

**FINAL TIER-2 PROPOSAL SUBMITTED BY THE GILA BASIN IRRIGATION  
COMMISSION IN GRANT COUNTY, NM TO THE ISC EVALUATION PANEL.**

The proposal includes an **attachment** titled GBIC-Gila Basin Irrigation Commission, addressed to the Interstate Stream Commission, dated November 10, 2010, which includes the: 1.0 Background; 2.0 Project Goals; 3.0 Project Description; 4.0 Project Development; 4.1 Preliminary Cost Estimate; and 4.2 Funding Request for the proposed project. In addition, it includes a map, Figure 1, showing the location of the project, and a preliminary conceptual design of the diversion project, Figure 2. This **attachment** is referenced in responses to several of the questions posed in the TIER-2 CRITERIA FOR A NM UNIT OR WATER UTILIZATION ALTERNATIVE.

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**TIER-2 CRITERIA FOR A NM UNIT OR A WATER UTILIZATION  
ALTERNATIVE [1010 total points possible]**

**1. [570] If the proposal would extend the water supply through conservation, or increase the supply through development of new water**

- a. Describe the location and verify the ownership of and legal access to lands related to the proposal. [0 to 30 points]

The location of the proposed diversions is shown on Figure 1 of the attachment. The location is about ½ mile from the point where the Gila River and Mogollon Creek join in Grant County. It is anticipated that the more permanent diversion structures would be built on the same land where the earthen diversion dams exist today. Since the purpose of the diversions is divert water from the river into Acequias for agricultural irrigation purposes, legal access is afforded. Storage would be within and along the river, also shown in Figure 1, and could be expanded to include some off river storage. Some of the storage area would likely be on private land, which would require permission, purchase and/or easements. The exact acreage and the final specific location(s) of the storage [shown on the map as about 688 acres] will depend on the results from additional geological and hydrological studies which have not been completed at this time.

- b. Identify the source of the water to be put to use. [0 to 10 points]

The source of the water would be that available during high flow periods from the main stem of the Gila River and some of its tributaries. Some of the water would be stored for future use, while some would be diverted for current use and on-farm, or private land storage.

- c. Describe and quantify whether and how the proposal would extend the water supply through conservation, or increase the supply through development of new water in the Southwest Planning Region. [4 points for each 10 AF up to 500 points]

The proposed project would both increase the supply by developing new water that is lost to New Mexico during high water events and conserve it by more efficient distribution and storage. At present, during high water events, excess water flows down the river into Arizona

and is lost to New Mexico water users. New Mexico was awarded 30,000 acre feet less than its reported use by New Mexico water users at that time in the 1964 adjudication. At present, during the summer months in an average year, there is a shortage of water to fulfill current existing water rights of about 640 ac/ft. and sections of the river go dry due to water shortages. This does not include the rights for 30,000 acre feet lost during the 1964 adjudication. While all of the land that was irrigated in 1964 would not be irrigated today, based on a hydrographic survey of fallow lands in the Gila San Francisco Basin which had been irrigated in the past, but have no water rights today, it is estimated that about 10,300 acre/ft. of water would be required to put that land back into agricultural production. Additional water would be needed for stock ponds and tanks that were not included in the adjudication. There are an estimated 1,300 non-consumptive domestic wells, which permit no use of water outside the house, that could use an additional 2.0 ac/ft. for yard, garden, livestock, and other related uses for a total of 2,600 ac/ft. Thus, there is clearly a use for the 14,000 acre/ft. available each year, or the 140,000 ac/ft. available over a 10 year period under the AWSA, including that required for stock tanks. Storage of between 14,000 ac/ft. and 64,000 ac/ft. would assure an adequate and dependable flow in the river throughout the year to meet the needs for agriculture, federal and state listed species, recreation, riparian, wildlife and other related environmental considerations.

- d. Demonstrate how the proposal would meet AWSA and CUFA requirements. [up to 30 points] (see [www.AWSAplanning.com](http://www.AWSAplanning.com) for AWSA and CUFA documents)

The AWSA authorizes New Mexico to receive an additional 14,000 ac/ft. of water per year, or 140,000 acre feet over a 10 year period for a New Mexico Unit or Water utilization Alternatives. This proposal is a combination of the two and therefore meets AWSA requirements. A portion, or all of this amount, up to the limits specified under the AWSA, would be utilized and stored under this project. This will provide water that would be harvested from the river within the limits set by the CUFA of 350 cfs, and later released at a rate which meets the requirements of the CUFA and the AWSA.

## **2. [40] Describe the proposal and its technical viability.**

- a. Include any (or reference publically-available) technical and engineering studies completed and demonstrate how these studies support the proposal. [up to 20 points]

Section 4.0 of the attachment, Project Development, includes some technical and engineering considerations which are proven technologies that are being used in other areas. But as noted in the comments, additional studies and analyses will have to be completed to be sure that the final design will meet local needs and comply with federal and state environmental regulations and requirements.

- b. Include any (or reference publicly-available) hydrologic, ecologic, or geotechnical studies completed and demonstrate how information included in these studies specifically supports or detracts from the proposal. [up to 20 points].

Section 4.0 of the attachment, Project Development, indicates that only preliminary studies, which are proprietary, have been completed to date. In addition, it identifies several studies

or analyses that will be needed before the final design can be completed. These studies will provide specific information to support or detract from the project. Specific publically available data and studies related to the project have not been identified at this time. However, an integral part of the additional studies will be a review of any existing studies which would support or detract from the project.

**3. [40] Quantify estimated costs.**

- a. Quantify the proposal’s estimated costs, including planning, design, and/or construction, and administration or oversight. [up to 10 points]

Section 4.1 of the attachment, includes a broad preliminary estimate of costs for planning, studies, design, and construction of the permanent diversion structures. These estimates were made about 1 year ago and would have to be increased an estimated 25% to cover current costs. A more complete set of cost estimates follow.

Summary of estimated costs:

Planning/Studies	
Diversion	\$588,000
Storage	\$ 250,000
Design	
Diversion	\$162,000
Storage	\$48,000
Construction	
Diversion	\$4,900,000
Storage/Pipeline	\$3,500,000
Permitting and Mitigation	
State & Federal	\$500,000
Compliance	\$250,000
Administration/Operation	\$35,000/yr.
<b>TOTAL</b>	<b>\$10,233,000</b>

These figures are preliminary estimates, based on limited information currently available, provided by an engineering/environmental firm who has done work in the Gila Basin and assisted in developing this project, and from suppliers and contractors involved in this type of work. The estimates may have to be adjusted based on the findings after completion of the additional studies noted in section 2 of the Tier-2 criteria for a NM Unit or Water Utilization Alternative. Purchase of land, lease costs for land, or easements are not included in these estimates.

- b. If applicable, quantify the proposed project’s on-going administrative, operational, and maintenance costs. [up to 10 points]

On-going administrative, operational, and maintenance costs for the proposed “permanent” diversions should be minimal. One of the primary reasons for constructing more permanent diversions structures is to minimize the recurring maintenance costs related to temporary earthen diversions. At present, the annual costs for maintaining earthen diversions for the three ditches during an average year would be about \$2,000 per ditch, or about \$6,000 total. If a major flood occurs, this cost increases significantly. A major flood could also damage the “permanent” diversions resulting in significant costs to repair and/or replace them.

Final decisions on storage methods and capacities will depend on the results of studies yet to be completed but will probably include a combination of surface and underground storage. The surface storage could include “farm ponds” which would be maintained by various land owners. If managed properly, there should be little maintenance costs after construction. Underground storage would require a pump(s). There would be operational and maintenance costs for pumping, estimated in 3a. of this Tier-2 Criteria for a NM Unit or Water Utilization Alternative, at about \$35,000 per year. Every effort will be made to minimize these costs by utilizing gravity flow wherever possible. The exact costs will depend on the type, size, and depth of the wells, and amount of use based on weather patterns.

- c. Describe environmental compliance activities, and quantify the costs for environmental mitigation and restoration related to the proposal. [up to 10 points]

Environmental compliance activities to meet US Army Corps of Engineers, NEPA, NMED, and the Endangered Species Act, and any others will be incorporated in the design, construction and installation of the diversions and included in the costs for each respective component. Since the diversions will be installed in the same area, and function in a similar manner to the earthen ones existing today, significant costs for environmental mitigation are not anticipated. It is estimated that the costs for compliance will amount to about 25% of the total cost.

- d. Quantify the AWSA funding sought for the proposal and for the pendency of the proposed activities or project’s duration. [up to 10 points]

AWSA funding is sought for the total noted in section 3a. of this Tier-2 Criteria for a NM Unit or Water Utilization Alternative of \$10,233,000. As noted numerous times in this submission, final funding sought will depend on the results of studies yet to be conducted.

**4. [40] If proposal impacts, beneficially or adversely, the environment of the Southwest Planning Region, the Gila River, its tributaries or associated riparian corridors, use the best available science to:**

- a. Describe and quantify how the proposal might impact the project site and environment, particularly state and federally-listed species. [up to 10 points]

Since the project concept and its design will replace earthen structures already in place, there should be little impact on the project site and environment. Installing permanent diversion structures should minimize the need for intrusion into the river bed to repair and/or replace earthen structures. The design of the permanent structures, combined with water storage, should benefit state and federally listed species, other habitat, the riparian area, and the general ecology in and along the river by providing an adequate and dependable supply

of water in the river throughout the year. This would be a significant improvement over the current situation where portions of the river dry up for 3 to 4 months during the year. The concept of the low head concrete diversion structures shown in Figure 2 of the attachment means: (1) the timing of construction can be adjusted to reduce environmental impact; (2) it will be a one-time event that will minimize future intrusions into the river bed for repairs and disruptions of listed species.

- b. Describe and quantify the proposal's efforts to mitigate possible adverse impacts on the environment, particularly riparian areas and state and federally-listed species in the Gila Basin and at the specific location of the proposal. [up to 10 points]

As noted in 3c. and 4a. of this Tier-2 Criteria for a NM Unit or Water Utilization Alternative, a primary goal in project design will be to mitigate any adverse impacts on state and federal listed species and the related riparian area on the river, while meeting other related laws and regulations as well. Any costs associated with mitigation are included and shown in 3a. of this submission in the budget figures for compliance and mitigation. It is anticipated that the project will provide significantly greater benefits to the environment with minimal adverse impact.

- c. Describe and quantify how the proposal may benefit the environment, particularly riparian areas and state and federally-listed species in the Gila Basin and at the specific location of the proposal. [up to 10 points]

The proposal would benefit the riparian area by increasing the return flow from irrigation into the river by an estimated 30%, based on the assumption that the flow would increase during the driest 3 months of a 6 month crop growing season. Further, if there is an adequate and dependable supply of water throughout the year, additional acres may be irrigated which would increase the return flow to the river in direct proportion to the number of additional acres irrigated. Combined with, a more efficient diversion structure and storage capacity-- (Mother Nature Cooperating)—this would support a continuous flow in the river throughout the summer, supporting state and federal listed species as well as other habitat and the environment.

- d. List any environmental statutes, rules, or regulations that may apply to the proposal, and demonstrate how the proposal implementation will comply with such laws, rules or regulations. [up to 10 points]

Rules and regulations related to The Endangered Species Act, NEPA, New Mexico Environmental Department, the US Army Corps of Engineers, U.S. Fish and Wildlife Service, NM Game and Fish would all apply to the proposed project. All of these will be considered and incorporated in the design and construction of the project. The engineering/environmental firm(s) involved in designing and constructing the project will prepare the necessary documents and secure any required permits and/or authorization. As noted earlier, additional studies will be needed to provide more specific information needed to secure the necessary permits and assure compliance with the regulations in the final design and construction of the project.

**5. [70] Describe any economic or cost analysis information and data for the proposal:**

- a. Quantify estimated economic benefits including environmental, recreation, value of water itself, value of the water to the regional economy, increased economic growth, protection against loss of jobs, agriculture, ranching, local economic sustainability or growth, or other. [up to 10 points]

It is virtually impossible to accurately estimate these economic benefits. Estimates of economic value are necessarily dependent on the assumptions one uses to come up with them. What are may be considered economic benefits by one, may not be benefits to another.

The bottom line is that this proposal would result in a more robust and diverse ecosystem, increasing its recreational value. [Estimated that there would be 20% increase in the number of people fishing, canoeing, and picnicking, in and along the river]

Improving the infrastructure proposed in the project will result in available water being used more efficiently and effectively while providing an adequate and dependable water supply in the river throughout the year by supplementing it with some, or all of the 14,000 ac/ft. available annually in the AWSA. This will increase the demand and value of the water. [Water would increase in value, as it does everywhere when demand increases for a scarce commodity—Water rights, which currently range from \$8,000-\$10,000 each would likely increase from 50-100% over the following 10 years]

It will increase cropping alternatives for agriculture, which could include vineyards, truck farming of vegetable crops, and increased hay production to name a few. All of these crops will expand labor needs, stimulating the local economy while stabilizing and likely expanding and diversifying the agricultural base in the area. [This could expand the local economy by from 10-50%].

The additional water would also be available to non-consumptive well owners for gardens, livestock, etc. This would complement an expanded agricultural base, further stimulating economic growth and stability in the area. It would also minimize the transfer of water rights currently being used for agricultural production, to domestic well users. [Additional water for 1,300 non-consumptive wells would add stability to the area and attract new residents and construction]

- b. Quantify estimated costs including planning, design, and/or construction, environmental compliance, operation, maintenance, repair, and administrative costs or other. [10]

See Section 3a.of this Tier-2 criteria for a NM Unit or Water Utilization Alternative. In addition, some preliminary estimates are included in section 4.1, Preliminary Cost Estimate, of the attachment. The estimates in section 4.1 of the attachment would need to be increased by at least 25% to reflect current cost levels and those specific costs do not include design and costs related to storage and distribution of water under the proposal. Those estimated costs are shown in 3a.of the Tier-2 submission.

As noted in 3d.of this Tier-2 criteria for a NM Unit or a Water Utilization Alternative, final costs for each of the areas will depend on the components and type of construction dictated by the studies yet to be conducted, and applicable regulations

- c. Identify the source of local contributions and demonstrate the commitment and ability to pay any local cost-share for project proposal, including any applicable exchange costs [1 point for every % of project cost to be borne by local sponsor up to 50 points]

Local irrigation associations will take care of annual maintenance and repair costs on the respective acequias and diversions, estimated at about \$6,000 an average year. This would include in-kind work, and some funding to maintain the more permanent diversion structures in the river. Surface storage on private lands would be maintained by respective land owners and all exchange costs would be borne by the respective user, based on the amount of water each used. This could amount to between 5 and 10% of the proposal costs, based on the data in 1c of this Tier-2 Criteria for a NM Unit or Water utilization alternative.

**6. [120] Describe how the proposal addresses the needs of a particular group or groups or interests on the issues of**

- a. Historic uses, traditions, cultures, and customs. [up to 10 points]

The proposal supports the long and rich history of diversified agricultural production, which is the major industry in the Gila Basin. It should provide additional cropping alternatives and allow some areas that were previously irrigated to once again be farmed. This will stabilize and likely expand and diversify the agricultural sector. In addition, the proposal will improve the ecology of the river, meet the needs of listed species and expand recreational opportunities. It should provide an incentive for young folks raised in the area, to stay because of improved economic opportunities.

- b. Current and future demands for water in the Southwest Planning Region. [up to 20 points]

Water in aquifers is declining because of current use. This trend will continue as the demand for water in the region increases to meet the needs of people and businesses moving into the area, attracted by its climate, and beauty. Additional water will also be needed to meet expanded agricultural production in the area. History clearly shows that water is the lifeblood of an area, particularly one which is semi-arid.

c. Flood control.[up to 20 points]

While there is virtually no way to prevent flooding and some related damage, the ability to more effectively divert water into respective acequias using more stable and permanent diversion structures, combined with storage capacity to harvest some of the flood water so it can be put to beneficial use in the future, will provide some flood control. A healthy riparian area along the river will also help minimize the devastating effect floods can have on homes, property, roads and bridges, along and across the river.

d. Fire protection, prevention, or suppression. [up to 20 points]

The distribution system for water that will be stored underground can be adapted to enhance fire protection for the entire area. Since some of the stored water will likely be pumped into the river, a pipeline could be installed to carry water for return into the river and for use in fire protection and control. In addition, storage ponds on various properties would be accessible by the fire department for use in fighting fires. Increasing return flows to the river throughout the year from irrigation will help sustain a healthy riparian area which will also assist in fire suppression.

e. Recreation. [up to 20 points]

Assuring that water is available in the river throughout the year will expand recreational opportunities for fishing, boating, picnicking, hiking, and other similar activities. At present there are periods of time, particularly during the hottest summer months, that sections of the river go dry, due to a shortage of water. This limits the ability to float the river and for related activities such as fishing.

f. Environmental protection and/or enhancement. [up to 20 points]

The proposal meets a variety of needs for the region including environmental protection and enhancement. As noted throughout this Tier-2 Criteria for a NM Unit or Water Utilization Alternative, and in 2.0, Project Goals, of the attachment, the proposal should result in water in the river year-round to the benefit Federal and State listed species. Increased return flows to the river should support a healthy riparian area, and provide an excellent habitat for birds and other wildlife.

g. Any others. [up to 10 points]

**7. 40] List those supporting the application, including federal, state, and local government entities; Indian nations, tribes or pueblos; irrigation or conservation districts; non-profit organizations; and other entities. Provide letters or resolutions of support for the application. [up to 40 points]**

All of the irrigation associations in the area support the proposal. In addition the proposal is supported by the Gila Basin Irrigation Commission, the Grant County Soil and Water Conservation District, and the Upper Gila Arroyos Watershed District, and the Gila / San Francisco Water Commission. Letters of support are attached from: Gila/San Francisco Water

Commission; Gila Basin Irrigation Commission; and The Upper Gila Arroyos and Watershed District.

**8. [30] Describe whether the proposal would benefit one or more than one of the counties in the Southwest New Mexico Planning Region – Catron, Grant, Hidalgo, and/or Luna Counties. [10 points/county up to 40 points]**

The proposal would support interests in Grant and Hidalgo counties by maintaining water in the river throughout the year for agricultural production, recreation, and the ecology of the river and adjacent riparian area. Luna County, if their Tier-2 proposal is successful, could benefit by utilizing some of the water that would be stored in the Gila Basin to supplement current and future needs in the Deming area.

**9. [50] Describe whether the proposal would support economic growth or benefit one or more than one of the following interests in the Southwest New Mexico Planning Region– agricultural, ranching, municipal, recreational, or other (specify). [10 points/interest up to 50 points]**

The proposal would support economic growth and stability in each of the areas mentioned.

**AGRICULTURE-** The assurance of an adequate and dependable supply of water throughout the year, particularly during the primary crop production period, would allow agriculture to expand cropping alternatives, some of which would use less water than those in place today. This would diversify the agriculture production in the area, provide increased agricultural income, increase local employment opportunities, and help stabilize the agricultural economy throughout the region and encourage young folks to remain in the area and continue these agricultural enterprises.

**RANCHING-**A similar situation would occur in ranching, particularly if water rights lost during the adjudication were reinstated for stock and other water uses. Water is the mainstay for this region and a dependable and adequate supply is critical for agricultural and ranching interests to continue operating in this semi-arid region.

**RECREATIONAL-**This is an activity that is important to many in the public, particularly those who are city dwellers and retirees and want to get out in the country. Maintaining and enhancing the ecology of the river, in conjunction with meeting other important water needs, will provide expanded recreational opportunities and attract others to the region. It will also support local businesses which operate in the area who depend on visitors and tourists as a significant part of their customer base.

**MUNICIPAL-**Without water, population or economic growth will not occur. Several municipalities in this area have lost prospective businesses, which would provide new jobs and income because adequate water was not available. This is evident in the proposal submitted by Luna County to obtain water from Grant County to meet current and future needs for Deming. While some may argue that there is plenty of water available today, this will not be the case in the future. It is critical for growth and stability in municipal areas that the water available to New Mexico under the AWSA is secured for current and future use in the region.

**OTHER-** As urbanization occurs and the demand for water increases, there will be increased pressure to shift water from agricultural use. This emphasizes the importance of utilizing all of the water available under the AWSA, as well as for storing water from floods, to support and strengthen the agricultural economy and ecology of the area while helping meet food and fiber needs of a growing population, domestically and world wide.