CHAPTER 6: AFFORDABILITY REPORT

I. Introduction

The regional desalination alternative is assessed here using Technical Memorandum Number EC-2009-02, "Evaluation of Economic and Financial Feasibility of Municipal and Industrial Water Projects," by Steven Piper (Reclamation, 2009). The capability of the region to pay for a new M&I water supply is evaluated based on the median household income in the area and the percentage of a median family income that could be considered reasonable for water users to pay compared with the cost of proposed projects. This section attempts to capture at least some of the potential funding scenarios.

A. Affordability Thresholds

The percentage of household income that a user can pay for water is the most common way to estimate an affordability threshold. The EPA, the Department of Housing and Urban Development (HUD), and USDA Rural Development conducted studies that estimated the percentages of household income spent on water that represents the upper limits to affordability. These results are displayed in table 6-1.

Table 6-1: Affordability threshold

Source of estimate	Capability to pay (%)	Type of income
EPA	1.5–2.5	Median household income
HUD	1.3	Median household income
USDA	0.5	Median household income *if annual income is less than 80% of State median*

Four affordability threshold scenarios were used to estimate available funds based on a percentage of household income: 0.5%, 1.5%, 2.0%, and 2.5%. These costs will be compared with the cost estimates for desalination in each grouping.

B. Household Income Calculations

Census data from the Texas State Data Center were used to estimate the income in the region served. The median household income was used because the data are the most localized income data available. Statewide data would be inappropriate, because the Lower Rio Grande Valley is socioeconomically distinct from many other areas in Texas.

Table 6-2: Median household income

County	Median income[1]	Percentage of State median household income
State of Texas average	**$50,043**	**—**
Cameron	$32,156	64%
Hidalgo	$32,479	65%
Willacy	$22,894	46%

[1] U.S. Census Bureau, 2007–2011 American Community Survey. All income in 2011 dollars. http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_11_5YR_DP03

All three counties in the study area have median incomes notably lower than the State median household income; therefore, a range of capabilities to pay (0.5 to 2.5% of median household income) were considered in the affordability analysis rather than assuming a single value.

II. Affordability Analysis

In order to assess affordability, the median household income was multiplied by the number of households to obtain the total yearly household income for each municipality. For the purposes of this analysis, each household is assumed to rely on existing facilities for 60% of the water supply, with the remaining 40% supplied by new facilities. Therefore, the ability of each grouping to pay for new sources was calculated to be 40% of the overall ability to pay for water, which ranges from 0.5 to 2.5% of the median annual household income as discussed above. The results are shown in tables 6-3 through 6-5.

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Table 6-3: Group 1 – Ability to pay

Municipality	Population, decade 2010	Median household income	Number of households	40% of yearly available funds for water			
				0.5% of median income	1.5% of median income	2.0% of median income	2.5% of median income
Alamo	20,915	$32,479	5,810	$377,406	$1,132,218	$1,509,624	$1,887,030
Alton	12,342	$32,479	3,428	$222,676	$668,028	$890,704	$1,113,380
Edinburg	71,940	$32,479	19,983	$1,298,056	$3,894,167	$5,192,223	$6,490,279
Hidalgo	84,742	$32,479	23,539	$1,529,046	$4,587,139	$6,116,185	$7,645,232
McAllen	132,267	$32,479	36,741	$2,386,622	$7,159,866	$9,546,488	$11,933,109
Mission	68,351	$32,479	18,986	$1,233,293	$3,699,878	$4,933,170	$6,166,463
Palmhurst	9,144	$32,479	2,540	$164,993	$494,980	$659,973	$824,967
Palmview	6,258	$32,479	1,738	$112,897	$338,691	$451,588	$564,485
Pharr	65,969	$32,479	18,325	$1,190,355	$3,571,066	$4,761,421	$5,951,777
San Juan	39,074	$32,479	10,854	$705,054	$2,115,162	$2,820,217	$3,525,271
				$9,220,398	**$27,661,195**	**$36,881,593**	**$46,101,992**

Table 6-4: Group 2 – Ability to pay

Municipality	Population, decade 2010	Median household income	Number of households	40% of yearly available funds for water			
				0.5% of median income	1.5% of median income	2.0% of median income	2.5% of median income
Donna	17,830	$32,479	4,953	$321,737	$965,211	$1,286,948	$1,608,685
Edcouch	4,076	$32,479	1,132	$73,532	$220,597	$294,130	$367,662
Elsa	6,267	$32,479	1,741	$113,092	$339,276	$452,368	$565,459
La Villa	1,361	$32,479	378	$24,554	$73,662	$98,216	$122,771
Lyford	2,335	$22,894	687	$31,456	$94,369	$125,825	$157,282
Mercedes	15,775	$32,479	4,382	$284,646	$853,938	$1,138,584	$1,423,230
Progresso	6,348	$32,479	1,763	$114,521	$343,563	$458,084	$572,605
Santa Rosa	3,472	$32,156	1,021	$65,663	$196,988	$262,650	$328,313
Raymondville	10,071	$22,894	2,798	$128,115	$384,344	$512,459	$640,574
Weslaco	32,862	$32,479	9,128	$592,937	$1,778,810	$2,371,746	$2,964,683
				$1,750,253	**$5,250,758**	**$7,001,011**	**$8,751,263**

Table 6-5: Group 3 – Ability to pay

Municipality	Population, decade 2010	Median household income	Number of households	40% of yearly available funds for water			
				0.5% of median income	1.5% of median income	2.0% of median income	2.5% of median income
Combes	3,089	$32,156	909	$58,460	$175,379	$233,838	$292,298
Harlingen	69,214	$32,156	20,357	$1,309,199	$3,927,598	$5,236,798	$6,545,997
La Feria	7,954	$32,156	2,339	$150,426	$451,277	$601,703	$752,129
Los Indios	1,418	$32,156	417	$26,818	$80,454	$107,272	$134,091
Palm Valley	1,400	$32,156	412	$26,497	$79,490	$105,986	$132,483
Primera	3,973	$32,156	1,169	$75,181	$225,542	$300,723	$375,904
Rio Hondo	2,223	$32,156	654	$42,060	$126,180	$168,240	$210,300
San Benito	26,922	$32,156	7,918	$509,222	$1,527,667	$2,036,890	$2,546,112
				$2,197,863	**$6,593,588**	**$8,791,450**	**$10,989,313**

The ability to pay (assuming 40% of 0.5–2.5% of annual median household income) is compared with the annual costs for implementation of Phase 1 and Phase 2 for each grouping on an annual basis. As shown in table 6-6, 40% of 2.5% of the median annual income for each grouping is nearly equal to the annual Phase 2 cost and covers a major portion of the Phase 1 annual cost. Therefore, with supplemental funding from State or Federal sources, it is likely the new improvements could be sustained in part by a percentage of household income. Since all three counties in the study area have median incomes notably lower than the State median household income, a lower percentage of household income may be a more realistic estimate, and the need for supplemental funding is greater. A range of State and Federal funding mechanisms are summarized in the next section.

Table 6-6: Groups 1–3: Comparison of annual costs to ability to pay

Planning group	Annual cost		Ability to pay (40% of yearly available funds for water			
	Phase 1	Phase 2	0.5% of median income	1.5% of median income	2.0% of median income	2.5% of median income
Group 1	$55,403,000	$42,562,000	$9,220,398	$27,661,195	$36,881,593	$46,101,992
Group 2	$11,238,000	$7,303,000	$1,750,253	$5,250,758	$7,001,011	$8,751,263
Group 3	$13,323,000	$8,444,000	$2,197,863	$6,593,588	$8,791,450	$10,989,313

III. Funding

A range of State and Federal funding mechanisms are summarized that may be available to the region.

A. Drinking Water State Revolving Fund

The TWDB utilizes the Drinking Water State Revolving Fund to provide loans at below-market interest rates or with principal forgiveness to qualifying entities for planning, acquisition, design, and construction of water supply infrastructure projects. Eligible applicants include publicly and privately owned community public water systems, including cities, districts, and other political subdivisions; nonprofit WSCs; and nonprofit, noncommunity public water systems. Additional subsidies are available for disadvantaged communities, very small systems, and green projects.

B. Rural Water Assistance Fund

The TWDB administers the Rural Water Assistance Fund, created in 2001 by the 77th Texas Legislature. The program is authorized under Texas Water Code Chapter 15, Subchapter R, and governed by TWDB rules in 31 Texas Administrative Code Chapter 384. The fund is designed to assist small rural utilities in obtaining low-cost financing for water and wastewater projects. The TWDB offers tax-exempt, attractive interest rate loans with long-term finance options. Eligible borrowers are defined as "rural political subdivisions." They include nonprofit WSCs, districts, and municipalities serving a population of 10,000 or less, and counties in which no urban area has a population exceeding 50,000. Rural political subdivisions may also partner with a Federal agency, a State agency, or another rural political subdivision to apply for funding.

C. State Participation Program

The State Participation Program enables the TWDB to provide funding and assume a temporary ownership interest in a regional water, wastewater, or flood control project when the local sponsors are unable to assume debt for an optimally sized facility. The program is authorized under Texas Water Code Chapter 16, Subchapters E and F, and governed by TWDB rules in Texas Administrative Code Title 31 §363, Subchapter J. The TWDB may acquire an ownership interest in the water rights as well as the facilities. The TWDB requires that the project sponsor repurchase the TWDB's interest in the project under a payment schedule that allows for the deferral of principal and interest payments.

The program is intended to encourage the optimum regional development of projects by funding excess capacity for future use where the benefits can be documented and where such development is unaffordable without State participation. The goal is to allow for the "right sizing" of projects in consideration of future needs. For new water supply and State Water Plan projects, the TWDB can fund as much as 80% of project costs provided that the local sponsor finances at least 20% of the total project cost from sources other than the State Participation Account and that at least 20% of the total capacity of the proposed project serves existing needs. On other State Participation projects, the TWDB can fund as much as 50% of costs provided that the local sponsor finances at least 50% of the total project cost from sources other than the State Participation Account and that at least 50% of the total capacity of the proposed project serves existing needs. In both cases, State participation funding is limited to the portion of the project designated as excess capacity. Although it is not required, the local sponsor usually acquires a loan from the TWDB for the local sponsor's portion of the project funding.

D. Water Infrastructure Fund

The Water Infrastructure Fund provides financial assistance for the planning, design, and construction of State Water Plan and Regional Water Plan projects. The 2012 State Water Plan estimated that $53 billion will need to be spent by regional and local water supply entities between 2010 and 2060 to meet the additional water supply needs of the State. Of that amount, Regional Water Planning Groups have estimated that more than $26 billion in financing will need to come from the State.

To apply for financial assistance, the applicant must be a political subdivision of the State. Political subdivisions include municipalities, counties, river authorities, special law districts, water improvement districts, water control and improvement districts, irrigation districts, WSCs, and groundwater districts. Eligible applicants also include nonprofit WSCs. Projects must be recommended WMSs in the most recent TWDB-approved Regional Water Plan and approved State Water Plan, as has the BGD facilities analyzed by this study. Funds may not be used to maintain a system or to develop a retail distribution system.

E. Economically Distressed Areas Program

The 71st Texas Legislature (1989) passed comprehensive legislation that established the Economically Distressed Areas Program to be administered by the TWDB. The program is authorized under Texas Water Code §16, Subchapter J, and §17, Subchapter K, and is governed by the TWDB rules in Texas Administrative Code Title 31 §363. The program provides financial assistance in the form of a grant or a combination grant/loan to provide water and wastewater services to economically distressed areas where services do not exist or systems do not meet minimum State standards. The program also includes measures to prevent future substandard development. The 81st Texas Legislature (2009) passed further legislation that allows funds from the Economically Distressed Areas Program to be used to pay for first-time water and wastewater connections for homes in areas served by the program. The homes must meet additional Federal low-income criteria.

F. Regional Water Supply and Wastewater Facilities Planning Program

The TWDB offers grants to political subdivisions of the State of Texas for studies and analyses to evaluate and determine the most feasible alternatives to meet regional water supply and wastewater facility needs, estimate the costs associated

with implementing feasible regional water supply and wastewater facility alternatives, and identify institutional arrangements to provide regional water supply and wastewater services for areas in Texas.

The proposed planning must be regional in nature by inclusion of more than one service area or more than one political subdivision. All proposed solutions must be consistent with applicable regional or Statewide plans and relevant laws and regulations.

Development of a water conservation plan is strongly encouraged to be included as a specific task in the scope of work for proposed planning areas without a board-approved water conservation plan. Texas Water Development Board population and demand projections must be used to determine future needs in the planning process unless adequate justification is provided (and accepted) for using projections other than of the TWDB.

Financing of the program is through the TWDB's Research and Planning Fund. The RGRWA is currently pursuing a grant through this program and is hopeful that the results of this study will be instrumental in securing additional funding for the development of regional BGD facilities.

IV. Conclusion

The initial estimates of cost indicate that there is potential for BGD in the lower three counties of the Rio Grande Valley. With the projected growth and the predicted climate variability, it will be necessary to develop new sources of water in this region. Future evaluation of the affordability of BGD should consider the debt obligations held by the member cities, the range of rates that are paid for potable water in the area, and the opportunities to partner with existing operators and providers. The existing, complex network of providers and rate structures could potentially be simplified and drinking water provided on a larger scale than has traditionally been done in the region. There is precedent in other parts of Texas for regionalization, and the associated benefits of shared expertise and efficiency of scale are realized in other systems.