

Navajo-Gallup Water Supply Project

EXECUTIVE SUMMARY

The Project has evolved over four decades as a major infrastructure initiative to identify and secure a long-term water supply for the parched lands of the eastern portions of the Navajo Reservation and the City of Gallup. Planning has progressed under guidance of a local steering committee, and in collaboration with Reclamation and the BIA. Project participants anticipate agreement between local, tribal and federal agencies on the technical, biological, financial and other parameters of the Project. This agreement will clear the way for Congress to authorize the construction the Project. This technical memorandum is focused on the region's municipal water needs. It is not intended to quantify the water claims of any of the parties.

I. Objectives

The objective of this technical memorandum is to consolidate the information needed by the Navajo Nation and the City of Gallup to formalize their commitments to the Project, and to present this Project in the context of regional water development. Based on these objectives:

- The participants will finalize the project definition for a project that will provide a long-term water supply to the service area and will adequately define the options for the key project features and the operation of those features, to comply with the Endangered Species Act and the National Environmental Protection Act.
- A "Final Plan Report" will be developed by Reclamation during Fiscal Years 2000 and 2001 that will adequately describe the Project as part of the submission to Congress for authorization in Fiscal Year 2002.
- This technical memorandum will become the primary reference document for the Environmental Impact Statement which was initiated in March 2000.
- This technical memorandum will also be the foundation for agreements between the participants, as requested by the New Mexico Congressional Delegation, regarding various aspects of the Project.

II. Service Area

This Project is designed to provide a forty-year water supply to the Navajo Nation and the City of Gallup. The Project will deliver water to more than 20 Navajo public water supply systems in New Mexico and Arizona, and the Navajo Agricultural Products Industry (NAPI). For planning purposes, the study area is the New Mexico portion of the Navajo Nation, the Window Rock area within Arizona, and the City of Gallup, New Mexico. Within the State of New Mexico, the study area is encompassed by the State's Water Planning Regions 2 and 6 (Table 5.1 includes a complete list of the Chapters within the Project service area). Along with greater economic opportunity in the Gallup area, the Project will improve the municipal water supply to Navajo economic development growth centers in Window Rock, Tohatchi, Crownpoint and Shiprock.

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By the year 2040 the projected municipal demand in the service area (including NAPI) is approximately 52,000 acre-feet per year. This projection does not include any major industrial uses. The Project's annual diversion from the San Juan River will be approximately 36,600 acre-feet and its annual depletion will be 34,700 acre-feet. In addition to the San Juan River depletion, the Navajo Nation will supply an additional 3,200 acre-feet of groundwater annually and the City of Gallup will supply an additional 1,400 acre-feet of groundwater. The Animas La Plata Project will divert an additional 4,680 acre-feet to the Shiprock area. The San Juan River depletions for each basin are shown in Table E.S. 1.

III. Project Configurations

Because the location of the proposed points of diversion have critical hydrologic implications for the endangered species in the San Juan River (which have yet to be fully evaluated), this technical memorandum presents two distinct alternatives. The first alternative diverts water directly out of the San Juan River below the confluence of the La Plata and San Juan Rivers. This configuration is referred to as the San Juan River Diversion Alternative. For the San Juan River Alternative, the pipeline begins either the Hogback Diversion or PNM Diversion which are downstream of the La Plata River confluence and it proceeds along Highway N36 to Highway 666, and south to Yah-ta-hey, Window Rock and the Gallup Area. This configuration is very similar to the "San Juan Alignment" described in the 1984 Environmental Statement.

The second alternative utilizes the Navajo Indian Irrigation Project (NIIP) Main Canal to divert water from Navajo Reservoir. This configuration is referred to as the NIIP Alternative. For the NIIP Alternative, the pipeline begins at the proposed Moncisco Reservoir at NIIP and proceeds south to the existing El Paso Natural Gas pipeline corridor. The pipeline route follows the gas line corridor to the vicinity of Twin Lakes. The pipeline then turns south to Yah-ta-hey, Window Roc, and the Gallup Area. It is similar to the "Cottonwood Alignment" described in the 1984 Environmental Statement. Analyses of the no-action and non-structural alternatives are beyond the scope of this document.

From Yah-ta-hey both alternatives connect to a lateral to Window Rock and to the water distribution system for the Gallup Area. Spurs from the Window Rock Lateral will serve communities along Highway 264. Navajo residents in the Gallup area and the surrounding Chapters will receive Project water conveyed through the City of Gallup's distribution system. Four spurs will connect to the main pipeline to service the Chapters between NIIP and Gallup. Storage tanks and water treatment are included in the Project.

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Table E.S. 1
Projected Navajo Gallup Water Supply Project San Juan River Depletions
(including NAPI) in the Project Service Area by Basin
(Acre-feet)

Decade	New Mexico Upper Colorado Basin	New Mexico Lower Colorado Basin	New Mexico Rio Grande Basin	Arizona Lower Colorado Basin	Project Total
2000	5,242	2,352	336	1,652	9,582
2010	5,202	10,503	470	2,469	18,644
2020	6,996	11,360	638	3,493	22,487
2030	9,722	12,479	850	4,783	27,834
2040	13,229	13,934	1,119	6,411	34,693
2050	17,820	15,907	1,451	8,404	43,583
2060	23,686	18,429	1,875	10,950	54,939

IV. Project Cost

Cost summaries were prepared for the NIIP and the San Juan River Alternatives. As presented in this technical memorandum, both alternatives serve the same area. The total Project cost for the San Juan River Alternative is \$368 million and the total Project cost for the NIIP Alternative is \$390 million. These estimates include the Gallup Regional System and delivery to the Shiprock Subarea. The cost of power transmission lines is assumed to be incorporated in the unit price of the power. The separate allocated costs for the Navajo Nation and City of Gallup are based on each ones share of the annual capacity of each component or pipe segment. The total project and programmatic costs, and the allocated costs, are shown in Tables E.S. 2 and E.S. 3.

The NDWR investigated the mutual benefits due to the shared economy of scale of a joint Navajo /City of Gallup Project. The NDWR estimates that a stand-alone Gallup only system would cost approximately \$107 million. A stand-alone Navajo project using the San Juan River Alternative would cost \$324 million and a stand-alone NIIP Alternative would cost \$354 million. By partnering with the Navajo Nation, the City's share of the resulting project is approximately \$60 million. By partnering with the City, the Navajo Nation's share of the resulting project is \$310 million for the San Juan Alternative and \$326 for the NIIP Alternative. The operation and maintenance costs presented in Tables 8.16 and 8.17 show similar benefits with partnering.

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The water delivery costs have been divided between programmatic and Project costs. A number of federal and state programs may be able to assist with water development in the region. For instance, the IHS has P.L. 86-121 authorization to construct domestic water systems on the Navajo Nation. The IHS annual budget is approximately \$25 million per year. The EPA, USDA, HUD and other federal agencies also assist with water development. The Project will provide a core system around which programmatic funding can build on.

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Table E.S. 2
Navajo-Gallup Water Supply Project Capital Costs
(Millions of Dollars)

Component	Project Cost	Programmatic Cost	Total Cost
1A. 36,700 af NIIP Alternative			
8,800 af Moncisco Reservoir	\$59.72	\$0.00	\$59.72
65 CFS Treatment Plant	\$78.21	\$0.00	\$78.21
Conveyance to Yah-ta-hey	\$129.58	\$0.00	\$129.58
Project Laterals	\$122.60	\$27.30	\$149.90
Power Lines, SCADA etc.	\$5.10	\$0.00	\$5.10
1B. 36,700 af San Juan River Alternative			
Diversion Structure	\$3.14	\$0.00	\$3.14
Water Treatment Plant	\$70.81	\$0.00	\$70.81
Regulating Reservoir	\$15.07	\$0.00	\$15.07
Conveyance to Yah-ta-hey	\$161.47	\$0.00	\$161.47
Project Laterals	\$117.44	\$30.30	\$147.74
Power lines, SCADA, etc.	\$5.10	\$0.00	\$5.10
2. Groundwater Component	\$0.00	\$73.00	\$73.00
3. Wastewater treatment	\$0.00	\$113.00	\$113.00
4. Value of Water Rights	\$0.00	\$90.00	\$90.00
5. Value of Rights-of-way	\$0.00	\$24.80	\$24.80
Total NIIP Alternative	\$395.21	\$328.10	\$723.31
Total SJR Alternative	\$373.03	\$331.10	\$704.13

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**Table E.S. 3
Navajo-Gallup Water Supply Project Summary of Allocated Capital Costs**

Scenario	Water Supply (Acre Feet)		Capital Cost (Millions of Dollars)		
	Navajo Nation	City of Gallup	Navajo Nation	City of Gallup	Total
SJR Alternative					
	29,067	0	\$324	\$0	\$324
	29,067	7,500	\$310	\$58	\$368
NIIP Alternative					
	29,067	0	\$354	\$0	\$354
	29,067	7,500	\$326	\$64	\$390

Note: Tabulated costs exclude transmission lines and groundwater components.

V. Unit Cost of Project Water

The unit costs of the Project water including several important noncapital costs are presented in Table 9.3. Based on the data presented in Table 9.3 the total unit cost of the Project water is approximately \$4.81 per thousand gallons. Included in this estimated rate is the full cost of amortizing the capital investment and the value of the water rights. This estimate also includes the cost of using the NIIP, improving the local systems and the retail expense of the water utilities. The estimated rate is approximately \$2 per thousand gallons more than NTUA and the City of Gallup are currently charging for water. For a family of four, using 160 gallons per capita per day, the monthly water bill would be \$94 per month.

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Table E.S. 4
Estimated Average Unit Cost of Navajo-Gallup Water Supply Project Water Based on
36,700 acre-feet of Diversion

Cost Component	Estimated 2000 Cost (Dollars/AF)	Estimated Cost (Dollars/1000 gal)
1. Amortized \$370 Million Capital Cost (7% and 40 Years)	\$756	\$2.34
2. CRSP fee	\$60	\$0.18
3. Amortized Water Rights (\$3,000/af, 7% and 40 years)	\$191	\$0.59
4. NIIP Cost of Services (\$50 to \$300 per acre-foot)	\$50	\$0.16
5. City of Gallup improvements	\$36	\$0.11
6. City of Gallup retail cost	\$195	\$0.60
7. Project Operation and Maintenance	\$272	\$0.83
Total Unit Cost	\$1,560	\$4.81

Note:

During the first decade of operation the Project operation and maintenance expense will be approximately \$1.30 per thousand gallons for the Navajo Nation and \$1.02 dollars per thousand gallons for the City of Gallup.

VII. Action Plan

To expedite the Project, the Navajo Nation, the City of Gallup and Reclamation have developed a plan of approach. This approach includes a time line for NEPA Compliance, preparing the Planning Report/EIS, Construction Authorization, and Starting Construction. In addition, the planning report and the Environmental Impact Statement will be compiled into a single document. This schedule anticipates Congressional authorization for design and construction by October 2002 and a Record of Decision on the EIS by February 2003.