

Lemon Reservoir
Vallecito Reservoir

Animas - La Plata Project

Colorado - New Mexico

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Final Supplemental Environmental Impact Statement

COLORADO
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Volume 1

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Prepared By:
U.S. Department of the Interior
Bureau of Reclamation
Upper Colorado Region

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EXECUTIVE SUMMARY

Introduction

The Department of the Interior (Interior), through the Bureau of Reclamation (Reclamation) and in cooperation with the United States Environmental Protection Agency (EPA), and the Ute Mountain Ute Tribe and the Southern Ute Indian Tribes (Colorado Ute Tribes), has prepared this Final Supplemental Environmental Impact Statement (FSEIS). This FSEIS is prepared under the provisions of Public Law (P.L.) 93-638, the Indian Self-Determination and Education Assistance Act and the National Environmental Policy Act (NEPA).

Settlement Act

The Animas-La Plata Project (ALP Project) FSEIS evaluates the potential impacts of implementing the Colorado Ute Indian Water Rights Settlement Act of 1988 (P.L. 100-585) (Settlement Act). The Settlement Act, through construction of the ALP Project, is intended to provide the Colorado Ute Tribes an assured long-term water supply in order to satisfy the Colorado Ute Tribes' senior water rights claims. The ALP Project was authorized by the Colorado River Basin Project Act of 1968 to be located in La Plata and Montezuma Counties in southwestern Colorado and in San Juan County in northwestern New Mexico (see Map 1-1 showing the ALP Project area). The ALP Project was designed to provide irrigation and municipal and industrial (M&I) water supplies to the Colorado Ute Tribes and other project beneficiaries. A Colorado Ute Indian Water Rights Final Settlement Agreement (Settlement Agreement) was signed on December 10, 1986, which quantified the Colorado Ute Tribes' water rights. The water rights allow the Colorado Ute Tribes to obtain water from several rivers and projects, including water supplied from the ALP Project. In 1988, Congress incorporated the ALP Project into the Settlement Act in order to settle Colorado Ute Tribal water rights claims.

The Settlement Act requires delivery of ALP Project water to the Colorado Ute Tribes by January 1, 2000, to avoid future litigation or renegotiation of Tribal water rights claims. If a project is not approved, or implementation is delayed, the Colorado Ute Tribes have the option of commencing litigation or renegotiating their reserved water rights claims by January 1, 2005.

The completion of the Settlement Act has been delayed because of a convergence of factors: an increasingly prominent role of endangered species and recovery efforts, decreasing federal support for irrigated agriculture, a decline in new reservoirs and dams built by Reclamation, and increasing local participation in water resource development matters. Each of these factors has led to a series of refinements to the original ALP Project.

Purpose and Need

The purpose of and need for the proposed federal action is:

... to implement the Settlement Act by providing the Ute Tribes an assured long-term water supply and water acquisition fund in order to satisfy the Tribes' senior water rights claims as quantified in the Settlement Act, and to provide for identified M&I water needs in the Project area." [Federal Register Notice, January 4, 1999]

Providing the Colorado Ute Tribes with an assured long-term water supply is necessary to protect existing water users from senior water rights claims. The Colorado Ute Tribes would use this assured water supply to satisfy future M&I water demands on their reservations and to provide water for regional M&I needs. In addition to providing an assured water supply as a settlement of the Colorado Ute Tribes'

senior water rights, the ALP Project as proposed provides a dependable long-term water supply for neighboring Indian and non-Indian community water needs, including the Navajo Nation at and near Shiprock, New Mexico, the Animas La Plata Water Conservancy District (ALPWCD) and the San Juan Water Commission (SJWC). In addition, water would be provided to the State of Colorado and the La Plata Conservancy District in New Mexico from the Colorado Ute Tribal allocation.

It should be noted that the non-federal parties of the Settlement Agreement, working with their congressional representatives, have introduced proposed legislation (H.R. 3112 and S. 2508) in response to the Administration Proposal and the ongoing NEPA process. The project purpose and need reflects the reality that the pending legislation will likely result in a modification to the Settlement Act which will eliminate the irrigation component and provide substitute benefits to the Colorado Ute Indian Tribes that are equivalent to those that the Tribes would have received under the Settlement Act. See Chapter 2, Section 2.1.1 for further discussion of this issue.

Water Rights of the Colorado Ute Tribes

Based on the Supreme Court's decision in *Winters v. United States*, 207 U.S. 564 (1908), when Congress or the President establishes an Indian Reservation, there is reserved the amount of water necessary in order to accomplish the purposes of the reservation. Under the *Winters* doctrine, the priority date to which the reservation is entitled is no later than the date of creation of the reservation. One of the unique aspects of Indian reserved water rights is that they are not subject to the beneficial use requirements ("use or lose") of state water law. Indian water rights, therefore, may not be diminished for failing to meet a beneficial use standard under state law. As a general rule, Indian water rights are very senior and because these rights are premised on sufficient water being reserved to insure full utilization of the purposes of the reservation, both presently and in the future, Indian water rights are usually sizeable in quantity.

The Colorado Ute Tribes' reserved water rights arise from an 1868 treaty with the United States. 15 stat. 619. This treaty states that the land which is now part of the reservation was "set apart for the absolute and undisturbed use and occupation" by the Colorado Ute Tribes. Art. XIII. Additionally, the treaty provides for the basic tools, facilities and livestock needed to become self-sustaining. Based on these broad purposes, the tribes are entitled to make a claim for water in the Animas and La Plata basins. The Colorado Ute Tribes have over 25,000 acres of arable land in the immediate vicinity (13,780 acres of which were to be irrigated by the original ALP Project) and therefore have the basis for a sizeable water rights claim based solely on the agricultural purposes of their reservations. In return for not asserting a possibly sizeable claim, the Colorado Ute Tribes will receive a much smaller amount of "wet water" for settling their *Winters* rights.

Because the Animas La Plata project is a settlement of the Colorado Ute Tribal *Winters* rights, the ultimate use of the water is left to tribal discretion in accordance with federal law. As of this time the tribes have not conclusively specified to what end uses they will put their water. Because NEPA requires the federal government to make a reasonable projection of the potential environmental consequences of any proposed action, Reclamation, in conjunction with input from the tribes, developed potential water use scenarios on how the Tribes could put their water to use in order to effectively evaluate the potential environmental effects of settling the water rights claims of the Colorado Ute Tribes and providing for identified M&I uses in the project area. Reclamation believes that this approach fulfills the requirements of NEPA while not impinging upon the sovereignty of the Colorado Ute Tribes.

Any future actions would be subject to future environmental review, and NEPA compliance would be required as part of any approval by a federal agency. Future federal actions would serve as "triggers" for future NEPA compliance activities, and could include future connection to a federal facility for water conveyance enlargement or extension of certain existing conveyance systems, and, certain uses of a water

acquisition fund. In addition, other federal and state regulatory and environmental requirements would have to be met in implementation of future actions (e.g., compliance with the ESA, Clean Water Act, Colorado and New Mexico water laws).

The ALP Project

Reclamation proposes to develop a modified ALP Project in southwestern Colorado and northwestern New Mexico for the purpose of implementing the Settlement Act. Since the ALP Project is intended to provide stored water in lieu of the assertion of senior Tribal water rights claims, a majority of the project's water supply is not targeted for specific near-term uses. Rather, the waters would be used in the region over an indefinite period of time. The Colorado Ute Tribal M&I water uses are currently not specified but were projected. Non-binding projected water uses, both on and off the Colorado Ute Tribal reservations, were evaluated in order to provide possible uses and their associated impacts. Projections were made of a range of potential future M&I uses for project water as a basis for developing alternatives which would effectively provide water to meet these allocations. The scenarios for future water use were based on reasonable estimates of regional growth and projected needs by the Colorado Ute Tribes, Navajo Nation, the ALPWCD, and the SJWC.

The specific percentage allocation between the Colorado Ute Tribes and other project beneficiaries may not be fixed. Comments received during scoping, and support for recently introduced legislation (i.e., HR 3112 and S 2508) indicate that the Colorado Ute Tribes may agree to a reallocation of 6,010 acre-feet per year (afy) to the State of Colorado and entities in New Mexico. This reallocation of some of the Colorado Utes water does not change the environmental evaluation presented in the SEIS. Further, the ALP Project would be operated to include conservation measures contained in the 2000 Biological Opinion issued by the U.S. Fish and Wildlife Service (Service) (Service 2000a) in compliance with the Endangered Species Act (ESA). Among other measures, this opinion limits average water depletions by the project from the San Juan River Basin to 57,100 acre-feet per year (afy).

Under the ALP Project, the Colorado Ute Tribes would receive 79,050 afy (this represents 39,960 afy of depletions from the San Juan River system). The future uses to which water may be put by the Colorado Ute Tribes will be the subject of future NEPA review at the time the uses are determined and structural components are designed to convey water to those uses. A projection of future water uses by the Colorado Ute Tribes included the following types:

- Municipal
- Industrial park
- Recreation and tourism development
- Energy development
- Livestock and wildlife water use
- Regional municipal water supply
- Instream leasing of water

Table ES-1 displays the allocation of water among the Colorado Ute Tribes and other project participants. Under these allocations, the Colorado Ute Tribes would still be approximately 13,000 afy short of the total quantity of depletion recognized in the Settlement Agreement. The Administration Proposal, therefore, also includes a non-structural element that would establish and use a water acquisition fund, which the Colorado Ute Tribes could use over time to acquire water rights on a willing buyer/seller basis. The water acquisition fund was developed to acquire 13,000 afy of depletion in addition to the depletions shown in **Table ES-1**, or for other uses that they may choose.

Table ES-1 Proposed Water Depletions and Allocations for the ALP Project	
Water Recipient	Depletion from the San Juan River Basin (afy)
Southern Ute Indian Tribe	19,980
Ute Mountain Ute Tribe	19,980
Navajo Nation	2,340
Animas-La Plata Water Conservancy District	2,600
San Juan Water Commission	10,400
Subtotal	55,300
Allowance for Reservoir Evaporation	1,800
Total Depletion	57,100

The Navajo Nation, ALPWCD, and SJWC would annually receive a combined total of 30,680 acre-feet (af) (representing 15,340 afy of depletion) of water from the ALP Project. With a small amount accounted for by system operational losses, annual water allocations for the Colorado Ute Tribes, Navajo Nation, ALPWCD, and the SJWC would total 111,965 af (57,100 afy depletion).

The Navajo Nation would receive 4,680 afy (2,340 afy depletion) and would use it to serve a portion of the M&I requirements of the Shiprock, Cudei, Hogback, Nenahmezad, Upper Fruitland, San Juan, and Beclaibito Chapters in the Shiprock, New Mexico area. A new water pipeline, the Navajo Nation Municipal Pipeline (NNMP), is proposed for construction to deliver this water to these seven Navajo Nation Chapters, replacing the existing pipeline between Farmington and Shiprock. The 4,680 afy represents about one-half of the future projected M&I requirements of these chapters, based on a 40-year projection.

The ALPWCD projects growth of M&I water needs in the Durango, Colorado area (Gronning 1994), based on the continued increase in population of about 2 percent annually during the 1990s in its service area, as well as residential, commercial, and industrial growth in outlying areas near Durango. Water allocations of 5,200 afy (2,600 afy depletions) from the ALP Project would supplement existing water supplies and would serve this growth. Future development of facilities to serve the City of Durango and other ALPWCD water users would potentially be the subject of future NEPA compliance.

The SJWC has identified water use needs and projected M&I growth in its service area, including the Cities of Aztec, Bloomfield, and Farmington, New Mexico (Cielo 1995). Under the ALP Project allocations, the SJWC would receive 20,800 afy (10,900 afy depletion), which would meet a portion of its projected water needs. Future development of facilities to serve the Cities of Aztec, Bloomfield, and Farmington and other SJWC water users would potentially be the subject of future NEPA compliance.

Supplemental Environmental Impact Statement

On January 4, 1999, Reclamation announced its intent in the Federal Register (Volume 64, No. 1) to prepare a Supplemental Environmental Impact Statement (SEIS) to the 1996 Final Supplement to the Final Environmental Statement (1996 FSFES) for the ALP Project. The new SEIS is intended to supplement the 1996 FSFES and the 1980 Final Environmental Statement (1980 FES) with the objective of providing an environmental evaluation to assist Interior and other involved parties in reaching a final settlement of the water claims of the Colorado Ute Tribes. The SEIS has been prepared to meet the procedural requirements of NEPA following the regulations established by the Council on Environmental

Quality (CEQ) (40 Code of Federal Regulations (CFR) Parts 1500 to 1508). These regulations provide the legal and regulatory guidelines for preparation of environmental impact statements (EIS). The 1996 FSFES and the 1980 FES are incorporated by reference to eliminate duplication and repetitive discussions of the same issues, and also incorporates information from the 1996 FSFES and 1980 FES (40 CFR 1508.28 and 1500.4(j)).

Public Involvement Activities

The Draft Supplemental Environmental Impact Statement (DSEIS) for the Animas-La Plata Project was filed with the Environmental Protection Agency and distributed to the public on January 14, 2000. The public comment period opened on January 14, 2000 and was originally set to close on March 17, 2000; however, the comment period was extended by 30 days, as noticed in the *Federal Register* on March 9, 2000. The public comment period closed on April 17, 2000.

The Bureau of Reclamation (Reclamation) conducted three public hearings on the ALP Project DSEIS in Durango, Colorado; Farmington, New Mexico; and Denver, Colorado on February 15, 16, and 17, 2000, respectively. Notice of the public hearings was announced in the local media and published in the *Federal Register* on January 14, 2000. A total of 77 people presented oral testimony. Speakers represented the Colorado Ute Tribes, Navajo Nation, federal and state agencies, various organizations including county and local offices, water districts, environmental groups, and individuals.

Written comments were accepted by Reclamation at each hearing and were also received as letters and via email throughout the entire public comment period. A total of 397 oral and written comments/letters/e-mails were received. Responses have been prepared for each of these comments, and where appropriate, changes have been made in the text of the FSEIS. Changes made are marked in the FSEIS by a bar in the margin of the text. Responses were developed for comments and questions that were within the scope of the proposed action.

SEIS Evaluation Process

This FSEIS evaluates 10 alternatives, including 9 action alternatives that include several structural and non-structural components, and a no action alternative (see **Table ES-2** below). Project structural components were evaluated, including storage reservoirs, a pumping plant, and conveyance facilities. These are defined in detail, their environmental settings and potential environmental impacts are evaluated, and mitigation measures are proposed. The construction and operation of a water pipeline to transmit treated water to the Navajo Nation at and near Shiprock (the NNMP) is also a structural component of the ALP Project.

**Table ES-2
List of ALP Project Alternatives**

Number	Title
1	Administration Proposal
2	Administration Proposal with Recreation Element Added
3	Administration Proposal with San Juan River Basin Recovery Implementation Program (SJRBRIP) Element Added
4	Administration Proposal with SJRBRIP and Recreation Element Added
5	Animas-La Plata Reconciliation Plan
6	Animas River Citizen's Coalition Conceptual Alternative
7	1996 Final Supplement to the Final Environmental Statement Recommended Action
8	Administration Proposal with an Alternative Water Supply for Non-Colorado Ute Indian Entities
9	Citizens' Progressive Alliance Alternative
10	No Action Alternative

Non-structural components include acquiring existing water sources. As part of this analysis, this FSEIS inventories the available land and associated water rights in the McElmo Creek and Mancos, La Plata, Animas, Florida, and Pine River Basin drainages in the vicinity of the two Colorado Ute Tribal reservations. Land values, seniority of water rights, parcel sizes, and other factors were evaluated to develop a reasonable picture of the potential acquisition of land and direct flow water rights. Working with the basic assumptions that water and land would be purchased from willing sellers, and that project modifications and reoperation would be able to receive the approval of all participating parties to proceed, representative areas were identified in order to develop an analysis of the range of likely non-structural component options that might be implemented by one or more of the water users in the future. Finally, as part of the non-structural analysis, the potential for securing water supplies from existing Reclamation-owned storage facilities in the region was evaluated.

The 10 alternatives, and their structural and non-structural components, were then evaluated to determine the relative practicality of each alternative in terms of:

- Potential environmental impacts
- Meeting the ALP Project purpose and need
- Technical and economic factors

Considering all three sets of these factors (i.e., environmental, purpose and need, and technical and economic merits) for each of the 10 alternatives, Alternatives 4 and 6 (modified to provide for water to non-Colorado Ute Tribal entities) were identified as warranting refinement. Each alternative had unique strengths in various areas, and together they represented significantly different approaches to meeting the purpose and need of the project. Alternative 4 is principally a structural alternative and Alternative 6 is principally a non-structural alternative. Alternatives 4 and 6 were both determined to have merit. As such, Alternatives 4 and 6 were then refined to more closely meet project requirements, and the structural and non-structural components of both refined alternatives were then evaluated. The environmental impacts and proposed mitigation for Refined Alternatives 4 and 6 are discussed in this FSEIS. A more detailed discussion of the alternatives evaluation process is contained in Sections 2.3, 2.4, and 2.5 of the FSEIS. A further discussion of the evaluation of impacts from Refined Alternatives 4 and 6 is included in Chapter 3, and in Section 5.2 of this FSEIS.

Refined Alternative 4

Refined Alternative 4 includes both structural and non-structural elements designed to achieve the fundamental purpose of securing the Colorado Ute Tribes an assured water supply in satisfaction of their water rights as determined by the 1986 Settlement Agreement and the 1988 Settlement Act and by providing for identified M&I water needs in the project area. Refined Alternative 4 includes measures to mitigate fish and wildlife, wetlands, and cultural resource impacts.

The structural component of Refined Alternative 4 would include an off-stream storage reservoir at Ridges Basin with an active capacity of approximately 90,000 af (approximately 120,000 af total capacity), a pumping plant with a pumping capacity of up to 280 cubic feet per second (cfs); a reservoir inlet conduit (all designed to pump and store water from the Animas River); and the NNMP to transport treated municipal water to the Shiprock area, New Mexico. Consumptive use of water from the structural portion of the project would be restricted to M&I uses only and would be allocated as shown in Table ES-1.

Under this allocation, the Colorado Ute Tribes would still be approximately 13,000 af short of the total quantity of depletion recognized in the Settlement Agreement. Therefore, the non-structural component of the project would establish a \$40 million water acquisition fund which the Colorado Ute Tribes could use on a discretionary basis to purchase land to satisfy non-structural water rights (approximately 13,000 afy). To provide flexibility in the use of the fund, authorization from the US Department of Interior to the Colorado Ute Tribes would allow some or all of the funds to be redirected for on-farm development, water delivery infrastructure, or for water-related economic development activities.

The primary source of the water for the structural portion of Refined Alternative 4 is the Animas River. The water supply for the non-structural component would include the Pine, Florida, Animas, La Plata, Mancos and Dolores Rivers and McElmo Creek. The supply could be developed from existing uses within each basin, with the associated historic shortages, so that no additional water would be needed to meet the demands of the non-structural components.

For Refined Alternative 4, it is estimated that the purchase of about 10,300 acres of irrigated land, distributed in four river basins, could be necessary to obtain the 13,000 afy of depletion described as part of the water acquisition fund. The acreage could be distributed among the four basins approximately in this manner:

- Pine River Basin - Purchase 2,300 acres of land and leave the water on the land.
- La Plata River Basin - Purchase 2,300 acres of land and leave the water on the land.
- Animas/Florida River Basins - Purchase 2,300 acres of land and leave the water on the land.
- Mancos River Basin - Purchase 3,300 acres of land and leave water on the land.

Refined Alternative 6

Refined Alternative 6 proposes that water rights under the Settlement Act be obtained through (1) augmentation and the coordinated operation of existing federal projects in the area proximal to the Colorado Ute Tribal reservations; and (2) purchase of water rights on irrigated agricultural lands; or (3) a combination of both. Other elements of Refined Alternative 6 include the NNMP and measures to avoid impacting wetlands as a result of purchases of water and transferring it to M&I use. Refined Alternative 6 has been modified to the equivalency of the depletion amounts in Refined Alternative 4 in order to

Analyze both alternatives on a commensurate or equivalent basis. As with Refined Alternative 4, Refined Alternative 6 also consists of two components:

- One component would be equivalent to the structural component of Refined Alternative 4 by developing up to 57,100 afy of depletions in the San Juan River Basin to serve essentially the same M&I needs as would be served by Refined Alternative 4.
- A second component for Refined Alternative 6 was developed under the assumption that water could be acquired to develop an equal amount of depletions of 13,000 afy and in a manner similar to Refined Alternative 4 by purchasing agricultural lands and associated water rights.

For the first component of Refined Alternative 6, approximately 11,933 acres would be purchased to yield 17,432 afy of depletions. Other proposed sources of water for Refined Alternative 6 include: the purchase of storage from Red Mesa Reservoir, the coordinated operation of existing reservoirs with streamflows in the San Juan Basin for more efficient utilization of water supplies, and the raising of Lemon Dam.

Land (11,933 acres) and associated water rights would be purchased in the Pine, La Plata, and Mancos River Basins, and McElmo Creek Basin to supply a yield of 17,432 afy of historical depletions. This does not include the land required to supply the 13,000 afy depletions for the water acquisition fund.

- Pine River Basin - A total of 10,000 acres of non-Colorado Ute irrigated land would be purchased in the Pine River Basin. The associated 15,114 af of average annual depletion would be removed from the land and allowed to flow into Navajo Reservoir under the same delivery pattern that would have occurred to the irrigated land. This would become project water with the delivery point at Navajo Reservoir for purposes of administering the purchased water rights in the Pine River.
- La Plata River Basin - To meet the demands not met by available streamflow, a total of 785 acres of irrigated land would be purchased and the associated average annual depletion of 521 af transferred to M&I use.
- Mancos River Basin - To meet the demands not met by available streamflow, a total of 500 acres of irrigated land would be purchased and the associated average annual depletion of 761 af transferred to M&I use.
- McElmo Creek Basin - A total of 648 acres, sufficient to provide a firm yield depletion of 1,036 af, would be purchased and the water transferred to M&I use to satisfy regional demand in Montezuma County. All water resulting from these purchases from McElmo Creek would be for the benefit of the Ute Mountain Ute Tribe.

Several federal storage facilities were evaluated for coordinated operation with streamflows in the San Juan Basin for more efficient utilization of water supplies. Navajo Reservoir would be operated to supplement available Animas River flow in meeting the SJWC and Navajo Nation demand, the Farmington, Aztec and Kirtland regional water demands, and the demands for the non-binding uses at the coal mine, coal-fired power plant and gas-fired power plant for the Colorado Ute tribes. To the extent that capacity is not sufficient, additional irrigated acreage could be purchased and retired above the reservoir to augment the water supply. Vallecito Reservoir would continue to operate as it has historically, with any water transferred from irrigation to M&I use delivered in the same pattern as would normally occur for irrigation. Jackson Gulch Reservoir would be operated to store agricultural water purchased for conversion to M&I and release it according to demand as long as such operation did not impact the delivery of agricultural water to existing right holders.

Approximately 200 af of storage space would be purchased in Red Mesa Reservoir (also referred to as Mormon Reservoir).

In summary, approximately 36,891 af of water may become available through coordinated operation of existing reservoirs with streamflows in the San Juan Basin. Subsequent computer modeling studies would need to verify the amount.

The capacity of Lemon Reservoir would be increased from approximately 40,000 af to 50,000 af by raising the dam 11.5 feet. Increased capacity would be used to deliver water to the Florida Mesa Housing Unit and supplement Animas River diversions to meet the City of Durango demands and the Durango regional demands. The depletion supplied by Lemon Reservoir to the uses ranges from zero to 1,500 afy, with an average annual depletion of approximately 500 af. More detailed water operation modeling studies would need to be completed to verify the yield from enlarging Lemon Reservoir.

A water acquisition component of Refined Alternative 6 was developed that would be commensurate with the non-structural component of Refined Alternative 4 for the purchase of agricultural lands to obtain 13,000 afy depletions. Under this component the water would be left on the land. A summary of the lands purchased under this component are as follows:

- Animas and Florida River Basins - Acreage sufficient to provide a firm yield depletion of 6,500 af would be purchased in the Animas and Florida River Basins as an equivalent to the non-structural component of Refined Alternative 4. The water would remain on the land as described in Refined Alternative 4. With a depletion factor of 1.4 af per acre, 4,643 acres would be required.
- McElmo Creek Basin (Montezuma County) - Approximately 4,062 acres, an amount sufficient to provide an annual firm yield depletion of 6,500 af, would be purchased in the Montezuma Valley, either within the Montezuma Valley Company or elsewhere in the Dolores Project service area as an equivalent to the non-structural component of Refined Alternative 4. The water would remain on the land.

SEIS Conclusions and Recommendations

The initial 10 alternatives, additional structural and non-structural components, and Refined Alternatives 4 and 6 were thoroughly evaluated in the SEIS. The analysis is included in Chapters, Volume 1 of the FSEIS for the full range of alternatives. Additional analysis for Refined Alternatives 4 and 6 is included in Chapters 3 and 4 of this FSEIS, Volume 1. In Chapter 5, additional analysis to test the ability of the refined alternatives to meet the purpose and need of the project.

Project alternatives would affect resources such as streamflows, fish and wildlife, vegetation and wetlands, cultural resources, and recreation as described in Chapter 3. Chapters 3 and 5 describe mitigation measures and environmental commitments to reduce these impacts.

The evaluation of several factors reveals that implementation of Refined Alternative 6 presents a number of problems:

- It would impose significant risks on the ability of the project to provide an assured water supply commensurate with the water rights established in the settlement;
- The wholesale purchase of land and transfer of water may be opposed by the local community, thereby impacting completion of the settlement;

- It would require an extended and uncertain time frame to secure the settlement benefits, which would affect the ability to finalize the settlement; and
- It would substantially impact Indian trust water rights by using the remaining capacity of the Navajo Reservoir, a facility designed to supply these demands, thus creating a likely conflict with the Navajo Nation and Jicarilla Apache Tribe.

On the basis of this overall evaluation, it was determined that Refined Alternative 4 would best meet the ALP Project purpose and need. Accordingly, Refined Alternative 4 was designated as Reclamation's Preferred Alternative.

Tables ES-3 and ES-4 summarize the water supply and project cost projections for the Preferred Alternative.

Table ES-3 Water Supply and Costs Preferred Alternative		
Allocation of ALP Project Water		
Entity	Source of Water	Depletion (afy)
Southern Ute Indian Tribe	Animas River/Ridges Basin Reservoir	19,980 ^a
Ute Mountain Ute Tribe	Animas River/Ridges Basin Reservoir	19,980 ^a
Navajo Nation	Animas River/Ridges Basin Reservoir	2,340
Animas-La Plata Water Conservancy District	Animas River/Ridges Basin Reservoir	2,600
San Juan Water Commission	Animas River/Ridges Basin Reservoir	10,400
Subtotal		55,300
Allowance for Reservoir Evaporation		1,800
Total Depletion ^b		57,100

^a Support for recently introduced federal legislation indicates that the Colorado Ute Tribes may agree to a reallocation of 5,280 afy depletion to the State of Colorado and 780 afy depletion to the La Plata Conservancy District in New Mexico.

^b Through implementation of the \$40 million water acquisition fund, the Colorado Ute Tribes could acquire an additional 13,000 afy depletion.

Table ES-4 Total Costs for Preferred Alternative		
Item	Description	Cost (Million)
Project Components		
Ridges Basin Dam	Consists of 120,000 acre-foot reservoir with a conservation pool of 30,000 acre-feet. Included in the cost of the dam are costs of relocations for County Road 211, gas pipelines, and electrical transmission facilities.	\$145.0

Durango Pumping Plant	Maximum pump capacity is 280 cfs. Pumping limited to 240 cfs in June for endangered species requirements	\$36.3
Ridges Basin Inlet Conduit	Delivers water from Durango Pumping Plant to Ridges Basin Reservoir. Length of conduit is 11,200 feet and diameter of pipe is 66 inches. Maximum design capacity of the conduit is 280 cfs.	\$8.7
Water Acquisition Fund	A fund to be used at the discretion of the Ute Tribes for either the purchase of water rights to satisfy 13,000 acre-feet per year depletion or for other economic development by the Tribes	\$40.0
Cultural Resources Mitigation	Mitigation includes survey, recovery, protection, preservation and display of cultural resources.	\$9.0
Wetland, Fish, and Wildlife Mitigation	Included in the cost is \$2.1 million for a fish hatchery and fisherman access.	\$12.8
Subtotal: Cost of Project Components^a		\$251.8
Other Components		
Navajo Nation Municipal Pipeline	Pipeline would deliver 4,680 acre-feet of water to seven Navajo chapters located between Farmington to Shiprock, New Mexico. Total length of pipeline is 28.9 miles. Capacity of pipeline and pumping plant would be 12.9 cfs. New water storage tanks of 5.5 million gallon capacity would be required.	\$24.0
Subtotal: Cost of Other Components		\$24.0
COST TO IMPLEMENT THE PREFERRED ALTERNATIVE		\$275.8
Project Costs Through FY 1998	These costs, commonly referred to as sunk costs, are costs that have been expended on the project and cannot be recovered. They include planning preconstruction investigations, data gathering and analyses, and field investigations leading to the preparation of various planning and environmental reports through FY 1998.	\$68.0
TOTAL COSTS FOR THE PREFERRED ALTERNATIVE		\$343.8
^a Project costs are the cost to construct and implement the various components of the ALP Project.		

Consultation and Coordination

Reclamation and the U.S. Fish and Wildlife Service (Service) have consulted, both formally and informally, regarding potential impacts to special status species which may occur as a result of the development and operation of the proposed ALP Project. A Biological Assessment was prepared by Reclamation and was submitted to the Service in December 1999 and the Service has completed a final Biological Opinion (both documents are included in Appendix G in Volume 2). The Biological Opinion supercedes previous opinions on the ALP Project. It is the Service's opinion that the ALP Project, as described in this FSEIS and the Biological Opinion, is not likely to jeopardize the continued existence of the Colorado pikeminnow and razorback sucker, nor is the proposed project likely to destroy or adversely modify their designated critical habitat. The Service has also concluded that the proposed ALP Project is not likely to jeopardize the continued existence of the bald eagle. These conclusions are based on the description of the proposed action contained in the opinion and FSEIS, with full implementation of the conservation measures. The Service also concluded that the project may affect, but is not likely to adversely affect, the southwestern willow flycatcher. Other special status species would not be affected.

A Fish and Wildlife Coordination Act Report (FWCAR) has also been completed by the Service (see Technical Appendix 7).

Reclamation has also coordinated with EPA regarding potential ALP Project effects on wetlands and water quality, and with EPA and the U.S. Army Corps of Engineers on consideration of the Section 404(b)(1) guidelines. The required 404(b)(1) Evaluation is contained in Attachment B-1 to the FSEIS, Volume 2. A letter of concurrence from EPA confirming Reclamation's compliance with 404(r) requirements is attached as B-3, Volume 2. The 404(b)(1) evaluation used EPA guidelines to evaluate Refined Alternatives 4 and 6. As a result of the evaluation, Reclamation found that Refined Alternative 4 would comply with the requirements of the EPA guidelines. Revised Alternative 4 would have fewer overall impacts to wetlands and endangered species (southwestern willow flycatcher habitat) than Refined Alternative 6.

Pursuant to the Native American Graves Repatriation and Protection Act (NAGPRA), Reclamation has consulted with interested and concerned Indian tribes. Tribal representatives included elected officials, recognized traditional and religious leaders, Tribal representatives and historians, and cultural committees. A NAGPRA Plan has been prepared for the ALP Project. The Plan has been prepared with regard to potential ALP Project effects on Native American human remains, associated grave goods, and objects of cultural patrimony. A Programmatic Agreement has also been prepared pursuant to the National Historic Preservation Act. Both the Programmatic Agreement and NAGPRA Plan are included in Attachment H of the FSEIS, Volume 2. In addition, a draft Historic Preservation Management Plan has been prepared (see Technical Appendix 8).

Chapter 2

Development of Alternatives

2.1 INTRODUCTION AND BACKGROUND

This Final Supplemental Environmental Impact Statement (FSEIS) has been developed using existing data to the maximum extent possible. The 1980 Final Environmental Statement (1980 FES) and the 1996 Final Supplement to the Final Environmental Statement (1996 FSFES) for the Animas-La Plata Project (ALP Project) analyzed in great depth the impacts associated with a project which had depletions three times those that are now being considered. Depletions associated with the original ALP Project were primarily for irrigation. Within that previous analysis, considerable information exists regarding impacts associated with a much smaller project focusing on municipal and industrial (M&I) needs as is now being proposed.

The objective of this FSEIS is to provide an evaluation of environmental and other critical factors to assist the Department of the Interior (Interior) and other involved parties in reaching a final settlement of the water claims of the Southern Ute Indian Tribe and the Ute Mountain Ute Tribe (Colorado Ute Tribes). ALP Project water would be used primarily for M&I purposes and would be allocated among the Colorado Ute Tribes and other designated water users. In order to complete an objective National Environmental Policy Act (NEPA) analysis of the Colorado Ute Tribal M&I water uses, which represent nearly three-fourths of the total project water allocations, projections of potential future M&I water uses were made for the Colorado Ute Tribes' portion of ALP Project water. Likely sources of water were identified and a range of potential conveyance options was developed that would transport and/or store the water from these sources for these projected future uses.

Recognizing the reserved rights doctrine and Tribal sovereignty, the potential future water uses discussed in this FSEIS are non-binding on the Colorado Ute Tribes, and are intended to provide a range of the types of uses upon which ALP Project alternatives can be evaluated. Building on these projected non-binding future water uses, as well as analyses that have been completed for previous NEPA documents, a broad range of alternatives was developed which incorporated both structural and non-structural elements.

This chapter describes the alternatives considered, the process by which the alternatives were analyzed, and the method used to refine alternatives in order to consider whether a particular alternative would secure an Indian water rights settlement. The adequacy of existing environmental data for each alternative was evaluated, and additional information gathered as necessary to make a complete analysis of each of the alternatives at a comparable level of detail. The alternatives were compared to the ALP Project purpose and need and their relative environmental impacts and technical and economic factors were also evaluated.

This chapter presents information on:

- Identification of future M&I water needs and uses
- Sources of water to meet needs and uses
- Overview of alternatives evaluated

- Evaluation of alternatives and selection of two refined alternatives for more detailed study
- Components of the alternatives considered but eliminated from further consideration in this FSEIS
- Description of alternatives selected for further refinement
- Discussion of risks associated with a large scale water rights purchase program

2.1.1 Future Water Uses

The current purpose of and need for the proposed ALP Project is to complete implementation of the Colorado Ute Indian Water Rights Settlement Act of 1988 (Settlement Act) by providing the Colorado Ute Tribes an assured long-term water supply as specified in the Settlement Act (see Attachment A in Volume 2 of this FSEIS). Providing the Colorado Ute Tribes with an assured long-term water supply is necessary to protect existing water users from senior water rights claims by the Colorado Ute Tribes. The Colorado Ute Tribes could use this assured water supply to satisfy any future M&I water demands on their reservations and to provide water for future regional M&I needs.

In addition to providing an assured water supply as a settlement of the Colorado Ute Tribes' senior water rights, the ALP Project provides a dependable long-term water supply for neighboring Indian and non-Indian community water needs, including a portion of the Navajo Nation at and near Shiprock, New Mexico, the Animas-La Plata Water Conservancy District (ALPWCD), and the San Juan Water Commission (SJWC). About one-fourth of the ALP Project water would be allocated to the Navajo Nation, the ALPWCD, and the SJWC to serve their identified regional growth and planned M&I needs. See Table 2-1 for a listing of ALPWCD, SJWC, and Navajo Nation future uses.

Category of M&I Use	Diversion from the San Juan River Basin (acre-feet/year (afy))	Depletion from the San Juan River Basin (afy)
Navajo Nation	4,680	2,340
Animas-La Plata Water Conservancy District	5,200	2,600
San Juan Water Commission	20,800	10,400
Total	30,680	15,340

The ultimate use of the remaining project water (about three-fourths of the total water supply) by the Colorado Ute Tribes would be more specifically defined by those Tribes as future needs develop. Therefore, a range of potential future water uses was developed for analysis in this FSEIS. The specific percentage allocation between the Colorado Ute Tribes and other project beneficiaries may not be fixed, however, as noted in Chapter 1, Introduction, Purpose of, and Need for the Project. Comments received during scoping and support for legislation recently introduced by non-federal entities (i.e., H.R. 3112 and S•2508, the Colorado Ute Settlement Act Amendments of 1999/2000), indicate that the Colorado Ute

Tribes may agree to a reallocation of 6,010 acre-feet/year (afy) to the State of Colorado and entities in New Mexico. A change of that magnitude in the overall allocation of project water may not be significant to the analysis contained herein (other than cost allocation), since a significant amount of the expected use of Tribal water would be for regional water needs (e.g., leasing).

Actions which would trigger future NEPA compliance activities when future water uses are implemented are defined in Sections 2.1.1.1, 2.1.1.2, and 2.1.1.4.

2.1.1.1 Future Water Uses of the Navajo Nation, ALPWCD and SJWC

Based on the August 11, 1998 Administration Proposal for Final Implementation of the Colorado Ute Water Rights Settlement (Administration Proposal), the Navajo Nation, ALPWCD, and SJWC would annually receive 30,680 acre-feet (af) (representing 15,340 afy of depletion) of water from the ALP Project. (Refer to the Glossary for a definition of "diversion" and "depletion" as it applies to this project.) This represents about one-fourth of the total annual allocations from the ALP Project of 111,965 af (57,100 afy depletion).

As shown in Table 2-1, the Navajo Nation would receive 4,680 afy (2,340 afy depletion) and would use it to serve a portion of the M&I requirements of the Shiprock, Cudei, Hogback, Nenahnezad, Upper Fruitland, San Juan, and Beclaibito Chapters in the Shiprock, New Mexico area. A new water pipeline, the Navajo Nation Municipal Pipeline (NNMP), is proposed for construction to deliver this water to these seven Navajo Nation Chapters, replacing the existing pipeline between Farmington and Shiprock. The 4,680 afy represents about one-half of the future projected M&I requirements of these chapters, based on a 40-year projection. The NEPA evaluation of the proposed NNMP is included as part of this FSEIS (see Section 2.5.3).

The ALPWCD projects growth of M&I water needs in the Durango, Colorado area (Gronning 1994), based on continued increases of up to 30,000 to 40,000 people in its service area. Water allocations of 5,200 afy (2,600 afy depletions) from the ALP Project would supplement existing water supplies. Improvements to pumping plants and water treatment facilities and development of additional storage facilities have been evaluated and would likely be required. Development of the Horse Gulch Reservoir has been studied by the City of Durango as one specific facility for water storage. Enhancement of water delivery infrastructures would also be required to serve new residential, commercial, and industrial sectors. Future development of facilities to serve the City of Durango and other ALPWCD M&I water users would potentially be the subject of future NEPA compliance if a federal action were involved.

The SJWC has identified water use needs and projected M&I growth in its service area, including the Cities of Aztec, Bloomfield, and Farmington, New Mexico (Cielo 1995). Under the ALP Project allocations, the SJWC would receive 20,800 afy (10,400 afy depletion), which would meet a portion of its projected water needs. The SJWC currently has a number of permitted diversions from the San Juan and Animas Rivers to supply its M&I requirements. ALP Project water would be similarly diverted from the Animas and San Juan Rivers, using existing diversion, pumping, and storage facilities. Water could also be stored in the Navajo Reservoir for SJWC uses. Future development of facilities to serve the Cities of Aztec, Bloomfield, and Farmington and other SJWC water users would potentially be the subject of future NEPA compliance, if a federal action were involved.

2.1.1.2 Colorado Ute Tribal Future Water Uses

This section discusses the projections for future M&I¹ water uses by the Colorado Ute Tribes. These future uses would be the subject of future NEPA review at the time the uses are determined. Structural components would be designed to convey water to those uses. Chapter 3, Affected Environment and Environmental Consequences, discusses the affected environment and potential environmental impacts associated with these potential future water uses to the extent it is possible to identify them at this time. Specific engineering, environmental, and cost analysis would be conducted in the future for those future water uses and conveyances that are proposed for implementation.

The Ute Tribal Water Use Study (Dornbusch 1999) (see Technical Appendix 1) identified several non-binding end uses that could be employed by the Colorado Ute Tribes. This study did not fully allocate all of the Colorado Ute Tribes' ALP Project water. Further studies (Riley 1999a, Bliesner 1999) projected regional M&I water uses in the event that the Colorado Ute Tribes elect to lease or sell a portion of their ALP Project water to other users. The report by Dornbusch includes examples for the types of water uses listed below. These are illustrated on **Map 2-1**.

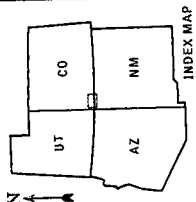
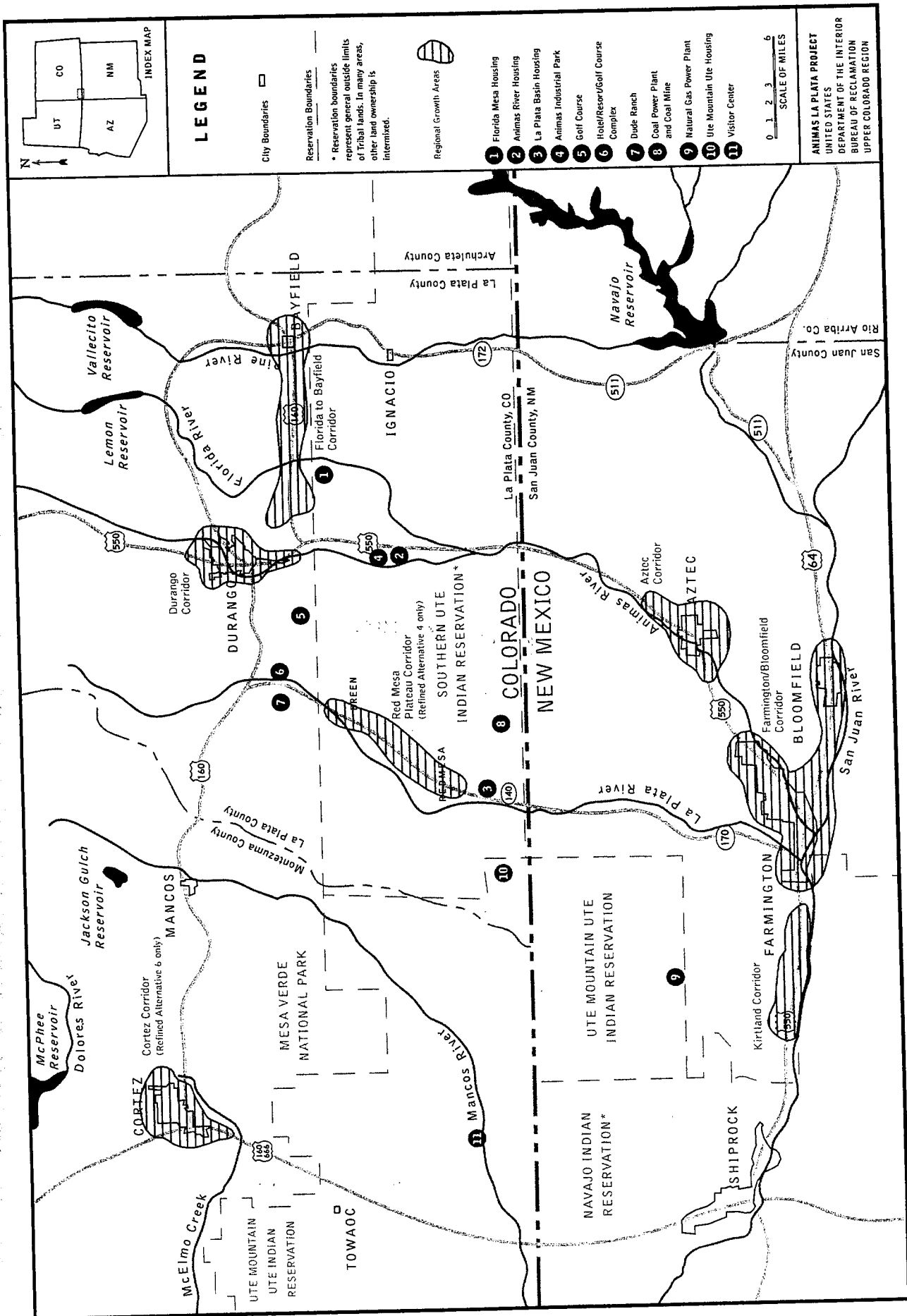
- Municipal water use
- Industrial park
- Recreation and tourism development
- Energy development
- Livestock and wildlife water use
- Regional municipal water supply

2.1.1.2.1 Municipal Water Use

Population growth between 1970 and 1990 approached 3 percent per year on both the Southern Ute Indian and Ute Mountain Ute Reservations. However, more recently, the enrollments of both Tribes have been increasing approximately 1.3 to 1.5 percent per year. The U.S. Census Bureau (1990a) anticipates that Colorado's American Indian population will grow at an average annual rate of 1.9 percent per year through the year 2025 and then decline to 1.1 percent per year by 2065. Based on these growth rates, the population of the Colorado Ute Tribes is expected to increase from 3,287 in 1998 to approximately 15,000 by the year 2100.

A housing shortage currently exists on both Colorado Ute Tribe reservations. To satisfy the existing housing shortage and to accommodate future growth, the Southern Ute Indian Tribe may choose to locate one 200-unit housing development in each of three areas, for a total of 600 housing units. One would be located near Colorado State Highway 172 on Florida Mesa, one in the La Posta area of the Animas River Basin, and the third in the Red Mesa area of the La Plata River Basin. Correspondingly, the Ute Mountain Ute Tribe may elect to satisfy the demands for housing on its reservation by constructing a 400-unit housing development in the southeastern corner of the Colorado portion of the Ute Mountain Ute Reservation.

¹ For purposes of this project, M&I refers to water for industries and cities, as well as for livestock and wildlife uses, recreation, and tourism development.



LEGEND

- City Boundaries
- Reservation Boundaries
- Reservation boundaries represent general outside limits of Tribal lands. In many areas, other land ownership is intermingled.
- Regional Growth Areas
- 1 Florida Mesa Housing
- 2 Animas River Housing
- 3 La Plata Basin Housing
- 4 Animas Industrial Park
- 5 Golf Course
- 6 Hotel/Resort/Golf Course Complex
- 7 Dude Ranch
- 8 Coal Power Plant and Coal Mine
- 9 Natural Gas Power Plant
- 10 Ute Mountain Ute Housing
- 11 Visitor Center
- SCALE OF MILES
0 1 2 3 6

ANIMAS LA PLATA PROJECT
UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
UPPER COLORADO REGION

MAP 2-1

Possible Locations of Colorado Ute Tribe Non-Binding M&I Water End Uses

2.1.1.2.2 Industrial Park Water Use

The Southern Ute Indian Reservation lies just south of the City of Durango. The City of Durango is growing and, as a result, the demand for industrial park space is increasing. The Southern Ute Indian Tribe owns land in proximity to Durango and may want to lease part of its reservation land for an industrial park. This would require that water be made available.

2.1.1.2.3 Recreation and Tourism Development Water Use

Both Colorado Ute Tribal reservations are located in a scenic area that is a popular tourism destination. The proximity of the Southern Ute Indian Reservation to the City of Durango would allow the Reservation to take advantage of the established flow of tourists and help draw visitors to reservation facilities. One possibility would be to construct a resort hotel complex, including a golf course and casino.

The Ute Mountain Ute Reservation, although farther from the Durango tourist area than the Southern Ute Indian Reservation, is adjacent to Mesa Verde National Park. This presents an opportunity to establish a Tribal visitor center, with a resort hotel and golf course, to cater to visitors who are drawn by the unique collection of ancient sites in the area. In addition, the Ute Mountain Ute Tribe recently purchased 20,000 acres of land in the La Plata River Basin, providing an opportunity to develop a dude ranch.

2.1.1.2.4 Energy Development Water Use

Both Colorado Ute Tribal reservations lie in the San Juan Basin of southwestern Colorado and northwestern New Mexico. The San Juan Basin contains large coal, oil, and gas reserves and is the location of three operating coal mines and many oil and gas wells. The Southern Ute Indian Reservation is situated over approximately 16 billion tons of Fruitland Formation coal, about 500 million tons of which lie within 500 feet of the surface. The Ute Mountain Ute Reservation overlies Fruitland Formation coal deposits as well. Because of the associated economies of scale, approximately 14.4 million tons of coal offer potential for strip mining if combined with adjacent off-reservation deposits.

The Colorado Ute Tribes' energy resources offer several opportunities for development. Tribal coal could be mined and shipped off the reservations to fuel power plants. Tribal coal and/or gas could be burned in on-reservation power plants, and the electricity generated could be transmitted to the regional power grid. All of these opportunities would require water. Surface mining requires water for dust suppression and land reclamation. Coal or gas-fired power plants typically use water for cooling, as would a coal gasification plant. A coal slurry pipeline would mix pulverized coal with water and pipe the resulting slurry.

2.1.1.2.5 Livestock and Wildlife Water Use

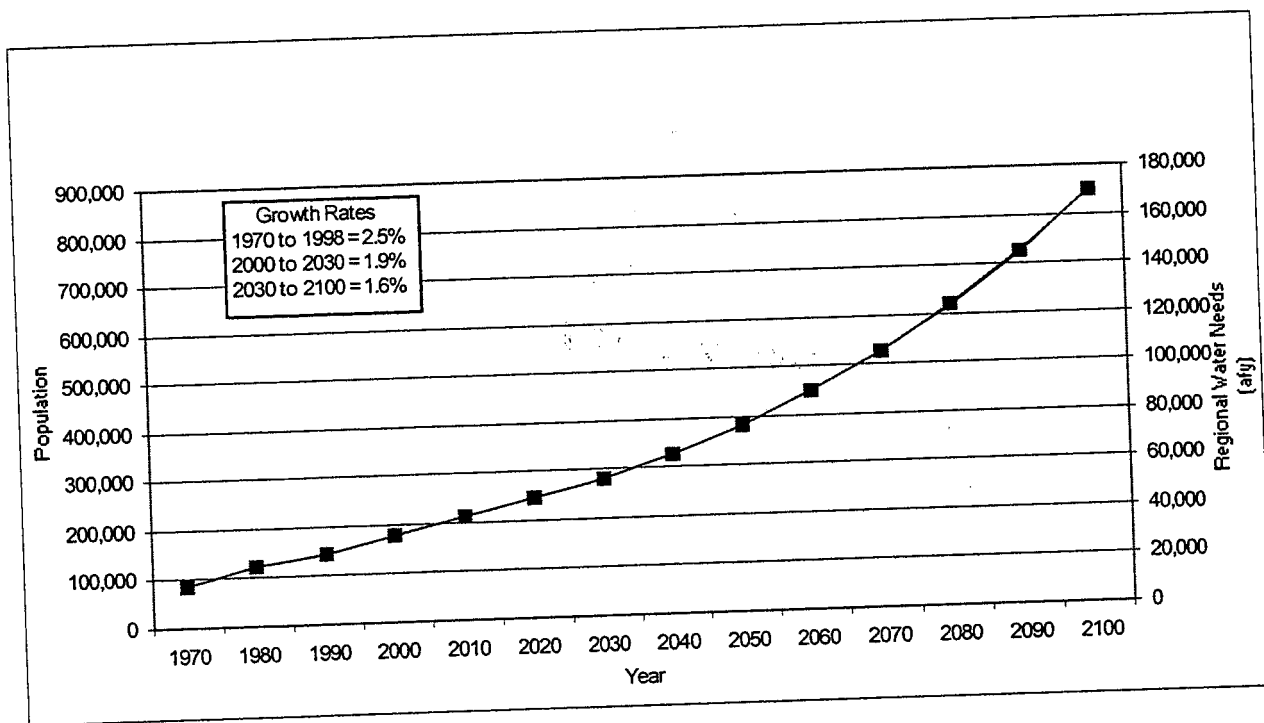
Both Colorado Ute Tribal reservations contain large areas of rangeland, but the use of this rangeland is limited by the scarcity of developed water sources. Livestock operators could make more effective use of the rangeland if additional watering facilities were installed. In addition, using some of their water to help sustain wildlife is important to the Colorado Ute Tribes. The Colorado Ute Tribes would be interested in providing watering facilities for wildlife, especially where pipelines could be tied into the delivery systems established for other uses on the reservations.

2.1.1.2.6 Regional Municipal and Industrial Water Supply

Projected population growth within the project area will increase the demand for water, both for household use and for commercial, industrial, recreational, and community infrastructure requirements.

Dornbusch (1999) displays how population in the three-county area (La Plata and Montezuma Counties in Colorado and San Juan County in New Mexico) has changed between 1970 and 1998. La Plata County population doubled in that time period, and the population of Montezuma and San Juan Counties has nearly doubled. **Figure 2-1** graphically depicts this information. The regional water use is computed from the population growth using the nationwide average domestic water use of 179 gallons per capita per day.

Figure 2-1. Regional Population and M&I Water Needs (La Plata, Montezuma and San Juan Counties)



2.1.1.2.7 Instream Leasing

In addition to the above uses of water identified in Dornbusch (1999), the Colorado Ute Tribes could elect to leave project water in one or more of the streams or rivers in the project area, and lease it for enhancement of in-stream values. For example, the Ute Mountain Ute Tribe could elect to negotiate lease terms to release water into the Dolores River to benefit fisheries.

2.1.1.3 Summary of Municipal and Industrial Water Uses by Colorado Ute Tribes and Other ALP Project Beneficiaries

Table 2-2 contains a summary of projected M&I water uses and depletions by the Colorado Ute Tribes and other ALP Project beneficiaries.

Table 2-2		
Summary of Future Uses of ALP Project Water by Colorado Ute Tribes and Other Project Beneficiaries		
Category of M&I Use	Diversion (afy)	Depletion (afy)
Non-Binding M&I Use by Southern Ute Indian Tribe		
Florida Mesa Housing	140	70
Animas River Basin Housing	140	70
La Plata River Basin Housing	140	70
Animas Industrial Park	40	20
Ridges Basin Golf Course	796	398
Ridges Basin Resort	44	22
Coal Mine	830	415
Coal-Fired Power Plant	27,000	13,500
Livestock and Wildlife	30	15
Southern Ute Indian Tribe Total	29,160	14,580
Non-Binding M&I Use by Ute Mountain Ute Tribe		
La Plata Housing	280	140
Mancos Canyon Golf Course	978	489
Mancos Canyon Resort	33	17
La Plata Basin Resort	30	15
La Plata Basin Golf Course	626	313
La Plata Basin Dude Ranch	10	5
Gas-Fired Power Plant	4,600	2,300
Livestock and Wildlife	40	20
Ute Mountain Ute Tribe Total	6,597	3,299
Non-Binding Regional M&I Water Supply Demand		
Durango, Colorado	15,338	7,669
Bloomfield, New Mexico and Upstream	4,533	2,267
Farmington, New Mexico	28,373	14,187
Florida Mesa, Colorado	7,016	3,508
Red Mesa Plateau, Colorado or Cortez, Colorado	2,105	1,052
Kirtland, New Mexico	7,016	3,508
Aztec, New Mexico	4,911	2,456
Less ALPWCD Allocation	(-5,200)	(-2,600)
Less SJWC Allocation	(-20,800)	(-10,400)
Total Regional Supply	43,292	21,646
Total Colorado Ute Tribes Settlement	79,050 (rounded)	39,525

Table 2-2 (continued)		
Summary of Future Uses of M&I Water by Colorado Ute Tribes and Other Project Beneficiaries		
Category of M&I Use	Diversion (afy)	Depletion (afy)
Other Binding Uses		
Navajo Nation	4,680	2,340
ALPWCD	5,200	2,600
SJWC	20,800	10,400
Estimated Operational Losses	2,235	2,235
Total for Other Uses	32,915	17,575
Total Water Use	111,965	57,100*

Source: Dornbusch 1999; Riley 1999a; Bliesner 1999.
*In addition to the 57,100 afy depletion, the Colorado Ute Tribes are entitled to another 13,000 afy of depletion under the Colorado Ute Indian Water Rights Final Settlement Agreement (Settlement Agreement). These additional depletions could come from the purchase of land and water rights and would follow a historical depletion pattern which would not result in any additional depletions above the 57,100 afy.

2.1.1.3.1 Rationale for Using a Fifty (50) Percent Depletion Factor For M&I Uses

The depletion amounts shown in Tables 2-1 and 2-2 reflect a 50 percent depletion factor for M&I uses. Several factors were important in using depletion factors different than the numbers as stated in the Settlement Act.

- The irrigation component has been deleted from the ALP Project.
- The projected M&I uses by the Colorado Ute Tribes are non-binding which makes it difficult to accurately project the actual diversions and corresponding return flows.
- The 50 percent depletion factor allows the Colorado Ute Tribes flexibility in the use of their water.
- The 50 percent depletion factor allows this FSEIS to analyze effects to the river systems that could occur depending upon the eventual use of water.
- The overall effect on the total depletion to the San Juan River at a point located downstream of both diversions and return flows is negligible.

With these considerations, a 50 percent depletion factor was considered to be appropriate. This is a commonly accepted rule of thumb in M&I projects for determining the amount of return flows.

2.1.1.4 Future Environmental Compliance

This FSEIS addresses the settings, likely impacts, and proposed mitigation measures for the structural and non-structural components of the alternatives. While these aspects of the proposed structural components are well defined, the non-structural components, as well as future water uses, are projections. The specific uses to which a water acquisition fund may be put by the Colorado Ute Tribes in implementing the non-structural components would be determined in the future. It may include acquisition of land and associated water rights, or other activities appropriate to the use of this fund. The range of impacts would vary depending on these future uses. Similarly, the future water use projections

were made for the purpose of comparative NEPA analysis, based on reasonable assumptions at this time. The future water uses described in this FSEIS are non-binding on the Colorado Ute Tribes, and the actual future use of water may vary.

The projections are reasonable and representative of what is likely to occur, as far as current information allows. Any conveyance of water out of storage via pipeline or other means (e.g., as in the Ridges Basin Reservoir in Alternative 4, or from Lemon Reservoir in Alternative 6) to the Colorado Ute Tribes, or to the Navajo Nation, ALPWCD, and/or the SJWC, would be a projected future action. Any acquisition of land and water rights, or development of a future water use (e.g., construction of housing on the Colorado Ute Tribal Reservations), would also be considered projected future actions.

Any future actions would be subject to future environmental review, and NEPA compliance would be required as part of any approval by a federal agency. The following federal actions would serve as “triggers” for future NEPA compliance activities. In addition, other federal and state regulatory and environmental requirements would have to be met in implementation of future actions (e.g., compliance with the Endangered Species Act (ESA) and Clean Water Act (CWA)).

2.1.1.4.1 Conveyance and Use of Water Associated With Structural Components

Most of the ALP Project alternatives include a mechanism for storing water to allow for the assured supply of water which is a necessary component of an M&I water supply. The range of storage facilities in the various alternatives include, for example, construction of a new reservoir at Ridges Basin or the Aztec site, modification and storage of water in Lemon Reservoir or Red Mesa Reservoir, and storage and reoperation of other existing storage facilities (e.g., Jackson Gulch Reservoir, Navajo Reservoir). These structural components are defined in this FSEIS.

Since possible future water uses are non-binding, the representative environmental impacts of conveyance of water from these storage reservoirs to ultimate end uses were assessed to the extent reasonable and feasible. However, no specific conveyance systems were engineered, nor were any specific water use impacts (e.g., from construction and operation of new Colorado Ute Tribal housing areas or expansion of the City of Durango water supply system) identified. As implementation of any or all of these future water uses is proposed by the various users of the project water, they would be subject to future NEPA review as part of the following “triggering” federal actions:

Future Non-Binding Water Uses by Colorado Ute Tribes

Several of the alternatives include the construction and operation of a storage reservoir at Ridges Basin as a structural component. The Colorado Ute Tribes would be provided a specific amount of water in Ridges Basin Reservoir or at a point on the Animas River where diversions would be made to the proposed Durango Pumping Plant. As provided in the Settlement Act, the United States will bear the annual operation, maintenance, and replacement (OM&R) costs allocable to the Tribes’ water allocation until the water is first used either by a Colorado Ute Tribe or pursuant to a water use contract with the Tribe. Interior anticipates it would use a contracting mechanism to administer the establishment of such use of water by the Tribes. These “block notices” would provide a description of the quantity of water, the planned use, and conveyance method along with an assignment of an appropriate amount of OM&R costs. These specific uses would undergo an appropriate level of environmental compliance on a case-by-case basis by Interior prior to approval.

Future Water Uses by Animas-La Plata Water Conservancy District

The structural components that include Ridges Basin Reservoir and associated Durango Pumping Plant would include provisions to allow the City of Durango (through the ALPWCD) to pump water from the Animas River directly into the City's terminal reservoir. The ALP Project's structural components do not, however, provide the pipeline to connect the pumping plant to the City's existing raw water line that conveys water to its Terminal Reservoir. The ALP Project also would provide a blind flange or valve within the outlet works of Ridges Basin Dam for future connection by the City of Durango to obtain water stored in Ridges Basin Reservoir. The necessary pipeline to connect to this flange or valve to allow the City to use this stored water would be the City's responsibility.

In either of the above cases, Interior would require the City to provide sufficient design details of its proposed connection to federal facilities before the connections can be made. This design review and approval would be the initiating action for subsequent environmental compliance by Interior prior to any approval.

Future Water Uses by the San Juan Water Commission

The structural component of most of the ALP Project alternatives would provide storage for the SJWC, but would not provide additional diversion or conveyance facilities within its system. Facilities currently exist to allow the SJWC users to divert ALP Project water into their systems. Any subsequent enlargement or extension of the diversions, treatment, or conveyance and delivery pipelines would not necessarily entail federal involvement if compliance with the Clean Water Act is not required. Any environmental review associated with such enlargements or extensions would most likely be under the purview of the State of New Mexico.

Future Water Uses by the Navajo Nation

A structural component of the ALP Project, namely, the Navajo Nation Municipal Pipeline, would provide storage and a conveyance pipeline for ALP Project water for the Navajo Nation. Any enlargement or extension of the Navajo Nation's delivery system connected to the NNMP (see Section 2.5.3) would most likely be under the purview of the Navajo Nation and the Bureau of Indian Affairs (BIA), and appropriate environmental review would be required prior to approval.

2.1.1.4.2 *Conveyance and Use of Water Associated With Non-Structural Components*

Most of the ALP Project alternatives considered include a non-structural component which would establish a water acquisition fund to allow the Colorado Ute Tribes to purchase land and water rights, or to develop the economy on their reservations. This FSEIS discusses a range of scenarios involving acquisition of land and water rights, and the likely projected environmental impacts. The possible uses of funds from a water acquisition fund by the Colorado Ute Tribes are non-binding. However, there are triggers involved which would initiate NEPA, the ESA, and other environmental reviews when funds are used.

A water acquisition fund would likely be a trust account established within Interior. Interior's procedures would require that any applications by the Colorado Ute Tribes for funds from this account include a development plan. This plan would discuss what the funds would be used for, how and where they would be used, and what the potential environmental impacts would be. If the funds would be used

for purchase of lands and water rights, a water use plan would be required as part of the development plan. The water use plan would include information on whether the water would remain on the land or if it was proposed to remove the water from the land and convey it elsewhere for use.

The development plan and the application for funds would be reviewed by the appropriate office of Interior, and then forwarded with recommendations to the Secretary of Interior for final approval. Any NEPA compliance activities (e.g., categorical exclusion, preparation of an environmental assessment (EA) or environmental impact statement (EIS)) would be conducted by Interior prior to Secretarial approval.

Any transfer of water from the land and use for a purpose different from the current use would also require the review and approval of the State of Colorado or the State of New Mexico.

2.1.2 Sources of Water

The projections of future water uses were based on surveys of the Colorado Ute Tribes and their plans for economic and social development on their reservations. The future water uses to meet M&I growth needs for the areas served by the SJWC, the ALPWCD, and the Navajo Nation were also considered. The ultimate development of water uses would be initiated by the users as they determine what is in the best interests of their constituents.

Building on this analysis, the water consumption associated with each use was determined (see **Table 2-3**). The primary and secondary sources of surface water to provide these volumes were identified, storage areas were designated, and conveyance options were routed. **Table 2-3** also identifies the likely primary sources of water for the future water use options. The general locations of these potential water sources are shown on **Map 1-1** in Chapter 1.

The volumes of water that the projected future water uses would require were considered, as well as the water available in the ALP Project area to supply those uses. Previous evaluations of potential water sources in the ALP Project area considered groundwater supplies, making volumes available through water conservation, surface water supplies, and the potential of purchasing water rights (1996 FSFES 404(b)(1) Evaluation). This evaluation has been augmented by (1) a review of potential water availability through the purchase of water rights and land in the project area; (2) water conservation on the Pine, Florida, and Dolores Rivers; (3) expanding storage in Lemon Reservoir; (4) allocation of water in McPhee Reservoir, and (5) other evaluations, including the new 404(b)(1) Evaluation included as Attachment B-1 in Volume 2. The most likely sources of reliable supplies of water for these non-binding uses include:

- Water from the purchase of water rights on McElmo Creek, Navajo Wash, and/or the Mancos, La Plata, Animas, Florida, and/or Pine Rivers, with subsequent diversion and conveyance to the area(s) of use, with possible storage at the point of use;
- Water diverted from the San Juan River and conveyed to the area(s) of use; and/or
- Water diverted from the Animas River, stored in a reservoir(s), and conveyed to the area(s) of use.

For the purposes of this analysis, water would either be conveyed in the source river or stream to the point(s) of use or would be conveyed in a pressurized pipeline. Open canals were deemed inappropriate because of inefficiencies in delivery and because the water would be used for M&I purposes.

**Table 2-3
Potential Water Sources to Meet Use Requirements**

Water User	Future Water Use	Primary Water Source(s)
Southern Ute Indian Tribe	Florida Mesa (Highway 172) Housing	Florida/Animas/Pine Rivers
	Animas Basin (La Posta) Housing	Animas River
	La Plata Basin (Red Mesa) Housing	Animas River
	Animas Industrial Park	Animas River
	Ridges Basin Golf Course	Animas River
	Ridges Basin Resort	Animas River
	Coal Mine	Animas/San Juan Rivers
	Coal-Fired Power Plant	Animas/San Juan Rivers
	Livestock and Wildlife	Animas/Florida, Pine Rivers
Ute Mountain Ute Tribe	La Plata Basin Housing	Animas/La Plata Rivers
	Mancos Canyon Golf Course	Animas/Mancos Rivers
	Mancos Canyon Resort	Animas/Mancos Rivers
	La Plata Basin (Hesperus) Resort	Animas/La Plata Rivers
	La Plata Basin (Hesperus) Golf Course	Animas/La Plata Rivers
	La Plata Basin (Hesperus) Dude Ranch	Animas/La Plata Rivers
	Gas-Fired Power Plant	San Juan River
	Livestock and Wildlife	Mancos/La Plata/Animas Rivers
Colorado Ute Tribes	Durango - M&I Lease or Sale	Animas/Florida Rivers
	Bloomfield - M&I Lease or Sale	San Juan River
	Cortez - M&I Lease or Sale	Dolores River
	Farmington - M&I Lease or Sale	Animas/San Juan Rivers
	Florida Mesa - M&I Lease or Sale	Florida/Animas Rivers
	Red Mesa Plateau - M&I Lease or Sale	Animas River
	Kirtland - M&I Lease or Sale	San Juan River
	Aztec - M&I Lease or Sale	Animas/San Juan Rivers
Navajo Nation	Navajo Nation Shiprock Tribal Use	Animas/San Juan Rivers
ALPWCD	M&I Uses	Animas River
SJWC	M&I Uses	Animas/San Juan Rivers

In the evaluation of non-structural components of several alternatives (Section 2.3.2), assumptions were made about land and water rights acquisitions made by the Colorado Ute Tribes. The purchase of water rights is subject to Colorado and New Mexico water law. A further discussion of water rights considerations and constraints is included in Volume 2 of this FSEIS as Attachment D, Water Rights Considerations and Constraints, Agricultural Land Acquisition Cost Analysis, and Conversion of Fee Simple Farmland.

2.1.3 Legal and Institutional Constraints to the Purchase of Water Rights for the ALP Project

This section briefly highlights some of the constraints to implementing a program of purchasing water rights and the potential interstate leasing of the water. The existing water right laws could represent an impediment to implementation of the non-binding water uses presented in this FSEIS. A more in-depth discussion on Colorado Ute Indian water rights is contained in Attachment A which contains the 1986 Settlement Agreement, 1988 Settlement Act, and the Solicitor's Opinion concerning the priority date of the Colorado Ute Indian water rights. In addition a summary of water right considerations and constraints is contained in Attachment D.

2.1.3.1 Constraints to the Change of Use of Acquired Direct Flow of Water Rights and Interstate Leasing of Water

Several legal considerations and constraints that may affect the change of irrigation water rights to M&I use, include but are not limited to:

1. The need for court approval of the change, with the attendant need for the applicant to prove non-injury to other water rights from the change and other factors.
2. The need to deal with numerous objectors in the change process.
3. Recognition that the time required for a change can be substantial.
4. Uncertainty of the outcome of a change case, because of the no injury constraint and the potential for an action that may allow the change of only the historical consumptive use (or even possibly less than the historical consumptive use) and the need for the change ruling to include terms protective of other water rights.

Under Colorado water law and the Upper Colorado River Basin Compact, water can be leased into New Mexico if New Mexico will treat that water as a New Mexico depletion.

2.1.3.2 Administration of Water Rights

The State of Colorado will administer the water rights of the ALP Project used in Colorado. This is specifically stated in the 1986 Settlement Agreement, Section IV on Administration. Administration by the Colorado State Engineer shall ensure that the water rights of all users, including the Tribes are fully protected. Under the terms of the Settlement Agreement, the Tribes agree to allow the Colorado State Engineer access to Reservation lands solely for the purpose of performing his/her administrative duties under this Agreement.

2.1.3.3 Ute Indian Reserved Water Rights

The Ute Indian water rights will be held in trust by the federal government. The Solicitor's Opinion is that both the Southern Ute Indian and the Ute Mountain Ute Tribes have a water right priority date of

1868 (see Attachment A in Volume 2 of this FSEIS). One of the purposes of the 1986 Settlement Agreement was to secure for the Tribes both project and non-project reserved water rights. Each Tribe shall receive a project reserved water right to water supplied from the ALP. The rights shall have an 1868 priority date, shall be subordinated to all water rights decreed and senior to ALP, and shall share on a pro rata basis the priority of the ALP Project which has an adjudication date of March 21, 1966, and an appropriation date of September 2, 1938.

2.2 OVERVIEW OF ALTERNATIVES EVALUATED

This section provides an overview of the alternatives evaluated in this FSEIS, including alternatives developed during the Romer-Schoettler process, public scoping meetings, and in consultation with project stakeholders.

2.2.1 Alternatives Described in the *Federal Register* Notice to be Addressed in the Draft Supplemental Environmental Impact Statement

On January 4, 1999, the *Federal Register* included a Notice of Intent (NOI) by Reclamation to prepare a DSEIS. The NOI announced that public meetings would take place to receive public input on eight alternatives, including the proposed action (the Administration Proposal, including both its structural and non-structural components), a no action alternative, four structural alternatives (i.e., involving construction of a new reservoir), and two non-structural alternatives, as described below:

- Administration Proposal, consisting of a structural element (Ridges Basin Reservoir with a 90,000 af capacity) and a non-structural element (purchasing water rights for 13,000 af of depletion)
- Administration Proposal with recreational element added, increasing the overall reservoir size to approximately 120,000 af
- Animas-La Plata Reconciliation Plan (Romer-Schoettler structural alternative as represented by the legislation introduced during the 105th Congress (S.1771 & H.R. 3478))
- Animas River Citizen's Coalition Conceptual Alternative (Romer-Schoettler non-structural alternative)
- 1996 FSFES Recommended Plan
- Administration Proposal with alternative water supply for non-Colorado Ute Tribe entities (i.e., Navajo Nation, ALPWCD, and SJWC)
- Citizens' Progressive Alliance Alternative (instream leasing coupled with other non-structural alternatives)
- No Action Alternative

2.2.2 Alternatives and Project Issues Identified in Public Scoping Meetings

Scoping meetings were held on February 2, 1999, in Durango, Colorado; February 3, 1999, in Farmington, New Mexico; and February 4, 1999, in Denver, Colorado (see Chapter 6, Consultation and Coordination, for more information on the scoping meetings). As a result of these scoping meetings, two additional alternatives were added: