

4.0 Cumulative Impacts

4.1 Cumulative Impact Methodology

This section addresses the cumulative impacts of the Proposed Action in combination with other projects. The “Proposed Action” when used in this analysis refers to implementation of the Project described in Chapter 2. A list approach was used to identify projects that are closely related to the Proposed Action (i.e., located within or in the vicinity of the planning area and having the potential to impact common resources) that could result in cumulatively considerable impacts. These projects were examined for their potential to result in a cumulative impact when affects are combined with the affects of the Proposed Action. Section 4.2 describes the projects included in the cumulative impact analysis and section 4.3 summarizes cumulative impacts by each resource area.

4.2 Analysis of Cumulative Impacts

4.2.1 Other Lower Colorado River System Management and Storage Projects

4.2.1.1 Lower Colorado River Multi-Species Habitat Conservation Plan

The LCR MSCP is a long-term multi-agency effort to conserve and work towards the recovery of endangered species, and protect and maintain wildlife habitat on the LCR. Participants in the LCR MSCP include Reclamation, the US National Park Service, the Bureau of Indian Affairs, BLM, the USFWS, Western Area Power Administration, the States of Arizona, California, and Nevada. The LCR MSCP's purposes are to:

- protect the LCR environment while ensuring the certainty of existing river water and power operations,
- address the needs of threatened and endangered wildlife under the ESA, and
- prevent the listing of additional species on the LCR.

The LCR MSCP covers areas up to and including the full-pool elevations of Lakes Mead, Mohave and Havasu and the historical floodplain of the Colorado River from Lake Mead to the SIB. Reclamation’s “covered actions” (actions for which ESA consultation, permitting and incidental take authorization was covered under the LCR MSCP) include (but are not limited to): Reclamation’s daily operations of Hoover, Davis, Parker, Senator Wash, Imperial, and Laguna dams; flood control releases on the LCR; water deliveries to Arizona, California, Nevada, and Mexico consistent with existing contracts and obligations; electric power generation at Hoover, Davis, and Parker dams; application of future surplus and shortage guidelines on the LCR; channel

maintenance from Davis Dam to the SIB; operation and maintenance of major Federal facilities, and the Laguna Reservoir Restoration Project (see below).

LCR MSCP covered activities also include the potential changes in points of diversion of up to 1.574 maf per year of Colorado River water by water contractors in Arizona, California, and Nevada (LCR MSCP 2004a). Specific transfers for the entire 1.574 maf per year have not been identified; therefore, the impact analysis for the changes in points of diversion is programmatic. Diversion changes are expected to occur in response to shifts in water demand during the 50-year term of the LCR MSCP Conservation Plan. It is anticipated that a shift in water diversion from the southern reaches of the Colorado River upstream to Lake Mead and to Lake Havasu will occur. Potential impacts could include changes in water surface elevation along the LCR where points of diversion are changed as well as associated impacts on biological resources. The Environmental Impact Statement on the LCR MSCP addressed the affects of USFWS issuing the ESA take authorization and implementation of the plan's habitat conservation measures by the LCR MSCP over an anticipated 50 year period.

Laguna Reservoir Restoration Project The proposed Laguna Reservoir Restoration Project would increase the amount of storage capacity in the basin area located immediately upstream of Laguna Dam through the excavation of accumulated sediments. Laguna Dam is located approximately 12 miles northeast of Yuma, Arizona and five miles downstream from Imperial Dam. The project is intended to provide sufficient storage space at Laguna Reservoir to allow for the release of sluicing flows from Imperial Dam that would remove sediment accumulated at the AAC headworks and the California Sluiceway channel. The existing storage capacity available in Laguna Reservoir is estimated to be approximately 400 af. Under the proposed Project storage capacity would be increased to 1,500 af by excavating in the existing channel and adjacent uplands. Material from the excavated areas would be placed in the existing Laguna Disposal Site.

The EA/FONSI for the Laguna Reservoir Restoration Project was finalized in December 2006. Like the Proposed Action, the Laguna Reservoir Restoration Project would have the potential to affect air quality in the County of Imperial and biological resources of the Colorado River. With implementation of Imperial County Air Pollution Control District requirements for dust control, dredging and maintenance activities of the Laguna Reservoir Restoration Project would have no significant air quality impacts. Dredging and maintenance activities as part of the project could result in a loss of nesting and foraging habitat for common and sensitive wildlife species. The Laguna Reservoir Restoration Project is a covered activity under the LCR MSCP and accompanying ESA Biological and Conference Opinion for Federal covered actions. With incorporation of avoidance and minimization measures of the LCR MSCP into the proposed project description, and compensatory mitigation for all marsh wetland habitats affected, no significant impacts on biological resources would occur.

4.2.1.2 Wellton-Mohawk Bypass Flow Replacement or Recovery Program

Reclamation currently routes saline agricultural return flows from the Wellton-Mohawk Irrigation and Drainage District to the Cienega de Santa Clara in Mexico rather than having these flows enter the Colorado River. This "bypass" is necessary in order to meet Colorado River water quality obligations to Mexico. However, the bypass flow (approximately 109,000 afy) is

not included in the 1.5 million acre-feet of water that the US is required to deliver annually to Mexico. Consequently, water in storage in one of the Colorado River reservoirs must be used to make up for the bypass flow.

The Yuma Desalting Plant, completed in 1991, was constructed for the purpose of treating and recovering part of the bypass flow so it could be returned to the Colorado River. The desalting plant operated at limited capacity during 1992 and into January of 1993. The desalting plant was shut down due to large overdeliveries to Mexico caused by the 1993 Gila River Flood, the low salinity levels of flows delivered to Mexico at NIB, and damage to the Wellton-Mohawk Main Conveyance Channel and the Main Outlet Drain Extension caused by the Gila River Flood. Reclamation is currently in the process of exploring various methods for recovering or replacing the bypass flows including operation of the Yuma Desalting Plant, use of water conservation or land fallowing, construction of facilities to reduce over-deliveries to Mexico (such as the Drop 2 Reservoir), or increased groundwater pumping in the Yuma Mesa Area. Reasonably foreseeable future projects and actions related to the Wellton-Mohawk Bypass Flow Replacement or Recovery Program include the Proposed Action and the Yuma Area Groundwater Pumping Proposal (see below). The bypass flow replacement project will not impact the Drop 2 Reservoir Project.

Application for Permit to Transport Groundwater from the Yuma Groundwater Basin (Yuma Area Pumping) As a result of irrigation on the Yuma Mesa, a groundwater mound has developed under the Mesa. Approximately 5,600 acres in the Yuma area are subject to shallow groundwater (the water table is within six feet of the ground surface) (Reclamation 2006a). Reclamation proposes to eliminate shallow groundwater in the Yuma area by increasing pumping from 32 existing wells and the installation and operation of five new wells (Reclamation 2006a). Reclamation proposes to increase pumping from the Yuma Valley, Yuma Mesa, and 242 well fields by as much as 20,000 to 30,000 af in any year and has submitted an application to the Arizona Department of Water Resources. Reclamation will use the increase in water pumping to replace a portion of the reject stream from the Yuma Desalting Plant and any Wellton-Mohawk drainage water bypassed to the Santa Clara Slough to satisfy the requirements of Minute 242 of the US-Mexico Water Treaty. The application to the Arizona Department of Water Resources seeks to receive credit for 25,000 af of groundwater pumped as replacement water for a portion of the Bypass Drain flow.

The hydrologic study performed in support of the permit application estimated that increased pumping by the project would drop the water table in shallow groundwater areas of the Yuma Valley by an average of 2 to 3 feet. The predicted effect of project pumping, combined with increases in other drainage pumping would be to drop the water table in shallow groundwater areas an average of 5 to 7 feet. This drawdown would decrease the acreage subject to shallow groundwater. It is estimated that with implementation of the Yuma Area Pumping proposal only 600 to 1,300 acres in the Yuma Valley would be subject to shallow groundwater rather than the approximately 5,600 acres currently affected. Increased pumping in the Yuma area could cause drawdown of Colorado River elevations, on average 0.2 feet in the reach from Laguna Dam to Morelos Dam and 0.3 feet from Morelos Dam to the SIB. Overall, seepage from groundwater to the Colorado River would decrease by up to 1,500 afy (Reclamation 2006a).

4.2.1.3 All-American Canal Lining Project

Imperial Irrigation District obtains water from the 82-mile long AAC, which diverts water from the Colorado River at Imperial Dam. This water conservation project is proceeding according to Sections 395 and 397 of Public Law 109-432. This project includes construction of a new, parallel canal from one mile west of Pilot Knob to Drop 3, a distance of 23 miles. The centerline of the new canal would be offset from the old centerline of the original canal by a distance of 300 to 600 feet, depending on terrain, ease of construction, and location of existing structures. Operation and maintenance roads would be 20 feet wide to match existing canal roads (Reclamation and IID 1994).

Excavation of 25 million cubic yards of earth would be required. Excess material would be placed in waste banks along the new canal. An estimated 530 acres of new right-of-way would be required, all of which is under Federal control. Other land disturbances would include a 10-acre concrete batch plant and three, 5-acre staging areas, all of which would be on previously disturbed lands. Power lines would be relocated as required. Actual construction would last approximately three years. The canal would be in service year-round, as at the present (Reclamation and IID 1994).

Environmental impacts were identified in the following areas: groundwater quantity and quality in Mexico, biological resources (wetlands including wetlands along the canal and along the impacted reach of the Colorado River, terrestrial plant communities and associated wildlife, and special status species), canal fisheries, cultural resources, hydroelectric power, and recreation (Reclamation and IID 1994). The AAC Lining Project will employ compensation measures to reduce potential air quality impacts. A variety of mitigation measures have been incorporated into the project, including establishing 43 acres of honey mesquite and cottonwood/willow and one acre of marsh, restoring shelter for juvenile fish by constructing artificial reefs in the canal, replacing and protecting habitat for special status species and to help maintain the fishery for recreational fishing, and avoiding cultural resources sites where feasible.

The Final EIS/EIR was filed with the EPA on April 14, 1994 and noticed in the *Federal Register* on April 19, 1994. A Record of Decision (ROD) was prepared and signed by the Lower Colorado Region's Regional Director on July 29, 1994. On January 12, 2006 Reclamation determined that the EIS and ROD continued to meet the requirements of NEPA. Funding for the AAC Lining Project was authorized by the California legislature in September 2003. Final designs for the AAC Lining Project were initiated in 2004 and were completed in January 2006 (Reclamation 2006b). Construction is scheduled to begin in June 2007.

4.2.1.4 Development of Lower Basin Shortage Guidelines and Coordinated Management Strategies for Lake Powell and Lake Mead

Reclamation proposed to adopt specific Colorado River lower Basin shortage guidelines and coordinated reservoir management strategies to address operations of Lake Power and Lake Mead, particularly under low reservoir conditions. Reclamation is in the process of determining the key environmental issues to be addressed in future environmental impact analyses. At this time, estimating specific impacts from adoption of shortage guidelines is speculative.

4.2.2 Other Projects

4.2.2.1 Lower Colorado River Boundary and Capacity Preservation Project

The Lower Colorado River Boundary and Capacity Preservation Project was proposed by the International Boundary and Water Commission, US Section (USIBWC). The project is located along the Limitrophe Division of the Colorado River, the 23.7 mile “international segment” of the Colorado River. This portion of the river serves as the border between the US (State of Arizona) and Mexico (State of Baja California del Norte). The project would include measures to preserve and stabilize the international boundary and improve flood control of the channel, as well as long-term operations and maintenance activities. The environmental impacts of the project may include loss of vegetation and associated wildlife habitat between the river levees as a result of clearing for a pilot channel. The extent of that impact will depend on the actual route of the channel,. Since the project could include a significant amount of construction, construction-related impacts on aesthetics, air quality, hazards, geology and soils, and water quality could occur. The USIBWC has currently suspended work on the Lower Colorado River Boundary and Capacity Preservation Project. Should the USIBWC resume work on the project, they would need to quantify future impacts that may occur.

4.2.2.2 Morelos Diversion Dam Channel Capacity Restoration Project

Morelos Diversion Dam was completed in 1950 to facilitate water deliveries under the *US-Mexican Water Treaty of 1944*. The dam is located on the Arizona, US – Baja California, Mexico border, approximately 1.5 miles due west of Yuma, Arizona and approximately 1.1 miles south of California within the Limitrophe section of the Colorado River (see Figure 1-2). Morelos Dam is equipped with 20 radial gates that were designed to open during high flow events and a 450-foot long spillway on the western side of the dam. The flood capacity of the channel and Morelos Dam were affected by high flows from the Gila River in 1993 which deposited large amounts of sediment in the river and partially buried the gates of Morelos Dam. Following the high flows of 1993, Mexico removed the sediment adjacent to the gates to free them and Reclamation removed approximately 350,000 cubic yards of sediment above Morelos Dam (USIBWC 2006).

In March 2001, a team from the USIBWC, the US Army Corps of Engineers, and Mexico’s Comisión Nacional del Agua inspected Morelos Dam to determine the physical condition of the structure and evaluate the capacity for the dam to perform its intended function. During the inspection, it was determined that the dam gates, spillway area and the main channel upstream and downstream were severely impaired, resulting in unacceptable dam safety and flood control issues (USIBWC 2006).

USIBWC proposes to restore some of the floodway capacity of Morelos Dam. Actions would include the removal of accumulated sediment and vegetation from two sites totaling approximately 40 acres. The action proposed by USIBWC would not remove critical habitat for any sensitive species, but the loss of riparian habitat could displace southwestern willow flycatchers (Federally Listed as Endangered) and reduce future breeding opportunities for the flycatcher.

4.3 Impacts by Resource

4.3.1 Hydrology/Water Quality

The Proposed Action and other cumulative projects (e.g., LCR MSCP, Wellton-Mohawk Bypass Flow Replacement or Recovery Program, AAC Lining) would be consistent with Reclamation's jurisdiction under the Law of the River. The Proposed Action and other cumulative projects would enhance Reclamation's ability to meet its obligations to water users in the US while meeting the obligation to deliver 1.5 maf under the US-Mexico Water Treaty. The Project will be designed, constructed and operated in a manner that will permit the existing Coachella Canal and AAC to remain in service and provide normal water deliveries during Project construction, reconstruction, testing and operation.

The Proposed Action and cumulative projects, such as the Yuma Area Pumping project, could result in decreased groundwater elevations in the Limitrophe. It is estimated that in Reach 1 (RM 22 to RM 16.8) the Project and cumulative projects could reduce the average groundwater by 0.33 feet (0.3 feet from cumulative projects and 0.03 feet from the Proposed Action). In Reach 2 (RM 16.8 to 5.8) it is estimated that the Proposed Action and cumulative projects could reduce average groundwater elevation by 0.39 feet (0.3 feet from cumulative projects and 0.09 feet from the Proposed Action). Reach 3 (RM 5.8 to RM 0) could also experience a decline in groundwater levels, an average of 0.4 feet (0.3 feet from cumulative projects and 0.1 feet from the Proposed Action). The anticipated decreases in groundwater are averages - groundwater elevations will vary. Because the analysis excluded high flow periods it is a "worst case" analysis, groundwater would be replenished and groundwater would rise following a flood flow.

The anticipated changes in groundwater elevation would not lead to a conflict with delivery obligations, violate any water quality standards, or substantially alter the existing drainage pattern of the site. The change in groundwater elevation does not represent a significant impact to groundwater supplies. However, the change in groundwater elevation could affect biological resources and this is evaluated in section 4.3.2.

Both the Proposed Action and AAC Lining Project could lead to temporary erosion and sedimentation during construction. However, the Proposed Action and AAC Lining Project both propose mitigation measures to limit this impact. Under the Proposed Action, grading and construction would be performed in accordance with the provisions of a SWPPP which includes BMPs for erosion control, such as construction of sediment traps (e.g., hay bales, silt fences, straw wattles) and temporary desilting basins.

Both the Proposed Action and AAC Lining Projects could lead to increased salinity below Imperial Dam and in waters delivered to Mexico. However, as described in section 3.1, Reclamation will comply with Minute 242 of the US-Mexican Water Treaty of 1944 and the requirements of the Salinity Control Act to meet water quality requirements at the NIB. Salinity control measures would be reviewed and implemented as necessary so that established standards would be met. The potentially greater, albeit minor, salinity levels anticipated under the Proposed Action and cumulative projects may cause salinity control measures to be implemented on a different schedule than would otherwise occur.

4.3.2 Biological Resources

Both the Proposed Action and the AAC Lining project would result in loss of habitat and impacts on biological resources resulting from the construction and placement of new water facilities in the area between the Coachella Canal and Drop 2 of the AAC. Both projects would have temporary and permanent impacts on biological resources including the loss of common and sensitive species and habitats. Because both projects would require mitigation in the form of habitat replacement, impacts on individual FTHL, FTHL habitat, and other non-sensitive biological resources would be reduced so that no significant impacts would occur.

The Proposed Action and cumulative projects such as the Yuma Area Pumping Project, could result in decreased groundwater elevations in the Limitrophe. Based on Reclamation's hydrologic and groundwater modeling (see Appendices C and D), these projects could reduce flow releases from Morelos Dam and lower average groundwater elevations by 0.4 feet (4.8 inches). For the reasons described for the Proposed Action in Section 3.2.3.2.3, the potential additional reductions in the lowest annual groundwater elevations that could be associated with the Proposed Action and Yuma Area Pumping Project are not expected to measurably affect riparian and open water communities or, with the possible exception of the southwestern willow flycatcher, the wildlife habitats they support. Consequently, potential impacts on these resources would not be significant. Additional reductions in groundwater elevations that could be associated with these projects could result in the loss of approximately 11 acres of southwestern willow flycatcher habitat at the Gadsen Bend habitat site (see Table 3.2-10). The existing water depth at the Gadsen Bend habitat site is 3.9 inches. The Proposed Action could reduce groundwater elevations by 0.1 feet (1.2 inches) which would reduce water depths at this site to 2.7 inches. With this reduced water depth the site would still support the surface water and moist surface soil conditions that are an element of flycatcher breeding habitat. A further 0.3-foot (3.6 inch) reduction of groundwater levels associated with the cumulative projects at the Gadsen Bend habitat site, however, could remove surface water and moist soil conditions from the site and result in loss of southwestern willow flycatcher habitat. The cumulative impact from these two projects is not anticipated until the Drop 2 Project is operational. To offset the potential impact to Southwestern Willow Flycatcher habitat, Reclamation will provide grant monies to support an environmental restoration project within the Limitrophe. These monies will be used to provide hydrology for the creation of several habitat types, including a minimum of 40 acres of new Southwestern Willow Flycatcher habitat. This hydrology will be in place prior to the Drop 2 reservoir becoming operational.

4.3.3 Aesthetics

Both the Proposed Action and the AAC Lining Project would result in construction and placement of new water facilities in the area between the Coachella Canal and Drop 2 of the AAC. Both projects would have temporary impacts to aesthetics while construction equipment is present. It is anticipated that the construction phases of these two projects could overlap, increasing the intensity of potential aesthetic impacts (two active construction operations rather than one) but thereby decreasing the duration of the potential aesthetic impact. Construction impacts to aesthetics would be temporary and not significant.

Like the Proposed Action, the AAC Lining Project will introduce new water facilities that would be visible from the ISDRA sand dunes and to vehicles traveling along I-8. However, though facilities of the Proposed Action and new facilities associated with lining of the AAC would be recognized from these view areas, new facilities would be consistent with existing water development throughout the area. In addition, due to the overall distance between the sand dunes and new facilities, the majority of this view would remain undisturbed following development. Due to vehicle speed when traveling along I-8 and the overall low-lying profile of new facilities, view would be intermittent and would not be easily distinguished from the surrounding landscape. Furthermore, the more prominent scenic resources consisting of the Chocolate Mountains in the distant background to the north, the remnant windrow trees, and the sand dunes within the ISDRA to the east, would not be affected by implementation of the Proposed Action and AAC Lining Project as visual access to these resources would be maintained. Impacts to views resulting from placement of permanent new water facilities related to the Proposed Action and AAC Lining Project would not be significant.

4.3.4 Agricultural Resources

No impacts to agriculture were identified for the Proposed Action. No impacts to agriculture are anticipated in the Project site vicinity related to the other identified cumulative projects. Therefore, no cumulative impacts to agricultural resources are anticipated.

4.3.5 Air Quality

Impacts from construction emissions of the Proposed Action would occur in combination with emissions from reasonably foreseeable future sources and projects. However, no future project with substantial air emissions would occur at the same time as the Drop 2 construction in the project area. For example, construction of the AACLP would be completed prior to initiation of the Drop 2 project. As discussed in section 3.5 of this EA, construction and operational emissions of the Proposed Action would not exceed any emission significance threshold. Due to the mobile nature and short duration of construction equipment operations, combustive emissions from these sources, in combination with future emission sources, would not result in substantial impacts in a localized area. Since Reclamation would comply with the requirements of the ICAPCD to minimize fugitive dust emissions of the Proposed Action, the impact of these emissions, in combination with future fugitive dust emission sources, also would not result in substantial impacts in a localized area. In other words, emissions from the Proposed Action would not contribute to an exceedance of an ambient air quality standard. As a result, the Proposed Action, in combination with other foreseeable sources and projects, would not produce significant cumulative air quality impacts.

4.3.6 Cultural Resources

Of the related projects identified for cumulative analysis, only the AAC Lining Project would contribute to cumulative impacts on cultural resources. The Lower Colorado River Boundary and Capacity Preservation Project and Morelos Diversion Dam Channel Capacity Restoration Project would only result in ground disturbances within areas subject to periodic river inundation and flooding. Any prehistoric resources that were located within this river floodway would have been eroded and destroyed. The Laguna Reservoir Restoration Project involves excavating a

large channel in an active drainage channel that would have also eroded any prehistoric remains that were originally deposited within its prism.

The AAC Lining Project involves ground disturbances within a 23-mile stretch of land that may have been occupied prehistorically. Though the Area of Potential Effect (APE) has not been surveyed for the presence of cultural resources, it is subject to a Programmatic Agreement that requires that a complete archaeological surface survey inventory be completed prior to construction. If significant resources (those eligible for listing on the NRHP) were identified, they would be mitigated through appropriate professional archaeological methods, including collection of a characteristic sample of materials to be disturbed (data recovery mitigation). Any potential adverse effects to the original AAC would also be addressed and mitigated through a data recovery program that could include recordation of the structure's components.

The Proposed Action would result in adverse effects on four cultural resources (two prehistoric and two historic) potentially eligible for NRHP listing. The cumulative effect on cultural resources resulting from the disturbance of these NRHP eligible resources, along with potential effects on unknown, but potentially NRHP-eligible resources along the AAC APE, would be significant. Mitigation measures identified for the Proposed Action emphasize avoidance of disturbances where feasible. If avoidance were not possible, mitigation of adverse effects would occur through implementation of data recovery programs, including excavation of prehistoric sites, and recordation of historic era structures. Any adverse effects on cultural resources associated with the AAC Lining Project would likewise be mitigated. Therefore, the cumulative impact on cultural resources resulting from these two projects would be feasibly mitigated; the residual effect would not be significant.

4.3.7 Environmental Justice

No significant impacts were identified for the Proposed Action that would adversely affect human populations or the public. The Proposed Action, therefore, would not result in disproportionately high and adverse human health and environmental effects on minority or low-income populations. The environmental documentation for one or more of the other cumulative projects described in section 4.2 identifies potential environmental justice effects; (e.g., increased noise, and fugitive dust) which would not occur for the Proposed Action and the disproportionate effects of the other projects would be localized. The Proposed Action, in combination with other proposed or on-going projects, would not cause disproportionate cumulative effects on minority or low-income populations.

4.3.8 Hazards/Hazardous Materials

Potentially significant impacts would occur in association with the Proposed Action, due to potentially encountering contaminated soils during construction and potential spillage of fuels, lubricants, and hydraulic fluids during construction. Other regional conservation and restoration projects may result in potentially significant impacts due to similar contamination related hazards. However, compliance with applicable federal, state, and local regulations would reduce the likelihood of potentially significant impacts. Similarly, implementation of measures HAZ-1 through HAZ-4 would reduce the project's contribution to cumulative impacts, resulting from construction of the Proposed Action, so that no significant impacts would occur. In addition,

other regional conservation and restoration projects would also be subject to environmental review and appropriate mitigations established for each project, prior to construction. Therefore, significant cumulative hazards and hazardous materials impacts would not occur.

4.3.9 Indian Trust Assets

No impacts to ITAs were identified for the Proposed Action. Therefore, no cumulative impacts to ITAs are anticipated.

4.3.10 Land Use

The construction areas for the Proposed Action and AAC Lining Project would overlap and for this reason these two projects have potential cumulative impacts. Both projects are located primarily within Reclamation withdrawn lands and would not divide established communities nor conflict with existing land uses. The Proposed Action would have construction within and adjacent to the FTHL MA; the AAC Lining Project would occur adjacent to the FTHL MA. Mitigation measures proposed for both the Proposed Action and AAC Lining Project would ensure consistency with the applicable conservation plan, the FTHL RMS.

4.3.11 Noise

The construction areas for the Proposed Action and AAC Lining Project would overlap geographically and construction of the two projects could occur in the same time period, and for this reason these two projects have potential cumulative noise impacts.

The Proposed Action could cause noise levels in the vicinity of construction in excess of 95 dB, but noise levels at the nearest structure are not anticipated to exceed 60 dB. Construction of the AAC Lining Project is anticipated to use similar equipment and result in similar noise levels. If the Proposed Action and the AAC Lining Project were to be constructed at the same time in the same area, the noise impact from the two projects may be slightly louder than the noisier project because of the manner in which noise from multiple sources is additive. However, if both projects were to occur at the same time, the duration of the impact would be reduced by the duration of the overlap. Given the temporary nature of the construction, the generally remote nature of the construction area, and distance to sensitive receptors, cumulative impacts would not be significant.

4.3.12 Recreation

The construction areas for the Proposed Action and AAC Lining Project would overlap geographically and construction of the two projects could occur in the same time period, and for this reason these two projects have potential cumulative impacts to recreation.

Both projects would temporarily degrade recreational experience in the project area, through construction dust and noise, and trail detours. The AAC Lining Project proposes a Recreation and Transportation Management Plan to ensure safety of recreational visitors and to minimize public inconvenience during construction. The AAC Lining Project also proposes off-site mitigation for potential impacts to the canal fishery and its associated recreational resource. The

Proposed Action would eliminate portions of BLM Trail 670514, a short ½ mile trail underlying the proposed reservoir area. The Proposed Action would also eliminate a portion of BLM Trail 670506 an east-west trail from Gordon's Well to points west. However there are substitute east-west trails available to the south of I-8. The Proposed Action would disrupt, but provide a replacement for, BLM Trail 670506. Given the relative abundance of trails in the Project vicinity, the presence of substitute trails and means of accessing private business in the Gordon's Well Area and the ISDRA, the cumulative impact on recreational resources resulting from these two projects would not be significant.

4.3.13 Socioeconomics

The Proposed Action would have negligible effects on population, housing, and other socioeconomic issues. The Proposed Action would not displace persons or housing, nor would it induce substantial population growth in the area, either directly or indirectly. The Proposed Action, in combination with other foreseeable projects described in section 4.2, is not expected to have a cumulatively significant impact on socioeconomics.

4.3.14 Topography, Geology, Soils, and Mineral Resources

Potentially significant impacts could occur in association with the Proposed Action, due to potential seismically induced liquefaction, differential settlement, and lateral spreading. Other regional conservation and restoration projects would result in potentially significant impacts due to similar geologic hazards. However, potential erosion induced siltation of drainages at individual grading sites would contribute the most to potential cumulative impacts, as a result of downstream sedimentation. More immediately, the AAC Lining Project would contribute the most to cumulative erosion induced siltation of drainages in the vicinity of the Proposed Action, as the AAC Lining Project is located immediately adjacent to and within one-half mile of the Proposed Action. However, the Proposed Action's contribution to cumulative impacts would not be substantial, because: 1) the construction activities for many of these projects are limited in scope and duration; and 2) grading, construction, and desilting operations would be completed in accordance with provisions of a General Permit for Discharges of Storm Water Associated with Construction Activity, for discharges of storm water during construction. This permit requires the development and implementation of a SWPPP, which includes erosion related BMPs. In addition, other regional conservation and restoration projects would also be subject to environmental review and appropriate mitigations established for each project, prior to construction. Therefore, significant cumulative geology impacts would not occur.

4.3.15 Transportation

The construction areas for the Proposed Action and AAC Lining Project would overlap geographically and construction of the two projects could occur in the same time period, and for this reason these two projects have potential cumulative impacts to transportation.

Both projects would have temporary impacts to area roadways during the construction period. There would be a temporary increase in trips on the regional freeway network to accommodate equipment and materials delivery and trips by construction workers. Given the generally good

operating conditions of the regional roadway network, the temporary nature of the trips, and the relatively small increase in trips, this impact would not be significant.

Both projects propose measures to ensure roadway safety and minimize public inconvenience during construction. The AAC Lining Project proposes preparation of a Recreation and Transportation Management Plan; mitigation measures TRAN 1 to TRAN 4 are proposed to mitigate potential transportation impacts from the Proposed Action. Therefore, the cumulative impact on transportation resources resulting from these two projects would be feasibly mitigated and the residual effect would not be significant.

5.0 Other NEPA Considerations

5.1 Possible Conflicts between the Proposed Action and the Objectives of Federal, State, Local, and Regional Land Use Plans, Policies, and Controls

Implementation of the Proposed Action would comply with existing Federal regulations and applicable state, regional, and local policies and programs. The Federal laws and regulations, executive orders, policies, and plans that apply include the following: NEPA; CAA and Federal General Conformity Rule; CWA; ESA; National Historic Preservation Act (NHPA); EO 12898, Minority Populations and Low-Income Populations; and EO 12372, Coordination with State and Regional Agencies. Other State, local, and regional plans, policies, and controls addressed below include the following: California ESA and ICAPCD Rules and Regulations.

5.1.1 Federal Acts, Executive Orders, Policies, and Plans

5.1.1.1 *National Environmental Policy Act*

This EA was prepared in accordance with the NEPA, 42 USC §§ 4321-4370d, as implemented by the CEQ Regulations, 40 CFR Parts 1500-1508. Executive Order 11991 of May 24, 1977 directed the CEQ to issue regulations for procedural provisions of NEPA; these are binding for all Federal agencies.

5.1.1.2 *Clean Air Act and General Conformity Rule*

The CAA of 1969 and subsequent amendments specify regulations for control of the nation's air quality. Federal and state ambient air standards have been established for each criteria pollutant. The 1990 amendments to the CAA require Federal facility compliance with all applicable substantive and administrative requirements for air pollution control. The air quality analysis performed for this EA shows that with implementation of compensation measures the Proposed Action would not contribute to an exceedance of an ambient air quality standard (see section 3.5 – Air Quality). The CAA also requires Federal actions to conform to the goals of the applicable State Implementation Plan (SIP). Reclamation has determined that this Proposed Action would conform to the SIP.

5.1.1.3 *Clean Water Act and Salinity Control Act*

The Federal CWA requires states to designate appropriate water uses to be protected and mandates that states set water quality standards based on these uses. The EPA has the responsibility for promulgating regulations under the CWA including the review and approval of state water quality standards. One method for meeting water quality objectives under the CWA is the National Pollutant Discharge Elimination System (NPDES). This permit system regulates point-source

surface discharges (33 USC §1342). In California the Regional Water Quality Control Boards administer NPDES permits in a manner intended to meet water quality criteria of both the CWA and California state water quality law (Porter-Cologne Act). With implementation of compensation measures the Proposed Action would be consistent with provisions of the CWA, as dewatering, operations would be completed in accordance with an NPDES-mandated SWPPP.

The US must also meet water quality standards per Minute 242 of the US-Mexico Water Treaty of 1944 and the requirements of the Salinity Control Act for waters delivered to the NIB. As described in section 3.1, salinity control measures will be reviewed and implemented necessary to meet established standards. The potentially greater, albeit minor, salinity levels anticipated under the Proposed Action may cause salinity control measures to be implemented on a different schedule than would be necessary without the Project, but standards of the US-Mexico Water Treaty will continue to be met.

5.1.1.4 *Endangered Species Act*

The ESA of 1973 and subsequent amendments provide for the protection of threatened and endangered species of fish, wildlife, and plants and their habitats. The Act requires Federal agencies to ensure that no agency action is likely to jeopardize the continued existence of endangered or threatened species. Endangered and threatened species impacts are reviewed in section 3.2 and the associated Biological Review being prepared for the Project.

5.1.1.5 *National Historic Preservation Act*

The NHPA was passed in 1966 to provide for the protection, enhancement, and preservation of those properties that possess significant architectural, archaeological, historical, or cultural characteristics. Section 106 of the NHPA requires the head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or Federally financed undertaking, prior to the expenditure of any Federal funds on the undertaking, to take into account the effect of the undertaking on any historic property. This EA assesses potential impacts to historic properties (section 3.6 – Cultural Resources).

5.1.1.6 *Executive Order 12898*

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, directs all Federal departments and agencies to incorporate environmental justice considerations in achieving their mission. Each Federal department or agency must identify and address disproportionately high and adverse human health or environmental effects of Federal programs, policies, and activities on minority populations and low-income populations. The Proposed Action would not result in disproportionately high or adverse effects on minority and low-income populations (see section 3.7 – Environmental Justice).

5.1.1.7 *Executive Order 12372*

Executive Order 12372, Intergovernmental Review of Federal Programs, was issued in 1982 in order to foster an intergovernmental partnership and a strengthened Federalism by relying on state

and local processes for the state and local government coordination and review of proposed Federal financial assistance and direct Federal development. Reclamation pursues close and harmonious planning relations with local and regional agencies and planning commissions of adjacent cities, counties, and states. In preparing this EA, Reclamation met with local agencies including the Caltrans and Imperial County and relevant data from state, regional, and local agencies was reviewed in order to determine regional and local conditions associated with the Proposed Action. With respect to the Proposed Action, no mutual land use or environmental issues require resolution (see section 3.10 - Land Use).

5.1.2 State, Local, and Regional Plans, Policies, and Controls

There are a number of California laws referenced in this EA that do not apply to federal actions on federal lands. For example, CEQA is California's primary environmental disclosure law. CEQA is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. Because no state or local discretionary actions are required as part of the Proposed Action, CEQA does not apply to the Project.

Another such act is the California Endangered Species Act (California ESA). The California ESA provides for the protection of state listed threatened and endangered species of wildlife, fish, and plants in California. The California ESA does not apply on strictly Federal lands or to Federal actions.

5.1.2.1 Imperial County Air Pollution Control District Rules and Regulations

Activities undertaken per the Proposed Action would comply with all applicable ICAPCD Rules and Regulations (see section 3.5 – Air Quality for more details). ICAPCD Air Quality rules are developed under authority of the CAA, and therefore apply to federal agency actions.

5.2 Relationship between Local Short-Term Use of the Human Environment and Maintenance and Enhancement of Long-Term Biological Productivity

NEPA requires consideration of the relationship between short-term use of the environment and the impacts that such use could have on the maintenance and enhancement of long-term productivity of the affected environment. Impacts that narrow the range of beneficial uses of the environment are of particular concern. Such impacts include the possibility that choosing one development option could reduce future flexibility to pursue other options, or that choosing a certain use could eliminate the possibility of other uses at the site.

Implementation of the Proposed Action would result in both temporary disturbance (due to construction) and permanent loss of native desert habitat (due to placement and operation of Project facilities). Impacts will be avoided and minimized to the extent feasible. Compensation will include compensation consistent with the FTHL Management Strategy Plan. Either funding or direct acquisition of lands will result in protection of FTHL habitat. With compensation,

long-term impacts to desert habitat are not significant, and they are acceptable in view of the water reliability achieved by the Proposed Action.

The Proposed Action and cumulative projects, could result in decreased surface water and groundwater in the Limitrophe. In turn, the change in surface and groundwater conditions could result in the loss of approximately 11 acres of occupied southwestern willow flycatcher habitat at the Gadsden Bend habitat site (see Chapter 4). This habitat loss would result from the loss of moist surface soil conditions that are an element of breeding habitat. The cumulative impact from these two projects is not anticipated until the Drop 2 Project is operational (estimated at least 3 years in the future). Reclamation has identified appropriate compensation measures for the southwestern willow flycatcher habitat. Compensation measures could include preservation of habitat offsite, and preservation of moist soil conditions within habitat, as described in section 4.3.2. Compensation measures would render this cumulative impact insignificant.

5.3 Any Probable Adverse Environmental Effects that Cannot be Avoided and are not Amenable to Compensation

Reclamation has determined that the Proposed Action would not result in any significant unmitigable impacts; therefore, there are no probable adverse environmental effects that cannot be avoided or are not amenable to compensation.

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This EA was prepared for, and under the direction of, Reclamation staff by Science Applications International Corporation (SAIC) with technical input from Brown and Caldwell. Members of Reclamation, SAIC's, and Brown and Caldwell's professional staff who contributed to the preparation of this document are listed below.

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| Ruben Zubia | Managing Engineer | Technical input to analysis of effects of Drop 2 reservoir operation on surface water flows of the Colorado River. |

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The following agencies, organizations, and individuals were contacted during preparation of this EA:

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- Cocopah Indian Tribe
- Flat-Tailed Horned Lizard Management Oversight Group
- Flat-Tailed Horned Lizard Interagency Cooperating Committee
- Imperial County Air Pollution Control District
- Imperial County Department of Public Works
- Imperial Irrigation District
- International Boundary and Water Commission, US Section
- Metropolitan Water District of Southern California
- Quechan Indian Tribe
- Southern Nevada Water Authority
- US Bureau of Land Management
- US Fish and Wildlife Service
- US Geological Survey
- Chapter 8.0 identifies additional persons and agencies contacted.

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10.0 List of Acronyms

| | |
|-------------------|---|
| µg/l | micrograms per liter |
| µg/m ³ | micrograms per cubic meter |
| AAC | All-American Canal |
| ACM | asbestos containing material |
| af | acre-feet |
| afy | acre-feet per year |
| APE | Area of Potential Effect |
| ARB | California Air Resources Board |
| ASC | Arizona Wildlife of Special Concern |
| AST | Aboveground storage tank |
| BLM | Bureau of Land Management |
| BLMS | Bureau of Land Management sensitive species |
| BMPs | Best Management Practices |
| CAA | Federal Clean Air Act |
| CAAQS | California Ambient Air Quality Standards |
| Caltrans | California Department of Transportation |
| CDC | California Development Company |
| CDCA | California Desert Conservation Area |
| CDFG | California Department of Fish and Game |
| CDP | census designated place |
| CE | California State Listed Endangered |
| CEQ | Council on Environmental Quality |
| CEQA | California Environmental Quality Act |
| CFR | Code of Federal Regulations |
| cfs | cubic feet per second |
| CNEL | Community Noise Equivalent Level |
| CNPS | California Native Plant Society |
| CO | carbon monoxide |
| CR | California State Listed Rare |

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|----------|---|
| CVWD | Coachella Valley Water District |
| CWA | Clean Water Act |
| dB | decibel |
| dBA | A-weighted sound level |
| DTSC | California Department of Toxic Substances Control |
| EA | Environmental Assessment |
| EO | Executive Order |
| EPA | US Environmental Protection Agency |
| ESA | Federal Endangered Species Act |
| FE | Federally Listed Endangered |
| FMMP | Farmland Mapping and Monitoring Program |
| FONSI | Finding of No Significant Impact |
| FT | Federally Listed Threatened |
| FTHL | flat-tailed horned lizard |
| FTHLICC | Flat-Tailed Horned Lizard Interagency Coordinating Committee |
| FTHL MA | Flat-Tailed Horned Lizard Management Area |
| GLO | Government Land Office |
| HAER | Historic American Engineering Record |
| HDPE | High Density Polyethylene |
| I-8 | Interstate 8 |
| ICAPCD | Imperial County Air Pollution Control |
| IID | Imperial Irrigation District |
| ISDRA | Imperial Sand Dunes Recreation Area |
| ITA | Indian Trust Asset |
| IVPA | Imperial Valley Planning Area |
| LCR | Lower Colorado River |
| LCR MSCP | Lower Colorado River Multi-Species Habitat Conservation Plan |
| Ldn | day/night average sound level |
| LIM | Land Inventory and Monitoring |
| maf | million acre-feet |
| MA's | Management Areas within the Flat-tailed Horned Lizard Rangewide Management Strategy |
| MBTA | Migratory Bird Treaty Act |

| | |
|------------------|--|
| MCPP | Mecoprop |
| mg/kg | milligrams per kilogram |
| mg/L | milligrams per liter |
| MWD | The Metropolitan Water District of Southern California |
| NAAQS | National Ambient Air Quality Standards |
| NEPA | National Environmental Quality Act |
| NHPA | National Historic Preservation Act |
| NIB | Northern International Boundary |
| NO _x | nitrogen oxides |
| NPDES | National Pollutant Discharge Elimination System |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| O ₃ | ozone |
| OHV | Off-Highway Vehicle |
| OVA | organic vapor analyzer |
| O&M | operation and maintenance |
| PCBs | polychlorinated biphenyls |
| PID | photo ionization detector |
| PLO | Public Land Order |
| PM ₁₀ | particulate mater less than ten microns in diameter |
| ppm | parts per million |
| PRGs | Preliminary Remediation Goals |
| RAMP | Recreation Area Management Plan |
| Reclamation | US Department of the Interior, Bureau of Reclamation |
| RM | River Mile |
| RMS | Rangewide Management Strategy |
| ROD | Record of Decision |
| ROI | region of influence |
| RWQCB | Regional Water Quality Control Board |
| SAIC | Science Applications International Corporation |
| SCS | Soil Conservation Service |
| SDCWA | San Diego County Water Authority |
| Secretary | Secretary of the Department of the Interior |

| | |
|-----------------|--|
| SIB | Southern International Boundary |
| SIP | State Implementation Plan |
| SO _x | sulfur oxides |
| SR | State Route |
| SRA | State Recreation Areas |
| SSAB | Salton Sea Air Basin |
| SVOCs | semi-volatile organic compounds |
| SVRA | State Vehicular Recreational Areas |
| SWPPP | Stormwater Pollution Prevention Plan |
| TPH | total petroleum hydrocarbons |
| US | United States |
| USC | United States Code |
| USDA | US Department of Agriculture |
| USFWS | US Fish and Wildlife Service |
| USIBWC | International Boundary and Water Commission, US Section |
| VOC | volatile organic compounds |
| VRM | Bureau of Land Management Visual Resource Management Program |