas may be needed to stockpile material and equipment. During construction, Covered Species may be displaced by the temporary and/or permanent removal of habitat, and indirectly affected by construction related impacts such as noise, fugitive dust, temporary disruption to wildlife movement, and occasional night lighting. When needed, safety/security lighting would be directed downward, so that it does not illuminate adjacent habitat areas. The use of previously disturbed areas will minimize disruptions to native habitat. For certain types of the CIP Projects, the Plan contains corresponding protection measures in Section 6.4.2 of the Plan (e.g., pipeline siting, new access roads, etc.).

Pipelines

In order to accommodate the Water Authority's need to transport water throughout the Plan Area, construction of new pipelines and underground and surface appurtenances is required between existing or new facilities. Pipelines are installed using conventional open trench or tunneling construction. Pipelines are constructed of reinforced concrete cylinder pipe, welded steel pipe, or polyvinyl chloride. Where open cut trenching is not feasible, tunneling techniques, such as boring, jacking, microtunneling, or similar methods, are used. Trenching installation occurs at a rate of 200 to 400 feet per day, but is entirely dependent on the actual geologic conditions and topography encountered. Because pipeline construction is fairly rapid, Covered Species impacts associated with construction activity are typically considered to be of short duration and have limited prolonged effects on species in the vicinity.

In some areas, blasting would be required to loosen formational rock for excavation or removal from its existing position. Blasting would be accomplished by the controlled discharge of an explosive that has been placed in a hole drilled and prepared especially for this purpose. Typically, drilling holes for a blasting pattern can last from several hours to several days. The drilling time period per blast depends on the number of holes, the depth of the holes, and the effort required to drill through the rock. Blasting operations would be in conformance with the specifications prepared by the U.S. Bureau of Mines and any required blasting permits.

The maximum length of open trench in undeveloped areas will not normally exceed 4,000 feet per heading (direction of pipeline orientation). The maximum length of open trench in urban areas and in crossing improved streets will not normally exceed 500 feet per heading. The required work area and the time it takes for a contractor to move through any given area are controlled by factors such as trench depth, construction methods, soil properties, and terrain steepness. Additional factors such as stormwater runoff control requirements, presence of groundwater, and equipment and materials storage may also have an impact on the amount of work area needed for pipeline construction.

Typical vehicle traffic associated with pipeline construction would consist of construction equipment, work force transportation, material deliveries, soil removal and transport, access to staging areas from public roads, access to pipeline right-of-way, and new roads where existing roads are not available. Minor support facilities, ancillary facilities, and major ancillary facilities associated with pipeline construction are discussed in Section 5.0 of the Plan.

Impacts to Covered Species and their habitats caused by the construction of new pipeline facilities may include the temporary and/or permanent removal of vegetation, loss of occupied or potential Covered Species habitat, and disruption of dispersal and travel corridors. In addition, potential construction effects from noise, dust, introduction of weedy species, or provisions of new access into previously undisturbed habitats may be factors adversely affecting vegetation communities and Covered Species. In general, the linear nature and limited width of pipeline construction corridors (80 feet to 150 feet), and the limited extent and number of ancillary surface features, minimizes habitat fragmentation or isolation occurring as a result of pipeline construction. While total impact acreage from pipeline construction may be substantial, impacts are typically spread over a long distance, thus resulting in a limited and localized impact.

In addition to construction of new pipelines, the Water Authority may also require pipeline conversions and relining. Pipeline conversions occur when a treated water service pipeline is converted to an untreated water service pipeline, or vice versa. The construction would be open trench construction ranging in length from 30 to 100 feet. Therefore, the project footprint is relatively minor. Where replacement of pipeline is required, the damaged pipeline would be removed or a new adjacent pipeline would be installed. This would have similar impacts to those associated with constructing a new pipeline, except that substantial portions of the impact would be restricted to the previously disturbed corridor.

The Long-Term Replacement/Relining of Pre-stressed Concrete Cylinder Pipes (PCCP) project requires the excavation of several portals to access the pipeline, followed by the insertion of sections of new pipeline within the existing pipeline. Relining will re-disturb numerous localized sites along portions of the aqueduct. Pipeline relining projects would include environmental fencing and flagging, clearing and grubbing, dewatering, installation of interior bulkheads, temporary erosion control, excavation, shoring and bracing, cutting and demolishing a segment of the existing PCCP, placing a field-applied cement mortar lining, installing cathodic protection systems, placing reinforcing steel and concrete encasement, backfill, disinfection of piping, hydroseeding, revegetation, and other appurtenant work. However, depending on location, a relining project may not impact large amounts of native habitat, given that native habitat communities are fragmented throughout the rights-of-way, and there is some limited flexibility in locating portal sites.

System Regulatory Storage

A Flow Regulatory Structure (FRS) is a large buried, partially buried, or above ground tank that holds water for storage or to control hydraulic functions, and is considered a major ancillary facility to the pipeline system. The facility may include a small, unstaffed, above-ground control building (10 feet to 30 feet on a side, and approximately 10 feet in height) for monitoring equipment, access ways, valves, and other appurtenances. The control building would typically be fenced and locked, with external low intensity safety/security lighting and security surveillance cameras.

Depending of the facility's size and site condition (e.g., slope), the impact area could vary from two to 20 acres. Construction of these facilities is typically localized and generally involves normal daylight work hours. Differing from new pipeline construction described above, these facilities often are constructed over an extended period of time and may include a larger number of differing construction trades. Therefore, localized ground disturbance may be more prolonged than with a pipeline.

To minimize impacts to biological resources and lessen post construction visual affects, the Water Authority will revegetate the tops of buried concrete FRS facilities with grasses and native shrubs that can persist in shallow soils (18 to 24 inches maximum depth).

Flow Control Structures

Flow Control Structures include facilities and equipment for water flow metering, velocity and pressure reduction, and appurtenant valves. Often, this equipment is housed in a pre-fabricated concrete reinforced building or vault which may be above, at, or below grade. These facilities vary in size and typically occupy a permanent footprint of a few hundred square feet. The construction methods for these facilities are similar to a FRS, but the disturbance footprint and construction duration may be substantially less. Construction of such facilities is typically completed within a one- to two-acre footprint of disturbance. Because of the low activity around the ancillary structures, their small size, and their sporadic occurrence along pipeline alignments, long-term biological impacts are typically considered to be limited to direct footprint habitat losses with no substantial secondary effects.

Pump Stations

Pump stations convey water from a lower elevation, or hydraulic head, to a higher elevation or head. The Water Authority's aqueduct operates primarily on gravity flow; however, pumping may be necessary in order to move water due to substantial changes in topography. The pump station equipment is usually housed in a reinforced concrete building above grade level. Pump station structures can range in size from 1,200 square feet up to 13,000 square feet, depending on capacity and topography. Construction of

such facilities is typically completed within a one- to five-acre footprint of disturbance. Therefore, localized ground disturbance is greater than with a pipeline, and the construction period in a given area is prolonged (generally 18-24 months).

Water Treatment Plants

Water Treatment Plants (WTPs) treat water that is served for potable use that meets all state and federal drinking water standards. WTPs can be used for the treatment of surface water, groundwater, brackish groundwater, recycled water, or seawater. Either conventional processes or membrane technologies can be utilized for the core treatment process, each affecting the type and size of buildings required on-site. Although no new WTPs or expansion of existing WTPs that require coverage under the Plan are currently proposed for construction by the Water Authority, the Plan is designed to cover construction of new WTPs and expansion of existing WTP facilities. Construction of a new WTP 100 million gallons per day (MGD) capacity facility would require an area of approximately 12 to 15 acres. Site preparation and construction operation is similar to new pipeline construction utilizing open trench construction described above, with the exception that work activities are fixed at the WTP site until construction is complete. The WTP would have permanent staffing at the site to operate and maintain the facility.

Hydroelectric Generating Stations

Water Authority currently operates hydroelectric generating facilities, and may build future hydroelectric generating facilities. Typically, high-pressure station equipment consists of generators, water pipelines, valves, pressure reducing/control equipment, electric conduit, lines, control and monitoring equipment, electric transmission lines, and interconnect facilities (switch yard) to connect to the electric power grid. The equipment is usually housed in a reinforced concrete building partially below grade level. Hydroelectric station structures can range in size from 1,400 square feet up to 13,000 square feet, depending on capacity and topography. Construction of such facilities is typically completed within a one- to five-acre disturbance footprint. Site preparation and construction operation is similar to pump station activities because they often are constructed over an extended period of time and include a larger number of differing construction trades. Therefore, localized ground disturbance is greater than with a pipeline and the construction period in a given area is prolonged.

Access Road Construction, Re-Establishment, and Improvements

To the greatest extent feasible, existing maintenance roads within rights-of-way would be used in order to minimize potential impacts associated with new access road construction. In areas where existing roads are not available and steepness of the right-of-way precludes its use, new roads may need to be graded and easements obtained. Certain temporary road improvements would be made to allow passage of construction vehicles for specific projects. When new road construction is required, it will be

implemented pursuant to Plan Minimization Measures identified in Section 6.4 of the Plan, particularly Sections 6.4.2.6, Stormwater Best Management Practices, and 6.4.2.7, New Access Roads. Following construction, disturbed road sections would be restored to original contours. Typically, access roads are compacted native soil, but in areas of steep slopes or other site-specific requirements, the road surface is generally paved with concrete. New access roads through drainage channels and streams may be unimproved crossings or improved crossings (Arizona “at-grade” crossings or culverts) subject to appropriate state and federal agreements and permits authorizing such activities. Access road re-establishment may involve abandoning a severely overgrown road and constructing a new access road that will be easier to maintain. Re-establishing roads could include permanent habitat removal at previously disturbed sites, increased access for invasive species, noise, dust, and human activity for a limited period of time (two to 10 days, depending on site conditions). When re-establishing access with an altered road alignment, the road segment to be abandoned will be subject to the applicable provisions of the Habitat Restoration Program, including weed control (see Section 6.6 of the Plan). Site preparation and construction operation is similar to open trenching pipeline. Permanent roads are to have regular maintenance activities, such as mowing and grading, which will occur annually to properly maintain the road.

Feasibility Studies and Data Collection

The Water Authority typically conducts feasibility studies for its projects to establish baseline conditions as a precursor to environmental document preparation. Projects requiring feasibility studies include, but are not limited to, CIP projects and groundwater investigations. Typically, the impacts associated with feasibility studies are considered to be temporary and could involve biological surveys, topographical surveying, surface and limited core sampling for soils, and geological assessments.

Aqueduct Protection Program

The Water Authority’s Aqueduct Protection Program (APP) addresses the structural integrity, maintenance, and protection of the large pipeline facilities of both aqueducts. Its objective is to determine the condition and, if feasible, extend the service lives of these facilities to maintain a safe and reliable water supply to the Member Water Agencies. Initial investigative phases of the program do not result in take of species or habitats. Repair activity as a result of APP investigations may result in temporary impacts to habitat, depending on the location and nature of the repair.

Groundwater Storage and Recovery Program Studies

It is anticipated that various groundwater studies may ultimately lead to one or more programs for basin recharge and extraction. Analyses have been conducted on multiple alluvial basins within San Diego County to determine storage capacity, extraction potential, and preliminary environmental effects.

The field investigations and feasibility studies conducted by the Water Authority involve the following activities: data collection, vegetation clearing, and grading and fill activities for access and drilling pads. Removal or alteration of hydrology necessary to construct a pad to operate a drilling rig may result in a direct impact to riparian areas. Any groundwater discharge associated with testing a well production capacity would be temporary any comply with applicable state and federal laws governing the discharge of waters.

Wetland and Riparian Mitigation Site Implementation and Interim Management

The Water Authority anticipates that implementing some Covered Activities will result in unavoidable permanent loss of wetlands which will be mitigated to achieve a no-net-loss of wetlands (see Section 6.7 of the Plan). To achieve this standard and provide conservation for Covered Species, the Water Authority is creating three wetland habitat management areas as part of the Plan (see Section 6.8.2 of the Plan). Wetland creation and restoration requires professional engineering design expertise to predict and address any change to localized hydrology. Although not a routine Water Authority construction activity, wetland and riparian creation and restoration activities are included as a subset of CIP Covered Activities. Tasks associated with wetland creation can be divided into two phases: the first phase covers construction of the project, and the second phase covers interim habitat management activities (e.g., planting, weeding, and irrigation that may last several months to a year until the habitat is established). The construction phase includes site preparation (delineating limits of work and removal of debris, structures, and vegetation), earthwork (grading and placement of soil), and installation (temporary irrigation system, container plants, cuttings and seeding). Earth moving equipment is used to remove soil or structures to achieve the desired elevation and flow gradient needed to sustain the desired wetland and/or riparian communities.

Impacts to Covered Species are considered temporary and may include a temporary reduction in habitat, construction noise, and fugitive dust, and increased human presence. Management activities include maintenance (routine weeding and invasive species control, replacement of plants and cuttings, and re-seeding, as needed), monitoring (qualitative and quantitative vegetation assessments, wildlife observation), and report preparation.

2.3.2.4.2 O&M Activities

O&M Activities are expected to result in impacts associated with maintaining components of Existing, Planned, and Future Projects. The Water Authority's maintenance and scheduled repairs include, but are not limited to: re-grading of access roads; fire clearance around surface structures; pipeline inspections; valve and pipeline section replacements; pipeline, tank, and reservoir drainage into natural waterways to allow for interior inspection and work; and cathode/anode renewal. The majority of O&M Activities occur in developed and disturbed areas, or other non-sensitive habitat areas.

O&M Activities at existing structures will not appreciably affect Covered Species or habitat. Impacts could include temporary habitat removal or trimming of vegetation at previously disturbed sites and increased noise, light, and human activity for a limited period of time. Disturbance generally occurs at specific locations which are regularly inspected or serviced, such as anode beds or valve structures along existing access roads, mainly within previously cleared and mitigated areas. For certain types of the O&M Activities, the Plan contains corresponding protection measures in Section 6.4.3 of the Plan (e.g., weeding and mowing, tree trimming, fire protection, etc.). O&M Activities are discussed in Section 5.2 of the Plan.

Aqueduct Security and Surveillance

To secure the aqueduct system and provide surveillance along the system, security camera systems are installed along with security lighting, fencing, alarm systems, and real-time water quality monitoring stations. Security cameras and lighting are typically mounted on structures along the aqueduct system, and routine inspections and maintenance is expected to have no effect on Covered Species. Vegetation is managed on each side of security fencing, as needed, to maintain visibility and the effectiveness of the fence as a barrier.

Pipelines and Minor Support Facilities

O&M Activities specific to pipelines include, but are not limited to: (1) weekly visual inspections; (2) mowing within pipeline alignments; (3) access road grading; (4) testing and servicing of valves as needed; (5) yearly walking of pipeline alignment and inspection of the cathodic protection system; (6) draining for internal inspection; (7) replacement of pipeline and pipeline appurtenances, such as air-release valves, vents, and blow-off structures; and (8) pressure testing pipeline, painting pipeline appurtenances, repairing tunnel entrances, and repairing minor leaks in buried pipeline joints or segments as needed.

System Regulatory Storage

O&M Activities typically associated with system-wide storage facilities include, but are not limited to: (1) routinely visiting and inspecting the site; (2) performing routine maintenance and cleaning of equipment on-site; and (3) responding to outages or other emergency situations.

Pump Stations

O&M activities typically associated with pump stations include, but are not limited to: (1) routine operation checks; (2) routine general pump station cleaning and maintenance; (3) routine maintenance of pump station exteriors; (4) routine testing and replacement of pumps and other equipment during non-emergency periods and

verification of operational readiness; (5) annual major maintenance and clean-up; and (6) as-needed service to the motor cooling system (emergency pumps), replacement of pump seals, painting pump station and equipment, and disassembling pumps to inspect bearings and impeller (recirculation pumps and emergency pumps).

Water Treatment Plants (WTP)

O&M Activities generally associated with WTP facilities include, but are not limited to: (1) inspecting the site on a routine basis; (2) performing periodic routine maintenance and cleaning of equipment at the site; (3) taking delivery and/or hook-up of disinfection chemicals on an as needed basis; (4) performing major maintenance or replacement of pumps and other equipment on an as needed basis; and, (5) responding to outages or other similar situations.

Hydroelectric Generating Stations

O&M activities typically associated with hydroelectric stations include, but are not limited to: (1) routine operation checks; (2) routine general generation station cleaning and maintenance; (3) routine maintenance of station exteriors; (4) routine testing and replacement of generators, electric control systems, and other equipment; (5) annual major maintenance and clean-up; and (6) as-needed service to electric generation system.

Reservoir Drawdown

Water levels in a reservoir are expected to fluctuate for a variety of operational reasons. Maximum operational capacity refers to the spillway elevation; however, actual operational elevation is typically several feet below spillway height. Drawdown, the controlled lowering of the surface water level, may occur due to seasonal demand or to conduct maintenance on some reservoir feature. Under normal operational circumstances, routine drawdown results in no discharge of water into waterways; drawdown occurs by controlled inflow relative to outflow until the desired water level is achieved.

Prolonged drawdown periods, for example three years or greater, could provide sufficient time for Covered Species' habitat to colonize an exposed reservoir bed. The subsequent refilling of the reservoir would inundate any opportunistic habitat, any burrows, dens, or nest sites resulting in the loss of habitat, and any eggs and nestlings. The rise in water level is relatively slow (i.e., less than one foot per day); therefore, it is expected that adult and juvenile wildlife would evacuate the area in advance of the rising water level. Drawdown protection measures are addressed in Section 6.4.3.4 of the Plan.

Access Road Maintenance and Repair

The Water Authority owns and operates facilities that require regular access on established roads. These access roads must be maintained and repaired on an annual basis. O&M Activities associated with this maintenance would include access road grading, upgrades, stream-crossing improvements, and culvert cleaning. Access road maintenance includes filling, grading, paving, and spot-repair of areas subject to scouring and erosion. Road repairs are performed as necessary to access facilities, usually following seasonal rains.

Mowing

In addition to maintaining the road surfaces and facilities, adjacent vegetation must be controlled so that it does not expand into the roadway or encroach into facilities. Mowing and/or trimming of vegetation around facilities is needed to maintain access and comply with fire regulations. In general, the Water Authority clears approximately 15 feet from facilities and four feet on each side of roads, with the exception of urban and developed areas where the Water Authority also clears all vegetation inside fenced areas and up to four feet outside the fences with permission from the landowner. Mowing reduces or eliminates habitat suitability for many species because of change in native vegetation structure, density, and diversity. However, mowing also provides a successional vegetation edge effect that can be exploited by some species. If a Covered Species cannot move away from a mower, mortality could occur.

Protection of Underground Facilities in Waterways

Protection of underground facilities is required wherever facilities cross a waterway within the Plan Area. When scouring threatens a facility, measures to protect the facility and to minimize future erosion must be taken. Maintenance activities to protect underground facilities include grading, addition of fill material to repair erosion damage, repair of adjacent slopes with placement of riprap or concrete, installation of sheet pile, compaction of soil, control of species with invasive root structures, and other activities as necessary.

Fire Protection

A clearing of a minimum 15 feet around facilities and mowing four feet adjacent to roadways is needed for fire protection after construction. Vegetation clearing may involve mowing, weed abatement, or removal of dead or dying trees or foliage, or the dead, diseased, or dying limbs of trees or foliage. The local Fire Marshall typically identifies areas requiring fire maintenance.

Weed Abatement in the Preserve Area

Weed control may be necessary in the Preserve Areas and during Covered Activities such as post-construction revegetation efforts. Weed abatement would be used in order to improve the habitat for Covered Species or for fire protection and may involve mechanical or chemical (herbicide) methods.

Tree Trimming and Removal

Tree trimming for routine maintenance or entire tree removal can be required to protect facilities and to keep areas around facilities and access roads clear. Tree trimming is done generally with lift trucks and a chipper trailer.

Pest Control

Facilities require pest control, usually to control problems with non-native rats, mice, and other rodents. Pest control is more common to facilities located adjacent to urbanized areas where food is more plentiful. When necessary, pest control measures will be used in accordance with the written recommendation of a licensed, registered Pest Control Advisor.

Urgent Repairs

Urgent repairs are required when a facility or structure is compromised and requires repairs to remain functional. Urgent repairs do not pose an immediate threat to life or property, but are among the top priorities of the Water Authority to ensure continued service. They may also become emergency repairs if not addressed in a timely manner. Construction activities and impacts to Covered Species and habitats for an urgent repair would be similar to constructing the corresponding Covered Activity type described above (e.g., new pipeline construction). Standard procedures for addressing an urgent repair are listed in Section 5.2.15 of the Plan.

Rights-of-Way Activities

Approximately 85 percent of Water Authority rights-of-way land is held as easements, with the remaining 15 percent as fee-owned parcels. The Water Authority maintains full control of fee-owned parcels and can grant encroachment permits to public and private individuals. The Water Authority does not limit activities in easements under private ownership that do not jeopardize facilities or block access, but the activities of underlying private landowners where the Water Authority has an easement are not covered under the Plan. Use of easements and fee ownership is discussed further in Section 5.2.16.1. Rights-of-way management and surveying activities are discussed in Sections 5.2.16.2 and 5.2.16.3, respectively, in the Plan.

Emergency Actions

Emergency Actions would not be required to be a Covered Activity by this Plan.

Emergency actions are required when a facility or structure has failed or is about to fail and requires immediate action to minimize or avoid catastrophic failure of all or part of the water treatment, storage, or delivery system. Emergency actions include, but are not limited to, emergency release of reservoir water in a storm or earthquake event, reservoir or groundwater drawdown during severe drought, repair of broken pipelines, and search and rescue operations on Water Authority lands. Emergency actions could also include a discharge of treated or untreated water or an accidental spill of a substance or chemical used for the treatment of water or disinfection. Protocols to reduce impacts to sensitive resources may include signage, maps, or fact sheets that clearly indicate preferred access routes, communications protocols, and areas to be avoided, if possible, during emergency operations.

In an emergency situation, the Water Authority will immediately conduct the necessary activities to alleviate the situation. An Environmental Surveyor (a qualified biologist working under the Water Authority's Plan who conducts/oversees environmental compliance of Covered Activities) will conduct an assessment during the incident, if possible, or after the incident is complete. Once the situation has stabilized, incidental take of Covered Species or habitat affected will be assessed and recommendations for revegetation activities proposed.

2.3.2.4.3 Preserve Area Management, Monitoring, and Adaptive Management

A Preserve Area Management Plan (PAMP) provides detailed descriptions of the land management activities, restrictions, and practices that will be undertaken to maintain or enhance Covered Species habitat on lands set aside for that purpose. Management activities that would be implemented as site-specific measures, where applicable, are discussed in Section 5.4 of the Plan. Covered Species protection and conservation are primary goals of the Preserve Area and all management activities, including monitoring, maintenance, and adaptive management activities, will comply with state and federal endangered species regulations as well as the Plan. Management of the Preserve Area may include active and passive habitat restoration, stream stabilization measures, fire management practices, compatible public uses/outreach, fencing, signage, removal of trash and debris, light and noise, feral and domestic animal control, cowbird trapping, invasive exotic species control, and guidelines for species introduction and reintroduction.

To the extent feasible, all future management activities will incorporate appropriate avoidance measures, such as temporary fencing to protect riparian areas from grazers, prescribed burn protocols, and appropriate use of herbicides and pesticides, into the

design of the management activity. Preserve Area management activities, including monitoring, research, maintenance, and adaptive management activities, provide a net benefit to Covered Species; however, temporary impacts to suitable habitats and potential take of Covered Species may occur when carrying out those activities.

2.3.2.5 Covered Species

Under the state NCCPA standards, the Plan must assure that the Covered Species are conserved and managed. Therefore, Covered Species are those plant and animal species, listed or unlisted, that are conserved and managed by actions outlined in the Plan, and for which impacts will be avoided or minimized and mitigated such that impacts to these species and loss of their habitat can occur pursuant to the Plan and IA. Covered Species proposed by the Plan are listed in Table 2-3. This table includes a summary of the species' status and any Plan policies that would apply (e.g., narrow endemic and/or vernal pool species). The Covered Species include a total of 63 species, including 26 plants, five invertebrates, two amphibians, nine reptiles, 13 birds, and eight mammals. Major Amendment Species include three species, California Orcutt grass, vernal pool fairy shrimp, and Munz's Onion, which are not covered under the proposed Plan and would require a Major Amendment. Analysis conducted for the Plan determined that the appropriate process for potential take of California Orcutt grass, vernal pool fairy shrimp, and Munz's Onion would be through the Major Amendment process for the Riverside County portion of the Plan Area.

Plan implementation will support the Covered Species' viability in the Plan Area. In order to adequately cover a species under the Plan, the Water Authority must provide reasonable assurance that, even with estimated levels of take, implementation of the Plan would not result in the extirpation of that species from the Plan Area and, by extension, from the region. Species included are federally and/or state-listed as rare, threatened, endangered, or are likely candidates for future listing as rare, threatened, or endangered based on present population declines, diminishing habitat, or existing levels of sensitivity. Covered Species are those that have been documented within the PIZ or Survey Area (as described in Section 1.3.4 of this EIR/EIS) or have a reasonable probability of occurring based on geographic range and the presence of suitable habitat conditions. Species were also determined to be in need of coverage by the Plan if affirmative conservation and management within the Plan Area would substantially benefit the species and, for listed species, contribute to their recovery.

Both general and species-specific conditions have been identified for Covered Species (see Section 2.1 and the Conditions for Coverage for each Covered Species in Appendix B of the Plan). The conservation and mitigation commitments for many of the Covered Species will be provided by the use of habitat credits available at the Preserve

TABLE 2-3
ALTERNATIVE 2: COVERED SPECIES

Scientific Name	Common Name	Federal/State Status	CNPS List	Plan Policies	Occurrence		
					Survey Area	PIZ	Preserve Area**
PLANTS							
Acanthomintha ilicifolia	San Diego thorn-mint	CE/FT/CH	1B	NE	K	K	P
Adolphia californica	California adolphia	–/–	2	--	K	K	K
Ambrosia pumila	San Diego ambrosia	–/FE/CH	1B	NE	K	K	N
Baccharis vanessae	Encinitas baccharis	CE/FT	1B	NE	K	K	N
Brodiaea filifolia	Thread-leaved brodiaea	CE/FT/CH	1B	NE, VP	K	K	N
Brodiaea orcuttii	Orcutt's brodiaea	–/–	1B	--	K	K	N
Calochortus dunnii	Dunn's mariposa lily	CR/–	1B	NE	K	N	P
Ceanothus cyaneus	Lakeside ceanothus	–/–	1B	NE	K	K	K
Centromadia parryi ssp. *australis*	Southern tarplant	–/–	1B	--	K	N	N
Centromadia pungens ssp. *laevis*	Smooth tarplant	–/–	1B	--	K	K	N
Deinandra conjugens	Otay tarplant	CE/FT/CH	1B	NE	K	K	K
Dudleya variegata	Variegated dudleya	–/–	1B	NE	K	K	K
Dudleya viscida	Sticky-leaved dudleya	–/–	1B	--	K	K	N
Eryngium aristulatum var. *parishii*	San Diego button-celery	CE/FE	1B	NE, VP	K	K	N
Ferocactus viridescens	San Diego barrel cactus	–/–	2	--	K	K	K
Iva hayesiana	San Diego marsh-elder	–/–	2	--	K	K	K
Monardella hypoleuca ssp. *lanata*	Felt-leaved monardella	–/–	1B	NE	K	K	N
Monardella viminea	Willowy monardella	CE/FE/CH	1B	NE	K	K	N
Muilla clevelandii	San Diego goldenstar	–/–	1B	--	K	K	K
Navarretia fossalis	Spreading navarretia	–/FT/CH	1B	NE, VP	K	K	N
Nolina cismontana	Chaparral nolina	–/–	1B	--	K	K	N
Pogogyne abramsii	San Diego mesa mint	CE/FE	1B	NE, VP	K	K	N
Pogogyne nudiuscula	Otay Mesa mint	CE/FE	1B	NE, VP	K	N	N
Quercus dumosa	Nuttall's scrub oak	–/–	1B	--	K	K	N
Salvia munzii	Munz's sage	–/–	2	--	K	P	K
Tetracoccus dioicus	Parry's tetracoccus	–/–	1B	--	K	K	P
WILDLIFE							
Invertebrates							
Branchinecta sandiegonensis	San Diego fairy shrimp	FE, CH	NA	NE, VP	K	K	P
Euphydryas editha quino	Quino checkerspot butterfly	FE, CH	NA	--	K	K	K
Euphyes vestris harbisoni	Harbison's dun skipper	*	NA	NE	P	P	P
Lycaena hermes	Hermes copper butterfly	*	NA	--	K	P	K
Streptocephalus woottoni	Riverside fairy shrimp	FE, CH	NA	NE, VP	K	N	N

TABLE 2-3
ALTERNATIVE 2: COVERED SPECIES (continued)

Scientific Name	Common Name	Federal/State Status	CNPS List	Plan Policies	Occurrence		
					Survey Area	PIZ	Preserve Area**
Amphibians							
Anaxyrus (=Bufo) californicus†	Arroyo toad	FE, CSC, CH	NA	--	K	K	K
Spea hammondii	Western spadefoot toad	CSC	NA	VP	K	K	K
Reptiles							
Actinemys marmorata pallida	Southern Pacific (southwestern) pond turtle	CSC	NA	--	K	K	P
Aspidoscelis hyperythra beldingi	Belding's orange-throated whiptail	CSC	NA	--	K	K	K
Aspidoscelis tigris stejnegeri	Coastal (western) whiptail	*	NA	--	K	K	K
Coleonyx variegatus abbottii	San Diego banded gecko	*	NA	--	P	N	P
Crotalus ruber ruber	(Northern) red-diamond rattlesnake	CSC	NA	--	K	K	K
Diadophis punctatus similis	San Diego ring-neck snake	*	NA	--	K	K	K
Eumeces skiltonianus interparietalis	Coronado skink	CSC	NA	--	K	P	K
Lichanura trivirgata roseofusca	Coastal rosy boa	*	NA	--	K	N	K
Phrynosoma coronatum blainvillii	Coast (San Diego) horned lizard	CSC, *	NA	--	K	K	K
Birds							
Agelaius tricolor	Tricolored blackbird	CSC	NA	--	K	N	K
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	*	NA	--	K	K	K
Ammodramus savannarum	Grasshopper sparrow	CSC	NA	--	P	N	K
Amphispiza belli belli	Bell's sage sparrow	*	NA	--	K	K	K
Athene cunicularia hypugaea	Western burrowing owl	CSC	NA	--	K	K	N
Campylorhynchus brunneicapillus sandiegensis	San Diego cactus wren	CSC, *	NA	NE	K	K	K
Dendroica petechia brewsteri	Yellow warbler	CSC	NA	--	K	P	K
Empidonax traillii extimus	Southwestern willow flycatcher	FE, CE, CH	NA	--	K	P	N
Eremophila alpestris californica	California horned lark	CSC	NA	--	K	P	K
Icteria virens	Yellow-breasted chat	CSC	NA	--	K	K	K
Lanius ludovicianus	Loggerhead shrike	CSC	NA	--	P	N	K
Polioptila californica californica	Coastal California gnatcatcher	FT, CH, CSC	NA	--	K	K	K
Vireo bellii pusillus	Least Bell's vireo	FE, CE, CH	NA	--	K	K	P

TABLE 2-3
ALTERNATIVE 2: COVERED SPECIES (continued)

Scientific Name	Common Name	Federal/State Status	CNPS List	Plan Policies	Occurrence		
					Survey Area	PIZ	Preserve Area**
Mammals							
Chaetodipus californicus femoralis	Dulzura (California) pocket mouse	CSC	NA	--	K	K	K
Chaetodipus fallax fallax	Northwestern San Diego pocket mouse	CSC	NA	--	K	K	K
Dipodomys stephensi	Stephens' kangaroo rat	FE, CT	NA	--	K	K	N
Felis concolor	Mountain lion	*	NA	--	P	P	K
Lepus californicus bennettii	San Diego black-tailed jackrabbit	CSC	NA	--	K	K	K
Neotoma lepida intermedia	San Diego desert woodrat	CSC	NA	--	K	K	K
Onychomys torridus ramona	Southern grasshopper mouse	CSC	NA	--	P	N	P
Perognathus longimembris brevinasus	Los Angeles pocket mouse	CSC	NA	--	K	K	N

Federal and State Listing
FE = Federally listed, endangered
FT = Federally listed, threatened
CH = Critical Habitat
CE = State listed, endangered
CT = State listed, threatened
CR = State listed, rare

Other
CSC = CDFG Species of Special Concern
* = Taxa listed with an asterisk fall into one or more of the following categories:
- Taxa considered under Section 15380(d) of CEQA guidelines.
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range
- Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California.
- Taxa closely associated with a habitat that is declining in California (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands).

California Native Plant Society (CNPS) Lists
1B = Species rare, threatened, or endangered in California and elsewhere.
2 = Species rare, threatened, or endangered in California, but more common elsewhere.

Plan Policies
NE = Narrow Endemic Policy
VP = Vernal Pool Protection Policy

Occurrence
K = Known to occur
N = Not known to occur
P = Potential to occur

NA = Not applicable

** Refer to species-specific Conservation Analysis in the Plan for details on potential habitat locations in Survey Area, PIZ, and Preserve Area.

Area, which supports key vegetation communities used by a number of the Covered Species.

As a further protection of listed species, the ESA requires the USFWS to designate critical habitat for species. Critical habitat for Covered Species is addressed in Section 3.3.1.1 of this EIR/EIS. As discussed in the Conservation Analysis for the Plan, with the exception of the Tijuana River Valley HMA and the San Luis Rey River Valley HMA, the proposed locations of the Planned Projects are not expected to impact designated or proposed critical habitat for any Covered Species. Current areas of critical habitat at the Tijuana River Valley HMA and the San Luis Rey River Valley HMA include disturbed habitat and former agricultural lands, respectively. The two wetland creation projects are expected to improve the areas of critical habitat within the restoration project area. The locations of Future Projects have not been determined, but the Plan will attempt to avoid and minimize impacts to any critical habitat through the planning process described in Section 6.0 of the Plan. Implementation of the Covered Activities will attempt to avoid and minimize impacts to all critical habitat, but this may not always be possible. When impacts to critical habitat cannot be avoided, the Plan will attempt to limit impacts to temporary effects. If permanent impacts cannot be avoided, then the Water Authority will first attempt to mitigate with credits in the HMAs that have critical habitat or acquire other lands that are designated as critical habitat. Only if no critical habitat is available from the Preserve Area or as an acquisition of the new habitat lands, the Water Authority will provide a justification for acquiring suitable habitat land that will benefit the species, with the concurrence of the Wildlife Agencies.

For Covered Species whose presence has not been documented in the Preserve Area, coverage will require demonstration that certain general conditions as listed in the Conservation Analysis, Section 2.1, Conditions of Coverage, are met, as well as implementation of the species-specific criteria identified for that species (see Appendix B of the Plan). If the Water Authority does not currently have or cannot document the presence of a Covered Species in the Preserve Area, the Water Authority may acquire suitable habitat or purchase credits within established mitigation banks that support and provide active management for the species. Under some circumstances, restoration or contribution to a regional conservation efforts or species-specific management programs may also be considered.

2.3.2.6 Species Not Currently Covered Under the Plan

All other listed species that occur within the Plan Area will continue to be regulated under the ESA and CESA. Take of uncovered, listed species can be authorized separately from the Plan under section 7 or section 10 of the ESA, and take exceptions under Section 2081 of the Fish and Game Code. Impacts to species not covered under the Plan can also be addressed through the amendment process described in Section

8.0 of the Plan. Adding species to the Covered Species list may involve additional mitigation, including reprioritized management practices or habitat acquisition.

2.3.2.7 Plan Minimization Measures

The Plan Minimization Measures represent appropriate, environmentally-sound approaches to reduce effects to Covered Species and their habitats from construction, O&M Activities, and rights-of-way activities that will be implemented by the Water Authority. These standard minimization measures will be applied to all activities covered by the Plan, as described below:

Avoidance and minimization protocols for project development and construction activities are discussed in Section 6.4.2 of the Plan. These protocols include provisions for planning and coordination, facility siting, pipeline siting, existing pipeline relining, design and construction controls, stormwater Best Management Practices (BMPs), new access roads, and clean-up. All field personnel will adhere to all the measures for any covered construction activities, and project-specific minimization and mitigation measures will be outlined within the CEQA document prepared for the particular activity as well as in the Pre-Activity Survey Form (PSF) (see below).

Section 6.4.3 of the Plan describes the O&M Activities that have the potential to impact sensitive habitats and Covered Species. The Water Authority would be required to conduct all O&M Activities in a manner that avoids and/or minimizes impacts to sensitive resources, primarily by staying within the limits of existing disturbance. These measures apply to a range of activities performed by the Water Authority on a regular basis as part of maintaining their infrastructure, rights-of-way, and access roads. Some routine O&M Activities described in the Plan, such as erosion control, stormwater BMPs, dewatering, and revegetation, already employ minimization techniques. The protection measures outlined in the Plan would be consistent with the standards in the Water Authority's General Conditions and Standard Specifications manual, most recently updated in 2005. As shown in Table 2-1, much of the Water Authority's Existing and Planned Projects and O&M Activities would take place in disturbed areas or areas that do not contain sensitive habitats that require mitigation (e.g., agriculture). In order to adequately protect Covered Species and their habitats, additional protection measures are outlined for activities including: weeding and mowing; clearing and grubbing; fire protection activities; draindowns and drawdowns; stream crossings; erosion control activities; tree trimming and removal; vehicles operations; cut and fill slopes; urgent repairs; and maintenance of access roads.

An Environmental Surveyor will oversee pre-project evaluations/needs of Covered Activities and work with the project engineer and contractors to ensure implementation compliance of Covered Activities with Plan commitments. The Environmental Surveyor may be one or more firms or individuals retained by the Water Authority, or qualified

Water Authority staff whom would be designated to function as an Environmental Surveyor and be responsible for pre-activity surveys and determining the appropriate minimization measures (e.g., flagging sensitive zones and habitats) prior to the commencement of construction or O&M Activities.

To ensure all Water Authority Covered Activities comply with the Plan, an Environmental Surveyor must complete a Pre-Activity Survey Form (PSF; Appendix F of the Plan). This process includes a survey of the project area for sensitive biological resources within 30 days of initiation of ground disturbing activities for new construction and O&M.

Field personnel working within sensitive habitat areas, including both Water Authority employees and contractors, will participate in a Field Personnel Education Training at the start of each project. The program will be conducted on-site by an Environmental Surveyor under the direction of the Water Authority.

Field personnel (and contractor) responsibilities include prohibiting personnel from collecting plants or wildlife unless authorized; harming or harassing wildlife or damaging nests; driving excessively fast on unpaved roads; parking in areas where vegetation may be ignited; littering; and other activities which may harm wildlife or vegetation. The measures for Water Authority staff, field personnel (and contractors), and the Environmental Surveyor are outlined in the Plan and would be regularly monitored by the Water Resources staff at the Water Authority. In addition, the Water Authority is responsible for documenting compliance with the Plan's measures as part of the annual report to the Wildlife Agencies.

2.3.2.8 Plan Mitigation Measures

The Plan's biological mitigation approach is habitat-based. All of the vegetation communities and land covers (habitat types) known to occur within the Plan Area are grouped into tiers (Section 6.5.1.3 and Table 6-5 in the Plan) that are deemed to have similar ecological values based on rarity, Covered Species diversity, environmental sensitivity, etc. Impacts to habitats caused by Covered Activities will be mitigated with the same or biologically-equivalent habitat. Mitigation ratios reflect the different relative ecological values among the tiers, as well as the location of the impact and mitigation sites.

The Plan will ensure that impacts from Covered Activities are fully compensated by providing the required acres of appropriate mitigation credits from the Preserve Area. In the event that there is no in-kind habitat credit available at the Preserve Area for mitigation of impacts, the Water Authority may obtain habitat credits from conservation banks within the Plan Area or acquire additional appropriate habitat lands to add to the Preserve Area.

To calculate the final mitigation ratio, the project activity must identify the vegetation community/habitat tier as well as the impact and mitigation site locations. The following factors determine the appropriate mitigation: whether the impacts are proposed within a biologically significant resource area (BSRA); whether the mitigation is proposed within a BSRA; whether the impact is permanent or temporary; and whether the activity is proposed within an existing right-of-way. These factors are described below.

Biologically Significant Resource Area

Some habitat areas support rare vegetation types and species; support greater species diversity; are part of core areas of habitat; or function as key linkages or corridors for species. These types of habitat areas are generally the focus for conservation by the proposed Plan and other conservation plans operating in the Plan Area. The Plan uses the term BSRA to include the following types of habitat areas within the Plan Area:

- An upland or wetland HMA (e.g., all Water Authority-committed lands in the Plan);

- Areas that have been designated in approved (or in-approval stage) conservation plans as biological resource core areas, pre-approved mitigation areas, focused planning areas, corridors/linkages, or equivalent designated/defined terms. The approval stage includes jurisdictions/entities formally committed to preparing a conservation plan, and that have produced a draft, publicly-released map of priority areas for conservation and areas proposed for development; and/or

Existing rights-of-way are excluded from the BSRA because they have and continue to be impacted by O&M Activities. Based on the above conditions, each project will identify the impact area and mitigation area and determine whether the sites are within BSRA. That determination will affect the final mitigation ratio requirement.

The distribution of BSRA within the Plan Area in relation to the existing Preserve Area and MMAs is shown on Figure 6-2 in the Plan (see Appendix B). The Plan has been designed to avoid/minimize conflicts with and complement other conservation planning efforts, with an emphasis on maintaining and/or expanding habitat linkages and wildlife corridors. To maintain key biological resources, Covered Activities implemented under the Plan will not significantly compromise core areas and linkages/corridors (see Sections 6.4.2.1, 6.4.2.2, and 6.11.3.1 of the Plan).

Permanent and Temporary Impacts

Permanent impacts result from Covered Activities that cause the removal of habitat (e.g., sensitive vegetation community or Covered Species) that cannot be mitigated on-site through revegetation and other restoration efforts. Tables 6-6 and 6-7 in the Plan, which are replicated here as Tables 2-4 and 2-5, provide mitigation ratios for impacts by

Covered Activities for upland and wetland vegetation communities. The mitigation ratios reflect the impacted vegetation community's tier and the biological status of the impact and mitigation sites.

Temporary impacts are those which occur to sensitive vegetation communities from Covered Activities that do not disturb or remove vegetation root stock or that can be mitigated on-site through revegetation and other restoration efforts. The Water Authority identifies two types of temporary impacts: (1) one-time disturbance, or (2) repeated disturbance within the duration of the Plan's permit. The Water Authority will use different approaches when dealing with these two types of temporary impacts as follows:

- For one-time temporary impacts, disturbed areas will be restored. The specific habitat enhancement (restoration and revegetation) measures will be selected to address site-specific needs. No off-site mitigation will be required for one-time temporary impacts unless the restoration is determined unsuccessful according to identified criteria.

- For repeated disturbance, the Water Authority will restore the disturbed area and also mitigate off-site at the appropriate mitigation ratio. No performance criteria will be associated with the on-site restoration efforts in this case.

Existing Rights-of Ways and Facilities

Water Authority rights-of-ways and facilities that pre-existed a subsequent designation of the surrounding area as a preserve, reserve, or BSRA designation will be treated as being outside of those designations. Therefore, impacts to habitats by Covered Activities within these areas will mitigate at the lower ratios consistent with lands that are physically outside a BSRA. Similar to the approaches noted above, temporary impacts to sensitive habitat areas within rights-of-way will be revegetated on-site, and any new, permanent impacts to sensitive habitats will be mitigated off-site.

2.3.2.8.1 Additional Policies and Programs

In addition to the habitat-based mitigation requirements, the Water Authority developed several policies to further ensure the protection of sensitive species and habitats.

Narrow Endemic Policy

Narrow endemic species are species that are considered to have highly restrictive habitat requirements, localized soil requirements, or other constraining ecological factors. Narrow endemic species may have limited but important populations within the Plan Area. The Narrow Endemic Policy, described in Section 6.5.1.6 of the proposed Plan, applies to all species identified as narrow endemic species (see Table 2-3 and

TABLE 2-4
UPLAND HABITAT MITIGATION RATIOS

Mitigation Site	Impacted Land Classification	
	Meets criteria for Biologically Significant Resource Area	Does not meet criteria for Biologically Significant Resource Area
Tier I		
Meets criteria for Biologically Significant Resource Area	2:1	1:1
Does not meet criteria for Biologically Significant Resource Area	3:1	2:1
Tier II		
Meets criteria for Biologically Significant Resource Area	1.5:1	1:1
Does not meet criteria for Biologically Significant Resource Area	2:1	1.5:1
Tier III		
Meets criteria for Biologically Significant Resource Area	1:1	0.5:1
Does not meet criteria for Biologically Significant Resource Area	1.5:1	1:1
Tier IV	No mitigation required	No mitigation required

TABLE 2-5
WETLAND HABITAT MITIGATION RATIOS

Mitigation Site	Impacted Land Classification	
	Meets criteria for Biologically Significant Resource Area	Does not meet criteria for Biologically Significant Resource Area
Tier I		
Meets criteria for Biologically Significant Resource Area	2.5:1	2:1
Does not meet criteria for Biologically Significant Resource Area	4:1	3:1
Tier II		
Meets criteria for Biologically Significant Resource Area	2:1	1.5:1
Does not meet criteria for Biologically Significant Resource Area	3:1	2:1
Tier III		
Meets criteria for Biologically Significant Resource Area	1.5:1	1:1
Does not meet criteria for Biologically Significant Resource Area	2:1	1.5:1

Appendix B); however, the Plan acknowledges that 80 percent avoidance criteria may not be achievable for rights-of-way that pre-date the Plan and IA, if those documents are approved and implemented. The Plan sets forth mitigation measures for narrow endemic species including, but not limited to, avoiding, minimizing, and mitigating populations of narrow endemic species to the maximum extent practicable.

Habitat Restoration Program

Restoration is the reestablishment of natural/native species and processes. Restoration expedites natural regeneration through the use of planting, seeding, transplanting, and salvaging techniques. Habitat restoration may occur as a partial mitigation response to address permanent impacts, recurring temporary impacts (in conjunction with providing off-site qualifying habitat), and one-time temporary impacts. Where the restoration is providing partial mitigation for permanent impacts and mitigating one-time temporary impacts, the restoration effort will emulate surrounding vegetation characteristics.

Restoration of recurring-impact sites will ensure that the restored site does not revert to a disturbed or invasive, non-native species-dominated condition. Specific components of these restoration plans are discussed in detail within Section 6.6.1 in the Plan. Restoration for temporarily impacted areas subject to future, repeat disturbance will conform to the protocols for seeding/planting, weed control, erosion control, species relocation, and soil and plant salvage set forth in Section 6.6.2 in the Plan.

Wetland Protection and Mitigation Program

The Wetland Protection and Mitigation Program (Wetland Program) will protect and achieve no-net-loss of wetlands. A functional wetland mitigation site means that the site meets performance criteria established in the approved wetland mitigation site plan. To offset unavoidable impacts to wetlands, thereby achieving an overall no-net-loss of wetland functions and values, compensatory mitigation will be provided within the wetland habitat of the Preserve Area or, if not yet installed, a site approved by the Wildlife Agencies and USACE (if warranted). The Wetland Program will ensure adequate mitigation based upon habitat type to address federal and state regulatory obligations.

Impacts to waters and wetlands mainly occur when the Water Authority conducts activities on linear facilities that pass through wetlands. Avoidance and minimization of impacts to wetlands within designated preserve/reserve areas will be assured through the implementation of measures outlined in Section 6.4 in the Plan. Uses within easements inside preserve lands are generally limited to O&M Activities at existing facilities. The Wetland Program will be implemented within the Plan Area through individual project review and the associated CEQA process. Where development projects are proposed in or near wetlands, the Water Authority would show that impacts to waters and wetland habitats have been avoided and minimized to the greatest extent feasible. For unavoidable permanent impacts to wetland habitat types, the Water

Authority will compensate in accordance with the ratios to achieve the no-net loss standards (see Table 2-5).

Compliance with Fish and Game Code Sections 1602 and 1603(a)

Section 6.7.2 in the Plan identifies streamlined procedures for CDFG and the Water Authority to process Covered Activities that are subject to Fish and Game Code Sections 1602 and 1603(a). The CDFG Notification of Lake or Streambed Alteration (LSAA) form requires the applicant to identify measures to protect fish, wildlife, and plant resources. By implementing the Plan and the Lake, Stream, and River Work Conditions (see Appendix I of the Plan), and by entering into a binding IA together with a standardized LSAA, described below, the Plan fulfills the purpose of a project-specific LSAA for Covered Activities' impacts to covered habitat types, Covered Species, and other general fish, wildlife, and plant resources associated with the lakes, streams, and rivers.

Vernal Pool Protection Policy

If a vernal pool may be impacted by Covered Activities, the Plan provides measures to establish the boundaries of the vernal pool and its watershed and ensure no permanent impacts to vernal pool complexes will occur. The Vernal Pool Protection Policy measures listed in Section 6.7.3.1 of the Plan require temporary impacts or unavoidable permanent impacts to be mitigated in-kind in consultation with the Wildlife Agencies (see Table 2-5).

Quagga and Zebra Mussel Response and Control Action Plan

Together with CDFG, Member Water Agencies, and others, the Water Authority developed and released the San Diego Regional *Dreissena* Mussel Response and Control Plan, dated June 25, 2008. The Response and Control Plan is intended as a reference guide to prevent mussel larva from entering surface waters. Based on this larger plan, the Water Authority then developed its own Response and Control Plan called the San Diego County Water Authority Quagga and Zebra Mussel Response and Control Action Plan.

2.3.2.8.2 Preserve Area and MMAs

Preserve Area

Implementation of the proposed Plan will contribute to the regional conservation of important habitat areas and Covered Species in the Preserve Area within the Plan Area. These Preserve Area sites are within BSRAs and often adjacent to, or managed as part of, other regionally significant conserved habitat areas. The conservation strategy for Covered Species focuses on establishing a regionally significant Preserve Area that supports Covered Species and potentially occupiable habitat. The Plan’s Preserve Area provides native habitat occupied by Covered Species, and the remaining upland and

wetland habitat acres/credits in the Preserve Area provides or will provide appropriate habitat to compensate for unavoidable impacts from Covered Activities. Currently, the Water Authority has three upland HMAs in the Preserve Area: Crestridge HMA, San Miguel HMA, and Rancho Cañada HMA. In addition to available wetland habitat at the Manchester HMA, the Water Authority is also in the process of creating additional wetland habitat for use as credit. The wetland creation sites are: Tijuana River Valley HMA in the city of San Diego, and San Luis Rey River Valley HMA within unincorporated San Diego County. The Preserve Area and the credits available for mitigation are described further in Section 6.8 of the Plan.

Preserve Management and Adjacency Guidelines

The Plan establishes practices to manage the Preserve Area and avoid and minimize, and mitigate when necessary, impacts to preserve lands within the Plan Area. Unlike most other conservation plans, the Plan does not authorize major public recreational uses, agriculture, general development, mineral extractions, or other activities that could affect areas adjacent to or within its Preserve Area or other plans' preserved areas. A PAMP will identify and provide detailed descriptions of the land management actions, restrictions, and practices that will be undertaken to maintain effective habitat for the Covered Species. Section 6.11 of the Plan describes the guidelines which are used when preparing the management plans in order to ensure that they adequately address management and adjacency issues, such as fire management, public use, fencing, trash removal, noise and lighting, signage, feral and domestic animal control, cowbird trapping, species introduction and re-introduction, and invasive exotic species control.

Plan Monitoring and Adaptive Management

Monitoring and adaptive management of the Preserve Area will be implemented to ensure that the Water Authority is in compliance with Plan requirements, to measure the effectiveness of conservation actions, and to provide additional information that will help direct or redirect conservation actions to benefit the Covered Species. Adaptive management, a key component in conservation plans, provides a strategy to deal with the changes and variability of natural systems. The Plan expects that the land managers will prepare HMPs (with an Adaptive Management component). Interim monitoring and adaptive management requirements and guidelines are discussed in Sections 6.12.1 through 6.12.3 of the Plan.

2.3.2.9 Plan Funding

As explained in more detail in Section 7.0 of the Plan, implementation of the NCCP/HCP will be funded through existing financial management policies and programs maintained by the Water Authority (e.g., CIP Mitigation Program, individually approved CIP project budgets, and/or the annual operating budget of the Water Resources Department, Preserve Area endowment funds, etc.).

2.3.2.10 Changed and Unforeseen Circumstances

In Section 8.0 of the Plan, the Water Authority defines Changed Circumstances and Unforeseen Circumstances. Changed Circumstances are those conditions that can reasonably be anticipated to occur during the Plan's proposed permit term, and that will be addressed in the proposed Plan, Permit, and IA. Unforeseen Circumstances refer to situations that arise after NCCP/HCP adoption and that could not reasonably have been anticipated over the duration of the Permit, and that involve an unexpected species decline. Changed Circumstances addressed in the Plan include: flooding; fire; extended periods of reduced precipitation; invasive non-native species; toxic spills, dumping, vandalism, and other illegal human activity; and future listings of non-Covered Species.

2.3.3 Alternative 3: Full Species List Alternative

The Full Species List Alternative would allow the Water Authority to adopt the proposed Plan as it is described in Alternative 2 and to increase the list of Covered Species. The USFWS would consider issuing a section 10(a)(1)(B) permit from USFWS and CDFG would consider authorizing a Section 2835 take authorization for incidental take for the full list of species analyzed in Appendix B of the Plan, which is a total of 89 species (42 plant species and 47 wildlife species). These 89 species are listed in Tables 2-1 and 2-6. Similar to the approach proposed in Alternative 2, the Water Authority would continue to comply with applicable environmental programs and prior agreements, such as the existing BOs. Alternatives 2 and 3, unlike Alternative 1, provide a benefit to Covered Species. As described above, the Plan identifies the types of Water Authority activities which would be covered under the Plan and Permits, and includes conservation measures to avoid, minimize, and mitigate potential biological impacts, including deducting credits from the Preserve Area. All elements contained within the Plan, as described under Alternative 2, would apply under Alternative 3 with the measures in the Plan implemented for the full list of species. The Preserve Area conserved by this alternative would encompass the same HMAs as described in Alternative 2. In the HMAs, the Water Authority would be responsible for funding the management and monitoring all 89 covered species.

This alternative is similar to Alternative 2 since the Water Authority would have a mechanism to address not only federally and/or state-listed species, but all of those species which have been identified as having any likelihood to become listed during the proposed term of the permit. The Plan includes a Conservation Analysis which addressed 89 species (see Appendix B). The benefit to covering more species is that even if some species are unlikely to ever be listed as threatened/endangered, inclusion on the Covered Species list directs conservation and avoidance/minimization of impacts toward these species. The Plan's minimization, avoidance, and mitigation during projects and protection in the Preserve Area would apply to a longer list of species. However, the Plan, as proposed in Alternative 2, has not yet fully demonstrated that there is adequate

TABLE 2-6
ALTERNATIVE 3: ADDITIONAL SPECIES TO BE COVERED

Scientific Name	Common Name	Federal/State Status	CNPS List	Plan Policies	Occurrence		
					Survey Area	PIZ	Preserve Area**
PLANTS							
Arctostaphylos rainbowensis	Rainbow manzanita	–/–	1B	--	K	K	N
Ceanothus verrucosus	Wart-stemmed ceanothus	–/–	2	--	K	K	P
Comarostaphylis diversifolia ssp. *diversifolia*	Summer holly	–/–	1B	--	K	K	P
Cordylanthus orcuttianus	Orcutt's bird's-beak	–/–	2	--	N	N	N
Cylindropuntia californica var. *californica*	Snake cholla	–/–	1B	NE	K	N	N
Ericameria palmeri ssp. *palmeri*	Palmer's goldenbush	–/–	2	NE	K	K	N
Githopsis diffusa ssp. *filicaulis*	Mission Canyon bluecup	–/–	3	--	K	N	K
Hazardia orcuttii	Orcutt's hazardia	CT/FC	1B	--	N	N	N
Lepechinia cardiophylla	Heart-leaved pitcher sage	–/–	1B	--	K	N	N
Myosurus minimus ssp. *apus*	Little mousetail	–/–	3	NE, VP	K	N	N
Navarretia prostrata	Prostrate navarretia	–/–	1B	NE, VP	N	N	N
Packera ganderi	Gander's ragwort	CR/–	1B	--	P	N	N
Quercus engelmannii	Engelmann oak	–/–	4	--	K	K	K
Satureja chandleri	San Miguel savory	–/–	1B	--	K	N	P
WILDLIFE							
Reptiles							
Thamnophis hammondii	Two-striped garter snake	CSC, *	NA	--	K	K	K
Birds							
Accipiter cooperii	Cooper's hawk	CSC, *	NA	--	K	N	K
Aquila chrysaetos	Golden eagle	CFP, CSC, BEPA	NA	--	K	P	K
Asio otis	Long-eared owl	CSC	NA	--	P	N	P
Circus cyaneus	Northern harrier	CSC	NA	--	K	P	K
Elanus leucurus	White-tailed kite	CFP, *	NA	--	K	P	K
Falco peregrinus anatum	American peregrine falcon	CE, CFP	NA	--	K	N	K
Haliaeetus leucocephalus	Bald eagle	CE, CFP, BEPA	NA	--	K	N	N
Pelecanus occidentalis californicus	California brown pelican	FE, CE, CFP	NA	--	N	N	N

TABLE 2-6
ALTERNATIVE 3: ADDITIONAL SPECIES TO BE COVERED (continued)

Federal and State Listing
FE = Federally listed, endangered
FT = Federally listed, threatened
FC = Federal Candidate for listing
CH = Critical Habitat
CE = State listed, endangered
CT = State listed, threatened
CR = State listed, rare

Other
BEPA = Bald and Golden Eagle Protection Act
CFP = California Fully Protected Species. No take of individuals is permitted.
CSC = CDFG Species of Special Concern
* = Taxa listed with an asterisk fall into one or more of the following categories:
- Taxa considered under Section 15380(d) of CEQA guidelines.
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range
- Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California.
- Taxa closely associated with a habitat that is declining in California (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands).

California Native Plant Society (CNPS) Lists
1B = Species rare, threatened, or endangered in California and elsewhere.
2 = Species rare, threatened, or endangered in California, but more common elsewhere.
3 = Species for which more information is needed (a review list).
4 = A watch list of species of limited distribution.

Plan Policies
NE = Narrow Endemic Policy
VP = Vernal Pool Protection Policy

Occurrence
K = Known to occur
N = Not known to occur
P = Potential to occur

NA = Not applicable

** Refer to species-specific Conservation Analysis in the Plan for details on potential habitat locations in Survey Area, PIZ, and Preserve Area.

conservation and protection for the full list of species. Therefore, the Water Authority would be required to supplement NCCP/HCP funding, conduct research and surveys to supplement existing species information, and direct strategic acquisition of additional lands for the Preserve Area to adequately mitigate for impacts to all 89 species.

This alternative is distinct from Alternative 2 because the number of species that would be protected under the NCCP/HCP would be increased from 63 to 89, and conservation would be provided for 26 additional species above and beyond those covered by Alternative 2. The additional 26 Covered Species would include those whose occurrence has not been confirmed or determined to be likely to occur in the Plan Area, or species whose adequate conservation and management requires verification. Consideration of coverage by the USFWS for the additional 26 species would require further surveys to determine the location of those species in the Survey Area, PIZ, and Preserve Areas, and may require conservation measures beyond those described in the proposed Plan to be implemented by the Water Authority.

Under Alternative 3, the Water Authority would implement one or more of the following conservation options for the additional 26 Covered Species:

1. Demonstrate that adequate suitable habitat already exists (either occupied or not) within the Preserve Area to justify coverage.

2. Acquire additional habitat with known Covered Species' occurrences or the potential to support the species with suitable occupiable habitat. Suitable habitat should have enhancement or restoration potential and should be biologically viable for the species' persistence. Such habitat must be added to the Preserve Area and managed and monitored in perpetuity consistent with the Plan.

3. Restore and/or enhance habitat within the Plan Area's existing mitigation properties/Preserve Area. Restoration or enhancement sites should be managed and monitored in perpetuity consistent with the Plan.

4. Contribute funds to other species-specific regional conservation efforts or species-specific management programs.

5. Implement a biologically superior conservation alternative for the species at appropriate locations within the Plan Area.

6. Propagate species for reintroduction and/or introduction into biologically suitable habitat within the Plan Area in accordance with a Wildlife Agency-approved restoration and monitoring program.

7. Salvage and relocate species into suitable, occupiable habitat in accordance with a Wildlife Agency-approved restoration and monitoring program.

8. Purchase mitigation bank credits within established mitigation banks that support and provide active management for the species.

2.3.4 Alternative 4: Reduced Plan Area Alternative

The Reduced Plan Area Alternative would allow the Water Authority to adopt the Plan as described in Alternative 2, with coverage proposed only for those 39 species that are known to occur within the PIZ. The list of species is provided in Table 2-7. The Plan Area that would be permitted would be limited to the PIZ, encompassing approximately 64,600 acres (see Figure 1-4), and the Covered Activities would be the same as those covered under Alternative 2 (Proposed Plan Alternative). The Preserve Area conserved by this alternative would also encompass the same HMAs as Alternatives 2 and 3. The USFWS would consider issuing a section 10(a)(1)(B) permit and CDFG would consider authorizing a Section 2835 take authorization for incidental take only for species that are known to occur in the PIZ as they are analyzed in Appendix B of the Plan, which is a total of 39 species (18 plant species and 21 wildlife species). Alternative 4 would provide conservation for fewer species than covered in Alternatives 2 and 3. The anticipated impacts from this alternative are summarized along with those from Alternatives 2 and 3 in Table 2-1.

Similar to the approach proposed in Alternatives 2 and 3, the Water Authority would continue to comply with applicable environmental programs and prior agreements, such as the existing BOs. Alternatives 2, 3, and 4, unlike Alternative 1, provide a benefit to Covered Species. As described above, the proposed Plan identifies the types of Water Authority activities which would be covered under the Plan and Permits, and includes conservation measures to avoid, minimize, and mitigate potential biological impacts, including deducting credits from the Preserve Area. All elements contained within the Plan, as described under Alternative 2, would apply under Alternative 4 with the measures in the Plan implemented for the 39 species.

This alternative is similar to Alternatives 2 and 3 since the Water Authority would have a mechanism to address not only federally and/or state-listed species, but those species which have been identified as having any likelihood to become listed during the proposed term of the permit. The 39 species proposed for coverage under Alternative 4 have all been analyzed in Appendix B of the Plan. The benefit to providing coverage only for planned activities within the Water Authority's rights-of-way and fee-owned lands is that it would provide certainty for both the Water Authority and USFWS regarding take authorization and minimization, avoidance, and mitigation measures for those projects already planned for in the CIP. However, by restricting the Plan Area to the PIZ, the Water Authority would have take authorization only within the PIZ; therefore, separate permits would need to be obtained for projects conducted outside of the PIZ (e.g., extension of a pipeline that cannot feasibly be located within the existing pipeline alignments).

TABLE 2-7
ALTERNATIVE 4: COVERED SPECIES

Scientific Name	Common Name	Federal/State Status	CNPS List	Plan Policies	Occurrence		
					Survey Area	PIZ	Preserve Area**
PLANTS							
Acanthomintha ilicifolia	San Diego thorn-mint	CE/FT/CH	1B	NE	K	K	P
Adolphia californica	California adolphia	–/–	2	--	K	K	K
Ambrosia pumila	San Diego ambrosia	–/FE/CH	1B	NE	K	K	N
Baccharis vanessae	Encinitas baccharis	CE/FT	1B	NE	K	K	N
Brodiaea filifolia	Thread-leaved brodiaea	CE/FT/CH	1B	NE, VP	K	K	N
Brodiaea orcuttii	Orcutt's brodiaea	–/–	1B	--	K	K	N
Ceanothus cyaneus	Lakeside ceanothus	–/–	1B	NE	K	K	K
Centromadia pungens ssp. *laevis*	Smooth tarplant	–/–	1B	--	K	K	N
Deinandra conjugens	Otay tarplant	CE/FT/CH	1B	NE	K	K	K
Dudleya variegata	Variegated dudleya	–/–	1B	NE	K	K	K
Dudleya viscida	Sticky-leaved dudleya	–/–	1B	--	K	K	N
Eryngium aristulatum var. *parishii*	San Diego button-celery	CE/FE	1B	NE, VP	K	K	N
Ferocactus viridescens	San Diego barrel cactus	–/–	2	--	K	K	K
Muilla clevelandii	San Diego goldenstar	–/–	1B	--	K	K	K
Navarretia fossalis	Spreading navarretia	–/FT/CH	1B	NE, VP	K	K	N
Nolina cismontana	Chaparral nolina	–/–	1B	--	K	K	N
Salvia munzii	Munz's sage	–/–	2	--	K	P	K
Tetracoccus dioicus	Parry's tetracoccus	–/–	1B	--	K	K	P
WILDLIFE							
Invertebrates							
Branchinecta sandiegonensis	San Diego fairy shrimp	FE, CH	NA	NE, VP	K	K	P
Euphydryas editha quino	Quino checkerspot butterfly	FE, CH	NA	--	K	K	K
Amphibians							
Anaxyrus (=Bufo) californicus†	Arroyo toad	FE, CSC, CH	NA	--	K	K	K
Spea hammondii	Western spadefoot toad	CSC	NA	VP	K	K	K
Reptiles							
Actinemys marmorata pallida	Southern Pacific (southwestern) pond turtle	CSC	NA	--	K	K	P
Aspidoscelis hyperythra beldingi	Belding's orange-throated whiptail	CSC	NA	--	K	K	K
Aspidoscelis tigris stejnegeri	Coastal (western) whiptail	*	NA	--	K	K	K
Crotalus ruber ruber	(Northern) red-diamond rattlesnake	CSC	NA	--	K	K	K
Diadophis punctatus similis	San Diego ring-neck snake	*	NA	--	K	K	K

TABLE 2-7
ALTERNATIVE 4: COVERED SPECIES (continued)

Scientific Name	Common Name	Federal/State Status	CNPS List	Plan Policies	Occurrence		
					Survey Area	PIZ	Preserve Area**
Lichanura trivirgata roseofusca	Coastal rosy boa	*	NA	--	K	N	K
Phrynosoma coronatum blainvillii	Coast (San Diego) horned lizard	CSC, *	NA	--	K	K	K
Birds							
Aimophila ruficeps canescens	Southern California rufous-crowned sparrow	*	NA	--	K	K	K
Athene cunicularia hypugaea	Western burrowing owl	CSC	NA	--	K	K	N
Campylorhynchus brunneicapillus sandiegensis	San Diego cactus wren	CSC, *	NA	NE	K	K	K
Polioptila californica californica	Coastal California gnatcatcher	FT, CH, CSC	NA	--	K	K	K
Vireo bellii pusillus	Least Bell's vireo	FE, CE, CH	NA	--	K	K	P
Mammals							
Chaetodipus californicus femoralis	Dulzura (California) pocket mouse	CSC	NA	--	K	K	K
Chaetodipus fallax fallax	Northwestern San Diego pocket mouse	CSC	NA	--	K	K	K
Dipodomys stephensi	Stephens' kangaroo rat	FE, CT	NA	--	K	K	N
Lepus californicus bennettii	San Diego black-tailed jackrabbit	CSC	NA	--	K	K	K
Neotoma lepida intermedia	San Diego desert woodrat	CSC	NA	--	K	K	K

TABLE 2-7
ALTERNATIVE 4: COVERED SPECIES (continued)

Federal and State Listing
FE = Federally listed, endangered
FT = Federally listed, threatened
CH = Critical Habitat
CE = State listed, endangered
CT = State listed, threatened

Other
CSC = CDFG Species of Special Concern
* = Taxa listed with an asterisk fall into one or more of the following categories:
- Taxa considered under Section 15380(d) of CEQA guidelines.
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range
- Population(s) in California that may be peripheral to the major portion of a taxon's range, but which are threatened with extirpation within California.
- Taxa closely associated with a habitat that is declining in California (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands).

California Native Plant Society (CNPS) Lists
1B = Species rare, threatened, or endangered in California and elsewhere.
2 = Species rare, threatened, or endangered in California, but more common elsewhere.

Plan Policies
NE = Narrow Endemic Policy
VP = Vernal Pool Protection Policy

Occurrence
K = Known to occur
N = Not known to occur
P = Potential to occur

^{NA} = Not applicable

** Refer to species-specific Conservation Analysis in the Plan for details on potential habitat locations in Survey Area, PIZ, and Preserve Area.

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