CHAPTER 3

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This chapter assesses the potential impacts to various environmental resources that may occur as a result of the Wellton-Mohawk Title Transfer.

3.1 FUTURE LAND USE ASSUMPTIONS AND APPROACH TO RESOURCE ANALYSES

This section describes the approach used to determine potential impacts to resources under the No Action Alternative and Proposed Action/Preferred Alternative, and discusses general methods used for the impact analyses.

The Wellton-Mohawk Title Transfer is an administrative action that by itself would have no direct effect on the human environment. However, when the "but for" question is applied to determine the interdependence or interrelationship of the title transfer with consequent actions, it becomes apparent that future changes in land use by the District or its designees would not occur unless the title transfer is implemented. This change in land ownership could lead to changes in land use in the project area, which may result in direct or indirect impacts to the natural and/or developed environment. Thus, the potential impact of the Proposed Action has been assessed primarily on the basis of potential land use changes.

3.1.1 Project Area of Effect

Resource impact assessments presented in this EIS consider potential impacts within the general Wellton-Mohawk Valley, referred to herein as the project area. For purposes of this environmental review, the project area is defined as a 47-mile long, east-west corridor along the Gila River encompassing the District (Map 1-1). This area is bounded on the north by the U.S. Army Yuma Proving Ground and on the south by the Barry M. Goldwater Range. Each section in this chapter further defines the area considered for specific analyses, as appropriate.

3.1.2 Future Land Use Assumptions

Many variables will influence future land uses in the project area, both with and without the Proposed Action. However, in order to assess the potential impacts of the title transfer, assumptions concerning future land use under both the No Action Alternative and the Proposed Action/Preferred Alternative were developed. The potential future uses of the lands proposed for transfer as well as other lands within the project area were assessed to develop the assumptions. The land use analysis is summarized in Section 3.2, Land Use.

As discussed in Chapter 2 and Appendix D, the Proposed Action would result in the transfer of title of certain lands and facilities from Reclamation to the District. For the purposes of the future land use and resources analyses, facilities and associated rights-of-way are considered to be integral to the Division facilities and separate from other lands to be acquired by the District, as discussed in the following sections.

3.1.2.1 Future Use of Facilities and Rights-of-Way

The locations of canals, pumping plants, the Gila River Flood Channel, and other major Division facilities are shown in Map 2-1 and Appendix C. The District has been operating and maintaining these facilities since they were constructed under contractual arrangements with Reclamation. No change in operational procedures is anticipated as a result of the Proposed Action.

Since the District will not change the operation of facilities or use of existing rights-of-way, no direct or indirect impacts would result from the transfer of the facilities and their associated rights-of-way. As such, the analyses presented in this chapter assume that the change in ownership of facilities, including the Gila River Flood Channel, adjacent mitigation areas, and their associated rights-of-way would not result in impacts to environmental resources within or dependent upon these areas.

The analyses presented in this chapter provide an inventory of resources within the District in order to document existing conditions. The Division, whose irrigation system is considered potentially eligible for listing on the National Register of Historic Places (NRHP) under the Secretary's Criteria[1] a and c. In compliance with Section 106 of the NHPA, Reclamation has initiated consultation with the Arizona State Historic Preservation Office (SHPO). In consultation with the SHPO, the District, and other interested parties, Reclamation will prepare a historic context for evaluation of the Wellton-Mohawk irrigation and drainage system for potential listing on the NRHP, and will develop and initiate a

[1] Criteria for Evaluation

The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded or may be likely to yield, information important in prehistory or history.

program to identify and document facilities and other cultural features associated with the system. In the event the system is found eligible for listing on the NRHP, Reclamation will consult with the SHPO, the District, the Advisory Council on Historic Preservation, and other interested parties to determine the appropriate means to address the potential effects of the Proposed Action on system facilities. One potential outcome of the consultation process may be development of a Programmatic Agreement that identifies a protocol for future maintenance of system facilities by the District.

3.1.2.2 Potential Uses of Other Lands to be Acquired

Approximately 9,800 acres of the undeveloped land to be acquired by the District is considered to be suitable for development over the next 30 years. Of that amount, approximately 1,400 acres of land within or adjoining existing farms may be made available for private purchase for agriculture-related purposes. These may include stack yards for hay, staging areas for harvesting equipment, and land to buffer adjacent developed areas. The District would consider making such land available for types of development consistent with the growth plan for the county. However, the amount of land that would be developed is uncertain, and the project area also contains a considerable amount of private and state land that is available for residential and community development. Section 3.2 presents an assessment of the potential for future land use changes that may occur as a result of the proposed change in land ownership.

3.1.3 Approach to Resource Analyses

As discussed, the Proposed Action would not directly cause impacts to the environment. Potential impacts are associated with potential future actions by the District. Because these future actions and the potential location of development are unknown, the impact analyses use assumptions concerning potential future land use and development described in Section 3.2 and supported in Appendix E.

The resources analyses were conducted using a "programmatic" approach, which considers the potential impact of non-specific types of development within the identified 9,800 acres of candidate lands. The analyses consider existing resources within the areas to be acquired by the District under the Proposed Action, and identify particularly sensitive areas (e.g., wildlife habitat, cultural resources, and farmland preservation) on which development could result in adverse impacts. Specific methods used to assess potential impacts associated with individual resources are discussed in the subsequent sections of this chapter.

3.1.4 Resources Not Analyzed in Detail

Several resource categories have been considered but omitted from detailed analysis because of a clear lack of potential impact from the Proposed Action. These resources and a brief discussion supporting their omission from detailed analysis are listed in this section:

3.1.4.1 Noise

The land within the District is predominately agricultural and is sparsely populated. Major noise sources include low-level military overflights from the Barry M. Goldwater Range and the Yuma Proving Ground, railroad and freeway traffic, and farm equipment operation. The Proposed Action would not affect these activities. Future development within the project area may occur on lands to be acquired by the District under the Proposed Action, and such development could contribute new noise sources within the project area. However, such development would be consistent with the Yuma County 2010 Comprehensive Plan, which contains county standards for new noise sources and human exposure. Because such potential future noise sources would be considered under the county's review process, and due to the speculative nature of attempting to characterize the noise levels that may eventually occur, a detailed assessment has not been conducted for this EIS.

3.1.4.2 Yuma-Transboundary Water Management

Public comment received during the scoping period suggested that this environmental review analyze the conveyance of drainage water into the Colorado River Delta area of Mexico, the potential operation of the Yuma Desalting Plant, and the formulation of general water management options for the Yuma-Transboundary area. These issues are beyond the scope of the Proposed Action and are not addressed in this EIS. Moreover, Reclamation is currently conducting a review of operational options for the Yuma Desalting Plant and other water management issues in that area.

3.1.4.3 Visual Resources

The project area contains long-range vistas of desert landscape and the surrounding mountains. The Proposed Action would have no effect on the visual attributes of the project area. Future development within the project area may occur on lands to be acquired by the District under the Proposed Action, and such development could change the visual characteristics of local areas. However, such development would be consistent with the Yuma County 2010 Comprehensive Plan, which sets forth the objective of maintaining the open space character of the project area. Because the visual aspects of future development would be considered under the county review process and given the speculative nature of attempting to characterize the development that may eventually occur, a detailed assessment has not been conducted for this EIS.

3.2 LAND RESOURCES AND USE

This section describes land ownership and use in the project area and discusses potential changes that may occur as a result of the No Action Alternative and Proposed Action/ Preferred Alternative.

3.2.1 Affected Environment

The project area has a rural agricultural character. The Town of Wellton near the center of the project area is the only incorporated community. The Gila River Flood Channel and associated mitigation areas support a continuous band of riparian vegetation. Agricultural lands characterized by irrigated farms and cattle operations with intermittent open space dominate the landscape. The lands within one to two miles from the river are referred to locally as "valley land". Further from the river, land at higher elevations is referred to as "mesa land". Mesa land north of the river is primarily undeveloped. Mesa land south of the river, typically about 60 to 80 feet in elevation above the valley land, is largely vacant but contains a few irrigated farms.

The project area includes the Town of Wellton and two other small communities, Tacna and Roll. Wellton and Tacna are located adjacent to Highway 80 and Interstate 8. Future development is likely to occur near freeway access areas in Wellton and Tacna. The community of Roll lies in the midst of an agricultural area north of the Gila River, and is not projected to be a center for development.

3.2.1.1 Land Ownership

The project area contains a mixture of private land, state land, and federal lands under the jurisdiction of Reclamation and BLM. Private lands in the project area comprise approximately 89,000 acres, most of which is irrigated land within the District. The remainder of the private land is devoted to community or residential development, or is undeveloped. Reclamation administers approximately 57,000 acres of federal land within the vicinity of the project. The BLM administers approximately 77,000 acres of federal land in the project area, including the Muggins Mountains Wilderness Area and a large tract of land southwest of the project area in the Gila Mountain range. The State of Arizona owns approximately 32,000 acres in the project area. Approximately 530 acres of this land are adjacent to the Gila River and are administered by the Arizona Game and Fish Department (AGFD) for wildlife management purposes. The District administration owns approximately 5,000 acres of land within the District boundaries. Appendix E provides additional information regarding land ownership in the project area.

3.2.1.2 Land Use Planning

3.2.1.2.1 Yuma County 2010 Plan

The Yuma County Department of Development Services has compiled the results of a countywide planning effort in the *Yuma County 2010 Comprehensive Plan* (2010 Plan). The 2010 Plan emphasizes the preservation of the rural agricultural and open space character of the area, designating approximately 90 percent of the land within the project area in agricultural and open space categories. The remaining 10 percent is divided into residential and industrial categories. The 2010 Plan also designates zones where development should occur (Yuma County, 2001). Public participation in the development of the 2010 Plan placed considerable emphasis on agricultural and open space preservation (Yuma County, 2000b). The District has been designated by the county as a Rural Planning Area (Appendix A).

The Yuma County 2010 Plan identifies lands for community, commercial, and industrial development along the Interstate 8 corridor. The plan does not identify specific tracts of land for development, nor does it assume the ownership change proposed by the Proposed Action/Preferred Alternative. The 2010 Plan assumes that development would occur on a combination of private and state trust lands.

Yuma County rural zoning ordinances apply in the project area, and potential land developers must submit development plans to the county for review.

3.2.1.2.2 BLM Resource Management Plan

BLM lands in the project area are managed for multiple public uses under the provisions of the Yuma District Resource Management Plan, as amended and its Record of Decision. While a few parcels of BLM land in the project area are currently designated as surplus to BLM resource management needs, it is unclear whether such BLM lands would become available for development.

3.2.1.2.3 State Lands Management

State of Arizona lands in the project area are primarily Trust lands, which the state manages for revenue production. Many of the State Trust lands in the project area are leased for agricultural purposes. Under certain conditions, State Trust lands may be sold at auction for development purposes. The 2010 Plan contemplates the use of State Trust lands along the Interstate 8 corridor for development purposes.

3.2.2 Impact Assessment Methodology

This section assesses the potential changes in land use and development resulting from the No Action Alternative and the Proposed Action/Preferred Alternative. Specifically, the assessment focuses on the following aspects:

1. The potential for change in use of the transferred lands.
2. The effect of the land transfer on the growth pattern in the project area.
3. The effect of the land transfer on the rate of growth in the project area.

These aspects were investigated by considering land availability and characteristics, projections based on the 2010 Plan, and the land use objectives of the District and Yuma County. Appendix E also provides additional analysis and information.

3.2.3 Impacts and Mitigation

The following sections identify potential land use changes and impacts associated with the No Action Alternative and Proposed Action/Preferred Alternative.

3.2.3.1 No Action Alternative

Under the No Action Alternative, the Reclamation lands involved in the project would not be transferred to or made available for purchase by the District. The rights-of-way for Division facilities would remain under federal ownership while the operation and maintenance of the facilities would continue to be performed by the District. However, the management of the vacant federal lands would be governed by the existing authorizations, polices, and practices of Reclamation and BLM, under which the following projection is made.

The vacant Reclamation land would continue to be administered by Reclamation for an interim period. During this time, Reclamation may make available a minor amount of acreage for public purposes such as parks, schools, and governmental administrative areas. After this undefined period, the remaining Reclamation land would likely be declared surplus to Reclamation's needs and disposed of by 1) relinquishing the actions on the withdrawn lands, which would revert the lands to the public domain under BLM administration, and 2) assigning the remainder of the vacant lands to the U.S. General Services Administration for public sale. After withdrawn lands revert to BLM administration, BLM would evaluate the lands and determine their suitability for retention in the public domain or disposal through sale or exchange. It is assumed for this analysis that BLM would sell or exchange isolated parcels not connected to existing BLM landholdings.

Following future land sales by the U.S. General Services Administration and BLM, some of the vacant land would ultimately be developed for residential, commercial, and industrial purposes. Considering the local constraints on land use and the patterns for development identified in the 2010 Plan, it is anticipated that the lands for development under No Action Alternative would tend to be the same lands identified as candidate for development under the Proposed Action/Preferred Alternative. The rate and distribution of land development would be subject to local planning and zoning.

Under the No Action Alternative, community and commercial development in the area would initially be confined to private and state land. This would continue the developmental pressure on private agricultural lands and foster encroachment on the agricultural component of the area. Also, under the No Action Alternative, the unused rights-of-way across various District agricultural lands would continue to encumber land titles. Additionally, Reclamation would continue to be required to manage trespassing issues, illegal dumping, requests for ingress and egress, and other administrative responsibilities.

3.2.3.2 Proposed Action/Preferred Alternative

Under the Proposed Action/Preferred Alternative, Reclamation would transfer to the District 1) the ownership of approximately 18,437 acres of rights-of-way and easements for facilities, 2) the ownership of approximately 10,654 acres of lands associated with the Gila River Flood Channel, and 3) the ownership of approximately 28,327 acres of additional lands.

The District's activities on the rights-of-way, easements and Gila River Flood Channel lands include controlling gates at turnouts and structures, minimizing weeds, and maintaining canals, levees, protective dikes, and mitigation areas. These activities would not change under the Proposed Action/Preferred Alternative; no land use changes are anticipated on rights-of-way, easements, and Gila River Flood Channel lands. Therefore, the transfer of these lands would not cause land use impacts.

The lands other than rights-of-way to be acquired by the District would be administered in various ways, depending on conditions and location. The District intends to manage these lands in accordance with its agricultural goals and the provisions of a Rural Planning Area (District, 2001). Under this policy the vacant lands have been divided into the following four categories:

Natural Habitat - The District intends to leave undisturbed natural habitat in its current condition and manage it as open space. That land would continue to provide desert habitat and desert-oriented recreational uses.

Enhanced Farming Operations - Approximately 1,400 acres of land lie in small tracts adjacent to existing farms in the District. These lands would provide opportunities to enhance existing farming operations through such uses as stockyards, and storage areas for hay and equipment. It is expected that agricultural landowners would acquire such lands from the District within 10 years after implementation of the Proposed Action/Preferred Alternative.

Relinquishment of Abandoned Rights-of-Way - The transfer includes approximately 525 acres of narrow rights-of-way for irrigation ditches that no longer exist. Many of these right-of-way strips run diagonally across or among farms and encumber land titles. The District would make arrangements to relinquish these rights-of-way to the underlying landowners. Relinquishment would not change the use of the underlying land.

Community and Commercial Development – Approximately 8,400 acres of land have been identified as candidate lands for potential community or commercial development over the next 30 years. The identification of candidate lands by the District was based on 1) proximity to existing development along the Interstate 8 corridor and elsewhere in the project area; 2) prior use and disturbance, including abandoned farm operations; 3) a preference to maintain a buffer between new development and present farming operations; and 4) distance from the Gila River Flood Channel and adjacent mitigation areas due to potential flooding. Most of candidate lands are adjacent to residential and industrial areas identified in the 2010 Plan. The amount of development that would occur on candidate lands would depend on various factors, including population growth and the compatibility of development proposals with the county's land use plan. The District would consider requests to purchase or lease candidate land on a case-by-case basis.

The net effect of the land management described above would be to integrate the uses of the Reclamation lands into the prevailing agricultural and open space character of the project area, with development for community or commercial purposes as envisioned in the 2010 Plan. Under the Proposed Action/Preferred Alternative, the candidate lands would increase the acreage available for future community and commercial development in the areas identified in the 2010 Plan. Growth would be focused to areas identified in the county land use projections and the demand on prime agricultural land for conversion to other uses would be reduced. Regardless, the Proposed Action is not anticipated to affect the rate at which growth would occur, because the area currently appears to contain sufficient private land to support projected growth trends envisioned in the 2010 Plan.

In the development of the 2010 Plan, no concerns were expressed regarding limitations on the amount of developable land in the project area and there is no indication that land availability poses a barrier to the projected rural development contemplated in the 2010 Plan.

Also, natural controls and regulatory constraints exist for potential development of the transferred lands. The 2010 Plan identified concerns surrounding domestic water supply (see Section 3.5), sewerage facilities, and other community infrastructure. Also, additional development constraints exist such as topography, physical barriers posed by canals, flood control facilities, railways, and Interstate 8, and legal barriers posed by their rights-of-way. For these reasons, the Proposed Action/Preferred Alternative would not significantly increase the rate of development in the project area.

Also, approximately 1,650 acres of former GVPD lands lie within the Barry M. Goldwater Range. Because these lands were included in the District's repayment obligation, the District will receive a credit toward the acquisition costs of lands to be purchased for the fair market value of these lands. These lands will continue to be owned or withdrawn by the Department of Defense for joint management by the U.S. Air Force and Marine Corps as part of the Barry M. Goldwater Range. This land would remain undisturbed desert.

3.3 GEOLOGIC RESOURCES

This section addresses the geologic resources within the project area.

3.3.1 Affected Environment

The geology of the District is typical of the Basin and Range Physiographic Province of the Southwest United States, with alluvial basins bounded by rugged mountain ranges. The dominant geologic feature within the project area is the Gila River valley. In the area of the District, the valley is cut into the alluvial basin between the Mohawk, Muggins, Gila, and Laguna Mountains. Only very small portions of the mountains extend into the District.

The present channel of the Gila River follows a meandering course through the valley floodplain. The valley bottom is the floodplain alluvium of the Gila River, and consists predominantly of sand and silt. Gravels and pebbly sand are abundant in places, as are beds of clay and silty clay; however, these beds are generally small and only locally extensive. The Gila River floodplain is bordered by older basin-fill terraces and other higher desert surfaces into which the river cut before starting the aggradational cycle that produced the present floodplain (Olmsted et al., 1973). These adjacent surfaces can reach upwards to 70 feet above the valley floodplain. Terraces are present north of the floodplain but only extend marginally inside the District's boundary, while the terraces south of the floodplain comprise a much greater area within the District's borders. As the Gila River narrows between the Gila and Laguna Mountains, the terraces are only about 120 to 140 feet thick, due to the geologic constriction, and are cut on bedrock, sedimentary, or volcanic rocks. Sedimentary rock exposures are also prominent at Antelope Hill in the south-central portion of the District and at the northern extent of the Mohawk Mountains in the far-eastern portion of the District.

The principal groundwater aquifer beneath the District lies within the alluvium overlying clay deposits. The water-bearing deposits consist of alternating silt, sand, and gravel beds, and are subdivided into younger and older alluvium. The younger alluvium consists of the recent floodplain alluvium while the older alluvium consists of the basin-fill deposits. As discussed further in Section 3.5, the aquifer is recharged in the area from streamflow in the Gila River, crop irrigation, localized precipitation, and basin underflow. Groundwater within the District generally flows east to west along the gradient of the Gila River.

The geologic resources in the project area, including paleontological, mineral, and energy resources, are generally limited. Some Pleistocene fossil bones of *Equis sp.* and *Odocoileus sp.* have been collected from a terrace near Ligurta (Olmsted et al., 1973). It is suspected that similar fossils are present in the adjacent terrace deposits, but additional mapping and descriptions have been minimal. The most common mineral resources in the project area are sand and gravel. Development of sand, gravel, stone, and other nonmetallic deposits has been ongoing in the District. Sand and gravel development is occurring at the western reaches of the project area on the north end of the Gila Mountains. The extracted resources from the sand and gravel operations directly support regional residential and industrial development.

Extensive development occurred at a quarry on the northwest slope of Antelope Hill near Avenue 36-1/2E (Bookman-Edmonston, 1995). The quarry material was used for bank stabilization along the Gila River after significant flooding in 1993. The quarry operations at Antelope Hill have since ceased.

Additionally, bodies of bentonite clay with potential for future development have been identified in the area between Wellton and Roll. Bentonite clay can be processed for applications such as oil, gas, and water well drilling, environmental construction and remediation, and hazardous waste treatment.

Geothermal energy resources may also be present in the project area, as indicated by Radium Hot Springs, a naturally occurring hot spring that is located northeast of Wellton. The area is inferred to contain geothermal resources with intermediate (90°C – 150°C, 194°F – 300°F) temperature potential (White, 1982). The overall geothermal resource potential for the Wellton-Mohawk area is moderate, with no resource development currently taking place (SMU, n.d.).

The geologic resources in the project area are limited, and any future development of these resources will be driven primarily by regional development and market needs.

3.3.2 Impact Assessment Methodology

The potential for change to the geologic resources in the project area were analyzed based on the perceived changes in operation of the District resulting from the No Action Alternative and Proposed Action/Preferred Alternative conditions with regard to District operations and future land use in the project area.

3.3.3 Impacts and Mitigation

3.3.3.1 No Action Alternative

As discussed in Section 3.2, it is anticipated that the candidate lands for development under the No Action Alternative would tend to be the same as candidate lands for development under the Proposed Action/Preferred Alternative. Under the no action alternative, development of sand and gravel would continue in the project area.

3.3.3.2 Proposed Action/Preferred Alternative

There are no perceived changes in operation resulting from the Proposed Action/Preferred Alternative that would significantly affect the geologic resources in the project area. Development of sand and gravel operations is ongoing and would continue to keep pace with development in the project area and the lower Gila Valley west of the project area. The rate of growth is not anticipated to change with the implementation of the Proposed Action/Preferred Alternative. Development of any future sand and gravel operation should be evaluated for the potential affects to the hydrologic system within the Gila River floodplain. Any future development for sand and gravel purposes on transfer lands outside the federal jurisdiction of waters of the United States would no longer be subject to NEPA compliance prior to implementation. Any future development located within the jurisdiction of waters of the United States would require a Clean Water Act Section 404 permit from the Corps.

3.4 SOIL RESOURCES

This section addresses the soil resources within the District and potential changes that may result from the transfer of title and purchase of certain lands by the District from Reclamation.

3.4.1 Affected Environment

Soils in the District are located on the floodplains, alluvial terraces, and rock and sedimentary outcrops. Due to the hot, arid climate of the District, the soils have a hyperthermic (hot) soil temperature regime and an aridic (dry) soil moisture regime (BLM, 1985).

The soils on the District's floodplains, including the Gila River floodplain and adjacent ephemeral washes, are generally stratified gravels, sands, silts, and clays. Textures range from gravelly sand to clay loam, but the most common textures are silt and silt loam (Advisory Committee, 1974). The floodplain soils tend to be alkaline, and in some areas excessive concentrations of salts have accumulated. Most farming in the District is done on floodplain soils, which are naturally fertile and have favorable moisture-holding capacities.

The alluvial terrace, or mesa, soils are located on remnants of the former basin-fill deposits of the Gila River. The terrace soils are generally coarser than the floodplain soils, lack natural fertility, and have lower moisture-holding capacities. The soil textures range from sand to sandy loam (Advisory Committee, 1974). These soils require special care for successful farming.

Rock outcrops comprise a very small percentage of the District including marginal exposures of the Mohawk, Muggins, Gila, and Laguna Mountains, and sedimentary exposures such as at Antelope Hill. These outcrops are generally steep and can consist of less than 10 percent soil material with shallow soil depths. Soils from these rock outcrops are coarse-textured and do not permit agricultural development.

The District is entitled to provide Colorado River water to 62,775 acres of irrigable land in accordance with Amendment No. 1 of the Consolidated Contract (Contract No. 1-07-30-W0021). Most of the irrigable acres lie within the floodplain; however, some irrigable acres are also located on the southern terraces. According to the Farmland Protection Policy Act (P.L. 97-98; 7 USC 4201 et seq.), every irrigable acre in the District is considered prime and unique (Cy Sokoll, Natural Resources Conservation Service, personal communication, 2002). Map 3-1 shows the general distribution of irrigable acres within the District.

The acreage farmed in the District varies from year to year in response to weather, cropping patterns, availability of surplus Colorado River water, and Gila River flooding. Multiple crops are grown on as much as 35 percent of the District's irrigable land. During the period of 1990 through 2000 cropped acreage, including multiple cropping, averaged approximately 80,063 acres (Reclamation, 1990-2000). This value is higher than the District's irrigable acreage because of multiple cropping (planting of more than one crop on the same land within a year).

3.4.2 Impact Assessment Methodology

The potential for change to soil resources within the District was analyzed based on the perceived changes in operation of the District resulting from the transfer of title, with particular attention to potential changes to prime and unique farmland. The future projected agricultural land use also was examined for any changes that may be inconsistent with the 2010 Plan.

3.4.3 Impacts and Mitigation

3.4.3.1 No Action Alternative

Under the No Action Alternative, Reclamation and District programs would not affect the soil resources and their use in the District for the foreseeable future. Thereafter, the eventual release of some of the land for private acquisition, as discussed in Section 3.2, would tend to have a similar effect on the preservation of prime and unique farmland as the Proposed Action/Preferred Alternative.

3.4.3.2 Proposed Action/Preferred Alternative

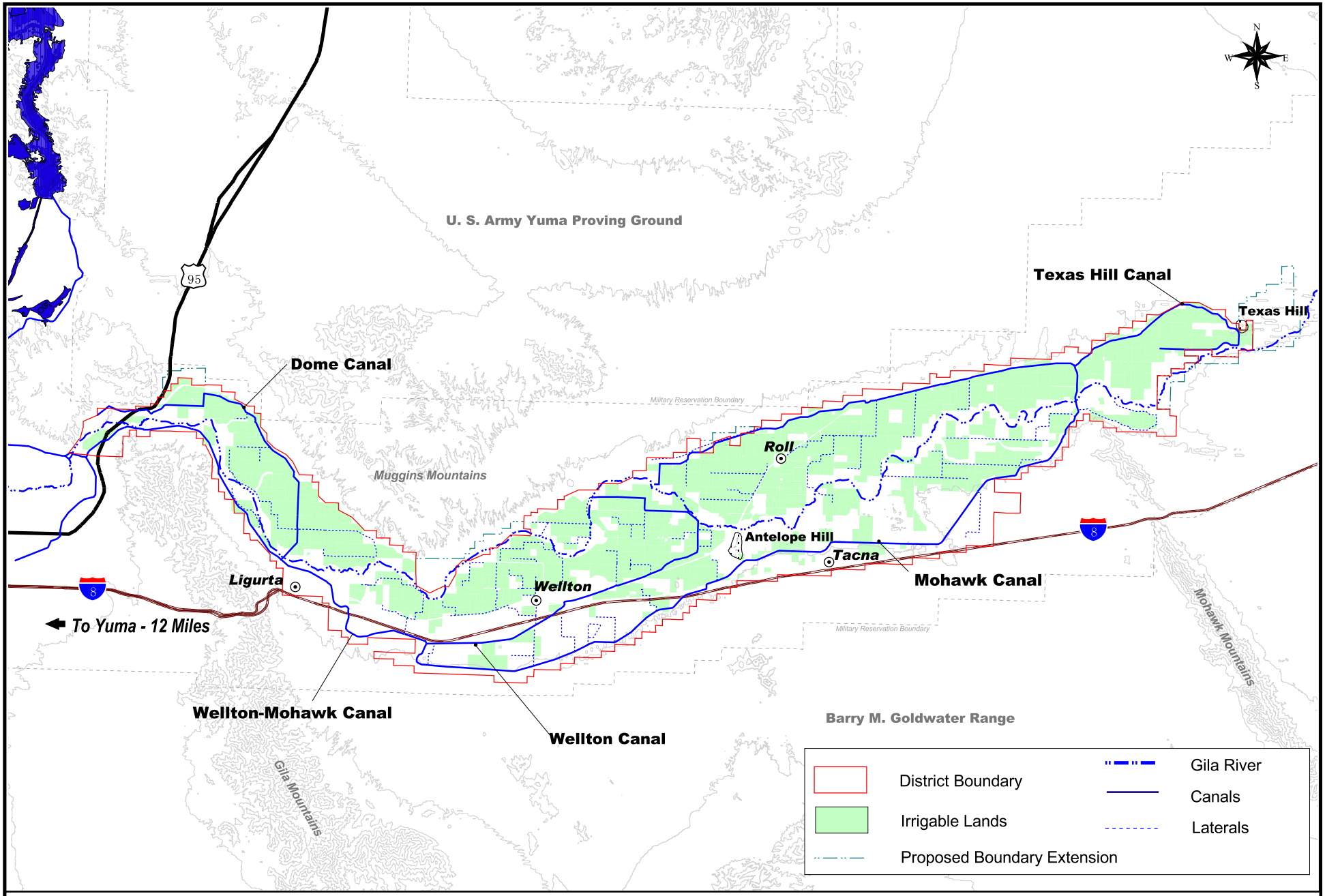
As described above, the District is obligated to maintain an irrigable acreage limitation under contract with Reclamation. Thus, no increase in the area of land irrigated with Colorado River water would occur. Because the Proposed Action/Preferred Alternative does not contemplate any change in the operation of the irrigation and drainage systems, no changes in the irrigated area or cropping patterns are proposed as part of the Proposed Action/Preferred Alternative. No perceived changes in operation would result from the transfer of title that may affect the District's soil resources. The Proposed Action/Preferred Alternative would cause no reduction in prime and unique farmland. Moreover, the availability of additional non-federal land in the project area for potential community or commercial development would tend to minimize development pressures on prime and unique farmland that might otherwise occur.

3.5 WATER RESOURCES

This section addresses the water resources within the District and potential changes that may result from the change in land ownership under the Proposed Action/Preferred Alternative.

3.5.1 Affected Environment

The natural and man-made setting in the Wellton-Mohawk area offers a diversity of water resources. As depicted in Figure 3-1, the District's overall water resources portfolio can be divided among eight general elements: 1) the Wellton-Mohawk Canal and distribution system; 2) agricultural consumptive crop use and domestic use; 3) periodic Gila River and ephemeral wash discharge; 4) groundwater recharge from surface water; 5) basin underflow; 6) groundwater storage; 7) drainage wells; and 8) the Wellton-Mohawk Main Conveyance Channel to the MOD.



Wellton-Mohawk Title Transfer

Map 3-1 Irrigable Acreage

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Not to scale. For illustrative purposes only.

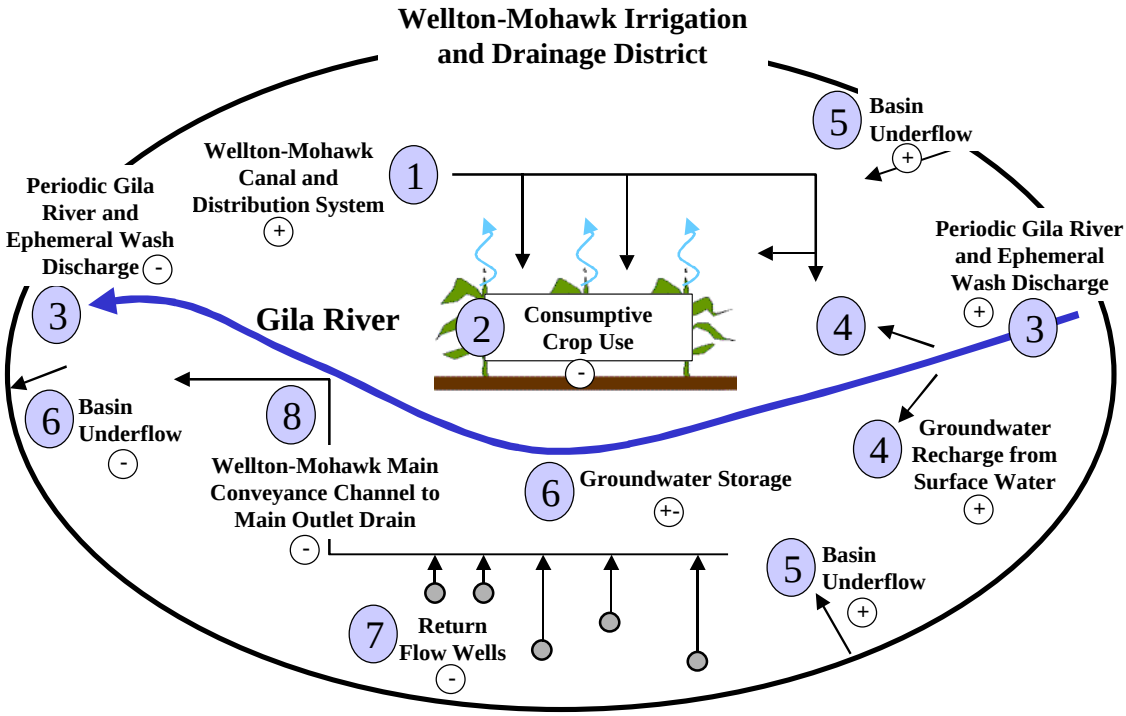


FIGURE 3-1 CONCEPTUAL MODEL OF WATER RESOURCES ELEMENTS

Gains in water to the District are listed as "+", and losses are listed as "-".

Notes:

1) The Wellton-Mohawk Canal is the source of Colorado River water in the Wellton-Mohawk area and the distribution system delivers the water throughout the District for irrigation and domestic purposes.

2) Consumptive crop use in the District is the amount of irrigated Colorado River water necessary for crop development, which includes evapotranspiration.

3) Periodic Gila River and ephemeral wash discharge results from streamflow that originates in the upper Gila River watershed, aquifer seepage, and local precipitation.

4) Groundwater recharge from surface water occurs as incidental recharge from irrigation and infiltration from the Gila River and adjacent ephemeral washes.

5) Basin underflow occurs along the margins of the District where groundwater enters or exits the basin.

6) Groundwater storage accounts for water-volume changes in the underlying aquifer. Storage inputs include recharge and basin underflow, while outputs consist of pumped-well discharge and basin underflow.

7) Drainage wells are groundwater wells that are used as a tool to manage groundwater levels throughout the District.

8) Wellton-Mohawk Main Conveyance Channel to the MOD is the discharge system used to deliver ARFs to the MOD at Station 0+00 at the western end of the District.

3.5.2 Colorado River Water

The most dominant water resource feature in the District, in terms of environmental affect and economic production, is imported Colorado River water. Diversion of Colorado River water, through the Wellton-Mohawk Canal, drives much of the hydrologic character of the District. The Wellton-Mohawk Canal receives Colorado River water from the GGMC approximately 15 miles below the Imperial Dam. The water is delivered to the District through a series of diversions and laterals for municipal and irrigation needs, as shown in Map 2-1. Pursuant to the 1964 Supreme Court Decree in Arizona v. California (1964 Decree), the United States is required to maintain detailed and accurate records of diversions of water from the mainstream of the Colorado River. In addition, records of the consumptive use and return flows must be maintained (Reclamation, 1990). The decree accounting system includes the following components:

- Diversions. The District does not have a Colorado River diversion limitation, provided that sufficient water is returned to the Colorado River so that the net depletion is no greater than 278,000 acre-feet per year (see Consumptive use). Diversions to the Gila Project are measured just below Imperial Dam and are diminished by losses in the GGMC between Imperial Dam and the District turnout to the Wellton-Mohawk Canal.

- Return flows. District return flows include:

  - A prorated portion of the losses in the GGMC,

  - Flows in the Gila River, other than flood flows, measured at the Dome Gauging Station, and

  - The ARFs measured at the MOD at Station 0+00.

- Consumptive use. Consumptive use equals diversions minus return flows. The District has a consumptive use entitlement of 278,000 acre-feet per year of Colorado River water.

3.5.3 Natural Occurrence of Surface Water and Groundwater

Surface water in the Gila River and ephemeral washes, and groundwater within the underlying alluvial sediments contribute to the natural occurrence of water within the District. The Gila River is considered ephemeral as it enters the District, as are all other drainages within the Wellton-Mohawk area. The Gila River upstream of the District is regulated by surface impoundments, such as the Painted Rock Reservoir, and diversions for municipal and irrigation purposes. This regulation limits the amount of streamflow in the District that originates from the upper Gila River watershed. The river, however, flows

intermittently through parts of the District due to drainage and seepage from the underlying aquifer. The annual Gila River flow measured at the downstream end of the District near Dome, ranged from zero to 4,732,200 acre-feet between 1903 and 1998 (Owens-Joyce, 2000). Due to the measurement location, the streamflow values may reflect contributions from within the District (e.g., seepage flow). However, the given range demonstrates the variability in annual discharge within the District where zero acre-feet likely reflects no contribution from sources upstream of the District and 4,732,200 acre-feet reflects nearly complete contribution from upstream sources.

Flood flows in the Gila River may also infiltrate into the groundwater aquifer under the District, and in extreme cases may require additional groundwater pumping to maintain water table depths under croplands. Such natural recharge is episodic and the storage in the aquifer generally returns to normal within one or two years through pumping or groundwater seepage into the river channel. Inconsistent annual streamflow causes recharge from the river to be negligible; however, occasional flood events in the river can contribute significant recharge to the floodplain aquifer. For example, following an extended flood event along the Gila River in 1993, the entire District experienced elevated groundwater levels (Bookman-Edmonston, 1995).

Local precipitation across the District can also produce discharge and subsequent recharge. The climate of the District is arid; the average annual precipitation is 3.5 inches (BLM, 1985). Due to infrequent precipitation, cumulative runoff generated from precipitation is minimal, and the resulting flows are characterized by medium to high peak discharges of short duration (Bookman-Edmonston, 1995). Consequently, groundwater recharge caused by local precipitation also is very small. However, runoff from extreme rainstorms that concentrates in desert washes poses an erosion hazard to canals and other Division facilities. This risk demonstrates the need for the protective dikes around the District and floodways to safely convey the flows to the Gila River.

Basin underflow is another source of groundwater recharge and discharge within the District. Basin underflow comes into the District through the Gila River floodplain and from the permeable sediments that border the eastern and southern portions of the District. Underflow is generally a consistent source of recharge on an annual basis. It is estimated that approximately 4,670 acre-feet of water per year comes into the eastern portion of the Lower Gila Groundwater Basin, which is comprised of the District and some adjacent land to the east (Reclamation, 1976).

The Gila River leaves the District through the Gila River Narrows between the Laguna and Gila Mountains at the western end of the District. In that area, approximately 120 to 140 feet of permeable alluvium overlie bedrock at a geologic constriction, and it is estimated that 13,670 acre-feet of groundwater per year exit the District at that point (Reclamation, 1976).

The increased volume of groundwater exiting the District compared to the volume entering through underflow reflects increased groundwater storage due to the incidental recharge of irrigation water. Groundwater is currently pumped from wells for crop irrigation on approximately 10,000 acres of state trust land south of the District. This capture of underflow may reduce the volume of groundwater and outflow from the District. However, no analyses of future effects are available.

3.5.4 Domestic Water Supply

The District is permitted by contract with Reclamation to deliver up to 5,000 acre-feet of Colorado River water for domestic use within its boundaries. Domestic water is currently delivered to the Town of Wellton and various homeowners and commercial enterprises scattered throughout the District, including dairy and cattle feedlot operations. Delivery of Colorado River water for domestic use requires a contract between the District and the water customer. The District's contract with Reclamation (Amendment No. 1 to Contract No. 1-07-30-W0021, discussed in Section 1.7.2) specifies that the domestic water has a lower priority than irrigation water and that it is provided as an interruptible supply.

Increased demand for domestic water from the District will occur with continued future development. Currently, the amount of domestic water for which the District has written delivery contracts is approaching 5,000 acre-feet. The District has submitted a formal request to amend its water supply contract with Reclamation to increase its domestic allotment to 10,000 acre-feet per year. In anticipation of increased domestic water demand, over the last ten years the District began to purchase land with water rights from willing sellers. The District has acquired over 3,000 acres of agricultural land which will be retired to make available the additional 5,000 acre-feet of domestic water requested by the District.

3.5.5 Water Quality

The salinity of Colorado River water delivered to the District varies in relation to hydrologic conditions in the Colorado River watershed. Since 1952, the salinity of Colorado River water has varied annually and seasonally between approximately 530 and 947 milligrams per liter. Water with mineral concentrations in this range exceed recommended standards for domestic use. The Town of Wellton filters and chlorinates irrigation water for municipal use. Rural residents generally use various commercial methods of filtration and/or softening according to personal preference.

Groundwater in the District is generally unsuitable for municipal and most irrigation purposes. The groundwater has high salinity concentrations due to the soluble salt content of the native soil and an arid environment.

3.5.6 Impact Assessment Methodology

The potential for changes to water resources within the District were analyzed based on the anticipated changes in the operation of the District resulting from the Proposed Action/Preferred Alternative. District operations are expected to follow the objectives and policies set forth in the 2010 Plan, which calls for the preservation of the rural agricultural and open space character of the area. As discussed in Sections 3.1 and 3.2, the Proposed Action/Preferred Alternative would not result in direct impacts to the environment; however, impacts associated with potential future land use changes are possible.

3.5.7 Impacts and Mitigation

3.5.7.1 No Action Alternative

As discussed in Section 3.2, it is anticipated that the candidate lands for development under the No Action Alternative would tend to be the same lands for development under the Proposed Action/Preferred Alternative. Under the No Action Alternative, there would be no change in the District's water entitlement or water supply operations. The rate of increase in domestic water demand would remain the same with or without the Proposed Action/Preferred Alternative.

3.5.7.2 Proposed Action/Preferred Alternative

The Proposed Action/Preferred Alternative would not affect the Colorado River water entitlement to the District; the entitlement is part of the allocation of water to the State of Arizona and is recorded in contracts with Reclamation. Also, the acreage dedicated to irrigated agriculture in the District cannot increase as a consequence of the Proposed Action/Preferred Alternative. Thus, the Proposed Action/Preferred Alternative would have no effect on irrigation water delivery or use.

The domestic water demand is increasing and may reach the contractual maximum annual allotment of 5,000 acre-feet in the near future. The increased demand is based on population growth, which is projected to occur at an equivalent rate with or without the Proposed Action/Preferred Alternative. Therefore, the Proposed Action/Preferred Alternative would not impact the domestic water supply.

3.6 BIOLOGICAL RESOURCES

This section discusses the biological resources including habitat conditions and species compositions within the District and potential changes that may result from the transfer of title and purchase of certain lands by the District from Reclamation.

3.6.1 Affected Environment

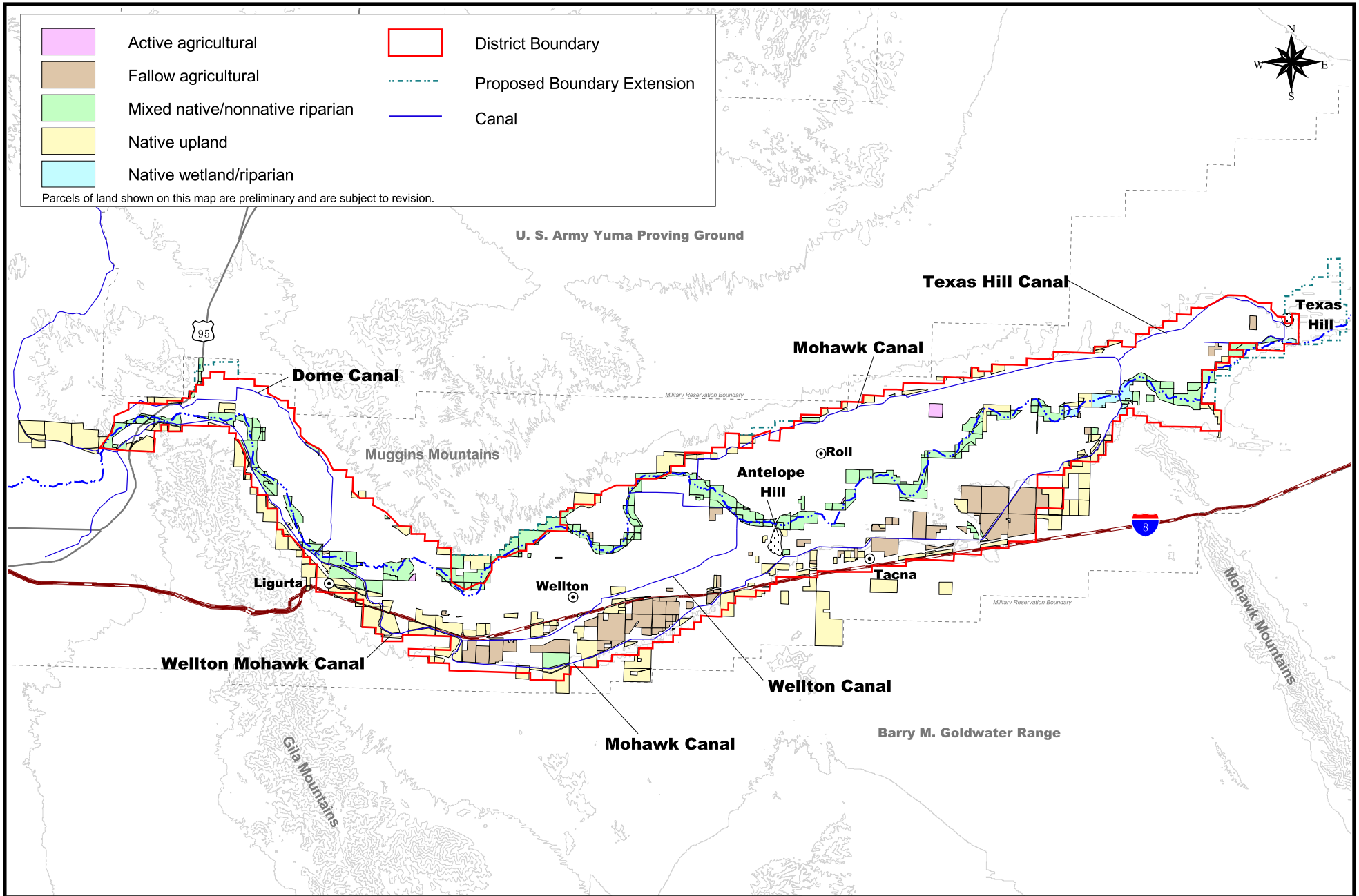
The project area lies within the Lower Colorado River Valley subdivision (LCRVS) of the Sonoran Desert (Turner and Brown, 1994). The LCRVS is the largest and most arid subdivision of the Sonoran Desert, centered at the head of the Gulf of California. This ecoregion is characterized by hot summer temperatures and low precipitation, which averages 3.5 inches per year (Brown, 1994). The climate supports sparse, widely spaced desert vegetation. Conspicuous desert shrubs include creosote bush *(Larrea tridentata),* white bursage (*Ambrosia dumosa*), saltbush (*Atriplex polycarpa* and *A. canescens*), brittlebush (*Encelia farinosa*), and ocotillo (*Fouquieria splendens*). Only along water courses are there taller shrubs and trees of any stature, including jimmyweed (*Isocoma acradenia*), quailbush (*Atriplex lentiformis*), honey and screwbean mesquite (*Prosopis glandulosa* and *P. pubescens,* respectively), ironwood (*Olneya tesota*), catclaw acacia (*Acacia greggii*), Fremont cottonwood (*Populus fremontii*), and Goodding willow (*Salix gooddingii*). The drainage water from irrigation maintains the riparian vegetation.

3.6.1.1 Vegetation and Land Cover

Much of the land within the project area is composed of vegetation cover typical of Mojave and Sonoran Desert communities. Wetlands habitat lies along the Gila River corridor. A field review was preformed in February and March 2002 to determine the vegetative cover on the lands proposed for transfer (Stevens, 2002). The field review surveyed the undeveloped lands and the Gila River Flood Channel lands included in Wellton-Mohawk Title Transfer. The dominant plant species on each parcel was identified, the native or exotic status was evaluated, and visual estimates were made of the total percent cover on each parcel, the extent of wetted soils, and the extent of human disturbance. Table 3-1 and Map 3-2 present the vegetation cover types on the lands proposed for transfer that are currently undeveloped or used as rights-of-way for the Gila River Flood Channel and indicate the vegetation cover of the land targeted for development.

The areas occupied by the Gila River Flood Channel and associated mitigation areas have historically been part of a dynamic riparian system subject to channel shifting during periods of Gila River flooding. Active agricultural lands strongly dominate the floodplain in the District, but account for less than one percent of the lands identified for transfer (excluding rights-of way and easements). Approximately 5,700 acres of the land identified for transfer are fallow agricultural lands.

Dry wash riparian habitats also are abundant in the project area. In addition to screwbean and honey mesquite, relatively undisturbed arroyo habitats commonly support several other woody desert legume shrubby trees, including ironwood (*Olneya tesota*) and palo-verdes (*Cercidium microphyllum* and *C. floridum*). These species may provide habitat to numerous bird species, and this habitat can serve as important corridors for wildlife movement.



Wellton-Mohawk Title Transfer

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Map 3-2 Biological Habitat Distribution

Not to scale. For illustrative purposes only.

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BUREAU OF RECLAMATION

TABLE 3-1 AREAS OF VARIOUS COVER TYPES ON VACANT AND GILA RIVER FLOOD CHANNEL LANDS

Dominant or Co-dominant Cover Type	Approximate Area with No Development Potential (acres)	Approximate Area with Development Potential (acres)	Approximate Total in Each Category (acres)	Approximate Percent of Cover Type (%)
Native wetland/ riparian	870 (200)	0	870	2
Native upland	11,750	3,000	15,750	41
Mixed native/ non-native riparian	12,550 (830)	1,100	13,650	35
Active agricultural land	180	0	180	1
Fallow agricultural land	1,950	5,700	8,050	21
Total	27,300	9,800	38,500	100

Notes:

Areas in parentheses in the first column of numbers are acreages containing or dominated by riparian and marsh plant species.

The total estimated area of land identified for transfer that is undeveloped or rights-of-way for the Gila River Flood Channel is approximately 38,500 acres and does not include existing irrigation works and facilities. Also, land areas presented in this table are approximate and are not based on Yuma County Assessor's data.

Desert vegetation occupies a relatively large proportion of the project area. An estimated 15,750 acres, or 41 percent of the lands identified for transfer are dominated or co-dominated by creosote bush (*Larrea tridentata*) and mixed desert scrub vegetation. However, in many cases that vegetation has reinvaded highly disturbed, former agriculture, or otherwise disturbed land, and is unlikely to support much wildlife. Approximately 26 percent of the lands in this category are identified as candidate for development.

Invertebrates: Little data is available on invertebrates in the project area. Riparian areas, however, commonly support relatively high levels of invertebrate biodiversity and biomass (Malanson, 1993).

Fish: The native fish of the project area declined as a result of flow regulation and non-native fish introductions in both the Gila and Colorado Rivers. Historically, native fish included razorback sucker (*Xyrauchen texanus*), Colorado pikeminnow (*Ptychocheilius lucius*), roundtail chub (*Gila robusta*), and several other species, have been largely or wholly extirpated from the project area.

Non-native fish in the region presently include largemouth bass, flat-head catfish, channel catfish, smallmouth bass, striped bass, sunfish, red shiners, minnows, carp, sailfin molly, mosquito-fish and threadfin shad. However, little fish habitat remains in the project area.

Amphibians and Reptiles: The project region supports a diverse range of amphibian and reptile species, consisting of one amphibian group and two guilds within the western reptile group; however, little data is available on the species within the project area.

Habitat disruption from agricultural activities and urbanization in and around the project areas has undoubtedly reduced amphibian and reptile populations; however, little data on herpetofaunal populations in the region is available. Desert tortoise are not listed in the project area. Flat-tailed horned lizard and Cowles fringe-toed lizard are not known in the project area, but are of concern in the region. Various snakes are found in the regions, but none are federally listed.

Birds: The project region supports a large number of wintering and summer breeding bird species and the Colorado River corridor is a major flyway for migratory waterfowl, shorebirds, neotropical birds, marsh birds, and other avifauna. More than 300 species of birds have been documented in the boundaries of the Yuma area, nearly 70 percent of all species in the Western Region of North America (Grimble & Associates, 1997). Common species in the region include the American coot (*Fulica Americana*), ladder-backed woodpecker (*Picoides scalaris*), verdin (*Auriparus flaviceps*), marsh wren (*Cistothorus palustris*), white-winged dove (*Zenaida asiatica*), mourning dove (*Zenaida macroura*), and Gambel's quail (*Callipelpa gambelii*).

Mammals: Riparian and desert vegetation in the project area formerly supported numerous land mammals ranging from small rodents such as mice, to large predators like mountain lions; however, land use over the past century in the project area has altered the concentration of these species.

Rodents make up the largest group of mammals in the project area. Ohmart, et al. (1988) documented rodent species in the lower Colorado River basin, and reported that most of the rodent species identified showed some preference for vegetation cover. Badger (*Taxidea taxus*), striped skunk (*Spilogale putorius*), kit fox (*Vulpes macrotis*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audoboni*), and several rodent species probably occurred throughout the project area prior to settlement (Hoffmeister, 1986).

Bobcats are rare in the project area, and the Yuma mountain lion (*Felis concolor browni*) has not been detected in the project area for many decades. Coyotes are most abundant in honey and screwbean mesquite habitats. Kit fox, gray fox, and spotted skunk all may be seen rarely, and may be more abundant than records indicate. Badgers are rare and are

primarily found in honey mesquite or other sparsely vegetated desert or riparian habitat, whereas striped skunks are more often found in dense habitats near water. Desert mule deer (*Odocoileus hemionus*) densities in riparian habitats probably have changed dramatically over the past 100 years (Ohmart, et al., 1988). Continuing riparian habitat conversion combined with the disappearance of cottonwood-willow communities has affected deer populations by eliminating cover and forage availability. Deer living in upland habitats move to the riparian habitats during summer. The range of the federally endangered Sonoran pronghorn has included areas south of District but is unlikely to occur in the project area.

3.6.1.2 Federal and State Listed Special-Status Species

Reclamation has corresponded with the U.S. Fish and Wildlife Service (FWS) and AGFD regarding the proposed title transfer and has obtained species lists for Yuma County, Arizona from these agencies (Appendix F). A total of 11 federally listed threatened, endangered, and candidate species are recognized as potential concerns in the project area by the FWS, including: one plant (Pierson's milkvetch); one fish (razorback sucker); one lizard (flat-tailed horned lizard); seven bird species (brown pelican, bald eagle, Yuma clapper rail, mountain plover, yellow-billed cuckoo, cactus ferruginous pygmy-owl, southwestern willow flycatcher), and one mammal (Sonoran pronghorn). The federally listed species are shown in Table 3-2.

The State of Arizona recognizes one lizard, two birds, and two mammal species as special status species in the project region, but not necessarily occurring in the project area (AGFD, 2002). The State of Arizona identifies the following sensitive species that may occur in the project region: Sonoran pronghorn, yellow-billed cuckoo, spotted bat, Yuma clapper rail, and Cowles fringe-toed lizard. No critical habitat has been designated in the project area.

Pierson's Milkvetch (Fabaceae: *Astragalus magdalenae* var. *peirsonii*) was listed as threatened on October 6, 1998, but with no critical habitat designated. Pierson's milkvetch is a large, low stature, short-lived perennial species, endemic to sand dunes in the Sonoran, Mojave, and Great Basin deserts. It is not known to occur in the project area.

Razorback Sucker (Catastomidae: *Xyrauchen texanus*) was listed as endangered on August 15, 1989. Critical habitat is defined in the ESA to include areas whether occupied or not that are essential to the conservation of the species. Critical habitat includes the lower Colorado River from Pierces Ferry on upper Lake Mead to Imperial Dam including the 100-year floodplain. The recovery plan for this species seeks to protect and expand the three existing populations and establishes five new populations using remnant stock or translocated fish (FWS, 1998a).

TABLE 3-2 FEDERAL LISTED SPECIES POTENTIALLY OCCURRING IN YUMA COUNTY

Scientific Name	Common Name	Taxon	Federal Status
Astragalus magdalenae	Pierson's milkvetch	Plant	Threatened
Xyrauc hen texanus	Razorback sucker	Fish	Endangered
Phrynosoma mcallii	Flat-tailed horned lizard	Reptile	Special Status
Pelecanus occidentalis californicus	California brown pelican	Bird	Endangered
Haliaeetus leucocephalus	Bald eagle	Bird	Threatened
Rallus longirostris yumanensis	Yuma clapper rail	Bird	Endangered
Charadrius montanus	Mountain plover	Bird	Proposed Threatened
Coccyzus americanus	Yellow-billed cuckoo	Bird	Candidate
Glaucidium brasilianum cactorum	Cactus ferruginous pygmy-owl	Bird	Endangered
Empidonax traillii extimus	Southwestern willow flycatcher	Bird	Endangered
Antilocapra americana sonoriensis	Sonoran pronghorn	Mammal	Endangered

Federal Status Definitions
Threatened: Listed as threatened with imminent jeopardy of becoming Endangered.
Endangered: Listed as endangered with imminent jeopardy of extinction.
Candidate: Species for which the FWS has sufficient information on biological vulnerability and threats to support proposals to list as Endangered or Threatened under the Endangered Species Act.
Special Status: Species of concern whose conservation status may be of concern to the FWS, but which has no official status under the Endangered Species Act. The flat-tailed horned lizard is a special status species whose conservation has been managed by a 9-party federal and state agency conservation agreement since 1997.

Overall, the status of the razorback sucker in the wild continues to decline. As plans to stabilize the 3 existing populations by 2000 have failed, possible delisting by as early as 2010 appears unlikely. Wellton-Mohawk canal water is the only perennial water source for the lower Gila River and these waters are the only source of potential habitat for this species. No restoration activities have been planned or conducted in the lower Gila River by Reclamation because the habitat is unsuitable and restoration activities in the project area would be ineffective.

Flat-tailed Horned Lizard (Iguanidae: *Phrynosoma mcallii)* was proposed to be federally listed as threatened in November 1993. A Rangewide Management Strategy was developed to coordinate inter-agency habitat and population management strategies (Foreman, 1997). Flat-tailed horned lizards are found on light-colored sandy soils, most commonly on the

sand sheet of the Yuma Desert and the Gran Desierto in Mexico (Stebbins, 1985; CBD, 2000). This species has not been detected in the project area (Foreman, 1997), nor are the remaining natural habitats within the project area suitable for this species.

Brown Pelican (Pelicanidae: *Pelecanus occidentalis californicus*) was designated as endangered in the entire United States (except for areas along the Atlantic coast, Florida, and Alabama) on June 2, 1970. Brown pelicans are rare, wandering coastal seabirds, erratically appearing and moving through the region in which the project area is located. Factors affecting brown pelican populations include human and natural disturbance of nesting colonies and anthropogenic sources of mortality (e.g., entanglement in monofilament line, oil or chemical spills, erosion, plant succession, disease, and altered food availability).

Bald Eagle (Buteonidae: *Haliaeetus leucocephalus*). Two laws protect bald eagles: 1) the federal Bald Eagle Protection Act (1940) which makes it illegal to kill, harass, possess, or sell bald eagles; and 2) the bald eagle was designated as a threatened species in the lower 48 states on March 11, 1967. Bald eagles commonly migrate through or across Arizona in the fall and winter (throughout March), and are an uncommon winter transient in the lower Gila and Colorado River corridors. Bald eagles are rare, opportunistic migrants through the project area, and move quickly through the region.

Yuma Clapper Rail (Rallidae: *Rallus longirostris yumanensis*) was designated as endangered on March 11, 1967 (32 FR 4001, 11 March 1967; 48 FR 43182, 27 July 1983). Within the area covered by this listing, this species is known to occur in Arizona and California. A recovery plan was completed in February 1983. The species occurs in bullrush and cattail marshes along the lower Colorado River from Lake Mead south to Mexico, including the lower Bill Williams River, as well as on the Gila and Salt Rivers upstream to the Verde confluence. Maintaining suitable flows in the lower Colorado River and preserving habitat on federal and state lands are primary management concerns, as well as protecting winter habitat.

The Yuma clapper rail has historically occurred in the District, but the population appears to be declining, as is the case along the lower Colorado River. Surveys conducted by the State of Arizona detected 23 of the birds in 1983, but during surveys from 1992 to 2001 up to nine birds were detected in a given year, and more than half of the birds detected were in or around Quigley Pond, located south of the Gila River within the District.

Mountain Plover (Charadriidae: *Charadrius montanus)* became proposed threatened on February 16, 1999, but no critical habitat has been designated. This species' habitat is grasslands, and mountain plovers are rarely found near water. At present mountain plover are likely to be occasional winter visitors in the project area, but this region is too low in elevation to support breeding populations on or off agricultural lands.

Cactus Ferruginous Pygmy-Owl (Strigidae: *Glaucidium brasilianum cactorum*) was designated as endangered on March 10, 1997. This species is only known to occur in Arizona. This species historical range includes low, arid habitats from southernmost Texas and central southern Arizona in the United States south to the western Mexican states. It is now extremely rare in Arizona, known in recent years only from Organ Pipe National Monument, near Ajo, a suburban site in Tucson, and as far west as Cabeza Prieta Tanks on the Cabeza Prieta National Wildlife Refuge (Hunt, 1998).

Yellow-billed Cuckoo (Cucujidae: *Coccyzus americanus*). The FWS published an initial finding that ESA protection may be needed for western cuckoos, either as subspecies or a unique population, on February 17, 2000. This species is associated with gallery cottonwood-willow riparian forests and areas containing high soil moisture content. The project area generally lacks the simultaneous occurrence of these features.

Southwestern Willow Flycatcher (Tyrannidae: *Empidonax trailii extimus*) was designated as endangered on February 27, 1995, and it is a species of special concern in Arizona (AGFD, 1996). The southwestern willow flycatcher is rare in the southwestern United States, and its former range included the lower Colorado River, from which it had been extirpated but is now apparently recolonizing (Robert McKernan, San Bernardino County Museum, personal communication). Surveys of the lower Gila River from 1993-2001 revealed a single nest at Fortuna Wash in 1996 (Paradzick, et al., 2001). While the lower Colorado River was historically occupied by this species, (FWS, 1993c), it is considered to be a rare migrant through the project area in the lower Gila River (Resource Management International, Inc., 1994), and only very rarely nesting in the general area.

Sonoran Pronghorn (Antilocapridae: ***Antilocapra americana sonoriensis*)** was designated as endangered on March 11, 1967. This species occurs in Arizona and northern Mexico. A total of 99 animals were detected by the AGFD in 2001 surveys, and total population estimated was 140 animals in southwestern Arizona (J. Hervert, AGFD, Yuma Office, personal communication). Potential habitat only exists south of Interstate 8, and includes lands on the Barry M. Goldwater Range.

Cowles Fringe-toed Lizard (Iguanidae: *Uma notata rufopunctata*). This species occurs mainly in and near the Mohawk and Yuma dunes (New Mexico Natural Heritage Database). No known populations exist in the study area, which does not have extensive loose sand habitats.

Spotted Bat (Vespertilionidae: *Euderma maculata*). The distribution of this species is poorly known, and few data indicate its presence in the project area.

3.6.2 Impact Assessment Methodology

Potential impacts to biological resources were determined through field investigations and described in the Biological Resources Assessment (Phillips Consulting, 2002). As discussed in Sections 3.1 and 3.2, the Proposed Action/Preferred Alternative would result in the District's acquisition of lands currently owned by Reclamation within the project area. Much of these lands are either associated with works and facilities of the Division or the Gila River Flood Channel, and would not experience any change under the Proposed Action/Preferred Alternative. Of the remaining portion of the lands to be transferred, 9,800 acres have been identified as candidate lands having the potential for subsequent disposition to private entities which includes 1,400 acres for the potential to enhance farming operations. Potential disturbance that may occur on these lands as a result of future development and/or enhanced farming operations and the potential for such disturbance to impact species or their habitat was assessed. In addition, species-specific impact assessments were conducted for each federally and state listed special status species identified in Section 3.6.1.3.

Additionally, Reclamation has engaged in informal consultation on the Proposed Action/Preferred Alternative with the FWS and the AGFD. Coordination activities have involved exchanges of correspondence on special status species, a coordination meeting, and a joint field review of the lands included in the Proposed Action/Preferred Alternative. Reclamation received concurrence from the FWS in June 2003 that the Proposed Action/Preferred Alternative may affect, but is not likely to adversely affect two listed species: the Yuma clapper rail and the southwestern willow flycatcher (Appendix F).

3.6.3 Impacts and Mitigation

The following sections discuss potential biological resources impacts associated with the No Action Alternative and the Proposed Action/Preferred Alternative.

3.6.3.1 No Action Alternative

Under the No Action Alternative, the District would not acquire title to facilities and lands and any federal action in the project area that may affect a plant or animal species listed as threatened or endangered must continue to comply with Section 7(a)(2) of the ESA.

3.6.3.2 Proposed Action/Preferred Alternative

Potential biological resource impacts that could occur as a result of the Proposed Action/Preferred Alternative include vegetation/habitat disturbance on lands that may be developed and potential effects on special-status species. These potential impacts are discussed in the following sections.

TABLE 3-3 ESTIMATED AREA OF EXISTING HUMAN DISTURBANCE

Cover Type	Development Potential	Human Use Intensity Area (acres)			Total (acres)
		Low	Med	High	
Native wetland/riparian	NDP	640	150	80	870
Native upland	NDP	4,680	5,330	1,740	11,750
Mixed native/non-native riparian	NDP	1,780	7,080	3,690	12,550
Active agricultural	NDP	0	0	180	180
Fallow agricultural	NDP	0	290	1,660	1,950
Native wetland/riparian	DP	0	0	0	0
Native upland	DP	520	1,440	1,040	3,000
Mixed native/non-native riparian	DP	140	490	470	1,100
Active agricultural	DP	0	0	0	0
Fallow agricultural	DP	0	240	5,460	5,700
	Total	7,770	15,020	14,320	38,500

NDP = no development potential under the Proposed Action/Preferred Alternative
DP = development potential under the Proposed Action/Preferred Alternative
Note: The total estimated area of land identified for transfer that is undeveloped or rights-of-way for the Gila River Flood Channel is approximately 38,500 acres. This acreage does not include the irrigation works and facilities lands that have already been developed.

3.6.3.2.1 Vegetation Cover Disturbance

Potential disturbance of candidate lands for development and other lands that may be made available for acquisition for enhanced farming operation may affect the vegetation cover types of disturbed lands. The development potential of the candidate lands is based on several factors, including: 1) the proximity of the undeveloped land to current population and commercial centers; 2) the proximity of the undeveloped land to current agricultural operations; and 3) the type of vegetation cover that currently exists on the undeveloped land. These lands and various vegetation cover types are indicated on Map 3-2 and listed in Table 3-3. The low-disturbance native cover lands that are candidates for development primarily involve desert habitats.

Approximately 1,100 acres of land have mixed native, non-native riparian habitat and development potential. These lands have been specifically surveyed for the potential to support the southwestern willow flycatcher and Yuma clapper rail. Following inquiries by FWS and survey by AGFD personnel and others, these lands were deemed unsuitable for flycatchers due to lack of soil moisture and proper vegetative cover. Similarly, no areas known to be occupied by or contain suitable habitat for clapper rails have been classified as having development potential.

Although such disturbance may occur in association with future development within the project area, the Proposed Action/Preferred Alternative would not impact existing riparian, desert, other vegetation, or plant populations. Land development changes will take place under both alternatives, and the rate and extent of such developments are unknown under

both alternatives. The Proposed Action will not change management practices related to the flood channel restoration project operations or the District's management of the Gila River Flood Channel. The District's waters are the sole source of perennial flow for the lower Gila River, and the Proposed Action/Preferred Alternative would not affect the flow that supports existing riparian vegetation. Project lands with substantial cover by native phreatophytes, such as Fremont cottonwood, Goodding willow, and mesquite, in addition to non-native salt-cedar, are likely to provide some bird or wildlife habitat, and would not be affected by the Proposed Action/Preferred Alternative.

3.6.3.2.2 Potential Impacts on Fish and Wildlife

The Proposed Action/Preferred Alternative would not have any detectable impact on sensitive fish habitat because no differences in flow regimes, maintenance or development activities is anticipated under the Proposed Action/Preferred Alternative. These waters are the sole source of perennial flow for the lower Gila River, and the irrigation will continue to release water through the lower Gila River. Existing wetlands management included in the jurisdictional waters of the United States will remain under federal guidance through Section 404 of the Clean Water Act, and both ESA and NEPA processes will continue to apply to the habitat. Therefore, no impacts of the Proposed Action/Preferred Alternative on fish and wildlife habitat would occur, and no impacts to fish, mammals, birds, invertebrates, reptile, or amphibian species would occur. Outside of the Gila River Flood Channel, relinquishing federal involvement in lands under the Proposed Action/Preferred Alternative would remove the federal compliance requirements with Section 7(a)(2) of the ESA.

3.6.3.2.3 Potential Impacts on Federally Listed Special-Status Species

The following species do not occur within the project area of effect or are very rare transients; therefore, no impacts are anticipated from future potential land uses that may occur as a result of the Proposed Action/Preferred Alternative: Pierson's milkvetch, razorback sucker, mountain plover, flat-tailed horned lizard, brown pelican, yellow-billed cuckoo, bald eagle, cactus ferruginous pygmy owl, and Sonoran pronghorn.

Yuma Clapper Rail - Because the Proposed Action/Preferred Alternative will not change flow or habitat management actions or strategies associated with the Corps' Gila River Channel Project 404 permit, the Proposed Action/Preferred Alternative may affect, but is not likely to adversely affect the Yuma clapper rail (see Appendix F).

Southwestern Willow Flycatcher - Southwestern willow flycatchers are primarily migratory through the project area and only one nest has been detected in the general area in nearly a decade. The Proposed Action/Preferred Alternative would not affect flow regimes or habitat in any predictable way, and is therefore unlikely to affect the population or habitat

of this species. The Proposed Action/Preferred Alternative may affect, but is not likely to adversely affect the southwestern willow flycatcher (see Appendix F).

3.7 CULTURAL RESOURCES

This section discusses the cultural resources in the project area and the potential effects of the proposed title transfer on such resources. Section 3.7.1 provides a description of the historical context of the project area and a summary of previous investigations of pre-historic and historic cultural resources in the project area. Section 3.7.2 discusses the methods used to determine potential impacts, and Section 3.7.3 discusses such potential impacts for both the No Action Alternative and Proposed Action/Preferred Alternative.

Cultural resources are physical or other expressions of human activity or occupation. Such resources include culturally significant landscapes, prehistoric and historic archaeological sites, districts, and isolated artifacts or features, historic structures, and traditional cultural properties (TCPs). TCPs are sites or areas of important cultural value to existing communities, and may not have physical remains associated with their existence. Cultural resources that are eligible for inclusion on the NRHP are protected under the NHPA. Cultural resources may also be protected under NEPA, the Native American Graves Protection and Repatriation Act (NAGPRA), the Archaeological Resources Protection Act (ARPA), Executive Order 13007, Protection of Native American Sacred Sites, and other federal, tribal, or state laws and policies.

3.7.1 Affected Environment

3.7.1.1 Historical Context

The general project area has had a long and rich history of use by Native American groups. Europeans appeared on the scene very early with historical-period Spanish exploration in the 1540s. During the Spanish, Mexican, and early United States periods, the Gila River was a main route of travel, as it still is today. Historical-period inhabitants of the project area practiced farming, ranching, and mining. Modern irrigation in the project area began in the late 1800s, accompanying the rise of settlement and local agriculture. Beginning in the early twentieth century, the Reclamation Service (later known as the Bureau of Reclamation) undertook the construction of Laguna and Imperial Dams on the Colorado River and their attendant canal systems to deliver Colorado River water to lands in Yuma County. These large irrigation efforts brought thousands of acres of previously arid land into cultivation.

3.7.1.2 Archeological Research Conducted in the Past

Archaeological research in the region began in the 1920s, when Malcolm Rogers of the San Diego Museum of Man recorded most of the region's significant sites, including Antelope

Hill, Texas Hill, Tinajas Altas, and White Tanks. Members of Gila Pueblo under the direction of Harold Gladwin joined Rogers in the 1930s. Gila Pueblo focused on determining the boundaries of the Red-on-Buff culture, which was later defined as the Hohokam. In 1930, Harold Gladwin, joined by his wife, Winifred, reported on a survey that encompassed western Arizona, including portions of the lower Gila River valley. In their attempt to define the western boundaries of the Red-on-Buff culture, the Gladwins reported on 15 sites between Gila Bend and Yuma; unfortunately, the locations of these sites have been lost.

Two decades later Albert Schroeder conducted surveys of the lower Colorado and Gila River valleys (Schroeder 1952). Schroeder's surveys were selective, and the exact areas surveyed are uncertain. He identified 69 sites along the rivers and recorded 13 sites along the lower Gila River. Following Schroeder's work, David Breternitz performed a brief reconnaissance survey of the lower Gila River between Yuma and the Painted Rock Mountains near Gila Bend, recording three prehistoric sites in the project area (Breternitz 1957). In 1964, William Wasley and Gwinn Vivian conducted a survey along the lower Gila River from the Town of Blaisdell at the western edge of the project area to the Painted Rock Dam on the Gila River. Wasley and Vivian recorded two prehistoric and historical-period sites: petroglyphs and the remains of a stage station along the Butterfield Overland Mail route.

These early studies demonstrated that the western deserts contained archaeological resources but they did not establish either the range of resources or the relative site density. An interesting finding of these surveys was that large village sites, such as the ones found upriver near Gila Bend, were not found along the lower reaches of the Gila River. Given that the early investigators focused on sites of this type, their absence is particularly noteworthy. While it is possible they might have missed them, this possibility seems unlikely, particularly given Rogers' penchant for finding and documenting rather ephemeral sites. A second possibility is that the indigenous people of the lower Gila River followed the practice of protohistoric groups along the Colorado River, placing their villages in the active floodplain. If so, these villages have probably been destroyed by floods. The final consideration is that the region was not used for major habitation (SRI, 2002).

The passage of the NHPA in 1966 marked an intensification of archaeological activity in the lower Gila River valley. While only 3 surveys were recorded in the project area prior to 1966, there have been 37 surveys in the last 35 years, ranging in size from less than 1 acre to more than 1,600 acres. These included several surveys that intersected the study area during the 1990s. Because of their size and systematic nature, the more recent surveys provide a better representation of the archeological record than the results of their predecessors.

An NHPA compliance action resulted in a data recovery effort at Antelope Hill, a well-known landmark located along the Gila River between Wellton and Tacna. The 500-foot sandstone hill was used by prehistoric and protohistoric peoples for thousands of years to obtain materials for milling implements and as a canvas for rock art. Antelope Hill was important as a milling implement quarry, particularly for the production of metates and pestles (Schneider and Altschul 2000). More than 100,000 quarrying episodes were estimated to be represented there, with the products then being transported by water hundreds of miles up and down the Gila and Colorado Rivers. The rock art at Antelope Hill, with more than 350 rock art elements, is comparable to that at other sites on the Gila River and led to the definition of the Patayan style (Doolittle 2000). The hill was considered a no-man's-land, not owned by any particular tribe. For their modern descendants, Antelope Hill remains an important power point in the lower Gila River valley. In historical times, explorers, soldiers, bandits, and settlers moving along the Southern Emigrant Trail also visited the hill.

Most of Antelope Hill is federal land controlled by Reclamation, with about 40 acres owned by the District and the southern slopes of the hill controlled by private landowners. In response to the 1993 floods on the Gila River, the District applied for a permit from the Corps to quarry rock from Antelope Hill to repair and maintain water control features. This action required the Corps to comply with Section 106 of the NHPA. The site was determined to be eligible for listing in the NRHP as an archaeological site and as a TCP under Criteria a, c, and d. A memorandum of agreement stipulated that treatment of the adverse effects of quarrying include archaeological, ethnographic, and historical research (Schneider and Altschul 2000).

Under Executive Order 13007, May 24, 1996, agencies administering federal lands are required to 1) accommodate access to and ceremonial use of Indian Sacred Sites by Indian religious practioners, and 2) avoid aversely affecting the physical integrity of such sacred sites. The only Indian Sacred Site noted in previous surveys was Antelope Hill, which is not included in the Proposed Action/Preferred Alternative.

3.7.2 Impact Assessment Methodology

Potential impacts to cultural resources are being determined through the identification of resources within the project area. Considerations are also being given to the obligations placed on federal agencies through the NHPA and other laws and regulations that afford protection to cultural resources under the jurisdiction of a federal agency. A literature search has been completed and fieldwork is in progress. The project is an administrative action that would have limited potential for direct impacts. However, this assessment considers potential future actions that could occur within the land areas to be transferred and considers the potential effects of such actions in the absence of federal oversight.

3.7.2.1 Data Collection Process

A Class I cultural resources inventory was conducted to determine baseline information concerning known cultural resources within the project area. The Class I cultural resources inventory included a literature and records search whereby information was collected on previously identified cultural resources within the project area. No field investigation of cultural resources was performed, although agencies having information germane to the project or the project area were consulted. The following agencies were consulted in March and April 2002:

- Arizona State Museum Site File Room, Tucson, Arizona;
- Arizona State Historical Preservation Office (SHPO), Phoenix, Arizona;
- Yuma Field Office, BLM, Yuma, Arizona; and
- Reclamation, Lower Colorado Regional Office, Boulder City, Nevada.

The perimeter of the records search area encompassed the District and any lands proposed for transfer that lay outside of the District boundaries, with an added external buffer extending about 2.5 miles beyond this perimeter. Site records at the repositories of the four agencies listed above were searched and copies of the site forms for known cultural resources in the search area were obtained. In addition, an archival research was conducted at the Arizona Historical Society, Rio Colorado Division, Yuma, Arizona; the Wellton-Mohawk Irrigation and Drainage District, Wellton, Arizona; and the Pioneer Museum in Wellton, Arizona.

3.7.2.2 Results of Literature Review and Site File Search

Documented prehistoric resources include the following types: artifact scatters, camps, cleared areas, geoglyphs, hearths, rock features, petroglyphs, quarries, and trails. Most appear to be intact and to be of good integrity. Many of the sites were found on the terraces overlooking the Gila River floodplain. Given the paucity of systematic survey data, it is impossible to estimate site density. Moreover, there is no reason to suspect that the site types recorded represent the entire range of prehistoric resources.

The site-file search identified 40 previous surveys and 131 previously identified archeological sites in the project area, representing 202 cultural resources. Of those resources, 155 are prehistoric, 37 historical, and 10 either prehistoric, historical-period, or both. Table 3-4 provides a numerical breakdown of the resource types by era. Of the 202 cultural resources identified in the project area, approximately 54 are thought to be located on the lands to be transferred to or purchased by the District. Twenty-eight of the documented sites found have been recommended as eligible for listing on the NRHP. The

eligibility of most of the sites has not been determined. Most would apparently meet eligibility criteria for listing if they have good integrity. Six of the sites recommended as eligible for the NRHP are located on lands included in the proposed title transfer. The site file records compiled are on file at Reclamation's Lower Colorado Regional Office in Boulder City, Nevada.

TABLE 3-4 TYPES OF CULTURAL RESOURCES

Site Type	Estimated Number of Sites in Study Area			Estimated Number of Sites Located on Lands Proposed for Transfer or Purchase
	Prehistoric Resources	Historical Resources	Prehistoric/ Historical	
Artifact scatter	1	7	5	4
Camp sites		1	3	1
Charcoal stains			1	
Cleared areas	37			10
Geoglyphs	15	1		6
Hearths	1			1
Highway alignments		2		
Irrigation features		7		1
Capped well		1		1
Rock features	22	3		7
Mine		4		
Native American		1		1
Trash dump		6		
Lithic scatter	23			6
Petroglyphs	23		1	6
Prehistoric quarry	3			1
Rock shelter	1			
Sherd scatter	3			1
Tent clearing		2		
Trail segments	26			7
Stage Stations		1		
Village sites		1		1
Total	**155**	**37**	**10**	**54**

Note: The Wellton-Mohawk Study Area includes the land within the District boundaries and adjacent areas and is not limited to lands proposed for transfer or purchase. Of the 202 manifestations of cultural resources, approximately 54 are thought to be located on parcels identified for transfer or purchase.

The literature review and the site-file search confirmed that the general project area has a long and rich history of use by Native American groups. Recorded prehistoric sites include a large number of rock art locations, trails, camps, cleared areas, rock rings, and artifact scatters. Surprisingly absent among the recorded sites are habitations that are suspected to have existed along the Gila River. The absence of such sites can be interpreted several ways. First, few systematic surveys have been conducted in the project area. Thus, these sites may exist, but have not been identified. Second, if Native peoples followed the practices of protohistoric groups along the Colorado River, they may have placed their village locations within the Gila River floodplain. In such cases, past floods may have destroyed these villages. Finally, these types of sites may not exist in the area; that is, the region may not have been used for major habitation. Future surveys may help determine which of these hypotheses is correct.

Antelope Hill, a known traditional cultural property discussed above, is located partially on federal land within the District. However, no portion of Antelope Hill is part of the proposed land transfer. The literature review and site file search did not disclose any Indian Sacred Sites other than Antelope Hill.

3.7.2.3 Native American Consultation

Reclamation is conducting government-to-government consultation with Indian tribes and communities in the region regarding the proposed title transfer. The consultation was initiated with letters to tribal leaders advising them of the Wellton-Mohawk Title Transfer and inviting expressions of interest in the process. Since May 2002, Reclamation has attended multi-tribe cultural meetings, conducted various large open meetings with tribes specifically on the subject of the Wellton-Mohawk Title Transfer, and provided written information on cultural resources. Meetings in July 2002 were devoted to presentations on the nature and scope of the proposed title transfer. They were followed by distribution of the Class I cultural resources survey for the proposed project (SRI, 2002) to tribes in the Lower Colorado Region.

On February 25, 2003, a meeting with tribes took place at which assembled participants reached concurrence on a process to formulate a cultural resources fieldwork program. The program is intended to reexamine previously identified archeological sites, conduct intensive on-the-ground surveys (Class III surveys) on the areas of transfer land with the most archeological potential, and include sampling surveys on other lands. The fieldwork program formulation process includes opportunity for tribal review and input to the program, and opportunity to provide information on potential TCPs that may be present in the project area.

Reclamation has also coordinated with the SHPO, which exercises state oversight on the preservation of archeological resources. The coordination has included meetings to brief the

SHPO on the project and to discuss ways and means to fulfill mutual obligations in this regard. Representatives of SHPO also participated in the February 25, 2003 meeting with tribes and participated in the discussions regarding the fieldwork program. The coordination described above is scheduled to continue.

3.7.2.4 Historic Period Properties and Structures

Few historical-period resources were found within the project area other than the Division facilities. Many of the resources noted in the Class I survey (included on Table 3-4) are components of the Yuma Irrigation Project, outside the project area. Similar structures exist within in the project area, namely components of the Gila Project, whose construction was initiated in 1928. Other historical-period sites consist of highway alignments, mining facilities, trash dumps, and tent clearings. The eclectic nature of the historical-period resources reflect the myriad uses to which the land has been put by explorers, settlers, ranchers, miners, farmers, and the military.

Most of the facilities of the Division are 50 years old, and have thus attained the age criterion for inclusion on the NRHP. Having only recently attained that age, the facilities have not been the subject of previous documentation as historic resources. However, these facilities have been described in the Class I cultural resources survey for the proposed project (SRI, 2002), together with their historical context.

3.7.3 Impacts and Mitigation

3.7.3.1 No Action Alternative

Under the No Action Alternative, cultural resources on federal lands would remain under federal control. These resources, including those that have not yet been identified, would not change. This status would continue for the foreseeable future, after which most of the cultural resources discussed for the Proposed Action/Preferred Alternative, other than the Division facilities, would need to be addressed in connection with the potential relinquishment and sale of the lands. These circumstances are described in Section 3.2. The withdrawal actions on the lands originally withdrawn from the public domain and not used for Division purposes would be relinquished. The withdrawn lands would return to BLM's administration, under which it is assumed that tracts of land within the district could be declared as surplus to BLM needs and be offered for exchange or sale.

Also, under the No Action Alternative, Reclamation would prepare the necessary documentation to propose listing the historic facilities of the Wellton-Mohawk Division on the NRHP.

3.7.3.2 Proposed Action/Preferred Alternative

The Proposed Action/Preferred Alternative would have the effect of transferring lands from federal to non-federal ownership. The immediate effect of the transfer would be minimal, consisting solely of an administrative action. However as a result of the transfer, significant cultural resources located on the transferred lands would lose protection provided by the NHPA, ARPA, NAGPRA, and Executive Order 13007. The degree of protection of cultural sites is categorized as follows:

- **Highest protection:** Cultural resources on federally owned lands administered by the BLM, Reclamation, U.S. Army, U.S. Marine Corps, or FWS have the highest protection of any lands.
- **Lower protection:** Cultural resources on state lands receive a lower level of protection under state law compared to federal law. State land policy features systematic divestiture of state land whereby State Trust lands are disposed for the "highest and best use" to gain revenue.
- **Little or no protection:** Cultural resources on private lands are not protected by law. Private parties whose land contains cultural resources on the NRHP are eligible for certain incentives to preserve such resources. Also, the county has not instituted cultural resource management requirements in the Yuma County General Plan or by zoning ordinance.

The transfer of land from federal to private ownership is considered an undertaking under the NHPA. The net result of such a transfer is that the federal government would relinquish control of cultural resources and its attendant obligations under the NHPA and other federal statutes and regulations. Under District ownership, or under subsequent private ownership in instances where the District may choose to dispose of acquired properties to other parties, development or other activities may occur in a manner that adversely impacts significant cultural resources without having to first treat those resources. Without mitigation, such as conservation easements, this situation may be an adverse impact as defined by regulations implementing the NHPA.

To mitigate this potential impact, Reclamation has proposed that the following program be conducted, through coordination with interested Indian tribes and communities, prior to the transfer of lands or facilities:

- ***Identify cultural resources in the affected parcels.*** A field survey program would be conducted that would involve verifying the location, documenting, and evaluating for potential listing on the NRHP, all previously recorded sites on the lands proposed for transfer. The field survey program would include an inspection of all the sites identified on lands proposed for transfer, a 100-percent Class III survey of tracts of

land that lie on the first quarter mile of the terraces overlooking the flood plain, and a sampling strategy for the rest of the lands proposed for transfer, using remote sensing to identify landforms suggestive of cultural site locations. The presence of any Indian Sacred Sites would also be investigated during the survey program.

?? ***Evaluate cultural resources for potential eligibility for listing in the NRHP.*** The evaluation of the resources would depend on their historical nature. For prehistoric sites, surface observations may be sufficient. For properties associated with the Gila Project, a historic architect would be needed to conduct an evaluation. Finally, tribal input would be needed to identify and evaluate traditional cultural properties.

?? ***Treat significant cultural resources.*** Treatment plans (i.e., documentation, recovery, and/or protection) would need to be developed for significant historic properties and included in an executed Programmatic Agreement (PA).

?? ***Programmatic Agreement addressing future management of cultural resources***. Following the inventory of cultural sites and the formulation of plans to ensure their preservation, the District would enter into a PA with the SHPO addressing the oversight to be accorded to the cultural resources. The fieldwork program and management plan are contemplated for completion prior to the implementation of the Proposed Action/Preferred Alternative.

3.8 SOCIOECONOMIC ANALYSIS

This section discusses potential socioeconomic effects of the Wellton-Mohawk Title Transfer. Section 3.8.1 provides general socioeconomic data for Yuma County and the project area, Section 3.8.2 discusses the methods used to determine potential impacts, and Section 3.8.3 discusses the potential impacts for both the No Action Alternative and Proposed Action/Preferred Alternative.

3.8.1 Affected Environment

The following sections discuss population and employment, property values and tax revenues, and general information concerning the cost of development within the project area and Yuma County. Limited socioeconomic data are available which are specific to the project area. As such, much of the information presented in this section is based on countywide data, with specific information for the project area included as available.

3.8.1.1 Population and Employment

According to U.S. Department of Commerce data (2000 U.S. Census), Yuma County has a population of approximately 160,000 people. The City of Yuma has a population of 77,515

with other cities (e.g., Somerton, San Luis, and Wellton) and dispersed rural communities and residences comprising the remaining share of the population. Census data specific to the project area are limited, however, population data are available for the Town of Wellton and Tacna (a "census designated place"), and the communities have populations of 1,829 and 555 persons, respectively (U.S. Department of Commerce, 2001).

Table 3-5 provides a summary of additional pertinent population and ethnographic data for these areas, Table 3-6 indicates the racial composition of Yuma County, and Table 3-7 shows population growth trends over the past 20-year period.

Yuma County draws increasing numbers of winter visitors, tourists, members of the military, and employees of other government agencies. High growth rates have been near the existing urban centers of the City of Yuma, the Yuma Mesa area, the Foothills area, the Town of Wellton, and the Cities of Somerton and San Luis. In addition, speculative development in the form of subdivisions, rural homesteads and recreational vehicle parks continue to be sited in existing agricultural areas (Yuma County, 2001).

TABLE 3-5 COUNTY AND COMMUNITY POPULATIONS AND RACIAL COMPOSITION

Race	County/City/Community			
	Yuma County	**City of Yuma**	**Town of Wellton**	**Tacna**
White	*109,269*	*52,968*	*1,248*	*370*
Black or African American	*3,550*	*2,491*	*37*	*6*
American Indian and Alaska Native	*2,626*	*1,168*	*25*	*4*
Asian	*1,486*	*1,164*	*5*	*3*
Native Hawaiian and Other Pacific Islander	*197*	*145*	*3*	*--*
Some Other Race	*37,743*	*16,557*	*465*	*141*
One Race Total	154,871	74,493	1,783	524
Two or More Races	5,155	3,022	46	31
Total	**160,026**	**77,515**	**1,829**	**555**

Note: Persons of Hispanic heritage may be of any race.
SOURCE: U.S. Department of Commerce, 2001.

TABLE 3-6 YUMA COUNTY POPULATION COMPOSITION

Race	Percent of Total
White	68.3
African American	2.2
Native American	1.6
Asian or Pacific Islander	1.0
Other	26.8
Total	**100**
Hispanic Heritage[1]	50.5

[1] Persons of Hispanic heritage may be of any race.
SOURCE: U. S. Census Bureau, April 1, 2000

TABLE 3-7 POPULATION GROWTH TRENDS

Location	Population		
	1990	2000	2001
Arizona	3,665,228	5,130,632	5,319.895
Yuma County	106,895	160,026	165,280
Cocopah Indian Reservation	516	1,025	1,059*
San Luis	4,212	15,322	17,090
Somerton	5,282	7,266	7,620
Town of Wellton	911	1,066	1,829
City of Yuma	42,481	54,923	77,515

*Based on county growth rates.
SOURCE: U. S. Census Bureau and Arizona Department of Economic Security, Population Statistics Unit

TABLE 3-8 YUMA COUNTY – 2001 EMPLOYMENT BY SECTOR

Sector	Number Employed
Agriculture*	22,902
Manufacturing	2,350
Construction	2,800
Transportation, Communication, and Public Utilities	1,475
Trade	11,600
Finance, Insurance, and Real Estate	1,325
Services and Miscellaneous	10,125
Government	11,975

SOURCE: Arizona Department of Commerce, 2002.
*Agriculture figure from 4th Quarter, Arizona ES202 Data, AZ. Dept. of Econ. Security in cooperation with the U.S. Dept. of Labor, Bureau of Labor Statistics

Traditionally, agriculture and ranching have formed the economic basis of the project area. In addition, a large segment of the population is involved in agricultural support industries, trades, and services. Winter visitors and retirement populations significantly contribute to the local economy of Wellton and the surrounding area. The Town of Wellton also has a growing commercial services sector, and the town makes efforts to enhance the local economy and provides various incentives to attract new commercial and light industrial development in the area (Arizona Department of Commerce, 2001a).

Major industries within Yuma County include agriculture, military, retail, trade, and tourism (Arizona Department of Commerce, 2001b). Table 3-8 lists employment in Yuma County by various sectors. Table 3-9 lists the total number of civilian labor force employed and the unemployment rates for Yuma County, the City of Yuma, and the Town of Wellton.

TABLE 3-9 CIVILIAN LABOR FORCE - 2001

Location	Labor Force	Unemployment Rate
Arizona	2,419,619	4.7%
Yuma County	64,487	24.4 %
Cocopah Indian Reservation	253	15.4%
San Luis	3,729	66.4%
Somerton	2,908	44.4%
Town of Wellton	585	23.8 %
City of Yuma	35,255	17.0 %

SOURCE: Arizona Department of Economic Security, 2001 Special Unemployment Report.

3.8.1.2 Property Values and Tax Revenue

Much of Yuma County's revenue is generated through property and sales taxes. Both the federal government and the District are exempt from property tax payment obligations for the lands owned within Yuma County. However, federal law recognizes that the inability of county governments to collect property taxes on federally owned land could create a financial impact. Payments in lieu of taxes (PILT) are federal payments to county governments that help offset the inability of counties to tax federal lands within their boundaries.

PILT payments are appropriated by Congress and administered by the BLM for various categories of federal lands. The apportionment of PILT payments to counties is based on a complex accounting method that begins with the amount of eligible federal land within a county with various adjustments. The adjustments include allowance for inflation, limitations based on county population, and deductions for the value of federal payments to the county from other sources such as mining royalties and grazing leases. In Yuma County,

approximately 81.8 percent of the land, or approximately 3.5 million acres, is federal. Of that amount, BLM records show that slightly less than 1.6 million acres are used in determining PILT payments. Given the large percentage of federal land in the county, the adjustments tend to dominate the PILT accounting, leaving the outcome somewhat insensitive to the qualifying acreage. PILT payments to Yuma County have ranged from $997,394 in 1999 to $1,819,027 in 2003, while the qualifying acreage has remained relatively constant. Currently, 57,754 acres of federal land administered by Reclamation are included in the PILT accounting for Yuma County, including acreage in the Wellton-Mohawk Division (BLM, 2003). Privately owned lands within the County are subject to property taxes based on the assessed property value. However, the District is exempt from property tax payment obligations.

3.8.2 Impact Assessment Methodology

Potential socioeconomic impacts that may be associated with the project were identified through consideration of the current relevant social and economic status of the project area and Yuma County, and the potential influence of actions associated with the project. As discussed in Sections 3.1 and 3.2, the Proposed Action/Preferred Alternative would result in the District's acquisition of lands currently owned by Reclamation within the project area. Lands associated with works and facilities of the Division and the Gila River Flood Channel would not experience any change under the Proposed Action/Preferred Alternative and would not contribute to potential socioeconomic impacts.

Of the remaining portion of the lands to be transferred, 9,800 acres have been identified as candidate lands for development or agricultural use after disposition by the District to private entities as discussed in Section 3.2. Such subsequent acquisition would result in the potential for these candidate lands to be developed for residential, commercial, or other purposes. This potential development is not anticipated to compound development already envisioned within the county, but rather provide additional location options for the prospective development.

3.8.3 Impacts and Mitigation

The following sections discuss potential socioeconomic impacts associated with the No Action Alternative and the Proposed Action/Preferred Alternative.

3.8.3.1 No Action Alternative

The No Action Alternative would not change the amount of federal land included in the Yuma County PILT payment calculation. The county tax base could increase in future decades when development occurs on land currently administered by Reclamation is returned to the public domain.

3.8.3.2 Proposed Action/Preferred Alternative

Potential impacts that would result from or be influenced by the Proposed Action/Preferred Alternative include a possible reduction in PILT payments to the county as a result of the reduction of federal lands within the county, offset by an increase in tax revenues from any development of transferred lands. The cost of providing county services in areas of future development would continue to be incurred by Yuma County or be offset by development fees. Each of these issues is discussed in the following sections. No changes in employment opportunity are anticipated inasmuch as no changes in agriculture or overall development potential are proposed.

3.8.3.2.1 PILT Payment and County Tax Revenues

As noted above, the federal government provides PILT payments to Yuma County to compensate for the lack of property tax revenue from federal land. The proposed transfer and sale of federal lands to the District would reduce the amount of federal land in Yuma County. However, because of the large percentage of federal land remaining in Yuma County subsequent to the title transfer and the PILT accounting process, Reclamation concludes that the reduction in federal acreage under the Preferred Alternative would not have a significant effect on PILT payments to Yuma County.

As discussed in Section 3.2, the District would make certain candidate lands available for purchase by private entities for community or commercial development or farm-related use. The subsequent owner would be subject to property tax. The amount of future property tax revenue from transferred land is dependent on future community growth and the amount of candidate land desired for community or commercial development in lieu of non-federal land currently available for development.

3.8.3.2.2 Costs of County Services

Growth and development within the county increases the cost of county activities associated with providing services such as water and sewer projects, street construction and maintenance, parks and libraries, fire and police protection, and sanitation services. Potential development on portions of the 9,800 acres identified as candidate lands could result in the need for similar service provisions, placing increased demands on county services and budget requirements. However, as discussed in Section 3.2, the total amount of development that may occur within the project area under the Proposed Action/Preferred Alternative is not expected to be greater than that which would occur without the Proposed Action/Preferred Alternative. The Proposed Action/Preferred Alternative would, however, increase the amount of land available for such development, and would increase land acquisition options for prospective developers. Additionally, the developmental potential of candidate lands was based, in part, on their location relevant to existing development,

transportation corridors, and other existing public infrastructure. As such, development on candidate lands could require less county expenditure for providing services than would development on other lands that may be available within the project area.

The county has mechanisms for offsetting the costs of additional services that may be required by development. These mechanisms include development agreements and fees that rely on a fair-share obligation for both the county and developers to fund the necessary public improvements. Such mechanisms would be available to the county for development proposals associated with the candidate lands. Therefore, the Proposed Action/Preferred Alternative is not expected to place an uncompensated burden on the county for the provision of additional public services.

3.9 PUBLIC HEALTH AND SAFETY

This section addresses public health and safety within the District and potential changes that may result from the transfer of title and purchase of certain lands by the District from Reclamation.

3.9.1 Affected Environment

3.9.1.1 Hazardous Materials

Phase I and Phase II Environmental Site Assessments were conducted to identify any hazardous materials in the project area in accordance with industry and American Society of Testing and Materials (ASTM) standards (NEI, 2002). Recognized environmental conditions were observed during the Phase I investigation and further evaluated in the Phase II Environmental Site Assessment.

A recognized environmental condition is defined as the presence or likely presence of any hazardous substance or petroleum product on a property under conditions that indicate an existing release, a past release, or a material threat of a release of a hazardous substance or petroleum product into structures on the property or into the ground, groundwater, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. Recognized environmental conditions observed on parcels identified in the title transfer included:

- Storage tanks in former citrus fields
- Potential contamination at the District headquarters and adjacent machine shops and storage yards
- District housing

3.9.1.1.1 UST Area

Citrus fields were historically cultivated on Reclamation lands in which wind machines were used to prevent frost. The citrus fields are located at Avenue 30 E & 11th Street S, Avenue 33E & 11th S, Avenue 34E & 11th Street S, and Avenue 44E between 6th & 7th Street S. The wind machines were mounted on concrete pads and received power from 250-gallon storage tanks that contained diesel fuel. An estimated 200 to 400 underground storage tanks (USTs) and above ground storage tanks (ASTs) and tank pads are located in the former citrus fields. However, because of their size and agricultural use, these tanks are exempt from the requirement to remove abandoned fuel tanks according to state regulations. Reclamation and the District excavated two of the USTs on April 8, 2002 and found the tanks to be in good condition. Soil samples were not collected during this investigation and due to the exemption in the regulations; no further action or investigation is warranted or required.

3.9.1.1.2 District Headquarters

The District headquarters compound is located at 30570 Wellton-Mohawk Drive in Wellton, Arizona. In addition to the District's administrative offices, the headquarters also house machine shops and storage yards. Concrete pipes, generators, power poles, tires, electrical transformers, 55-gallon storage drums, and heavy machinery such as cranes, backhoes, and dump trucks are stored within the compound. Several recognized environmental conditions were identified within the compound. At the main equipment yard there are three 15,000-gallon ASTs for storing gasoline and diesel fuel. A wash rack was observed within the primary storage yard. ASTs used for antifreeze and oil storage were also located in this yard. In the eastern maintenance equipment lot, evidence of soil staining was observed adjacent to the sandblast area. The District will develop an Operation and Maintenance Plan for the proper storage and handling of hazardous materials to address the majority of these potential issues.

The Phase II Environmental Site Assessment investigated the potential for heavy metal contamination from the sandblast operation. Sandblast media was stockpiled into a pile and samples were collected from the stockpile and the surrounding areas. The samples were analyzed for heavy metals. Four of the soil samples resulted in concentrations of arsenic that exceed the non-residential Soil Remediation Level (SRL). The perimeter of this excavation area will be extended to remove the arsenic contamination in the surrounding soil. Another set of soil samples will be collected around the perimeter of the excavation to demonstrate that arsenic levels in the area are below the non-residential SRLs. According to sample results, the stockpile of sandblast media is not considered a hazardous waste and will be properly disposed.

More than 200 transformers on lands proposed for transfer were inventoried to identify their polychlorinated biphenyl (PCB) content. Three transformers were identified as "PCB-containing" and were removed from service.

3.9.1.1.3 District Housing

Several residential homes located east of the District headquarters were built in the 1950s. Due to the date of construction, there is a potential for asbestos and lead contaminants in the building material. If renovation or demolition activities are planned, asbestos inspections must be conducted prior to disturbance. Currently, an investigation is being conducted regarding one reported occurrence of lead contamination at a District housing unit.

3.9.1.2 Flood Hazards

Flooding of the Gila River occurs periodically in the District, and flood damage has resulted in the destruction of homes and businesses, county roads, power lines, irrigation and drainage facilities, water logging of land, a buildup of salts, and siltation of farmlands (Yuma County, 2000).

The Corps constructed the Painted Rock Dam in 1959 for the sole purpose of providing temporary flood storage and flood relief to the lower Gila Valley (Corps, 1995). The reservoir behind the dam has a gross capacity of approximately 2.5 million acre-feet and is equipped with three outlet gates through which controlled downstream discharges of up to 26,000 cubic feet per second can be made. The District has recently undertaken two additional mitigation efforts to further control flooding along the Gila River. The Gila River Flood Channel Restoration Project has established a 250-foot wide low-flow channel along approximately 56.3 miles of the District. Also, earthen levees have been constructed and were revamped on both sides of the channel to provide protection for flows up to 10,000 cubic feet per second (Yuma County, 2000).

3.9.1.3 Vehicular and Water Hazards

As discussed in Section 3.11, canal and levee roads provide access for the operation and maintenance of District facilities, and are currently managed by the District. The canal and levee roads are not intended for public use and incidental use of these roads is at the users own risk. Additional protection devices, such as chains and grates, have been placed across the siphon structures to prevent large objects from entering.

3.9.1.4 Vector and Disease Control

Valley fever, caused by inhaling fugitive dust, and other disease risks, such as encephalitis, are of concern in the project area. Best Management Practices are being implemented in an attempt to help control disease outbreaks (Yuma County, 2000). The Arizona Department of

Agriculture has been assisting Yuma County residents to establish several programs for vector control, such as an integrated pest management program and education programs for the public and agricultural community. Typical topics include integrated crop management and cultural practices, field scouting, economic thresholds, and chemical and biological controls.

3.9.2 Impact Assessment Methodology

The potential for changes to public health and safety in the District were analyzed based on the perceived changes in operation of the District resulting from the transfer of title. The future land use also was examined for any changes that may affect the public health and safety in the District.

3.9.3 Impacts and Mitigation

3.9.3.1 No Action Alternative

Under the No Action Alternative, the public health and safety of the District would remain unchanged from current conditions. Any future remediation efforts for hazardous materials would continue to be governed by county, state, and federal regulations. Flood protection in the District, and the operation of canals and floodways, would also remain unchanged.

3.9.3.2 Proposed Action/Preferred Alternative

There would be no perceived changes in operation after the transfer of title that would affect public health and safety in the District. County, state, and federal regulations, as applicable, will govern any remediation efforts for hazardous materials. These efforts would proceed regardless of the title transfer. Likewise, flood protection in the District will be unaffected by the Proposed Action/Preferred Alternative. Canal management will continue to be administered by the District.

3.10 AIR QUALITY

This section addresses the air quality within the District and potential changes that may result from the transfer of title and purchase of certain lands by the District from Reclamation.

3.10.1 Affected Environment

The air quality across most of the District meets all National Ambient Air Quality Standards (NAAQS). However, under the 1990 Clean Air Act Amendments, the EPA designated the Yuma Area, which extends one mile into the far western portion of the District, as non-attainment for particulate matter with a diameter of 10 microns or less (PM_{10}). Because of

the non-attainment designation, the development of a PM_{10} State Implementation Plan (SIP) and a determination of conformity between the SIP and adopted transportation plans, programs, and projects were required.

Coarse particles (PM_{10}) are generally emitted from sources such as vehicles traveling on unpaved roads, materials handling, crushing and grinding operations, and windblown dust (EPA, 2002). As such, reasonably available control measures have been implemented, including paving, stabilizing, and closing some unpaved streets and roads, in an attempt to bring the Yuma area into attainment. These measures have proven successful. No PM_{10} violations have been recorded since 1991 and the adopted transportation plan and program have demonstrated conformity with the SIP.

Although most of the project area meets NAAQS, these control measures demonstrate that air quality standards can be attained in the event that the District is designated as a non-attainment area. This may become an issue within the District because EPA has added revised particulate standards ($PM_{2.5}$), and $PM_{2.5}$ non-attainment areas will be designated after three years of data monitoring (Arizona Department of Environmental Quality, personal communication, 2002).

3.10.2 Impact Assessment Methodology

The potential for changes to air quality within the District was analyzed based on the perceived changes in operation of the District resulting from the transfer of title and the potential for future land development.

3.10.3 Impacts and Mitigation

3.10.3.1 No Action Alternative

Under the No Action Alternative, the land use practices are not expected to change from current activities; thus, air quality would not significantly change from the present.

3.10.3.2 Proposed Action/Preferred Alternative

Airborne dust particles associated with development and current agricultural activities have the potential for localized short-term air quality impacts in the District. These impacts would be relatively minor in significance under the Proposed Action/Preferred Alternative. Future dust production from agriculture or development on transferred lands is not projected to be different than any dust production that would occur from existing private lands and state lands in the absence of the project. There are no perceived changes in operation resulting from the transfer of title that would significantly affect the District's air quality from agricultural or developmental disturbances. Additionally, air quality within the District will continue to be regulated under county, state, and federal rules.

The Wellton-Mohawk Generating Facility proposed in the western part of the District may have the potential for localized air quality impacts. However, an EIS is being prepared for the proposed generating facility in compliance with NEPA that will evaluate any potential impact.

3.11 TRANSPORTATION

This section addresses transportation within the District and potential changes that may result from the transfer of title and purchase of certain lands by the District from Reclamation.

3.11.1 Affected Environment

Transportation corridors within the District include Interstate 8, U.S. Highways 80 and 95, numerous paved and gravel county roads, and a main line and trackage of the Union Pacific Railroad. Interstate 8 and U.S. Highway 80, bisecting the southern portion of the District, provide the major east/west vehicular routes. State Highway 95, a two-lane north/south roadway, abuts the western edge of the District and serves as the principal access route to the Yuma Proving Ground. Under state law, the Arizona Department of Transportation (ADOT) is responsible for constructing and maintaining interstate and state highways in Arizona. Two-lane county roads form the majority of the vehicular routes within the District and are managed and maintained by the Yuma County Public Works Department. Canal and levee roads provide access for the operation and maintenance of District facilities and are managed by the District for Reclamation.

Within the project area, the Gila River is crossed by six roadway bridges at Avenue 20E, 30E, 38E, 40E, 45E and Highway 95, a railroad bridge (near Antelope Hill) and a culvert crossing at Avenue 51E. Bridges at these locations are designed to withstand 10,000 cubic feet pre second (cfs) of flood flow. During periods of high flood events, many low-flow crossings within the District may be temporarily closed due to safety concerns. The Yuma County Public Works Department ensures proper notification is in place during these events. Local authorities, including the District may assist, if needed.

Traffic concerns of area residents consist of traffic delays and passing problems due to agricultural equipment and recreational vehicle use. A plan to conduct in-depth assessments of rural transportation needs east of the Gila Mountains has been proposed under the 2010 Plan. Issues to be addressed, based on funding availability, would include improved maintenance of existing roadways and paving of unimproved gravel roads.

The volume of vehicular traffic within the project area reflects the rural character of the vicinity. Local residents and farm operators use county roadways within the District to access adjacent businesses and farms. During the winter months, the Wellton-Mohawk area

experiences a traffic volume increase due to the influx of temporary winter visitors. While the 1999 to 2000 traffic counts in the Wellton area decreased by 4.9%, from 1991 to 2000, the area experienced an overall increase of 54% in traffic volume (www.ympo.org).

3.11.2 Impacts and Mitigation

3.11.2.1 No Action Alternative

Under the no action alternative, transportation routes and facilities in the District would remain unchanged from their current conditions.

3.11.2.2 Proposed Action/Preferred Alternative

The Proposed Action/Preferred Alternative does not involve any new physical modification or expansion of the service infrastructure that would generate additional traffic or otherwise influence transportation systems. After the proposed change in ownership of canal and levee rights-of-way, the District would continue to maintain the canal bank roadways for operation and maintenance purposes in accordance with District policy.

3.12 RECREATION

This section addresses recreation opportunities within the District and potential changes that may result from the transfer of title and purchase of certain lands by the District from Reclamation.

3.12.1 Affected Environment

A variety of dispersed recreational activities exist in the project area include hunting, limited fishing, bird watching, hiking, horseback riding, and off-road vehicle use.

Hunting in the project area is popular for a variety of game species. Quail, dove, cottontail rabbits, and waterfowl are hunted along the Gila River and adjacent agricultural lands. Limited hunting of mule deer and bighorn sheep occurs in the adjacent mountain ranges. The AGFD manages Quigley Pond, north of Tacna, as a riparian habitat area for waterfowl. Riparian and wetland areas along the Gila River provide hunting, bird watching and limited fishing opportunities. The project area is located primarily in the AGFD Unit 40B jurisdictional area, and hunting and fishing are governed by AGFD rules and regulations. The District's maintenance of wetland habitat along the flood channel is closely coordinated with the AGFD, which also manages some state land along the river for wildlife purposes.

Unimproved roads on top of the flood channel levees facilitate vehicular access to river bottomland along the Gila River corridor for hunting, fishing, bird watching, and sightseeing. Public use of these roads is at the sole risk of the user.

The area's mountains and washes offer activities such as rock climbing, hiking, backpacking, nature study, and photography. The Barry M. Goldwater Range allows limited recreational access with visitation controlled by specific entry procedures including a safety briefing and strict guidelines for conduct while on the range. Public access to desert areas of the U.S. Army Yuma Proving Ground and the Barry M. Goldwater Range is generally over unimproved roads or "jeep trails" on various lands in the project area, including land at the perimeter of the District. Baker Tanks, located within the Barry M. Goldwater Range approximately 3 miles south of the community of Tacna, offers a picnic area, ramada, and exploratory hiking opportunities in a unique geological setting.

Portions of the 1,200 mile Juan Bautista De Anza National Historic Trail, designated by Congress in 1990, extend through BLM administered lands and other locations in the project area. The National Park Service (NPS) has completed a Comprehensive Management and Use Plan for the trail, which envisions a continuous multiuse recreational retracement trail in addition to a marked auto route. The NPS is seeking to certify eligible sites and segments and will form partnerships with various stakeholders to enhance visitor opportunities along the route.

The Town of Wellton maintains two parks. The Butterfield Park contains a community swimming pool, three picnic ramadas, playground equipment, a volleyball court, four basketball courts, and a skate park. The Butterfield Golf Course, adjacent to the Butterfield Park, is a public 18-hole par three golf course.

A common element in the recreation opportunities in the area is the sense of desert open space. In the 2010 Plan, open space is cited as an important attribute that needs to be preserved. Several parcels within the District have been designated as Open Space/Recreation Resource (OS/RR) areas including the Muggins Mountains Wilderness Area on BLM desert land north of the District and the Quigley Pond Wildlife Management Area featuring marsh habitat within the District. A parcel directly west of the Kiwanis Tacna Park on Avenue 40E is partially designated as OS/RR as is a parcel between 31E and 32E bordered by County 8th Street on the south. The Yuma County Parks and Recreation Advisory Commission has proposed designation of approximately 183 acres near Antelope Hill as open space (Yuma 2010 Plan, 2001).

3.12.2 Impacts and Mitigation

3.12.2.1 No Action Alternative

Under the No Action Alternative, recreation opportunities in the District would remain unchanged from current conditions.

3.12.2.2 Proposed Action/Preferred Alternative

Under the Proposed Action/Preferred Alternative, Reclamation would transfer title of certain federally owned lands and facilities from Reclamation to the District. Because no change in the operation of the facilities or in the use of rights-of-way is anticipated, no direct impacts to recreational opportunities would result from the title transfer. The District would continue to operate and maintain the Gila River Flood Channel and adjacent mitigation areas and allow vehicular and pedestrian access on the flood channel (at the user's risk).

Potential indirect impacts to recreational opportunities that may result from the Proposed Action are associated with the change in ownership of certain lands within the District. The District does not intend to restrict public access to the lands proposed for transfer except on tracts that may be developed or established for conservation purposes. Over the 50-year history of the District, restrictions to public access have been generally limited to emergency situations, such as during flood events.

With respect to the Juan Bautista de Anza hiking/equestrian trail or auto route, the District will work with the NPS to facilitate a mutually agreeable plan for portions of the trail within the jurisdiction of the District. In addition to enhanced recreational opportunities associated with the proposed Juan Bautista de Anza trail, the District and local community may realize favorable economic benefits through a joint cooperative effort with the NPS.

3.13 INDIAN TRUST ASSETS

Indian Trust Assets (ITAs) are legal assets associated with rights and property held in trust by the United States for the benefit of federally recognized Indian tribes or individuals. For example, ITAs include the Colorado River water allocations of numerous Indian tribes and communities in Arizona. The United States, as trustee, is responsible for protecting and maintaining rights reserved to, or granted to, Indian tribes or individuals by treaties, statutes, and executive orders.

No Indian Trust Assets are involved in the lands, facilities, or operation of the Division. The No Action Alternative and the Proposed Action/Preferred Alternative would have no affect any Colorado River water entitlements or lands owned by or held in trust for Indian tribes or communities in the Yuma area or elsewhere.

3.14 ENVIRONMENTAL JUSTICE

Environmental justice refers to the fair treatment of people of all races, income and cultures with respect to the development, implementation and enforcement of environmental laws, regulations and policies. Fair treatment implies that no person or group of people should shoulder a disproportionate share of negative impacts resulting from the execution of federal

programs. Executive Order 12898, dated February 11, 1994, establishes the achievement of environmental justice as a federal agency priority. The memorandum accompanying the order directs heads of departments and agencies to analyze the environmental effects of federal actions, including human health, economic and social effects when required by NEPA and to address significant and adverse effects on minority and low-income communities.

3.14.1 Affected Environment

In the realm of environmental justice, the affected environment is primarily the local population mix and any components of the socioeconomic makeup of the community that would be caused to change to the detriment of any segments of the population. The racial compositions of the populations of Yuma County, the City of Yuma, the Town of Wellton, and the community of Tacna were presented in Section 3.8.1.1. This information, from the U.S. Department of Commerce, indicates a relatively uniform racial composition among these communities. For example, the recorded non-white population is approximately 32 percent for these four jurisdictions of varied size. The information obtained does not indicate the proportion of the population that is of Hispanic heritage. It is noted that persons of Hispanic heritage may be of any race.

3.14.2 Impact Assessment Methodology

Potential environmental justice concerns were assessed through consideration of the specific adverse impacts identified for the project, and the potential for such impacts to disproportionately effect minority or low-income populations. A common practice in environmental justice evaluations is to determine whether a majority of the persons potentially affected by a project are those of a minority race or low-income status. In the case of the proposed title transfer, the issue involves interests in lands and the differences that may occur between federal and non-federal ownership of the vacant lands proposed for transfer to the District. Because it is speculative to determine the specific areas of land in which impacts may occur (and because the specific locations of potential future development and the specific type of development and associated impacts that may occur are not known), a qualitative assessment of potential environmental justice issues associated with the project is provided.

3.14.3 Impacts and Mitigation

The potential impacts of the alternatives in the area of environmental justice are as follows.

3.14.3.1 No Action Alternative

No environmental justice issues have been identified for the No Action Alternative.

3.14.3.2 Proposed Action/Preferred Alternative

A review of the Yuma County and community population compositions presented on Table 3-5 indicates that there is not a disparity in racial composition that might lead to an impact to a specific segment of the population. Thus, the effects of the proposed title transfer would not be disproportionately focused on minority or low-income populations. The lands proposed for transfer are distributed over a wide area in the Wellton-Mohawk Valley and are not concentrated in any populated areas.