
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 is primarily based on potential land use changes.

3.1.1 Project Area of Effect

Resource impact assessments presented in this FEIS 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

1 the future land use and resources analyses, facilities and associated ROWs are considered to
2 be integral to the Division facilities and separate from other lands to be acquired by the
3 District, as discussed in the following sections.

4 3.1.2.1 Future Use of Facilities and Rights-of-Way

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

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

16 The analyses presented in this chapter provide an inventory of resources within the District
17 in order to document existing conditions. Components of the irrigation system of the
18 Division are considered eligible for listing on the NRHP under the Secretary's Criteria¹ a
19 and c. In compliance with Section 106 of the NHPA and in consultation with the SHPO
20 Reclamation prepared a historic context to evaluate components of the Wellton-Mohawk
21 irrigation and drainage system for potential listing on the NRHP (SRI 2005b). From this
22 evaluation the following five components of the irrigation system were determined to be
23 eligible for listing on the NRHP:

¹ Criteria for Evaluation (36 CFR Part 60.4)

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.

- 1 ▪ Pumping plant nos. 1, 2 and 3
- 2 ▪ Relift station, Texas Hill Canal 2.5
- 3 ▪ Radial gate check with drop, Wellton Canal 9.9
- 4 ▪ Wastewater No. 1, Wellton-Mohawk Canal
- 5 ▪ Exteriors of Buildings 1-10 and 12-22, Wellton Government Camp

6 Reclamation has documented the facilities and other cultural features associated with the
7 system through the preparation of the *Historic American Engineering Record, HAER No.*
8 *AZ-68 (SRI 2006c)*. The HAER has been accepted by the NPS.

9 3.1.2.2 *Potential Uses of Other Lands to be Acquired*

10 Approximately 9,800 acres of the undeveloped land to be acquired by the District is
11 considered suitable for development over the next 30 years. Of that amount, approximately
12 1,400 acres of land within or adjoining existing farms may be made available for private
13 purchase for agriculture-related purposes. These uses may include stack yards for hay,
14 staging areas for harvesting equipment, and land to buffer adjacent developed areas. The
15 District would consider making the remaining 8,400 acres available for types of
16 development consistent with the growth plan for the county, the District, and the Rural
17 Planning Area. However, the amount of land that would be developed is uncertain. The
18 project area currently contains over 121,000 acres of private and state land that is available
19 for residential and community development. The addition of title transfer lands would result
20 in a net increase of approximately seven percent to the amount of land available for
21 residential and community development. Section 3.2 presents an assessment of the potential
22 for future land use changes that may occur as a result of the proposed change in land
23 ownership.

24 3.1.3 Approach to Resource Analyses

25 As discussed, the Proposed Action would not directly cause impacts to the environment.
26 Potential impacts are associated with potential future actions by the District and the
27 subsequent actions of others after a land sale. Because these future actions and the potential
28 location of development are unknown, the impact analyses herein use assumptions
29 concerning potential future land use and development as described in Section 3.2 and
30 supported in Appendix E.

31 The resources analyses were conducted using a programmatic approach, which considered
32 the potential impact of non-specific types of development anticipated within the candidate
33 lands for development. The analyses consider existing resources within the areas to be
34 acquired by the District under the Proposed Action, and identify particularly sensitive areas

1 (e.g., wildlife habitat, cultural resources, and farmland preservation) on which development
2 could result in adverse impacts. Specific methods used to assess potential impacts associated
3 with individual resources are discussed in the subsequent sections of this chapter.

4 **3.1.4 Resources Not Analyzed in Detail**

5 Several resource categories were considered but omitted from detailed analysis because of
6 an apparent absence of potential impact from the Proposed Action. These resources and a
7 brief discussion supporting their omission from detailed analysis are listed in this section:

8 *3.1.4.1 Noise*

9 The land within the District is predominately agricultural and is sparsely populated. Major
10 noise sources include low-level military overflights from the Barry M. Goldwater Range and
11 the Yuma Proving Ground, railroad and freeway traffic, and farm equipment operation. The
12 Proposed Action would not affect these activities. Future development within the project
13 area may occur on lands to be acquired by the District under the Proposed Action, and such
14 development could contribute new noise sources within the project area. However, such
15 development would be consistent with the *Yuma County 2010 Comprehensive Plan (2010*
16 *Plan)*, which contains county standards for new noise sources and human exposure.
17 Additionally, the (now defunct) WMGF and potential gasoline refinery would be subject to
18 independent analyses under NEPA. Because such potential future noise sources would be
19 considered under the county's review process, and because of the speculative nature in
20 attempting to characterize noise levels that may eventually occur, a detailed assessment has
21 not been conducted for this FEIS.

22 *3.1.4.2 Yuma-Transboundary Water Management*

23 Public comment received during the scoping period suggested that this environmental
24 review should analyze the conveyance of drainage water into the Colorado River Delta area
25 in Mexico, the potential operation of the YDP, and the formulation of general water
26 management options for the Yuma-Transboundary area. These issues are beyond the scope
27 of the Proposed Action and are not addressed in this FEIS. Moreover, Reclamation is
28 currently conducting a review of operational options for the YDP and other water
29 management issues in that area through the development of a separate and independent
30 NEPA process.

31 *3.1.4.3 Visual Resources*

32 The project area contains long-range vistas of desert landscape and the surrounding
33 mountains. The Proposed Action would have no effect on the visual attributes of the project
34 area. Future development within the project area may occur on lands to be acquired by the
35 District under the Proposed Action, and such development could change the visual

1 characteristics of local areas. However, such development would necessarily be consistent
2 with the 2010 Plan, which sets forth the objective of maintaining the open space character of
3 the project area. Because the visual aspects of future development would be considered
4 under the county review process, and given the speculative nature of attempting to
5 characterize the development that may eventually occur, a detailed assessment has not been
6 conducted for this FEIS.

7 **3.2 LAND RESOURCES AND USE**

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

11 **3.2.1 Affected Environment**

12 The project area presently has a rural agricultural character. The Town of Wellton near the
13 center of the project area is the only incorporated community. The Gila River Flood Channel
14 supports a continuous band of riparian vegetation. Agricultural fields characterized by
15 irrigated croplands and cattle operations with intermittent open space dominate the
16 landscape. The lands within one to two miles of the river are referred to locally as “valley
17 land”. Further from the river, land at higher elevations is referred to as “mesa land”. Mesa
18 land north of the river is mostly undeveloped; Mesa land south of the river, typically about
19 40 to 60 feet in elevation above the valley land, is largely undeveloped, but contains a few
20 irrigated farms.

21 Recently, development of privately-owned mesa lands has begun to occur. For example,
22 Coyote Wash development Phases 1 and 2 has constructed and/or sold more than 500
23 residential lots. An estimated 500 additional lots will be released for sale within the year
24 through the development of Phases 3, 4 and 5. Phases 6 and 7 will include an additional
25 2,000 lots. The Coyote Wash Master Planned Community encompasses over 1,000 acres of
26 residential development, two golf courses and associated commercial development. The
27 project area includes the Town of Wellton and two other small communities, Tacna and
28 Roll. Wellton and Tacna are located adjacent to Highway 80 and Interstate 8. Future
29 development is likely to occur near freeway access areas in Wellton and Tacna. In concert
30 with the increase in development of portions of the project area, the Town of Wellton has
31 annexed additional lands and now extends west to Avenue 25E on the mesa lands; this area
32 includes some of the lands identified by the District as candidate lands for development. The
33 community of Roll lies in the midst of an agricultural area north of the Gila River, and is not
34 projected to be a center for development. The City of Yuma has also expressed interest in
35 annexing land in the project area, extending eastward from its current city limits over the
36 Gila Mountains (Blake Schmidt 2006).

3.2.1.1 Land Ownership

The project area contains a mixture of private, state, 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 primarily undeveloped and land dedicated to future community or residential development.

Reclamation administers approximately 48,000 acres of federal land within the project area. The BLM administers approximately 86,000 acres of federal land in and adjacent to the project area, including the Muggins Mountains Wilderness Area and a large tract of undeveloped land southwest of the project area in the Gila Mountains. The State of Arizona owns approximately 32,000 acres in the project area. Approximately 530 acres of this area is adjacent to the Gila River and is administered by the AGFD for wildlife management purposes. The District owns approximately 5,200 acres of land within the District boundaries, primarily within the Gila River channel. 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 2010 Plan (Yuma County 2001). The 2010 Plan encourages 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. 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). This designation is anticipated to strengthen compliance with the Yuma County 2010 Plan by allowing the District to have input to proposed development projects being considered by the Yuma Planning Department. The District intends to preserve the agricultural nature of the lands within the floodplain and when possible, to limit development to mesa lands.

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 distinguish 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.

1 Yuma County rural zoning ordinances apply in most of the project area, and potential land
2 developers must submit development plans to the county for review. If title transfer lands
3 were annexed by a town or city, then the zoning ordinances for that town or city would
4 apply to those lands.

5 3.2.1.2.2 BLM Resource Management Plan

6 BLM lands in the project area are managed for multiple public uses under the provisions of
7 the Yuma District Resource Management Plan, as amended, and it's ROD (1985). The
8 Yuma District Resource Management Plan is currently being revised. Approximately 1,500
9 acres of BLM lands in the project area are expected to be designated as available for
10 disposal by sale or exchange in their Draft Resource Management Plan currently under
11 development. Specific future proposals for disposal of these lands would be evaluated on a
12 case-by-case basis and have the potential to add developable land to the project area.

13 3.2.1.2.3 State Lands Management

14 State of Arizona lands in the project area are primarily State Trust lands, which the state
15 manages for revenue production. Many of the State Trust lands in the project area in the
16 valley and on the mesa are leased for agricultural purposes. Under certain conditions, State
17 Trust lands may be sold at auction for development purposes. The 2010 Plan contemplates
18 the sale and development of State Trust lands on the mesa along the Interstate 8 corridor.

19 3.2.2 Impact Assessment Methodology

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

- 23 ▪ The potential for change in use of the transferred lands.
- 24 ▪ The effect of the land transfer on the growth pattern in the project area.
- 25 ▪ The effect of the land transfer on the rate of growth in the project area.

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

29 3.2.3 Impacts and Mitigation

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

3.2.3.1 No Action Alternative

Under the No Action Alternative, Reclamation lands involved in the project would not be transferred to or purchased by the District. The ROWs 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 undeveloped federal lands would be governed by the existing authorizations, policies, 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 undeveloped 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. For this analysis it is assumed 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, or 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. Under the No Action Alternative, unused ROWs across various District agricultural lands would continue to encumber land titles. Additionally, Reclamation would continue to be required to manage identified cultural resource sites, trespassing issues, illegal dumping, requests for ingress and egress, and numerous 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 16,859 acres of ROWs and easements for facilities, 2) the

1 ownership of approximately 11,338 acres of lands associated with the Gila River Flood
2 Channel, and 3) the ownership of approximately 19,429 acres of additional lands (see Table
3 2-2).

4 District activities on the ROWs, easements, and Gila River Flood Channel lands include
5 controlling gates at turnouts and structures, weed control, and maintaining access roads,
6 canals, levees, protective dikes, and mitigation areas. These activities would not change
7 under the Proposed Action/Preferred Alternative; no land use changes are anticipated on
8 ROWs, easements, and Gila River Flood Channel lands. Therefore, the transfer of these
9 lands would not cause land use impacts.

10 The lands other than ROWs to be acquired by the District would be administered in various
11 ways, depending on conditions and location. The District intends to manage these lands in
12 accordance with its agricultural goals and the provisions of a Rural Planning Area (District
13 2001). Under this policy, the vacant lands have been divided into four categories:

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

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

22 Relinquishment of Abandoned Rights-of-Way – The transfer includes approximately 525
23 acres of narrow ROWs for irrigation ditches that no longer exist. Many of these ROW strips
24 run diagonally across or among farms and encumber land titles. The District would arrange
25 to relinquish these ROWs to the underlying landowners. Relinquishment would not change
26 the use of the underlying land.

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

1 development proposals with the county's most current land use plan as well as the Town of
2 Wellton. The District would consider requests to purchase or lease candidate land on a case-
3 by-case basis.

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

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

17 Natural controls and regulatory constraints exist for potential development of the transferred
18 lands. The 2010 Plan identified concerns surrounding domestic water supply (see Section
19 3.5), sewerage facilities, and other community infrastructure. Also, additional development
20 constraints exist such as topography; physical barriers posed by canals, flood control
21 facilities, railways, and Interstate 8; and legal barriers posed by their ROWs. For these
22 reasons, the Proposed Action/Preferred Alternative would not significantly increase the rate
23 of development in the project area.

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

30 In summary, based on the impact assessment methodology presented in Section 3.2.2:

- 31 1. Approximately 8,400 acres of land have been identified as candidate lands for
32 potential community or commercial development over the next 30 years.
- 33 2. The ultimate pattern of growth would not be altered by the proposed land transfer.
34 Short-term changes in the pattern of growth would not be significantly altered. Under
35 the No Action Alternative, the same lands ultimately would be sold through GSA for

1 private development, or would be relinquished to BLM and later sold or exchanged
2 to private ownership. Because this process would take time, development in the short
3 term would be confined to private and State land, continuing the developmental
4 pressure on private agricultural lands.

5 3. The land transfer would have no effect on the rate of growth and development.

6 3.3 GEOLOGIC RESOURCES

7 This section addresses the geologic resources within the project area.

8 3.3.1 Affected Environment

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

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

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

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

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

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

18 Geothermal energy resources also may be present in the project area, as indicated by
19 Radium Hot Springs, a naturally occurring hot spring located northeast of Wellton. The area
20 of this spring is inferred to contain geothermal resources with intermediate (90°C – 150°C,
21 194°F – 300°F) temperature potential (White and Goldstone 1982). The overall geothermal
22 resource potential for the Wellton-Mohawk area is moderate, with no resource development
23 currently taking place (SMU n.d.).

24 Geologic resources with the potential for economic development in the project area are
25 limited, as noted above, and any future development of these resources will be driven
26 primarily by regional development and market needs.

27 **3.3.2 Impact Assessment Methodology**

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

1 **3.3.3 Impacts and Mitigation**

2 3.3.3.1 No Action Alternative

3 As discussed in Section 3.2, it is anticipated that the candidate lands for development under
4 the No Action Alternative would ultimately tend to be the same as candidate lands for
5 development under the Proposed Action/Preferred Alternative. Under the No Action
6 Alternative, development of sand and gravel would continue in the project area as at present.

7 3.3.3.2 Proposed Action/Preferred Alternative

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

20 **3.4 SOIL RESOURCES**

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

24 **3.4.1 Affected Environment**

25 Soils in the District are located on the floodplains, alluvial terraces, and rock and
26 sedimentary outcrops. Due to the hot, arid climate of the District, the soils have a
27 hyperthermic (hot) soil temperature regime and an aridic (dry) soil moisture regime (BLM
28 1985).

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

1 on floodplain soils, which are naturally fertile and have favorable moisture-holding
2 capacities.

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

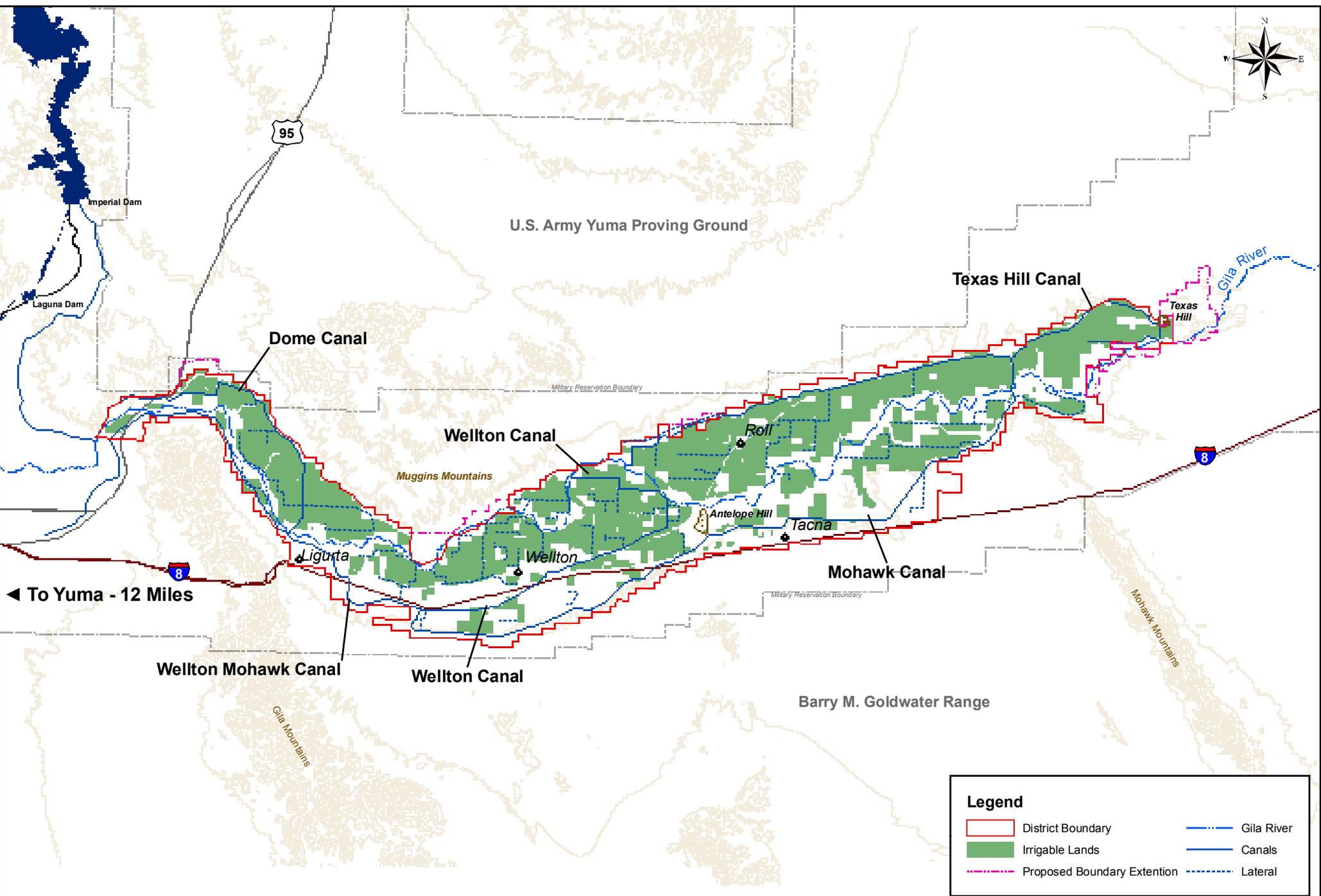
8 Rock outcrops comprise a very small percentage of the District, including marginal
9 exposures of the Mohawk, Muggins, Gila, and Laguna mountains, and sedimentary
10 exposures such as at Antelope Hill. These outcrops are generally steep and can consist of
11 less than 10 percent soil material with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

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

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

27 **3.4.2 Impact Assessment Methodology**

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



◀ To Yuma - 12 Miles

Legend

 District Boundary	 Gila River
 Irrigable Lands	 Canals
 Proposed Boundary Extension	 Lateral

Wellton-Mohawk Title Transfer

Map 3-1 Irrigable Acreage



Not to Scale. For illustrative purposes only.

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 of 62,775 acres under its contract with Reclamation. Thus, no increase in the maximum area of land irrigated with Colorado River water could 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

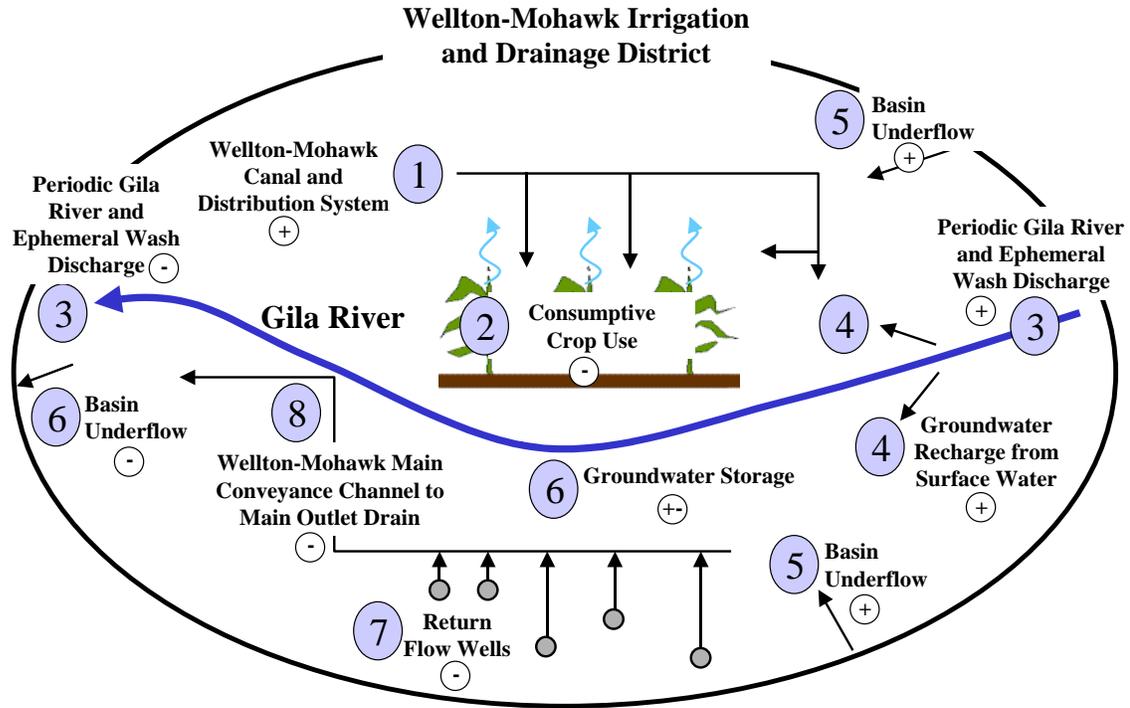
The natural and man-made setting in the Wellton-Mohawk area offers a diversity of water resources. As depicted in Figure 3-1, the District's overall water resources portfolio can be divided among eight general elements: 1) the Wellton-Mohawk Canal and distribution system; 2) agricultural consumptive 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.

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

1 District. The Wellton-Mohawk Canal receives Colorado River water from GGMC
2 approximately 15 miles below the Imperial Dam. The water is delivered to the District
3 through a series of diversions and laterals for municipal and irrigation needs, as shown in
4 Map 2-1. Pursuant to the 1964 Supreme Court Decree in *Arizona v. California* (1964
5 Decree) the United States is required to maintain detailed and accurate records of diversions
6 of water from the mainstream of the Colorado River. In addition, records of the consumptive
7 use and return flows must be maintained (Reclamation 1990). The decree accounting system
8 includes the following components:

- 9 ▪ Diversions. The District does not have a Colorado River diversion limitation,
10 provided that sufficient water is returned to the Colorado River so that the net
11 depletion is no greater than 278,000 acre-feet per year (see Consumptive use).
12 Diversions to the Gila Project are measured just below Imperial Dam and are
13 diminished by losses in the GGMC between Imperial Dam and the District turnout to
14 the Wellton-Mohawk Canal.
- 15 ▪ Return flows. District return flows include:
 - 16 ▪ A prorated portion of the losses in the GGMC;
 - 17 ▪ Flows in the Gila River, other than flood flows, measured at the Dome Gauging Station;
18 and
 - 19 ▪ The ARFs measured at the MOD at Station 0+00.
- 20 ▪ Consumptive use. Consumptive use equals diversions minus return flows. The
21 District has a consumptive use entitlement of 278,000 acre-feet per year of Colorado
22 River water.



1 **FIGURE 3-1 CONCEPTUAL MODEL OF WATER RESOURCES ELEMENTS**

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

3 Notes:

- 4 1) The Wellton-Mohawk Canal transports Colorado River water to the Wellton-Mohawk area and the
5 distribution system delivers the water throughout the District for irrigation and domestic uses.
- 6 2) Consumptive crop use in the District is the amount of irrigated Colorado River water necessary for
7 crop development, which includes evapotranspiration.
- 8 3) Periodic Gila River and ephemeral wash discharge results from stream flow that originates in the
9 upper Gila River watershed, aquifer seepage, and local precipitation.
- 10 4) Groundwater recharge from surface water occurs as incidental recharge from irrigation and infiltration
11 from the Gila River and adjacent ephemeral washes.
- 12 5) Basin underflow occurs along the margins of the District where groundwater enters or exits the basin.
- 13 6) Groundwater storage accounts for water-volume changes in the underlying aquifer. Storage inputs
14 include recharge and basin underflow, while outputs consist of pumped-well discharge and basin
15 underflow.
- 16 7) Drainage wells are groundwater wells that are used as a tool to manage groundwater levels throughout
17 the District.
- 18 8) Wellton-Mohawk Main Conveyance Channel to the MOD is the discharge system used to deliver
19 ARFs to the MOD at Station 0+00 at the western end of the District.

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 manipulation limits the amount of streamflow in the District that originates from the upper Gila River watershed. However, the river flows intermittently through parts of the District due to drainage and seepage from the underlying aquifer. The annual Gila River flow, as 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 et al. 2000). Because of the measurement location, these 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 also may 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 stream flow 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 also can produce discharge and subsequent recharge. The District climate is arid; the long-term 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 from local precipitation is negligible. However, runoff from extreme rain events that concentrated in desert wash channels 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 extreme 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

1 that approximately 4,670 acre-feet of water per year comes into the eastern portion of the
2 Lower Gila Groundwater Basin, which is comprised of the District and some adjacent land
3 to the east (Reclamation 1976).

4 The Gila River leaves the District through the Gila River Narrows between the Laguna and
5 Gila mountains at the western end of the District. In that area, approximately 120 to 140 feet
6 of permeable alluvium overlies bedrock at a geologic constriction, and it is estimated that
7 13,670 acre-feet of groundwater per year exit the District at that point (Reclamation 1976).
8 The increased volume of groundwater exiting the District compared to the volume entering
9 through underflow reflects increased groundwater storage due to the incidental recharge of
10 irrigation water. Groundwater is currently pumped from wells for crop irrigation on
11 approximately 10,000 acres of State Trust land south of the District. This capture of
12 underflow may reduce the volume of groundwater and outflow from the District. However,
13 no analyses of future effects are available.

14 **3.5.4 Domestic Water Supply**

15 The District is permitted by contract with Reclamation to deliver up to 5,000 acre-feet of
16 Colorado River water for domestic use within its boundaries. Domestic water is currently
17 delivered to the Town of Wellton and various homeowners and commercial enterprises
18 throughout the District, including dairy and cattle feedlot operations. Delivery of Colorado
19 River water for domestic use requires a contract between the District and the water
20 customer. The District's contract with Reclamation (Amendment No. 1 to Contract No. 1-07-
21 30-W0021, discussed in Section 1.7.2) specifies that irrigation water have a higher priority
22 than domestic water, which is provided as an interruptible supply.

23 Increased demand for domestic water from the District will occur with continued future
24 development. Currently, the amount of domestic water for which the District has written
25 delivery contracts is approaching 5,000 acre-feet. The District has requested an amendment
26 to its water supply contract to increase its domestic allotment to 12,000 acre-feet per year. In
27 anticipation of increased domestic water demand, the District began to purchase land with
28 water rights from willing sellers over the last 10 years. The District has acquired over 3,000
29 acres of agricultural land that was retired to make available the additional domestic water
30 requested by the District. The total allocation of Colorado River water to the District would
31 not change, but 7,000 acre-feet of consumptive use would be converted from agricultural to
32 domestic use.

33 **3.5.5 Water Quality**

34 Salinity is the primary water quality issue in the District, particularly for agricultural and
35 domestic uses. The salinity of Colorado River water delivered to the District varies in
36 relation to hydrologic conditions in the Colorado River watershed. Since 1952, the salinity

1 of Colorado River water has varied annually and seasonally between approximately 530 and
2 947 milligrams per liter. Water with mineral concentrations in this range exceeds
3 recommended standards for domestic use. The Town of Wellton filters and chlorinates
4 irrigation water for municipal use. Rural residents generally use various commercial
5 methods of filtration and/or softening according to personal preference.

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

9 **3.5.6 Impact Assessment Methodology**

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

17 **3.5.7 Impacts and Mitigation**

18 *3.5.7.1 No Action Alternative*

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

25 *3.5.7.2 Proposed Action/Preferred Alternative*

26 The Proposed Action/Preferred Alternative would not affect the Colorado River water
27 entitlement to the District; the entitlement is part of the allocation of water to the State of
28 Arizona and is recorded in contracts with Reclamation. In addition, the 62,775 acres
29 dedicated to irrigated agricultural lands in the District cannot be increased because of the
30 Proposed Action/Preferred Alternative. Thus, the Proposed Action/Preferred Alternative
31 would have no effect on irrigation water delivery or use.

32 The domestic water demand is increasing with ongoing development in the area. The
33 increased demand is based on population growth, which is projected to occur at an

1 equivalent rate with or without the Proposed Action/Preferred Alternative. Therefore, the
2 Proposed Action/Preferred Alternative would not impact the domestic water supply.

3 **3.6 BIOLOGICAL RESOURCES**

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

7 **3.6.1 Affected Environment**

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

22 *3.6.1.1 Vegetation and Land Cover*

23 Much of the land within the project area is composed of vegetative cover typical of Mojave
24 and Sonoran Desert ecosystems; although some wetland habitat exists along the Gila River
25 corridor in scattered locations where abundant surface or near-surface water is available. A
26 field review was performed in February and March 2002 to determine the vegetative cover
27 on the lands proposed for transfer (Stevens 2002). This field review included the
28 undeveloped lands and Gila River Flood Channel lands included in the Wellton-Mohawk
29 Title Transfer. The dominant plant species on each parcel was identified, the native or exotic
30 status was evaluated, and visual estimates were made of the total percent cover on each
31 parcel, the extent of wetted soils, and the extent of human disturbance. Table 3-1 and Map 3-
32 2 presents the vegetation cover types on the lands proposed for transfer that is currently
33 undeveloped or used as ROWs for the Gila River Flood Channel. Also indicated is the
34 vegetation cover of candidate lands for development.

1 The areas occupied by the Gila River Flood Channel and associated mitigation areas
 2 historically have been part of a dynamic riparian system subject to channel shifting during
 3 periods of Gila River flooding. Under present land uses, agricultural lands strongly dominate
 4 the floodplain in the District, but account for less than one percent of the lands identified for
 5 transfer (excluding ROWs and easements). Approximately 8,000 acres of the land identified
 6 for transfer are fallow agricultural lands.

7 Dry wash riparian habitats also are abundant in the project area. In addition to screwbean
 8 and honey mesquite, these relatively undisturbed areas commonly support several woody
 9 desert legumes, including ironwood (*Olneya tesota*) and palo verde (*Cercidium*
 10 *microphyllum* and *C. floridum*). These species may provide habitat to numerous bird species,
 11 and this habitat can serve as important corridors for wildlife movement.

12 **TABLE 3-1 AREAS OF VARIOUS COVER TYPES ON UNDEVELOPED AND GILA**
 13 **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	630	0	630	2
Native upland	5,140	2,290	7,430	26
Mixed native/ non-native riparian	11,800	750	12,550	44
Active agricultural land	170	30	200	1
Fallow agricultural land	1,890	6,070	7,960	28
Total	19,630	9,140	28,760	100

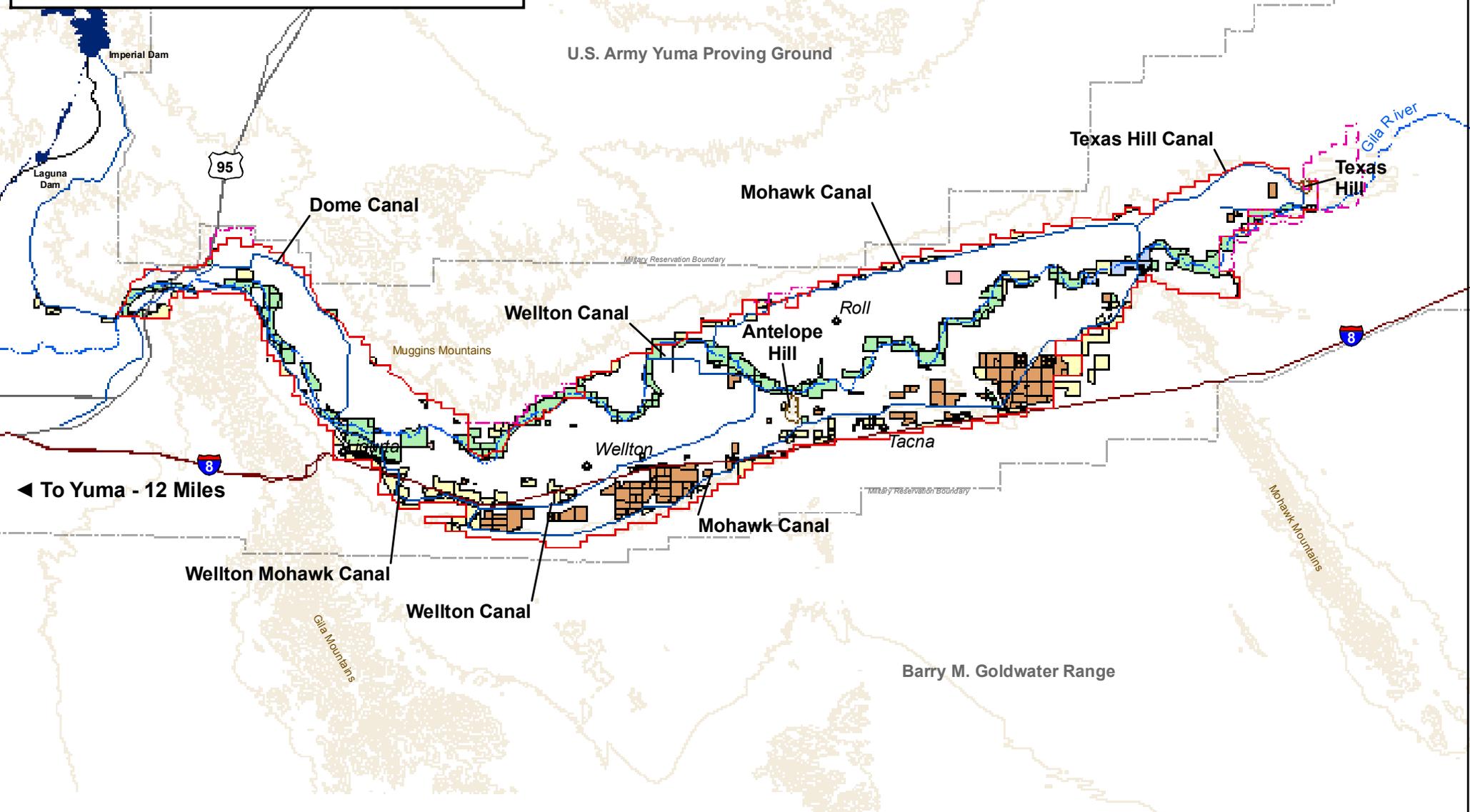
Note: The total estimated area of land identified for transfer that is undeveloped or ROWs for the Gila River Flood Channel is approximately 28,800 acres and does not include existing irrigation works and facilities. Land areas as presented in this table are approximate.

14

15 Desert vegetation occupies a relatively large proportion of the project area. An estimated
 16 12,550 acres, or 44 percent of the lands identified for transfer are dominated or co-
 17 dominated by creosote bush (*Larrea tridentata*) and mixed desert scrub vegetation.
 18 However, in many cases invasive, non-native vegetation has re-colonized highly disturbed,
 19 former agricultural or other disturbed lands, which is unlikely to support much wildlife
 20 because of sparse cover and poor forage quality. Approximately 32 percent (9,140 acres) of
 21 the lands included in this analysis are identified as candidate for development.

Legend

- Active agriculture
- Fallow agriculture
- Native upland
- Mixed native/non-native riparian
- Native wetland/riparian
- District Boundary
- Proposed Boundary Extension
- Canals



◀ To Yuma - 12 Miles

Wellton-Mohawk Title Transfer

Map 3-2 Biological Habitat Distribution



Not to Scale. For illustrative purposes only.

3.6.1.2 Wildlife

The project area is home to a variety of species, including invertebrates, fish, amphibians and reptiles, birds, and mammals, as follows:

Invertebrates: Invertebrates include a wide range of species, generally insects, spiders and scorpions, and various worms and worm-like organisms. Little data is readily available on invertebrates in the project area. However, riparian areas are generally known to support relatively high levels of invertebrate biodiversity and biomass (Malanson 1993). No change to the riparian areas is anticipated as a result of the title transfer.

Fish: The native fish of the project area have declined because of surface flow regulation and non-native fish introductions in both the Gila and Colorado rivers. Historically, native fish included razorback sucker (*Xyrauchen texanus*), Colorado pikeminnow (*Ptychocheilus lucius*), roundtail chub (*Gila robusta*), and several other species, that have been 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 suitable 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 particular species living within the project area.

Habitat disruption from agricultural activities and urbanization in and around the project areas undoubtedly has reduced regional amphibian and reptile populations; however, little data on extant herpetofaunal populations in the region is available. The Sonoran population of Desert tortoise (i.e., the tortoise population east and south of the Colorado River in Arizona) is listed as a state species of special concern in the project area, but is not a federally listed threatened or endangered species. The known species range does not include the project area, no individuals were encountered during investigations for other species, nor were burrows or other signs of tortoise activity observed; therefore, desert tortoise is not believed to be present in the project area. The Cowles fringe-toed lizard is not known in the project area, but is a species of concern in the region. Various snakes are found in the region surrounding the project area, 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

1 birds have been documented in the boundaries of the Yuma area, nearly 70 percent of all
2 species in the Western Region of North America (Grimble & Associates 1997). Common
3 species in the region include the American coot (*Fulica Americana*), ladder-backed
4 woodpecker (*Picoides scalaris*), verdin (*Auriparus flaviceps*), marsh wren (*Cistothorus*
5 *palustris*), white-winged dove (*Zenaida asiatica*), mourning dove (*Zenaida macroura*), and
6 Gambel's quail (*Callipepla gambelii*). Birds generally are the most conspicuous wildlife in
7 the region.

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

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

19 Bobcats are rare in the project area, and the Yuma mountain lion subspecies (*Felis concolor*
20 *browni*) has not been detected in the project area for many decades. Coyotes are most
21 abundant in honey and screwbean mesquite habitats. Kit fox, gray fox, and spotted skunk are
22 rarely seen, but may be more abundant than records indicate. Badgers are rare and are
23 primarily found in honey mesquite or other sparsely vegetated desert or riparian habitat,
24 whereas striped skunks are more often found in dense habitats near water. Desert mule deer
25 (*Odocoileus hemionus*) densities in riparian habitats probably have changed dramatically
26 over the past 100 years (Ohmart, et al. 1988). Continuing riparian habitat conversion
27 combined with the disappearance of cottonwood-willow communities has affected deer
28 populations by eliminating cover and forage availability. Deer living in upland habitats most
29 of the year move to riparian habitats during summer. Historically, the range of the federally
30 endangered Sonoran pronghorn has included areas south of the District, but the Sonoran
31 pronghorn is unlikely to occur in the project area because suitable habitat (desert grassland)
32 is not available in large tracts within the project area.

33 3.6.1.3 Federal and State Listed Special-Status Species

34 Reclamation has corresponded with the U.S. Fish and Wildlife Service (FWS) and AGFD
35 regarding the proposed title transfer and has obtained species lists for Yuma County,
36 Arizona from these agencies (Appendix F). Eleven federally listed threatened, endangered,
37 and candidate species were identified as potential concerns in the project area by the FWS.

1 These include one plant species (Pierson's milkvetch); one fish species (razorback sucker);
 2 one lizard species (flat-tailed horned lizard); seven bird species (brown pelican, bald eagle,
 3 Yuma clapper rail, mountain plover, yellow-billed cuckoo, cactus ferruginous pygmy-owl,
 4 southwestern willow flycatcher), and one mammal species (Sonoran pronghorn). The federal
 5 list of threatened, endangered, and candidate species as provided by the FWS for Yuma
 6 County is presented in Table 3-2.

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

Scientific Name	Common Name	Taxon	Federal Status
<i>Astragalus magdalenae</i>	Pierson's milkvetch	Plant	Threatened
<i>Xyrauchen texanus</i>	Razorback sucker	Fish	Endangered
<i>Phrynosoma mcallii</i>	Flat-tailed horned lizard	Reptile	Conservation Agreement
<i>Pelecanus occidentalis californicus</i>	California brown pelican	Bird	Endangered
<i>Haliaeetus leucocephalus</i>	Bald eagle	Bird	Threatened
<i>Rallus longirostris yumanensis</i>	Yuma clapper rail	Bird	Endangered
<i>Charadrius montanus</i>	Mountain plover	Bird	Proposed Threatened
<i>Coccyzus americanus</i>	Yellow-billed cuckoo	Bird	Candidate
<i>Glaucidium brasilianum cactorum</i>	Cactus ferruginous pygmy-owl	Bird	Removed from listing
<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher	Bird	Endangered
<i>Antilocapra americana sonoriensis</i>	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 ESA. Removed from listing: Species no longer listed as Endangered or Threatened under the ESA. See discussion in Section 3.6.1.3. Conservation Agreement finalized in May 1997.			

9 Since the publication of the DEIS, two species have been removed from the list of
 10 threatened and endangered species. In June 2006 (71 FR 36745), the FWS announced that
 11 the proposed listing of the flat-tailed horned lizard (*Phrynosoma mcallii*) as a threatened
 12 species under the ESA is not warranted and the November 29, 1993, proposed rule (71 FR
 13 36745) was withdrawn. In April 2006 (71 FR 19452), the FWS announced that the cactus

1 ferruginous pygmy-owl would be removed from federal ESA protection, effective May 15,
2 2006. The then existing and proposed critical habitat designations also were rescinded. The
3 decision to remove the pygmy-owl's endangered status was based on a Ninth Circuit Court
4 of Appeals opinion, as well as relevant science, policy and legal considerations.
5 Environmental groups have sought an injunction against the delisting rule, but no ruling had
6 been made by the date of this document. However, since the historic range of this species
7 does not include the project area, except possibly as undocumented rare transients, this
8 action should not affect the species.

9 In November 2005, the FWS designated a southwestern fish, the Gila chub, as an
10 endangered species. Per the notice in the *Federal Register* (70 FR 66663), no critical habitat
11 for the Gila chub has been designated in the project area.

12 The State of Arizona recognizes one lizard, two birds, and two mammal species as special
13 status species in the project region, but not necessarily occurring in the project area (AGFD
14 2002). The State of Arizona further identifies the following sensitive species that may occur
15 in the project region: Sonoran pronghorn, yellow-billed cuckoo, spotted bat, Yuma clapper
16 rail, and Cowles fringe-toed lizard. No critical habitat has been designated in the project area
17 for these species.

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

22 Razorback Sucker (Catastomidae: *Xyrauchen texanus*) was listed as endangered on August
23 15, 1989. Critical habitat is defined in the ESA to include areas, whether occupied or not,
24 that are essential to the conservation of the species. Critical habitat for this species includes
25 the lower Colorado River from Pierces Ferry on upper Lake Mead to Imperial Dam,
26 including the 100-year floodplain, which does not include the project area. The recovery
27 plan for this species seeks to protect and expand the three existing populations and
28 establishes five new populations using remnant stock or translocated fish (FWS 1998a).

29 Overall, the status of the razorback sucker in the wild continues to decline. As plans to
30 stabilize the three existing populations by 2000 have failed, possible delisting by 2010
31 appears unlikely. Wellton-Mohawk canal water is the only perennial water source for the
32 lower Gila River and these waters are the only source of potential habitat for this species in
33 the project area. No restoration activities have been planned or conducted in the lower Gila
34 River by Reclamation because the habitat is unsuitable for the species, so restoration
35 activities in the project area would be ineffective and therefore unsuccessful in conserving
36 the species.

1 Flat-tailed Horned Lizard (Iguanidae: *Phrynosoma mcallii*) is no longer federally listed. The
2 FWS has determined that proposed listing of the flat-tailed horned lizard as a threatened
3 species under the ESA is not warranted, although the species remains a state-listed Wildlife
4 of Special Concern. The FWS made this determination after analyzing the lizard's historical
5 habitat and whether the amount of habitat lost constitutes a significant portion of its range. A
6 Rangewide Management Strategy was developed to coordinate inter-agency habitat and
7 population management strategies (Foreman 1997). Although the FWS has withdrawn its
8 proposal to list the flat-tailed horned lizard under the ESA, cooperative efforts to conserve
9 the species will continue under the multi-agency Flat-tailed Horned Lizard Conservation
10 Agreement and implementation of the Rangewide Management Strategy for the species
11 (FWS 2006a). Flat-tailed horned lizards are found on light-colored sandy soils, most
12 commonly on the sand sheet of the Yuma Desert and the Gran Desierto in Mexico (Stebbins
13 1985). This species has not been recorded in the project area (Foreman 1997), nor are the
14 remaining natural habitats within the project area suitable for this species.

15 Brown Pelican (Pelicanidae: *Pelecanus occidentalis californicus*) was designated as
16 endangered in the entire United States (except for areas along the Atlantic coast, Florida,
17 and Alabama) on June 2, 1970. On February 4, 1985, Brown pelican populations on the U.S.
18 Atlantic coast, and in Florida and Alabama were delisted. The species currently is under
19 review for possible delisting in Mississippi, Louisiana, Texas, the Pacific Coast, Caribbean,
20 Mexico, Central America, and South America. Rarely found using inland waters, Brown
21 pelicans are wandering coastal seabirds, intermittently wandering through the project region,
22 primarily as transients to other locations. Factors affecting brown pelican populations
23 include human and natural disturbance of nesting colonies and anthropogenic sources of
24 mortality (e.g., entanglement in monofilament line, oil or chemical spills, erosion, plant
25 succession, disease, and altered food availability).

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

33 Yuma Clapper Rail (Rallidae: *Rallus longirostris yumanensis*) was designated as
34 endangered on March 11, 1967 (32 FR 4001, 11 March 1967; 48 FR 43182, 27 July 1983).
35 This Clapper rail subspecies is known to occur in Arizona and California, primarily along
36 the lower Colorado River and its tributaries in the United States and Mexico. A recovery
37 plan was completed in February 1983. The species occurs in dense bulrush and cattail
38 marshes along the lower Colorado River from Lake Mead south to Mexico, including the

1 lower Bill Williams River, as well as on the Gila and Salt rivers upstream to the Verde
2 confluence. Maintaining suitable flows in the lower Colorado River and preserving habitat
3 on federal and state lands are primary management concerns, as well as protecting winter
4 habitat.

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

10 Mountain Plover (Charadriidae: *Charadrius montanus*) was proposed as a threatened species
11 on February 16, 1999, but no critical habitat has been designated. This species' preferred
12 habitat is short-grass prairie and shrub-steppe landscapes; cultivated fields; and prairie dog
13 towns. Short vegetation, bare ground, and a flat topography are recognized as habitat-
14 defining characteristics at both breeding and wintering locales above 4,000 feet in elevation.
15 Mountain plovers are rarely found near water. At present, mountain plover are likely to be
16 occasional winter visitors in the project vicinity, but this region is too low in elevation to
17 support breeding populations and the species is unlikely to occupy significant portions of the
18 project area.

19 Cactus Ferruginous Pygmy-owl (Strigidae: *Glaucidium brasilianum cactorum*) In April
20 2006 (71 FR 19452), the FWS announced that the cactus ferruginous pygmy-owl was
21 removed from federal ESA protection, effective May 15, 2006. The pygmy-owl's current
22 and proposed critical habitat designations were also rescinded. The decision to remove the
23 pygmy-owl's endangered status was based on a Ninth Circuit Court of Appeals opinion, as
24 well as relevant science, policy and legal considerations. The FWS found that the Arizona
25 distinct population segment of the cactus ferruginous pygmy-owl does not contribute
26 significantly to the species as a whole, which currently exists throughout Arizona, Texas,
27 and Mexico. Although the numbers are low in Arizona, that alone does not qualify the entire
28 owl subspecies for endangered status under criteria established by a recent court decision
29 and FWS policy for distinct population segments. The small owl was listed as endangered in
30 1997 after a steep drop in population size. While pygmy-owls are located throughout
31 Mexico's west coast states and a portion of the east coast of Mexico and Texas, only the
32 Arizona population of pygmy-owls was listed as an endangered distinct population segment.
33 Under the ESA, entire species, subspecies, and distinct population segments of vertebrates
34 are entities suitable for listing. However, the decision to delist the pygmy-owl was in
35 response to a Ninth Circuit Court of Appeals' opinion that the FWS must show how Arizona
36 pygmy-owls were of sufficient biological and ecological significance to the entire cactus
37 ferruginous pygmy-owl subspecies to qualify for listing as a distinct population segment.
38 The FWS reevaluated whether the owl was distinct from other populations and whether the

1 Arizona population was significant to the subspecies. A rule announced in April 2006
2 finalized a decision to delist the pygmy-owl and rescinded critical habitat for the species
3 (FWS 2006b). Environmental groups have sought an injunction against the delisting rule,
4 but no ruling had been made by the date of this document.

5 Yellow-billed Cuckoo (Cuculidae: *Coccyzus americanus*). The FWS published an initial
6 finding on February 17, 2000, that ESA protection may be warranted for Yellow-billed
7 cuckoos, either as a subspecies or as a distinct vertebrate population segment. This species is
8 associated with riparian cottonwood-willow gallery forests and wooded areas containing
9 high soil moisture content. The project area generally lacks the simultaneous occurrence of
10 these features. Because it is considered a candidate for listing it is not under legal protection,
11 but actions that may result in adverse impacts in the species' habitat are generally to be
12 avoided wherever feasible to prevent the further decline of the species.

13 Southwestern Willow Flycatcher (Tyrannidae: *Empidonax traillii extimus*) was designated
14 as endangered on February 27, 1995, and it is a wildlife species of special concern in
15 Arizona (AGFD 1996). This southwestern subspecies of willow flycatcher is now rare in the
16 southwestern United States, but its former range included the lower Colorado River, from
17 which it has been extirpated. With habitat protection, this species now is apparently re-
18 colonizing former habitat where it persists (Robert McKernan, San Bernardino County
19 Museum, personal communication). Surveys of the lower Gila River from 1993-2001
20 revealed a single nest at Fortuna Wash in 1996 (Paradzick, et al. 2001). While the lower
21 Colorado River historically was occupied by this species, (FWS 1993), it is considered to be
22 a rare migrant through the project area in the lower Gila River (Resource Management
23 International, Inc. 1994), only very rarely nesting in the general region.

24 Sonoran Pronghorn (Antilocapridae: *Antilocapra americana sonoriensis*) was designated as
25 endangered on March 11, 1967. This subspecies occurs in Arizona and northern Mexico.
26 Ninety-nine individuals were detected by AGFD in 2001, and the total estimated population
27 was 140 animals in southwestern Arizona (J. Hervert, AGFD, Yuma Office, personal
28 communication). Potential habitat only exists south of Interstate 8, and includes lands on the
29 Barry M. Goldwater Range.

30 Cowles Fringe-toed Lizard (Iguanidae: *Uma notata rufopunctata*). This state-listed species
31 of special concern occurs mainly in and near the Mohawk and Yuma dunes (Phillips
32 Consulting 2002). No known populations exist in the study area, which does not have the
33 extensive loose sand habitats the species prefers.

34 Spotted Bat (Vespertilionidae: *Euderma maculata*). The distribution of this species is poorly
35 known, and few data indicate its presence in the project area. It is listed as a wildlife species
36 of special concern in Arizona, but population numbers and range appears to be more

1 extensive than originally thought as recent research has located the species in every habitat
2 and elevation between 110 and 8,670 feet.

3 **3.6.2 Impact Assessment Methodology**

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

18 **3.6.3 Impacts and Mitigation**

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

21 *3.6.3.1 No Action Alternative*

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

25 *3.6.3.2 Proposed Action/Preferred Alternative*

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

30 *3.6.3.3 Vegetation Cover Disturbance*

31 Potential disturbance of candidate lands for development and other lands that may be made
32 available for acquisition for enhanced farming operation may affect the vegetation cover
33 types of disturbed lands. The development potential of the candidate lands is based on
34 several factors, including: 1) the proximity of the undeveloped land to current population

1 and commercial centers; 2) the proximity of the undeveloped land to current agricultural
2 operations; and 3) the type of vegetation cover that currently exists on the undeveloped land.
3 These lands and various vegetation cover types are indicated on Map 3-2 and listed in Table
4 3-1. The low-disturbance native cover lands that are candidates for development primarily
5 involve desert habitats.

6 Approximately 750 acres of land have mixed native, non-native riparian habitat and
7 development potential. These lands have been specifically surveyed for the potential to
8 support the southwestern willow flycatcher and Yuma clapper rail. Following inquiries by
9 FWS and survey by AGFD personnel and others, these lands were deemed unsuitable for
10 flycatchers due to lack of soil moisture and proper vegetative cover. Similarly, no areas
11 known to be occupied by or contain suitable habitat for clapper rails have been classified as
12 having development potential.

13 Although such disturbance may occur in association with future development within the
14 project area, the Proposed Action/Preferred Alternative would not impact existing riparian,
15 desert, other vegetation, or plant populations. Land development changes will take place
16 under both alternatives, and the rate and extent of such developments are unknown under
17 both alternatives. The Proposed Action will not change management practices related to the
18 flood channel restoration project operations or the District's management of the Gila River
19 Flood Channel. The District's application of irrigation waters are the primary source of
20 perennial flow for the lower Gila River, and the Proposed Action/Preferred Alternative
21 would not affect the flow that supports existing riparian vegetation. Project lands with
22 substantial cover in riparian areas from native phreatophytes, such as Fremont cottonwood,
23 Goodding's willow, and mesquite, in addition to non-native salt cedar, are likely to provide
24 some bird or wildlife habitat, and would not be affected by the Proposed Action/Preferred
25 Alternative.

26 3.6.3.3.1 *Potential Impacts on Fish and Wildlife*

27 The Proposed Action/Preferred Alternative would not have any detectable impact on
28 sensitive fish habitat because no difference in flow regimes, maintenance or development
29 activities is anticipated under the Proposed Action/Preferred Alternative. The irrigation
30 water supplied by the District is the primary source of perennial flow for the lower Gila
31 River, and irrigation will continue to release water through the lower Gila River under the
32 Proposed Action/Preferred Alternative. Existing wetlands management in jurisdictional
33 waters of the United States will remain under federal guidance through Section 404 of the
34 Clean Water Act, and both ESA and NEPA processes will continue to be applicable to any
35 proposed modifications. Therefore, the Proposed Action/Preferred Alternative would not
36 result in unmitigated adverse impacts on fish, mammals, birds, invertebrates, reptile, or
37 amphibian species or their habitat. Outside of the Gila River Flood Channel, relinquishing

1 federal involvement in lands under the Proposed Action/Preferred Alternative would remove
2 federal compliance requirements for Section 7(a)(2) of the ESA. However, local, county and
3 state land development regulations may reduce or minimize any impacts to wildlife and
4 native plants.

5 3.6.3.3.2 Potential Impacts on Federally Listed Special-Status Species

6 The following species do not occur within the project area or are rare transients: Pierson's
7 milkvetch, razorback sucker, mountain plover, brown pelican, yellow-billed cuckoo, bald
8 eagle, and Sonoran pronghorn. Therefore, there would be no effect to these species from
9 future potential land uses that may occur as a result of the Proposed Action/Preferred
10 Alternative. This determination was documented in a letter to the FWS from Reclamation
11 dated March 10, 2003. In August 2006, the most current species list was reviewed. No new
12 species were identified in the region of influence (ROI) for title transfer lands (Reclamation
13 2006).

14 Additionally, Reclamation has engaged in informal consultation for the Proposed
15 Action/Preferred Alternative with FWS and AGFD. Coordination activities have involved
16 correspondence regarding special status species, a coordination meeting, and a joint field
17 review of the lands included in the Proposed Action/Preferred Alternative. Reclamation
18 received FWS concurrence in June 2003 that the Proposed Action/ Preferred Alternative
19 'may affect, but is not likely to adversely affect' two listed species: the Yuma clapper rail
20 and the southwestern willow flycatcher. In a letter dated September 29, 2006, Reclamation
21 requested that the FWS renew their concurrence that the project 'may affect, but is not likely
22 to adversely affect' the southwestern willow flycatcher and Yuma clapper rail. In a letter
23 dated October 23, 2006 (FWS 2006c), FWS responded that responsibility for reinitiation of
24 consultation lies with the federal action agency and offered criteria leading to required
25 reinitiation (Appendix F). Since none of the reinitiation conditions are applicable to the
26 Proposed Action/Preferred Alternative, Reclamation is confident that the 'may affect, not
27 likely to adversely affect' determination is appropriate. Reclamation will continue to work
28 with FWS, AGFD and other agencies as appropriate to enhance the recovery of these species
29 while maintaining routine District operations and maintenance.

30 Yuma Clapper Rail – Because the Proposed Action/Preferred Alternative will not change
31 flow or habitat management actions or strategies associated with the existing USACE Gila
32 River Channel Project Section 404 permit, the Proposed Action/Preferred Alternative may
33 affect, but is not likely to adversely affect the Yuma clapper rail (see Appendix F). Outside
34 of the Gila River Flood Channel, relinquishing federal involvement in lands under the
35 Proposed Action/Preferred Alternative would remove the federal compliance requirements
36 with Section 7(a)(2) of the ESA. However, the potential habitat for the Yuma clapper rail is

1 most likely to occur within riparian vegetation associated with the flood control channel
2 where federal protection under the ESA would still apply.

3 Southwestern Willow Flycatcher – Southwestern willow flycatchers are primarily migratory
4 through the project area and only one nest has been detected in the general area in nearly a
5 decade. The Proposed Action/Preferred Alternative would not affect flow regimes or habitat,
6 and therefore it would be unlikely to affect the migratory population or resting habitat of this
7 species. Thus, the Proposed Action/Preferred Alternative may affect, but is not likely to
8 adversely affect the southwestern willow flycatcher (see Appendix F). Outside of the Gila
9 River Flood Channel, relinquishing federal involvement in lands under the Proposed
10 Action/Preferred Alternative would remove the federal compliance requirements with
11 Section 7(a)(2) of the ESA. However, the potential habitat for the Southwestern willow
12 flycatcher is most likely to occur within riparian vegetation associated with the flood control
13 channel, where federal protection under the ESA would still apply.

14 3.7 CULTURAL RESOURCES

15 This section discusses the cultural resources in the project area and the potential effects of
16 the proposed title transfer on such resources. Cultural resources are physical remnants or
17 other expressions of human activity or occupation. Such resources include culturally
18 significant landscapes, prehistoric and historic archaeological sites, archaeological and
19 historic districts, isolated artifacts or features, historic structures, and TCPs. TCPs are
20 properties associated with cultural values important to a living community and integral to
21 maintaining the cultural identity of the community. Cultural resources that are eligible for
22 inclusion in the NRHP must be considered under the NHPA and NEPA. Cultural resources
23 may also be protected the Native American Graves Protection and Repatriation Act
24 (NAGPRA), the Archaeological Resources Protection Act (ARPA), Executive Order 13007,
25 Protection of Native American Sacred Sites, and other federal, tribal, or state laws and
26 policies.

27 Section 3.7.1 provides a brief historical context of the project area and a summary of
28 previous investigations of pre-historic and historic cultural resources in the project area. In
29 accordance with Section 106 of the NHPA, the following program was conducted to
30 identify, evaluate, and treat cultural resource sites, including coordination with SHPO,
31 consulting Indian tribes, and other interested parties. Consultation is discussed in Section 5
32 of this FEIS.

- 33 ▪ ***Identification of cultural resources in affected parcels.*** A field inventory program
34 was conducted that included verification of the location, recordation, and eligibility
35 recommendations for NRHP listing.

- 1 ▪ ***Evaluation of cultural resources for eligibility for listing in the NRHP.*** The
2 eligibility of the resources is dependent on their historical nature and their ability to
3 meet one or more of the eligibility criteria established by the NHPA (36 CFR 60.4).
- 4 ▪ ***Treatment of significant cultural resources.*** In consultation with the consulting
5 parties, Reclamation is in the process of drafting a Historic Properties Treatment
6 Plan and a MOA that address the resolution of adverse effects to historic properties.

7 Section 3.7.2 discusses the inventory of cultural resources and the determination of site
8 eligibility for listing on the NRHP, and Section 3.7.3 discusses anticipated potential impacts
9 for both the No Action Alternative and Proposed Action/Preferred Alternative and proposed
10 resolution of those effects.

11 **3.7.1 Affected Environment**

12 3.7.1.1 *Historical Context*

13 The general project area has had a long and rich history of use by Native American groups.
14 As early as the sixteenth century, Spanish missionaries reported irrigation agriculture by the
15 Quechan, and some estimates extend this back to more than 1,000 years (Robinson 1942 as
16 cited in SRI 2005c). Historical-period Spanish exploration began in the 1540s (SRI 2005c).
17 Modern irrigation agriculture in the project area began in the late 1800s, fueling an increase
18 in Euro-American settlement. In the early twentieth century, Reclamation constructed the
19 Laguna and Imperial Dams and their attendant canal systems to deliver Colorado River
20 water to Yuma and Imperial Counties.

21 Based on limited knowledge, there is reason to believe that prehistoric occupation and use of
22 the lower Gila River was quite different from the upstream Gila Bend area, once inhabited
23 by Hohokam people. With so few documented and preserved sites along the flood plain,
24 researchers loosely postulate that lower Gila inhabitants were less-sedentary and less
25 agricultural than their upstream neighbors. Past ethnographic accounts describe this area as
26 sparsely inhabited because of spirits and warlike peoples (SRI 2005c).

27 3.7.1.2 *Past Archeological Research*

28 Archaeological research in the region began in the 1920s, when Malcolm Rogers of the San
29 Diego Museum of Man recorded most of the region's significant sites, including Antelope
30 Hill, Texas Hill, Tinajas Altas, and White Tanks. Gila Pueblo members under the direction
31 of Harold Gladwin joined Rogers in the 1930s. Gila Pueblo focused on determining the
32 boundaries of the Red-on-Buff [later Hohokam] culture. In 1930, Harold and Winifred
33 Gladwin reported a survey that encompassed western Arizona including portions of the
34 lower Gila River valley. The Gladwins documented 15 sites between Gila Bend and Yuma;
35 unfortunately, the locations of these sites have been lost.

1 Two decades later, Albert Schroeder conducted surveys of the lower Colorado and Gila
2 River valleys (Schroeder 1952). He identified 69 sites along the two rivers, including 13
3 sites along the lower Gila River. David Breternitz performed a brief reconnaissance survey
4 of the lower Gila River between Yuma and the Painted Rock Mountains near Gila Bend,
5 recording three prehistoric sites in the project area (Breternitz 1957). In 1964, William
6 Wasley and Gwinn Vivian conducted a survey along the lower Gila River from the Town of
7 Blaisdell to the Painted Rock Dam. They recorded a petroglyph site and the remains of a
8 stage station along the Butterfield Overland Mail route.

9 These early surveys suggest that large village sites, such as the ones found upstream near
10 Gila Bend, are virtually absent from the lower Gila River area. Given that early investigators
11 focused on sites of this type, their absence is particularly noteworthy. While they may have
12 been overlooked, it is also possible that indigenous people of the lower Gila River may have
13 followed the practice of protohistoric groups along the Colorado River, and placed their
14 villages in the active floodplain. If this is true, these villages probably were destroyed by
15 floods, removing most traces of their existence. The final possibility is that the region was
16 not used for major habitation, because of ideological, spiritual, or cultural reasons (SRI
17 2002).

18 The passage of NHPA in 1966 marked an intensification of archaeological activity in the
19 lower Gila River valley. Three surveys were recorded in the project area prior to 1966; since
20 then, 37 surveys have been conducted in the last 35 years. Several of the more recent
21 surveys intersected the study area. Because of their size, systematic nature, and modern
22 standards, the latest surveys provide a better representation of the archeological record than
23 their predecessors. In fact, the surveys conducted for this project constitute the most
24 comprehensive cultural resources inventory conducted in this region to date.

25 In the late 1990s, a Section 106 compliance action resulted in a data recovery effort at
26 Antelope Hill, a well-known landmark located along the Gila River between Wellton and
27 Tacna. The 500-foot sandstone hill was a milling implement quarry and served as a canvas
28 for rock art by prehistoric and protohistoric peoples for thousands of years (Schneider and
29 Altschul 2000). An estimated 100,000 quarrying episodes were represented there, with the
30 products being transported by foot or by water hundreds of miles up and down the Gila and
31 Colorado rivers. The rock art at Antelope Hill is comparable to that of other sites along the
32 lower Gila River. Its 350 rock art elements led to the definition of the Patayan style
33 (Doolittle 2000). The hill was considered a “no-man’s-land” not owned by any particular
34 tribe. For their modern descendants, Antelope Hill remains an important spiritual landmark
35 in the lower Gila River valley. In historical times, explorers, soldiers, bandits, and settlers
36 moving along the Southern Emigrant Trail also visited the hill.

1 Most of Antelope Hill is federal land controlled by Reclamation. About 40 acres of the
2 northwestern portion of the hill is owned by the District and the southern slopes of the hill
3 are owned by private landowners. In response to the 1993 floods, the District applied for a
4 permit from the USACE to quarry rock from Antelope Hill to repair and maintain water
5 control features. This action required the USACE to comply with Section 106 of the NHPA.
6 The site was determined to be eligible for listing in the NRHP as an archaeological site and
7 as a TCP under Criteria a, c, and d. A MOA stipulated that the resolution of the adverse
8 effects of quarrying include archaeological, ethnographic, and historical research (SRI
9 2000). The portion of Antelope Hill owned by Reclamation is not proposed for transfer.

10 3.7.2 Impact Assessment Methodology

11 This project is an administrative action, which has a very limited potential for direct impacts
12 (i.e., those impacts that occur in the same time and place as the action). However, this
13 assessment considers potential future actions (indirect impacts) that could occur within the
14 land areas to be transferred because of the proposed transfer of lands from federal control
15 and considers the potential effect of such actions on cultural resources in the absence of
16 federal oversight. Adverse effects to cultural resources will result from the transfer of land
17 out of federal ownership and management (i.e., from Reclamation to the District).
18 Consideration also has been given to the obligations placed on federal agencies through
19 implementation of NHPA and other laws and regulations that provide protection to cultural
20 resources under federal, state, tribal or local government jurisdiction.

21 3.7.2.1 Identification Process

22 In consultation with the SHPO and the tribes, Reclamation designed and implemented a
23 cultural resources identification program to determine the nature and extent of cultural
24 resources on lands proposed for transfer, in accordance with 36 CFR 800.4. This program
25 used a phased approach to estimate the potential for cultural resources to occur within the
26 project area. The first phase included a Class I inventory (literature and archival search) to
27 identify known archeological sites and cultural resources in the vicinity of the proposed title
28 transfer. The next phase was a combination of Class II and Class III inventories,
29 supplemented by geomorphic characterization. The geomorphic analysis utilized Landsat-
30 based remote sensing imagery and limited subsurface testing in areas of the Gila River
31 floodplain with high potential for prehistoric cultural deposits. A TCP inventory also was
32 conducted.

- 33 ▪ ***Class I literature review:*** A literature review of the original project area and a
34 surrounding 2.5-mile buffer was completed early in 2002. The literature search
35 established that most known sites were located on the first terrace overlooking the
36 Gila River flood plain, which aided in development of the sample research design.

- 1 ▪ **Original Class II/III inventories:** Approximately 5,900 acres of river terrace and
2 adjacent lands were inventoried using Class II or III pedestrian surveys. The known
3 archaeological sites identified in the Class I literature review were re-visited, re-
4 recorded and evaluated for NRHP eligibility. The research design was geared toward
5 identifying additional significant sites in this region. The *Archaeological Sample*
6 *Survey Design for the Wellton-Mohawk Title Transfer Project* (SRI 2003)
7 acknowledged the high degree of disturbance and low probability of cultural
8 resources in most of the project area. Specifically, the floodplain of the Gila River,
9 cultivated fields, and irrigation works and facilities in the District account for
10 approximately 29,600 acres and are unlikely to have intact cultural resources. Thus,
11 the research design focused on river terraces, desert pavement, and bedrock
12 surfaces—landforms with a higher probability of containing cultural sites. These
13 culturally sensitive locations received Class III (100 percent) coverage. Landsat
14 imagery was used to locate desert pavement and exposed bedrock surfaces, which
15 were sampled as part of the Class II effort (SRI 2003). Reclamation and SRI were
16 confident that this strategy would identify at least 90 percent of the historic
17 properties in the project area.
- 18 ▪ **Geomorphological study:** This multi-layered strategy began with the development
19 of a geomorphic map of the project area. Using air photos and soil map units, the age
20 of geomorphic deposits was considered during the development of a sampling plan
21 (using backhoe trenches) for areas with a potential for buried cultural deposits.
22 Thirty-one trenches were placed mostly along the flood plain and bordering
23 piedmont alluvial surfaces. When available, charcoal was radiocarbon dated and
24 quartz and feldspar minerals were subjected to optically stimulated luminescence
25 (OSL) dating. This resulted in the identification of nine distinct map units and an
26 improved knowledge of alluvial stratigraphy along this portion of the lower Gila
27 River.
- 28 ▪ **Traditional Cultural Properties:** Reclamation and SRI conducted a TCP inventory
29 to identify places of traditional importance to Native Americans. Although minimal
30 ethnographic information was acquired during telephone interviews and four field
31 visits, some tribes voiced concerns related to project impacts to all artifacts and
32 cultural sites, regardless of eligibility status (SRI 2005a).
- 33 ▪ **Inventory of the Wellton-Mohawk irrigation system and facilities:** This inventory
34 included a thorough archival search, preparation of a historic context, and field
35 verification of representative property types. The overall system and its individual
36 eligibility and contributing features were evaluated for NRHP listing (SRI 2005b).
37 The documentation of eligible components was completed and submitted to the NPS.
38 The results and status of this effort are discussed in Section 3.1.2.1 of this FEIS.

- 1 ▪ **Historic inventory:** Based on a thorough archival search, the historic inventory
2 targeted 4,784 acres of viable locations where homesteads, railroad beds, and mining
3 sites were expected (SRI 2005c).
- 4 ▪ **Additional Class III inventory:** Based on the continued concerns of certain
5 consulting tribes, Reclamation agreed to inventory the remainder of the undisturbed
6 lands at a November 22, 2005, Fort Yuma Quechan Tribal Council meeting. The
7 additional Class III inventory of 4,833 acres on over 93 parcels was completed in
8 December 2005.

9 As a result of the additional inventory, all undisturbed lands in the title transfer have been
10 subject to either Class II or III level inventories. The floodplain has been studied by a
11 professional geomorphologist and field-tested using backhoe trenches. The potential for
12 buried deposits is better established, with only 5 percent of the flood plain deemed of high
13 probability for intact cultural deposits. Reclamation maintained that the original
14 identification effort located most of the significant cultural resources on transfer lands and
15 that the level of effort was appropriate for the size of the undertaking, the degree of
16 disturbed land, and our knowledge of cultural resource locations in the lower Gila River
17 area. Based on the overall survey results, approximately 92.5 percent of significant cultural
18 resources were identified in the project area.

19 3.7.2.2 *Area of Potential Effect*

20 The proposed title transfer project initially contained approximately 57,418 acres. Following
21 land status verification, and after acknowledging the concerns of consulting tribes and
22 SHPO, the project area was reduced to 47,626 acres. The reduction in lands proposed for
23 transfer removed the majority of sensitive cultural resource sites from the transfer. The
24 excluded sites will remain under federal control. A chronology of changes in the project area
25 and the corresponding acreage of cultural resources inventoried in the title transfer are
26 presented in Table 3-3 and are further detailed in Table 3-4.

27 The steps taken to identify historic properties were based on the originally proposed title
28 transfer of 57,418 acres. Subsequently, changes in the lands proposed for transfer modified
29 the total acreage, but did not invalidate the survey approach.

1

TABLE 3-3 SUMMARY OF LANDS SURVEYED

Description	Original Title Transfer Area (acres)	Final Title Transfer Area (acres)
Area of Potential Effect		
Total Area Proposed for Transfer	57,418	47,626
Disturbed ROW and Easements for Facilities	29,091	28,197
Disturbed Land Acquired under P.L 93-320 and P.L. 100-512 not used for Gila River Flood Channel ROWs	7,839	9,104
Disturbed MMWCD Land	527	521
Other Previously Disturbed Land*	NA	1,527
Undisturbed Land	19,961	8,277
Inventory		
Class II/III	5,900	1,161
Historic Inventory	4,784	2,283
Additional Survey of Undisturbed Lands	4,833	4,833
Total Acres Inventoried	15,517	8,277

* Other Disturbed Lands may include lands within the floodplain of the Gila River, lands under current or previous cultivation, lands under works or facilities, aggregate or borrow pits, prior military areas, existing transportation and utility corridors, and maintained road ROWs. This category was not estimated at the time of publication of the DEIS.

NA – Not available

1 **TABLE 3-4 CHANGES IN PROJECT AREA AND SITES IN THE TITLE TRANSFER**

	Total Number of Cultural Sites Identified on Transfer Lands	Estimated¹ Number of Eligible Sites on Transfer Lands	Estimated¹ Number of Eligible Sites Removed from Transfer	Total Area Included in Transfer (acres)
September 2003: Proposed title transfer lands in DEIS	145	82	--	57,418
January 2005: Reduction of 8,644 acres ² of BLM and private land	111	82	-- ³	48,774
February 2005: Exclusion of 2,124 acres of culturally sensitive lands	46	24	58	46,650
October 2005: Exclusion of 62 acres	39	17	7	46,588
December 2005: Additional Class III survey of 4,833 acres ⁴	72	19	65	46,588
June 2006: Inclusion of 1,037 acres of flowage easement and county ROWs	72	19	--	47,626
October 2006: Final title transfer lands in FEIS⁵	72	19	65	47,626

1. Concurrence from SHPO on the determination of eligible sites was received for the 19 sites remaining in the transfer in letters dated November 28, 2005, and May 1, 2006. Prior to these dates, the number of eligible sites was estimated.
2. Following an extensive title search, several non-transferable parcels were excluded from consideration. This acreage was reported as 8,484 in earlier documentation; however, verification by Reclamation increased the total by 160 acres.
3. Thirty-four sites recorded on private or BLM lands remain unevaluated for listing eligibility in the NRHP.
4. Additional Class III inventory resulted in the identification of 33 sites, six of which are NRHP eligible; meanwhile, four earlier recorded eligible sites were determined to be within private or county-owned lands, and not subject to transfer. This resulted in two additional eligible sites within the lands proposed for transfer.
5. Reclamation will manage the 65 eligible sites removed from the transfer as part of its Section 110 responsibilities.

2 3.7.2.3 Determinations of Eligibility

3 Reclamation determined that 19 historic properties (5 historic; 13 prehistoric; and 1 multi-
4 component) remain within the boundaries of lands proposed for transfer to the District. The
5 19 eligible sites are listed by type in Table 3-5. SHPO concurred with the eligibility
6 determinations in letters dated November 28, 2005, and May 1, 2006 (Appendix G).

1

TABLE 3-5 NRHP ELIGIBLE SITES IN THE TITLE TRANSFER

Site Type	Number of Eligible Sites in the APE		
	Prehistoric Resources	Historical Resources	Prehistoric/ Historical
Ceramic concentration	1		
Flaked stone reduction site	1		
Homestead		1	
Habitation site	1		
Historic gunnery		1	
Utility alignments		1	
Irrigation features		1	
Mine		1	
Lithic scatter	1		
Rock feature/agriculture			1
Rock feature	3		
Rock art	1		
Trail segments	2		
Thermal feature	3		
Total	13	5	1

2 **3.7.3 Impacts and Mitigation**3 *3.7.3.1 No Action Alternative*

4 Under the No Action Alternative, cultural resources on federal lands would remain under
5 federal control. These resources would not change. This status would continue for the
6 foreseeable future, after which most of the cultural resources discussed for the Proposed
7 Action/Preferred Alternative, other than the Division facilities, would need to be addressed
8 in connection with the potential relinquishment and sale of the lands, if feasible. These
9 circumstances are described in Section 3.2. The withdrawal actions on the lands originally
10 withdrawn from the public domain and not used for Division purposes would be
11 relinquished. The withdrawn lands would return to BLM's administration, under which it is
12 assumed that tracts of land within the District could be made available for exchange or sale,
13 though not in any systematic way. Meanwhile, Reclamation or BLM would be responsible
14 for the continued management of the cultural resources in accordance with Section 110 of
15 the NHPA.

16 *3.7.3.2 Proposed Action/Preferred Alternative*

17 The transfer of land from federal to private ownership is considered an undertaking under
18 NHPA. The Proposed Action/Preferred Alternative would affect lands transferred from
19 federal ownership to the District. The immediate effect (direct impacts) of the transfer would
20 be minimal, consisting solely of an administrative action. The net result of the title transfer
21 is that the federal government would relinquish control of cultural resources and its

1 attendant obligations under NHPA and other federal statutes and regulations. Under District
2 ownership, or subsequent private ownership in instances where the District may choose to
3 dispose of acquired properties, development or other activities may occur in a manner that
4 adversely impacts cultural resources without the full legal protection afforded by federal
5 law.

6 This undertaking is an adverse impact as defined by regulations implementing the NHPA. In
7 order to resolve potential adverse impacts, a Draft Historic Properties Treatment Plan
8 (HPTP) has been prepared in consultation with SHPO and consulting tribes and parties.
9 Proposed treatments include avoidance and monitoring by site stewards, additional archival
10 research, conservation easements, fencing, and data recovery. A draft MOA to document the
11 resolution of adverse effects to 19 historic properties (13 prehistoric, 5 historic, and one
12 multi-component) is being developed. The HPTP and MOA will be reviewed by the
13 Advisory Council on Historic Preservation, SHPO, tribes, and other consulting parties prior
14 to their implementation.

15 **3.8 SOCIOECONOMIC ANALYSIS**

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

21 **3.8.1 Affected Environment**

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

27 *3.8.1.1 Population and Employment*

28 According to U.S. Census Bureau, the 2005 population for Yuma County was estimated to
29 be approximately 181,277 people. In 2003, the U.S. Census Bureau estimated the City of
30 Yuma population to be 81,605. Other cities (e.g., Somerton, San Luis, and Wellton) and
31 dispersed rural communities and residences comprise the remaining share of the county's
32 population. Census data specific to the project area are limited; however, population data are
33 available for the towns of Wellton and Tacna (the latter is a "census designated place"), and
34 the two communities have estimated populations of 2,031 and 505 persons, respectively
35 (Yuma Data Bank 2006).

1 Based on 2000 Census data, Table 3-6 provides a summary of additional pertinent
2 population and ethnographic data for these areas, Table 3-7 indicates the racial composition
3 of Yuma County, and Table 3-8 shows population growth trends over the past 20-year
4 period.

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

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

18 Major industries within Yuma County include agriculture, military, retail, trade, and tourism
19 (Arizona Department of Commerce 2001b). Table 3-9 lists employment in Yuma County by
20 various sectors. Table 3-10 lists the total number of civilian labor force employed and the
21 unemployment rates for Yuma County, the City of Yuma, and the Town of Wellton.

1 **TABLE 3-6 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 (based on 2000 Census data)

2

TABLE 3-7 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 (based on 2000 Census data)

3

TABLE 3-8 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 (based on 2000 Census data)

1

TABLE 3-9 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

2

TABLE 3-10 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

4 3.8.1.2 Property Values and Tax Revenue

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

12 PILT payments are appropriated by Congress and administered by the BLM for various
13 categories of federal lands. The apportionment of PILT payments to counties is based on a
14 complex accounting method that begins with the amount of eligible federal land within a
15 county with various adjustments. The adjustments include allowance for inflation,
16 limitations based on county population, and deductions for the value of federal payments to
17 the county from other sources such as mining royalties and grazing leases. In Yuma County,
18 approximately 81.8 percent of the land, or approximately 3.5 million acres, is federal. Of

1 that amount, BLM records show that slightly less than 1.6 million acres are used in
2 determining PILT payments. Given the large percentage of federal land in the county, the
3 adjustments tend to dominate the PILT accounting, leaving the outcome somewhat
4 insensitive to the qualifying acreage. PILT payments to Yuma County have ranged from
5 \$997,394 in 1999 to \$1,944,685 in 2006 while the qualifying acreage has remained
6 relatively constant. Currently, 64,645 acres of federal land administered by Reclamation are
7 included in the PILT accounting for Yuma County, including acreage in the Wellton-
8 Mohawk Division of the Gila Project (U.S. Department of Interior 2006). Privately owned
9 lands within the county are subject to property taxes based on the assessed property value.
10 However, the District is exempt from property tax payment obligations.

11 **3.8.2 Impact Assessment Methodology**

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

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

27 **3.8.3 Impacts and Mitigation**

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

30 *3.8.3.1 No Action Alternative*

31 The No Action Alternative would not change the amount of federal land included in the
32 Yuma County PILT payment calculation. The county tax base could increase in future
33 decades when land currently administered by Reclamation is returned to the public domain,
34 sold, and developed.

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, 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 the lands managed by Reclamation account for approximately 4 percent of the federal land in Yuma County used to determine the PILT payments, 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. However, the Proposed Action/Preferred Alternative would 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 adjacent to existing development,

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

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

11 3.8.3.2.3 *Impact on the District*

12 The District expects to provide additional protection for agriculture through acquisition of
13 lands that border agricultural operations. It may be necessary for the District to sell selected
14 acquired lands in areas not bordering agricultural operations to facilitate purchase of some
15 lands being transferred. Revenues from sale of acquired lands may be used, in addition to
16 paying the purchase price of transferred lands, for system maintenance, improvement, and
17 rehabilitation. Using land sales revenue for these purposes would reduce the need to increase
18 landowners' assessments.

19 3.9 PUBLIC HEALTH AND SAFETY

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

23 3.9.1 Affected Environment

24 3.9.1.1 *Hazardous Materials*

25 Phase I and Phase II Environmental Site Assessments were conducted to identify any
26 hazardous materials within the lands to be transferred in accordance with industry and
27 American Society of Testing and Materials (ASTM) standards (NEI 2002). Recognized
28 environmental conditions were observed during the Phase I investigation and further
29 evaluated in the Phase II Environmental Site Assessment.

30 A recognized environmental condition is defined as the presence or likely presence of any
31 hazardous substance or petroleum product on a property under conditions that indicate an
32 existing release, a past release, or a material threat of a release of a hazardous substance or
33 petroleum product into structures on the property or into the ground, groundwater, or surface
34 water of the property. The term includes hazardous substances or petroleum products even

1 under conditions in compliance with laws. Recognized environmental conditions observed
2 on parcels identified in the title transfer include:

- 3 ▪ Storage tanks in former citrus fields
- 4 ▪ Potential contamination at the District headquarters and adjacent machine shops and
5 storage yards
- 6 ▪ District housing
- 7 ▪ Former landfill

8 3.9.1.1.1 UST Area

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

21 However, to address comments received from the EPA on the DEIS and confirm the status
22 of the soils in the vicinity of the tanks, Reclamation and the District embarked on a program
23 to systematically sample the former field areas and ultimately remove the ASTs and USTs.
24 Approximately 91 USTs and 36 ASTs were excavated and samples were collected at more
25 than 10% of the UST locations in January 2004 (CMX 2004). No detections of total
26 petroleum hydrocarbons were reported in any of the samples collected. Following this
27 confirmation, the tanks were removed from the site and properly disposed.

28 3.9.1.1.2 District Headquarters

29 The District headquarters compound is located at 30570 Wellton-Mohawk Drive in Wellton,
30 Arizona. In addition to the District's administrative offices, the headquarters also house
31 machine shops and storage yards. Concrete pipes, generators, power poles, tires, electrical
32 transformers, 55-gallon storage drums, and heavy machinery such as cranes, backhoes, and
33 dump trucks are stored within the compound. Several recognized environmental conditions
34 were identified within the compound. At the main equipment yard there are three 15,000-

1 gallon ASTs for storing gasoline and diesel fuel. A wash rack was observed within the
2 primary storage yard. ASTs used for antifreeze and oil storage were also located in this yard.
3 In the eastern maintenance equipment lot, evidence of soil staining was observed adjacent to
4 the sandblast area. The District has developed a Spill Prevention, Control and
5 Countermeasures Plan for the proper storage and handling of hazardous materials to address
6 the majority of these potential issues (CMX 2004).

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

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

20 3.9.1.1.3 District Housing

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

26 3.9.1.1.4 Former Landfill

27 The former North Gila Valley Landfill lies in Section 11 of Township 8 South, Range 22
28 West (Gila and Salt River Baseline and Meridian) on a parcel of land included in the title
29 transfer. The landfill was operated by Yuma County under lease number 3-07-34-L0459
30 from Reclamation. Yuma County ended disposal activities at the site in 1986. According to
31 the Closure Plan for the North Gila Landfill (Jacobson Companies 1992), approximately
32 55,000 tons of waste material was placed in a triangle shaped area of approximately 700 feet
33 by 1000 feet to an average depth of approximately 12 feet. The waste material was generally
34 municipal solid waste; septic waste may have also been disposed. No major amounts of
35 industrial waste were known to have been disposed; hazardous materials, contaminated
36 soils, and medical waste were not accepted at the facility.

1 The Arizona Department of Environmental Quality (ADEQ) lists the North Gila Valley
2 Landfill in the Arizona Directory of Closed Landfills. In a letter dated February 24, 1998,
3 the ADEQ stated that groundwater data indicates that volatile organic compounds (VOCs)
4 were present at consistently low concentrations. None of the VOCs detected exceeded
5 applicable Aquifer Water Quality Standards listed in the Arizona Administrative Code
6 (AAC) R18-11-406, and ADEQ had required additional groundwater monitoring.

7 Jacobson Engineering certified that the landfill closure activities at this facility were
8 completed in a letter to ADEQ dated August 19, 1994. Following consideration of the
9 additional groundwater quality data, ADEQ ended the groundwater monitoring requirement
10 and through the February 24, 1998 letter closed the facility. This letter does state that if
11 future evidence comes forth that identifies the existence of contamination above regulatory
12 levels, additional assessment may be required.

13 *3.9.1.2 Flood Hazards*

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

18 USACE constructed the Painted Rock Dam in 1959 for the sole purpose of providing
19 temporary flood storage and flood relief to the lower Gila Valley (USACE 1995). The
20 reservoir behind the dam has a gross capacity of approximately 2.5 million acre-feet and is
21 equipped with three outlet gates through which controlled downstream discharges of up to
22 26,000 cubic feet per second (cfs) can be made. The District has recently undertaken two
23 additional mitigation efforts to further control flooding along the Gila River. The Gila River
24 Flood Channel Restoration Project has established a 250-foot wide low-flow channel along
25 approximately 56.3 miles of the District. Earthen levees have been constructed and
26 revamped on both sides of the channel to provide protection for flows up to 10,000 cfs
27 (Yuma County 2000).

28 *3.9.1.3 Vehicular and Water Hazards*

29 As discussed in Section 3.11, canal and levee roads provide access for the operation and
30 maintenance of District facilities. These access roads are currently managed by the District.
31 The canal and levee roads are not intended for public use, so incidental use of these roads is
32 at the users own risk. Additional protection devices, such as chains and grates, have been
33 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.

1 3.10.1 Affected Environment

2 The air quality across most of the District meets all National Ambient Air Quality Standards
3 (NAAQS). However, under the 1990 Clean Air Act Amendments, the EPA designated the
4 Yuma Area, which extends one mile into the far western portion of the District, as non-
5 attainment for particulate matter with a diameter of 10 microns or less (PM₁₀). Because of
6 the non-attainment designation, the development of a PM₁₀ State Implementation Plan (SIP)
7 and a determination of conformity between the SIP and adopted transportation plans,
8 programs, and projects were required.

9 Coarse particles (PM₁₀) are generally emitted from sources such as vehicles traveling on
10 unpaved roads, materials handling, crushing and grinding operations, and windblown dust
11 (EPA 2002). As such, reasonably available control measures have been implemented,
12 including paving, stabilizing, and closing some unpaved streets and roads, in an attempt to
13 bring the Yuma area into attainment.

14 The Yuma PM₁₀ SIP was submitted to the EPA on November 15, 1991. A revision to the
15 PM₁₀ SIP was submitted to EPA on July 12, 1994, and was determined by EPA to be
16 complete, but was never approved. ADEQ began working with stakeholders in the Yuma
17 area in July 2001 to develop a maintenance plan based on data within accepted NAAQS for
18 PM₁₀. However, on August 18, 2002, the Yuma area experienced a violation of the 24-hour
19 NAAQS. This August 18, 2002, exceedance was due to high winds associated with a large
20 thunderstorm. The high wind event data met all the technical criteria to be considered a
21 natural event. Consequently, work on the Yuma Maintenance Plan was suspended because
22 EPA policy required the development of a Natural Events Action Plan (NEAP) to prevent
23 the area from being downgraded to a serious nonattainment area. The NEAP was developed
24 by the Yuma area stakeholders and ADEQ, and submitted to EPA in February 2004. A
25 NEAP Implementation Report was submitted to EPA on August 17, 2005.

26 The 2005 Air Quality Conformity Analyses concluded that there were no measured
27 violations of the PM₁₀ standard in the Yuma nonattainment area during the past seven years.
28 In addition, PM₁₀ emissions continue to be less than 1990 values, and less than the budget
29 permitted by the 1994 Yuma PM₁₀ Nonattainment Area SIP Revision.

30 ADEQ is now developing a Maintenance Plan for the Yuma area that upon EPA approval
31 will allow the area to be considered for redesignation to attainment for PM₁₀. Stakeholder
32 meetings and progress on the development of the Maintenance Plan can be obtained through
33 ADEQ.

1 **3.10.2 Impact Assessment Methodology**

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

5 **3.10.3 Impacts and Mitigation**

6 3.10.3.1 *No Action Alternative*

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

9 3.10.3.2 *Proposed Action/Preferred Alternative*

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

19 The proposed Arizona Clean Fuels petroleum refinery may have the potential for localized
20 air quality impacts. However, an EIS would be prepared for the proposed facility in
21 compliance with NEPA that would evaluate any potential impact. Additionally, the project
22 has an approved air quality permit from ADEQ.

23 **3.11 TRANSPORTATION**

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

27 **3.11.1 Affected Environment**

28 Transportation corridors within the District include Interstate 8, U.S. Highways 80 and 95,
29 numerous paved and gravel county roads, and Union Pacific Railroad tracks, including a
30 main line and spurs. Interstate 8 and U.S. Highway 80, bisecting the southern portion of the
31 District, provide the major east/west vehicular routes. U.S. Highway 95, a two-lane
32 north/south roadway, abuts the western edge of the District and serves as the principal
33 access route to the Yuma Proving Ground. Under state law, the Arizona Department of

1 Transportation (ADOT) is responsible for constructing and maintaining interstate and state
2 highways in Arizona. Two-lane county roads form the majority of the vehicular routes
3 within the District and are managed and maintained by the Yuma County Public Works
4 Department. Canal and levee roads maintained by the District provide access to District
5 facilities.

6 Within the project area, the Gila River is crossed by six roadway bridges at Avenues 20E,
7 30E, 38E, 40E, 45E and Highway 95; a railroad bridge (near Antelope Hill); and a culvert
8 crossing at Avenue 51E. Bridges at these locations are designed to withstand 10,000 cfs of
9 flood flow. During periods of high flood events, many low-flow crossings within the District
10 may be temporarily closed due to safety concerns. The Yuma County Public Works
11 Department ensures proper notification is in place during these events. Local authorities,
12 including the District may assist, if needed.

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

18 The volume of vehicular traffic within the project area reflects the rural character of the
19 vicinity. Local residents and farm operators use county roadways within the District to
20 access adjacent businesses and farms. However, the continuing residential development in
21 the Wellton-Mohawk area has translated into a substantial increase in the average daily
22 traffic since 2004. During the winter months, the Wellton-Mohawk area experiences a traffic
23 volume increase from the influx of temporary winter visitors. While the 1999 to 2000 traffic
24 counts in the Wellton area decreased by 4.9 percent, from 1991 to 2000, the area
25 experienced an overall increase of 54 percent in traffic volume. Between 2004 and 2005, the
26 average daily traffic in the Wellton area increased 11.6 percent. The average daily traffic in
27 Yuma County has increased roughly 20 percent from 1995 to 2005 (Yuma Metropolitan
28 Planning Organization 2005). As average daily traffic counts have increased for much of the
29 region, the continued need for practical roadway planning and mass transit alternatives to
30 avoid increasing roadway congestion in urban areas is provided through coordination and
31 efforts by Yuma County.

32 **3.11.2 Impacts and Mitigation**

33 *3.11.2.1 No Action Alternative*

34 Under the no action alternative, transportation routes and facilities in the District would
35 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 ROWs, 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 and include hunting, limited fishing, bird watching, hiking, horseback riding, and off-road vehicle use.

Hunting is a favorite activity in this area. 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. This agency 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.

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

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

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

21 **3.12.2 Impacts and Mitigation**

22 *3.12.2.1 No Action Alternative*

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

25 *3.12.2.2 Proposed Action/Preferred Alternative*

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

32 Potential indirect impacts to recreational opportunities that may result from the Proposed
33 Action are associated with the change in ownership of certain lands within the District. The
34 District does not intend to alter public access to the lands proposed for transfer except on
35 tracts that may be developed or established for conservation purposes. Over the 50-year

1 history of the District, restrictions to public access have been generally limited to
2 emergencies, such as during flood events.

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

8 **3.13 INDIAN TRUST ASSETS**

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

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

19 **3.14 ENVIRONMENTAL JUSTICE**

20 Environmental justice refers to the fair treatment of people of all races, income and cultures
21 with respect to the development, implementation and enforcement of environmental laws,
22 regulations and policies. Fair treatment implies that no person or group of people should
23 shoulder a disproportionate share of negative impacts resulting from the execution of federal
24 programs. Executive Order 12898, dated February 11, 1994, establishes the achievement of
25 environmental justice as a federal agency priority. The memorandum accompanying the
26 order directs heads of departments and agencies to analyze the environmental effects of
27 federal actions, including human health and economic and social effects when required by
28 NEPA and to address significant and adverse effects on minority and low-income
29 communities.

30 **3.14.1 Affected Environment**

31 In the realm of environmental justice, the affected environment is primarily the local
32 population mix and any components of the socioeconomic makeup of the community that
33 would be caused to change to the detriment of any segments of the population. The racial
34 compositions of the populations of Yuma County, the City of Yuma, the Town of Wellton,
35 and the community of Tacna were presented in Section 3.8.1.1. This information, from the

1 U.S. Department of Commerce, indicates a relatively uniform racial composition among
2 these communities. For example, the recorded non-white population is approximately 32
3 percent for these four jurisdictions of varied size. The information obtained does not indicate
4 the proportion of the population that is of Hispanic heritage. It is noted that persons of
5 Hispanic heritage may be included in either category.

6 **3.14.2 Impact Assessment Methodology**

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

19 **3.14.3 Impacts and Mitigation**

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

21 *3.14.3.1 No Action Alternative*

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

23 *3.14.3.2 Proposed Action/Preferred Alternative*

24 A review of the Yuma County and community population compositions presented on Table
25 3-7 indicates that no disparity in racial composition exists that might lead to an impact on a
26 specific segment of the population. Thus, the effects of the proposed title transfer would not
27 be disproportionately focused on minority or low-income populations. The lands proposed
28 for transfer are distributed over a wide area in the Wellton-Mohawk Valley and are not
29 concentrated in any populated areas.

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