

Interregional Water Supply Projects

Compiled responses to TWDB's Request for Information

The TWDB issued this request for information (RFI) to seek information and comments regarding water supply projects that would benefit multiple water planning regions. The TWDB collected this information as directed in HB 1052 that passed during the 86th Legislative Session. The purpose of this RFI was to provide a means for stakeholders to share ideas regarding the types of interregional projects that could be considered for funding at a later date.

Responses were accepted from April 1, 2020 to July 1, 2020.

APPENDIX B Response Form

TWDB REQUEST FOR INFORMATION 580-20-RFI-0009 DUE NO LATER THAN 2:00 PM (CDT) on JULY 1, 2020

Company/Entity Name America First Committee PAC/ James Lee Murphy, General Counsel <i>JLM</i>	
Address 265 E. Oakview Place, Alamo Heights, Texas 78209	Phone Number (210) 859-2189
Name and Title of Authorized Representative Submitting the Response James Lee Murphy, General Counsel, America First Committee PAC	
Contact Person Name James Lee Murphy, Esq.	Contact Person Phone Number (210) 859-2189
Contact Person Email Address jamesleemurphyesq@att.net	
Regions Affected (as shown on Regional Water Planning Areas map) Primary Regions of Impact: C, H, K & L Secondary Regions of Impact: I, P & N	
Proposed Source for the Water Supply: (1) Toledo Bend Reservoir; (2) the Simsboro Aquifer portion of the Carrizo-Wilcox Formation; and (3) the Gulf of Mexico	
<p>Response</p> <p>Chairman Lake, Directors Jackson and Paup, on behalf of myself, James Lee Murphy and the America First Committee PAC, I thank you for the opportunity to comment. The current regional planning process dates back to the passage of Senate Bill 1 during the 1997 Session of the Texas Legislature. A lot has changed since that time and we believe HB 1052 provides an opportunity for taking a second look at a regional planning process begun over two decades ago.</p> <p>Over the past 27 years I have been directly involved representing the interests of river authorities in the planning regions that affect the Dallas Metroplex, Houston, Austin, and San Antonio. Thanks to funding made available by the TWDB, I've supervised the development of large-scale regional projects and have presented testimony before the Texas Legislature, TWDB and numerous professional associations regarding strengths and weaknesses of the current regional planning process. I am therefore qualified to offer a careful examination of elements essential to the development of projects "that would benefit multiple water planning regions" and to do so in manner that will "encourage optimum development of interregional water supply projects selected under Texas Water Code Section 16.145."</p> <p>The projects that I reference in the "Proposed Source for the Water Supply" section above adhere strictly to the criteria established by TWDB for this RFI: (1) maximizing the use of private financial resources, (2) combining the financial resources of multiple water planning regions, and (3) having a substantial economic benefit to the regions served by: (a) affecting a large population, (b) creating jobs in the regions served, and (c) meeting a high percentage of the water supply needs of the water users served by the project. I will briefly describe the projects however a detailed description is unnecessary as TWDB has either funded or otherwise obtained information regarding the sources. I will conclude with an overview of the impediments to promote and fund "water supply projects that benefit multiple water planning regions."</p> <p>Toledo Bend Reservoir</p> <p>Toledo Bend reservoir has a conservation surface area of 181,600 acres and a shared storage capacity of 4,477,000 acre-feet at the conservation pool elevation of 172 feet above mean sea level. Designed total storage capacity is 4,661,000 acre feet at top of emergency spillway gates, elevation of 173 feet above mean sea level. Toledo Bend Reservoir is the largest man-made body of water in the South by surface area and fifth largest in surface acres in the United States. It is the third largest reservoir in or shared with Texas by total storage capacity. Toledo Bend could supply much, possibly all, of the demand projected in the State Water Plan for Regions C & K, however three factors combine to stymie the effective usage of this unmatched resource: (1) legislation; (2) transportation; and (3) commodity cost. Scholarly papers describe the problem in detail, however it is important to note that unlike most projects listed in the State Water Plan, the source of supply is secure, well-identified and readily available, while the impediments are largely "paper problems" that can be remedied by legislation, which I address below. The chief engineering challenge is in the field of transportation, as infrastructure is necessary to link the resource to the Greater Houston metropolitan area, as well as the DFW area's Integrated Water Project pipeline. It should be noted in terms of water availability that Louisiana has little projected need for its share of the Toledo Bend.</p> <p>Groundwater - The Simsboro Aquifer</p> <p>As an Executive Manager at the Guadalupe-Blanco River Authority (GBRA), I have as strong a claim as any to the potential development of the Carrizo-Wilcox aquifer as a source of supply consistent with the guidelines of this RFI. GBRA developed a project to utilize this resource in combination with storage and under-utilized surface water rights held by GBRA.</p>	

Response (continued)

As a predominantly rural authority, GBRA recognized that the highest and best use of the state's groundwater resource should be reserved for the following uses, in descending order of importance: (1) agriculture; (2) industry; and (3) smaller communities with stagnant or declining population growth. We were concerned moreover that promotion of groundwater was, and is, driven by consultants and private investors for whom profit precedes the public interest. Our approach therefore was to focus on the Simsboro, based on information obtained from TWDB, as the most reliable source of groundwater for municipal supply, supplemented by surface water and storage, the latter to balance the differing drought curves that affect surface and groundwater. We determined that no more than 100,000 acre-feet of groundwater could be relied upon for municipal water supply, and we predicated our project on providing 50,000 acre-feet to the San Antonio area, 35,000 acre-feet for the Austin area, with remainder for the I-35 corridor between Austin and San Antonio. GBRA abandoned this project due to political pressure, possibly illicit, applied by private investors and/or their lobbyists and attorneys, however it remains viable if the Vista Ridge pipeline, currently operated by Epcor, a private entity, were converted to a regional utility rather than a personal vehicle for the personal benefit of the beneficiaries of the San Antonio Water System.

The Gulf of Mexico

More than two-thirds of Texas residents live within 150 miles of the Gulf of Mexico. It should be glaringly obvious that marine seawater represents the best long-term source of uninterrupted source of water supply for our state. All sources of supply are subject to interruption, however unlike all other options, the Gulf will never run out of water. GBRA developed a scalable Integrated Water Power Project to provide from at least one treatment facility, up to 250,000 acre-feet of supply, in increments of 25,000 acre-feet along the Texas Coast. This project was funded in part by TWDB, the GLO, and the Bureau of Reclamation. I worked closely with Rep. Eddie Lucio III and Senator Juan "Chuy" Hinojosa to secure legislation recognizing marine seawater as resource for the state and in the process worked closely with TPWD and environmental stakeholders to address positively their concerns. This project remains in the State Plan and in terms of supply, remains the obvious choice in terms of prioritizing funding from the TWDB's Participation Account.

Maximizing the Use of Private Financial Resources

I have adequately outlined, within the limits of this RFI, projects that will would of necessity meet needs that: "(a) affecting a large population, (b) creating jobs in the regions served, and (c) meeting a high percentage of the water supply needs of the water users served by the project." The projects I describe would create jobs both in the design and construction phase and, more important, proved water supply for economic growth, particularly for sectors of the economy that are large scale water users. Based on personal experience, the foregoing projects are, each in their own way, tailored to take advantage of private finance to maximize state and local investment in water supply. "Private Financial Resources" covers a wide swath, however the terms of the RFI narrow the investor community to multinational corporations that operate in the global water sector and pension and other funds seeking long-term, secure, relatively low rates of return to balance shorter term, higher risk investments. Having worked personally with a significant number of such investors, I can testify to their appetite for investment. Those seeking short term, higher returns on investment have little appetite for investing in water supply projects absent a guaranteed payout in 5-7 years at the outside. I can also testify that Texas has driven off AAA+ investors because of the impediments noted above. Removal of these impediments will open Texas to private funding that will supplement and extend not only the State Participation Account, it will extend the ability of TWDB by reallocating state funds to other, more immediate, needs.

Impediments to Developing and Funding Interregional Water Supply Projects

I mentioned legislation, transportation and commodity cost as proximate obstacles to "developing and funding interregional water supply projects." These impediments have clear solutions that cannot be adequately addressed under the state's currently regulatory framework. The Chairman of the House Natural Resource Committee has often remarked on the "balkanization" of state water planning, and his remarks are if anything, understated. Adding up the projected water demands through the life of the state water plan and balancing those demands against the number of projects in the plan to meet those demands comes up with an average of 1500 acre-feet per project. Our state water plan is more accurately described as a wish list of often duplicative projects that are eligible for state funding. The same can be said for the state agencies that currently have jurisdiction over the state's interest in water supply.

TWDB is not in a position to develop and enforce a state water plan as it is a fiduciary. TWDB has, by default become the state's database for all things water because it is a funding source, but as lending institution it must maintain a safe distance from directing or regulating the institutions to which it extends loans or credit. In a similar way, TCEQ is a regulatory agency, and throughout my career water rights has been the poorly funded step-child of an agency that must focus on compliance with state and federal environmental regulations.

Removing Impediments to Interregional Water Supply Projects

Article XVI, §59 (a) of the Texas Constitution provides that "*The conservation and development of all of the natural resources of this State... and the preservation and conservation of all such natural resources of the State are each and all hereby declared public rights and duties; and the Legislature shall pass all such laws as may be appropriate thereto.*" As is said, a journey begins with the first step. In this instance, "developing and funding interregional water supply projects" begins with an agency charged with the mission of maximizing the development of the state's water supply. There are many ways to accomplish this task, however the State needs an equivalent of the General Land Office to promote and protect the state's interest in water and in the process end what is a *de facto* privatization of the state's interest in water. Texas recognized that by the 1890's it was a bad idea to give away land rights for no value. As a result, we have the General Land Office and the Permanent University Fund. As a member of the profession I can't advocate the solution recommended by "Dick The Butcher" in *Henry VI, Part 2, Act IV, Scene 2*, however it can't be denied that a handful of Austin based lawyers and lobbyists have effectively privatized the state role in water planning and as such they are the principal impediment to "developing and funding interregional water supply projects." TWDB is leading the way by issuing this RFI and the good news is that the vast majority of the needs reflected in the state water plan are for domestic and municipal supply. As a practical matter projects and funding related thereto will go to political subdivision of the state. They are therefore subject in all things to the Texas Legislature and the "rules of the game" the state chooses to impose. In closing, I thank you for the opportunity to respond to this RFI and I look forward to working with you in the future to make your goals a reality. I am, as always, available to respond to queries or questions.



Brazos River Authority

July 1, 2020

Jessica Zuba
Deputy Executive Administrator
Texas Water Development Board
Water Supply and Infrastructure
P.O. Box 13231
1700 N. Congress Ave.
Austin, Texas 78711-3231
Via Email: Purchasing@twdb.texas.gov

Re: Request for Information 580-20-RFI-0009: State Participation Account - Interregional Water Supply Projects

Dear Ms. Zuba:

The Brazos River Authority (BRA) appreciates this opportunity to submit responses to the request for information regarding water supply projects that would benefit multiple planning regions.

Due to the natural geography, orientation of the basin, and configuration of the regional water planning areas, the Brazos River basin is uniquely positioned to implement water supply strategies that naturally benefit both Brazos G and Region H planning regions.

Enclosed are responses summarizing three primary water supply projects (Allens Creek Reservoir, Lake Whitney Reallocation, and Freeport Seawater Desalination) that would benefit both planning regions.

In addition to the projects above, other potential water supply projects that would benefit multiple planning regions include groundwater projects and aquifer storage and recovery strategies, primarily in the central portion of the Brazos River basin, where groundwater opportunities exist, and aquifers are conducive in implementing storage and recovery. Additionally, implementing reuse projects could also benefit multiple planning regions by developing new supplies that could delay the need for other more complex and more expensive water management strategies.

If you have questions on the enclosed submitted responses, please don't hesitate to contact Aaron Abel, Water Services Manager, at 254-761-3175 or via email at aaron.abel@brazos.org. We appreciate this opportunity to share ideas regarding the types of interregional projects with TWDB and we look forward to continuing to support TWDB in the regional and state water planning efforts.

Sincerely,

DAVID COLLINSWORTH
General Manager/CEO

Enclosure

**APPENDIX B
Response Form**

**TWDB REQUEST FOR INFORMATION 580-20-RFI-0009
DUE NO LATER THAN 2:00 PM (CDT) on JULY 1, 2020**

Company/Entity Name Brazos River Authority	
Address 4600 Cobbs Drive Waco, TX 76710	Phone Number 254-761-3100
Name and Title of Authorized Representative Submitting the Response David Collinsworth, General Manager/CEO, Brazos River Authority	
Contact Person Name Aaron Abel	Contact Person Phone Number 254-761-3175
Contact Person Email Address aaron.abel@brazos.org	
Regions Affected (as shown on Regional Water Planning Areas map) Brazos G and Region H	
Proposed Source for the Water Supply Allens Creek Reservoir	
<p>The Brazos River Authority is pursuing the Allens Creek Reservoir project in order to develop water to meet needs in the lower Brazos and San Jacinto River Basins as well as adjoining coastal basins. Allens Creek Reservoir has been a recommended water management strategy in all Region H Regional Water Plans and State Water Plans since the first cycle of the water planning process in the early 2000's. Additionally, the Allens Creek Reservoir site has been continually identified as a Unique Reservoir Site within the Region H regional water planning process. It is currently estimated that the project will provide approximately 100,000 acre-feet/year of firm supply. The reservoir's primary benefit to the citizens of Texas is to provide water for municipalities, industry, agricultural producers, and electric energy generators in the Region H area. The reservoir will also help satisfy regulatory requirements to reduce groundwater pumping, which contributes to subsidence in the area.</p> <p>A Texas Commission on Environmental Quality (TCEQ) water right has been granted for Allens Creek Reservoir through permit 2925 (original right granted February 6, 1974 and amended by 2925A granted January 16, 2002 and 2925B granted August 31, 2011). This permit provided for the ownership of the reservoir among City of Houston, Brazos River Authority, and the Texas Water Development Board who provided funding for the original purchase of the site.</p> <p>In addition to the Region H planning area, Allens Creek Reservoir will also benefit the Brazos G planning area, located primarily in the central portion of the Brazos River basin. Currently, BRA system reservoirs upstream serve the demands in Lower Brazos River basin by providing downstream water supply releases to satisfy the Lower Brazos River basin demands. Once Allens Creek Reservoir is operational and supplying demands in the Lower Brazos River basin, upstream reservoirs within the BRA water supply system will not be required to make downstream water supply releases as frequently, thus creating the potential for additional supply for other users further upstream within the Brazos G planning area.</p>	

The proposed reservoir site is located in Austin County, one mile north of the City of Wallis, on Allens Creek, a tributary to the Brazos River. This site exists within the Brazos River Basin within Region H. Approximately 9,500 acres of land at the reservoir site has been purchased. This project is configured as a scalping reservoir that would divert stormwater flows from the Brazos River and impound these flows in the reservoir to create storage yield. During periods of lower streamflow, diversions are limited by instream flow thresholds established to protect the environment and downstream senior water rights. The conservation storage quantity is approximately 145,500 acre-feet at an elevation of 121 feet above mean sea level. The total project capital cost is estimated at \$365,446,301, according to the 2021 Region H Initially Prepared Plan.

The required permitting through the U.S. Army Corps of Engineers (USACE) and engineering design of the project is anticipated to take approximately 10 years to complete with another 2.5 to 3.5 years expected for construction at the end of an overall 15-year development period.

Currently, BRA's water supply system (System) is composed of eleven reservoirs and associated permitted water rights that allow BRA to contract water on a wholesale raw water basis to over 160 customers. As new projects are evaluated, designed, and constructed costs are spread across the entire BRA customer base. It is anticipated that financing new water supply projects will require a combination of BRA funds, TWDB funds either through the State Participation program or other TWDB programs, and additional outside funding sources.

Additional information related to Allens Creek Reservoir can be found in the 2021 Region H Initially Prepared Plan (<http://www.regionhwater.com/downloads/planningdocs.html>), dated March 2020 (Appendix 5-B-SWDV-001 – Allens Creek Reservoir).

Company/Entity Name
Brazos River Authority

APPENDIX B
Response Form

TWDB REQUEST FOR INFORMATION 580-20-RFI-0009
DUE NO LATER THAN 2:00 PM (CDT) on JULY 1, 2020

Company/Entity Name Brazos River Authority	
Address 4600 Cobbs Dr. Waco, TX 76710	Phone Number 254-761-3100
Name and Title of Authorized Representative Submitting the Response David Collinsworth, General Manager/CEO, Brazos River Authority	
Contact Person Name Aaron Abel	Contact Person Phone Number 254-761-3175
Contact Person Email Address aaron.abel@brazos.org	
Regions Affected (as shown on Regional Water Planning Areas map) Region G and Region H	
Proposed Source for the Water Supply Lake Whitney Reallocation Project	
<p>Lake Whitney is a major impoundment located on the Brazos River approximately 30 miles north of the City of Waco in Hill and Bosque Counties. Lake Whitney was completed in 1951 by the U.S. Army Corps of Engineers for the primary purposes of flood control, water supply, and production of hydroelectric power. The total storage in Lake Whitney is approximately 2.09 million acre-feet (acft), making it the largest reservoir in the Brazos River Basin. The vast majority of storage in Lake Whitney is for flood control, comprising approximately 1,473,000 acft (approximately 70 percent of the total reservoir storage). The conservation storage capacity at Lake Whitney is represented by the storage between elevations 520 and 533 ft-msl and represents approximately 260,000 acft according to a 2019 volumetric survey. The capacity below elevation 520 ft-msl is reserved for power head and sediment storage, and has a capacity of approximately 357,000 acft according to the 2019 survey. In 1972, the top of the power pool was raised from 520 ft-msl to 533ft-msl, and the top of power head reserve (i.e. the bottom of the power pool) was raised from 510 ft-msl to 520 ft-msl, making about 250,000 acft of storage available to hydropower. In 1982, approximately 20 percent of the hydropower storage (50,000 acft) was reallocated to water conservation storage (water supply). A water right was issued to the Brazos River Authority (BRA) that authorizes the BRA to divert and use up to 50,000 acft/yr from the water conservation storage. According to the 2019 survey, the amount stored between elevations 520 ft-msl and 533 ft-msl, which includes both the hydropower pool and BRA's storage, was approximately 260,000 acft. Hydroelectric power generation from Lake Whitney is administered through the Southwestern Power Administration (SWPA), a federal agency. The Whitney Dam powerhouse uses two generators that originally had a capacity of 30 megawatts (MW) but were upgraded in 2014 and now have a capacity of 43 MW.</p> <p>The potential for reallocation of the hydropower storage and inactive storage at Lake Whitney to water conservation storage has been studied in various forms in the past and is an option for developing additional water supply in the Brazos River Basin. The conversion of storage to water supply purposes at Lake Whitney can produce a significant supply of water that could be utilized by a number of entities throughout the Brazos River Basin. Potential users include entities within the Brazos G region, as well as entities downstream in Region H.</p> <p>Lake Whitney is unique due to its use for hydropower generation and the fact that no State water right permit exists for most of its storage. Due to its large size and location on the main stem of the Brazos River, it has the potential to provide greater water supply benefits than currently authorized if some form of reallocation can be implemented under which various portions or pools of the reservoir might be redefined or used differently than they are today.</p>	

The increase in water supply as a result of reallocation at Lake Whitney has been evaluated in each of the last three regional water planning cycles, dating back to the 2011 Brazos G Regional Water Plan. Evaluations of the firm supply in the most recent 2021 Brazos G Initially Prepared Regional Water Plan does not consider converting flood storage to water supply storage at Lake Whitney, but rather evaluates the reallocation of hydropower storage and a portion of the inactive storage in Lake Whitney to water supply storage. This reallocation could produce a considerable firm yield. Since most of the supply from this strategy would be used as part of the BRA system, this analysis determines the increase in BRA system yield made available from the additional storage. The increase in system yield for reallocation of the hydropower storage in Lake Whitney was found to be 38,480 acft/yr for 2070 conditions assuming use of the total storage between elevations 520 feet and 533 feet. If ten feet of previously inactive storage were reallocated to water supply, the increase in yield would be 77,600 acft/yr for 2070 conditions assuming use of the total storage between elevations 510 feet and 533 feet.

Development of the increase in system yield from reallocation of storage in Lake Whitney will not require major facilities for implementation. However, implementation of this alternative requires a detailed evaluation of various issues that will require mitigation of adverse impacts. In addition to these costs, a detailed U.S. Army Corps of Engineers (Corps) reallocation study is required. The final cost for implementation of this alternative will be dependent on the results of that study. The estimated cost for water supply storage in Lake Whitney is the maximum of two numbers: 1) the updated investment cost of the reallocated hydropower storage as a proportion of the reallocated storage to total useable storage, or 2) the amount of money needed to compensate for lost hydropower revenue. The updated total investment cost for Lake Whitney was estimated to be \$244,974,000 in the most recent 2021 Brazos G Initially Prepared Regional Water Plan. The increase in cost for water supply storage was estimated to be \$24,258,000. This corresponds to the first number referred to above. The impact to hydroelectric power generation will vary from year to year depending on hydrologic conditions. Based on the water availability simulations and releases from the reservoir to increase the system yield, the impact to hydroelectric power generation could be around 12 percent of the annual power generation amount. The mitigation cost for the reduction in hydroelectric power generation was based on a replacement cost of \$0.08 per kWh, which results in an annual cost of about \$700,000. This amount was converted from an annual value to a present value of about \$22,000,000 by assuming a 50-year planning horizon and an inflation rate of 2%. This corresponds to the second number referred to above. Because \$24.3 million is larger than \$22.1 million, the cost for the increase in storage, rather than hydropower compensation, was taken as the cost for reallocated storage. The total annual cost for this reallocation strategy is estimated to be \$2,679,000. Based on the increase in firm yield of 38,480 acft/yr in 2070, this results in a unit cost of raw water of \$70 per acft (\$0.21 per 1,000 gallons).

An initial appraisal report on Lake Whitney Reallocation was completed in December 2014 which recommended initiating a detailed feasibility study subsequent to development of a project management plan and feasibility cost share agreement. Currently, the BRA is pursuing the initiation of the detailed feasibility study of reallocation with the Corps on Lake Whitney using contributed funds provided by BRA. Based on current Corps policy, once initiated, the feasibility study would be completed within three years and at a cost of \$3 million or less. It is anticipated that implementation of reallocation would proceed after the detailed feasibility report and take 5 to 10 years, creating a new water supply for demands in both the Brazos G and Region H regional water planning areas.

Currently, BRA's water supply system (System) is composed of eleven reservoirs and associated permitted water rights that allow BRA to contract water on a wholesale raw water basis to over 160 customers. As new projects are evaluated, designed, and constructed costs are spread across the entire BRA customer base. It is anticipated that financing new water supply projects will require a combination of BRA funds, TWDB funds either through the State Participation program or other TWDB programs, and additional outside funding sources.

Additional information related to the Lake Whitney Reallocation Project is included within the Initially Prepared 2021 Brazos G Regional Water Plan, Volume II, Section 10.3.

Company/Entity Name

Brazos River Authority

APPENDIX B
Response Form

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Company/Entity Name Brazos River Authority	
Address 4600 Cobbs Dr. Waco, TX 76710	Phone Number 254-761-3100
Name and Title of Authorized Representative Submitting the Response David Collinworth, General Manager/CEO, Brazos River Authority	
Contact Person Name Aaron Abel	Contact Person Phone Number 254-761-3175
Contact Person Email Address aaron.abel@brazos.org	
Regions Affected (as shown on Regional Water Planning Areas map) Brazos G and Region H	
Proposed Source for the Water Supply Freeport Seawater Desalination	
<p>This Project has been included in the 2006, 2011, and 2016 Region H Regional Water Plans and is included within the 2021 Region H Initially Prepared Plan. The Brazos River Authority (BRA) participated in a study to determine the feasibility of a seawater desalination project in the lower Brazos River basin in the early 2000's. This study was concluded in 2004 as part of the Texas Water Development Board (TWDB) initiative for desalination research. Over the last 15+ years, the status of the project has changed from an active pursuit to an inactive concept. Despite this status, the project remains a viable alternative for water supply and may be enhanced in the future through additional technological development in a way which may make the project more cost-effective.</p> <p>A desalination facility located in the Freeport area would allow desalinated water to be supplied to wholesale water providers (WWPs) in the vicinity of the project. These WWPs would then be able to replace or augment their supplies with a reliable, high-quality water supply from an alternative source that would reduce water-quality issues that have been encountered in the past. Additionally, the treated water from a seawater desalination facility could offset current supplies, including diversion rights from the Brazos River; in turn freeing up existing supplies.</p> <p>In addition to the Region H planning area, the Freeport Seawater Desalination project will also benefit the Brazos G planning area, located primarily in the central portion of the Brazos River basin. Currently, BRA system reservoirs upstream serve demands in Lower Brazos River basin by providing downstream water supply releases. Once a seawater desalination project is operational and supplying demands in the Lower Brazos River basin, upstream reservoirs within the BRA water supply system will not be required to make downstream water supply releases as frequently, thus creating the potential for additional supply for other users further upstream within the Brazos G planning area. Additionally, a secondary benefit is the elimination of losses that occur when water is released from upstream reservoirs due to evaporation and natural losses to the streambank as the released water travels along the bed and banks of the Brazos River and its tributaries. Reducing the demands for water stored in the upstream BRA water supply system allows for greater efficiency for surface water supplies across both the Brazos G and Region H Planning Regions.</p>	

Currently, BRA's water supply system (System) is composed of eleven reservoirs and associated permitted water rights that allow BRA to contract water on a wholesale raw water basis to over 160 customers. As new projects are evaluated, designed, and constructed costs are spread across the entire BRA customer base. It is anticipated that financing new water supply projects will require a combination of BRA funds, TWDB funds either through the State Participation program or other TWDB programs, and additional outside funding sources.

Additional information of the Freeport Seawater Desalination Project can be found within the 2021 Region H Initially Prepared Plan (<http://www.regionhwater.com/downloads/planningdocs.html>).

Freeport Seawater Desalination Project, 2021 Region H Initially Prepared Plan - Appendix 5-B- SWDV-004

Company/Entity Name

Brazos River Authority

**APPENDIX B
Response Form**

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DUE NO LATER THAN 2:00 PM (CDT) on JULY 1, 2020**

Company/Entity Name City of Mission	
Address 1201 E 8 th St. Mission, Texas 78572	Phone Number (956)580-8780
Name and Title of Authorized Representative Submitting the Response Roberto Salinas- Public Works Director	
Contact Person Name Roberto Salinas	Contact Person Phone Number (956)580-8780
Contact Person Email Address rsalinas@missiontexas.us	
Regions Affected (as shown on Regional Water Planning Areas map) Rio Grande (M)	
Proposed Source for the Water Supply Regional Water Reservoir	
<p>Response:</p> <p>The intention of this submission is to respond to the Texas Water Development Board’s Request for Information. Based on the regional water planning area shown in Appendix A, the Rio Grande area is made up of seven (7) counties: Cameron, Willacy, Hidalgo, Starr, Jim Hogg, Webb, & Maverick. During times of crisis such as droughts the City of Mission have had to utilize water supply lines to purchase water from neighboring cities, such as McAllen, Texas. Although it is not often that the City has had to resort to this interregional support, it is the beginning of possible improvements for our region.</p> <p>A proposal for possible water supply projects that provide substantial benefit to multiple regions could include regional water reservoirs and interconnected water supply lines that could feed the seven counties that make up the Rio Grande Area. Through proper studying, this water supply project could bring substantial benefit to the region because it would bring a main source of water supply to the communities in times of crisis without the burden of increasing taxes to make up for government shortfalls. Additionally, this type of project will create employment opportunities as reservoirs will need maintenance and research. This would require a regional effort to determine the proper placement of reservoirs and possible fund sharing from counties to make this type of project work. If the Texas Water Development Board could provide funding opportunities for the proposed project that allowed eligible expenses for construction, the municipalities could provide their share costs for design, research, and maintenance. Allowing each municipality to apply for a grant with the ceiling of one million dollars could potentially bring opportunity as proposed.</p>	

MEMORANDUM

TO: Texas Water Development Board
ATTN: Angela Wallace

FROM: Ruben Saenz, Manager Dimmit Utility, WSC

DATE: June 29, 2020

REGARDING: RFI 580-20-RFI-0009 Response Information Needed

Submittal Deadline: July 1, 2020 2:00 PM (CDT)

Company: Dimmit Utility WSC in partnership with South Texas Water Sharing Pipeline Project
P.O. 279
Carrizo Springs, TX 78834

Phone: 830-876-9554

Authorized Representative Submitting the Response: Ruben Saenz, Manager, Dimmit Utility, WSC

Name, Phone number and email address of contact person for any questions on the response:

Ruben, Saenz, 361-947-8060, captainsaenz28@gmail.com


NOTE: Please see attached Addendum #1, Addendum #2 and Addendum #3 with the 2-page Response Form and Appendices A-I

2020 JUN 30 AM 10:54

Received by
TWDB

**APPENDIX B
Response Form**

**TWDB REQUEST FOR INFORMATION 580-20-RFI-0009
DUE NO LATER THAN 2:00 PM (CDT) on JULY 1, 2020**

Company/Entity Name Dimmit Utility Water Supply Corporation	
Address P.O. Box 279 Carrizo Springs, TX 78834	Phone Number 830-876-9554
Name and Title of Authorized Representative Submitting the Response Ruben Saenz, Dimmit Utility Manager	
Contact Person Name  Ruben Saenz	Contact Person Phone Number 361-947-8060
Contact Person Email Address Captainsaenz28@gmail.com	
Regions Affected (as shown on Regional Water Planning Areas map) Region M, N, and P	
Proposed Source for the Water Supply 42,000 acres of private land with pre-1965 water rights over Carrizo-Wilcox Aquifer	
<p>Response Recommendation for a South Texas Water Sharing Pipeline</p> <p>Dimmit Utility WSC recommends to the Texas Water Development Board the construction of a South Texas Water Sharing Pipeline that will benefit South Texas, specifically Regions M, N, and P. Dimmit Utility's corporate partner South Texas Water Sharing Pipeline Project is ready and able to begin construction of a 60-inch diameter pipeline (see Appendix B). The pipeline will connect various reservoirs and lakes for optimum use of their existing secondary water which originates in the Carrizo-Wilcox Aquifer from 42,000 acres of private land with pre-1965 inalienable water rights (see Appendix C). Private financing from JP Morgan Chase is secured pending contractual agreement with a municipality with minimum use of 10 million gallons of water per day. The pipeline building materials and routes have been planned and are ready for development and construction in four phases (see Appendix H). Dimmit Utility presented materials to the TWDB (June 24, 2019) with its Water Sharing Pipeline Project and challenges and opportunities it has encountered in the process (see Appendix A). Recently, Dimmit Utility wrote to Chairman Lyle Larson and Representative Eddie Lucio III regarding their concerns of the water needs of the North Alamo Water Supply Corporation (see Appendix G).</p> <p>How the use of private financial resources would be maximized</p> <p>Private funding for Dimmit Utility's Water Sharing Pipeline Project is secured up to a billion dollars of private funding from JP Morgan Chase. Scientific Hydrology Model Studies show excellent water sustainability with up to 50% safety factor on groundwater resources and has created confidence in securing private funding without need of state funds (see Appendix I). These private funds will be maximized by building a 60-inch diameter pipeline with reversible water pumps (see Appendix D). This pipeline project will connect most of the South Texas area and will be built during a two- to three-year period. The most probable pipeline route consists of four Phases and impacts three TWDB Regions: M, N, and P. The pipeline's four phases include: Phase I from Big Wells, Texas (the main distribution point) to Laredo, Phase II Laredo to Robstown/Corpus Christi, Phase III Robstown/Corpus Christi to Edinburg and possibly Phase IV Edinburg to Brownsville, Texas (see Appendix H). The municipality(ies)/ governmental entity that signs to implement the project will not incur any debts until that municipality(ies) allows the Dimmit Utility water supply to enter their water system. It's only after the pipeline is complete that the municipality(ies) will begin paying the municipal tax free bonds incurred by JP Morgan Chase used to build the pipeline. Dimmit Utility's maximization of private funds allows smaller cities and even colonias along the pipeline route to connect to the already existing pipeline water source by 2023.</p>	

This South Texas Water Sharing Pipeline Project greatly lessens the amount of funds needed by these outlying cities and colonias to connect to a potable water source. Depending on a rural city's specific needs Dimmit Utility may be able to fund the infrastructure connectivity. In addition, Dimmit Utility maintains sand pit recharge capability eight miles south of Carrizo Springs—the second best place in Texas for aquifer recharge. This would increase the water shed and available water reclamation permit volume into Lake Corpus Christi in Region N. As an outcome, Dimmit Utility estimates a \$25 to \$80 million savings annually to the municipality on water reclamation alone and depending on the city's specific use.

How the financial resources of multiple water planning regions would be combined; and

Because of Dimmit Utility's secured private financing, the only required resources from Region N, M and P will be their municipality(ies) agreement to connect to the South Texas Water Sharing Pipeline. This "one stop shop" will necessitate less geopolitical involvement. For example, San Diego, Texas—a small rural town—provides water to a state penitentiary and negotiates between this entity and the Jim Wells County Court. The pipeline would eliminate extended costs and time and effort for all constituencies.

How the project would substantially benefit the regions served by:

1) Affecting a large population

Dimmit Utility WSC can provide a potential 100 million gallons of potable drinking water per day for a large South Texas population living within three Regions: Regions M (Rio Grande), N (Coastal Bend), and P (Lavaca). Hydrologist and scientifically proven reserves of 50 million gallons of potable water per day and certified "drought proof" is available to approximately three million users. Dimmit Utility will deliver this potable drinking water through corporate partner South Texas Community Water Sharing Pipeline Project, LLC. This pipeline connects four surface water sources: Falcon Reservoir (Region M), Amistad Reservoir (Region M), Choke Canyon Lake and Lake Corpus Christi (Region N), and Texana Lake (Region P). A review of the 2021 Drafts of the Regional Planning Groups' Region M, N and P (TWDB website) indicates that the pipeline project meets the estimated population and water usage projection for 2070 and beyond.

2) Creating jobs in the regions served, and

Dimmit Utility's South Texas Water Sharing Pipeline would be an economic boost to South Texas especially needed now during the COVID-19 economic recovery. A potential of adding millions of dollars to the local economy as each phase of the pipeline is built. Building a pipeline of more than 400 miles will necessitate at the minimum 50 to 100 welders for several expert welding processes: heated tool butt welding, hot gas exclusion welding and hot gas welding. A combination of construction welders in addition to construction workers and truck drivers will be needed to build the planned KRAH technology pipeline for the long-term, 100-year durability (see Appendix E). On-site construction workers supporting each of the four planned phases requires a minimum of 25 to 50 employees. In addition, 100 or more 18-wheeler trucks will be needed to transport the pipeline materials as needed to each of the municipalities in both urban and rural locations. Dimmit Utility plans to have each municipality(ies) to select and/or recommend companies and potential workforce employees in building and/or connecting the pipeline to their municipal water systems.

3) Meeting a percentage of the water supply needs of the water users served by the project.

Although Dimmit Utility proposes its more than 50 million gallons of water a day to the municipality (ies) as a secondary water source, its drinkable, potable water can also serve as a 50% water source for that city and several other cities depending on its daily use. Expert hydrologists have certified its "drought proof" water and its long-term availability up to 100 years. For example, a Dimmit Utility Reclamation Study of the city of Laredo's Rio Grande water pumping permit projected a value of over \$67 million dollars from taking just 40 million gallons of ground water a day from Dimmit Utility (see Appendix F).

Dimmit Utility WSC

Appendices

- Appendix A Dimmit Utility Overview for the TWDB**
- Appendix B Dimmit Utility PowerPoint “Drinkable Water for 100 Years”**
- Appendix C Water Sources for Dimmit Utility WSC**
- Appendix D Lucid Energy Reversible Waterflow Pumps: 60-inch Diameter Water Pipeline**
- Appendix E KRAH Handbook Title Page on Large Plastic Pipes**
- Appendix F City of Laredo Recharging Aquifer Capabilities and Reclamation Credits**
- Appendix G Expert Hydrology Reports on Drying Up of the Rio Grande River**
- Appendix H Maps of Possible Routes for the Dimmit Utility’s South Texas Water Sharing Pipeline Project**
- Appendix I Bill Norris Engineering Report to Laredo’s RFP for Water Needs**

Dimmit Utility (DU) WSC

Prepared for the Texas Water Development Board (TWDB) Staff

June 24, 2019

Background: Dimmit Utility WSC is a water recharge utility corporation based in Carrizo Springs, Texas. Under its current name, Dimmit Utility has existed more than ten years and has responded to RFP or RFI requests for secondary water sources from cities such as San Antonio, Laredo, and Corpus Christi. Dimmit Utility can provide “Water Diversity through multiple water transport delivery system” (Bill Norris Hydrology Study ‘08)

Dimmit Utility as the lowest bidder in a RFP for secondary water was awarded a contract by the City of Laredo, a contract which has been “frozen” more than 10 years. Dimmit Utility was also the lowest bidder with the San Antonio Water System (SAWS) who decided at the time to dismiss any and all bids; however, four months later SAWS awarded a contract directly by selecting Blue Water. This SAWS project is still on-going in the construction process. Upon accepting the RFP award, Blue Water claimed it would satisfy the requirements at a cost of 600 to 800 million dollars. To date, public notices indicate that the construction cost is now over \$2.5 billion.

The following is an Overview of some of the activities and issues to date that Dimmit Utility has encountered in their humanitarian quest to provide secondary water to the citizens of South Texas.

I. Hydrology Research

- DU can provide 50 million gallons of “ready to drink” water capacity each day
- Study certified by Bill Norris of NRS Engineering with water sustainability of 100 years
- Used scientific hydrology model studies of “Ivy-Bowman Well Field Study Area” located in the watershed area
- DU provides improved water quality
- DU has drought-proof supply of water with water security
- DU does not conflict with any other existing city water strategies
- DU does not use any city credit or city funds for providing its secondary water; it has secured private funding
- DU’s team of experts of lawyers, scientists, and construction engineers certify a 20-year “price lock” for the landowners in building the pipeline necessary to transport the water from its watershed to South Texas

II. Infrastructure and Design

- Certified and fully funded through JP Morgan Chase to build a Pipeline covering approximately 100 miles from Carrizo Springs to Laredo, and another 200 miles from Laredo to Edinburg with coverage and connectivity to midstream cities/communities surrounding Alice
- DU certifies their Pipeline has energy neutral potential with no environmental impact through its ancillary company South Texas Community Water Sharing Pipeline Project, LLC who will build the Pipeline
- DU provides clean water and green energy in its potable water delivery system
- DU provides inline pipe turbines used where downhill flow exists to reduce transporting costs for an unlimited time
- DU will use power system from Lucid Energy, a new water-to-wire energy recovery solution that enables water-intensive industrial, municipal, and agricultural facilities to produce clean, reliable, low-cost electricity from their gravity-fed water pipelines and affluent streams
- DU through its Lucid Energy capability will utilize a patented, in-pipe turbine that captures energy from fast-moving water inside of large diameter, gravity-fed pipelines with no impact on flow or operation. Depending on head pressure, flow and pipe diameter, each turbine produces up to 100 kilowatts of renewable, zero emissions electricity by extracting excess head pressure
- With the turbine capability, five important sources of raw water—Lake Texana, Choke Canyon Reservoir, Lake Corpus Christi, Falcon International Reservoir and Amistad Reservoir--will be connected to provide secondary water sources throughout South Texas

III. Public and Private Presentations

- Many city and governmental entities have received these water presentations
- City Council of Laredo
- West Side Business Association of Corpus Christi
- Legislators—Coastal Bend area State Representative Abel Herrero, State Representative Todd Hunter, Staff for Senator Juan “Chuy” Hinojosa
- City Managers of Laredo, Edinburg, Corpus Christi, Aransas Pass, and Port Aransas

- Region N and M Planning Meetings in Robstown and Weslaco respectfully
- Drainage and Water Utility Boards such as the Utility Board of Laredo, San Diego Municipal Utility District No 1, Benavides Conservation District, and Winter Garden Conservation District
- Talk Shows on YouTube such as the Di Carlo Show called “Voices of the Coastal Bend” in Corpus Christi, St. John Conservative Talk Show
- FaceBook site maintained by Howard Ivy on Secondary Water Source with videos and articles
- Attended three Summits on Desalination in Corpus Christi including one on environmental impacts which discouraged the building of desalination plant in Corpus Christi

IV. Barriers of Political Corruption and Bribery

- Multiple published newspaper articles and other sources highlight the political corruption in South Texas and simultaneously illustrating elected officials who expect bribes for their votes in accepting potential proposals for their cities or counties
- “Target subjects” identified in public corruption probe,” *Laredo Morning Times*, April 29, 2017
- “Records detail corruption allegations against former city, county officials” *Laredo Morning Times*, October 20, 2018
- “State District Judge Rudy Delgado charged with bribery,” *Valley Morning Star*, February 5, 2018
- “Weslaco settles water treatment plant lawsuit for \$1.9 M,” *Valley Morning Star*, January 20, 2018
- “Federal grand jury issues subpoena for records in Weslaco,” *Valley Morning Star*, May 6, 2018
- “2 Texas Lawyers Arrested in Public Corruption Sting,” *Texas Lawyer*, April 5, 2019
- “Former Officials Indicted in Weslaco Bribery Conspiracy,” Press Release of the United States Department of Justice, US Attorney’s Office, Southern District of Texas, April 10, 2019
- “More water treatment corruption charges filed against Valley political figures,” *Texas Monitor*, April 12, 2019
- “South Texas Mayor Indicted for Voter Fraud,” *Texas Scorecard*, June 13, 2019

Conclusion:

- A. The TWDB assist and provide strategies for DU in accomplishing the Memorandum of Understanding (MOU) between Dimmit Utility Water Supply Corporation (WSC) and the City of Edinburg or the City of Laredo.
- B. The TWDB provide assistance and direction for accomplishing grant funding for the “midstream cities” surrounding Alice with the desired amounts of 4 to 10 million dollars per community for infrastructure development in connecting to the already-funded Dimmit Utility pipeline.

Dimmit Utility Regional Water Project for South Texas
As of June 1, 2019

Ruben Saenz, General Manager, Dimmit Utility

▪ 361-947-8060 (cell)

▪ captainsaenz28@gmail.com

Phase I:

Big Wells, TX to Laredo, TX

- a. 60" Pipeline
- b. 100 miles +/- pipeline
- c. Split pipeline at north and south city of Laredo
- d. Build 2 stand-alone water towers
- e. From \$78 mil to \$128 mil (Paid by Dimmit Utility)
- f. Dimmit Utilities won/selected by city of Laredo as per RFP requirements

Phase II:

Laredo, TX to Robstown/Corpus Christ, TX:

- a. 60" Pipeline
- b. 120 miles +/- pipeline
- c. Numerous colonias and communities
- d. Colonia "Las Lomitas de Laredo"
10 mi +/- East of city of Laredo
Double pole electrical right of way (?)
- e. Along TX Hwy 59 to Freer, then
- f. Along TX HWY 44 to Robstown

Phase III:

Robstown/Corpus Christi, TX to Lower Rio Grande Valley

- a. 60" Pipeline
- b. 200 miles +/- pipeline
- c. Numerous colonias and communities
- d. Along Hwy 281 or Hwy 77
- e. Or, selected right of ways

Appendix B Dimmit Utility PowerPoint "Drinkable Water for 100 Years"

Dimmit Utility Water Supply Corporation

DRINKABLE WATER FOR 100 YEARS



Dimmit Utility Water Supply Corporation

Drinkable Water for 100 Years

Why is Water important?

- We need Water to live
- Water is life!
- We need safe and clean Water

How is Water the New Oil?

- Water is becoming more scarce day by day
- Rivers and streams are drying up from drought or too much use



Dimmit Utility Water Supply Corporation

Drinkable Water for 100 Years

What is Secondary Water?

- Secondary Water is an alternate source of Water
- This Water is an addition to a City's Water supply

How can a City get more Water?

- With increasing usage, City's Water sources are dwindling



Dimmit Utility Water Supply Corporation

Drinkable Water for 100 Years

Where does the Water come from?

- Carrizo Springs/Wilcox Aquifer (The Texas Winter Garden)
- From Dimmit County and surrounding counties

Who can have access to the Water?

- The first City that contracts with Dimmit Utility



Dimmit Utility Water Supply Corporation

Drinkable Water for 100 Years

Who owns the Water?

- Private industrial farmers with exclusive rights and permits
- More than 40,000 acres of land with pre-1965 ground water inalienable rights

How can Water reach the City?

- Via a 60-inch Pipeline to be built by Dimmit Utility at NO cost to City
- Brings drought proof Water supply and a delivery system



Drinkable Water for 100 Years

Who is paying for the Pipeline?

- Dimmit Utility has total private financing for Pipeline
- Financing by JP Morgan Chase

Who is Dimmit Utility?

- Manager, Ruben Saenz, M.Ed.
- Owner, Howard Ivy South Texas Water Sharing Pipeline Project



Dimmit Utility Water Supply Corporation

Drinkable Water for 100 Years

How long will the Pipeline take to build?

- 2 to 3 years for route planning, design and construction

What does the City pay?

- No risk to City
- City pays nothing until water flows into the City Utilities system and only for amount used



Drinkable Water for 100 Years



How will the City make money?

- From selling the Water to residential/commercial customers
- From the Cities that contract with them
- From Water reclamation credits

How many gallons of Water can the City have per day?

- Up to 50 million gallons per day (MGD)
- City buys minimum 10 MGD the first year
- Water cost set **UNDER** \$3.00 per 1,000 gallons



Drinkable Water for 100 Years

How to certify 50 million gallons of Water per day?

- Texas-certified hydrologists
- Hydrologists study Water and its systems, distribution and circulation

Who are the Hydrologists?

- Bill Norris,
NRS Engineering
<http://www.nrsengineering.ca/>
- LBG-Guyton
www.wsp.com/
- Ridge Kaiser,
RW Harden
<https://rwharden.com/>



Dimmit Utility Water Supply Corporation

Drinkable Water for 100 Years

Which route will the Pipeline take?

- Phase I 100 miles
- Phase II 150 miles
- Phase III 150 miles
- Phase IV 65 miles

What Texas Cities could be included in the Pipeline?

- Big Wells to Laredo
- Laredo to Alice
- Alice to Edinburg
- Edinburg to Brownsville



Drinkable Water for 100 Years

What will the Pipeline look like?



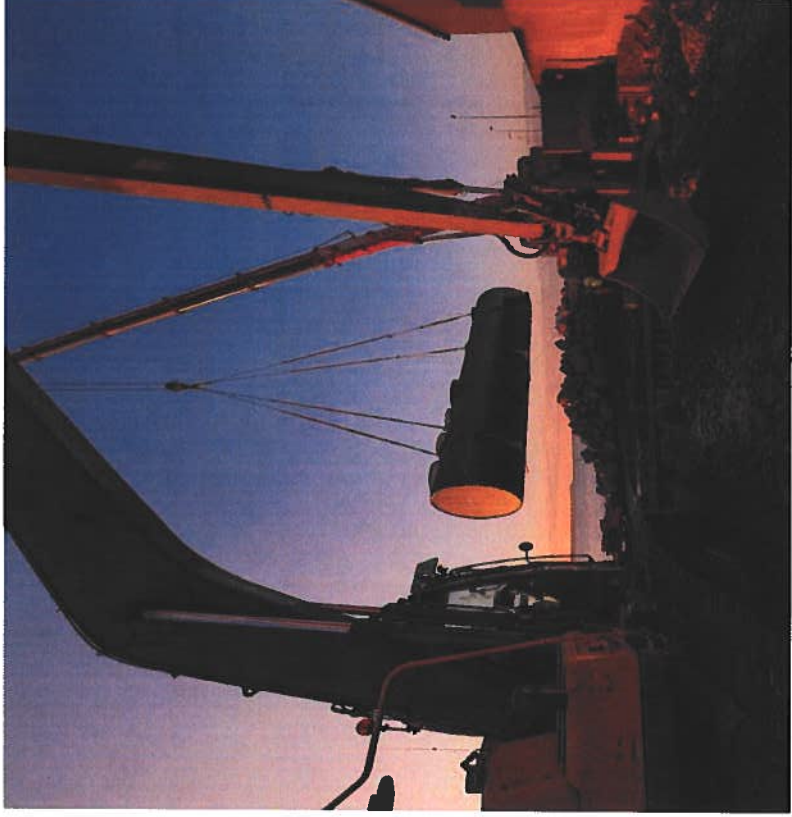
How is Pipeline transported?



Dimmit Utility Water Supply Corporation

Drinkable Water for 100 Years

How is the Pipeline lifted into place?



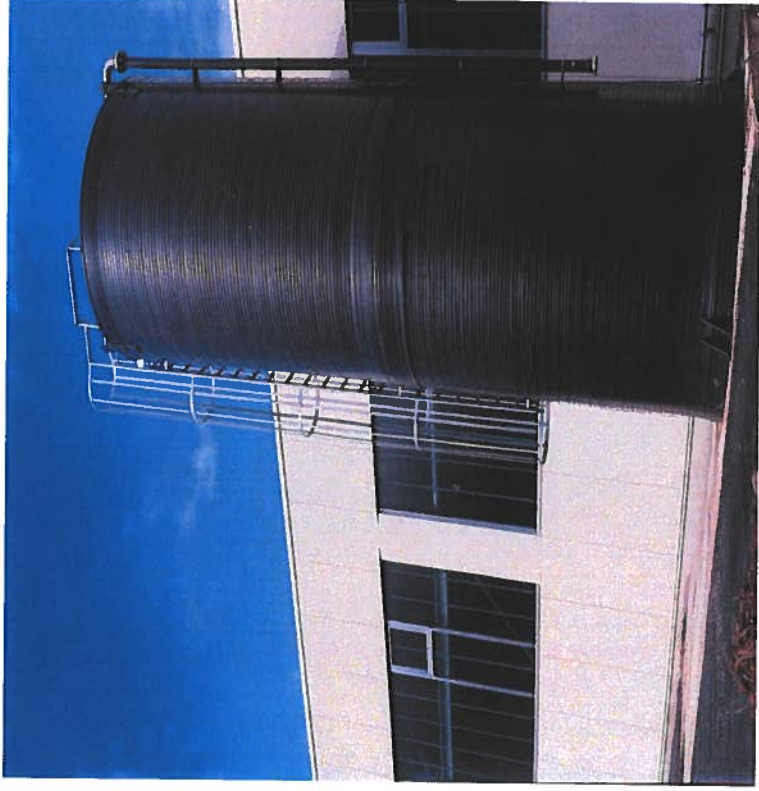
How is the Pipeline made?



Dimmit Utility Water Supply Corporation

Drinkable Water for 100 Years

Can Pipeline include Water storage tanks? **YES**



What types of Water storage available?



Drinkable Water for 100 Years

Experts affirmed Dimmit Utility WSC Groundwater Proposal

- ❑ Is Competitive
- ❑ Satisfies short- and long-term requirements
- ❑ Uses turn-key approach
- ❑ Offers no financial risk to City
- ❑ Provides drought proof water supply
- ❑ Improves water security for City
- ❑ Works with other City water strategies (desalination or river water)



Drinkable Water for 100 Years

Ruben Saenz, Manager, Dimmit Utility, WSC
captainsaenz28@gmail.com
361-957-8060

**Howard Ivy, Owner, South Texas Water Sharing Pipeline
Project**

Howard_ivy@msn.com

830-765-4585

Dr. Matilda Saenz, Consultant

8/2019



Dimmit Utility Water Supply Corporation

Dimmit Utility Water Supply Corporation

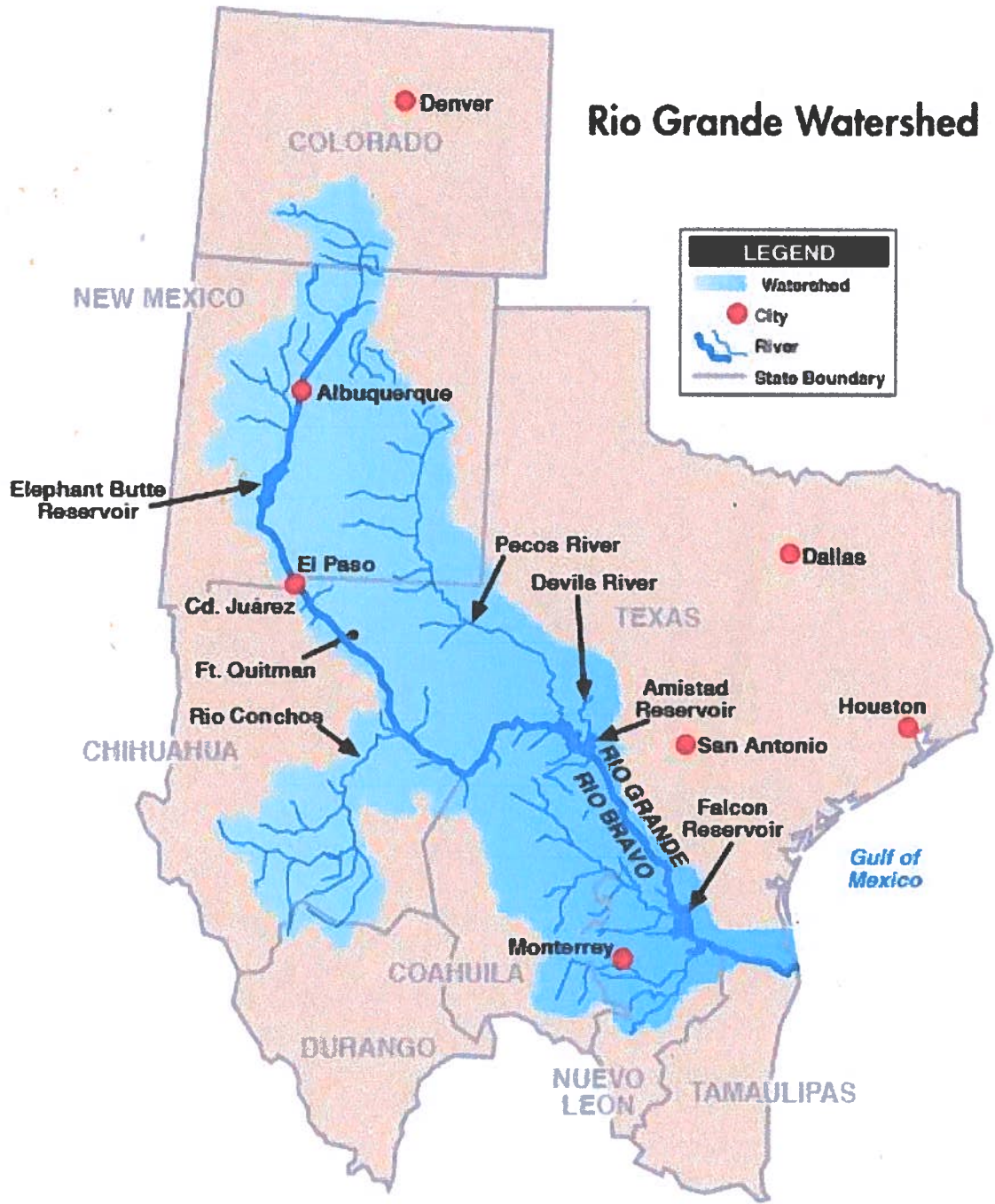
DRINKABLE WATER FOR 100 YEARS



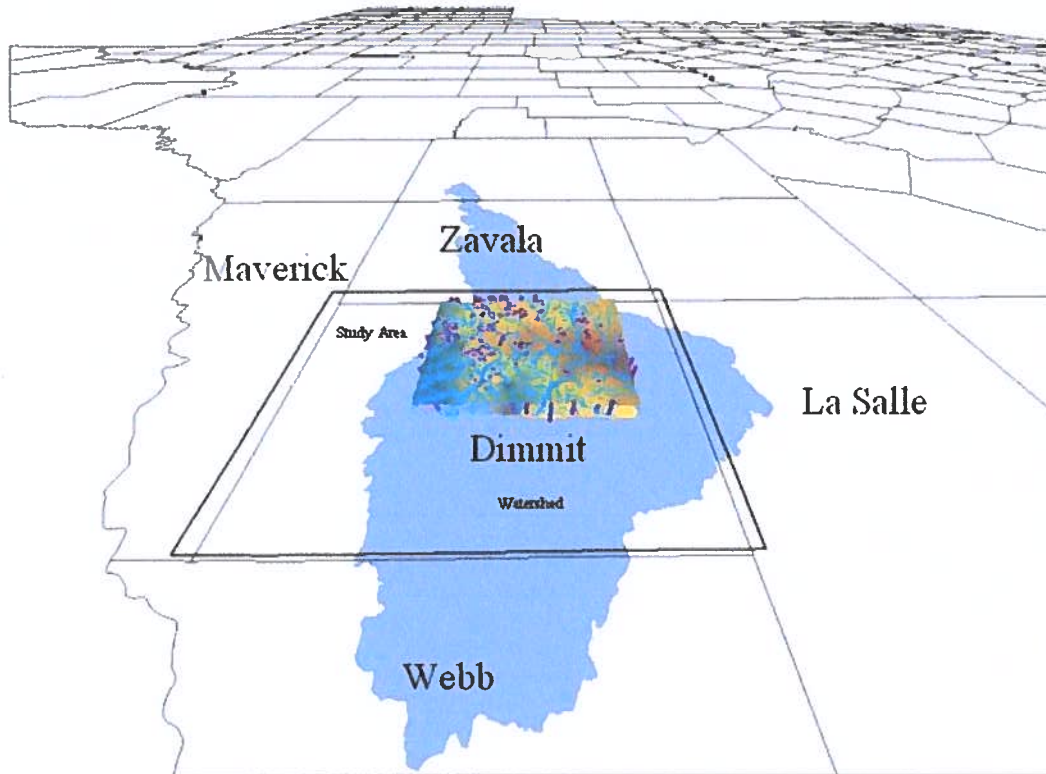
Dimmit Utility Water Supply Corporation

Appendix C Water Sources for Dimmit Utility WSC

Rio Grande Watershed



Ivy-Bowman Well Field Study Area



Hydrology experts gave this report as to where a good source of Groundwater is located.

Ridge Kaiser with R.W. Harden did the Hydrology Pumping Model calculation, and was done with out any recharge meaning, if it dose not rain for 50 to 100 years.

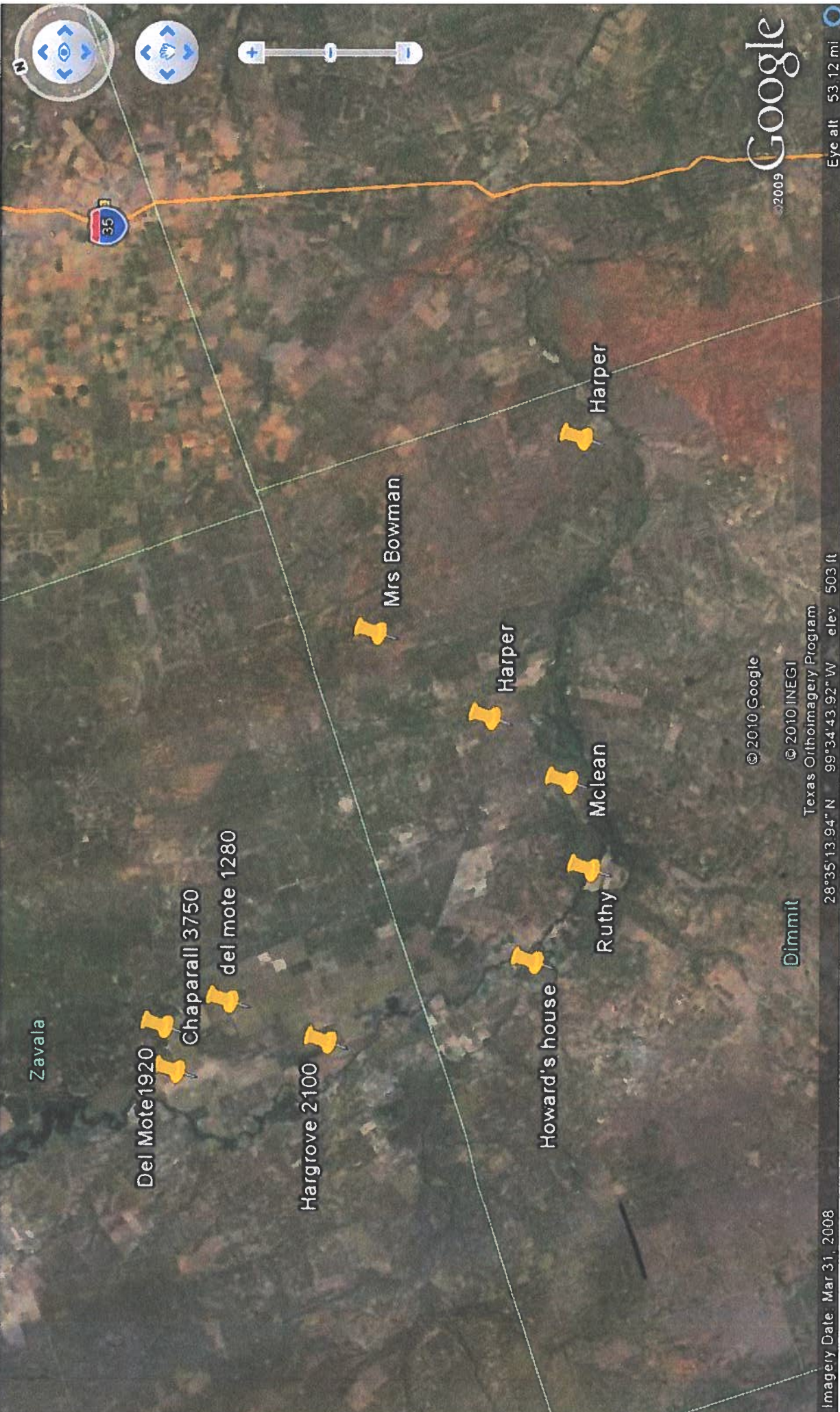
Play the 1 minute :18 seconds video.

<https://www.facebook.com/howard.ivy.5/videos/982923758416427/>

Ridge Kaiser Hydrologist wants to make clear Location, Location, Location water project must be over the specific spot over the Aquifer with enough land to meet rules. Because, this is (NOT) an equal opportunity Aquifer.

Play the 1-minute : 43 Video

<https://www.facebook.com/sohtexaswatersharingproject/videos/133899257280576/>



Zavala

Del Mote 1920

Chaparall 3750

del mote 1280

Hargrove 2100

Howard's house

Ruthy

Mclean

Harper

Mrs Bowman

Harper



©2009 Google

Eye alt 53.12 mi

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© 2010 INEGI

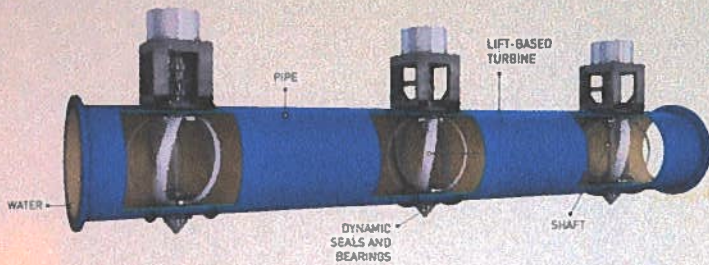
Texas Orthoimagery Program

28°35'13.94" N 99°34'43.92" W elev 503 ft

Dimmit

Imagery Date: Mar 31, 2008

**Appendix D Lucid Energy Reversible Waterflow Pumps: 60-inch Diameter
Water Pipeline**



Harvesting renewable, low-cost electricity from gravity-fed water pipes

The LucidPipe™ Power System from Lucid Energy is a new, water-to-wire energy recovery solution that enables water-intensive industrial, municipal and agricultural facilities to produce clean, reliable, low-cost electricity from their gravity-fed water pipelines and effluent streams.

LucidPipe utilizes a patented, in-pipe turbine that captures energy from fast-moving water inside of large diameter, gravity-fed pipelines, with no impact on flow or operation. Depending on head pressure, flow and pipe diameter, each LucidPipe turbine produces up to 100 kilowatts of renewable, zero-emissions electricity by extracting excess head pressure. To maximize power generation, multiple LucidPipe units can be rapidly and easily installed into a single pipeline for a system that can produce more than a megawatt of electricity.

HOW IT WORKS

LucidPipe utilizes a unique, lift-based, vertical axis spherical turbine that fits inside of large diameter (24"-96") water pipes. Water flows through the hydrodynamic turbine, generating power as the turbine spins. The hydrodynamic turbine has been carefully designed and lab-tested to maximize efficiency and power generation without interrupting the flow of water. As velocities increase, power production increases. Due to the lift-based design of LucidPipe, the system generates power across a very wide range of flow conditions, volumes and velocities.

LucidPipe extracts very little head pressure per turbine, just 1-6 PSI (1-4 meters). This allows the modular LucidPipe system to be placed in series, while allowing for uninterrupted water flow. LucidPipe does not need

to be placed in a pressure transient zone or where extreme differential pressures are needed. The modular nature of the LucidPipe Power System and the operational flexibility it affords make it truly unique.

PROVEN TECHNOLOGY

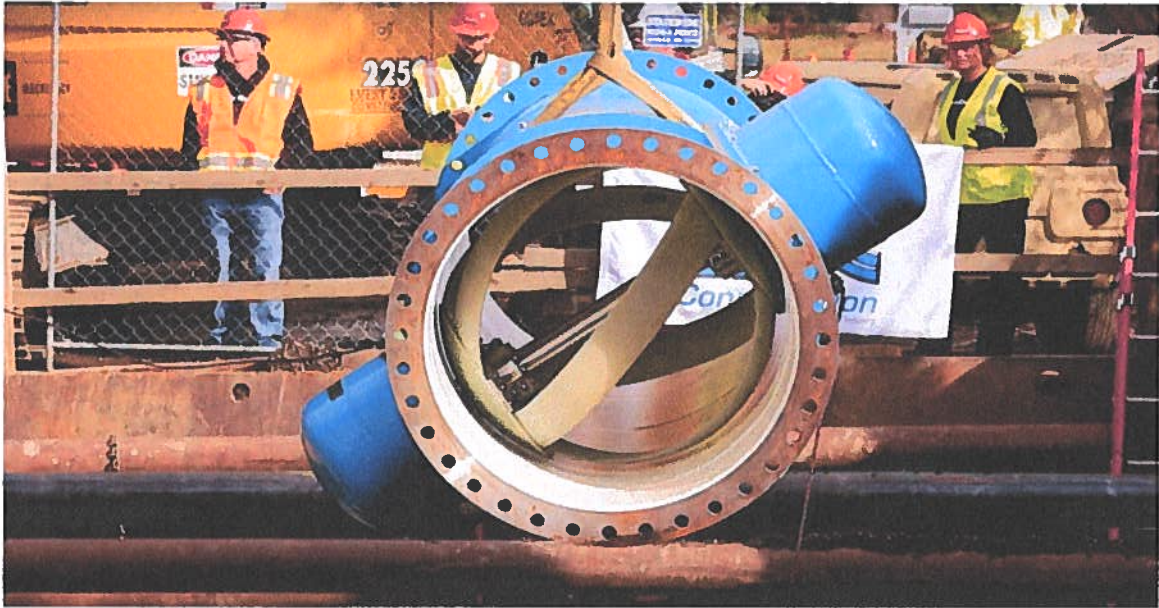
Lucid Energy successfully piloted LucidPipe in a water pipeline at Western Municipal Water District in Riverside, California. This pilot fed more than 20 megawatt hours of renewable electricity to the grid. As a result of the successful pilot, Riverside Public Utilities decided to install a permanent system. The LucidPipe Power System installation at Riverside was awarded a 2011 Outstanding Energy Management Award by the California-Nevada section of the American Water Works Association.

ADVANTAGES
Clean, baseload energy without the intermittency of wind and solar
Virtually no impact on water flow
No environmental effect
Quick installation
Recovers process-based energy
Operates across a wide range of head and flow conditions
PRODUCT FEATURES
Water to wire power system
Qualifies for Investment Tax Credits
Modular installation scales to power available in pipeline
Works well behind the meter to power smart water grid devices

The energy in Pipelines new and old for the Best Water Diversity of South Texas

This water project has Energy Neutral potential on Pipeline from Dimmit County to South Texas. Clean water & green energy, in an offer including Potable Water Delivery System to South Texas. This water project can place, inline Pipe Turbines used where downhill runs to help reduce cost forever.

<https://www.youtube.com/watch?v=JgGaB068ayM><http://lucidenergy.com/>



Appendix E KRAH Handbook Title Page on Large Plastic Pipes



Dimmit Utility WSC
A Water Recharge Utility

Ruben Saenz
Utility Manager

926 Chula Dr.
San Antonio TX 78216

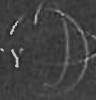
361-947-8060
captainsaenz28@gmail.com



Handbook on large plastic pipes

Basics, design and application of large pipes
made out of polyolefin

KRAH COMMUNITY



Appendix F City of Laredo Recharging Aquifer Capabilities and Reclamation Credits

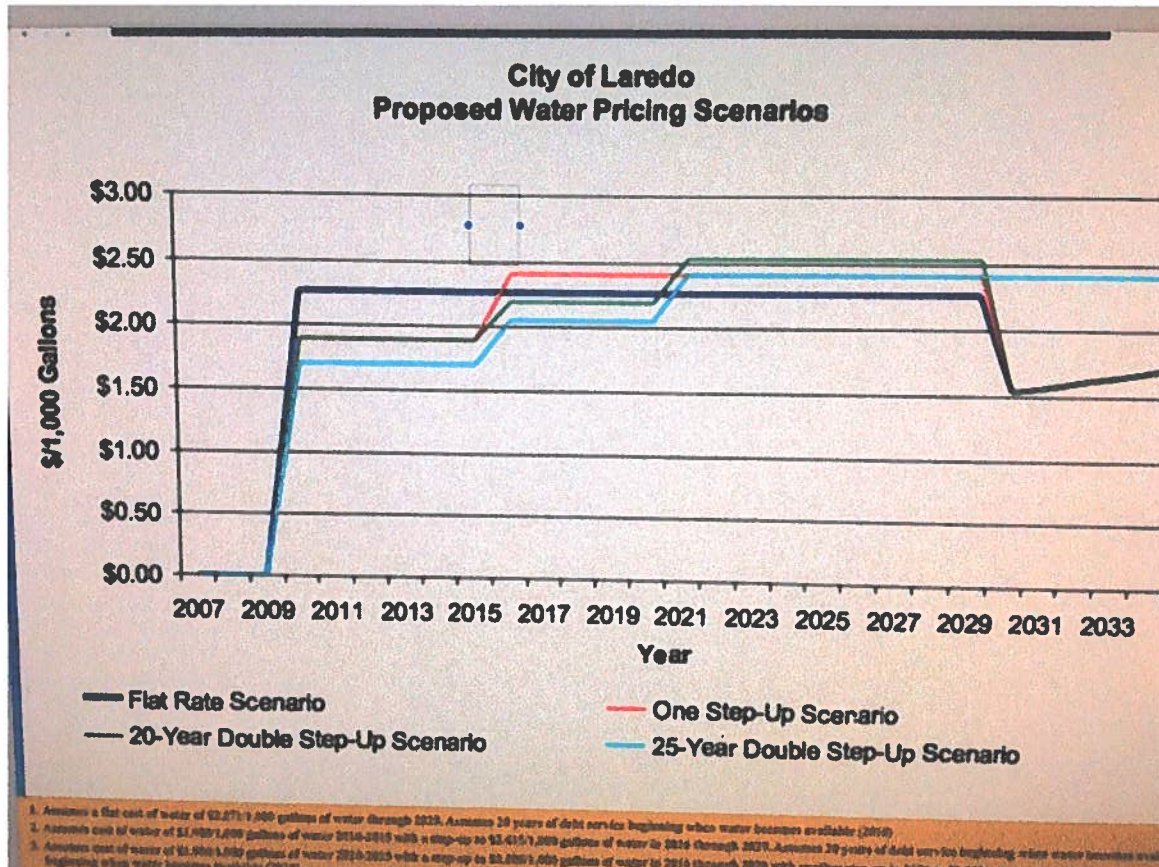
This is a water machine .

RECHARGE options with funding included.

- 1. DE-BRUSHING KEY AREAS & Bio Burn into Energy OR JUST DE-BRUSHING**
- 2. SAND PIT, POND & DRAINAGE RECHARGE OF DIFFERENT STYLES**
- 3. WATER INJECTION WELLS RECHARGE**
- 4. WATER CORRALLING**
- 5. SLIVER BRIDGE ACROSS fall out zones along the Nueces River East of IH 35**
- 6. SAND EXTRACTION FROM RECHARGE INJECTION WELLS AT AQUIFER ZONE LEVEL**
- 7. FILTRATION SYSTEMS TO CLEAN AND REMOVE SOLIDS FROM RUNOFF WATER FOR RECHARGE**
- 8. RAIN ENHANCEMENT EVEN AT TIMES OF WET YEARS TO COLLECT RUN OFF FOR RECHARGE**
- 9. LEGISLATION TO ALSO COLLECT RUN OFF OUT OF SOLDIER SLOUGH AT TIMES OF GOOD STREAM FLOW ONLY FROM RAIN ENHANCEMENT FOR RECHARGE STORAGE INTO CARRIZO AQUIFER**
- 10. Plus lease yearly river water permits when not in use from farmers. For recharge FILTRATION SYSTEMS TO CLEAN AND REMOVE SOLIDS FOR RECHARGE, OTHER SYSTEMS wile farmer gains credit for using their water in a beneficial manner in addition to river water lease revenue.**

Private Finance

Future Utility maintenance and infrastructure cash cow. Because once the Bounds are paid off water delivery cost drop. Creating funds for future utility project & maintenance needs.



After first Project debt is serviced, this is a water utility cash Cow for future water projects & improvements..

Doug Hartman explanation of no risk cost Private Finance to City for a Secondary Water Source

Play the 3-minutes : 33 Video

<https://www.facebook.com/howard.ivy.5/videos/1703721396336656/>

Water Reuse

Laredo gains Reclamation Rio Grande river water pumping permit from the Dimmit Utility offer A value of \$67,208,632.20 THE CITY OF LAREDO would receive for free in reclamation permits. So when taking 40 MGD of Vested Ground Water from Dimmit utility WSC.

AF = 325,851 Gallons in one Acre Foot of water

MGD = Millions Gallons per Day

40MGD = 20MGD in Reclamation Rio Grande water Permits

20,000,000 divided by 325,851 = 61.3777

AF day X 365 days a Year = 22,402.877 AF

Per Year X \$ 3000.00 AF =

\$67,208,632.20

Of Reclamation River water Permits Free

Not subject to seniority rights limitations

Recharge surface water aspect from Upper Nueces to Lower Nueces would increase water shed & available water reclamation permit volume into Lake Corpus Christi which create reclamation permits on 70% of this newly added water can be used for water utility system. The other 30% of this water must stay in Lake Corpus Christi for Parks and Recreation State rules.

The 72 inch Silver-Bridge Report: Surface water recharge as found in the Costal Bend Water Diversity Plan (Maps on our page)

Here's the scenario report on surface water recharge from Upper Nueces to Lower Nueces a Water Recharge Scenario for Lake Corpus Christi

Used distance of 33 miles with a 60-foot drop in elevation across Zone-D.

Using 72 inch Krah leak free Pipe it has the lowest friction factor.

Sliver-Bridge Cost scenario

Price of HDPE Resin \$0.85 per. pound @ 78 lbs. per foot of Krah 72 inch pipe plus pipe manufacturing cost.

Installation cost \$100.00 a foot 36 inches top of pipe to be underground.

No pipeline right of way cost add in for now, which there may be some by State of Texas which may allow to use State River land.

Other option maybe to shirt-tail with Dimmit Utility Right of way, off one side of their pipeline.

So this is just to have an idea,. Because area Folks had requested I do a sample to recharge surface water into Lake Corpus Christi

Now Cost and Flow Rates.

Cost roughly around \$38,500,000.00 with 100 year life pipe.

Recharge Water Flow Rate calculations.

When pipeline is fully charged with water. Water recharge Volume from Upper Nueces River to Lower Nueces River carrying water across surface water fallout Zone-D to help recharge additional surface water into Lake Corpus Christi reservoir system.

At times when Upper Nueces River is flowing here are the minimal flow rate.

51,120 gal. per. minute

73,612,800 gal. per. day

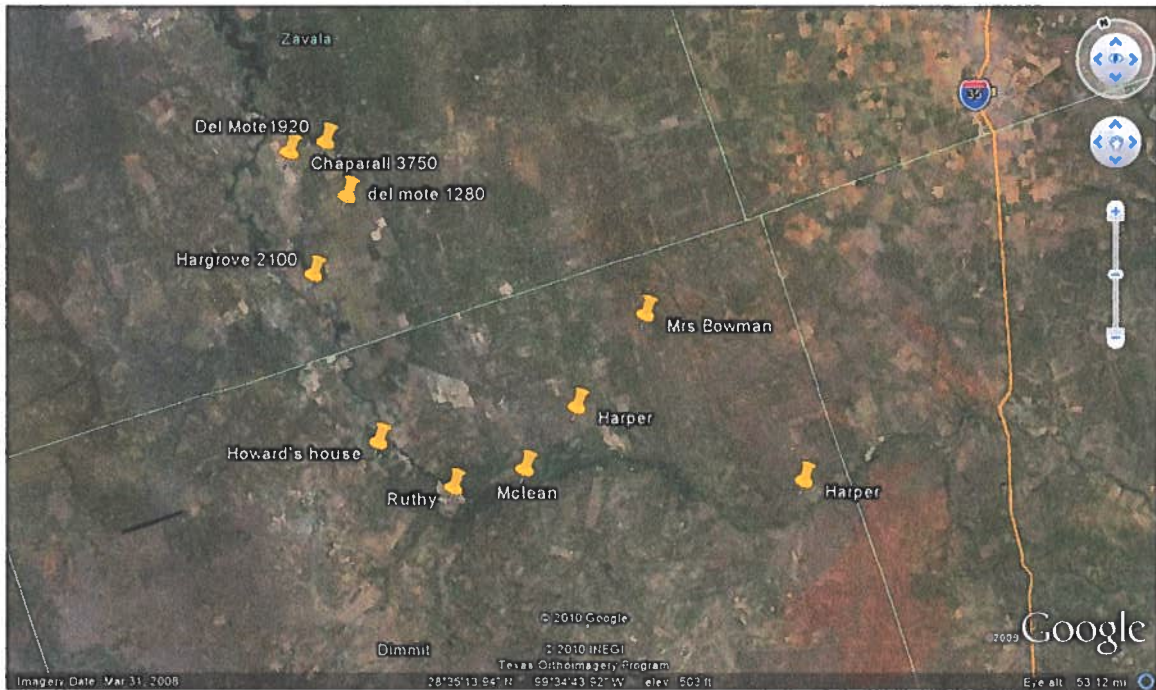
or

73.6 (MGD) Millions of Gallons a Day

There could be many other scenarios using other sizes of Pipe.

This is one using a 72 inch pipe to get an idea flow volume & cost.

Creating a 72 inch silver-bridge recharge plus at times when Rivers is up higher . Where top intake of pipe line is located , this water flow rate would increase even more.



Basics Landowner's with senior Vested groundwater rights with huge historical high volume pumping pre-proofed. Agree to grant access to their land and groundwater resources and grant permission for Dimmit Utility WSC to inter into intergovernmental agreements with another Texas Utility.

There for Dimmit Utility WSC seeks a Texas water Utility to inter into intergovernmental agreements and be the distributor of this water resource. Said Texas water Utility to be good Stewart's of water and transport system to supply water sales to other water utilities requesting water, of any utilities that want to consume water from this project.

Private funders are wiling to take on all project risk cost. They have review all expert reports and are willing to take risk cost and will fund project. This would require each utility requesting water to place on their utility operating budget, that at a future date a purchase of the agreed water volume will be purchased at the agreed price per 1000 gallons . That is what would be needed before funding starts.

Project: Memorandum Of Understanding (example)

The Texas Water Utility and Dimmit Utility WSC (DUWSC) has a desires jointly investigate into diversifying water supply to improve RGV economic development potential for the RGV metroplex & midstream water users area; To have an alternative source of water for use during drought or catastrophic environmental disaster in the Rio Grande River; and to augment its long-term supply of water particularly for RGV areas of rapid growth that are continuing to emerge on the northern extremities of its current system.

The Texas water Utility & DUWSC would be working an entity South Texas Heritage WSC (STWSC) by way of an intergovernmental

agreement. To design, construct, own, and operate a secondary supply of water, using groundwater sources. The City intends to negotiate with the selected developer for a long-term contract (50 years) to purchase potable water, beginning at a constant flow of potable water. The rate of purchase could remain constant if desired at 40-MGD or more until the end of the contract period (year 50) or more. The basic elements of the Project are the following:

- Development and operation of Wells and a Well field
 - Treatment of groundwater if required for use as potable water meeting TCEQ standards
 - Booster pump stations, as needed, to convey the groundwater to the City of Laredo
 - Transmission pipeline for collecting and conveying the groundwater to the City terminal delivery point where the groundwater enters the City's distribution system
 - Necessary support systems to operate, monitor, and control the facilities.
- The first step is to assess new total water volume request from previously interested RGV Utilities.

List of RGV Utilities that requested Alternative water source to be updated.

Last figures from Jan. 24, 2010

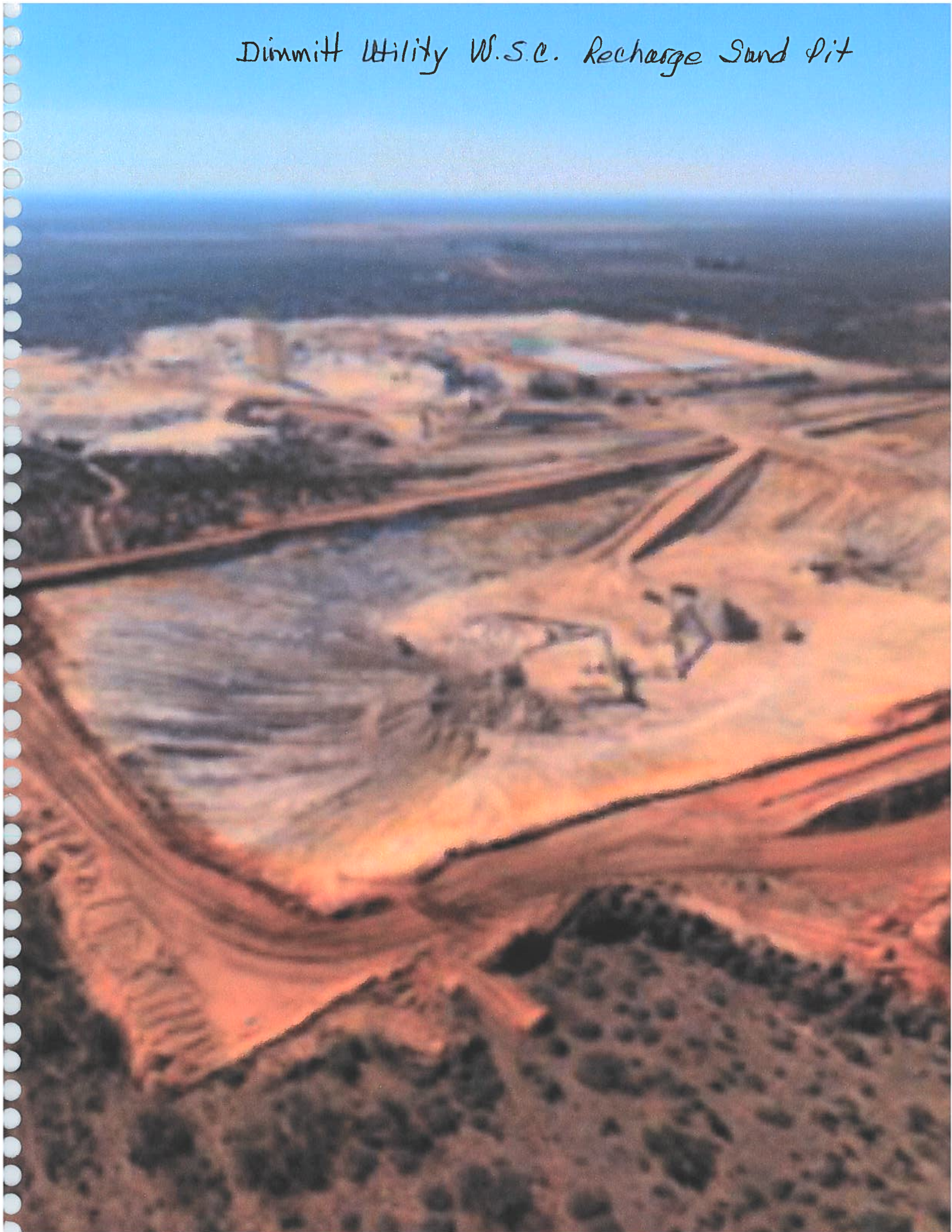
	2010	Then and now	2019
McAllen	6,000,000 gallons a day		_____MGD
Weslaco	10,000,000 gallons a day		_____MGD
La Joya	5,000,000 gallons a day		_____MGD

Edinburg	2,500,00allons a day	10-MGD
Pharr	2,000,000 gallons a day	_____MGD
San Juan	1,000,000 gallons a day	_____MGD
Alamo	500,000 gallons a day.	_____MGD
Mission	?,000,000 MGD but interested	_____MGD

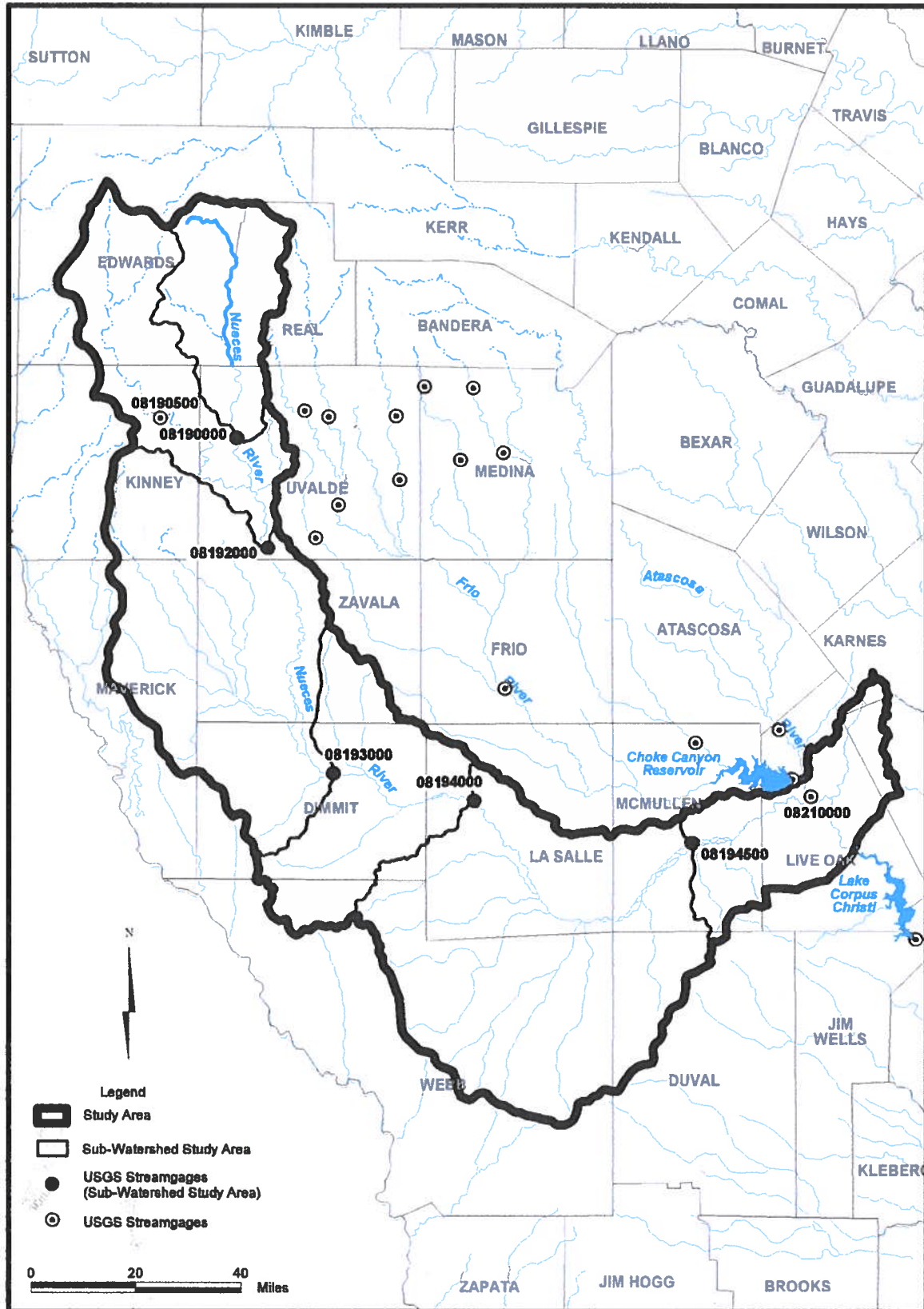
Brownsville? Harlingen? Additionally Midstream water Utilities requesting water, of an Alternative water source. Freer, San Diego, Alice others?

The first step in this process is to establish a total water demand. Once the verification process is complete, we are to develop a Secondary Potable Water Supply and Delivery System that meets the objectives of this project and is acceptable to the Texas Water Utility., Dimmit Utility WSC and South Texas Heritage WSC.

Dimmitt Utility W.S.C. Recharge Sand Pit



Water recharge to Lake Corpus Christi through Sliver Bridge Just A Scenario



Appendix G Expert Hydrology Reports on Drying Up of the Rio Grande River

Dr. Ronald Green Hydrology

Report

Dimmit Utility Ground Water source

Is Separate groundwater source, not mingling with any Rio Grande River watershed sources.

. Dr. Ronald Green hydrology report to Laredo City Council 8/1/2016 shows Dimmit Utility water source is outside the Rio Grande watershed from surface and groundwater sources. Does not interfere with Rio Grande river water levels at all.

Play the 6-minute video

<https://www.facebook.com/sohtexaswatersharingproject/videos/158919658111869/UzpfSTeWMDAwMDk2NDM2MzcxMjoxOTEwODYxNTg4OTU1OTY4/>



Eddie Lucio III,
State Representative
House District 38



Lyle Larson,
Chairman
House Natural Resources
Committee

For Immediate Release
May 6, 2020
Contact: Sergio Cavazos
(956) 525-2079

State Representatives Call on Federal Government to Hold Mexico Accountable for Withholding Water from Rio Grande Valley

May 6, 2020 (BROWNSVILLE, Texas) - Water suppliers in the Rio Grande Valley are at risk of running out of water by early June due to the failure of the Mexican government to deliver water to the United States as required by the 1944 Water Treaty with Mexico.

Irrigation District #9, which supplies water for the cities of Weslaco, Mercedes, Elsa, Edcouch and La Villa through the North Alamo Water Supply Corporation, is currently at 38% capacity. The North Alamo Water Supply Corporation, which supplies potable water for rural and semi-urban areas of Hidalgo, Cameron and Willacy counties, is actively looking for emergency water supplies to supplant water that should be supplied by water deliveries from Mexico on the Rio Grande. The cost of any emergency water supplies will be passed onto ratepayers.

Irrigation districts and municipal water suppliers rely on Mexico releasing water from tributaries of the Rio Grande that originate on its side of the border into Lake Falcon and Lake Amistad for use by United States farmers, residents, and businesses. In return, the United States supplies a large volume of water to Mexico from the Colorado River which runs through the western United States before it reaches Mexico, where it supports the rich agricultural region of Mexico. This international water sharing agreement is known as the 1944 Water Treaty.

State Representative Eddie Lucio III (D-Brownsville) and State Representative Lyle Larson (R-San Antonio), who chairs the House committee charged with overseeing water issues, are calling on federal officials to change the government's policy towards the application of the treaty. "The government in Mexico is making political decisions that have severe economic consequences for our region," said Rep. Lucio. "It is unconscionable that the federal government allows abuses by Mexico to occur decade after decade at the expense of residents and growers in the Rio Grande Valley. My constituents are subsidizing the agriculture economy on the other side of the border."

While the United States has gone to great lengths to annually deliver its water obligation to Mexico in the west, Mexico has made a habit of withholding water it owes to the United States on the Rio Grande, instead hoping that a large rain event will saturate the river system to make up the water shortage.

"It's time for the federal government to enforce the reciprocal water exchange built into the treaty as envisioned by its authors," said Rep. Larson. "Mexico must know that water releases will not be made from the Colorado River if they do not make releases into the Rio Grande. There must be a change in policy at the federal level to look at the treaty holistically and enforce consequences if either country is non-compliant."

###

Ruben Saenz, Manager
Dimmit Utility Water Supply Corporation
▪ P.O. Box 279 ▪ Carrizo Springs, TX ▪ 78834 ▪ 361-947-8060 ▪
captainsaenz28@gmail.com

May 7, 2020

Dear Honorable Representative Lyle Larson
Chairman, House Natural Resources Committee

Greetings! My name is Ruben Saenz, Manager of Dimmit Utility WSC. Your Press Release of May 6th with State Representative Eddie Lucio, III struck me as directly in line with the Regional Water Project ready for implementation from Dimmit Utility WSC. My partner Howard Ivy, Developer of South Texas Community Water Sharing Pipeline Project, LLC, and I are available at your convenience for discussions about our “Drinkable Water for 100 Years” – a regional plan for a secondary water source for South Texas. Our company can provide clean, drinkable water for South Texas as outlined in the attached power point—up to 50 million gallons of drinkable water for 100 years!

As your Press Release notes “Water suppliers in the Rio Grande Valley are at the risk of running out of water by early June due to the failure of the Mexican government to deliver water to the United States as required by the 1944 Water Treaty with Mexico.” Several counties are “actively looking for emergency water supplies to supplant water that should be supplied by water deliveries from Mexico on the Rio Grande.”

These emergency water resources would not be needed with the implementation of our Regional Water Sharing Pipeline Project. We are ready and able to begin this Regional Pipeline with private financing already secured as soon as a governmental/municipal entity agrees to purchase a minimum of 10 million gallons of water per day. The construction could be completed as early as 2022 if we begin construction by the beginning of this fall. We have met several times with representatives from the Texas Water Development Board to include Dr. Clay Schultz and Ms. Mireya Loewe who have noted our project’s value.

We are also in consultation with experts who can provide satellite imagery as evidence of the rate, location, and agricultural purposes of surface water in Mexico and South Texas.

Our contact information is below. We look forward to talking with you soon.

Ruben Saenz
Dimmit Utility WSC Manager
Cell 361-947-8060
captainsaenz28@gmail.com

Howard Ivy
Water Sharing Pipeline
Cell 830-876-2551
Howard_ivy@msn.com

C State Representative Eddie Lucio, III



Matilda Saenz <dr.mdsaenz@gmail.com>

Re: Dimmit Utility, WSC.pptx

4 messages

Lyle Larson <Lyle.Larson@house.texas.gov>

Wed, May 13, 2020 at 5:25 PM

To: Matilda Saenz <dr.mdsaenz@gmail.com>

Cc: Shannon Houston_HC <Shannon.Houston_HC@house.texas.gov>, Eddie Lucio <eddie@thelucioiiigroup.com>

Mr. Saenz,

Thank you for your letter and details on the water transport project. My office shared the information with Steve Sanchez, General Manager of the North Alamo Water Supply Corporation, to review. As you may know, North Alamo serves Hidalgo, Willacy and a portion of Cameron County. Would encourage you to follow up with Steve and work with the potential customers for this water to see if it could be part of a short or long-term solution for south Texas.

Best,
Lyle Larson

On May 8, 2020, at 12:38 PM, Matilda Saenz <dr.mdsaenz@gmail.com> wrote:

<Dimmit Utility, WSC.pptx>
<Letter Lyle Larson.docx>

Matilda Saenz <dr.mdsaenz@gmail.com>

Wed, May 13, 2020 at 7:53 PM

To: Ruben Saenz <captainsaenz28@gmail.com>, Howard Ivy <howard_ivy@msn.com>

Bcc: dr.mdsaenz@gmail.com

Sent from my iPhone

Begin forwarded message:

From: Lyle Larson <Lyle.Larson@house.texas.gov>

Date: May 13, 2020 at 5:25:26 PM CDT

To: Matilda Saenz <dr.mdsaenz@gmail.com>

Cc: Shannon Houston_HC <Shannon.Houston_HC@house.texas.gov>, Eddie Lucio <eddie@thelucioiiigroup.com>

Subject: Re: Dimmit Utility, WSC.pptx

[Quoted text hidden]

Howard Ivy <howard_ivy@msn.com>
To: Matilda Saenz <dr.mdsaenz@gmail.com>

Tue, May 19, 2020 at 3:01 PM

Great

Sent from my iPhone

On May 19, 2020, at 2:13 PM, Matilda Saenz <dr.mdsaenz@gmail.com> wrote:

Chairman Larson,

Thank you so much for your response! We have not yet heard from Mr. Sanchez, General Manager of North Alamo Water Supply Corporation. However, I am planning to visit with Mr. Sanchez sometime this week.

Dimmit Utility's concern for both short and long term solution for water accessibility for South Texas is of great importance due to our ample water supply for communities short on their water needs.

I will keep you informed of any developments in this endeavor with North Alamo Water Supply Corporation.

Ruben Saenz
Dimmit Utility WSC Manager
[Quoted text hidden]

Matilda Saenz <dr.mdsaenz@gmail.com>
To: Matilda Saenz <dr.mdsaenz@gmail.com>

Sat, Jun 27, 2020 at 1:21 PM

Sent from my iPhone

Begin forwarded message:

From: Matilda Saenz <dr.mdsaenz@gmail.com>
Date: May 13, 2020 at 7:53:58 PM CDT
To: Ruben Saenz <captainsaenz28@gmail.com>, Howard Ivy <Howard_ivy@msn.com>
Subject: Fwd: Dimmit Utility, WSC.pptx

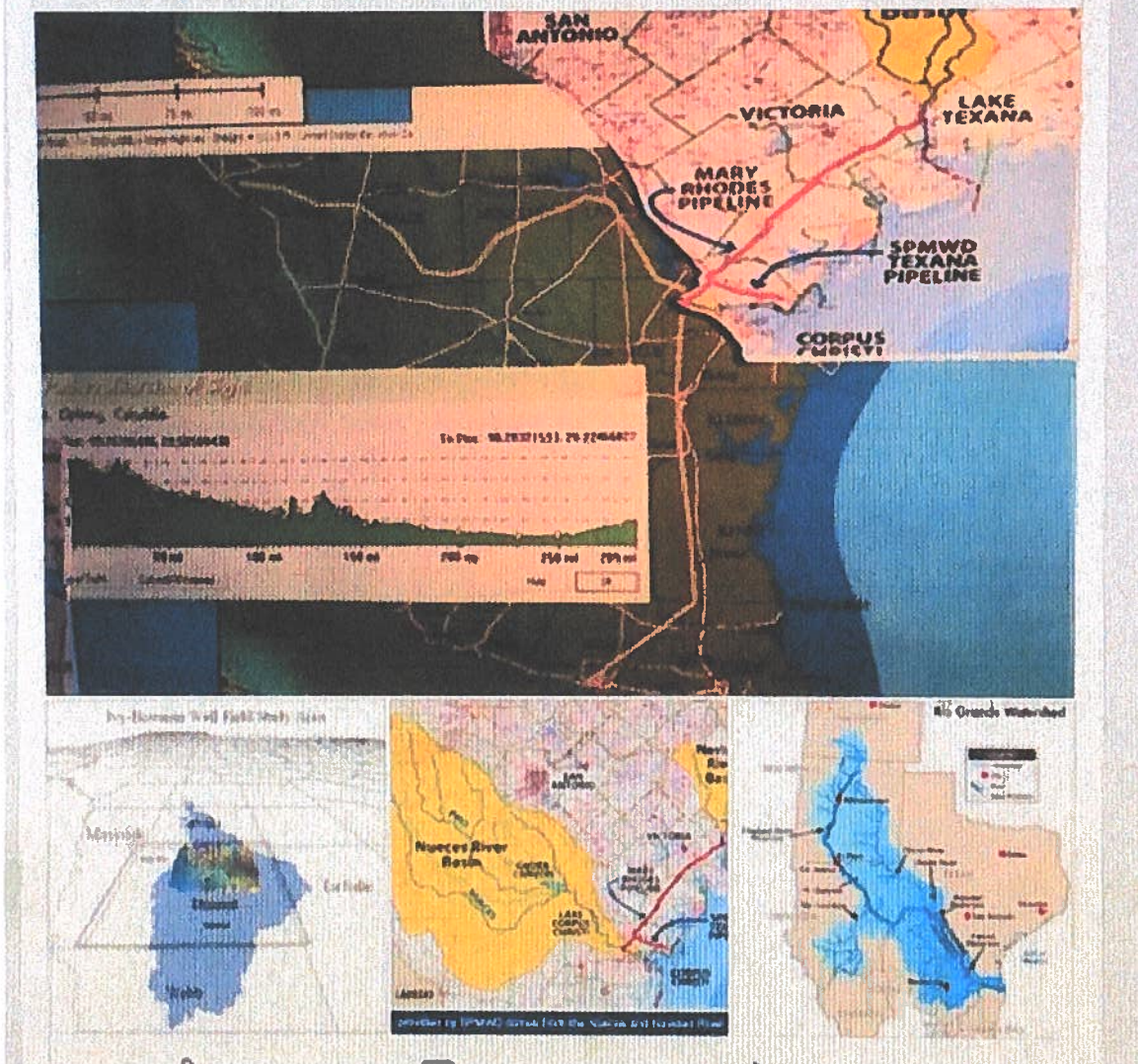
[Quoted text hidden]

**Appendix H Maps of Possible Routes for the Dimmit Utility's South Texas Water
Sharing Pipeline Project**

Now many different water sources can connect to this Potable Water Sharing Pipeline System? Yellow Pipeline is reverse flow capable.

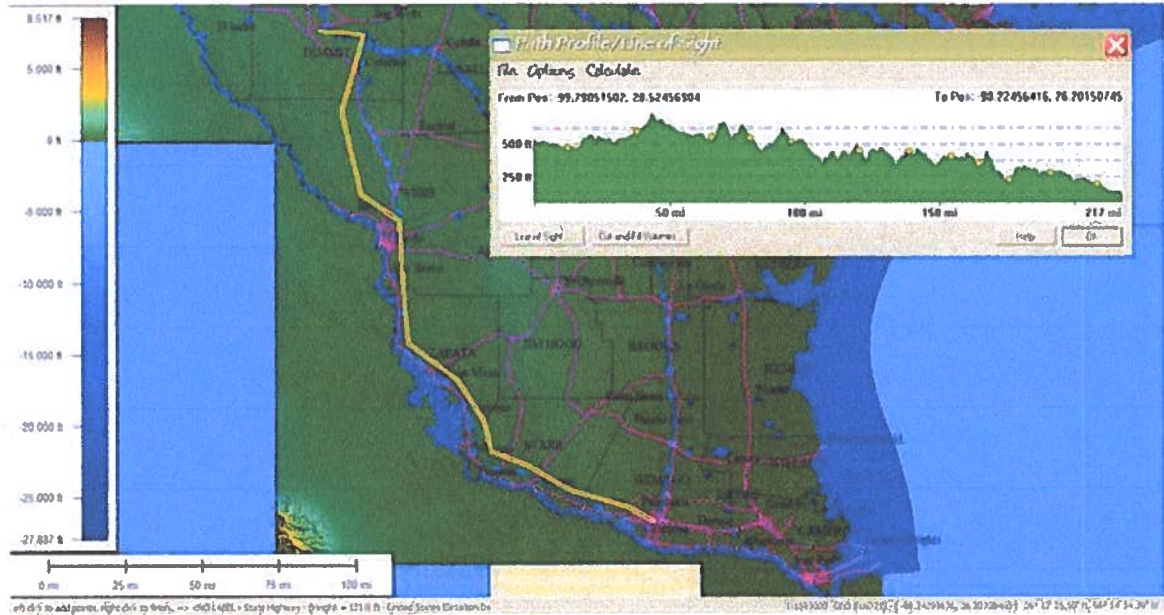
South Texas let's Come together on WATER. To connect all water sources of south Texas by way of a Potable Water Delivery System with a reversible water flow capabilities. This would make getting potable water from any source available, from where ever it is to where ever it's needed. Using Drought proof Sustainable yield groundwater resources that Guaranty water availability & Private Funding.

Available Groundwater resources area map, Surface water sources For Alice & Corpus Christ area in the future may have De-Sal too. Rio Grande Watershed or RGV surface water sources like De-Sal as well.

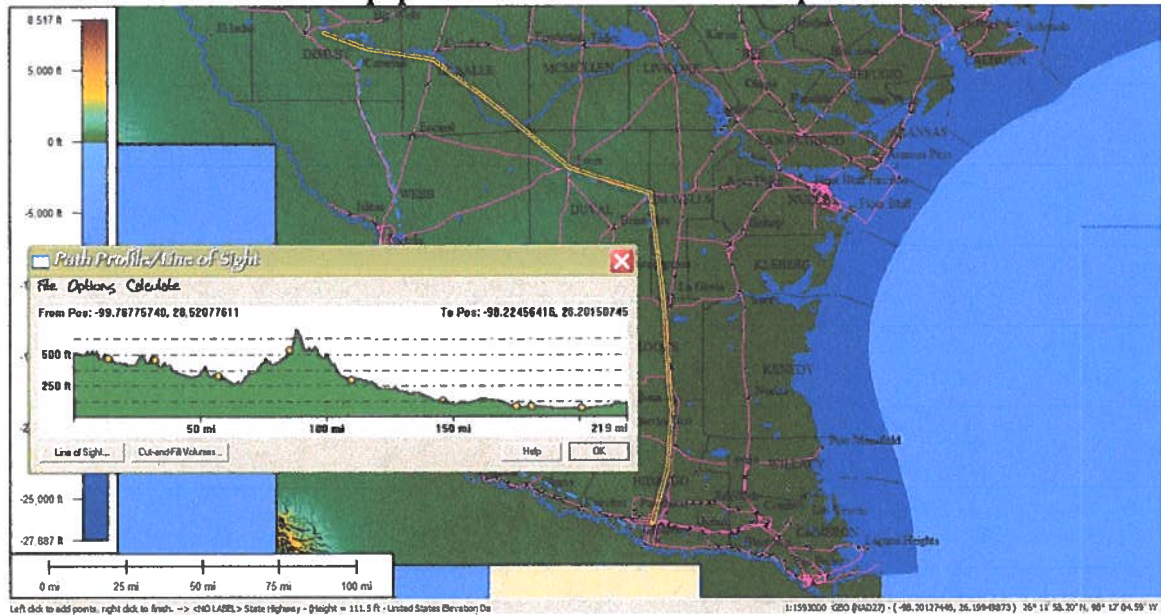


Other Routes Routes

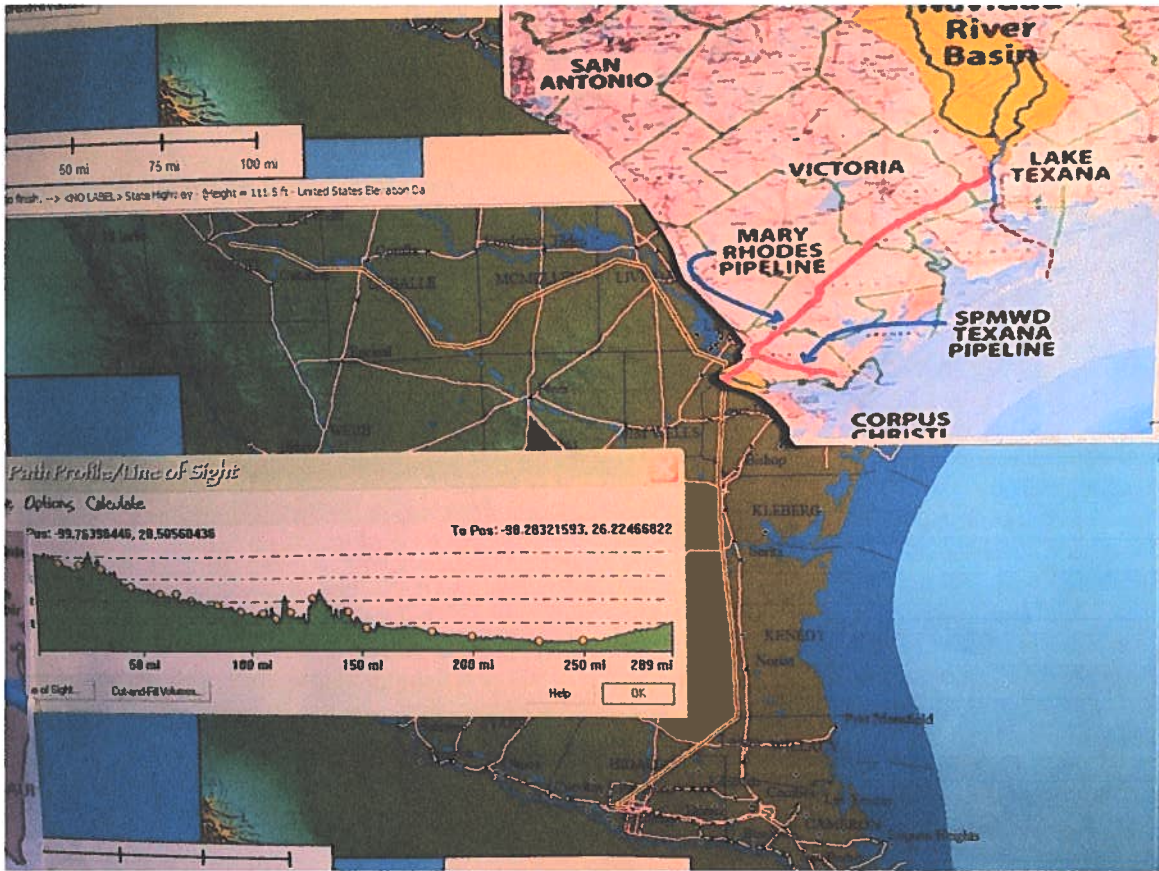
Route A



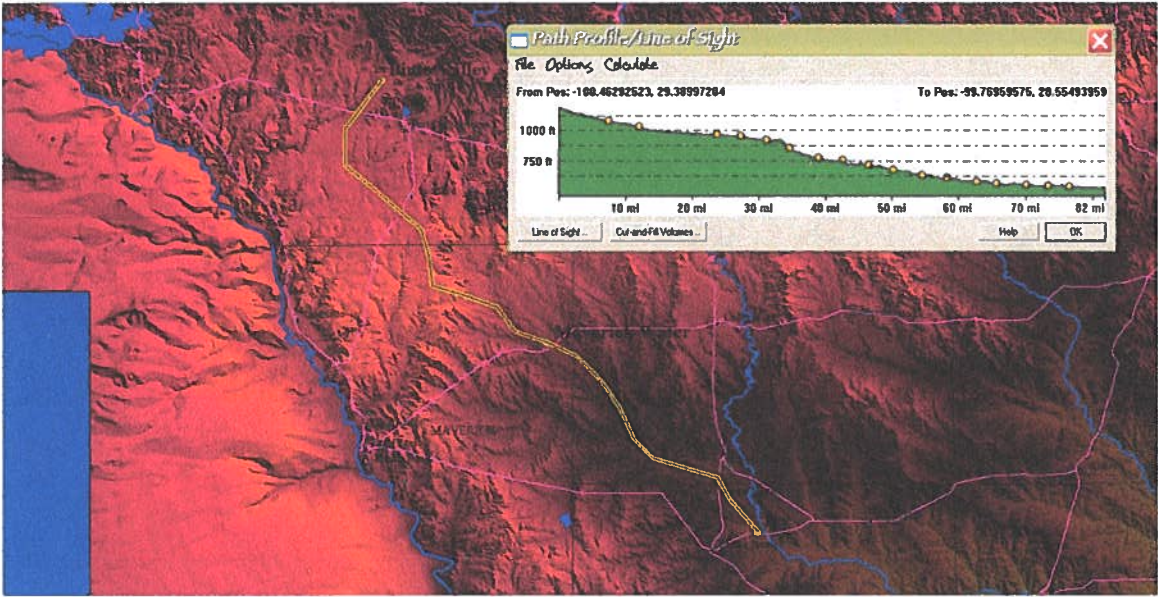
Route B Alice TX. Has pipeline access to Lake Corpus Christi nice.



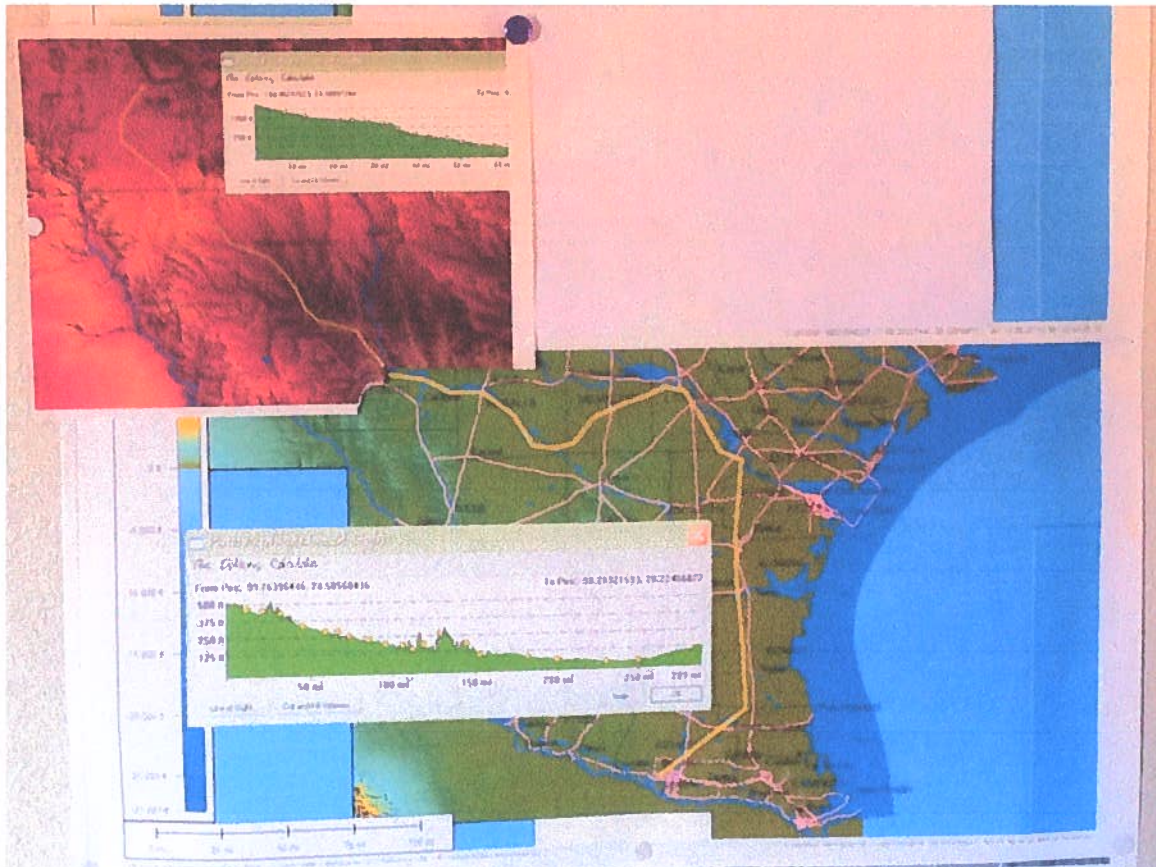
Route C



There are others Landowner's with additional groundwater sources to offer, but need to have transport system to market & deliver their water, to South Texas. The problem for them is water volume next to distance to Market. This is why a potable water delivery system for south Texas is great. Water can be moved from where it is available to where ever it's needed

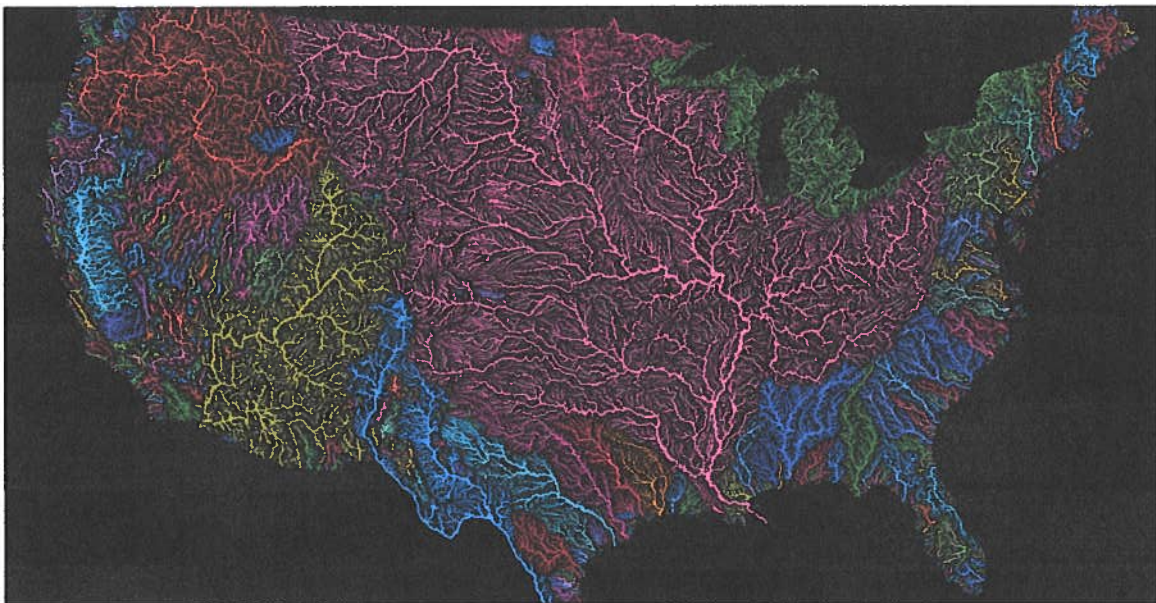


Could be connected to the top of Dimmit Utility WSC pipeline for potable water transport system, at some a fee.



So what is the Key thing about the Dimmit Utility WSC water source? Many good things about the water source it's a drought proof source of water with having two separate Sustainable water pumping yield hydrology model Studies with testing results. Study showed you could pump 40,MGD of water a day way past 100 years and affect the level Aquifer less than 1% and the study was done without recharge meaning if it didn't rain in all that time. As well water is 76° year-round, Water is arsenic free, water has only 264 ppm solids right out of the ground.

Yet that's not the key thing about the Dimmit Utility WSC water Resource. The key thing is due to the water sustainability of this Resource it creates the private funding to create a potable water delivery system that can connect all the other portable water sources throughout South Texas. As well as several different forms of water recharge surface Lake water and Aquifer groundwater as well water reuse. Making a cash Cow for future water project funding needs. Now that's the key thing about the Dimmit Utility Water Supply Corporation water resource & offer.



Appendix I Bill Norris Engineering Report to Laredo's RFP for Water Needs

Bill Norris NRS Hired the third party, Engineering Firm to review the Dimmit Utility offer, here is His Report:

Water offer with no risk cost said Bill negotiating team leader of experts affirmed that the DUWSC proposal:

- Was competitive;
 - Satisfied portions of the City's short and long term needs;
 - Is a turn-key approach;
 - Used minimal City resources;
 - Involved no financial risk to City;
 - Provided improved water quality;
 - Provided a drought-proof supply of water;
 - Improved water security for City;
- *Does not conflict with any other City water strategies;
(Dual Tracking) other water projects capable. (Lake & River water, Groundwater Sources fresh and brackish as well as Desalination) all with no conflict to any Projects.

Because it uses no City credit or funds.

Play the 1-minute:30 Second video

<https://www.facebook.com/sohtexaswatersharingproject/videos/145689826101519/>

For more info Contact:
Dimmit Utility WSC
Manager
Ruben Saenz

Dimmit Utility WSC

A Water Recharge Utility

Ruben Saenz

Utility Manager

926 Chulie Dr.
San Antonio TX.78216

361-947-8060

captainsaenz28@gmail.com



Evangeline/Laguna, LP

Response to:

TWDB REQUEST FOR INFORMATION

580-20-RFI-0009

FOR

**STATE PARTICIPATION ACCOUNT
INTERREGIONAL WATER SUPPLY PROJECTS**

NIGP CODES: 926/00, 968/00, 989/00

SOLICITATION DATE: APRIL 1, 2020

RESPONSES DUE: JULY 1, 2020, no later than 2:00 PM CDT

Authorized for Submittal by:


Hamlet Newsom, for Evangeline/Laguna, LP Date

Evangeline/Laguna, LP Response Submitted via Email

July 1, 2020

Response Form

TWDB REQUEST FOR INFORMATION 580-20-RFI-0009 DUE NO LATER THAN 2:00 PM (CDT) on JULY 1, 2020

Company/Entity Name Evangeline/Laguna, LP	
Address 5111 Broadway San Antonio, TX 78209	Phone Number 210-794-9036
Name and Title of Authorized Representative Submitting the Response Hamlet Newsom, Principal, Evangeline/Laguna, LP	
Contact Person Name Hamlet Newsom	Contact Person Phone Number 210-240-8891
Contact Person Email Address Hamlet@evangelinewater.com	
Regions Affected (as shown on Regional Water Planning Areas map) Regions: K, L, N, & P	
Proposed Source for the Water Supply Evangeline/Laguna, LP Groundwater Supply Project in San Patricio County, TX	
<p>Response</p> <p>Evangeline/Laguna, LP ("Evangeline") is a partnership between a group of landowners in San Patricio County and an investor/development team with over 20 years of experience in putting together successful groundwater supply and delivery projects in Central – South Central Texas. The project development team also includes experts in regional/inter-regional water management, and the hydrogeology of the Gulf Coast Aquifer.</p> <p>On April 18, 2019, the San Patricio County Groundwater Conservation District granted Evangeline a production permit for 28,486 acre-feet of groundwater per year from a 22,789-acre tract of land in north-central San Patricio County. Representatives of Evangeline have been meeting with water providers/users in the Coastal Bend region to inform them of the project and the availability of the Evangeline groundwater as a source of municipal/industrial water supply.</p> <p>One of the advantages of the groundwater is the project's location immediately adjacent to the City of Corpus Christi's Mary Rhodes Pipeline ("MRP") which now transports surface water available under from the City's "Garwood" water rights in the Colorado River, and a contract with the Lavaca-Navidad River Authority for water from Lake Texana. The Evangeline project's proximity to the MRP provides an opportunity to either integrate the Evangeline groundwater into the City of Corpus Christi's regional water supply system via the MRP (or via a pipeline direct to another regional purchaser) or, conceptually, to utilize the MRP as a means of "wheeling" the Evangeline groundwater to potential users in other Regional Water Planning Areas located between the MRP's origin in the Lower Colorado River Basin at Bay City and its terminus in the Nueces River Basin at the City of Corpus Christi's O.N. Stevens surface water treatment plant.</p> <p>Such "wheeling" would involve developing contractual agreements between Evangeline, the City of Corpus Christi ("City of CC") and other participating entities, and securing any necessary state water rights permits or permit amendments which would allow surface water supplies which the City of CC currently diverts from the Colorado River (via its "Garwood" water rights permit) and from Lake Texana water (via the Lavaca-Navidad River Authority purchase agreement), and transports through the MRP, to be made available for use by other water providers in Regions K, L, N and P. It would also facilitate interregional water banking opportunities, using Aquifer Storage and Recovery (ASR) facilities which could be developed on the Evangeline project properties, to take surface water from potential sources⁽¹⁾ along the length of the MRP, store it in the underlying Gulf Coast Aquifer, and then later withdraw/recover it to make it available to users in the Coastal Bend area while allowing the "depositors" to access water which would otherwise be delivered to the City of CC via the MRP.</p>	

Company/Entity Name

Evangeline/Laguna, LP

Response (continued)

An example of these kinds of water wheeling projects would be an arrangement between the Lower Colorado River Authority (LCRA) and the City of CC which would allow LCRA, during drought/low flow periods, to divert and use additional Colorado River water available under the City's Garwood Water Rights Permit, and then pay Evangeline to produce and deliver to the City of CC, in exchange, a comparable, or greater, amount of groundwater from the Gulf Coast Aquifer, available under Evangeline's groundwater production permit.

Similarly, LCRA might, during high flow periods, arrange to divert water from the Colorado River under its various water rights, deliver it via the MRP to Evangeline for storage in an ASR facility, and later, during drought conditions in the Colorado River basin, allow the City of CC to withdraw water from LCRA's "ASR storage account" in exchange for LCRA accessing Colorado River water under the City of CC's Garwood water right.

These ideas draw on a prior TWDB interregional water supply study⁽²⁾ which explored options for "Interregional Cooperation" among water suppliers in the South/South-Central Texas area, as well as evaluations of various Water Management Strategies in Region N Water Plans for 2001 thru 2017, and the draft Region N 2021 Regional Water Plan. Such interregional projects could generate new water supplies to benefit the rapidly growing populations and expanding economies within the large area of Texas included in Regional Water Planning Areas K, L, N and P.

The Evangeline management team has experience in interregional water projects as the owner of the water rights in the interregional Vista Ridge water supply project delivering water from Region G, through Region K to Region L. Furthermore, Evangeline management can capitalize on Evangeline's unique location and provide private financing for not only all the costs of production of this groundwater as a new supply source, but also for all the costs of well field infrastructure, storage, any desired treatment and pipelines for delivery for these types of interregional projects based around its project site and water rights. Evangeline management could work with local/regional/state water management agencies to jointly finance and develop groundwater sources and water storage (including ASR) and conveyance facilities to meet long-term water demands and support job creation in the South-Central Texas area. Accessing TWDB's State Participation Program would help assure these new water supplies would also be affordable.

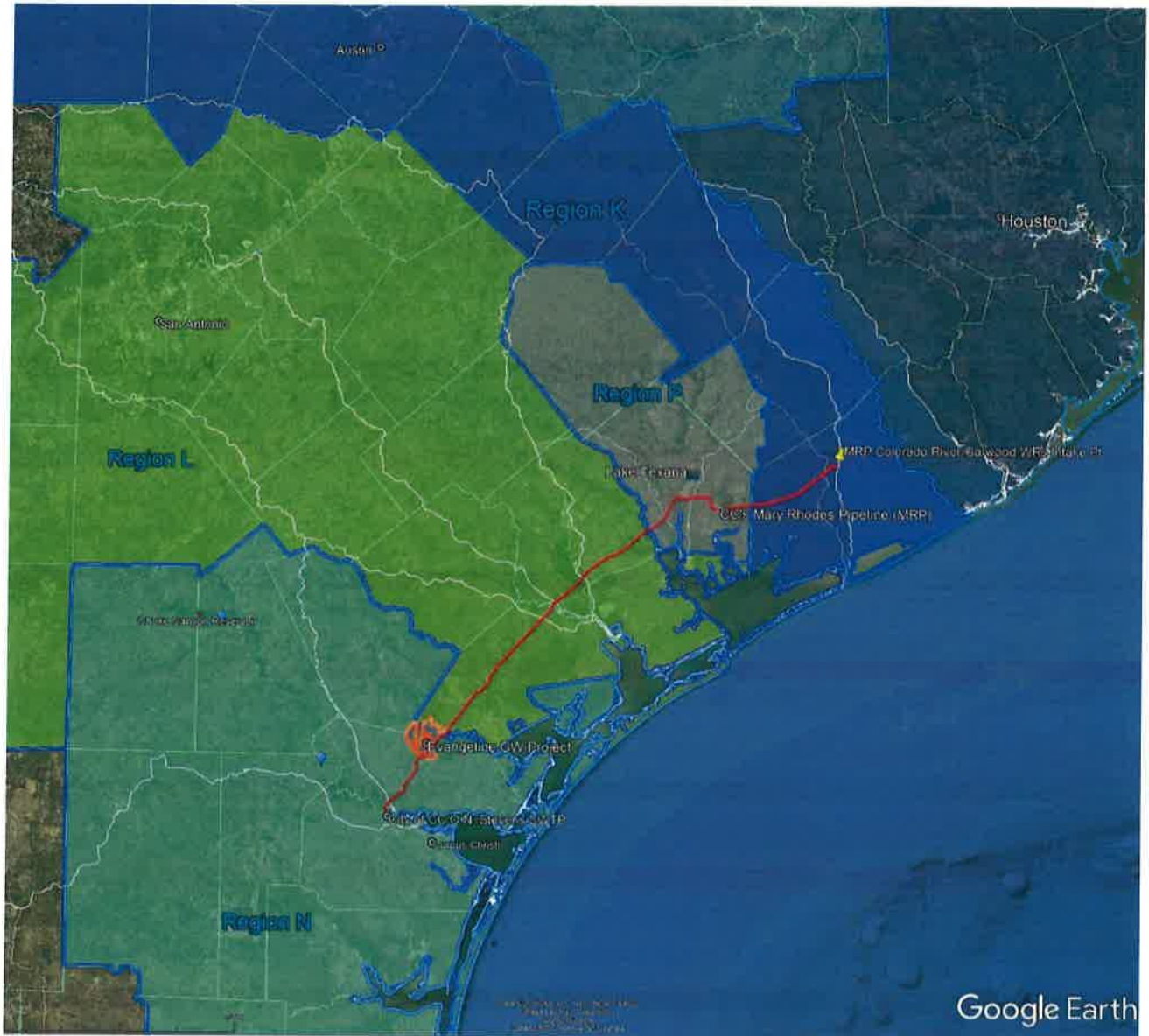
Evangeline is prepared to work with TWDB in further identifying opportunities to utilize the groundwater resources it is permitted to produce from the Gulf Coast Aquifer in San Patricio County, and its ability to develop ASR facilities, in order to develop and implement large-scale, interregional water supply projects serving the needs of water suppliers in Regional Water Planning Areas K, L, N and P.

Footnotes:

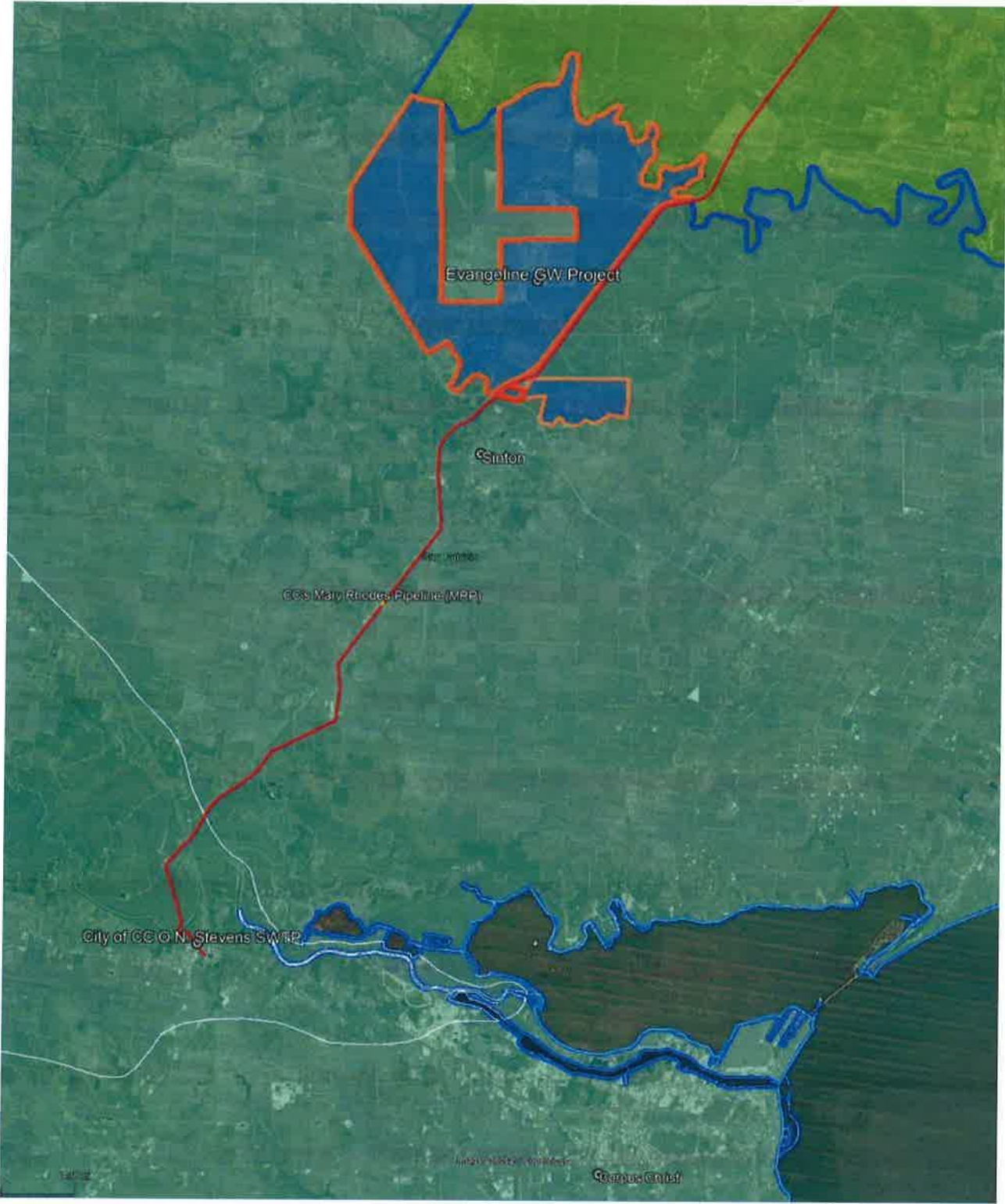
- (1) Potential Sources of Water Along the MRP Could Include, if Available:** LCRA and other Colorado River water rights (WR's); Lake Texana water; other Navidad and Lavaca River WR's; Guadalupe River WR's; San Antonio River WR's, and other groundwater sources. In addition, ASR facilities could be developed at locations along the MRP and used to "firm-up" surface water rights in basins along the MRP route.
- (2) "Management Strategies for Potential Inter-Regional Cooperation,"** HDR Engineering, Inc., May 2002; http://www.twdb.texas.gov/publications/reports/contracted_reports/doc/2002483432.pdf

See Maps on next two pages for more information.

Evangeline/Laguna, LP Response to TWDB RFI on Interregional Water Projects -- Maps



Map 1.: Regional Water Planning Areas Connected by the Mary Rhodes Pipeline



Map 2.: Evangeline/Laguna, LP Project Area and Mary Rhodes Pipeline Route

**APPENDIX B
Response Form**

**TWDB REQUEST FOR INFORMATION 580-20-RFI-0009
DUE NO LATER THAN 2:00 PM (CDT) on JULY 1, 2020**

Company/Entity Name Gulf Coast Authority	
Address 910 Bay Area Boulevard Houston, TX 77058	Phone Number 281-226-1110
Name and Title of Authorized Representative Submitting the Response Elizabeth Fazio Hale, Assistant General Manager	
Contact Person Name Leonard Levine	Contact Person Phone Number 281-226-1124
Contact Person Email Address LLevine@gcatx.org	
Regions Affected (as shown on Regional Water Planning Areas map) Regions A, E, F, G, I, J, K, L, M, O	
Proposed Source for the Water Supply Produced water	
<p>Response</p> <p>Across many Texas water planning regions, there are vast resources of crude oil. With unconventional drilling, large volumes of water are produced from oil wells, typically known as “produced water.” Based on recent years’ data, Texas produces 3 to 5 million barrels of oil per day. This results in 18 to 30 million barrels of water per day, based on 6 barrels of water for every barrel of oil produced. Put in more common measurements for water, this is 756 million gallons per day (mgd) (2,320 acre-feet per day [ac-ft/day]) to 1,260 mgd (3,870 ac-ft/day). Of that volume, approximately 25% is used for additional oil wells. A majority of the remaining 1,740 ac-ft/day is currently injected into Class II disposal wells.</p> <p>If as little as 25% of the disposed water was recovered for alternate uses, this would result in in approximately 190 mgd (580 ac-ft/day) of water which could be used as a source of water for activities such as agriculture or industry, thus reducing pressure on existing sources. On an annual basis, this is almost 70 billion gallons (211,700 ac-ft) of available water for use/reuse.</p> <p>These freed-up water sources would then be available for other uses without increasing stress on our groundwater aquifers or other fresh water sources. This allows for population and economic growth in water scarce regions.</p> <p>The current challenge is the lack of cost-effective treatment technologies for treating produced water to the quality needed for use outside the oil field. Produced water can be difficult to treat due to the fact it typically has high concentrations of TDS (10,000 to 250,000 milligrams per liter [mg/L]) and naturally occurring organic and inorganic contaminants, which limit the use of these waters outside of the oil field.</p>	

Response (continued)

GCA proposes identifying one or two of the most promising technologies currently being evaluated under the EPA Water Reuse Action Plan or the Department of Energy National Alliance for Water Innovation Energy-Water Desalination Hub. These technologies would then be tested on a pilot plant scale in an actual oil field application.

The purpose of the pilot testing is to be a proof of concept that the chosen technology can cost-effectively treat water to a sufficient quality for use outside the oil field, such as agriculture or industrial uses. If successful, this technology could then be used as the basis for a regional, full-scale treatment plant.

As previously mentioned, if as little as 25% of the disposed water was recovered for alternate uses statewide, this could provide up to 190 mgd (580 ac-ft/day) of treated water which can be used for agricultural or industrial use. This is nearly double the municipal water demand for Region F (based on the demand in draft 2021 Region F Water Plan) which includes a large portion of the Permian Basin. In addition, the almost 70 billion gallons (211,700 ac-ft) of water available on an annual basis would satisfy the entire projected 2020 annual shortage for Region L, which includes San Antonio (based on shortage listed in TWDB draft 2021 State Water Plan.) These are just two regional examples and further comparative numbers can be established on a region-by-region basis.

The treated water could also potentially provide:

- Aquifer relief, as it allows treated produced water to replace water being used from aquifers for agriculture and industry. Water from aquifers can then be used for purposes such as potable water supply;
- Economic growth, as a previously untapped water source would be available for agricultural and industrial needs, furthering facility growth; and/or
- Sustained oil production, as it reduces the possibility of decreased production due to produced water disposal restraints (deep well injection.)

Treated produced water could also be sold, which would offset the disposal costs for the untreatable produced water streams.

Funding could potentially come from several sources including:

- Upstream oil drillers who have produced water needing disposal;
- Grants to research institutions or local universities such as the Texas A&M, University of Texas, and Texas Tech systems or other research universities;
- TWDB, other state agencies, or state appropriations;
- Bureau of Reclamation (potentially eligible for application now, based on a previous GCA study partially funded by the bureau); and/or
- Other federal or state programs.

GCA expects this technology to be transferrable to any oil-producing region in the state. The initial pilot would likely be done in the Permian Basin (which largely impacts Regions E, F, J, and O), as a majority of the state's produced water originates there. The Permian Basin is also a water scarce area.

This could be expanded to the water planning regions which include the Eagle Ford, Anadarko, and Haynesville basins, as well as any other region which has oil and gas production. This would result in Regions A, I, K, L, and M, amongst others, to benefit from the pilot results.

As oil fields span water planning regions, so does the opportunity for the treatment of produced water. The treated water could be used across many water planning regions, allowing for a true interregional supply system which provides water supply relief to areas suffering from water scarcity.

Company/Entity Name
Gulf Coast Authority

Received by
TWDB

2020 JUN 31 AM 11:20
July 01

**APPENDIX B
Response Form**

**TWDB REQUEST FOR INFORMATION 580-20-RFI-0009
DUE NO LATER THAN 2:00 PM (CDT) on JULY 1, 2020**

Company/Entity Name Hidalgo County Irrigation District No. 6	
Address 3735 N FM 492 (Goodwin Road)	Phone Number (956)585-8389
Name and Title of Authorized Representative Submitting the Response Dr. Antonio Uresti - General Manager	
Contact Person Name Dr. Antonio Uresti	Contact Person Phone Number (956)585-8389
Contact Person Email Address antonio.uresti@hcid6.com	
Regions Affected (as shown on Regional Water Planning Areas map) Region M	
Proposed Source for the Water Supply Rio Grande River	
Response Please see attached..... 2 pages	

Company/Entity Name

Response (continued)

RESPONSE:

Project Name: Hidalgo County Irrigation District #6 Expansion Project 2022

Introduction: Affordable and sustainable water supplies are fundamental need for Hidalgo County Irrigation District #6. The dual challenge of our susceptibility to drought and our rapid growth intensifies the need for long term comprehensive planning that addresses our water needs and ensures the continued economic viability of our community especially in the west of Hidalgo County.

Project Description: The Hidalgo County Irrigation District #6 intent is to move raw water north in an expansion project approach. The Hidalgo County Irrigation District #6 will acquire minimum of 30' right-a-way and use a minimum of a 36" water main or as needed up to 108 "as used in the Dallas-Fort Worth area Integrated Pipeline Project (Challenge Potential 12' tunnels) or more as designed by an engineer as an extension transmission canal in an underground line setting. Feasibility study, land acquisition, right-a-way, pilot testing, design, construction that will move raw water from the Rio Grande River thru Hidalgo County Irrigation District #6 for distribution throughout the new extension water system. A future phase will include an additional miles of capacity as the cities develop if forecasted. The project will begin from 8 mile line western thru Abram road north until determined by the board its size and expansion miles. Feasibility study will begin FY2017 followed by land acquisition, right-a-way acquisition, pilot testing, preliminary planning design, final planning design and construction and associated water conveyance infrastructure delivery system. The project is scheduled to be completed over a five year period with the new and full capacity available by 2022.

Project Justification: The Hidalgo County Irrigation District #6 has no water beyond 12-mile line or lines of distribution system. This project will provide raw water capacity and meet the demand as the cities, school districts and Agua SUD continue to grow. The 2012 Water Model Update based on growth projections established that the demand for a water system for this area would need to be met by 2022. The resulting Integrated Pipeline Project of the Dallas-Fort Worth area will connect four reservoirs and deliver 350 million gallons a day of water to the Metropolis area. The 2004 recommendation of a statewide water use of 140 gallons per day is projected impressively under the 2007 state water plan by the state's Water Conservation Implementation Task Force.

Estimated Cost of Project will be provided by Engineer Julio Cerda.

It is time to make futuristic decisions.

The Hidalgo County Irrigation District #6 desires an expansion project to deliver raw water beyond 12-mile line is a decision made.

On June 27, 2020 Hidalgo County Irrigation District # 6 made a yes commitment to future planning to start today Monday June 29, 2020 to meet for planning, grants and budget.

Funding Sources:

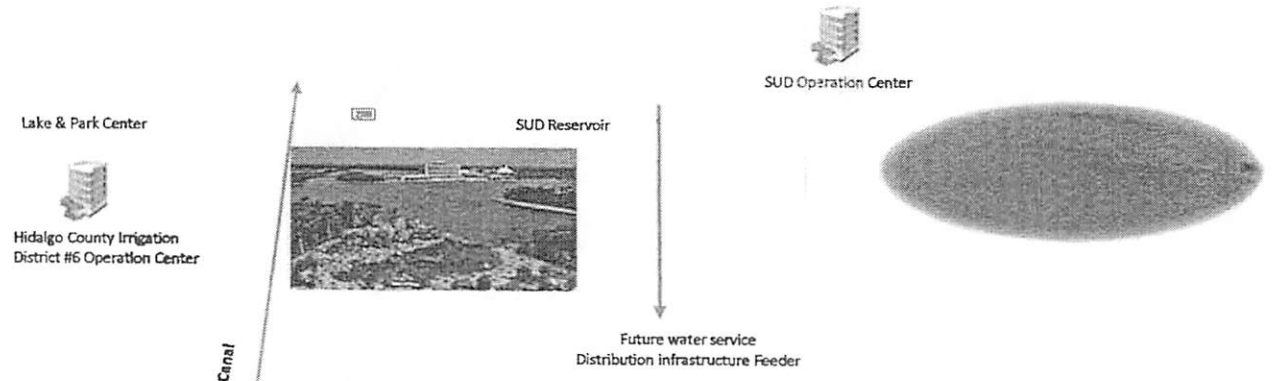
To optimize water supplies at cost-effective rates through grants, low-interest loans, extended repayment terms, deferral of loan repayment and incremental repurchase terms for projects with state ownership aspects decisions to use the funding programs as deem necessary.

Service Demands:

1. Irrigation
2. Citrus Industry
3. Livestock
4. Rural Water Services
5. Municipalities
6. Manufacturing
7. Industrial
8. Others: Steam/electrical, mining, etc....

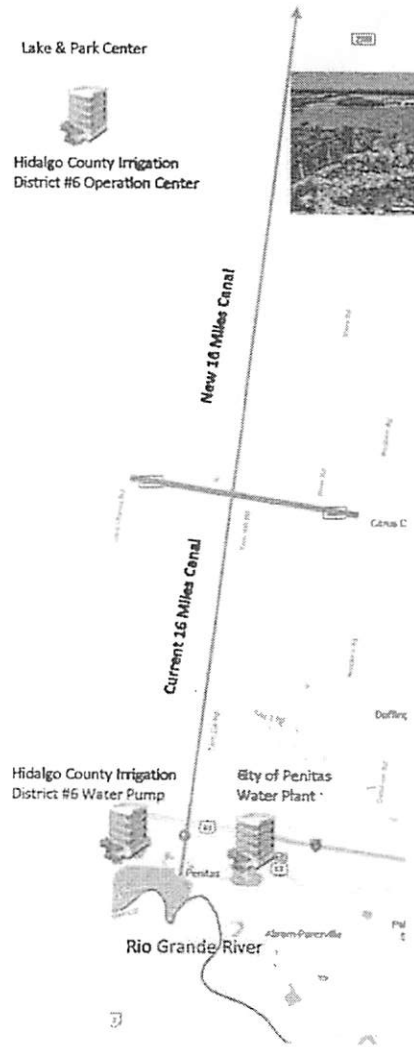
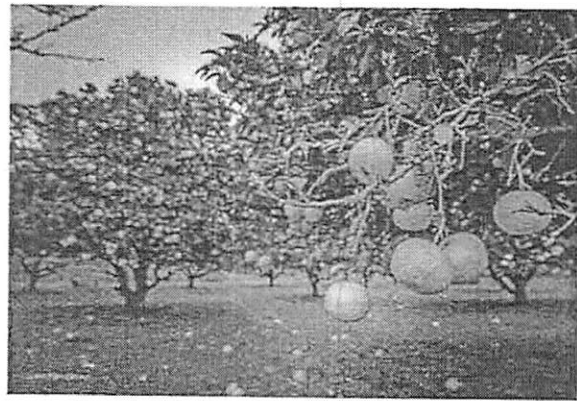
Budget 5 Year Impact:

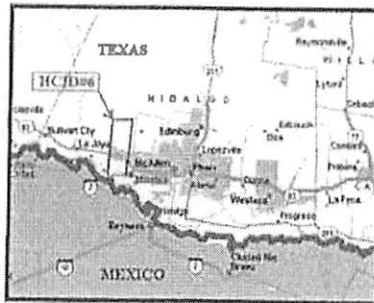
Sequence of Events	Fiscal Year
Feasibility Study	2020
Land Acquisition, Water Rights and Service Area	2021
Preliminary Engineering Design Report	2021
Right-of-Way Acquisition	2021
Final Design	2021
Survey	Late 2021
Construction	2021, 2022, 2023, 2024
Equipment	2021, 2022, 2023, 2024
Plant Final Finish	2025
Associated water conveyance infrastructure System	2021, 2022, 2023
Contingency	2020, 2021, 2022, 2023, 2024, 2025

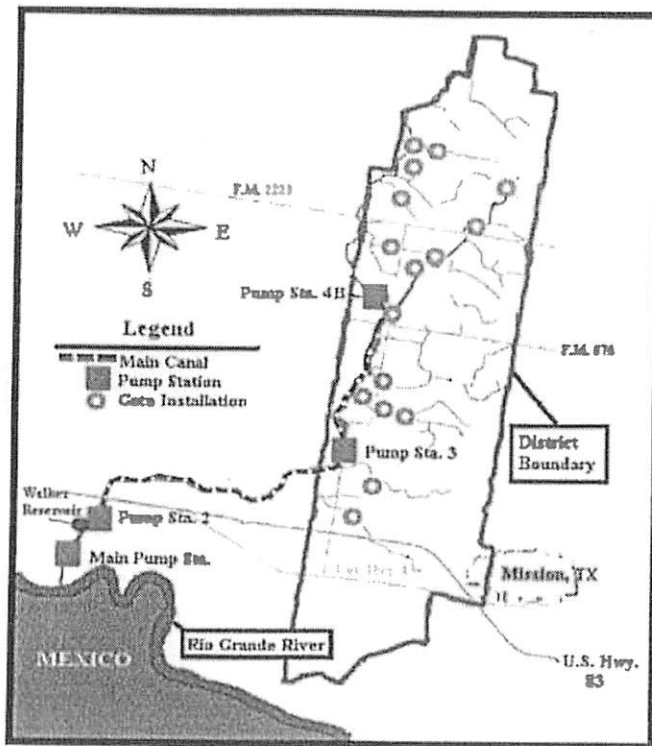


Narrative to elaborate about Penitas / Hidalgo County Irrigation District # 6 & SUD Regional Joint Project

Future development of Citrus Growers & Farmers Development Project







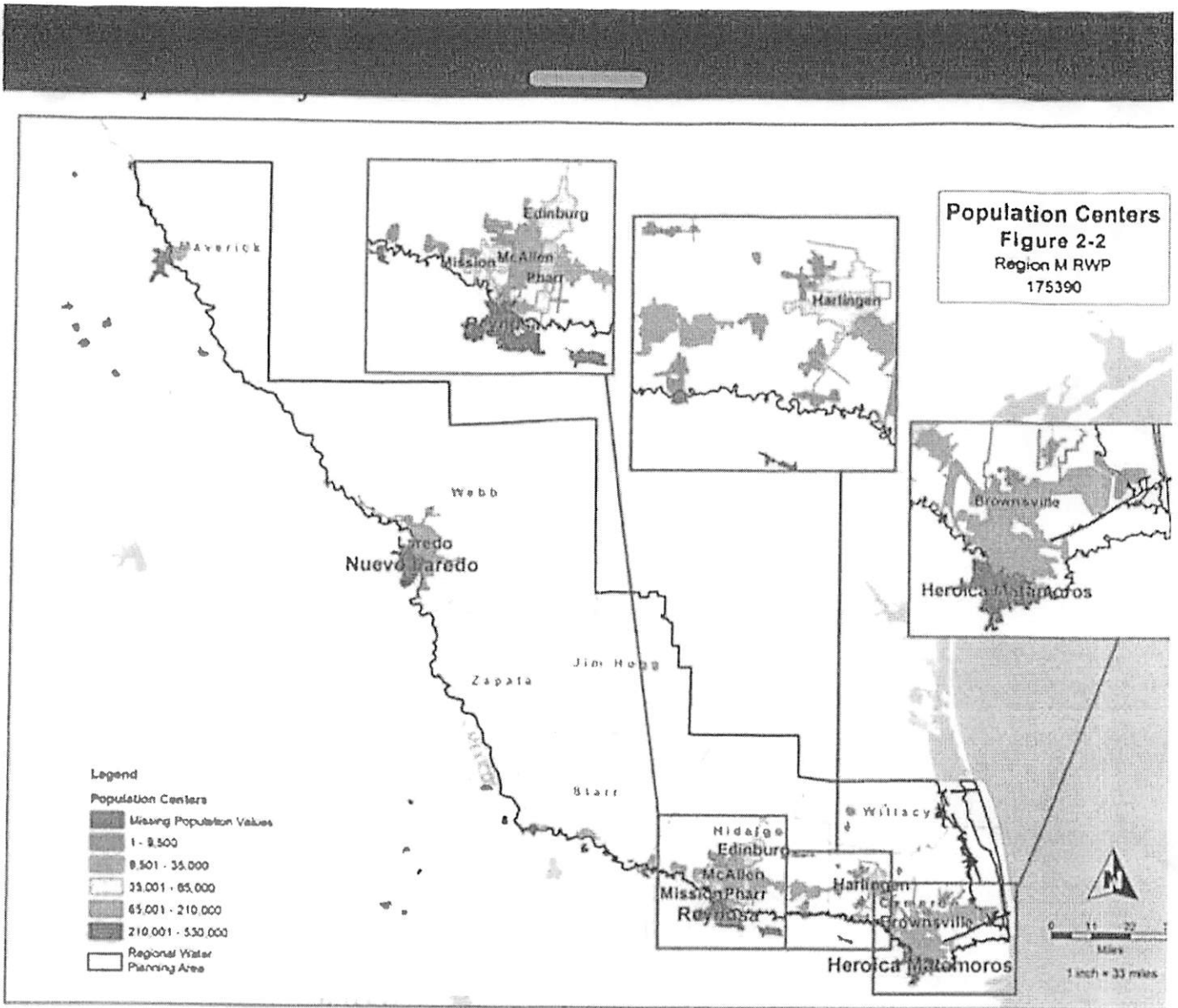
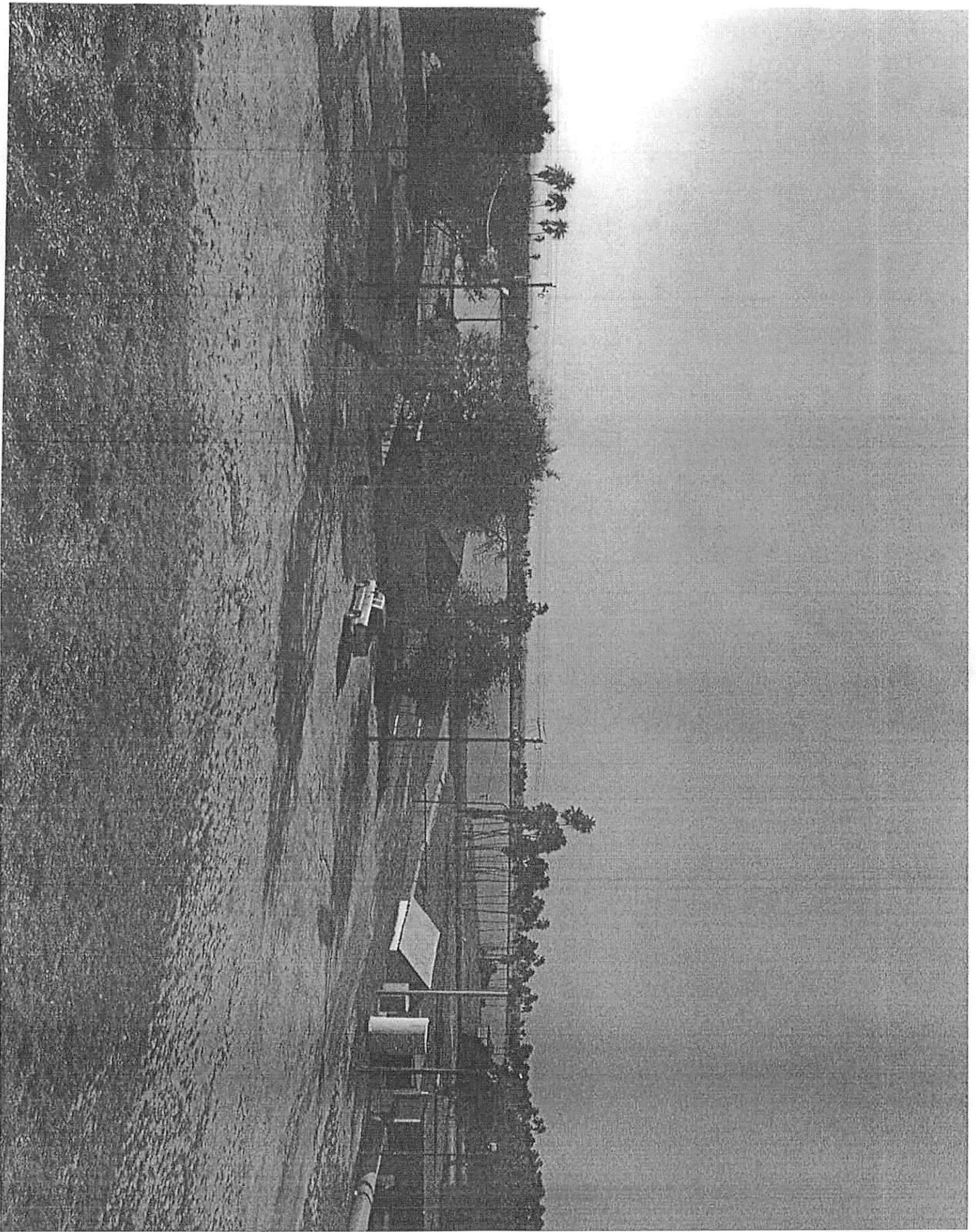
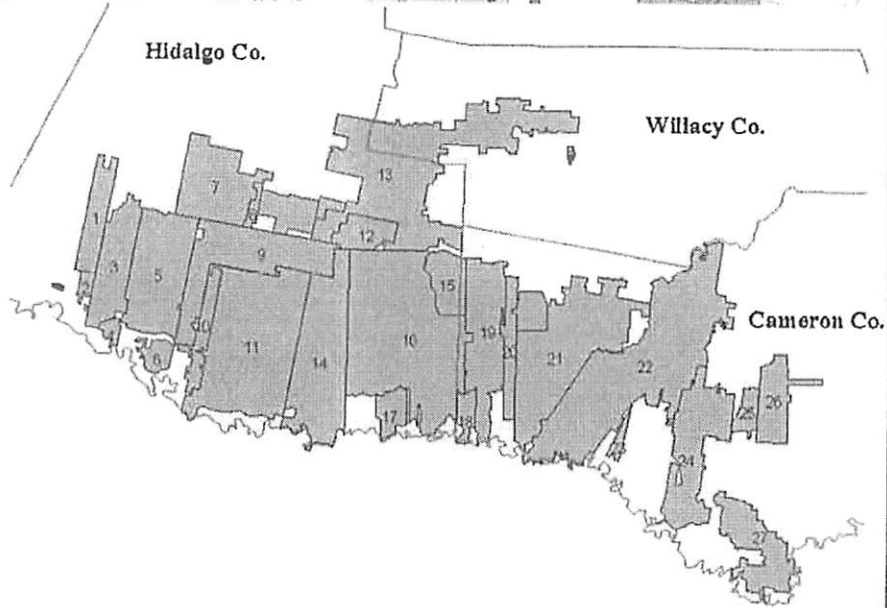
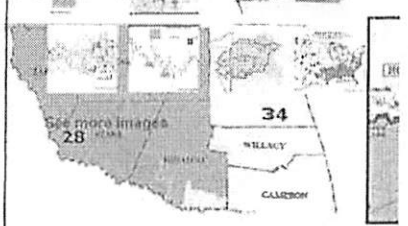
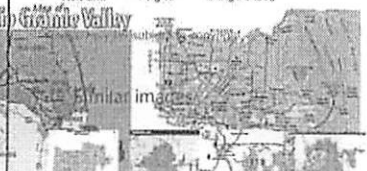
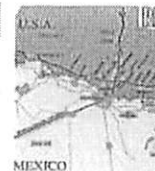
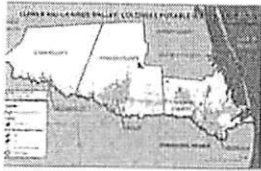
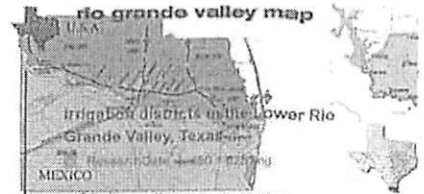
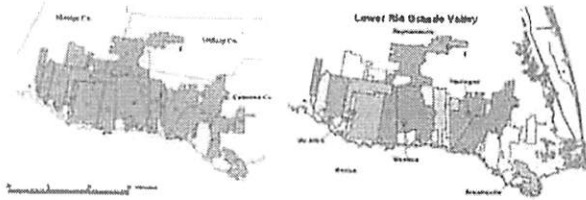
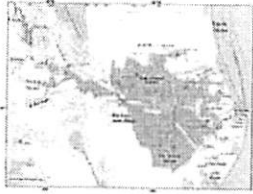


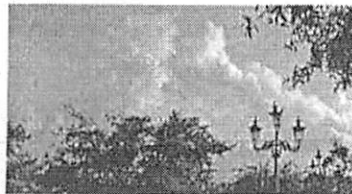
Figure 2-2 Population Projections for Region M by County

The population of Region M has been growing at about the same rate as the rest of the state of Texas. Figure 2-2 shows the major population centers within the Region. Table 2-2 shows the population growth by county over the planning horizon.





20 0 20 40 Kilometers



URBANIZATION OF IRRIGATION DISTRICTS IN THE TEXAS RIO GRANDE RIVER BASIN

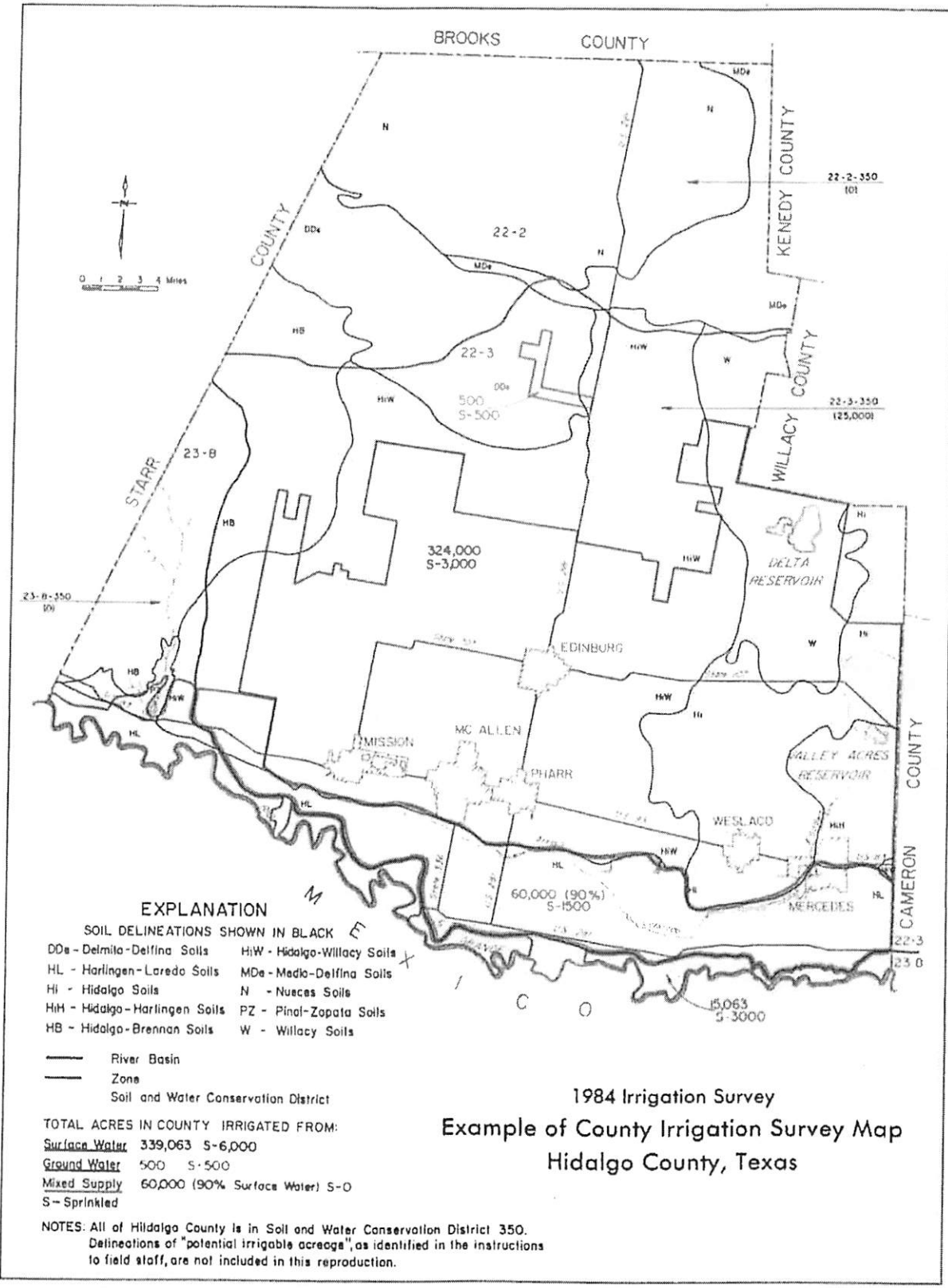


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Feedback



EXPLANATION

SOIL DELINEATIONS SHOWN IN BLACK

- | | |
|-------------------------------|-----------------------------|
| DDe - Delmito-Delfina Soils | HiW - Hidalgo-Willacy Soils |
| HL - Harlingen-Laredo Soils | MDa - Medio-Delfina Soils |
| Hi - Hidalgo Soils | N - Nueces Soils |
| HiH - Hidalgo-Harlingen Soils | PZ - Pinal-Zapata Soils |
| HB - Hidalgo-Brennan Soils | W - Willacy Soils |

- River Basin
- Zone
- Soil and Water Conservation District

TOTAL ACRES IN COUNTY IRRIGATED FROM:

Surface Water	339,063	S-6,000
Ground Water	500	S-500
Mixed Supply	60,000 (90%)	S-0
S - Sprinkled		

NOTES: All of Hidalgo County is in Soil and Water Conservation District 350.
 Delineations of "potential irrigable acreage", as identified in the instructions to field staff, are not included in this reproduction.

1984 Irrigation Survey
Example of County Irrigation Survey Map
Hidalgo County, Texas

Hidalgo County Irrigation District No. 6

Mission, Texas



Irrigation Technology Center
 1414 University Avenue, Texas A&M University System
 1414 University Avenue, Texas A&M University System
 1414 University Avenue, Texas A&M University System
 1414 University Avenue, Texas A&M University System

Legend

- Distribution Network
 - Lined Canal
 - Pipeline
- Reservoir
- Road
- River Pumpstation
- District Boundary
- Rio Grande River

Scale: 1 inch equals 0.66 miles

Ron Mayo

To: twdbcommunications@twdb.texas.gov
Subject: Request For Information On Interregional Water Supply Projects

Gentlemen—Please find our attached response to the RFI referenced with the above subject. Our overall regional plan is to include the attached project within a water grid initiative for the designated area. Our project involves several partners dedicated to the solution to a projected water shortage for the Texas counties defined.

Ron Mayo
Hydronics, Inc.
8101 Boat Club Road
STE 240, #263
Ft. Worth, Texas
76179

Ron Mayo

From: Texas Water Development Board <twdbcommunications@twdb.texas.gov>
Sent: Wednesday, April 01, 2020 1:01 PM
To: hydronic@dallas.net
Subject: Request for Information on Interregional Water Supply Projects

www.twdb.texas.gov



**Texas Water
Development Board**

Request for Information on Interregional Water Supply Projects

As directed by House Bill 1052 that passed during the 86th Legislative Session, the Texas Water Development Board (TWDB) is issuing a request for information (RFI) to seek information and comments regarding water supply projects that would benefit multiple water planning regions. The purpose is to provide a means for stakeholders to share ideas regarding the types of interregional projects that could be considered for funding at a later date.

Full RFI details, including a map of the regional water planning areas, are available on the [Electronic Business Daily website](#). *Please note: This is only an RFI. The TWDB is not seeking applications for funding at this time.*

Respondents are encouraged to provide specific recommendations for water supply projects that benefit multiple planning regions. Each recommendation must include detailed explanations of the following:

- How the use of private financial resources would be maximized
- How the financial resources of multiple water planning regions would be combined
- How the project would substantially economically benefit the regions served by
 - affecting a large population,
 - creating jobs in the regions served, and
 - meeting a percentage of the water supply needs of the water users served by the project.

Responses, due by 2:00 p.m. on July 1, 2020, must be submitted using [this form](#) (also shown in Appendix B of the RFI) and delivered via mail to the TWDB at one of the following addresses:

U.S. Postal Service
Texas Water Development Board

Water Supply and Infrastructure
P.O. Box 13231
Austin, TX 78711-3231

Overnight/Express Mail or Hand Delivery

Texas Water Development Board
1700 N. Congress Avenue
6th Floor Reception Desk
Austin, TX 78701
Hours - 8:00 a.m. to 5:00 p.m.

Telephone, facsimile, or emailed submissions will not be considered.

For questions regarding this RFI, please contact Angela Wallace at angela.wallace@twdb.texas.gov no later than 5:00 p.m. on June 8. All answers will be posted on the Electronic State Business Daily as an addendum to this RFI no later than 5:00 p.m. on June 15.

Sustainable and affordable water for Texas.

Visit our website

Texas Water Development Board | 512-463-7847 | www.twdb.texas.gov



Texas Water Development Board | 1700 N. Congress Ave., Austin, TX 78701

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REQUEST FOR INFORMATION

FOR

ESTELLINE PROJECT TEXAS
SALT WATER AQUIFIER TREATMENT TO
PRODUCE POTABLE WATER SUPPLIES

TEXAS WATER DEVELOPMENT BOARD
P.O. BOX 13231 AUSTIN, TEXAS 78711

HYDRONICS, INC.

8101 Boat Club Road, Suite 240, #263
Fort Worth, Texas 76179

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Project Planning Area

Private Financial Resources

Financial Benefit for Multiple Water Regions

Project Benefit and Job Opportunities

Proposed Project Financial Status and Cost Estimates

Conclusion

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Exhibit "B" - Proposed Service Area Exhibit "C" -

Appendix "B" TWDB Response Form

Project Scope

The scope of this Request for Information is to provide an overview of the Hydronics, Inc. plan for utilizing new sources of water supply which would benefit various water regions within the State of Texas identified as the Estelline Project. This Request for Information will evaluate the feasibility and benefit of treatment for the various untapped Texas Salt Water Aquifers which could be used to supplement the current water supplies in the arid West Texas region. The following is a discussion concerning the project need, the project planning area, private financial resources, financial benefit for multiple water regions, project benefit, financial status and the associated cost estimates and conclusions.

Project Planning Area

The project planning area for this Request for Information focuses on the West Texas areas of Region "A", Region "B" and Region "O" as defined by the Texas Water Development Board. These three regions, cover parts of West Texas, where ongoing drought conditions and limited water supplies, create restrictions on the current needs of these areas and limits growth. This project will be comprised of a regional water supply area for the Towns of Childress, Clarendon, Estelline, Hedley, Matador, Memphis, Paducah, Quanah, Quitague, Turkey and Wellington. These communities are located in Briscoe, Childress, Collingsworth, Cottle, Donley, Hall, Hardeman and Motley Counties respectively with an estimated total population of 18,373 people based on the 2010 U.S. Census.

Private Financial Resources

Private financial resources will be provided for this project and will consist of funding for the water treatment portion of the project. This private financing will provide a total of 25% of the project cost while public funding will comprise 75% of the project cost which will be utilized to provide distribution lines for the treated water. This will supply fresh water to communities within an estimated forty five mile radius of the proposed plant facilities located in the Town of Estelline, Texas. This proposed water treatment and distribution system will provide a much needed increase in water supply across the three water regions mentioned above and will have a significant economic and environmental impact on the communities of West Texas.

Financial Benefit for Multiple Water Regions

The financial benefits of this project will have a sustaining impact on the water needs for West Texas. This project will provide treatment and supply from an untapped water source and will not have any impact on the current water supplies for these water regions. Utilization of underlying saltwater aquifers in these regions is part of the Texas Water Development Board Water Plan to find and develop new water supply sources. This project will allow approximately twenty small towns in Regions "A", "B" and "O" to

receive a new source of water supply for future growth without the cost associated with the improvements. The increase of available water to these areas will sustain and promote future growth in these areas creating jobs and opportunities.

Project Benefit and Job Opportunities

The project benefits are substantial, by utilizing a water source from an untapped water supply such as the underlying saltwater aquifers. This project has the potential to provide water to approximately 18,373 people in these three water regions. This project can potentially provide the approximately 2 million gallons per day of fresh water used by this population. Current water supplies would be conserved promoting protection of the long term supply for current and future water needs in these areas.

Job benefits for this project will be two fold. The initial jobs generated will include the construction phase. This will provide over one hundred new jobs to the area hiring many workers from the local areas to build the treatment facility and the distribution line system. These jobs although not permanent could last up to five years in duration due to the size and scope of this project. The second job creation will be permanent jobs for operation and maintenance of the plant facility and distribution line system. These jobs will be long term jobs and approach another one hundred permanent positions. These jobs will be technical high paying jobs to run and maintain the plant facility, distribution lines and service the communities. These jobs will be prioritized for hiring within the communities served by this project.

Proposed Project Financial Status and Cost Estimates

The cost of this project is approximately \$160,000,000 and is currently unfunded. The proposed private funding sources would provide approximately 25% of the project cost for treatment and supply while the public sector would provide approximately 75% of the project cost for distribution and use.

Conclusion

This project has a significant impact on Regions "A", "B" and "O" in West

Texas by providing an alternative water supply from an untapped source to supplement and sustain current and future growth in these areas. This project also implements a part of the Texas Water Development Board's Water Plan for utilizing saltwater aquifers to supplement water sources within the State of Texas. This water system approach is unique and gives the State of Texas the opportunity to utilize a part of the current Texas water plan currently not being implemented.

Exhibit "A" Texas Water Board Regional Water Maps

Texhoma

Booker Darrouzett

Timbercreek

Canyon

Palisades Lake Tanglewood Follett Texline

Perryton Stratford Dallam Sherman Hansford Ochiltree

Lipscomb

Hartley Moore

PALO DURO

RESERVOIR

Gruver

Spearman

Higgins

Dalhart

LAKE RITA

Cactus

Sunray *BLANCA*

Canadian

Stinnett Channing

Hutchinson

Dumas

Hemphill

Roberts

LAKE

Sanford *MEREDITH*

Fritch

Borger

Miami

Pampa

Oldham Potter

Groom

Shamrock

Claude

BIVINS LAKE
BUFFALO LAKE

Skellytown *Ca* *nadian River*

Mobeetie

White Carson Deer

Lefors Gray Howardwick

Prairie DogTown Fork of the Red River

Clarendon

Hedley

Wellington

Memphis

Estelline

BAYLOR LAKE

Wheeler Wheeler

Panhandle

Adrian

Vega Bishop

Hills

McLean

Amarillo

Canyon Randall **GREENBELT**

Donley

Armstrong

LAKE

Collingsworth

Happy

Dodson Hall Childress

Turkey

Lakeview

Childress

CANADIAN

RED

Regional Water Planning Area

- A - Panhandle «

A - Panhandle

County Boundaries

0 5

10 20 Major Reservoirs and Lakes Miles Scale: 1:600,000

Major River Basins

TEXAS WATER DEVELOPMENT BOARD

Major Rivers and Creeks

1700 North Congress Avenue P.O. Box 13231 Austin, Texas 78711-3231 www.twdb.texas.gov 512-463-7847

DISCLAIMER MISSION

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herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate. Map date: JAN-2014

|
|
|
|
|

A
O
BC
D

| Cities, Towns and Villages G F | E

J
K
L

P H M

N

Quanah

Chillicothe

Cottle

Byers

Paducah

Petrolia Foard

Crowell

Dean

Jolly

Henrietta

King

Bowie

A
O
BC
D

GF, E
J
K
L

N

Red River

PHM

LAKE PAULINE

Vernon

Burkburnett

Electra

Wichita

Cashion

SANTA ROSA LAKE

LAKE ELECTRA

LAKE WICHITA

Brazos River

MILLERS CREEK RESERVOIR Hardeman

Wilbarger

Iowa **NORTH FORK BUFFALO CREEK RESERVOIR**

Park

Pleasant

Valley Wichita

Falls

Lakeside

FARMER'S LAKE KEMP

Holliday

City

LAKE

Clay

CREEK RESERVOIR

Nocona

DIVERSION

LAKE

LAKE KICKAPOOARROWHEAD

Montague

St.

Jo Baylor

Archer Archer

Scotland

Bellevue

Seymour

City

Windthorst LAKE OLNEY

Megargel

/LAKE COOPER

Trinity River

LAKE AMON G CARTER

Young

Olney

RED

TRINITY

Regional Water Planning Area

- B - Region B ‹‹

DISCLAIMER

County Boundaries

0 5

10 20 This map was generated by the Texas Water Development Board using GIS (Geographical Information System) software. No claims are made to the accuracy or completeness of the information shown

Major Reservoirs and Lakes Miles Scale: 1:600,000

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Major River Basins

TEXAS WATER DEVELOPMENT BOARD

Major Rivers and Creeks 1700 North Congress Avenue P.O. Box 13231 Austin, Texas 78711-3231 www.twdb.texas.gov 512-463-7847

B - Region B

MISSION

Cities, Towns and Villages The Texas Water Development Board's (TWDB) mission is to provide leadership, planning, financial assistance, information, and education for the conservation and responsible development of water for Texas.



Deaf Smith

Hereford

Friena

Happy

RED

PrairieDogTown Fork of the Red River **Parmer**

Bovina

MACKENZIE Dimmitt **Castro** Nazareth

Tulia **Swisher** *RESERVOIR*

Briscoe

Silverton

Farwell

Hart

Kress

Quitaque

LOWER RUNNING WATER DRAW WS

SCS SITE 2

Edmonson

Muleshoe

Earth

Springlake

LOWER RUNNING WATER DRAW WS

Olton

SCS SITE 3

Plainview

Bailey

Sudan

Lamb

Hale

Lockney

Hale

Center**Floyd**

Littlefield

BRAZOS

Abernathy

Anton

Morton

New Deal

Dickens

Whiteface

LevellandSmyer^{Lubbock}

Buffalo

Springs

WHITE RIVER LAKE

Spur

New Home

Wilson

Post

Tahoka

Seagraves

O'Donnell

COLORADO

Colorado R iver

Gaines

Seminole

Lamesa^{Los} Ybanez

County Boundaries

Major Reservoirs and Lakes

Major River Basins

Major Rivers and Creeks **Motley**

Cochran

Amherst

Matador

Floydada

Roaring Springs Petersburg

Hockley

Shallowater

Idalou

Lorenzo

Ralls

Crosbyton Opdyke West

Lubbock Crosby Dickens

Ransom Wolfforth Canyon Meadow

Yoakum Terry

ALAN HENRY RESERVOIR

Sundown

Slaton

Ropesville

Wellman

Plains **Lynn**

Brownfield

Garza

Denver

City

Dawson

Regional Water Planning Area

- O - Llano Estacado

A
O
BC
D



O - Llano Estacado
F G

0 5 10 20 | E

J
K
L
HMiles

Scale: 1:700,000

M
N

TEXAS WATER DEVELOPMENT BOARD 1700 North Congress Avenue P.O. Box 13231 Austin, Texas 78711-3231 www.twdb.texas.gov 512-463-7847

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herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate. Map date: JAN-2014 P

Exhibit "B" Proposed Service Area

Estelline 45 Mile Radius Legend

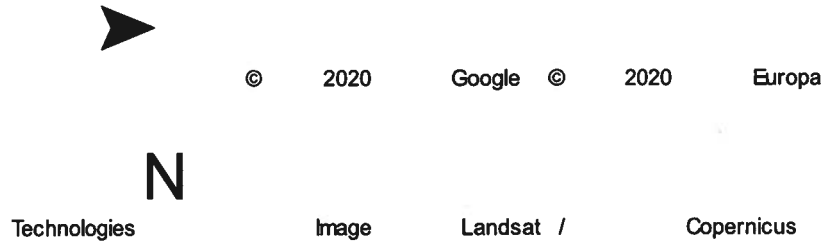


Exhibit "C" Appendix "B" TWDB Response Form

APPENDIX B Response Form

TWDB REQUEST FOR INFORMATION 580-20-RFI-0009 DUE NO LATER THAN 2:00 PM (CDT) on JULY 1, 2020

Company/Entity Name Hydronics, Inc. Address 8101 Boat Club Road, Suite 240, #263 Fort Worth, Texas 76179
Phone Number (214)850-4145

Name and Title of Authorized Representative Submitting the Response Ron Mayo, President Contact Person Name
Ron Mayo

Contact Person Phone Number (214)850-4145 Contact Person Email Address ron@hydronics.biz Regions
Affected (as shown on Regional Water Planning Areas map) Region "A", Region "B", Region "C" and Region
"O" Proposed Source for the Water Supply Underlying Texas Salt Water Aquifers Response
See Attached RFI Summary

Company/Entity Name Hydronics, Inc.



July 1st, 2020

Angela Wallace, CTPM
Texas Water Development Board
1700 N. Congress Avenue, 6th Floor Reception Desk
Austin, TX 78701
purchasing@twdb.texas.gov

Subject: REQUEST FOR INFORMATION 580-20-RFI-0009 for STATE PARTICIPATION ACCOUNT
INTERREGIONAL WATER SUPPLY PROJECTS

Dear Ms Wallace,

Please find attached our response to your above-referenced RFI 580-20-RFI-0009.

As owner-operators of over a dozen seawater desalination plants with an aggregate operations and maintenance experience in excess of 150 years, we are in a unique position to know the challenges in financing, designing, constructing, and efficiently operating desalination plants in a reliable manner via Public-Private-Partnerships. While our response does not specify a particular project, we hope that it provides you some general background as to how the TWDB could approach the development of the interregional projects by combining private sector finance with the State funds.

We hope you find the attached of interest and would welcome follow-up discussions with the TWDB regarding the practicalities of implementing the proposed approach.

Yours sincerely,

Richard Whiting
VP Business Development

14400 Carlson Circle, Tampa, FL 33626
Phone: 813.855.8636

APPENDIX B

Response Form

TWDB REQUEST FOR INFORMATION 580-20-RFI-0009 DUE NO LATER THAN 2:00 PM (CDT) on JULY 1, 2020

Company/Entity Name		SEVEN SEAS WATER CORPORATION	
Address		Phone Number	
14400 CARLSON CIRCLE TAMPA FL 33626		813.818.4041	
Name and Title of Authorized Representative Submitting the Response			
RICHARD WHITING VP BUSINESS DEVELOPMENT			
Contact Person Name		Contact Person Phone Number	
RICHARD WHITING		813.992.5627 CELL 813.818.4041 DIRECT	
Contact Person Email Address			
RWHITING@7SEASWATER.COM			
Regions Affected (as shown on Regional Water Planning Areas map)			
TBA			
Proposed Source for the Water Supply			
SURFACE WATER, BRACKISH GROUNDWATER, OR SEAWATER			
<p>Response</p> <p>The TWDB is looking for a general description of what kind of private financial resources might be deployed by a respondent to develop potential interregional water supply projects. The Public-Private Partnership (P3) approach to developing and delivering public sector infrastructure projects is a well established form of contract. The P3 form of contract differs from the more traditional forms of contract involving private sector finance, e.g.: Build-Own-Operate (BOO), Build-Own-Operate-Transfer (BOOT), Design-Build_Finance_Operate-Maintain (DBFOM) etc.in that it (a) allows for the optimum transfer of risk between the two parties (private and public), and (b) it allows for the public sector client to be involved in the project financing. With the TWDB's access to the State Participation Account it provides the perfect opportunity to combine private sector equity with public sector low-cost debt to deliver the critical water supply projects TWDB is looking to develop.</p> <p>The question does arise "why use private sector equity at all and not 100% of available public sector low-cost debt?". The answer is two-fold: (a) by demanding the specialist private sector company invests its own equity, the private sector company then has financial risk involved in the project, increasing accountability and creating more pressure on it to complete the project on-time and on-budget, thus eliminating the typical project cost and program overruns associated with public sector projects and (b) the perceived premium to be paid for the inclusion of private sector equity is off-set by the private sector entity assuming all design, process, and construction risk, and subsequent to commissioning the long-term operations and maintenance risk, which is critical for advanced water treatment processes.</p> <p>An example of the benefits of such an approach, i.e. to have the same company develop, invest equity, design and construct, and then operate and maintain an advanced water treatment process is to consider seawater desalination plants, which are an advanced water treatment process via the of use of membrane technology. By designing such a plant for the long-term, we incorporate higher specification components in the plant's construction because we know it leads to a lower life-cycle cost (we have an aggregate of over 150 years operations and maintenance experience of such plants); coupled with our experience in the operations and maintenance, it leads to an industry-leading 97% on-line availability for our plants (equivalent to 102% of</p>			

Company/Entity Name **SEVEN SEAS WATER CORPORATION**

Response (continued)

contracted production) versus an industry standard of 85% and a typical municipal stand-alone plant of 70%. The delta in percentage water production and availability reduces the unit cost of water to the end-user and ensures maximum benefit of the project and its associated financing.

It is important to note that by using P3 to develop and deliver the projects, the TWDB would lend to the Project Company, not the water planning regions. The Project Company would be created as a Special Purpose Company (SPC) by the private sector entity, and it would be the SPC that would invest the equity against the TWDB-supplied project loan. Please note the TWDB would have the opportunity to participate in the SPC.

Therefore it would be the responsibility of the SPC to re-pay the loan to the TWDB. The w responsibility to pay the SPC for the water delivered. As the debt lender to the project, the TWDB would be involved in discussions regarding the contractual obligations of the off-takers and their financial capability to meet such payment obligations.

A coastal seawater desalination plant is an ideal candidate for a regional or multiregional P3 project. Leveraging the expertise of a company with experience in owning, operating and maintaining such plants with low cost finance participation by the state will benefit the state as a whole, not just the coastal regions. Coastal regions with heavy industrial users of water can guarantee a drought proof water supply to those customers. In return, the coastal regions will reduce their reliance on current groundwater sources thus reducing subsidence and decrease their reliance on surface water. By reducing its reliance on surface water, more water can be available for upstream users or environmental flows. Coastal regions with these surface water rights can lease or sell them upstream to offset the costs of desalinated sea water.