Border Environment Cooperation Commission
Maverick County Water Control & Improvement District No. 1 (Eagle Pass, Texas)
Water Conservation Improvement Project

General Criteria

1. Project Type

The proposed project falls under the Border Environment Cooperation Commission (BECC) priority area of water conservation. The project consists of 4 water conservation measures that will improve the efficiency of its irrigation delivery system: 1) installation of an impermeable lining on 4.7 miles of lateral canals, 2) replacement of 18 aging lateral turnout gates and their associated piping, 3) rehabilitation of 12 check gates located on the Canal Extension, and 4) installation of 10 new saddle-type flow meters for accurate water delivery.

The purpose of the project is to improve efficiency and maximize potential water, energy and economic savings. The proposed activities will improve management and conservation of water, reduce evaporation, seepage losses and operation and maintenance costs, and will conserve energy.

2. Project Location

The Maverick County Water Control and Improvement District No. 1 (MCWCID#1), established in 1929, covers about 80,000 acres extending from the Texas Maverick-Kinney county line southeastward along the Rio Grande for approximately 55 miles to below the town of El Indio. The District operates entirely by gravity flow and does not operate pumps to move water. The head gates of the District's Main Canal are located at the Rio Grande in Kinney County approximately 14 miles southeast of the city of Del Rio and about 18 miles northwest of the town of Quemado. The city of Eagle Pass, Texas is the largest municipality within the District.

The District's Main Canal conveys water from the Rio Grande over a distance of about 32 miles to the canal's terminus at the AEP/Central Power and Light Hydroelectric Power Plant, which is located about nine miles north-northwest of Eagle Pass. The Canal Extension conveys water from the end of the Main Canal near the Power Plant southeastward to the lower end of the District below the town of El Indio, a canal distance of approximately 57 miles. Water is diverted from the Main Canal and the lower Canal Extension into a system of lateral canals that feed individual farms. There are approximately 90 miles of main canals, 200 miles of primary lateral canals in the District, with about another 250 miles of sub lateral canals and farm ditches. Water flowing in the Main Canal that is not needed for irrigation purposes in the upper part of the District and that is not diverted into the Canal Extension for use in the lower part of the District, is passed through the Power Plant used to generate hydropower and then returned to the Rio Grande. Approximately 95 percent of the water normally diverted from the Rio Grande into the District's Main Canal is used for hydropower generation and then returned to the river. The District also receives credit from the State of Texas for water that is returned to the Rio Grande as measured at 13 different return-flow monitoring stations. Such return

flows primarily include seepage water from canals and irrigated fields that is collected by drains and conveyed back to the river.

The District operates entirely by gravity flow and does not operate pumps to move water. The District uses 2 reservoirs; a 200 acre-foot reservoir located in the El Indio area near the end of Lateral 70A, and a 60 ac-ft reservoir located near the end of lateral 71. The reservoirs are used for storage of allocated water and as an outlet to the sub-lateral system. The District holds TCEQ Adjudication No. 23-2671, which authorizes the District to divert from the Rio Grande a maximum quantity (if allocated) of 134,900 acre-feet of "Class A" irrigation water, 2,049 acre-feet of water for domestic/municipal, livestock and industrial use and 1,085,966 acre-feet for non-consumptive hydro-electric power generation. The average quantity of water diverted from the Rio Grande between the year 1986 and 1998 was approximately 88,356 acre-feet per year for irrigation. The District water delivery efficiency for water diverted from the Rio Grande and delivered to farm turnouts for irrigation purposes is approximately 67%.

The District contains approximately 45,000 acres of irrigable farmland, of which approximately 38,500 acres are currently being farmed The district has 849 water accounts, of which 549 irrigation accounts. A general location map of the District is shown below.

3. Project Description and Work Tasks

Based on various analyses and studies of the District conveyance system suffers from significant water losses and inefficiencies. The District has implemented water

conservation activities with its own limited resources, but implementation of more costly water conservation activities have been prevented due to the District's limited availability of funds. Based on available NADB Water Conservation Infrastructure Funds (WCIF), the District identified a project with four activities to meet the 50/50 funding requirement. The proposed project includes: 1) canal lining of 12,735 feet of existing concrete canal (Lateral 2A) and 12,047 feet of existing earthen canal (Lateral 8E); 2) rehabilitation of 12 check gate structures located along the El Indio Canal Extension; 3) replacement of 18 turnout gates and associated piping on several canal laterals; and 4) installation of 10 saddle mount impeller meters at critical water delivery locations within the District's water delivery system. The annual quantity of water that will be saved from the activities is estimated at 2,412 acre-feet per year, in addition to improved efficiency and reductions in operation and eminence costs. The total cost of this work is estimated at $1.046,943.

With approval of a project agreement with NADB by May 2004, the District proposes to advertise for bids for materials in June 2004, award contracts in August 2004 and complete construction by late February 2005 (6 months construction time). The District will provide all labor for the construction.

In addition to the above-proposed project, the District has prepared a second phase of water conservation activities to be undertaken subject to availability of future funds from the U. S. Bureau of Reclamation (USBOR). These include installation of impermeable lining on 3 miles of the Main Canal, installation of impermeable lining of an additional 4.4 miles of lateral canals and installation of a remote telemetry system which will include a base station and 10 reporting stations along the Main Canal and Canal Extension. The water savings of this second phase is estimated at an annual 8,400 acre-feet per year from the Main Canal lining and 2,891 acre-feet per year from the lateral canal lining. The estimated cost of this work is $5,142,467.

The proposed projects will have a significant impact on improving the operational efficiency of the District and will enhance conservation of the limited availability of water. This is especially important since the District foresees that population pressures will continue to create an increased demand for water for municipal purposes with less water available for irrigation.

4. Conformance with International Treaties and Agreements

The International Boundary and Water Commission (IBWC) is an independent bi-national public organization that ensures implementation of the 1944 Water Treaty between the United States and Mexico related to water and boundary issues. The MCWCID#1 project does not violate the allocation of water rights. The District will continue to meet all state surface water diversions from the Rio Grande in accordance with the agreements in place and the restrictions of the Treaty.

The Texas Commission of Environmental Quality (TCEQ) and the International Boundary and Water Commission (IBWC) are the authorities for allocation of water to the District. The 1944 Water Treaty between the United States and Mexico applies. The District is organized under Article XVI, Section 59 of the Texas Constitution and

operates under the provisions of Chapters 49 and 58 of the Texas Water Code. MCWCID#1 diverts water from the Rio Grande River in accordance with a Permit issued by TCEQ. TCEQ's Rio Grande Watermaster Office in Harlingen is responsible for allocating, monitoring, and controlling the use of surface water by the District in coordination with IBWC. The State Watermaster also cooperates with IBWC and its Mexican counterpart to monitor U.S. and Mexican compliance with the U.S.-Mexico Treaty of 1944. There is no reported non-compliance by MCWCID#1 under the TCEQ permit.

Human Health and Environmental

1. Human Health and Environmental Need

The proposed project activities address one of the most pressing problems facing the Lower Rio Grande Valley of Texas, i.e., water shortages due to drought over the last seven years and an increasing demand due to population growth. The "Rio Grande Regional Water Plan", adopted by the TWDB in January 2001, indicates that the year 2000 U. S. Census Bureau population of Maverick County was 48,180 and that the projected year 2050 population will be 90,351. During a conference on "Water 2050: Preventing Crises and Conflict in the West", conducted by the Bureau of Reclamation in August 2003, the TWDB revised that projection and indicated that population in the region would double by year 2030. The dramatic growth along the U. S. side of the Rio Grande is also mirrored on the Mexican side where the Regional Water Plan has projected that the existing Mexican population is expected to double by year 2020. The Regional Water Plan also estimates that Maverick County irrigation water use is expected to decrease by approximately 9% and municipal water use is projected to increase by approximately 19% by year 2050. The increase in municipal water use reflects the projected population increase for the Maverick County area. The decline in projected irrigation water use reflects the anticipated urbanization of farmland due to projected population increase and the projected loss of irrigable land due to the adverse economics of farming. It should be noted that the changes in water use do not take into account the revised doubling of the population on the U.S. side of the Rio Grande by year 2030.

Based on the need for conservation of limited available water resources, and the Districts dependence on the Rio Grande River for water, the District has sought to maximize the benefit of all water diverted from the Rio Grande. The proposed project is one of various other activities the District is undertaking to address the critical water shortages by reducing water losses and improving efficiency in the delivery of water to enhance availability of water both domestic and agriculture use.

2. Environmental Assessment

R.J. Brandes Company completed an Environmental Summary (ES) for the project. Preparation of the ES utilized information obtained from a wide range of sources including the Texas Commission on Environmental Quality, Texas Parks and Wildlife Department, Texas Historical Commission, The General Libraries at the University of Texas at Austin, Texas State Historical Association, Texas Department of Transportation, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, U.S. Census

Bureau, National Register of Historic Places and the Native American Consultation Database. Additional data was obtained through on-site field inspections, interviews with District personnel and previous engineering reports. The information is sufficient to support the following conclusions:

- The project is needed and is justified. The recommended alternatives are the most reasonable and cost effective alternatives.
- Socioeconomic impacts are expected to be positive. No adverse impact is expected.
- No short or long term disruption to wildlife habitat is expected to occur.
- No significant, long-term, air, water or vegetative impacts are expected to occur.
- No cultural resources will be impacted as a result of the proposed project.

The ES was submitted to the Texas Parks and Wildlife Department, Texas Historical Commission, U.S. Army Corps of Engineers and the US Fish & Wildlife Agency for review. The U.S. Army Corps of Engineers has determined that since the project sites do not contain any areas subject to Section 10 of the Rivers and Harbors Act or Section 404 of the Clean Water Act, a Department of the Army permit is not required. The Texas Historical Commission reviewed the project under Section 106 of the National Historic Preservation Act of 1966 and the Antiquities Code of Texas and determined that "the project should have no effect on historic properties". No further review is necessary from the Texas Historical Commission. The U.S. Fish and Wildlife Service and the Texas Parks and Wildlife Department reviewed and concurred with the project subject to the implementation of various mitigation measures during the construction of the project, all of which will be adhered to.

The construction drawings include specifications requiring the contractor to protect existing waterways, vegetation and wildlife from unnecessary disruptions during construction. In addition, the District will file the required Notice of Intent with the Texas Commission on Environmental Quality (TCEQ) and prepare a Storm Water Pollution Prevention Plan before construction.

The construction of the proposed water conservation measures will have an overall sustained positive environmental impact, enhancing the prospects for continued economic growth of the region, as well as the improved health and social well being of the region's growing population.

3. Compliance with Environmental and Cultural Resource Laws and Regulations

The environmental review of the project and the proposed mitigation measures comply with all environmental and cultural resource laws and regulations. All required permit conditions necessary for the construction or operation of the proposed project will be acquired and complied with. The District has the required water rights and is fully compliant with the terms of its water use permit.

Technical Feasibility

1. Appropriate Technology

The project plans were prepared and completed by R.J. Brandes and Company (Consultant in Water Resources) and Axiom-Blair Engineering with State Energy Conservation Funds (SECO) provided to the District by the Texas Water Development Board (TWDB). The activities are designed to address the 2001 Adopted Region M Water Plan which calls for conservation measures to offset the deficits, and in response to the enduring drought that has affected the lower Rio Grande Valley over the past several years. The drought and the projected decrease in irrigation water supply has required the District to place a greater emphasis on water conservation to ensure the delivery of water to the customers they serve.

The project includes four components, as described below, of which the major water saving component is canal lining. The other activities are primarily related to improving conveyance efficiency, and monitoring and control of water deliveries.

1) *Canal Lining*: The District has identified approximately 4.7 miles of laterals to be lined as a result of this conservation project; Laterals 2A and 8E. Ponding tests performed by Texas A&M University in 2003 indicated that that the concrete-lined Lateral 2A exhibited an annual loss rate of 237 acre-feet of water per mile, and the earthen Lateral 8E exhibited an annual loss rate of 811 acre-feet per mile. The lining of the 4.7 miles of laterals will conserve approximately 2,421 acre-feet of water annually.

The District proposes to use the most cost effective, durable and lowest-maintenance liner that provides the best water savings. Based on results of USBOR tests of various liners, including concrete, exposed geomembrane and concrete with geomembrane underliner, as well as District and R.J. Brandes Company field inspection and knowledge of lining projects using a Firestone 45 mil Ethylene Propylene Monomer (EPDM) rubber liner and geotextile cushion system, the EPDM system was selected. The EPDM system is considered to have a good track record for ultraviolet (UV) light resistance, has installation costs of about half of the installation costs of polyurethane textile liners, does not require special machinery for installation, and can be more easily installed and repaired than polyurethane geotextile liners.

The cost for placing new concrete in the earthen channels would be over seven times the installed cost for the EPDM rubber lining. The cost for placing polyurethane impregnated geotextile in the earthen channels would be over three times the installed cost for the EPDM rubber lining. The EPDM rubber is guaranteed for twenty years by the manufacturer and is easily installed and repaired by District personnel.

2) *Canal Check Rehabilitation:* The District's infrastructure is over 70 years old conveyance efficiency is significantly degraded due to rust, warping and debris damage. Thus, rehabilitation of 12 check gate structures located along the El Indio Canal Extension have been identified for immediate replacement to improve control and efficiency. The gate and gate works will be removed from each structure and new gates fabricated and installed.

3) Canal Turnout Replacements: Based on their deteriorated condition, 18 turnout gates and associated piping on several canal laterals are also proposed to be replaced. The current gates are difficult to operate and leak significant amounts of water.

4) *Flow Meters:* Installation of 10 saddle mount impeller meters at critical water delivery locations within the District's water delivery system are also planned to be installed to improve control and monitoring of water deliveries. The meters will be similar or equal to Model M1400 McCrometer model meters whereby the rotational velocity of the meter impeller is directly proportional to flow. The impeller's rotation is translated through a magnetic coupling and flexible drive system to a register which calculates the flow by multiplying the flow velocity times the area of the pipe to which it is installed.

2. Operation and Maintenance Plan

The operation and maintenance requirements for the improvements to the facilities are basically the same as already performed on the existing pipelines and canals of the system. The existing staff is considered sufficiently capable and experienced to undertake required maintenance of the new pipeline and canal. Equipment suppliers will be required to provide training on the operation and maintenance of equipment, including provision of O&M manuals.

3. Compliance with Applicable Design Standards and Regulations

The design and construction requirements will adhere to U.S. Bureau of Reclamation (USBOR) requirements under the "Guidelines for Preparing and Reviewing Proposals for Water Conservation and Improvement Projects under Public Law 106-576." USBOR design standards and criteria were applied and USBOR quality control procedures will be applied during construction.

Financial Feasibility and Project Management

1. Financial Feasibility

Axiom-Blair Engineering prepared an analysis of project and the District's financial condition to provide matching funds for proposed funding structure of the project and the operation and maintenance of the system. The estimated project costs for design and construction are as follows:

PROJECT COSTS

ITEM	FUNDING SOURCE	TOTAL
Planning	SECO	$110,000
Design/Construction Contracting	SECO	$193,883
Construction Cost/Administration	MCWCID#1 & NADB	$743,060
TOTALS		**$1,046,993**

Cost in U.S. Dollars. January 2004

The funding sources for the project are summarized in the table below. Based on the WCIF Guidelines, the WCIF grant may support 50% of the project costs up to, or a maximum of, $4,000,000. The funding sources for the projects are as follows:

FINANCIAL STRUCTURE FOR THE PROJECT

Source	Type	Amount USD	% Project Cost
NADB	WCIF-Grant	$406,941	39%
State of Texas	SECO Grant	$303,883	29%
MCWCID#1	Cash & In-Kind	$336,119	32%
TOTAL		**$1,046,943**	**100%**

2. Rate Model

The District's primary income is from a flat rate assessment within the District's boundaries and from revenues for delivering water to the hydroelectric power plant owned by American Electric Power Corporation (AEP, formerly owned by Central Power and Light). The table below summarizes the existing fee and assessment structure.

Existing Assessment Fee Structure

Fees	Per Acre
Flat Rate Assessment per irrigable acre	$7.00
Water Assessment (per acre actually irrigated)	$7.00
Water Delivery charge – per Acre-Foot delivered	$3.50

In addition to the above, a major portion of the district assessment is the charge to the AEP Power Plant for water to produce hydroelectric power. The District receives 1.8 U.S. cents per kilowatt-hour generated by the plant. In addition, domestic, municipal and livestock water is charged as noted below:

- Domestic: $33.25/acre-foot
- Municipal: $73.00/acre-foot
- Livestock: $13.25/acre-foot if user has a current irrigation account, or
  $73.00/acre-foot if user does not have current irrigation account

The proposed projects and funding source structures do not require an adjustment to the current Fee and Assessment Structure implemented by the District.

3. Project Management

The project will be managed and implemented by MCWCID#1 over a 6-month construction period. The work is expected to be undertaken by District crews with District equipment (force-account work). The District has managed construction activities of similar magnitude. The District owns numerous pieces of heavy construction equipment such as track excavators, backhoes, boom trucks, concrete pumps, and dump

trucks and has a long track record of constructing irrigation water conveyance systems. The District can operate in a self-sufficient manner, supporting itself through user fees for the project. The existing organizational structure which has been provided is considered sufficient and the project will not require additional District staffing, except for possible additional labor only for the proposed force-account construction. The District Board of Directors issued Resolution No. 04-01, dated January 27, 2004, committing $406,941 of their own resources for the project.

Community Participation

1. Comprehensive Public Participation Plan

The public participation plan submitted by the Maverick County Water Control and Improvement District Water Conservation Project Steering Committee was submitted on September 15 and approved on September 19, 2003.

2. Steering Committee

The steering committee was composed of Abdalla Moses, Landowner, Producer and Board Member of the District; Javier Manch, Educator and Farmer; John Sullivan, Special Assistant to Maverick County Judge; Sammy Juve, President, Texas State Bank; Roy Cooley, District General Manager. Technical Assistants to the committee were the consulting and district engineers. The committee disseminated information of the advantages of the project to the district and surrounding community. Community members were particularly supportive of a project that is cost-effective and improved water conveyance, conserved water and funded without raising taxes.

3. Local Organizations

Local organizations contacted include: Eagle Pass Hydro Facility, Quemado Citizens Group, Eagle Pass Rotary Club, Texas State Bank, The Migrant Council, the Maverick County Judge and Commissioners Court, the City of Eagle Pass City Council and Mayors Office and the Eagle Pass Water Works. Letters of support have received form businesses and the Texas State Bank have been provided. All of the organizations contacted were fully supportive of the project.

4. Public Information

Project information, such as the Project Plan, Step I Document, Project Report and Project Fact sheets were available for public review at the District offices during and after work hours. The 30-day notice was published in the Eagle Pass Guide informed of the availability of these documents. A bilingual fact sheet was distributed to local residents at the public meetings and included in a mail-out to District landowners and producers. A newspaper article published in the Eagle Pass News Guide 30-days before the public meetings helped inform about the project. The fact sheets and public meeting notice were posted in the Post Office in Quemado, El Indio and in the County Courthouse in Eagle Pass.

5. Public Meetings

Four public meetings were held in 2003. The first pair of meetings took place on 13th and 15th of October. The third and fourth public meetings were held on the 8th and 9th of December. Exit surveys indicate that support for and no opposition to the project. A petition located in the District office confirms this tendency.

Sustainable Development

1. Definition and Principles

Sustainable Development Criteria is defined as conservation oriented social and economic protection and sustainable use of resources, while addressing both current and future needs, and present and future impacts of human actions. This definition is based on the Rio de Janeiro Declaration on Environment and Development, which states that development should meet the needs of the present without compromising the ability of future generations to meet their needs.

All of the proposed project components will comply with the definitions and principals of Sus2tainable Development in that they positively impact the area and sustainable life of the area's residents through the conservation of water. Water conservation is critical to quality and life and economic growth in the Rio Grande Valley. The Canal Rehabilitation, Radial Gate Bay Installation, and the Canal Regulation activities of the project will help to reduce the seepage of valuable water. In addition to water savings, the District will experience energy savings through a more efficient delivery system.

2. Institutional and Human Capacity Building

The Rio Grande Regional Water Plan, in support of the implementation of agricultural water conservation strategies, includes the following actions for reduction of irrigation shortages:

- Expanded technical assistance should be available from local, state and federal sources to assist irrigation districts with more detailed systematic evaluations of district facilities and management policies to identify cost effective water efficiency improvements
- The State of Texas and the federal government should assist with the financing of irrigation water improvements through the provision of low interest loans and grants

The District's dependence upon surface water from the Rio Grande as the predominant source of supply for the District is not expected to change over the next 50 years. Thus the District has sought to maximize the benefit of all water diverted from the Rio Grande. Fundamentally, benefit maximization lies in the efficiency with which water is delivered, used and accounted for. Each year, the District reviews past performance and identifies areas for improvement in the efficiency of delivering water in the coming year. Continuing efforts are made to implement efficiency measures within the existing resources and capabilities of the District. Aggressive efforts to meter all customer deliveries have improved the efficiency of the District's water supply system. In addition to these existing programs, the Board of Directors has identified the proposed Project as a critical step in continuing to increase overall system efficiency.

Considering the District is dependent on surface water from the Rio Grande as the predominant source of supply for the District, and this is not expected to change over the next 50 years, the District has sought to maximize the benefit of all water diverted from the Rio Grande. Each year, the District reviews past performance and identifies areas for improvement in the efficiency of delivering water in the coming year. Continuing efforts are made to implement efficiency measures within the existing resources and capabilities of the District. Aggressive efforts to meter all customer deliveries have improved the efficiency of the District's water supply system. In addition to these existing programs, the Board of Directors has identified the proposed Project as a critical step in continuing to increase overall system efficiency.

Accordingly, due to the limited financial capacity of water control and improvement districts, the State of Texas, through the State Energy Conservation Office (SECO) and the Texas Water Development Board (TWDB), provided financial assistance to the District for the preparation of the project plans and the necessary documentation required to qualify for federally appropriated funds. In addition, the Texas A & M University Texas Water Resources Institute completed an economic and conservation assessment of the projects with funds provided through the "Rio Grande Basin Initiative", administered by the Cooperative State Research, Education and Extension Service of the U. S. Department of Agriculture. The U. S. Bureau of Reclamation (USBOR) approved the methodology for the economic and conservation analyses.

The project plans for the proposed project were completed under the Lower Rio Grande Valley Water Resources Conservation and Improvement Act of 2000 (Act), Public Law 106-576. The Act also provides limited funding availability for engineering work, infrastructure construction and improvements. An amendment to the Act (H.R. 2990/S.1577) authorized funds for additional conservation projects. The District entered into a contract with the TWDB, whereby the TWDB will reimburse the District, with grant funds, for the cost of preparing the project plan, project report, plans and specifications and monitoring reports for the proposed project.

The North American Development Bank (NADB) Water Conservation Investment Fund (W2CIF) will complement, with grant funds, the capital investments required by the District for construction of these projects. The use of WCIF grant funds allows the District to finance restoration of its infrastructure in order to reduce water conveyance losses.

The project activities will be managed by the District and will be constructed and operated in conformance with Federal, State and NADB requirements. The process for the development of the projects has followed a planning and public participation process that developed alternatives and associated costs, solicited public input, established priorities based on the input of the stakeholders and proceeded according to the priorities established in the planning process.

A monitoring program will be established for a two-year period to evaluate and quantify the actual water savings following construction of the projects. The monitoring program will consist of the following:

- The amount of water conveyed and then returned to the Rio Grande will be determined on a monthly basis and submitted annually. The annual report will include the historic water returned figures for comparison.
- The amount of water conveyed will be measured and compared with the water delivered on a monthly basis and submitted annually. The annual report will include historic water conveyed and water delivered volumes for comparison.

3. Conformance with Applicable Local and Regional Conservation and Development Plans

The proposed projects comply with all local and regional conservation and development plans. In particular, the project complies with the "Rio Grande Regional Water Plan," which recommends agricultural water conservation and on-farm water use efficiency in order to reduce irrigation shortages.

The project Report has been prepared in accordance with the "Guidelines for Preparing and Reviewing Proposals for Water Conservation and Improvement Projects Under Public Law 106-576" issued by the U.S. Department of Interior, Bureau of Reclamation, June 2001.

The projects are in conformance with local conservation efforts already developed by the District and served communities. Conservation of water is stressed and penalties are assessed for overuse of water. A water allocation plan (Drought Contingency Plan), goes into effect for irrigation when the irrigation water account storage has declined to 25,000 acre-feet. This program remains in effect until full water supplies are available to the District's irrigation account.

4. Natural Resources Conservation

The proposed project was developed with the intent of conserving water. The Districts authorized water rights are 137,000 acre-feet per year for irrigation, municipal, domestic industrial and livestock purposes. However, these water rights are on an "as available" basis and the actual water available to the District may vary from year-to-year.

In addition to these water rights, the District also holds authorized rights in the amount of 1.1 million acre-feet per year for the generation of hydroelectric power (non-consumptive).

According to the Economic and Conservation Analysis section of the Project Report, the implementation of the proposed WCIF and USBOR-funded phases of the District's proposed project activities will allow an estimated water savings of 8,400 acre-feet per year in the Main Canal, and 5,312 acre-feet in the Lateral system. The savings from the WCIF project alone will save an estimated 2,421 acre-feet of water per year.

5. Community Development

The benefit obtained by modernization of the irrigation facilities may directly impact agricultural production and may result in increased income and an improved quality of life for end users. Making residents active participants in development of their community may also enhance economic activity. An improved quality of life for the residents may also have a favorable impact on the development of health and education in the area.

Available Documents

- R.J. Brandes Company, Consulting in Water Resources, *"Project Plan for the Water Conservation and Improvement Project, Maverick County Water Control and Improvement District No. 1,"* June 2003.

- R.J. Brandes Company, Consulting in Water Resources, *"Draft Project Report for the Maverick County Water Control and Improvement District No. 1 Water Conservation Project,"* January 2004.

- Axiom-Blair Engineering, "Financial *Feasibility Report, Maverick County Water Control and Improvement District No. 1 Water Conservation Project,"* December 15, 2003.

- R.J. Brandes Company, Consulting in Water Resources, *"Environmental Summary Report for Water and Conservation and Improvement Project, Maverick County Water Control and Improvement District No. 1,"* September 2003.

- Axiom-Blair Engineering, *"Baseline Conditions Report and Irrigation District Indicators for the Maverick County Water Control and Improvement District No. 1,"* December 2003.

- Axiom-Blair Engineering, *"Sustainable Development Report for the Maverick County Water Control and Improvement District No. 1 Water Conservation Projects,"* November 2003.

- Axiom-Blair Engineering, *"District Information Documents for the Maverick County Water Control and Improvement District No. 1 Water Conservation Project,"* November 2003.

- R.J. Brandes Company, Consulting in Water Resources, *"Proposal to the Texas Water Development Board Use of Oil Overcharge Proceeds for Preparation of a Project Report for a Water and Energy Conservation and Improvement Project under Public Law 106-576 Project Plan for the Water Conservation and Improvement Project, Maverick County Water Control and Improvement District No. 1,"* July 12, 2002.

- Maverick County Water Conservation and Improvement District No. 1 Project Steering Committee, *"Public Participation Plan for the 2003 Water Conservation*

Project, Maverick County Water Control and Improvement District No. 1," December 2003.

§ Fipps, Guy, *"Potential Water Savings in Irrigated Agriculture for the Rio Grande Planning Region (Region M) Final Report"*, Texas Agricultural Extension Service, Texas Agricultural Experiment Station and Texas A&M University, December 22, 2000.

§ Texas Water Development Board, "2001 Adopted Rio Grande Regional Water Plan (Region M)", January 2001.