

# 2016 RIO GRANDE REGIONAL WATER PLAN

*VOLUME II*

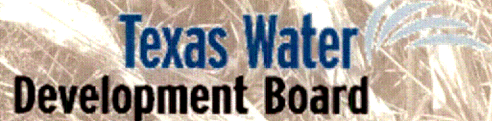
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DECEMBER 1, 2015









# Acknowledgements

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# **Texas Water Development Board**



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## List of Abbreviations

Acre-ft.	Acre-feet
Acre-ft./year	Acre-feet per year
AgriLife	Texas A&M AgriLife Research
AMI	Advanced Metering Infrastructure
ARS	Agricultural Research Service
ASR	Aquifer Storage and Recovery
BPUB	Brownsville Public Utilities Board
cfs	Cubic feet per second
DMI	Domestic, Municipal, or Industrial
ERHWSC	East Rio Hondo Water Supply Corporation
FM	Farm to Market
GP/GT	Geo Pressure / Geo Thermal
GPM	Gallons per Minute
HP	Horsepower
IBWC	International Boundary and Water Commission
kWh	Kilowatt per hour
LF	Linear Feet
MF	Microfiltration
MG	Million Gallons
Mg/L	Milligrams per Liter
MGD	Million Gallons per Day
MUD	Municipal Utility District
NAWSC	North Alamo Water Supply Corporation
O&M	Operations and Maintenance
PUB	Public Utilities Board
PVC	Polyvinyl Chloride
RGRWA	Rio Grande Regional Water Authority
RO	Reverse Osmosis
RWP	Regional Water Plan
SUD	Special Utility District

TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
TPDES	Texas Pollutant Discharge Elimination System
TPWD	Texas Parks and Wildlife Department
TSS	Total Suspended Solids
TWDB	Texas Water Development Board
TX	Texas
TXDOT	Texas Department of Transportation
UCM	Unified Costing Model
UF	Ultrafiltration
USACOE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
UV	Ultraviolet
WAM	Water Availability Model
WMS	Water Management Strategy
WSC	Water Supply Corporation
WTP	Water Treatment Plant
WUG	Water User Group
WWP	Wholesale Water Provider
WWTF	Wastewater Treatment Facility
WWTP	Wastewater Treatment Plant

## Chapter 5B. Alternative and Not Recommended Water Management Strategies

### 5B.1 Introduction

Section 5B includes all of the water management strategies (WMS) that are included as recommended alternatives and those that were not recommended. All potentially feasible strategies were evaluated based on the criteria discussed in Section 5.1. When higher-ranked strategies were able to meet the full need, remaining viable strategies were considered recommended alternatives, included here in 5B.2. When strategies either did not meet the criteria or definition of a WMS, or did not provide sufficient information for evaluation, they were considered Not Recommended, and are included in Section 5B.3.

### 5B.2 Alternative Strategies

#### 5B.2.1 Regional Plans

##### Rio Grande Regional Water Authority Regional Facility Project

###### *Project Source*

This strategy was submitted to the RWPG by representatives of the Rio Grande Regional Water Authority (RGRWA).

###### *Description*

The RGRWA Lower Rio Grande Valley Regional Water Supply Project would provide a regional solution to supply additional water to the Lower Rio Grande Valley. The project would utilize four water sources to diversify the water supply to the region. The facilities that would be constructed as part of this project include: a seawater desalination plant on South Padre Island, two brackish groundwater wellfields and treatment plants –one each in Cameron and Hidalgo Counties, and a water treatment plant in Cameron County that would treat surface water as well as direct potable reuse, after it had gone through advanced treatment. Additionally, a trunk line running from eastern Cameron County to western Hidalgo County would be built, with turn outs to the cities, in order to connect the water from all of the facilities to all of the entities that are being supplied.

###### *Available Supply*

The initial phase of the project would be online in 2020 and be expanded each decade. Table 5B-1 shows the quantity of water that would be supplied by each facility and source in each decade.

**Table 5B-1 Water Supplied by RGRWA Regional Facility Project, per Source (Acre-ft./year)**

	2020	2030	2040	2050	2060	2070
Seawater Desal	5,470	5,470	5,470	21,950	51,500	79,500
Surface WTP	0	12,780	45,130	76,800	95,800	115,000
<i>Surface Water</i>	0	12,780	28,003	38,431	48,132	57,607
<i>Cameron Reuse</i>	0	0	6,851	15,348	19,067	22,957
<i>Hidalgo Reuse</i>	0	0	10,276	23,021	28,601	34,436



	2020	2030	2040	2050	2060	2070
Hidalgo BGD	0	9,000	9,000	9,000	9,000	9,000
Cameron BGD	20,000	28,500	28,500	28,500	28,500	28,500
<b>Total</b>	<b>25,470</b>	<b>55,750</b>	<b>88,100</b>	<b>136,250</b>	<b>184,800</b>	<b>232,000</b>

The project will serve 25 entities throughout Cameron and Hidalgo Counties. Table 5B-2 presents the amount of water that will be provided to each of these entities.

**Table 5B-2 RGRWA Regional Facility Project Water Supplied to Entities (Acre-ft./year)**

Entity	2020	2030	2040	2050	2060	2070
Agua SUD	0	700	700	2,900	4,600	6,350
Alamo	850	1,500	2,200	2,950	3,650	4,400
Brownsville	0	0	500	7,600	15,150	22,950
Donna	0	150	650	1,250	1,800	2,400
East Rio Hondo WSC	0	50	650	1,300	2,000	2,700
Edinburg	3,550	6,350	9,200	12,150	15,150	18,100
Harlingen	0	0	1,100	3,500	6,050	8,700
Hidalgo	400	800	1,200	1,600	2,050	2,450
Hidalgo County MUD1	300	450	550	650	800	950
La Feria	0	50	200	400	600	800
Laguna Vista	850	1,250	1,650	2,100	2,550	3,000
McAllen	4,350	12,800	21,500	30,350	39,350	48,150
Mercedes	250	700	1,150	1,600	2,100	2,550
Military Highway WSC	1,100	2,050	3,050	4,150	5,250	6,400
Mission	6,650	11,150	15,700	20,350	25,100	29,700
North Alamo WSC	0	1,750	3,100	8,750	12,350	16,950
Olmito WSC	0	0	0	100	250	400
Pharr	20	2,050	4,150	6,300	8,600	10,750
Port Isabel	450	650	850	1,100	1,300	1,550
Rancho Viejo	0	0	0	0	100	250
San Benito	0	0	0	0	600	1,250
San Juan	1,750	2,850	3,900	5,250	6,550	7,850
Sharyland WSC	1,050	4,300	7,700	11,200	15,700	17,850
South Padre Island	1,100	1,650	2,200	2,750	3,350	4,000
Weslaco	2,800	4,500	6,200	7,950	9,800	11,550
<b>Total</b>	<b>25,470</b>	<b>55,750</b>	<b>88,100</b>	<b>136,250</b>	<b>184,800</b>	<b>232,000</b>

*Engineering and Costing*

Preliminary engineering and costs for this strategy are based on draft design numbers from the Regional Facility Project Preliminary Engineering Report, however they may not be the same as the final Preliminary Engineering Report. The Unified Costing Model (UCM) was used to cost out the different portions of this strategy.

The Seawater Desalination Facility would include an intake pump station and pipeline sized for twice the amount of water produced, due to 50% predicted membrane recovery rate. A treatment plant, storage tank, and discharge pump station and pipeline are also included in the cost estimate. It was assumed that the intake would be located one mile into the Gulf of Mexico and that the concentrate discharge pipeline would discharge one mile away from the plant. For costing purposes, the full build out of the pump stations and pipeline are shown in 2020, but the



annual costs are only for the amount of water seen in each decade. The water treatment plant is costed to be expanded per decade. It is assumed that the construction period for this strategy is three years, with the initial phase built in 2020.

Table 5B-3 through Table 5B-6 outline the estimated project requirements and cost estimates for the Ocean Desalination Facility.

**Table 5B-3 RGRWA Seawater Desalination Facility Phase I Project Requirements and Cost**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>RGRWA - Seawater Desalination - 2020</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Two Pump Stations (10.3 MGD / 5.1 MGD)	\$19,470,000
Two Transmission Pipelines (84 in dia., 5280 feet / 54 in dia., 5290 feet)	\$4,464,000
Storage Tank	\$2,061,000
Water Treatment Plant (5 MGD)	\$69,366,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$95,361,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$33,153,000
Environmental & Archaeology Studies and Mitigation	\$101,000
Land Acquisition and Surveying (41 acres)	\$135,000
Interest During Construction (4% for 3 years with a 1% ROI)	\$13,519,000
<b>TOTAL COST OF PROJECT</b>	<b>\$142,269,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$11,905,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$552,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$19,421,000
Pumping Energy Costs (1952253 kW-hr @ 0.09 \$/kW-hr)	\$176,000
<b>TOTAL ANNUAL COST</b>	<b>\$32,054,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>5,470</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$5,860</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$17.98</b>

**Table 5B-4 RGRWA Seawater Desalination Facility Phase II Project Requirements and Cost**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>RGRWA - Seawater Desalination - 2050</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Storage Tank	\$3,998,000
Water Treatment Plant Expansion (14.7 MGD)	\$155,022,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$159,020,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$55,657,000
Environmental & Archaeology Studies and Mitigation	\$50,000
Land Acquisition and Surveying (51 acres)	\$55,000
Interest During Construction (4% for 3 years with a 1% ROI)	\$22,553,000
<b>TOTAL COST OF PROJECT</b>	<b>\$237,335,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$19,860,000



<i>Cost Estimate Summary</i> <i>Water Supply Project Option</i> <i>RGRWA - Seawater Desalination - 2050</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$40,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$46,889,000
Pumping Energy Costs (7892666 kW-hr @ 0.09 \$/kW-hr)	\$710,000
<b>TOTAL ANNUAL COST</b>	<b>\$67,499,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>21,950</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$3,075</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$9.44</b>

**Table 5-5 RGRWA Seawater Desalination Facility Phase III Project Requirements and Cost**

<i>Cost Estimate Summary</i> <i>Water Supply Project Option</i> <i>RGRWA - Seawater Desalination - 2060</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Storage Tank	\$7,996,000
Water Treatment Plant Expansion (26.4 MGD)	\$249,256,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$257,252,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$90,038,000
Environmental & Archaeology Studies and Mitigation	\$85,000
Land Acquisition and Surveying (63 acres)	\$94,000
Interest During Construction (4% for 3 years with a 1% ROI)	\$36,485,000
<b>TOTAL COST OF PROJECT</b>	<b>\$383,954,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$32,129,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$80,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$75,528,000
Pumping Energy Costs (19091599 kW-hr @ 0.09 \$/kW-hr)	\$1,718,000
<b>TOTAL ANNUAL COST</b>	<b>\$109,455,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>51,500</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$2,125</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$6.52</b>

**Table 5B-6 RGRWA Seawater Desalination Facility Phase IV Project Requirements and Cost**

<i>Cost Estimate Summary</i> <i>Water Supply Project Option</i> <i>RGRWA - Seawater Desalination - 2070</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Storage Tanks	\$7,996,000
Water Treatment Plant Expansion (25 MGD)	\$237,980,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$245,976,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$86,092,000
Environmental & Archaeology Studies and Mitigation	\$81,000



<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>RGRWA - Seawater Desalination - 2070</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Land Acquisition and Surveying (61 acres)	\$89,000
Interest During Construction (4% for 3 years with a 1% ROI)	\$34,885,000
<b>TOTAL COST OF PROJECT</b>	<b>\$367,123,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$30,721,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$80,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$72,101,000
Pumping Energy Costs (30848957 kW-hr @ 0.09 \$/kW-hr)	\$2,776,000
<b>TOTAL ANNUAL COST</b>	<b>\$105,678,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1	79,500
Annual Cost of Water (\$ per acft)	\$1,329
Annual Cost of Water (\$ per 1,000 gallons)	\$4.08

The Surface Water Treatment plant would treat surface water and potable reuse. An Aquifer Storage and Recovery Facility (ASR) would also be located near the plant to provide operational flexibility. Surface water would come through converted water rights from irrigation to municipal use as agricultural land is urbanized. The reuse water would be collected from major WWTPs in the region and an advanced treatment facility would be located upstream of the surface water treatment plant.

For costing purposes, two main transmission lines, one from a central area in Cameron and one from Hidalgo County, to collect the WWTP effluent were included in the cost estimate. In order to estimate the construction cost of advanced treatment for the potable reuse, a unit capital cost for Treatment Scheme 2 from the TWDB Direct Potable Reuse Resource Document<sup>1</sup> was multiplied by the advanced treatment capacity. The initial phase would be built in 2030, with just surface water, and it would be expanded in 2040 to include potable reuse and ASR. For costing purposes, the full build out of the pump stations and pipeline are shown in the first year they are used, but the annual costs are only for the amount of water seen in each decade. The water treatment plants are costed to be expanded per decade. It is assumed construction of each phase would take approximately two years.

Table 5B-7 through Table 5B-11 outline the estimated project requirements and cost estimates for the Surface Water Treatment Plant developed in UCM.

**Table 5B-7 RGRWA - Surface Water Treatment Plant, Reuse, and ASR - 2030**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>RGRWA - Surface Water Treatment Plant, Reuse, and ASR - 2030</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Dam and Reservoir (Conservation Pool 300 acft, 15 acres)	\$3,674,000
Pump Stations (12 MGD)	\$7,405,000

<sup>1</sup> Direct Potable Reuse Resource Document, Alan Plummer Assoc, Inc, April 2015 for TWDB



<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>RGRWA - Surface Water Treatment Plant, Reuse, and ASR - 2030</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Transmission Pipeline (72 in dia., 1 miles)	\$3,704,000
Water Treatment Plant (11.4 MGD)	\$36,572,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$51,355,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$17,789,000
Environmental & Archaeology Studies and Mitigation	\$61,000
Land Acquisition and Surveying (39 acres)	\$81,000
Interest During Construction (4% for 2 years with a 1% ROI)	<u>\$4,851,000</u>
<b>TOTAL COST OF PROJECT</b>	<b>\$74,137,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$5,760,000
Reservoir Debt Service (5.5 percent, 40 years)	\$331,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$222,000
Dam and Reservoir (1.5% of Cost of Facilities)	\$55,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$3,657,000
Pumping Energy Costs (1584260 kW-hr @ 0.09 \$/kW-hr)	\$143,000
<b>TOTAL ANNUAL COST</b>	<b>\$10,168,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1.5</b>	<b>12,780</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$796</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$2.44</b>

Table 5B-8 RGRWA Surface Water Treatment Plant Phase II Project Requirements and Cost

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>RGRWA - Surface Water Treatment Plant, Reuse, and ASR - 2040</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Two Reuse Pump Stations (6.4 MGD / 9.6 MGD)	\$22,485,000
Two Reuse Transmission Pipeline (30 in dia., 15 miles / 36 in dia., 28 miles)	\$36,426,000
ASR Well Field (Wells, Pumps, and Piping)	\$47,674,000
Two Water Treatment Plants (13.6 MGD and 15.3 MGD)	\$93,750,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$200,335,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$68,296,000
Environmental & Archaeology Studies and Mitigation	\$102,000
Land Acquisition and Surveying (606 acres)	\$1,820,000
Interest During Construction (4% for 2 years with a 1% ROI)	<u>\$18,939,000</u>
<b>TOTAL COST OF PROJECT</b>	<b>\$289,492,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$24,225,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$1,403,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$8,469,000
Pumping Energy Costs (7974866 kW-hr @ 0.09 \$/kW-hr)	\$2,435,000
<b>TOTAL ANNUAL COST</b>	<b>\$36,532,000</b>



**Cost Estimate Summary  
Water Supply Project Option  
RGRWA - Surface Water Treatment Plant, Reuse, and ASR - 2040**

<i>Item</i>	<i>Estimated Costs for Facilities</i>
Available Project Yield (acft/yr), based on a Peaking Factor of 1.5	45,130
Annual Cost of Water (\$ per acft)	\$809
Annual Cost of Water (\$ per 1,000 gallons)	\$2.48

**Table 5B-9 RGRWA Surface Water Treatment Plant Phase III Project Requirements and Cost**

**Cost Estimate Summary  
Water Supply Project Option  
RGRWA - Surface Water Treatment Plant, Reuse, and ASR - 2050**

<i>Item</i>	<i>Estimated Costs for Facilities</i>
Two Water Treatment Plant Expansions (9.3 MGD and 19 MGD)	\$105,455,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$105,455,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$36,909,000
Environmental & Archaeology Studies and Mitigation	\$42,000
Land Acquisition and Surveying (586 acres)	\$1,755,000
Interest During Construction (4% for 2 years with a 1% ROI)	\$10,092,000
<b>TOTAL COST OF PROJECT</b>	<b>\$154,253,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$12,908,000
Operation and Maintenance	
Water Treatment Plant (2.5% of Cost of Facilities)	\$9,095,000
Pumping Energy Costs (24178648 kW-hr @ 0.09 \$/kW-hr)	\$2,176,000
<b>TOTAL ANNUAL COST</b>	<b>\$24,179,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1.5	76,800
Annual Cost of Water (\$ per acft)	\$315
Annual Cost of Water (\$ per 1,000 gallons)	\$0.97

**Table 5B-10 RGRWA Surface Water Treatment Plant Phase IV Project Requirements and Cost**

**Cost Estimate Summary  
Water Supply Project Option  
RGRWA - Surface Water Treatment Plant, Reuse, and ASR - 2060**

<i>Item</i>	<i>Estimated Costs for Facilities</i>
Two Water Treatment Plant Expansions (8.7 MGD and 8.3 MGD)	\$55,001,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$55,001,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$19,250,000
Environmental & Archaeology Studies and Mitigation	\$26,000
Land Acquisition and Surveying (580 acres)	\$1,736,000
Interest During Construction (4% for 2 years with a 1% ROI)	\$5,321,000
<b>TOTAL COST OF PROJECT</b>	<b>\$81,334,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$6,806,000
Operation and Maintenance	
Water Treatment Plant (2.5% of Cost of Facilities)	\$5,437,000
Pumping Energy Costs (25595668 kW-hr @ 0.09 \$/kW-hr)	\$2,304,000



<i>Cost Estimate Summary</i> <i>Water Supply Project Option</i> <i>RGRWA - Surface Water Treatment Plant, Reuse, and ASR - 2060</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
<b>TOTAL ANNUAL COST</b>	<b>\$14,547,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1.5	95,800
Annual Cost of Water (\$ per acft)	\$152
Annual Cost of Water (\$ per 1,000 gallons)	\$0.47

**Table 5B-11 RGRWA Surface Water Treatment Plant Phase V Project Requirements and Cost**

<i>Cost Estimate Summary</i> <i>Water Supply Project Option</i> <i>RGRWA - Surface Water Treatment Plant, Reuse, and ASR - 2070</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Two Water Treatment Plant Expansions (8.4 MGD and 8.7 MGD)	\$56,396,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$56,396,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$19,738,000
Environmental & Archaeology Studies and Mitigation	\$26,000
Land Acquisition and Surveying (580 acres)	\$1,736,000
Interest During Construction (4% for 2 years with a 1% ROI)	\$5,453,000
<b>TOTAL COST OF PROJECT</b>	<b>\$83,349,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$6,975,000
Operation and Maintenance	
Water Treatment Plant (2.5% of Cost of Facilities)	\$5,562,000
Pumping Energy Costs (36019932 kW-hr @ 0.09 \$/kW-hr)	\$3,242,000
<b>TOTAL ANNUAL COST</b>	<b>\$15,779,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1.5	115,000
Annual Cost of Water (\$ per acft)	\$137
Annual Cost of Water (\$ per 1,000 gallons)	\$0.42

The Cameron Brackish Groundwater Desalination (BGD) Plant would initially be constructed with 32 wells and a rated capacity of 20,000 acre-ft./year treated water in 2020. It would be expanded in 2030 with an additional 11 wells for a rated capacity of 30,000 acre-ft./year. The wellfield is sized to pump 125% of the produced water supply to account for treatment efficiency. Costs include groundwater well pumping, well field piping, land acquisition, and water treatment. The well depth is estimated at 1,000 ft. below ground surface and each well is sized for 620 gpm. A pump station and pipeline that would convey brine concentrate to for surface water discharge into the drainage system is also included. It is assumed that the construction period for each phase would be approximately one and a half years.

Table 5B-12 and Table 5B-13 outline the estimated project requirements and cost estimates for the Cameron BGD Plant developed in UCM.



**Table 5B-12 RGRWA Cameron BGD Plant Phase I Project Requirements and Cost**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>RGRWA - Cameron Brackish Water Desalination - 2020</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Pump Station (6.3 MGD)	\$2,825,000
Transmission Pipeline (20 in dia., 2 miles)	\$808,000
Well Fields (Wells, Pumps, and Piping)	\$40,085,000
Storage Tank	\$7,996,000
Two Water Treatment Plant (17.9 MGD)	\$93,144,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$144,858,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$50,660,000
Environmental & Archaeology Studies and Mitigation	\$996,000
Land Acquisition and Surveying (64 acres)	\$157,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$10,326,000
<b>TOTAL COST OF PROJECT</b>	<b>\$206,997,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$17,321,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$560,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$13,024,000
Pumping Energy Costs (11273654 kW-hr @ 0.09 \$/kW-hr)	\$1,015,000
<b>TOTAL ANNUAL COST</b>	<b>\$31,920,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1	20,000
Annual Cost of Water (\$ per acft)	\$1,596
Annual Cost of Water (\$ per 1,000 gallons)	\$4.90

**Table 5B-13 RGRWA Cameron BGD Plant Phase II Project Requirements and Cost**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>RGRWA - Cameron Brackish Water Desalination - 2030</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$11,633,000
Storage Tank	\$3,998,000
Water Treatment Plant Expansion (7.6 MGD)	\$34,740,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$50,371,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$17,630,000
Environmental & Archaeology Studies and Mitigation	\$331,000
Land Acquisition and Surveying (43 acres)	\$105,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$3,593,000
<b>TOTAL COST OF PROJECT</b>	<b>\$72,030,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$6,027,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$156,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$5,319,000
Pumping Energy Costs (6230348 kW-hr @ 0.09 \$/kW-hr)	\$561,000
<b>TOTAL ANNUAL COST</b>	<b>\$12,063,000</b>



*Cost Estimate Summary  
Water Supply Project Option  
RGRWA - Cameron Brackish Water Desalination - 2030*

<i>Item</i>	<i>Estimated Costs for Facilities</i>
Available Project Yield (acft/yr), based on a Peaking Factor of 1	28,500
Annual Cost of Water (\$ per acft)	\$423
Annual Cost of Water (\$ per 1,000 gallons)	\$1.30

The Hidalgo BGD Plant would be constructed with 14 wells and a rated capacity of 9,000 acre-ft./year treated water in 2030. The wellfield is sized to pump 125% of the produced water supply to account for treatment efficiency. Costs include groundwater well pumping, well field piping, land acquisition, and water treatment. The well depth is estimated at 1,000 ft. below ground surface and each well is sized for 620 gpm. A pump station and pipeline that would convey brine concentrate to for surface water discharge into the drainage system is also included. It is assumed that the construction period would be approximately one and a half years. Table 5B-14 outlines the project requirements and cost estimate developed in UCM.

**Table 5B-14 RGRWA Hidalgo BGD Plant Project Requirements and Cost**

*Cost Estimate Summary  
Water Supply Project Option  
RGRWA - Hidalgo Brackish Water Desalination - 2030*

<i>Item</i>	<i>Estimated Costs for Facilities</i>
Pump Stations (2.8 MGD)	\$2,160,000
Transmission Pipeline (12 in dia., 5 miles)	\$884,000
Well Fields (Wells, Pumps, and Piping)	\$16,335,000
Storage Tank	\$3,195,000
Water Treatment Plant (8 MGD)	\$47,544,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$70,118,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$24,497,000
Environmental & Archaeology Studies and Mitigation	\$492,000
Land Acquisition and Surveying (79 acres)	\$222,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$5,005,000
<b>TOTAL COST OF PROJECT</b>	<b>\$100,334,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$8,396,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$258,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$6,690,000
Pumping Energy Costs (7824122 kW-hr @ 0.09 \$/kW-hr)	\$704,000
<b>TOTAL ANNUAL COST</b>	<b>\$16,048,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1	9,000
Annual Cost of Water (\$ per acft)	\$1,783
Annual Cost of Water (\$ per 1,000 gallons)	\$5.47

In order to connect all of the facilities and the entities that this strategy will serve, a pipeline system would be built with pump stations to convey the water. The pump stations would be expanded in each decade, as more water is transported, and some of the pipelines would be twinned in later decades.



Table 5B-15 through Table 5B-20 outline the estimated project requirements and cost estimates for the Pipeline System developed in UCM.

**Table 5B-15 RGRWA Pipeline System Phase I Project Requirements and Cost**

<i>Cost Estimate Summary Water Supply Project Option RGRWA – Pipe System 2020</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Transmission Pump Stations	\$9,107,000
Transmission Pipelines (90.2 miles)	\$117,424,231
<b>TOTAL COST OF FACILITIES</b>	<b>\$126,531,231</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$38,415,000
Environmental & Archaeology Studies and Mitigation	\$2,301,000
Land Acquisition and Surveying	\$7,052,000
Interest During Construction (4% with a 1% ROI)	<u>\$9,151,000</u>
<b>TOTAL COST OF PROJECT</b>	<b>\$183,450,231</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$15,351,000
Operation and Maintenance	
Wells, Pipelines, Pump Stations	\$1,402,000
Transmission Pumping Energy Costs (0.09 \$/kW-hr)	\$1,719,000
<b>TOTAL ANNUAL COST</b>	<b>\$18,472,000</b>

**Table 5B-16 RGRWA Pipeline System Phase II Project Requirements and Cost**

<i>Cost Estimate Summary Water Supply Project Option RGRWA - Pipe System 2030</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Transmission Pump Stations	\$6,143,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$6,143,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$6,208,000
Environmental & Archaeology Studies and Mitigation	\$45,000
Land Acquisition and Surveying	\$50,000
Interest During Construction (4% with a 1% ROI)	<u>\$1,263,000</u>
<b>TOTAL COST OF PROJECT</b>	<b>\$13,709,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$2,040,000
Operation and Maintenance	
Wells, Pipelines, Pump Stations	\$154,000
Transmission Pumping Energy Costs (0.09 \$/kW-hr)	\$888,000
<b>TOTAL ANNUAL COST</b>	<b>\$3,082,000</b>



**Table 5B-17 RGRWA Pipeline System Phase III Project Requirements and Cost**

<i>Cost Estimate Summary Water Supply Project Option RGRWA - Pipe System 2040</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Transmission Pump Stations	\$6,833,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$6,833,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$6,421,000
Environmental & Archaeology Studies and Mitigation	\$45,000
Land Acquisition and Surveying	\$50,000
Interest During Construction (4% with a 1% ROI)	\$1,306,000
<b>TOTAL COST OF PROJECT</b>	<b>\$14,655,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$2,190,000
Operation and Maintenance	
Wells, Pipelines, Pump Stations	\$171,000
Transmission Pumping Energy Costs (0.09 \$/kW-hr)	\$1,612,000
<b>TOTAL ANNUAL COST</b>	<b>\$3,973,000</b>

**Table 5B-18 RGRWA Pipeline System Phase IV Project Requirements and Cost**

<i>Cost Estimate Summary Water Supply Project Option RGRWA - Pipe System 2050</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Transmission Pump Stations	\$9,188,000
Transmission Pipeline (55.9 miles)	\$93,637,524
<b>TOTAL COST OF FACILITIES</b>	<b>\$102,825,524</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$36,126,000
Environmental & Archaeology Studies and Mitigation	\$1,442,000
Land Acquisition and Surveying	\$50,000
Interest During Construction (4% with a 1% ROI)	\$8,097,000
<b>TOTAL COST OF PROJECT</b>	<b>\$148,540,524</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$13,582,000
Operation and Maintenance	
Wells, Pipelines, Pump Stations	\$1,166,000
Transmission Pumping Energy Costs (0.09 \$/kW-hr)	\$2,800,000
<b>TOTAL ANNUAL COST</b>	<b>\$17,548,000</b>

**Table 5B-19 RGRWA Pipeline System Phase V Project Requirements and Cost**

<i>Cost Estimate Summary Water Supply Project Option RGRWA - Pipe System 2060</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Transmission Pump Stations	\$11,690,000
Transmission Pipeline (1.5 miles)	\$21,026,716
<b>TOTAL COST OF FACILITIES</b>	<b>\$32,716,716</b>



<i>Cost Estimate Summary Water Supply Project Option RGRWA - Pipe System 2060</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$15,360,000
Environmental & Archaeology Studies and Mitigation	\$83,000
Land Acquisition and Surveying	\$50,000
Interest During Construction (4% with a 1% ROI)	\$3,276,000
<b>TOTAL COST OF PROJECT</b>	<b>\$51,485,716</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$5,494,000
Operation and Maintenance	
Wells, Pipelines, Pump Stations	\$503,000
Transmission Pumping Energy Costs (0.09 \$/kW-hr)	\$4,389,000
<b>TOTAL ANNUAL COST</b>	<b>\$10,386,000</b>

**Table 5B-20 RGRWA Pipeline System Phase VI Project Requirements and Cost**

<i>Cost Estimate Summary Water Supply Project Option RGRWA - Pipe System 2070</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Transmission Pump Stations	\$16,136,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$16,136,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$12,039,000
Environmental & Archaeology Studies and Mitigation	\$45,000
Land Acquisition and Surveying	\$50,000
Interest During Construction (4% with a 1% ROI)	\$2,443,000
<b>TOTAL COST OF PROJECT</b>	<b>\$30,713,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$4,098,000
Operation and Maintenance	
Wells, Pipelines, Pump Stations	\$403,000
Transmission Pumping Energy Costs (0.09 \$/kW-hr)	\$14,573,000
<b>TOTAL ANNUAL COST</b>	<b>\$19,074,000</b>

Because all of the facilities are connected by the pipeline system, all entities will share a single unit cost for any of the water provided through this strategy. Table 5B-21 presents the overall unit cost for this strategy.

**Table 5B-21 RGRWA Regional Facility Project Unit Cost per Decade**

Year	2020	2030	2040	2050	2060	2070
Unit Cost (\$/acre-ft.)	\$3,237	\$2,172	\$1,468	\$1,430	\$1,629	\$1,652

*Implementation Issues*

Approval for additional concentrate disposal will be needed from TCEQ. Construction may also include purchase of land and a TXDOT right-of-way permit.

## 5B.2.2 Cameron County

### BROWNSVILLE

#### Brownsville-Matamoros Weir and Reservoir

##### *Project Source*

This strategy was submitted by the City of Brownsville to the RWPG.

##### *Description*

This strategy is for the construction of a weir and on-channel reservoir to capture and store excess river flow for an additional water supply in the lower Rio Grande Valley. The weir and reservoir would be located about four miles southeast of Brownsville.

##### *Available Supply*

BPUB currently has authorization to divert up to 40,000 acre-ft./year of “excess flows” from the Rio Grande under TCEQ Permit No. 1838. Excess flows are defined as all U.S. waters passing the Brownsville gauging station above 25 cfs. Excess U.S. River flows will be impounded in the Brownsville Reservoir under BPUB’s TCEQ water rights Permit No. 5259. According to hydrologic studies performed for the project sponsors, the proposed project would allow the diversion of the full 40,000 acre-ft./year authorized under the existing permit approximately 70 percent of the time. Based on the WAM Run 3, firm yield during the drought of record is as shown in Table 5B-22.

##### *Environmental Issues*

Environmental issues include impacts on water quality (i.e., increased salinity) within and downstream of the reservoir; impacts to aquatic and riparian habitat as a result of changes in downstream flow and salinity patterns; potential impacts to habitat from reservoir construction and inundation; potential adverse impacts to the Audubon Society’s Sabal Palm Sanctuary; and increased risk of flooding. The project sponsors have indicated their intent to operate the proposed project so as to mitigate these concerns; resource advocates remain concerned about these issues.

A water right permit for the Brownsville Weir and Reservoir Project was issued by TCEQ in 2000. This permit authorizes the construction of the Brownsville Weir on the Rio Grande and impoundment of 6,000 acre-ft. of Rio Grande water in the Brownsville Reservoir. Special conditions included in this permit require the BPUB to: (1) pass a minimum flow of 25-cfs when water is being impounded; (2) pass sufficient water through the reservoir to satisfy demands of downstream water rights holders as directed by the Rio Grande Watermaster; (3) monitor salinity in the Rio Grande downstream of the weir near the riverine/estuarine interface (23.6 river miles upstream from the mouth of the river) and only impound water in the reservoir when the measured salinity is less than an established low salinity condition; and (4) consult with the TCEQ, Texas Parks and Wildlife Department (TPWD), U.S. Fish and Wildlife Service (USFWS), and other appropriate agencies to develop and implement an acceptable mitigation plan for the overall BWR Project.



The mitigation plan for the Project will be developed and finalized through the Section 404/10 process under the authority of the Galveston District of the Corps of Engineers. Environmental issues that have been raised will have to be satisfactorily addressed through the Section 404/10 Federal permitting process and through the IBWC project approval process in order for the Project to be authorized. The IBWC will be the lead agency for all discussions and dealings with Mexico, which depend on the Section 404/10 permit.

*Engineering and Costing*

Costs for this strategy from the UCM include an on-channel reservoir and land acquisition. It is assumed that the construction period for this strategy is one year. Table 5B-22 outlines the estimated project requirements and costs.

**Table 5B-22     Brownsville-Matamoros Weir and Reservoir Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>Brownsville Public Utility Board – Brownsville-Matamoros Weir and Reservoir</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Off-Channel Storage/Ring Dike (Conservation Pool 6,000 acft, 300 acres)	\$13,331,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$13,331,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$4,666,000
Environmental & Archaeology Studies and Mitigation	\$901,000
Land Acquisition and Surveying (300 acres)	\$916,000
Interest During Construction (4% for 1 years with a 1% ROI)	\$694,000
<b>TOTAL COST OF PROJECT</b>	<b>\$20,508,000</b>
<b>ANNUAL COST</b>	
Reservoir Debt Service (5.5 percent, 40 years)	\$1,278,000
Operation and Maintenance	
Dam and Reservoir (1.5% of Cost of Facilities)	\$200,000
<b>TOTAL ANNUAL COST</b>	<b>\$1,478,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>19,176</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$77</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$0.24</b>

*Implementation Issues*

The project is on hold pending approval from Mexico.

**COMBES**

New Brackish Groundwater Treatment Plant

*Project Source*

This strategy was recommended in the 2011 RWP and updated by the RWPG.

*Description*

This strategy is for drilling a new brackish groundwater well and constructing a reverse osmosis water treatment plant to treat the raw water to potable drinking water standards. Environmental impacts are typical of BGD plants, discussed in Section 5.2.

*Available Supply*

Based on preliminary needs estimates for Combes, the BGD plant is sized for 125 acre-ft./year.

*Engineering and Costing*

Membrane treatment efficiency is assumed to be 80%, and the construction period is one and a half years. Table outlines the project requirements and cost estimate developed in UCM.

**Table 5B-23 Combes BGD Plant Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>City of Combes - Brackish Water Desalination</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$333,000
Water Treatment Plants (0.1 MGD)	\$2,399,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$2,732,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$956,000
Environmental & Archaeology Studies and Mitigation	\$6,000
Land Acquisition and Surveying (1 acres)	\$2,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$195,000
<b>TOTAL COST OF PROJECT</b>	<b>\$3,891,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$326,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$3,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$333,000
Pumping Energy Costs (31362 kW-hr @ 0.09 \$/kW-hr)	\$3,000
<b>TOTAL ANNUAL COST</b>	<b>\$665,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>125</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$5,320</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$16.32</b>

*Implementation Issues*

No major implementation issues are expected for this strategy. Approval for additional concentrate disposal will be needed from TCEQ. Construction of the new groundwater well and piping may also include purchase of land and a TXDOT right-of-way permit.



**EAST RIO HONDO WASTER SUPPLY CORPORATION**

Surface Water Treatment Plant –Phase II

*Project Source*

This strategy was submitted by East Rio Hondo WSC to the RWPG.

*Description*

This strategy is to expand the new surface water treatment plant just west of Rio Hondo. The first phase of this project is included as a Recommended Water Management Strategy.

*Available Supply*

The treatment plant would expanded for an additional 2.2 MGD capacity, or 2,500 acre-ft/yr.

*Engineering and Costing*

Costs for Phase II of the strategy from the UCM include a pump station expansion, treatment plant expansion, and purchase of water rights. It is assumed that the construction period for this strategy is six months.

Table 5B-24 outlines the project requirements and cost estimate developed in UCM.

**Table 5B-24 ERHWSC Surface Water Treatment Plant, Phase II Project Requirements and Costs**

<i>Cost Estimate Summary Water Supply Project Option East Rio Hondo WSC – Surface Water Treatment Plant Phase II</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Pump Station	\$1,018,000
Water Treatment Plant Expansion (2.2 MGD)	\$6,672,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$10,580,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$3,703,000
Environmental & Archaeology Studies and Mitigation	\$3,000
Land Acquisition and Surveying (66 acres)	\$3,000
Interest During Construction (4% for 0.5 years with a 1% ROI)	\$251,000
<b>TOTAL COST OF PROJECT</b>	<b>\$14,540,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$1,217,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$25,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$667,000
Pumping Energy Costs (280787 kW-hr @ 0.09 \$/kW-hr)	\$25,000
<b>TOTAL ANNUAL COST</b>	<b>\$1,934,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>2,500</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$774</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$2.37</b>

*Implementation Issues*

The availability of surface water rights required to supply the treatment plant is a potential implementation issue.

**HARLINGEN**

New Brackish Groundwater Treatment Plant

*Project Source*

This strategy was recommended in the 2011 RWP and updated by the RWPG.

*Description*

This strategy is for drilling a new brackish groundwater well and constructing a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

Environmental impacts are typical of BGD plants, discussed in Section 5.2.

*Available Supply*

Based on preliminary needs estimates for Harlingen, the new brackish groundwater plant is sized for 1,000 acre-ft./year.

*Engineering and Costing*

Costs for this strategy from the UCM include groundwater well pumping, well field piping, land acquisition, and water treatment. Membrane treatment efficiency is assumed to be 80%, so the wells and wellfield piping are designed to 1,250 acre-ft./year. It is assumed that the construction period for this strategy is one and a half years.

Table 5B-25 outlines the project requirements and cost estimate developed in UCM.

**Table 5B-25 Harlingen New BGD Plant Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>City of Harlingen - Brackish Water Desalination</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$777,000
Water Treatment Plant (0.9 MGD)	\$7,890,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$8,667,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$3,034,000
Environmental & Archaeology Studies and Mitigation	\$8,000
Land Acquisition and Surveying (1 acres)	\$3,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$615,000
<b>TOTAL COST OF PROJECT</b>	<b>\$12,327,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$1,031,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$8,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$1,118,000



*Cost Estimate Summary  
Water Supply Project Option  
City of Harlingen - Brackish Water Desalination*

<i>Item</i>	<i>Estimated Costs for Facilities</i>
Pumping Energy Costs (251298 kW-hr @ 0.09 \$/kW-hr)	\$23,000
<b>TOTAL ANNUAL COST</b>	<b>\$2,180,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>1,000</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$2,180</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$6.69</b>

*Implementation Issues*

No major implementation issues are expected for this strategy. Approval for additional concentrate disposal will be needed from TCEQ. Construction of the new groundwater well and piping may also include purchase of land and a TXDOT right-of-way permit.

Non-potable Reuse

*Project Source*

This strategy was recommended in the 2011 RWP.

*Description*

This direct non-potable reuse strategy is to use treated wastewater effluent for non-potable reuse. Harlingen currently uses 1.0 MGD of non-potable reuse and no specific customers were identified to use the non-potable reuse. Environmental Impacts typical of Direct Potable Reuse are discussed in Section 5.2.

*Available Supply*

Because there were no specific customers or uses identified for the non-potable reuse, it was assumed that only 5% of Harlingen’s 2020 demand could be met by non-potable reuse. Therefore this strategy was sized to produce 677 acre-ft./year.

*Engineering and Costing*

Costs for this strategy from the UCM include tertiary treatment at the WWTP, a pump station and pipeline to convey the reuse water into the city, storage, and land acquisition. It is assumed that the construction period for this strategy is one year.

Table 5B-26 outlines the project requirements and cost estimate developed in UCM.

**Table 5B-26 Harlingen Non-Potable Reuse Project Requirements and Costs**

<i>Cost Estimate Summary Water Supply Project Option City of Harlingen - Non-Potable Reuse</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Pump Station (0.6 MGD)	\$1,088,000
Transmission Pipeline (6 in dia., 3 miles)	\$871,000
Storage Tanks (Other Than at Booster Pump Stations)	\$412,000
Water Treatment Plant (0.6 MGD)	\$2,462,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$4,833,000</b>

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>City of Harlingen - Non-Potable Reuse</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$1,648,000
Environmental & Archaeology Studies and Mitigation	\$71,000
Land Acquisition and Surveying (42 acres)	\$112,000
Interest During Construction (4% for 1 years with a 1% ROI)	\$234,000
<b>TOTAL COST OF PROJECT</b>	<b>\$6,898,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$577,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$40,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$492,000
Pumping Energy Costs (301911 kW-hr @ 0.09 \$/kW-hr)	\$27,000
<b>TOTAL ANNUAL COST</b>	<b>\$1,136,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>677</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$1,678</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$5.15</b>

*Implementation Issues*

Approval for a reclaimed water system is needed from TCEQ. Construction of the new pipeline may also include any of the following permits: USACOE Section 404 permit, TPWD Sand, Shell, Gravel and Marl permit, TPDES Storm Water Pollution Prevention Plan, TXDOT right-of-way permit. Environmental Impacts typical of Direct Potable Reuse are discussed in Section 5.2.

**LA FERIA**

Non-Potable Wastewater Effluent Reuse

*Project Source*

This strategy was submitted by the City of La Feria to the RWPG.

*Description*

The City of La Feria currently uses wastewater effluent to fill three small lakes in the City's Nature Park. This direct non-potable reuse strategy involves adding tertiary treatment to the wastewater treatment plant and using additional effluent to irrigate the native vegetation at the park.

*Available Supply*

The wastewater treatment plant has a rated capacity of 1.25 MGD and a 2013 daily average of 0.38 MGD. A portion of the wastewater treatment plant effluent is already conveyed to Nature Park so based on current flows an additional 0.155 MGD could be available.

Although a certain amount of water is available to use for irrigation, because the plants at Nature Park are native vegetation, no additional irrigation should be required for them. Therefore, this



management strategy is not recommended and is listed as an alternative as it does not necessarily displace any the demand shown for La Feria.

*Engineering and Costing*

In order to establish this management strategy, tertiary treatment would be added to the wastewater treatment plant and additional pumping and piping would be needed to convey the reclaimed water to the park. Stainless steel disk, cloth media filters would be installed to further treat the wastewater effluent. A ground storage tank would also be included to provide one day’s worth of storage. It is assumed that the construction period would be 1.5 years.

Table 5B-27 outlines the project requirements and cost estimate developed using UCM. Treatment Level 2 was used on the UCM spreadsheet to estimate the costs for addition of the cloth media filters.

**Table 5B-27 La Feria Non-Potable Reuse Project Requirements and Costs**

<i>Cost Estimate Summary Water Supply Project Option City of La Feria - Non-Potable Wastewater Effluent Reuse</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Pump Station (0.2 MGD)	\$464,000
Transmission Pipeline (6 in dia., 1 miles)	\$69,000
Storage Tanks (Other Than at Booster Pump Stations)	\$248,000
Water Treatment Plant (0.2 MGD)	\$1,188,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$1,969,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$686,000
Environmental & Archaeology Studies and Mitigation	\$13,000
Land Acquisition and Surveying (13 acres)	\$20,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$142,000
<b>TOTAL COST OF PROJECT</b>	<b>\$2,830,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$237,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$15,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$238,000
Pumping Energy Costs (20339 kW-hr @ 0.09 \$/kW-hr)	\$2,000
<b>TOTAL ANNUAL COST</b>	<b>\$492,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>174</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$2,834</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$8.70</b>

*Implementation Issues*

Approval for a reclaimed water system is needed from TCEQ. Construction of the new pipeline may also include any of the following permits: USACOE Section 404 permit, TPWD Sand, Shell, Gravel and Marl permit, TPDES Storm Water Pollution Prevention Plan, TXDOT right-of-way permit. Environmental Impacts typical of Direct Potable Reuse are discussed in Section 5.2.



**LAGUNA MADRE**

New Seawater Desalination Treatment Plant

*Project Source*

This strategy was recommended in the 2011 RWP and updated by the RWPG.

*Description*

This strategy is to construct a new seawater desalination water treatment plant and intake pump station.

*Available Supply*

Based on preliminary needs estimates for Laguna Madre Water District, the new seawater desalination plant is sized for 1,120 acre-ft./year.

*Engineering and Costing*

It is assumed that the construction period for this strategy is one and a half years. Table 5B-28 outlines project requirements used to develop the cost estimate in the UCM.

**Table 5B-28 Laguna Madre Water District Seawater Desalination Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>Laguna Madre Water District - Seawater Desalination</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Pump Station (2 MGD)	\$1,184,000
Transmission Pipeline (8 in dia., 1 miles)	\$39,000
Water Treatment Plant (1 MGD)	\$19,582,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$20,805,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$7,280,000
Environmental & Archaeology Studies and Mitigation	\$21,000
Land Acquisition and Surveying (8 acres)	\$26,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$1,477,000
<b>TOTAL COST OF PROJECT</b>	<b>\$29,609,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$2,478,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$30,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$5,495,000
Pumping Energy Costs (367185 kW-hr @ 0.09 \$/kW-hr)	\$33,000
<b>TOTAL ANNUAL COST</b>	<b>\$8,036,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>1,120</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$7,175</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$22.02</b>



*Implementation Issues*

No major implementation issues are expected for this strategy. Approval for additional concentrate disposal will be needed from TCEQ. Construction of the new treatment plant and piping may also include purchase of land and a TXDOT right-of-way permit.

Non-potable Reuse

*Project Source*

This strategy was recommended in the 2011 RWP and updated by the RWPG.

*Description*

This strategy is to use treated wastewater effluent for direct non-potable reuse. Laguna Madre Water District currently uses 0.36 MGD of non-potable reuse and no specific customers were identified to use the non-potable reuse.

*Available Supply*

Because there were no specific customers or uses identified for the non-potable reuse, it was assumed that only 5% of Laguna Madre’s customers’ 2020 demand could be met by non-potable reuse. Therefore this strategy was sized to produce 350 acre-ft./year. The effluent for reuse would come from the Port Isabel WWTP.

*Engineering and Costing*

In order to establish this management strategy, tertiary treatment would be added to the Port Isabel WWTP and additional pumping and piping would be needed to convey the reclaimed water to the Port Isabel. A ground storage tank would also be included to provide one day’s worth of storage. It is assumed that the construction period would be 2 years. Table outlines the estimated costs and project requirements used to develop the cost estimate in the UCM. Treatment Level 2 was used in the UCM to estimate the costs for addition of the cloth media filters.

**Table 5B-29 Laguna Madre Water District Non-Potable Reuse Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>Laguna Madre Water District - Laguna Madre Non-Potable Reuse</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Pump Station (0.3 MGD)	\$701,000
Transmission Pipeline (6 in dia., 1 miles)	\$91,000
Storage Tanks (Other Than at Booster Pump Stations)	\$302,000
Water Treatment Plant (0.3 MGD)	\$1,603,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$2,697,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$940,000
Environmental & Archaeology Studies and Mitigation	\$14,000
Land Acquisition and Surveying (14 acres)	\$22,000
Interest During Construction (4% for 2 years with a 1% ROI)	\$258,000
<b>TOTAL COST OF PROJECT</b>	<b>\$3,931,000</b>
<b>ANNUAL COST</b>	

**Cost Estimate Summary  
Water Supply Project Option  
Laguna Madre Water District - Laguna Madre Non-Potable Reuse**

<i>Item</i>	<i>Estimated Costs for Facilities</i>
Debt Service (5.5 percent, 20 years)	\$329,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$21,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$321,000
Pumping Energy Costs (46187 kW-hr @ 0.09 \$/kW-hr)	\$4,000
<b>TOTAL ANNUAL COST</b>	<b>\$675,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>350</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$1,929</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$5.92</b>

*Implementation Issues*

Approval for a reclaimed water system is needed from TCEQ. Construction of the new pipeline may also include any of the following permits: USACOE Section 404 permit, TPWD Sand, Shell, Gravel and Marl permit, TPDES Storm Water Pollution Prevention Plan, TXDOT right-of-way permit. Environmental Impacts typical of Direct Non-Potable Reuse are discussed in Section 5.2.

**OLMITO WATER SUPPLY CORPORATION**

New Brackish Groundwater Treatment Plant

*Project Source*

This strategy was identified by the RWPG.

*Description*

This strategy is for drilling a new brackish groundwater well and constructing a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

*Available Supply*

Based on preliminary needs estimates for Olmito WSC, the wellfield is designed to pump 700 acre-ft./year and the new supplies are estimated at 560 acre-ft./year assuming an 80% membrane recovery rate.

*Engineering and Costing*

Costs for this strategy from the UCM include groundwater well pumping, well field piping, land acquisition, and water treatment. It is assumed that the construction period for this strategy is one and a half years.

Table 5B-30 outlines the estimated costs and project requirements used to develop the cost estimate in the UCM.



**Table 5B-30 Olmito WSC New Brackish Groundwater Treatment Plant Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>Olmito WSC - Brackish Water Desalination</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$760,000
Water Treatment Plant (0.5 MGD)	\$5,145,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$5,905,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$2,067,000
Environmental & Archaeology Studies and Mitigation	\$7,000
Land Acquisition and Surveying (1 acres)	\$2,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$419,000
<b>TOTAL COST OF PROJECT</b>	<b>\$8,400,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$703,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$8,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$726,000
Pumping Energy Costs (99887 kW-hr @ 0.09 \$/kW-hr)	\$9,000
<b>TOTAL ANNUAL COST</b>	<b>\$1,446,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>560</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$2,582</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$7.92</b>

*Implementation Issues*

No major implementation issues are expected for this strategy. Approval for additional concentrate disposal will be needed from TCEQ. Construction of the new groundwater well and piping may also include purchase of land and a TXDOT right-of-way permit. Environmental impacts are typical of BGD plants, discussed in Section 5.2.

**SAN BENITO**

Potable Reuse of Treated Effluent from City's Wastewater Treatment Plant

*Project Source*

This strategy was submitted by the City of San Benito to the RWPG.

*Description*

A modular water treatment plant would be built to provide additional treatment for the treated wastewater effluent in order to bring it to potable water standards. The direct potable reuse water would then serve potable water needs for the north portion of the City of San Benito.

*Available Supply*

The City of San Benito Wastewater Treatment Plant currently discharges 2.3 MGD of effluent into a minor stream. Initially, 1 MGD would be produced from the modular treatment plant. As the wastewater treatment plant effluent increases, the modular plant would be expanded and



eventually a total of 3 MGD would be produced, equating to an ultimate build-out capacity of 3,360 acre-ft./year.

*Engineering and Costing*

This project consists of a new modular water treatment plant, pump station, pipeline, and storage tank in order to bring the reuse water into the City’s distribution system. It is assumed that the construction period would be 2 years per phase. Because the first phases would be constructed in 2020 and the second phase would not be implemented until 2070, it was costed for the pump station and pipeline to be replaced during construction of Phase II.

Table 5B-31 and Table 5B-32 outline the project requirements and cost estimate for both phases developed using the UCM spreadsheet.

**Table 5B-31 San Benito Potable Reuse Phase I Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>City of San Benito – Potable Reuse of Treated Effluent from City's WWTP</i>	
<i>Item</i>	<i>Estimated Costs</i>
Intake Pump Stations (1 MGD)	\$1,231,000
Transmission Pipeline (8 in dia., 3 miles)	\$942,000
Storage Tanks (Other Than at Booster Pump Stations)	\$699,000
Water Treatment Plant (1 MGD)	\$4,844,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$7,716,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$2,654,000
Environmental & Archaeology Studies and Mitigation	\$75,000
Land Acquisition and Surveying (44 acres)	\$118,000
Interest During Construction (4% for 2 years with a 1% ROI)	\$740,000
<b>TOTAL COST OF PROJECT</b>	<b>\$11,303,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$946,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$47,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$484,000
Pumping Energy Costs (381067 kW-hr @ 0.09 \$/kW-hr)	\$34,000
<b>TOTAL ANNUAL COST</b>	<b>\$1,511,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>1,120</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$1,349</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$4.14</b>

**Table 5B-32 San Benito Potable Reuse Phase II Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>City of San Benito – Potable Reuse of Treated Effluent from City's WWTP</i>	
<i>Item</i>	<i>Estimated Costs</i>
Intake Pump Stations (3 MGD)	\$1,777,000
Transmission Pipeline (14 in dia., 3 miles)	\$1,582,000
Storage Tanks (Other Than at Booster Pump Stations)	\$1,237,000
Water Treatment Plant (2 MGD)	\$7,970,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$12,566,000</b>



<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>City of San Benito – Potable Reuse of Treated Effluent from City's WWTP</i>	
<i>Item</i>	<i>Estimated Costs</i>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$4,319,000
Environmental & Archaeology Studies and Mitigation	\$75,000
Interest During Construction (4% for 2 years with a 1% ROI)	<u>\$1,188,000</u>
<b>TOTAL COST OF PROJECT</b>	<b>\$18,148,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$1,519,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$73,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$797,000
Pumping Energy Costs (795984 kW-hr @ 0.09 \$/kW-hr)	\$72,000
<b>TOTAL ANNUAL COST</b>	<b>\$2,461,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	3,360
<b>Annual Cost of Water (\$ per acft)</b>	\$732
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	\$2.25

*Implementation Issues*

Approval for a reclaimed water system is needed from TCEQ. Construction of the new pipelines may also include any of the following permits: USACOE Section 404 permit, TPWD Sand, Shell, Gravel and Marl permit, TPDES Storm Water Pollution Prevention Plan, TXDOT right-of-way permit. Environmental impacts typical of potable reuse are discussed in Section 5.2.

Non-Potable Reuse of Treated Effluent from City’s Wastewater Treatment Plant

*Project Source*

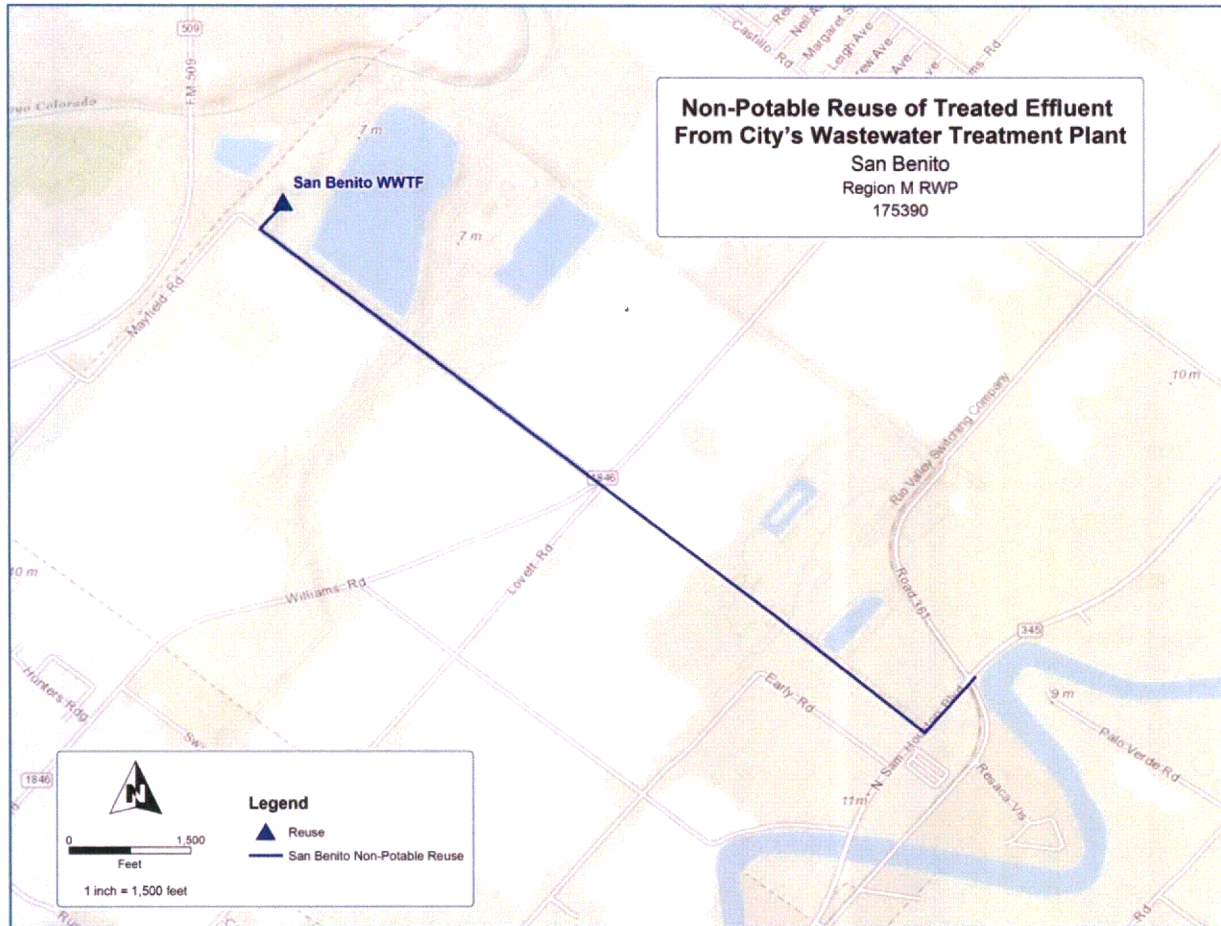
This strategy was submitted by the City of San Benito to the RWPG.

*Description*

This direct non-potable reuse strategy involves diverting a portion of WWTP effluent to a canal for irrigation use. A map depicting the approximate alignment of the reuse pipeline is shown in Figure 5B-1.

*Available Supply*

The City of San Benito Wastewater Treatment Plant currently discharges 2.3 MGD of effluent into a minor stream which feeds the Arroyo Colorado. 1,120 acre-ft./year, would be diverted and used to supplement the irrigation canal.



**Figure 5B-1 San Benito Non-Potable Reuse Pipeline Location**

*Engineering and Costing*

This project would require modifications to the wastewater treatment plant’s effluent pump station and a new pipeline. It is assumed that the construction period would be 1 year. Table 5B-33 outlines the project requirements and cost estimated with UCM.

**Table 5B-33 San Benito Non-Potable Reuse Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>City of San Benito – Non-Potable Reuse of Treated Effluent From City's WWTP</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Intake Pump Stations (1 MGD)	\$795,000
Transmission Pipeline (8 in dia., 2 miles)	\$494,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$1,289,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$426,000
Environmental & Archaeology Studies and Mitigation	\$55,000
Land Acquisition and Surveying (32 acres)	\$86,000
Interest During Construction (4% for 1 years with a 1% ROI)	\$65,000
<b>TOTAL COST OF PROJECT</b>	<b>\$1,921,000</b>



**Cost Estimate Summary**  
**Water Supply Project Option**  
**City of San Benito – Non-Potable Reuse of Treated Effluent From City's WWTP**

<i>Item</i>	<i>Estimated Costs for Facilities</i>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$161,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$25,000
Pumping Energy Costs (317771 kW-hr @ 0.09 \$/kW-hr)	\$29,000
<b>TOTAL ANNUAL COST</b>	<b>\$215,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>1,120</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$192</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$0.59</b>

*Implementation Issues*

Approval for a reclaimed water system is needed from TCEQ. Construction of the new pipeline may also include any of the following permits: USACOE Section 404 permit, TPWD Sand, Shell, Gravel and Marl permit, TPDES Storm Water Pollution Prevention Plan, TXDOT right-of-way permit.

Use of any irrigation district canals to convey recycled water (specifically Cameron County Irrigating District No. 2 listed here), would require a permit from the irrigation district. Environmental impacts typical of non-potable reuse are discussed in Section 5.2.

**SANTA ROSA**

New Brackish Groundwater Treatment Plant

*Project Source*

This strategy was identified by the RWPG.

*Description*

This strategy is for drilling a new brackish groundwater well and constructing a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

*Available Supply*

Based on preliminary needs estimates for Santa Rosa, the new brackish groundwater plant is sized for 560 acre-ft./year.

*Engineering and Costing*

Membrane treatment efficiency is assumed to be 80%, so the wells and wellfield piping are designed to 700 acre-ft./year. It is assumed that the construction period for this strategy is one and a half years and that it would begin in 2030. Table 5B-34 outlines the project requirements used to develop the cost estimate.

**Table 5B-34 Santa Rosa New Brackish Groundwater Treatment Plant Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>Santa Rosa - Brackish Water Desalination</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
<b>CAPITAL COST</b>	
Well Fields (Wells, Pumps, and Piping)	\$670,000
Water Treatment Plant (0.5 MGD)	\$5,145,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$5,815,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$2,035,000
Environmental & Archaeology Studies and Mitigation	\$7,000
Land Acquisition and Surveying (1 acres)	\$2,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	<u>\$413,000</u>
<b>TOTAL COST OF PROJECT</b>	<b>\$8,272,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$692,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$7,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$726,000
Pumping Energy Costs (90374 kW-hr @ 0.09 \$/kW-hr)	\$8,000
<b>TOTAL ANNUAL COST</b>	<b>\$1,433,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	560
<b>Annual Cost of Water (\$ per acft)</b>	\$2,559
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	\$7.85

*Implementation Issues*

No major implementation issues are expected for this strategy. Approval for additional concentrate disposal will be needed from TCEQ. Construction of the new groundwater well and piping may also include purchase of land and a TXDOT right-of-way permit. Environmental impacts are typical of BGD plants, discussed in Section 5.2.

**VALLEY MUNICIPAL UTILITY DISTRICT NO. 2**

New Brackish Groundwater Treatment Plant

*Project Source*

This strategy was recommended in the 2011 RWP and updated by the RWPG.

*Description*

This strategy is for drilling a new brackish groundwater well and constructing a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

*Available Supply*

Based on preliminary needs estimates for Valley MUD #2, the new brackish groundwater plant is sized for 100 acre-ft./year.



*Engineering and Costing*

Costs for this strategy from the UCM include groundwater well pumping, well field piping, land acquisition, and water treatment. Membrane treatment efficiency is assumed to be 80%, so the wells and wellfield piping are designed to 125 acre-ft./year. It is assumed that the construction period for this strategy is one and a half years, beginning in 2060.

Table 5B-35 outlines the estimated costs and project requirements used to develop the cost estimate.

**Table 5B-35 Valley MUD #2 New BGD Plant Project Requirements and Costs**

<i>Cost Estimate Summary Water Supply Project Option Valley MUD #2 - Brackish Water Desalination</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$311,000
Two Water Treatment Plants (0.1 MGD and 0.1 MGD)	\$2,329,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$2,640,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$924,000
Environmental & Archaeology Studies and Mitigation	\$6,000
Land Acquisition and Surveying (1 acres)	\$2,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$188,000
<b>TOTAL COST OF PROJECT</b>	<b>\$3,760,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$315,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$3,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$323,000
Pumping Energy Costs (25130 kW-hr @ 0.09 \$/kW-hr)	\$2,000
<b>TOTAL ANNUAL COST</b>	<b>\$643,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>100</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$6,430</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$19.73</b>

*Implementation Issues*

No major implementation issues are expected for this strategy. Approval for additional concentrate disposal will be needed from TCEQ. Construction of the new groundwater well and piping may also include purchase of land and a TXDOT right-of-way permit. Environmental impacts are typical of BGD plants, discussed in Section 5.2.

### 5B.2.3 Hidalgo County

#### AGUA SPECIAL UTILITY DISTRICT

##### New Brackish Groundwater Treatment Plant

###### *Project Source*

This strategy was identified by the RWPG.

###### *Description*

This strategy is to drill a new brackish groundwater well in the Gulf Coast Aquifer located within the Rio Grande River Basin, and construct a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards. Based on the data gathered in the BRACS Report, the well depth was approximated at 800 ft. below ground surface.

###### *Available Supply*

Based on preliminary needs estimates for Agua SUD, the new brackish groundwater plant is sized to treat 1,680 acre-ft./year producing 1,344 acre-ft./year of new supply.

###### *Environmental Issues*

This project would require the disposal of 336 acre-ft./year. Environmental impacts are typical of BGD plants, discussed in Section 5.2.

###### *Engineering and Costing*

Costs for this strategy from the UCM include groundwater well pumping, well field piping, land acquisition, and water treatment. It is assumed that the construction period for this strategy is one and a half years. Table 5B-36 outlines the estimated project requirements and cost estimates.

**Table 5B-36 New Brackish Groundwater Treatment Plant Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>Agua SUD - Brackish Groundwater Desalination</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$1,298,000
Two Water Treatment Plants (1.5 MGD and 1.5 MGD)	\$11,450,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$12,748,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$4,462,000
Environmental & Archaeology Studies and Mitigation	\$15,000
Land Acquisition and Surveying (3 acres)	\$6,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$905,000
<b>TOTAL COST OF PROJECT</b>	<b>\$18,136,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$1,518,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$13,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$1,623,000
Pumping Energy Costs (182298 kW-hr @ 0.09 \$/kW-hr)	\$16,000



*Cost Estimate Summary  
Water Supply Project Option  
Agua SUD - Brackish Groundwater Desalination*

<i>Item</i>	<i>Estimated Costs for Facilities</i>
<b>TOTAL ANNUAL COST</b>	<b>\$3,170,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1	1,212
Annual Cost of Water (\$ per acft)	\$2,616
Annual Cost of Water (\$ per 1,000 gallons)	\$8.03

*Implementation Issues*

No major implementation issues are expected for this strategy. Approval for additional concentrate disposal will be needed from TCEQ. Construction of the new groundwater well and piping may also include TXDOT right-of-way permit.

Non-Potable Reuse

*Project Source*

This strategy was submitted by Agua Special Utility District to the RWPG.

*Description*

The Agua Special Utility District (SUD) owns one wastewater treatment plant (West Agua WWTP) and is planning to build a second plant (East Agua WWTP). The West Agua WWTP is located in Sullivan City, Texas and the East Agua WWTP is located near Palmview, Texas. This direct non-potable reuse strategy is to provide Type II reclaimed water currently produced at the WWTP to individual customers with a need for reuse water.

*Available Supply*

Because there were no specific customers or uses identified for the non-potable reuse, it was assumed that only 5% of Agua SUD’s 2020 WUG demand could be met by non-potable reuse. Therefore this strategy was sized to produce 280 acre-ft./year.

*Engineering and Costing*

Costs for this strategy from the UCM include tertiary treatment at the WWTP and storage. The submitted strategy discussed having customers receive the reclaimed water at the WWTP, therefore no pumping or piping costs were included. This strategy could be implemented at either of Agua SUD’s WWTPs. Table 5B-37 outlines the project requirements and cost estimate developed in UCM.

**Table 5B-37 Agua SUD Non-Potable Reuse Project Requirements and Costs**

<i>Cost Estimate Summary Water Supply Project Option Agua Special Utility District - Non-Potable Reuse</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Storage Tanks (Other Than at Booster Pump Stations)	\$248,000
Water Treatment Plant (0.2 MGD)	\$2,539,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$2,787,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$975,000

**Cost Estimate Summary  
Water Supply Project Option  
Agua Special Utility District - Non-Potable Reuse**

<i>Item</i>	<i>Estimated Costs for Facilities</i>
Interest During Construction (4% for 2 years with a 1% ROI)	\$264,000
<b>TOTAL COST OF PROJECT</b>	<b>\$4,026,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$337,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$2,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$486,000
<b>TOTAL ANNUAL COST</b>	<b>\$825,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>280</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$2,946</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$9.04</b>

*Implementation Issues*

Approval for a reclaimed water system is needed from TCEQ. Construction of the new pipeline may also include any of the following permits: USACOE Section 404 permit, TPWD Sand, Shell, Gravel and Marl permit, TPDES Storm Water Pollution Prevention Plan, TXDOT right-of-way permit. Environmental impacts are typical of non-potable reuse projects, discussed in Section 5.2.

**DONNA**

Brackish Groundwater Treatment Plant

*Project Source*

This strategy was recommended in the 2011 RWP and updated by the RWPG.

*Description*

This strategy is for drilling a new brackish groundwater well and constructing a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

*Available Supply*

Based on preliminary needs estimates for Donna, the new brackish groundwater plant is sized for 700 acre-ft./year in 2020 and 1,000 acre-ft./year in 2050.

*Engineering and Costing*

Costs for this strategy from the UCM include groundwater well pumping, well field piping, land acquisition, and water treatment. Membrane treatment efficiency is assumed to be 80%, so the wells and wellfield piping are designed to 875 acre-ft./year in Phase I and 1,250 acre-ft./year in Phase II. The well field piping was sized for build-out capacity in Phase I. It is assumed that the construction period for this strategy is one and a half years.

Table 5B-38 and Table 5B-39 outline the project requirements and cost estimates developed in UCM.



**Table 5B-38 Donna BGD Plant Phase 1 Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>City of Donna - Brackish Water Desalination Phase I</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$724,000
Two Water Treatment Plants (0.6 MGD and 0.6 MGD)	\$5,912,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$6,636,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$2,323,000
Environmental & Archaeology Studies and Mitigation	\$7,000
Land Acquisition and Surveying (1 acres)	\$3,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$471,000
<b>TOTAL COST OF PROJECT</b>	<b>\$9,440,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$790,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$7,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$839,000
Pumping Energy Costs (87347 kW-hr @ 0.09 \$/kW-hr)	\$8,000
<b>TOTAL ANNUAL COST</b>	<b>\$1,644,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1	700
Annual Cost of Water (\$ per acft)	\$2,349
Annual Cost of Water (\$ per 1,000 gallons)	\$7.21

**Table 5B-39 Donna BGD Plant Phase 2 Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>City of Donna - Brackish Water Desalination Phase II</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$472,000
Two Water Treatment Plants (0.3 MGD and 0.3 MGD)	\$3,641,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$4,113,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$1,440,000
Environmental & Archaeology Studies and Mitigation	\$2,000
Land Acquisition and Surveying (1 acres)	\$2,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$292,000
<b>TOTAL COST OF PROJECT</b>	<b>\$5,849,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$489,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$5,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$506,000
Pumping Energy Costs (75389 kW-hr @ 0.09 \$/kW-hr)	\$7,000
<b>TOTAL ANNUAL COST</b>	<b>\$1,007,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1	300
Annual Cost of Water (\$ per acft)	\$3,357
Annual Cost of Water (\$ per 1,000 gallons)	\$10.30



*Implementation Issues*

No major implementation issues are expected for this strategy. Approval for additional concentrate disposal will be needed from TCEQ. Construction of the new groundwater well and piping may also include purchase of land and a TXDOT right-of-way permit. Environmental impacts are typical of BGD plants, discussed in Section 5.2.

**ELSA**

New Brackish Groundwater Treatment Plant

*Project Source*

This strategy was recommended in the 2011 RWP and updated by the RWPG.

*Description*

This strategy is for drilling a new brackish groundwater well and constructing a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

*Available Supply*

Based on preliminary needs estimates for Elsa, the new brackish groundwater plant is sized for 560 acre-ft./year.

*Engineering and Costing*

Costs for this strategy from the UCM include groundwater well pumping, well field piping, land acquisition, and water treatment. Membrane treatment efficiency is assumed to be 80%, so the wells and wellfield piping are designed to 700 acre-ft./year. It is assumed that the construction period for this strategy is one and a half years. Table 5B-40 outlines the estimated project requirements and costs.

**Table 5B-40 Elsa New Brackish Groundwater Treatment Plant Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>Elsa - New Brackish Groundwater Treatment Plant</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$760,000
Water Treatment Plant (0.5 MGD)	\$5,145,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$5,905,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$2,067,000
Environmental & Archaeology Studies and Mitigation	\$7,000
Land Acquisition and Surveying (1 acres)	\$2,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$419,000
<b>TOTAL COST OF PROJECT</b>	<b>\$8,400,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$703,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$8,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$726,000



**Cost Estimate Summary**  
**Water Supply Project Option**  
**Elsa - New Brackish Groundwater Treatment Plant**

<i>Item</i>	<i>Estimated Costs for Facilities</i>
Pumping Energy Costs (164695 kW-hr @ 0.09 \$/kW-hr)	\$15,000
<b>TOTAL ANNUAL COST</b>	<b>\$1,452,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>560</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$2,593</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$7.96</b>

*Implementation Issues*

No major implementation issues are expected for this strategy. Approval for additional concentrate disposal will be needed from TCEQ. Construction of the new groundwater well and piping may also include purchase of land and a TXDOT right-of-way permit. Environmental impacts are typical of BGD plants, discussed in Section 5.2.

WTP Expansion and Interconnect to Engleman ID

*Project Source*

This strategy was submitted by the City of Elsa to the RWPG.

*Description*

This strategy is for an interconnect between the City of Elsa and Engleman ID. Hidalgo County ID No. 9 is currently the City’s sole source for raw water. This strategy would provide the City of Elsa with a reliable second source of raw water in case of drought or when a supply is down for an extended period of time for repairs. It also includes an expansion of Elsa’s WTP.

*Available Supply*

This strategy would supply the City of Elsa’s WTP with 2,240 acre-ft./year in 2020.

*Engineering and Costing*

Costs for this strategy from the UCM include water treatment plant expansion, pipeline and pipeline right-of-way. It is assumed that the construction period for this strategy is one year.

Table 5B-41 outlines the project requirements and cost estimate developed using the UCM.

**Table 5B-41 Elsa WTP Expansion and Interconnect Project Requirements and Costs**

<b>Cost Estimate Summary</b>	
<b>Water Supply Project Option</b>	
<b>City of Elsa - WTP Expansion and Interconnect to Engleman ID</b>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Transmission Pipeline (12 in dia., 2 miles)	\$574,000
Water Treatment Plant (2 MGD)	\$6,367,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$6,941,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$2,401,000
Environmental & Archaeology Studies and Mitigation	\$63,000
Land Acquisition and Surveying (35 acres)	\$98,000
Interest During Construction (4% for 1 years with a 1% ROI)	\$333,000

**Cost Estimate Summary  
Water Supply Project Option  
City of Elsa - WTP Expansion and Interconnect to Engleman ID**

<i>Item</i>	<i>Estimated Costs for Facilities</i>
<b>TOTAL COST OF PROJECT</b>	<b>\$9,836,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$823,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$6,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$637,000
Pumping Energy Costs (422232 kW-hr @ 0.09 \$/kW-hr)	\$38,000
<b>TOTAL ANNUAL COST</b>	<b>\$1,504,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>2,240</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$671</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$2.06</b>

*Implementation Issues*

Typical environmental impacts are discussed in Section 5.2. No implementation issues have been identified at this time.

**LA VILLA**

New Brackish Groundwater Treatment Plant

*Project Source*

This strategy was identified by the RWPG.

*Description*

This strategy is for a new brackish groundwater well and BGD plant to treat the water to potable drinking water standards.

*Available Supply*

Based on preliminary needs estimates for La Villa, the new brackish groundwater plant is sized for 560 acre-ft./year.

*Engineering and Costing*

It is assumed that the construction period for this strategy is one and a half years. Table 5B-42 outlines the estimated project requirements and cost estimate.

**Table 5B-42 La Villa New Brackish Groundwater Treatment Plant Project Requirements and Costs**

<b>Cost Estimate Summary Water Supply Project Option La Villa - Brackish Water Desalination</b>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$673,000
Two Water Treatment Plants (0.5 MGD and 0.5 MGD)	\$5,145,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$5,818,000</b>



**Cost Estimate Summary  
Water Supply Project Option  
La Villa - Brackish Water Desalination**

<i>Item</i>	<i>Estimated Costs for Facilities</i>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$2,036,000
Environmental & Archaeology Studies and Mitigation	\$7,000
Land Acquisition and Surveying (1 acre)	\$2,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$413,000
<b>TOTAL COST OF PROJECT</b>	<b>\$8,276,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$693,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$7,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$726,000
Pumping Energy Costs (77418 kW-hr @ 0.09 \$/kW-hr)	\$7,000
<b>TOTAL ANNUAL COST</b>	<b>\$1,433,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>560</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$2,559</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$7.85</b>

*Implementation Issues*

No major implementation issues are expected for this strategy. Approval for additional concentrate disposal will be needed from TCEQ. Construction of the new groundwater well and piping may also include purchase of land and a TXDOT right-of-way permit. Environmental impacts are typical of BGD plants, discussed in Section 5.2.

**MCALLEN**

Expand Existing Groundwater Supply

*Project Source*

This strategy was recommended in the 2011 RWP and updated by the RWPG.

*Description*

This strategy is to provide additional supply to McAllen with the installation of additional fresh groundwater wells.

*Available Supply*

The proposed groundwater wells would provide 500 acre-ft./year in Phase I and a total of 1,500 acre-ft./year once Phase II is implemented.

*Engineering and Costing*

It is assumed that the construction period for this strategy is one and a half years. Table and Table 5B-44 outline the estimated project requirements and cost estimates for each phase developed in the UCM.



**Table 5B-43 Expand Existing Groundwater Supply Phase I Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>McAllen - Expand Existing Groundwater Supply - Phase I</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$629,000
Water Treatment Plant (0.5 MGD)	\$38,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$667,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$233,000
Environmental & Archaeology Studies and Mitigation	\$6,000
Land Acquisition and Surveying (1 acres)	\$2,000
Interest During Construction (4% for 1 years with a 1% ROI)	<u>\$32,000</u>
<b>TOTAL COST OF PROJECT</b>	<b>\$940,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$79,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$6,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$23,000
Pumping Energy Costs (100901 kW-hr @ 0.09 \$/kW-hr)	\$9,000
<b>TOTAL ANNUAL COST</b>	<b>\$117,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1	500
Annual Cost of Water (\$ per acft)	\$234
Annual Cost of Water (\$ per 1,000 gallons)	\$0.72

**Table 5B-44 Expand Existing Groundwater Supply Phase II Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>McAllen - Expand Existing Groundwater Supply - Phase II</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$650,000
Water Treatment Plant (0.9 MGD)	\$63,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$713,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$249,000
Environmental & Archaeology Studies and Mitigation	\$6,000
Land Acquisition and Surveying (1 acres)	\$2,000
Interest During Construction (4% for 1 years with a 1% ROI)	<u>\$34,000</u>
<b>TOTAL COST OF PROJECT</b>	<b>\$1,004,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$84,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$6,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$38,000
Pumping Energy Costs (201038 kW-hr @ 0.09 \$/kW-hr)	\$18,000
<b>TOTAL ANNUAL COST</b>	<b>\$146,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1	1,000
Annual Cost of Water (\$ per acft)	\$146
Annual Cost of Water (\$ per 1,000 gallons)	\$0.45



*Implementation Issues*

No major implementation issues are expected for this strategy. Construction of the new groundwater well and piping may also include a TCEQ well drilling permit, purchase of land and a TXDOT right-of-way permit. Environmental impacts are typical of groundwater supply projects, discussed in Section 5.2.

Non-potable Reuse

*Project Source*

This strategy was recommended in the 2011 RWP.

*Description*

This direct non-potable reuse strategy is to use treated wastewater effluent for non-potable reuse. McAllen currently uses 2.0 MGD of non-potable reuse.

*Available Supply*

Because there were no specific customers or uses identified for the non-potable reuse, it was assumed that only 5% of McAllen’s 2020 demand could be met by non-potable reuse. Therefore this strategy was sized to produce 1,950 acre-ft./year.

*Engineering and Costing*

Costs for this strategy from the UCM include tertiary treatment at the WWTP, a pump station and pipeline to convey the reuse water into the city, storage, and land acquisition. It is assumed that the construction period for this strategy is one year. Table 5B-45 outlines the project requirements and cost estimate developed in UCM.

**Table 5B-45 McAllen Non-Potable Reuse Project Requirements and Costs**

<i>Cost Estimate Summary Water Supply Project Option McAllen - Non-Potable Reuse</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Pump Station (0.6 MGD)	\$1,336,000
Transmission Pipeline (12 in dia., 3 miles)	\$1,454,000
Storage Tanks (Other Than at Booster Pump Stations)	\$968,000
Water Treatment Plant (1.7 MGD)	\$4,810,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$8,568,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$2,926,000
Environmental & Archaeology Studies and Mitigation	\$85,000
Land Acquisition and Surveying (49 acres)	\$134,000
Interest During Construction (4% for 1 years with a 1% ROI)	\$410,000
<b>TOTAL COST OF PROJECT</b>	<b>\$12,123,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$1,014,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$58,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$962,000
Pumping Energy Costs (445832 kW-hr @ 0.09 \$/kW-hr)	\$40,000

<i>Cost Estimate Summary Water Supply Project Option McAllen - Non-Potable Reuse</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
<b>TOTAL ANNUAL COST</b>	<b>\$2,074,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1	1,950
Annual Cost of Water (\$ per acft)	\$1,064
Annual Cost of Water (\$ per 1,000 gallons)	\$3.26

*Implementation Issues*

Approval for a reclaimed water system is needed from TCEQ. Construction of the new pipeline may also include any of the following permits: USACOE Section 404 permit, TPWD Sand, Shell, Gravel and Marl permit, TPDES Storm Water Pollution Prevention Plan, TXDOT right-of-way permit. Environmental impacts are typical of non-potable reuse projects, discussed in Section 5.2.

**MERCEDES**

Expand Existing Groundwater Supply

*Project Source*

This strategy was recommended in the 2011 RWP and updated by the RWPG.

*Description*

This strategy is to provide additional supply to Mercedes with an additional groundwater well.

*Available Supply*

The proposed groundwater wells would provide 560 acre-ft./year.

*Engineering and Costing*

Costs for this strategy from the UCM assumed that the construction period is one year. Table 5B-46 outlines the estimated project requirements and costs.

**Table 5B-46 Mercedes Expand Existing Groundwater Supply Project Requirements and Costs**

<i>Cost Estimate Summary Water Supply Project Option Mercedes - Expand Existing Groundwater Supply</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$670,000
Water Treatment Plant (0.5 MGD)	\$40,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$710,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$249,000
Environmental & Archaeology Studies and Mitigation	\$6,000
Land Acquisition and Surveying (1 acres)	\$2,000
Interest During Construction (4% for 1 years with a 1% ROI)	\$34,000
<b>TOTAL COST OF PROJECT</b>	<b>\$1,001,000</b>



**Cost Estimate Summary  
Water Supply Project Option  
Mercedes - Expand Existing Groundwater Supply**

<i>Item</i>	<i>Estimated Costs for Facilities</i>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$84,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$7,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$24,000
Pumping Energy Costs (114827 kW-hr @ 0.09 \$/kW-hr)	\$10,000
<b>TOTAL ANNUAL COST</b>	<b>\$125,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>560</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$223</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$0.68</b>

*Implementation Issues*

No major implementation issues are expected for this strategy. Construction of the new groundwater well and piping may also include a TCEQ well drilling permit, purchase of land and a TXDOT right-of-way permit. Environmental impacts are typical of groundwater supply expansion projects, discussed in Section 5.2.

New Brackish Groundwater Treatment Plant

*Project Source*

This strategy was recommended in the 2011 RWP and updated by the RWPG.

*Description*

This strategy is for drilling a new brackish groundwater well and constructing a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

*Available Supply*

Based on preliminary needs estimates for Mercedes, the new brackish groundwater plant is sized for 435 acre-ft./year.

*Engineering and Costing*

Costs for this strategy from the UCM include groundwater well pumping, well field piping, land acquisition, and water treatment. Membrane treatment efficiency is assumed to be 80%, so the wells and wellfield piping are designed to 544 acre-ft./year. It is assumed that the construction period for this strategy is one and a half years. Table 5B-47 outlines the estimated project requirements and costs.

**Table 5B-47 Mercedes New Brackish Groundwater Treatment Plant Project Requirements and Costs**

<b>Cost Estimate Summary Water Supply Project Option Mercedes - New Brackish Groundwater Treatment Plant</b>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$591,000
Two Water Treatment Plants (0.9 MGD and 0.9 MGD)	\$7,890,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$8,481,000</b>

**Cost Estimate Summary**  
**Water Supply Project Option**  
**Mercedes - New Brackish Groundwater Treatment Plant**

<i>Item</i>	<i>Estimated Costs for Facilities</i>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$2,968,000
Environmental & Archaeology Studies and Mitigation	\$8,000
Land Acquisition and Surveying (1 acres)	\$3,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	<u>\$602,000</u>
<b>TOTAL COST OF PROJECT</b>	<b>\$12,062,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$1,009,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$6,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$1,118,000
Pumping Energy Costs (109365 kW-hr @ 0.09 \$/kW-hr)	\$10,000
<b>TOTAL ANNUAL COST</b>	<b>\$2,143,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	435
<b>Annual Cost of Water (\$ per acft)</b>	\$4,926
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	\$15.12

*Implementation Issues*

No major implementation issues are expected for this strategy. Approval for additional concentrate disposal will be needed from TCEQ. Construction of the new groundwater well and piping may also include purchase of land and a TXDOT right-of-way permit. Environmental impacts are typical of BGD plants, discussed in Section 5.2.

**MILITARY HIGHWAY WATER SUPPLY CORPORATION**

Expand Existing Groundwater Supply in Hidalgo County

*Project Source*

This strategy was recommended in the 2011 RWP and updated by the RWPG.

*Description*

This strategy is to provide additional supply to Military Highway Water Supply Corporation in Hidalgo County with the installation of additional fresh groundwater wells.

*Available Supply*

The proposed groundwater wells would provide 250 acre-ft./year in 2020 during Phase I and a total of 625 acre-ft./year once Phase II is implemented in 2050.

*Engineering and Costing*

Costs for this strategy from the UCM include groundwater well pumping, well field piping, land acquisition, and water disinfection. It is assumed that the construction period for this strategy is one year per phase. Table 5B-48 and Table 5B-49 outline the estimated costs and project requirements for each phase.



**Table 5B-48 MHWSC Expand Existing Groundwater Supply Phase I Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>Military Highway WSC - Expand Existing Groundwater Supply - Phase I</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$448,000
Water Treatment Plant (0.2 MGD)	\$24,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$472,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$165,000
Environmental & Archaeology Studies and Mitigation	\$6,000
Land Acquisition and Surveying (1 acres)	\$2,000
Interest During Construction (4% for 1 years with a 1% ROI)	<u>\$23,000</u>
<b>TOTAL COST OF PROJECT</b>	<b>\$668,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$56,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$4,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$14,000
Pumping Energy Costs (50260 kW-hr @ 0.09 \$/kW-hr)	\$5,000
<b>TOTAL ANNUAL COST</b>	<b>\$79,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1	250
Annual Cost of Water (\$ per acft)	\$316
Annual Cost of Water (\$ per 1,000 gallons)	\$0.97

**Table 5B-49 MHWSC Expand Existing Groundwater Supply Phase II Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>Military Highway WSC - Expand Existing Groundwater Supply - Phase II</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields Expansion (Wells, Pumps, and Piping)	\$542,000
Water Treatment Plant Expansion (0.3 MGD)	\$31,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$573,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$201,000
Environmental & Archaeology Studies and Mitigation	\$6,000
Land Acquisition and Surveying (1 acres)	\$2,000
Interest During Construction (4% for 1 years with a 1% ROI)	<u>\$28,000</u>
<b>TOTAL COST OF PROJECT</b>	<b>\$810,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$68,000
Operation and Maintenance	
Total Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$9,000
Total Water Treatment Plant (2.5% of Cost of Facilities)	\$33,000
Total Pumping Energy Costs (75389 kW-hr @ 0.09 \$/kW-hr)	\$12,000
<b>TOTAL ANNUAL COST</b>	<b>\$122,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1	625
Annual Cost of Water (\$ per acft)	\$195
Annual Cost of Water (\$ per 1,000 gallons)	\$0.60



*Implementation Issues*

No major implementation issues are expected for this strategy. Construction of the new groundwater well and piping may also include a TCEQ well drilling permit, purchase of land and a TXDOT right-of-way permit. Environmental impacts are typical of groundwater expansion projects, discussed in Section 5.2.

**PHARR**

Non-potable Reuse

*Project Source*

This strategy was recommended in the 2011 RWP.

*Description*

This direct non-potable reuse strategy is to use treated wastewater effluent for non-potable reuse. Pharr currently uses 5.0 MGD of non-potable reuse.

*Available Supply*

Because there were no specific customers or uses identified for the non-potable reuse, it was assumed that 5% of Pharr’s 2020 demand could be met by non-potable reuse. Therefore this strategy was sized to produce 500 acre-ft./year.

*Engineering and Costing*

Costs for this strategy from the UCM include tertiary treatment at the WWTP, a pump station and pipeline to convey the reuse water into the city, storage, and land acquisition. It is assumed that the construction period for this strategy is one year. Table 5B-50 outlines the project requirements and cost estimate developed in UCM.

**Table 5B-50 Pharr Non-Potable Reuse Project Requirements and Costs**

<i>Cost Estimate Summary Water Supply Project Option Pharr - Non-Potable Reuse</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Pump Station (0.6 MGD)	\$834,000
Transmission Pipeline (6 in dia., 2 miles)	\$495,000
Storage Tanks (Other Than at Booster Pump Stations)	\$357,000
Water Treatment Plant (0.4 MGD)	\$1,890,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$3,576,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$1,227,000
Environmental & Archaeology Studies and Mitigation	\$55,000
Land Acquisition and Surveying (34 acres)	\$86,000
Interest During Construction (4% for 1 years with a 1% ROI)	\$174,000
<b>TOTAL COST OF PROJECT</b>	<b>\$5,118,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$428,000
Operation and Maintenance	



<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>Pharr - Non-Potable Reuse</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$29,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$378,000
Pumping Energy Costs (144880 kW-hr @ 0.09 \$/kW-hr)	\$13,000
<b>TOTAL ANNUAL COST</b>	<b>\$848,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>500</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$1,696</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$5.20</b>

*Implementation Issues*

Approval for a reclaimed water system is needed from TCEQ. Construction of the new pipeline may also include any of the following permits: USACOE Section 404 permit, TPWD Sand, Shell, Gravel and Marl permit, TPDES Storm Water Pollution Prevention Plan, TXDOT right-of-way permit. Environmental impacts are typical of non-potable reuse projects, discussed in Section 5.2.

**WESLACO**

New Brackish Groundwater Treatment Plant

*Project Source*

This strategy was recommended in the 2011 RWP and updated by the RWPG.

*Description*

This strategy is for drilling a new brackish groundwater well and constructing a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

*Available Supply*

Based on preliminary needs estimates for Weslaco, the new brackish groundwater plant is sized for 1,630 acre-ft./year.

*Engineering and Costing*

Costs for this strategy from the UCM include groundwater well pumping, well field piping, land acquisition, and water treatment. It is assumed that the construction period for this strategy is one and a half years. Table 5B-51 outlines the estimated project requirements and cost estimate.

**Table 5B-51 New Brackish Groundwater Treatment Plant Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>Weslaco - Brackish Water Desalination</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$1,272,000
Two Water Treatment Plants (1.5 MGD and 1.5 MGD)	\$11,172,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$12,444,000</b>

**Cost Estimate Summary  
Water Supply Project Option  
Weslaco - Brackish Water Desalination**

<i>Item</i>	<i>Estimated Costs for Facilities</i>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$4,355,000
Environmental & Archaeology Studies and Mitigation	\$8,000
Land Acquisition and Surveying (2 acres)	\$4,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$883,000
<b>TOTAL COST OF PROJECT</b>	<b>\$17,694,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$1,481,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$13,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$1,583,000
Pumping Energy Costs (221031 kW-hr @ 0.09 \$/kW-hr)	\$20,000
<b>TOTAL ANNUAL COST</b>	<b>\$3,097,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>1,630</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$1,900</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$5.83</b>

*Implementation Issues*

No major implementation issues are expected for this strategy. Approval for additional concentrate disposal will be needed from TCEQ. Construction of the new groundwater well and piping may also include purchase of land and a TXDOT right-of-way permit. Environmental impacts are typical of BGD plants, discussed in Section 5.2.

Scalping Plants

*Project Source*

This strategy was submitted by the City of Weslaco to the RWPG.

*Description*

This water management strategy involves the City of Weslaco building decentralized scalping plants off of their collection system to produce reclaimed water in order to irrigate city parks. The proposed scalping plant for City Park would pull raw wastewater from an existing manhole near the park and the one for Harlon Black Sports Complex will take from an existing force main.

*Available Supply*

The reclaimed water would replace the potable water demand for irrigation of the parks. Based on water meter records for a 12 month period, City Park uses an average of 30,730 gallons per year and Harlon Sports Complex averages 81,590 gallons per year.

This water management strategy will reduce the potable demand by approximately 0.003 MGD, less than 0.5 acre-ft./year, the total water usage to irrigate both parks.



Engineering and Costing

In order to implement this plan, treatment of the raw wastewater to reclaimed water standards will be required, as well as additional piping, pumping, and manhole. Table 5B-52 presents the cost and project requirements used in the UCM. The treatment capacity for each facility was estimated at 0.05 MGD in order to capture baseline costs associated with any facility.

**Table 5B-52 Weslaco Scalping Plants Cost and Yield Projections**

<i>Cost Estimate Summary Water Supply Project Option Weslaco - Scalping Plants</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Two Water Treatment Plants (0.1 MGD and 0.1 MGD)	\$938,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$938,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$328,000
Environmental & Archaeology Studies and Mitigation	\$6,000
Land Acquisition and Surveying (1 acres)	\$6,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$68,000
<b>TOTAL COST OF PROJECT</b>	<b>\$1,346,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$113,000
Operation and Maintenance	
Water Treatment Plant (2.5% of Cost of Facilities)	\$178,000
<b>TOTAL ANNUAL COST</b>	<b>\$291,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>0.2</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$1,455,000</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$4,464.56</b>

Implementation Issues

Approval for a reclaimed water system is needed from TCEQ. Construction of the new pipelines may also include any of the following permits: USACOE Section 404 permit, TPWD Sand, Shell, Gravel and Marl permit, TPDES Storm Water Pollution Prevention Plan, TXDOT right-of-way permit. Environmental impacts are typical of reuse projects, discussed in Section 5.2.

**5B.2.4 Maverick County**

**EAGLE PASS**

New Brackish Groundwater Treatment Plant

*Project Source*

This strategy was recommended in the 2011 RWP and updated by the RWPG.

*Description*

This strategy is for drilling a new brackish groundwater well and constructing a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

*Available Supply*

Based on preliminary needs estimates for Eagle Pass, the new brackish groundwater plant is sized for 560 acre-ft./year and would be implemented in 2050.

*Engineering and Costing*

Costs for this strategy from the UCM include groundwater well pumping, well field piping, land acquisition, and water treatment. Membrane treatment efficiency is assumed to be 80%, so the wells and wellfield piping are designed to 700 acre-ft./year. It is assumed that the construction period for this strategy is one and a half years.

Table 5B-53 outlines the estimated costs and project requirements used to develop the cost estimate.

**Table 5B-53 Eagle Pass New Brackish Groundwater Desalination Plant Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>Eagle Pass New Brackish Groundwater Desalination</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$670,000
Water Treatment Plant (0.5 MGD)	\$5,145,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$5,815,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$2,035,000
Environmental & Archaeology Studies and Mitigation	\$7,000
Land Acquisition and Surveying (1 acres)	\$2,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$413,000
<b>TOTAL COST OF PROJECT</b>	<b>\$8,272,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$692,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$7,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$726,000
Pumping Energy Costs (142130 kW-hr @ 0.09 \$/kW-hr)	\$13,000
<b>TOTAL ANNUAL COST</b>	<b>\$1,438,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>560</b>



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*Cost Estimate Summary  
Water Supply Project Option  
Eagle Pass New Brackish Groundwater Desalination*

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<i>Item</i>	<i>Estimated Costs for Facilities</i>
Annual Cost of Water (\$ per acft)	\$2,568
Annual Cost of Water (\$ per 1,000 gallons)	\$7.88

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*Implementation Issues*

No major implementation issues are expected for this strategy. Approval for additional concentrate disposal will be needed from TCEQ. Construction of the new groundwater well and piping may also include purchase of land and a TXDOT right-of-way permit. Environmental impacts are typical of BGD plants, discussed in Section 5.2.

**5B.2.5 Starr County**

**RIO GRANDE CITY**

New Brackish Groundwater Treatment Plant

*Project Source*

This strategy was recommended in the 2011 RWP and updated by the RWPG.

*Description*

This strategy is for drilling a new brackish groundwater well and constructing a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

*Available Supply*

Based on preliminary needs estimates for the City of Rio Grande City, the new brackish groundwater plant is sized for 560 acre-ft./year.

*Engineering and Costing*

Costs for this strategy include groundwater well pumping, well field piping, land acquisition, and water treatment. Membrane treatment recovery is assumed at 80%, so wellfield is designed to 700 acre-ft./year. It is assumed that the construction period for this strategy is one and a half years. Table 5B-54 outlines the project requirements and cost estimate from the UCM.

**Table 5B-54 Rio Grande City New Brackish Groundwater Treatment Plant Project Requirements and Costs**

<i>Cost Estimate Summary Water Supply Project Option Rio Grande City - Brackish Water Desalination</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$677,000
Water Treatment Plant (0.5 MGD)	\$5,145,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$5,822,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$2,038,000
Environmental & Archaeology Studies and Mitigation	\$6,000
Land Acquisition and Surveying (1 acres)	\$2,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$414,000
<b>TOTAL COST OF PROJECT</b>	<b>\$8,282,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$693,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$7,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$726,000
Pumping Energy Costs (142130 kW-hr @ 0.09 \$/kW-hr)	\$13,000
<b>TOTAL ANNUAL COST</b>	<b>\$1,439,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>560</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$2,570</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$7.88</b>



*Implementation Issues*

No major implementation issues are expected for this strategy. Approval for additional concentrate disposal will be needed from TCEQ. Construction of the new groundwater well and piping may also include purchase of land and a TXDOT right-of-way permit. Environmental impacts are typical of BGD plants, discussed in Section 5.2.

Acquisition of Water Rights through Urbanization

*Project Source*

This strategy was identified by the Regional Planning Group.

*Project Description*

In order to provide the City of Rio Grande City with sufficient water to meet its projected needs, the RWPG recommends that Rio Grande City purchase irrigation water rights from Hidalgo County Irrigation District No. 2 as they become available through urbanization and convert them to municipal water rights.

*Available Supply*

It has been estimated that enough water rights will become available to meet Rio Grande City’s projected needs once Advanced Municipal Conservation strategies are implemented.

*Engineering and Costing*

A unit capital cost of \$2,500 per acre-ft. has been estimated as the market value for water rights. However, under Subchapter O of Chapter 49 Texas Water Code, a municipal supplier can buy water rights to the net irrigable acres in a subdivision at 68% of the market value. Because this strategy calls for Rio Grande City to purchase water rights from a district that serves them, it is assumed that the urbanized land is within Rio Grande City’s jurisdiction and this reduced rate would apply. Therefore, a unit capital cost of \$1,700 per acre-ft. is used to estimate the capital costs. Any costs associated with the delivery of water rates and assumed to be insignificant and are not included. Table 5B-55 shows the cost and yield projections for this strategy.

**Table 5B-55 Rio Grande City Acquisition of Water Rights through Urbanization Cost and Yield Projections**

Year	2020	2030	2040	2050	2060	2070
Yield (acre-ft./year)	280	280	280	560	560	560
Capital Cost	\$476,000	0	0	\$476,000	0	0

*Implementation Issues*

No implementation issues have been identified. Environmental impacts associated with the conversion of water rights through urbanization are discussed in Section 5.2.

**5B.2.6 Webb County**

**LAREDO**

El Pico Water Treatment Plant - 1<sup>st</sup> Expansion

*Project Source*

This strategy was submitted by the City of Laredo to the RWPG.

*Description*

This strategy is for the expansion of El Pico Water Treatment Plant from 20 MGD to 45 MGD capacity. This expansion would occur in 2020.

*Available Supply*

Expanding the plant would supply an additional 16,800 acre-ft./year of drinking water with the WTP peaking factor of 1.67.

*Engineering and Costing*

Costs for this strategy from the UCM include only water treatment. The City has already purchased the required land, so land acquisition was not included. It is assumed that the construction period for this strategy is one and a half years.

Table 5B-56 outlines the estimated costs and project requirements used to develop the cost estimate.

**Table 5B-56 Laredo El Pico Water Treatment Plant - 1<sup>st</sup> Expansion Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>City of Laredo - First Expansion of El Pico WTP</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Water Treatment Plant Expansion (25 MGD)	\$24,607,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$24,607,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$8,612,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$1,744,000
<b>TOTAL COST OF PROJECT</b>	<b>\$34,963,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$2,926,000
Operation and Maintenance	
Water Treatment Plant (2.5% of Cost of Facilities)	\$2,461,000
<b>TOTAL ANNUAL COST</b>	<b>\$5,387,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>16,800</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$321</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$0.98</b>



*Implementation Issues*

Necessary state and federal permits must be obtained before construction can begin. Additionally, an available surface water supply would need to be assured for the capacity of this expansion. Environmental impacts are typical of WTP expansions, discussed in Section 5.2.

El Pico Water Treatment Plant - 2<sup>nd</sup> Expansion

*Description*

This strategy is to expand the El Pico Water Treatment Plant from 45 MGD to 70 MGD. This expansion would occur in 2030.

*Available Supply*

Expanding the plant would supply an additional 16,800 acre-ft./year of drinking water with the WTP peaking factor of 1.67.

*Engineering and Costing*

Costs for this strategy from the UCM include only water treatment. It is assumed that the construction period for this strategy is one and a half years.

Table 5B-57 outlines the estimated costs and project requirements used to develop the cost estimate.

**Table 5B-57 Laredo El Pico Water Treatment Plant – 2<sup>nd</sup> Expansion Project Requirements and Costs**

<i>Cost Estimate Summary Water Supply Project Option City of Laredo - Second Expansion of El Pico WTP</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Water Treatment Plant Expansion (25 MGD)	\$24,607,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$24,607,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$8,612,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$1,744,000
<b>TOTAL COST OF PROJECT</b>	<b>\$34,963,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$5,852,000
Operation and Maintenance	
Water Treatment Plant (2.5% of Cost of Facilities)	\$4,922,000
<b>TOTAL ANNUAL COST</b>	<b>\$10,774,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>33,600</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$321</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$0.98</b>

*Implementation Issues*

As with any project, necessary state and federal permits must be obtained before construction can begin. Additionally, an available surface water supply would need to be assured for the

capacity of this expansion. Environmental impacts are typical of WTP expansions, discussed in Section 5.2.

El Pico Water Treatment Plant - 3<sup>rd</sup> Expansion

*Description*

This strategy is to expand the El Pico Water Treatment Plant from 70 MGD to 100 MGD. This expansion would occur in 2040.

*Available Supply*

Expanding the plant would supply an additional 20,160 acre-ft./year of drinking water with the WTP peaking factor of 1.67.

*Engineering and Costing*

Costs for this strategy from the UCM include only water treatment and land acquisition. It is assumed that the construction period for this strategy is one and a half years. Table 5B-58 outlines the estimated costs and project requirements used to develop the cost estimate.

**Table 5B-58 Laredo El Pico Water Treatment Plant 3<sup>rd</sup> Expansion Project Requirements and Costs**

<i>Cost Estimate Summary Water Supply Project Option City of Laredo - Third Expansion of El Pico WTP</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Water Treatment Plant Expansion (30 MGD)	\$28,240,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$28,240,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$9,884,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$2,002,000
<b>TOTAL COST OF PROJECT</b>	<b>\$40,126,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$6,284,000
Operation and Maintenance	
Water Treatment Plant (2.5% of Cost of Facilities)	\$7,746,000
<b>TOTAL ANNUAL COST</b>	<b>\$14,030,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1	53,760
Annual Cost of Water (\$ per acft)	\$261
Annual Cost of Water (\$ per 1,000 gallons)	\$0.80

*Implementation Issues*

As with any project, necessary state and federal permits must be obtained before construction can begin. Additionally, an available surface water supply would need to be assured for the capacity of this expansion. Environmental impacts are typical of WTP expansions, discussed in Section 5.2.



El Pico Water Treatment Plant- 4<sup>th</sup> Expansion

*Description*

This strategy is to expand the El Pico Water Treatment Plant from 100 MGD to 165 MGD. This expansion would occur in 2050.

*Available Supply*

Expanding the plant would supply an additional 43,200 acre-ft./year of drinking water with the WTP peaking factor of 1.67.

*Engineering and Costing*

Costs for this strategy from the UCM include only water treatment and land acquisition. It is assumed that the construction period for this strategy is one and a half years. Table 5B-59 outlines the estimated costs and project requirements used to develop the cost estimate.

**Table 5B-59 Laredo El Pico Water Treatment Plant 4<sup>th</sup> Expansion Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>City of Laredo - Fourth Expansion of El Pico WTP</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Water Treatment Plant Expansion (65 MGD)	\$53,186,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$53,186,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$18,615,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$3,770,000
<b>TOTAL COST OF PROJECT</b>	<b>\$75,571,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$9,682,000
Operation and Maintenance	
Water Treatment Plant (2.5% of Cost of Facilities)	\$13,065,000
<b>TOTAL ANNUAL COST</b>	<b>\$22,747,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>96,960</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$235</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$0.72</b>

*Implementation Issues*

As with any project, necessary state and federal permits must be obtained before construction can begin. Additionally, an available surface water supply would need to be assured for the capacity of this expansion. Environmental impacts are typical of WTP expansions, discussed in Section 5.2.

New Brackish Groundwater Treatment Plant

*Project Source*

This strategy was recommended in the 2011 RWP and updated by the RWPG.

*Description*

This strategy is for drilling four new brackish groundwater wells and constructing a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

*Available Supply*

Based on preliminary needs estimates for Laredo, the new brackish groundwater plant is sized for 5,000 acre-ft./year and would be implemented in 2050.

*Engineering and Costing*

Costs for this strategy from the UCM include groundwater well pumping, well field piping, land acquisition, and water treatment. Membrane treatment efficiency is assumed to be 80%, so the wells and wellfield piping are designed to 6,250 acre-ft./year. It is assumed that the construction period for this strategy is one and a half years.

Table 5B-60 outlines the estimated costs project requirements used to develop the cost estimate.

**Table 5B-60 Laredo New Brackish Groundwater Treatment Plant Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>City of Laredo - Brackish Water Desalination</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Well Fields (Wells, Pumps, and Piping)	\$3,400,000
Two Water Treatment Plants (4.5 MGD and 4.5 MGD)	\$27,942,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$31,342,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$10,970,000
Environmental & Archaeology Studies and Mitigation	\$28,000
Land Acquisition and Surveying (6 acres)	\$10,000
Interest During Construction (4% for 1.5 years with a 1% ROI)	\$2,224,000
<b>TOTAL COST OF PROJECT</b>	<b>\$44,574,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$3,730,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$34,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$3,958,000
Pumping Energy Costs (1273838 kW-hr @ 0.09 \$/kW-hr)	\$115,000
<b>TOTAL ANNUAL COST</b>	<b>\$7,837,000</b>
<b>Available Project Yield (acft/yr), based on a Peaking Factor of 1</b>	<b>5,000</b>
<b>Annual Cost of Water (\$ per acft)</b>	<b>\$1,567</b>
<b>Annual Cost of Water (\$ per 1,000 gallons)</b>	<b>\$4.81</b>

*Implementation Issues*

No major implementation issues are expected for this strategy. Approval for additional concentrate disposal will be needed from TCEQ. Construction of the new groundwater well and piping may also include purchase of land and a TXDOT right-of-way permit. Environmental impacts are typical of BGD plants, discussed in Section 5.2.



Non-potable Reuse

*Project Source*

This strategy was recommended in the 2011 RWP.

*Description*

This direct non-potable reuse strategy is to use treated wastewater effluent for non-potable reuse. Laredo currently uses 0.7 MGD of non-potable reuse.

*Available Supply*

Because there were no specific customers or uses identified for the non-potable reuse, it was assumed that only 5% of Laredo’s 2020 demand could be met by non-potable reuse. Therefore this strategy was sized to produce 2,100 acre-ft./year.

*Engineering and Costing*

Costs for this strategy from the UCM include tertiary treatment at the WWTP, a pump station and pipeline to convey the reuse water into the city, storage, and land acquisition. It is assumed that the construction period for this strategy is one year. Table 5B-61 outlines the project requirements and cost estimate developed in UCM.

**Table 5B-61 Laredo Non-Potable Reuse Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>Laredo – South Laredo WWTP Non-Potable Reuse</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Intake Pump Stations (5.4 MGD)	\$1,242,000
Transmission Pipeline (18 in dia., 3 miles)	\$559,000
Storage Tanks (Other Than at Booster Pump Stations)	\$1,237,000
Water Treatment Plant (5.1 MGD)	\$5,153,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$8,191,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$2,839,000
Environmental & Archaeology Studies and Mitigation	\$27,000
Land Acquisition and Surveying (21 acres)	\$43,000
Interest During Construction (4% for 2 years with a 1% ROI)	\$778,000
<b>TOTAL COST OF PROJECT</b>	<b>\$11,878,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$994,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$49,000
Water Treatment Plant (2.5% of Cost of Facilities)	\$1,031,000
Pumping Energy Costs (403371 kW-hr @ 0.09 \$/kW-hr)	\$36,000
<b>TOTAL ANNUAL COST</b>	<b>\$2,110,000</b>
Available Project Yield (acft/yr), based on a Peaking Factor of 1	2,100
Annual Cost of Water (\$ per acft)	\$1,005
Annual Cost of Water (\$ per 1,000 gallons)	\$3.08

*Implementation Issues*

Approval for a reclaimed water system is needed from TCEQ. Construction of the new pipeline may also include any of the following permits: USACOE Section 404 permit, TPWD Sand, Shell, Gravel and Marl permit, TPDES Storm Water Pollution Prevention Plan, TXDOT right-of-way permit. Environmental impacts are typical of non-potable reuse projects, discussed in Section 5.2.



## **5B.3 Strategies Evaluated not Recommended**

### **5B.3.1 Cameron County**

#### **BROWNSVILLE**

##### Southmost Regional Water Authority – Wellfield Upgrade and Microfiltration Addition

###### *Project Source*

This strategy was submitted by the City of Brownsville to the Regional Planning Group.

###### *Project Description*

Upgrade the Southmost Regional Water Authority Regional Brackish Groundwater Treatment Facility by evaluating the aquifer to optimize and expand the well field's yield, constructing a microfiltration pre-treatment facility to reduce iron and arsenic levels, and adding two additional reverse osmosis trains to increase production capacity to 11 MGD from 6 MGD.

This project is has already been constructed so the Regional Planning Group has included it as an existing supply.

#### **EAST RIO HONDO WSC**

##### FM 510 to SH 100 16-Inch Transmission Pipeline

###### *Project Source*

This strategy was submitted by East Rio Hondo WSC to the Regional Planning Group.

###### *Project Description*

Allow the transfer of water from existing FM 510 Water Treatment Plant and emergency interconnect with Harlingen Waterworks to an area of the Corporation's system that is predominantly supplied by Olmito Water Supply Corporation. This will provide the area with a reliable second source of water.

This strategy is not developed enough to allow the Regional Planning Group to further evaluate it or determine the cost or any specific environmental or implementation issues.

##### Other Distribution as Needed for New Sources of Water

###### *Project Source*

This strategy was submitted by East Rio Hondo WSC to the Regional Planning Group.

###### *Project Description*

This strategy is not developed enough to allow the Regional Planning Group to further evaluate it or determine the cost or any specific environmental or implementation issues.

Interconnect with Brownsville PUB, SRWA, or RGRQA

*Project Source*

This strategy was submitted by East Rio Hondo WSC to the Regional Planning Group.

*Project Description*

ERHWSC intends to utilize distribution extensions to acquire water from a regional supplier on the south end of the distribution system.

This strategy is not developed enough to allow the Regional Planning Group to further evaluate it or determine the cost or any specific environmental or implementation issues.

Partial AMI

*Project Source*

This strategy was submitted by East Rio Hondo WSC to the Regional Planning Group.

*Project Description*

Install advanced metering infrastructure in part of the system. This strategy is not developed enough to allow the Regional Planning Group to further evaluate it or determine the cost or any specific environmental or implementation issues.

**EL JARDIN**

Acquisition of Water Rights through Urbanization

*Project Source*

This strategy was identified by the Regional Planning Group.

*Project Description*

In order to provide El Jardin with sufficient water to meet its projected needs, the Regional Water Planning Group recommends that El Jardin purchase irrigation water rights from the market supply as they become available through urbanization and convert them to municipal water rights.

*Available Supply*

It has been estimated that enough water rights will become available to meet El Jardin's projected needs once other recommended strategies are implemented.

*Environmental Issues*

No environmental issues have been identified.

*Engineering and Costing*

A unit capital cost of \$2,500 per acre-ft. has been estimated as the market value for water rights. Any costs associated with the delivery of water rates and assumed to be insignificant and are not included. Table 5B-62 shows the cost and yield projections for this strategy.



**Table 5B-62 El Jardin Acquisition of Water Rights through Urbanization Cost and Yield Projections**

Year	2020	2030	2040	2050	2060	2070
Yield (acre-ft./year)	0	0	84	258	418	563
Capital Cost	0	0	\$210,000	\$435,000	\$400,000	\$362,500

*Implementation Issues*

No implementation issues have been identified.

**INDIAN LAKE**

New Brackish Groundwater Treatment Plant

*Project Source*

This strategy was recommended in the 2011 RWP.

*Description*

This strategy is for drilling a new brackish groundwater well and constructing a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

The strategy is for Indian Lake to build a brackish desalination plant with an almost insignificant yield. Because Indian Lake is not projected to have a large need over the next 50 years and it currently receives water from the Southmost Regional Brackish Desalination Plant, it is not practical for the city to construct another desalination plant.

**LAGUNA VISTA**

New Seawater Desalination Treatment Plant

*Project Source*

This strategy was recommended in the 2011 RWP.

*Description*

This strategy is to construct a new seawater desalination water treatment plant and intake pump station. Laguna Vista is served by Laguna Madre Water District which already has a strategy for a new seawater desalination plant so it is impractical for Laguna Vista to build and additional plant.

**LOS FRESNOS**

New Brackish Groundwater Treatment Plant

*Project Source*

This strategy was recommended in the 2011 RWP.

*Description*

This strategy is for drilling a new brackish groundwater well and constructing a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

Because Los Fresnos is not projected to have a significant need for the next 50 years, it is not practical for them to build a new brackish groundwater treatment plant.

**NORTH ALAMO WSC**

Waterline Extension, Phase I and II

*Project Source*

This strategy was submitted by North Alamo WSC to the RWPG.

*Description*

This strategy is to provide additional water to residents in Weslaco, Donna, and the Alamo areas by installing new potable water lines. This strategy would hydraulically interconnect the distribution system, allowing for utilization of other water districts in time of drought for push water.

The strategy is not developed enough to allow the RWPG to further evaluate it or determine an available yield, cost, or any specific environmental or implementation issues.

1 MG Water Tower – Edinburg/Pharr

*Project Source*

This strategy was submitted by North Alamo WSC to the Regional Planning Group.

*Description*

This strategy is to provide additional water storage and increase water pressure in the Edinburg and Pharr areas. This strategy would also hydraulically interconnect the NAWSC distribution system, allowing for utilization of other water districts in time of drought for push water.

*Available Supply*

This strategy would provide 1 million gallons of storage, however it would not provide any additional supply.

*Engineering and Costing*

Table 5B-63 outlines the estimated project requirements and cost estimate.

**Table 5B-63 1 MG Water Tower Edinburg/Pharr Project Requirements and Costs**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>North Alamo WSC - Construction of 1 MG Water Tower - Edinburg/Pharr</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Storage Tanks (Other Than at Booster Pump Stations)	\$1,667,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$1,667,000</b>



<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>North Alamo WSC - Construction of 1 MG Water Tower - Edinburg/Pharr</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$583,000
Environmental & Archaeology Studies and Mitigation	\$6,000
Land Acquisition and Surveying (2 acres)	\$7,000
Interest During Construction (4% for 1 years with a 1% ROI)	\$80,000
<b>TOTAL COST OF PROJECT</b>	<b>\$2,343,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$196,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$17,000
<b>TOTAL ANNUAL COST</b>	<b>\$213,000</b>

*Implementation Issues*

As with any project, necessary state and federal permits must be obtained before construction can begin.

1 MG Water Tower – Mid Valley

*Project Source*

This strategy was submitted by North Alamo WSC to the Regional Planning Group.

*Description*

This strategy is to provide additional water storage and increase water pressure in the Mid Valley area. This strategy would also hydraulically interconnect the NAWSC distribution system, allowing for utilization of other water districts in time of drought for push water.

*Available Supply*

This strategy would provide 1 million gallons of storage, however it would provide any additional supply.

*Engineering and Costing*

Table 5B-64 outlines the estimated project requirements and cost estimate.

**Table 5B-64 1 MG Water Tower Mid-Valley Project Requirements**

<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>North Alamo WSC - Construction of 1 MG Water Tower</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Storage Tanks (Other Than at Booster Pump Stations)	\$1,667,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$1,667,000</b>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$583,000
Environmental & Archaeology Studies and Mitigation	\$6,000
Land Acquisition and Surveying (2 acres)	\$7,000
Interest During Construction (4% for 1 years with a 1% ROI)	\$80,000

*Cost Estimate Summary  
Water Supply Project Option  
North Alamo WSC - Construction of 1 MG Water Tower*

<i>Item</i>	<i>Estimated Costs for Facilities</i>
<b>TOTAL COST OF PROJECT</b>	<b>\$2,343,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$196,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$17,000
<b>TOTAL ANNUAL COST</b>	<b>\$213,000</b>

Costs for this strategy from the UCM include an elevated storage tank and land acquisition. It is assumed that the construction period for this strategy is one year.

*Implementation Issues*

As with any project, necessary state and federal permits must be obtained before construction can begin.

Plant No. 5 - 16" Waterline Expansion

*Project Source*

This strategy was submitted by North Alamo WSC to the Regional Planning Group.

*Description*

This strategy is for a 16-inch waterline expansion from Water Treatment Plant No. 5 to provide additional water to the cities of Weslaco, Donna, and Alamo as well as other surrounding areas. This strategy would also hydraulically interconnect the NAWSC distribution system, allowing for utilization of other water districts in time of drought for push water.

*Available Supply*

This strategy would not provide any additional supply, therefore it is not recommended.

*Engineering and Costing*

Costs for this strategy from the UCM include a pump station and pipeline. It is assumed that the construction period for this strategy is one year.

Table 5B-65 outlines the estimated project requirements and cost estimate from UCM. The location and length of the pipeline was assumed based on the submitted description of the project.

**Table 5B-65 NAWSC Plant 5 Waterline Expansion Project Requirements**

*Cost Estimate Summary  
Water Supply Project Option  
North Alamo Water Supply Corporation - Plant No. 5 - 16" Waterline Expansion*

<i>Item</i>	<i>Estimated Costs for Facilities</i>
<b>CAPITAL COST</b>	
Intake Pump Stations (4.2 MGD)	\$2,066,000
Transmission Pipeline (16 in dia., 4 miles)	\$2,242,000
<b>TOTAL COST OF FACILITIES</b>	<b>\$4,308,000</b>



<i>Cost Estimate Summary</i>	
<i>Water Supply Project Option</i>	
<i>North Alamo Water Supply Corporation - Plant No. 5 - 16" Waterline Expansion</i>	
<i>Item</i>	<i>Estimated Costs for Facilities</i>
Engineering and Feasibility Studies, Legal Assistance, Financing, Bond Counsel, and Contingencies (30% for pipes & 35% for all other facilities)	\$1,396,000
Environmental & Archaeology Studies and Mitigation	\$104,000
Interest During Construction (4% for 1 years with a 1% ROI)	\$204,000
<b>TOTAL COST OF PROJECT</b>	<b>\$6,012,000</b>
<b>ANNUAL COST</b>	
Debt Service (5.5 percent, 20 years)	\$503,000
Operation and Maintenance	
Intake, Pipeline, Pump Station (1% of Cost of Facilities)	\$74,000
Pumping Energy Costs (1095255 kW-hr @ 0.09 \$/kW-hr)	\$99,000
<b>TOTAL ANNUAL COST</b>	<b>\$676,000</b>

*Implementation Issues*

No major implementation issues are anticipated for this strategy. The waterline would be installed within existing easements and right-of-ways. As with any project, necessary state and federal permits must be obtained before construction can begin.

**CITY OF RIO HONDO**

Water Loss Audit, Pipe and Meter Replacement

*Project Source*

This strategy was submitted by Rio Hondo to the RWPG.

*Description*

This strategy is to conduct a water audit and large-scale pipeline and meter replacement program. The information submitted to the RWPG was not sufficient to evaluate or determine an available yield, cost, or any specific environmental or implementation issues.

### 5B.3.2 Hidalgo County

#### ALAMO

##### Potable Water Reservoir

###### *Project Source*

This strategy was submitted by the City of Alamo to the RWPG.

###### *Description*

This strategy is for the construction of a second water reservoir in the City of Alamo. Neither the size of the reservoir nor the firm yield according to WAM Run 3 was provided. This strategy does not produce any additional water, therefore it is not recommended.

Table 5B-66 outlines the estimated project requirements used to develop the cost estimate.

**Table 5B-66 Alamo Potable Water Reservoir Project Requirements**

<b>Facility</b>	<b>Description</b>
Available Project Yield	0
Pump Station	21 HP
Land Acquisition	5 Acres
Pipeline	12-inch; 59,500 LF
Pipeline Right-of-Way	137 Acres

#### DONNA

##### Expand Existing Groundwater Supply

###### *Project Source*

This strategy was recommended in the 2011 RWP.

###### *Description*

This strategy is to provide additional supply to Donna with the installation of additional groundwater wells, however the city does not currently have any groundwater wells. This strategy is not recommended by the RWPG.

#### ELSA

##### Distribution System Improvements

###### *Project Source*

This strategy was submitted by the City of Elsa to the RWPG.



*Description*

This strategy is to provide the City of Elsa with improvements to its water distribution system by replacing deteriorated pipelines, fire hydrants, water meters, and valves that will eliminate water loss as well as improve efficiency of the system, conserving water and energy.

The City of Elsa's distribution system includes 26 miles of 2-inch to 12-inch water mains with valves and fire hydrants. It is unknown at this time what length and size of deteriorated pipeline needs to be replaced.

The strategy does not have a quantifiable amount of water that would be saved, therefore it is not recommended.

**LA JOYA**

New Brackish Groundwater Treatment Plant

*Project Source*

This strategy was recommended in the 2011 RWP.

*Description*

This strategy is for drilling a new brackish groundwater well and constructing a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

Because La Joya is not projected to have a significant need for the next 50 years, it is not practical for them to build a new brackish groundwater treatment plant.

**MCALLEN**

Geowater

*Project Source*

This strategy was submitted by the City of McAllen to the RWPG.

*Description*

This strategy is for the potential utilization of deep Geo Pressure/Geo Thermal (GP/GT) waters, both as a source of heat for the desalination of shallow brackish waters that underlie much of Hidalgo County, as well as for the resources that they contain. These resources include: dissolved natural gas entrained within the water, pressure that can be harnessed for electrical power production, heat that can be utilized for electrical power production and, considerable quantities of water that could constitute an alternate and independent water supply.

"Produced" water that is a byproduct of the oil and gas industry is currently considered a liability. While desalination processes have advanced such that this water can be usable for drinking water, the process requires energy. Rather than purchasing electricity from the power grid to run the desalination process, it is proposed to utilize the naturally high temperatures and pressures inherent under the Texas Gulf coast region, including Hidalgo, Willacy and Cameron Counties, as a renewable energy source to power the desalination and pumping activities. In

addition, any natural gas entrained in the produced water could be used for power generation purposes.

The strategy is not developed enough to allow the RWPG to further evaluate it or determine an available yield, cost, or any specific environmental or implementation issues.

## **MISSION**

### Use of Treated Sewer Effluent to Irrigate City Parks

#### *Project Source*

This strategy was submitted by the City of Mission to the RWPG.

#### *Description*

This strategy is for the City of Mission to use treated sewer effluent to irrigate the Bentsen City Park and public Shary Golf Course. Half of the wastewater treatment plant effluent would be diverted and pumped to the park and golf course for irrigation.

#### *Available Supply*

The wastewater treatment plant currently discharges approximately 7 MGD into a drainage district canal and the City estimates that 3.5 MGD of effluent could be used for irrigation.

The amount of water required to irrigate Bentsen City Park and Shary Golf Course was estimated using an equation for turf water requirement. The potential evaporation, turf coefficient, and quality factor that went into the water requirement equation were obtained from the Texas A&M AgriLife website. Areas of the park and golf course were estimated using Google Earth Pro. From this analysis it was determined that the total water requirement to irrigate both the park and golf course is 0.19 MGD, or 215 acre-ft./year. Although 3.5 MGD is available for use, the actual amount of water that would be saved from the potable water demand is much lower and therefore this plan is not practical.

Because only 0.19 MGD can be used for this strategy, the RWPG recommends using all of the available wastewater effluent for potable reuse. Therefore, this strategy is not recommended.

## **PHARR**

### Expand Existing Groundwater Supply

#### *Project Source*

This strategy was recommended in the 2011 RWP.

#### *Description*

This strategy is to provide additional supply to Pharr with the installation of additional groundwater wells, however the city does not currently have any groundwater wells.



## SAN JUAN

### Raw Water Reservoir Improvements

#### *Project Source*

This strategy was submitted by the City of San Juan to the RWPG.

#### *Description*

The existing raw water reservoir synthetic liner has failed and the mixture of ground and surface waters has made water treatment at the Water Treatment Plant No. 2 very difficult. Due to the failure of the liner, the City has had to dump untreatable raw waters into the adjacent ditch. More information needed to determine if the reservoir liner can be fixed or if the entire reservoir needs to be reconstructed.

The strategy is not developed enough to allow the RWPG to further evaluate it or determine an available yield, cost, or any specific environmental or implementation issues. Because no quantifiable yield could be determined, this strategy is not recommended.

## SHARYLAND WSC

### Sharyland Reservoir at Water Treatment Plant No. 1

#### *Project Source*

This strategy was submitted by Sharyland WSC to the RWPG.

#### *Description*

This strategy is for the construction of a new reservoir concurrent with the expansion of the Corporation's WTP No. 1.

#### *Available Supply*

The reservoir would store 10 million gallons of raw water, however the firm yield according to WAM Run 3 was not provided so no additional supply is taken into account as part of this strategy. Because no quantifiable yield could be determined, this strategy is not recommended.

## WESLACO

### Expand Use of Existing Supplies

#### *Project Source*

This strategy was submitted by the City of Weslaco to the RWPG.

#### *Description*

This strategy is for the expansion of the City's reservoir to provide additional water storage for emergency situations. The City's water treatment plant is currently being expanded and will need additional storage to account for the plant's increased capacity. Utilizing space next to the WTP for additional reservoir storage will also alleviate the need for constructing another water treatment plant.

The strategy is not developed enough to allow the RWPG to determine an available yield, cost, or any specific environmental or implementation issues. Because no quantifiable yield could be determined, this strategy is not recommended.

#### Water Conservation Practices

##### *Project Source*

This strategy was submitted by the City of Weslaco to the RWPG.

##### *Description*

This strategy involves the use of Advanced Metering Infrastructure (AMI). The City of Weslaco has many existing old mechanical water meters on residential accounts. Current testing from personnel has determined that these water meters are running approximately 12% slow on average. This strategy will replace the existing meters with new meters, significantly reducing consumption and conserving water.

The strategy is not developed enough to allow the RWPG to further evaluate it or determine an available yield, cost, or any specific environmental or implementation issues. Because no quantifiable yield could be determined, this strategy is not recommended individually, however meter replacement is a component of Advanced Municipal Conservation which is recommended for Weslaco.

#### Emergency Transfers of Surface Water or Interconnects Between Systems

##### *Project Source*

This strategy was submitted by the City of Weslaco to the Regional Planning Group.

##### *Description*

This strategy is to provide relief and possibly treatment assistance to City water infrastructure by interconnecting with an adjacent system in the northwest portion of the City. The City of Weslaco has an adjacent system with three entities, including the City of Mercedes, North Alamo WSC and Military Highway WSC. This strategy would physically connect the City of Weslaco and North Alamo WSC systems.

Because this strategy would only transfer water to Weslaco in emergencies, it cannot be considered as providing a reliable supply and therefore is not recommended.



### **5B.3.3 Starr County**

#### **LA GRULLA**

##### Expand Existing Groundwater Supply

###### *Project Source*

This strategy was recommended in the 2011 RWP.

###### *Description*

This strategy is to provide additional supply to La Grulla with the installation of additional groundwater wells, however the city does not currently have any groundwater wells.

#### **RIO GRANDE CITY**

##### Expand Existing Groundwater Supply

###### *Project Source*

This strategy was recommended in the 2011 RWP.

###### *Description*

This strategy is to provide additional supply to the City of Rio Grande City with the installation of additional groundwater wells, however the city does not currently have any groundwater wells.

##### Non-potable Reuse

###### *Project Source*

This strategy was recommended in the 2011 RWP.

###### *Description*

This strategy is to use treated wastewater effluent for non-potable reuse. The strategy does not provide enough detail to determine feasibility or whether or not there are potential customers to reduce the potable water demand.

### **5B.3.4 Webb County**

#### **LAREDO**

##### Low Water Weir

###### *Project Source*

This strategy was recommended in the 2011 RWP.

###### *Description*

This strategy consists of a weir structure across the channel of the Rio Grande approximately 200 feet downstream of the existing La Bota site. Under normal operating conditions, the reservoir created by the proposed weir will have a maximum surface area of 4,956 acres and store approximately 66,007 acre-ft. of water.

The proposed weir would create higher water elevations for the Rio Grande River downstream as well as help Nuevo Laredo and City of Laredo future water treatment plants upstream of the weir. The production and sale of hydropower is also another component of the project and will help supply the new water treatment plants and the cities power.

###### *Available Supply*

The strategy would be used as flood control and would not provide any additional supply. Because no quantifiable yield could be determined, this strategy is not recommended.

###### *Environmental Issues*

Potential environmental issues include impacts on water quality (i.e., increased salinity) within and downstream of the reservoir; impacts to aquatic and riparian habitat as a result of changes in downstream flow; potential impacts to habitat from reservoir construction and inundation; and increased risk of flooding.

###### *Engineering and Costing*

The estimated capital cost for the weir project is \$316,649,004 with an annual cost of \$220,493.

###### *Implementation Issues*

Due to the construction of the weir across the United States – Mexico Border, collaboration among multiples agencies would be required to obtain the necessary permits and permissions. Project stakeholders would need to consult with relevant federal, state, and local agencies, and invite public comment to assure the project would comply with all pertinent federal, state and local requirements.

##### Expand Existing Groundwater Supply

###### *Project Source*

This strategy was recommended in the 2011 Regional Water Plan and updated by the Regional Water Planning Group.



*Description*

This strategy is to provide additional supply to Laredo with the installation of additional fresh groundwater wells. Laredo has multiple other recommended and alternative WMS and because this strategy provides a small yield, not until 2070, it is not recommended.

*Available Yield*

The proposed groundwater wells would provide 1,120 acre-ft./year in 2070.

*Engineering and Costing*

Costs for this strategy from the Unified Costing Model include groundwater well pumping, well field piping, land acquisition, and water disinfection. It is assumed that the construction period for this strategy is one and a half years.

Table 5B-67 outlines the estimated project requirements for each phase used to develop the cost estimate. The total costs for this option are presented in Table 5B-68.

**Table 5B-67 Laredo Expand Existing Groundwater Wells Project Requirements**

Facility	Description
Available Project Yield	1.0 MGD
No. of Wells	1
Well Pump	694 GPM
Well Field Piping	8-inch; 1,000 LF
Land Acquisition	0.9 Acres
Water Treatment	Level 0

**Table 5B-68 Laredo Expand Existing Groundwater Wells Cost and Yield Projections**

Year	2020	2030	2040	2050	2060	2070
Yield (acre-ft./year)	0	0	0	0	0	1,120
Capital Cost	0	0	0	0	0	\$1,210,000
O&M Cost	0	0	0	0	0	\$59,000
Total Annual Cost	0	0	0	0	0	\$160,000
Unit Cost (\$/acre-ft.)	0	0	0	0	0	\$143

*Implementation Issues*

No major implementation issues are expected for this strategy. Construction of the new groundwater well and piping may also include a TCEQ well drilling permit, purchase of land and a TXDOT right-of-way permit.

### **5B.3.5 Willacy County**

#### **WILLACY COUNTY**

##### Regional Brackish Groundwater Desalination

###### *Description*

This strategy is to develop projects utilizing desalination technology for brackish groundwater. Willacy County is currently in the planning phase of analyzing its water needs to determine proposed desalination projects. This strategy is not developed enough to determine a yield that it would produce or any associated costs.

##### Regional Seawater Desalination

###### *Description*

This strategy is to develop projects utilizing desalination technology for seawater. Willacy County is currently in the planning phase of analyzing its water needs to determine proposed desalination projects. This strategy is not developed enough to determine a yield that it would produce or any associated costs.

#### **RAYMONDVILLE**

##### New Brackish Water Treatment Plant

###### *Project Source*

This strategy was recommended in the 2011 Regional Water Plan and updated by the Regional Water Planning Group.

###### *Project Description*

This strategy is for drilling a new brackish groundwater well and constructing a new 2.0 MGD reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

This project is currently under construction, therefore it is included as a supply instead of a WMS.

###### *Available Supply*

This project will supply Raymondville with 2,240 acre-ft./year of water.

#### **SAN PERLITA**

##### New Brackish Groundwater Treatment Plant

###### *Project Source*

This strategy was recommended in the 2011 RWP.



*Description*

This strategy is for drilling a new brackish groundwater well and constructing a new reverse osmosis water treatment plant to treat the brackish water to potable drinking water standards.

Based on preliminary needs estimate for the 2011 RWP for San Perlita, the new brackish groundwater plant was sized for 100 acre-ft./year. However, after conservation WMS and supplies from other entity WMS, San Perlita does not have a need for this project so it is not recommended by the RWPG.





# Texas Water Development Board



## 2016 Region M Water Plan Appendix B: DB17 Reports







### Water User Group (WUG) Population

REGION M	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
<b>CAMERON COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
BROWNSVILLE	208,877	248,561	288,827	332,192	376,801	422,520
COMBES	3,414	3,989	4,571	5,199	5,845	6,507
EAST RIO HONDO WSC	27,435	32,052	36,736	41,782	46,971	52,291
EL JARDIN WSC	14,670	17,139	19,643	22,342	25,116	27,961
HARLINGEN	76,464	89,334	102,390	116,452	130,916	145,742
INDIAN LAKE	755	882	1,011	1,150	1,293	1,439
LA FERIA	8,610	10,059	11,530	13,113	14,742	16,411
LAGUNA VISTA	3,676	4,294	4,922	5,598	6,293	7,006
LOS FRESNOS	6,535	7,635	8,751	9,952	11,189	12,456
LOS INDIOS	1,277	1,492	1,710	1,945	2,187	2,434
MILITARY HIGHWAY WSC	19,345	22,601	25,904	29,461	33,120	36,871
NORTH ALAMO WSC	482	563	645	733	824	917
OLMITO WSC	3,963	4,630	5,307	6,036	6,786	7,554
PALM VALLEY	1,538	1,797	2,059	2,342	2,633	2,931
PORT ISABEL	5,903	6,897	7,904	8,990	10,107	11,251
PRIMERA	4,799	5,607	6,427	7,309	8,217	9,147
RANCHO VIEJO	2,874	3,358	3,848	4,377	4,920	5,477
RIO HONDO	2,778	3,246	3,720	4,231	4,757	5,295
SAN BENITO	28,594	33,406	38,289	43,547	48,956	54,500
SANTA ROSA	3,388	3,958	4,537	5,160	5,800	6,457
SOUTH PADRE ISLAND	3,321	3,880	4,447	5,057	5,685	6,329
COUNTY-OTHER	47,306	50,743	54,221	57,969	61,825	65,784
<b>NUECES-RIO GRANDE BASIN TOTAL POPULATION</b>	<b>476,004</b>	<b>556,123</b>	<b>637,399</b>	<b>724,937</b>	<b>814,983</b>	<b>907,280</b>
<b>RIO GRANDE BASIN</b>						
BROWNSVILLE	2,323	2,727	3,128	3,563	4,008	4,470
EL JARDIN WSC	429	501	575	653	735	818
MILITARY HIGHWAY WSC	117	136	156	178	200	223
COUNTY-OTHER	101	106	118	130	142	150
<b>RIO GRANDE BASIN TOTAL POPULATION</b>	<b>2,970</b>	<b>3,470</b>	<b>3,977</b>	<b>4,524</b>	<b>5,085</b>	<b>5,661</b>
<b>CAMERON COUNTY TOTAL POPULATION</b>	<b>478,974</b>	<b>559,593</b>	<b>641,376</b>	<b>729,461</b>	<b>820,068</b>	<b>912,941</b>
<b>HIDALGO COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
AGUA SUD	46,082	57,220	68,403	79,609	90,814	101,708
ALAMO	23,259	28,881	34,525	40,181	45,837	51,335
ALTON	15,640	19,420	23,215	27,019	30,822	34,519
DONNA	20,021	24,860	29,719	34,587	39,456	44,189
EDCOUCH	4,006	4,974	5,946	6,920	7,894	8,841
EDINBURG	97,711	121,329	145,041	168,800	192,560	215,659
ELSA	7,173	8,906	10,647	12,391	14,136	15,831
HIDALGO	14,063	17,462	20,875	24,295	27,715	31,040

### Water User Group (WUG) Population

REGION M	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
<b>HIDALGO COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
HIDALGO COUNTY MUD #1	6,858	8,516	10,181	11,848	13,516	15,138
LA JOYA	3,995	4,960	5,929	6,901	7,872	8,816
LA VILLA	2,480	3,079	3,681	4,284	4,887	5,474
MCALLEN	164,597	204,382	244,325	284,348	324,372	363,284
MERCEDES	19,732	24,501	29,290	34,088	38,886	43,551
MILITARY HIGHWAY WSC	11,741	14,579	17,428	20,284	23,138	25,915
MISSION	97,605	121,197	144,883	168,616	192,350	215,424
NORTH ALAMO WSC	148,138	183,945	219,894	255,915	291,937	326,957
PALMHURST	3,303	4,102	4,904	5,707	6,511	7,292
PALMVIEW	6,919	8,592	10,271	11,953	13,636	15,272
PENITAS	5,580	6,928	8,282	9,639	10,996	12,315
PHARR	89,197	110,757	132,403	154,092	175,781	196,868
PROGRESO	6,979	8,666	10,359	12,056	13,753	15,403
SAN JUAN	42,906	53,277	63,690	74,123	84,556	94,699
SHARYLAND WSC	45,075	55,970	66,908	77,869	88,829	99,485
WESLACO	45,205	56,132	67,102	78,094	89,087	99,773
COUNTY-OTHER	39,795	49,417	59,072	68,746	78,420	87,825
<b>NUECES-RIO GRANDE BASIN TOTAL POPULATION</b>	<b>968,060</b>	<b>1,202,052</b>	<b>1,436,973</b>	<b>1,672,365</b>	<b>1,907,761</b>	<b>2,136,613</b>
<b>RIO GRANDE BASIN</b>						
AGUA SUD	6,047	7,509	8,976	10,446	11,917	13,346
HIDALGO	128	159	190	221	252	282
LA JOYA	1,055	1,311	1,567	1,823	2,080	2,330
MILITARY HIGHWAY WSC	401	498	595	692	790	884
MISSION	53	66	79	92	105	117
PHARR	23	28	34	39	45	50
SULLIVAN CITY	5,071	6,297	7,528	8,761	9,995	11,194
COUNTY-OTHER	1,052	1,305	1,560	1,818	2,070	2,321
<b>RIO GRANDE BASIN TOTAL POPULATION</b>	<b>13,830</b>	<b>17,173</b>	<b>20,529</b>	<b>23,892</b>	<b>27,254</b>	<b>30,524</b>
<b>HIDALGO COUNTY TOTAL POPULATION</b>	<b>981,890</b>	<b>1,219,225</b>	<b>1,457,502</b>	<b>1,696,257</b>	<b>1,935,015</b>	<b>2,167,137</b>
<b>JIM HOGG COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
HEBBRONVILLE	5,034	5,467	5,840	6,256	6,617	6,951
COUNTY-OTHER	781	848	906	971	1,027	1,079
<b>NUECES-RIO GRANDE BASIN TOTAL POPULATION</b>	<b>5,815</b>	<b>6,315</b>	<b>6,746</b>	<b>7,227</b>	<b>7,644</b>	<b>8,030</b>
<b>RIO GRANDE BASIN</b>						
COUNTY-OTHER	38	41	44	47	50	52
<b>RIO GRANDE BASIN TOTAL POPULATION</b>	<b>38</b>	<b>41</b>	<b>44</b>	<b>47</b>	<b>50</b>	<b>52</b>
<b>JIM HOGG COUNTY TOTAL POPULATION</b>	<b>5,853</b>	<b>6,356</b>	<b>6,790</b>	<b>7,274</b>	<b>7,694</b>	<b>8,082</b>



### Water User Group (WUG) Population

REGION M	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
<b>MAVERICK COUNTY</b>						
<b>NUECES BASIN</b>						
COUNTY-OTHER	49	57	63	70	77	84
<b>NUECES BASIN TOTAL POPULATION</b>	<b>49</b>	<b>57</b>	<b>63</b>	<b>70</b>	<b>77</b>	<b>84</b>
<b>RIO GRANDE BASIN</b>						
EAGLE PASS	31,124	36,294	41,116	46,108	50,893	55,488
COUNTY-OTHER	31,934	36,140	40,064	44,126	48,018	51,755
<b>RIO GRANDE BASIN TOTAL POPULATION</b>	<b>63,058</b>	<b>72,434</b>	<b>81,180</b>	<b>90,234</b>	<b>98,911</b>	<b>107,243</b>
<b>MAVERICK COUNTY TOTAL POPULATION</b>	<b>63,107</b>	<b>72,491</b>	<b>81,243</b>	<b>90,304</b>	<b>98,988</b>	<b>107,327</b>
<b>STARR COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
COUNTY-OTHER	1,219	1,378	1,525	1,671	1,802	1,920
<b>NUECES-RIO GRANDE BASIN TOTAL POPULATION</b>	<b>1,219</b>	<b>1,378</b>	<b>1,525</b>	<b>1,671</b>	<b>1,802</b>	<b>1,920</b>
<b>RIO GRANDE BASIN</b>						
AGUA SUD	295	334	370	405	437	465
ESCOBARES	1,380	1,561	1,728	1,893	2,040	2,174
LA GRULLA	1,884	2,131	2,359	2,584	2,786	2,968
RIO GRANDE CITY	16,066	18,172	20,112	22,035	23,755	25,313
RIO WSC	3,831	4,333	4,795	5,253	5,663	6,035
ROMA	11,341	12,827	14,196	15,554	16,768	17,868
UNION WSC	7,375	8,342	9,232	10,114	10,904	11,619
COUNTY-OTHER	27,412	31,007	34,316	37,598	40,532	43,193
<b>RIO GRANDE BASIN TOTAL POPULATION</b>	<b>69,584</b>	<b>78,707</b>	<b>87,108</b>	<b>95,436</b>	<b>102,885</b>	<b>109,635</b>
<b>STARR COUNTY TOTAL POPULATION</b>	<b>70,803</b>	<b>80,085</b>	<b>88,633</b>	<b>97,107</b>	<b>104,687</b>	<b>111,555</b>
<b>WEBB COUNTY</b>						
<b>NUECES BASIN</b>						
COUNTY-OTHER	1,621	2,005	2,370	2,704	3,018	3,300
<b>NUECES BASIN TOTAL POPULATION</b>	<b>1,621</b>	<b>2,005</b>	<b>2,370</b>	<b>2,704</b>	<b>3,018</b>	<b>3,300</b>
<b>NUECES-RIO GRANDE BASIN</b>						
COUNTY-OTHER	1,033	1,277	1,510	1,721	1,922	2,103
<b>NUECES-RIO GRANDE BASIN TOTAL POPULATION</b>	<b>1,033</b>	<b>1,277</b>	<b>1,510</b>	<b>1,721</b>	<b>1,922</b>	<b>2,103</b>
<b>RIO GRANDE BASIN</b>						
EL CENIZO	4,158	5,142	6,079	6,934	7,740	8,465
LAREDO	299,969	370,952	438,558	500,216	558,332	610,669
RIO BRAVO	6,091	7,532	8,905	10,157	11,337	12,400
COUNTY-OTHER	5,156	6,376	7,538	8,598	9,596	10,496
<b>RIO GRANDE BASIN TOTAL POPULATION</b>	<b>315,374</b>	<b>390,002</b>	<b>461,080</b>	<b>525,905</b>	<b>587,005</b>	<b>642,030</b>
<b>WEBB COUNTY TOTAL POPULATION</b>	<b>318,028</b>	<b>393,284</b>	<b>464,960</b>	<b>530,330</b>	<b>591,945</b>	<b>647,433</b>
<b>WILLACY COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
EAST RIO HONDO WSC	36	40	45	49	54	58

### Water User Group (WUG) Population

REGION M	WUG POPULATION					
	2020	2030	2040	2050	2060	2070
<b>WILLACY COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
LYFORD	2,981	3,360	3,723	4,110	4,485	4,851
NORTH ALAMO WSC	6,088	6,862	7,604	8,395	9,159	9,908
RAYMONDVILLE	12,880	14,519	16,089	17,762	19,379	20,964
SAN PERLITA	655	738	817	902	985	1,065
SEBASTIAN MUD	2,094	2,360	2,615	2,887	3,150	3,408
COUNTY-OTHER	530	600	666	735	800	867
<b>NUECES-RIO GRANDE BASIN TOTAL POPULATION</b>	<b>25,264</b>	<b>28,479</b>	<b>31,559</b>	<b>34,840</b>	<b>38,012</b>	<b>41,121</b>
<b>WILLACY COUNTY TOTAL POPULATION</b>	<b>25,264</b>	<b>28,479</b>	<b>31,559</b>	<b>34,840</b>	<b>38,012</b>	<b>41,121</b>
<b>ZAPATA COUNTY</b>						
<b>RIO GRANDE BASIN</b>						
SAN YGNACIO MUD	1,002	1,174	1,363	1,571	1,786	2,010
ZAPATA COUNTY WATERWORKS	13,032	15,273	17,726	20,428	23,228	26,145
COUNTY-OTHER	2,785	3,262	3,787	4,366	4,962	5,587
<b>RIO GRANDE BASIN TOTAL POPULATION</b>	<b>16,819</b>	<b>19,709</b>	<b>22,876</b>	<b>26,365</b>	<b>29,976</b>	<b>33,742</b>
<b>ZAPATA COUNTY TOTAL POPULATION</b>	<b>16,819</b>	<b>19,709</b>	<b>22,876</b>	<b>26,365</b>	<b>29,976</b>	<b>33,742</b>
<b>REGION M TOTAL POPULATION</b>						
	<b>1,960,738</b>	<b>2,379,222</b>	<b>2,794,939</b>	<b>3,211,938</b>	<b>3,626,385</b>	<b>4,029,338</b>



### Water User Group (WUG) Demand

REGION M	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
<b>CAMERON COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
BROWNSVILLE	35,695	41,458	47,471	54,215	61,387	68,792
COMBES	322	358	397	445	498	554
EAST RIO HONDO WSC	3,820	4,366	4,941	5,582	6,261	6,965
EL JARDIN WSC	1,655	1,876	2,110	2,377	2,666	2,965
HARLINGEN	13,546	15,429	17,400	19,636	22,035	24,516
INDIAN LAKE	51	60	68	78	87	97
LA FERIA	1,126	1,274	1,432	1,613	1,809	2,012
LAGUNA VISTA	2,435	2,831	3,236	3,676	4,130	4,597
LOS FRESNOS	440	514	589	669	752	838
LOS INDIOS	144	161	179	201	226	251
MILITARY HIGHWAY WSC	2,932	3,343	3,779	4,268	4,789	5,327
NORTH ALAMO WSC	79	90	102	115	129	144
OLMITO WSC	732	835	941	1,063	1,192	1,327
PALM VALLEY	285	324	365	411	462	514
PORT ISABEL	1,327	1,517	1,714	1,936	2,174	2,419
PRIMERA	422	472	526	590	661	735
RANCHO VIEJO	835	965	1,099	1,246	1,399	1,557
RIO HONDO	204	224	251	285	320	356
SAN BENITO	3,607	4,053	4,529	5,088	5,705	6,346
SANTA ROSA	295	325	358	400	448	498
SOUTH PADRE ISLAND	3,228	3,755	4,292	4,875	5,478	6,098
COUNTY-OTHER	7,732	8,083	8,475	8,971	9,547	10,153
MANUFACTURING	4,708	5,111	5,510	5,856	6,324	6,829
MINING	264	277	191	126	61	28
STEAM ELECTRIC POWER	1,523	1,780	2,094	2,477	2,944	3,428
LIVESTOCK	315	315	315	315	315	315
IRRIGATION	334,604	319,102	303,265	287,191	271,285	271,285
<b>NUECES-RIO GRANDE BASIN TOTAL DEMAND</b>	<b>422,326</b>	<b>418,898</b>	<b>415,629</b>	<b>413,705</b>	<b>413,084</b>	<b>428,946</b>
<b>RIO GRANDE BASIN</b>						
BROWNSVILLE	397	455	515	582	653	728
EL JARDIN WSC	49	55	62	70	78	87
MILITARY HIGHWAY WSC	18	21	23	26	29	33
COUNTY-OTHER	17	17	19	21	22	23
LIVESTOCK	19	19	19	19	19	19
IRRIGATION	21,358	20,368	19,357	18,331	17,316	17,316
<b>RIO GRANDE BASIN TOTAL DEMAND</b>	<b>21,858</b>	<b>20,935</b>	<b>19,995</b>	<b>19,049</b>	<b>18,117</b>	<b>18,206</b>
<b>CAMERON COUNTY TOTAL DEMAND</b>	<b>444,184</b>	<b>439,833</b>	<b>435,624</b>	<b>432,754</b>	<b>431,201</b>	<b>447,152</b>
<b>HIDALGO COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
AGUA SUD	4,941	5,954	7,005	8,090	9,206	10,300
ALAMO	3,231	3,909	4,607	5,326	6,064	6,787
ALTON	2,071	2,524	2,990	3,464	3,943	4,413
DONNA	2,610	3,126	3,660	4,219	4,802	5,375
EDCOUCH	358	419	484	554	630	705
EDINBURG	13,113	15,899	18,772	21,714	24,721	27,667
ELSA	811	963	1,121	1,289	1,466	1,641

### Water User Group (WUG) Demand

REGION M	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
<b>HIDALGO COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
HIDALGO	1,842	2,233	2,637	3,051	3,473	3,887
HIDALGO COUNTY MUD #1	570	682	801	923	1,049	1,174
LA JOYA	515	619	726	838	954	1,068
LA VILLA	275	328	385	443	504	564
MCALLEN	38,728	47,219	55,875	64,722	73,748	82,563
MERCEDDES	2,223	2,648	3,091	3,558	4,049	4,531
MILITARY HIGHWAY WSC	1,780	2,157	2,542	2,938	3,345	3,745
MISSION	20,201	24,690	29,274	33,935	38,662	43,281
NORTH ALAMO WSC	24,015	29,240	34,598	40,064	45,625	51,069
PALMHURST	932	1,149	1,369	1,591	1,813	2,030
PALMVIEW	743	897	1,056	1,220	1,388	1,554
PENITAS	603	732	865	1,001	1,139	1,275
PHARR	9,920	11,929	14,017	16,178	18,410	20,601
PROGRESO	722	868	1,020	1,177	1,339	1,498
SAN JUAN	6,152	7,448	8,782	10,154	11,561	12,940
SHARYLAND WSC	8,026	9,722	11,460	13,252	15,094	16,896
WESLACO	7,873	9,551	11,271	13,040	14,852	16,625
COUNTY-OTHER	4,824	5,918	7,045	8,176	9,307	10,415
MANUFACTURING	5,461	5,909	6,357	6,756	7,276	7,836
MINING	2,636	3,356	3,892	4,467	5,128	5,964
STEAM ELECTRIC POWER	14,151	16,545	19,462	23,018	27,354	32,507
LIVESTOCK	754	754	754	754	754	754
IRRIGATION	614,089	585,364	554,359	519,165	482,460	482,460
<b>NUECES-RIO GRANDE BASIN TOTAL DEMAND</b>	<b>794,170</b>	<b>802,752</b>	<b>810,277</b>	<b>815,077</b>	<b>820,116</b>	<b>862,125</b>
<b>RIO GRANDE BASIN</b>						
AGUA SUD	649	782	920	1,062	1,208	1,352
HIDALGO	17	21	25	28	32	36
LA JOYA	137	164	193	222	253	283
MILITARY HIGHWAY WSC	61	74	87	101	115	128
MISSION	11	14	16	19	22	24
PHARR	3	4	4	5	5	6
SULLIVAN CITY	544	647	755	869	989	1,107
COUNTY-OTHER	128	157	187	217	246	276
MINING	208	264	306	352	404	470
LIVESTOCK	76	76	76	76	76	76
IRRIGATION	25,587	24,390	23,098	21,632	20,103	20,103
<b>RIO GRANDE BASIN TOTAL DEMAND</b>	<b>27,421</b>	<b>26,593</b>	<b>25,667</b>	<b>24,583</b>	<b>23,453</b>	<b>23,861</b>
<b>HIDALGO COUNTY TOTAL DEMAND</b>	<b>821,591</b>	<b>829,345</b>	<b>835,944</b>	<b>839,660</b>	<b>843,569</b>	<b>885,986</b>
<b>JIM HOGG COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
HEBBRONVILLE	592	616	638	673	709	745
COUNTY-OTHER	95	99	103	108	114	120
MINING	84	87	65	48	31	20
LIVESTOCK	327	327	327	327	327	327
IRRIGATION	351	330	318	331	361	361
<b>NUECES-RIO GRANDE BASIN TOTAL DEMAND</b>	<b>1,449</b>	<b>1,459</b>	<b>1,451</b>	<b>1,487</b>	<b>1,542</b>	<b>1,573</b>



### Water User Group (WUG) Demand

REGION M	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
<b>JIM HOGG COUNTY</b>						
<b>RIO GRANDE BASIN</b>						
COUNTY-OTHER	5	5	5	6	6	6
MINING	9	10	7	5	3	2
LIVESTOCK	109	109	109	109	109	109
IRRIGATION	88	83	80	83	90	90
<b>RIO GRANDE BASIN TOTAL DEMAND</b>	<b>211</b>	<b>207</b>	<b>201</b>	<b>203</b>	<b>208</b>	<b>207</b>
<b>JIM HOGG COUNTY TOTAL DEMAND</b>	<b>1,660</b>	<b>1,666</b>	<b>1,652</b>	<b>1,690</b>	<b>1,750</b>	<b>1,780</b>
<b>MAVERICK COUNTY</b>						
<b>NUECES BASIN</b>						
COUNTY-OTHER	7	8	9	9	10	11
MINING	398	547	587	460	335	243
LIVESTOCK	125	125	125	125	125	125
IRRIGATION	61	59	58	57	56	56
<b>NUECES BASIN TOTAL DEMAND</b>	<b>591</b>	<b>739</b>	<b>779</b>	<b>651</b>	<b>526</b>	<b>435</b>
<b>RIO GRANDE BASIN</b>						
EAGLE PASS	6,004	6,841	7,639	8,506	9,374	10,215
COUNTY-OTHER	4,262	4,689	5,104	5,570	6,046	6,512
MANUFACTURING	93	98	103	107	114	121
MINING	1,590	2,190	2,346	1,842	1,339	974
LIVESTOCK	374	374	374	374	374	374
IRRIGATION	52,932	51,827	50,845	49,894	49,020	49,020
<b>RIO GRANDE BASIN TOTAL DEMAND</b>	<b>65,255</b>	<b>66,019</b>	<b>66,411</b>	<b>66,293</b>	<b>66,267</b>	<b>67,216</b>
<b>MAVERICK COUNTY TOTAL DEMAND</b>	<b>65,846</b>	<b>66,758</b>	<b>67,190</b>	<b>66,944</b>	<b>66,793</b>	<b>67,651</b>
<b>STARR COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
COUNTY-OTHER	155	169	182	197	211	225
MINING	131	160	178	197	221	251
LIVESTOCK	153	153	153	153	153	153
<b>NUECES-RIO GRANDE BASIN TOTAL DEMAND</b>	<b>439</b>	<b>482</b>	<b>513</b>	<b>547</b>	<b>585</b>	<b>629</b>
<b>RIO GRANDE BASIN</b>						
AGUA SUD	32	35	38	42	45	48
ESCOBARES	169	184	203	221	238	253
LA GRULLA	337	373	406	441	475	506
RIO GRANDE CITY	3,839	4,262	4,660	5,075	5,464	5,820
RIO WSC	396	435	473	513	551	587
ROMA	1,357	1,476	1,590	1,719	1,849	1,968
UNION WSC	827	910	991	1,076	1,156	1,231
COUNTY-OTHER	3,485	3,787	4,077	4,410	4,743	5,051
MANUFACTURING	14	15	16	17	18	19
MINING	440	537	597	661	740	840
LIVESTOCK	865	865	865	865	865	865
IRRIGATION	13,483	11,085	8,646	6,192	3,714	3,714
<b>RIO GRANDE BASIN TOTAL DEMAND</b>	<b>25,244</b>	<b>23,964</b>	<b>22,562</b>	<b>21,232</b>	<b>19,858</b>	<b>20,902</b>
<b>STARR COUNTY TOTAL DEMAND</b>	<b>25,683</b>	<b>24,446</b>	<b>23,075</b>	<b>21,779</b>	<b>20,443</b>	<b>21,531</b>

### Water User Group (WUG) Demand

REGION M	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
<b>WEBB COUNTY</b>						
<b>NUECES BASIN</b>						
COUNTY-OTHER	190	224	260	296	329	360
MANUFACTURING	18	20	22	23	25	26
MINING	3,099	2,414	1,811	1,234	554	403
LIVESTOCK	507	507	507	507	507	507
<b>NUECES BASIN TOTAL DEMAND</b>	<b>3,814</b>	<b>3,165</b>	<b>2,600</b>	<b>2,060</b>	<b>1,415</b>	<b>1,296</b>
<b>NUECES-RIO GRANDE BASIN</b>						
COUNTY-OTHER	121	143	166	189	210	230
MINING	517	402	302	205	92	67
LIVESTOCK	69	69	69	69	69	69
<b>NUECES-RIO GRANDE BASIN TOTAL DEMAND</b>	<b>707</b>	<b>614</b>	<b>537</b>	<b>463</b>	<b>371</b>	<b>366</b>
<b>RIO GRANDE BASIN</b>						
EL CENIZO	390	464	537	606	675	737
LAREDO	41,867	50,337	58,587	66,336	73,905	80,785
RIO BRAVO	585	690	795	895	996	1,089
COUNTY-OTHER	601	709	826	938	1,046	1,142
MANUFACTURING	3	3	3	3	3	4
MINING	6,715	5,231	3,925	2,673	1,200	873
STEAM ELECTRIC POWER	1,298	1,517	1,784	2,110	2,508	2,981
LIVESTOCK	553	553	553	553	553	553
IRRIGATION	7,612	7,612	7,612	7,612	7,612	7,612
<b>RIO GRANDE BASIN TOTAL DEMAND</b>	<b>59,624</b>	<b>67,116</b>	<b>74,622</b>	<b>81,726</b>	<b>88,498</b>	<b>95,776</b>
<b>WEBB COUNTY TOTAL DEMAND</b>	<b>64,145</b>	<b>70,895</b>	<b>77,759</b>	<b>84,249</b>	<b>90,284</b>	<b>97,438</b>
<b>WILLACY COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
EAST RIO HONDO WSC	6	6	7	7	8	8
LYFORD	291	314	338	368	400	432
NORTH ALAMO WSC	987	1,091	1,197	1,315	1,432	1,548
RAYMONDVILLE	1,522	1,652	1,784	1,944	2,115	2,286
SAN PERLITA	235	260	286	315	344	371
SEBASTIAN MUD	149	159	176	195	212	230
COUNTY-OTHER	67	75	83	91	99	107
MANUFACTURING	136	136	136	136	136	136
MINING	49	51	38	28	18	12
LIVESTOCK	261	261	261	261	261	261
IRRIGATION	69,253	69,074	68,936	68,814	68,741	68,741
<b>NUECES-RIO GRANDE BASIN TOTAL DEMAND</b>	<b>72,956</b>	<b>73,079</b>	<b>73,242</b>	<b>73,474</b>	<b>73,766</b>	<b>74,132</b>
<b>WILLACY COUNTY TOTAL DEMAND</b>	<b>72,956</b>	<b>73,079</b>	<b>73,242</b>	<b>73,474</b>	<b>73,766</b>	<b>74,132</b>
<b>ZAPATA COUNTY</b>						
<b>RIO GRANDE BASIN</b>						
SAN YGNACIO MUD	190	217	248	283	321	361
ZAPATA COUNTY WATERWORKS	2,415	2,767	3,167	3,625	4,114	4,628
COUNTY-OTHER	391	452	523	601	682	767
MINING	911	954	707	525	332	214
LIVESTOCK	479	479	479	479	479	479
IRRIGATION	4,717	4,455	4,215	3,981	3,800	3,800



### Water User Group (WUG) Demand

REGION M	WUG DEMAND (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
<b>ZAPATA COUNTY</b>						
RIO GRANDE BASIN TOTAL DEMAND	9,103	9,324	9,339	9,494	9,728	10,249
ZAPATA COUNTY TOTAL DEMAND	9,103	9,324	9,339	9,494	9,728	10,249
<b>REGION M TOTAL DEMAND</b>	<b>1,505,168</b>	<b>1,515,346</b>	<b>1,523,825</b>	<b>1,530,044</b>	<b>1,537,534</b>	<b>1,605,919</b>

Source Availability

REGION M									
GROUNDWATER	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
				2020	2030	2040	2050	2060	2070
CARRIZO-WILCOX AQUIFER	MAVERICK	NUECES	FRESH	777	777	472	472	472	472
CARRIZO-WILCOX AQUIFER	MAVERICK	RIO GRANDE	FRESH	1,266	1,247	1,205	1,098	1,060	1,060
CARRIZO-WILCOX AQUIFER	WEBB	NUECES	FRESH	92	92	92	92	92	92
CARRIZO-WILCOX AQUIFER	WEBB	RIO GRANDE	FRESH	824	824	824	824	824	824
GULF COAST AQUIFER	CAMERON	NUECES-RIO GRANDE	FRESH/BRAC KISH	48,576	48,576	48,576	48,576	48,576	48,576
GULF COAST AQUIFER	CAMERON	RIO GRANDE	FRESH/BRAC KISH	1,984	1,984	1,984	1,984	1,984	1,984
GULF COAST AQUIFER	HIDALGO	NUECES-RIO GRANDE	FRESH/BRAC KISH	38,941	38,941	38,941	38,941	38,941	38,941
GULF COAST AQUIFER	HIDALGO	RIO GRANDE	FRESH/BRAC KISH	2,985	2,985	2,985	2,985	2,985	2,985
GULF COAST AQUIFER	JIM HOGG	NUECES-RIO GRANDE	FRESH/BRAC KISH	20,836	20,836	20,836	20,836	20,836	20,836
GULF COAST AQUIFER	JIM HOGG	RIO GRANDE	FRESH/BRAC KISH	3,578	3,578	3,578	3,578	3,578	3,578
GULF COAST AQUIFER	STARR	NUECES-RIO GRANDE	FRESH/BRAC KISH	3,079	3,079	3,079	3,079	3,079	3,079
GULF COAST AQUIFER	STARR	RIO GRANDE	FRESH/BRAC KISH	4,447	4,447	4,447	4,447	4,447	4,447
GULF COAST AQUIFER	WEBB	NUECES	FRESH/BRAC KISH	82	82	82	82	82	82
GULF COAST AQUIFER	WEBB	NUECES-RIO GRANDE	FRESH/BRAC KISH	2,445	2,445	2,445	2,445	2,445	2,445
GULF COAST AQUIFER	WEBB	RIO GRANDE	FRESH/BRAC KISH	475	475	475	475	475	475
GULF COAST AQUIFER	WILLACY	NUECES-RIO GRANDE	FRESH/BRAC KISH	20,013	20,013	20,013	20,013	20,013	20,013
GULF COAST AQUIFER   CATAHOULA FORMATION	ZAPATA	RIO GRANDE	FRESH	0	0	0	0	0	0
OTHER AQUIFER	MAVERICK	NUECES	FRESH	0	0	0	0	0	0
OTHER AQUIFER	WEBB	RIO GRANDE	FRESH	0	0	0	0	0	0
OTHER AQUIFER	ZAPATA	RIO GRANDE	FRESH	0	0	0	0	0	0
OTHER AQUIFER   ALLUVIUM	MAVERICK	RIO GRANDE	FRESH	0	0	0	0	0	0
OTHER AQUIFER   ALLUVIUM	STARR	RIO GRANDE	FRESH	0	0	0	0	0	0
OTHER AQUIFER   ALLUVIUM	WEBB	NUECES	FRESH	0	0	0	0	0	0
OTHER AQUIFER   RIO GRANDE ALLUVIUM	HIDALGO	NUECES-RIO GRANDE	FRESH	0	0	0	0	0	0
OTHER AQUIFER   RIO GRANDE ALLUVIUM	HIDALGO	RIO GRANDE	FRESH	0	0	0	0	0	0
QUEEN CITY AQUIFER	WEBB	NUECES	FRESH	0	0	0	0	0	0
QUEEN CITY AQUIFER	WEBB	RIO GRANDE	FRESH	0	0	0	0	0	0
SPARTA AQUIFER	WEBB	NUECES	FRESH	0	0	0	0	0	0
SPARTA AQUIFER	WEBB	RIO GRANDE	FRESH	0	0	0	0	0	0
YEGUA-JACKSON AQUIFER	JIM HOGG	RIO GRANDE	FRESH	0	0	0	0	0	0



**Source Availability**

<b>REGION M</b>									
GROUNDWATER	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
				2020	2030	2040	2050	2060	2070
YEGUA-JACKSON AQUIFER	STARR	RIO GRANDE	FRESH	2,000	2,000	2,000	2,000	2,000	2,000
YEGUA-JACKSON AQUIFER	WEBB	NUECES	FRESH	11,969	11,969	11,969	11,969	11,969	11,969
YEGUA-JACKSON AQUIFER	WEBB	RIO GRANDE	FRESH	8,030	8,030	8,030	8,030	8,030	8,030
YEGUA-JACKSON AQUIFER	ZAPATA	RIO GRANDE	FRESH	7,999	7,999	7,999	7,999	7,999	7,999
<b>GROUNDWATER TOTAL SOURCE AVAILABILITY</b>				<b>180,398</b>	<b>180,379</b>	<b>180,032</b>	<b>179,925</b>	<b>179,887</b>	<b>179,887</b>

<b>REGION M</b>									
REUSE	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
				2020	2030	2040	2050	2060	2070
DIRECT REUSE   CITY OF EAGLE PASS WWTP	MAVERICK	RIO GRANDE	FRESH	650	650	650	650	650	650
DIRECT REUSE   ISLA BLANCA WWTP; HARLINGEN WWTP; LAGUNA VISTA WWTP	CAMERON	NUECES-RIO GRANDE	FRESH	9,064	13,065	14,890	14,890	15,890	15,890
DIRECT REUSE   NORTH LAREDO WWTP; UNITED WATER LAREDO SOUTHSIDE WWTP; ZACATE CREEK WWTP	WEBB	RIO GRANDE	FRESH	773	6,498	6,498	6,498	9,733	12,533
DIRECT REUSE   RANCHO VIEJO WWTP	CAMERON	RIO GRANDE	FRESH	112	112	112	112	112	112
DIRECT REUSE   STEAM ELECTRIC	HIDALGO	NUECES-RIO GRANDE	FRESH	31,856	33,526	34,646	39,446	41,686	41,686
DIRECT REUSE   WESLACO SOUTH WWTP	HIDALGO	RIO GRANDE	FRESH	2,887	4,887	6,283	7,493	7,493	7,493
<b>REUSE TOTAL SOURCE AVAILABILITY</b>				<b>45,342</b>	<b>58,738</b>	<b>63,079</b>	<b>69,089</b>	<b>75,564</b>	<b>78,364</b>

<b>REGION M</b>									
SURFACE WATER	COUNTY	BASIN	SALINITY	SOURCE AVAILABILITY (ACRE-FEET PER YEAR)					
				2020	2030	2040	2050	2060	2070
AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	RESERVOIR	RIO GRANDE	FRESH	1,060,616	1,059,260	1,057,903	1,056,547	1,055,191	1,053,834
LIVESTOCK LOCAL SUPPLY	JIM HOGG	NUECES-RIO GRANDE	FRESH	222	222	222	222	222	222
LIVESTOCK LOCAL SUPPLY	JIM HOGG	RIO GRANDE	FRESH	49	49	49	49	49	49
LIVESTOCK LOCAL SUPPLY	MAVERICK	NUECES	FRESH	49	49	49	49	49	49
LIVESTOCK LOCAL SUPPLY	MAVERICK	RIO GRANDE	FRESH	147	147	147	147	147	147
LIVESTOCK LOCAL SUPPLY	STARR	RIO GRANDE	FRESH	65	65	65	65	65	65
LIVESTOCK LOCAL SUPPLY	WEBB	NUECES	FRESH	413	413	413	413	413	413
LIVESTOCK LOCAL SUPPLY	WEBB	NUECES-RIO GRANDE	FRESH	55	55	55	55	55	55
LIVESTOCK LOCAL SUPPLY	WEBB	RIO GRANDE	FRESH	451	451	451	451	451	451
LIVESTOCK LOCAL SUPPLY	ZAPATA	RIO GRANDE	FRESH	249	249	249	249	249	249

**Source Availability**

<b>REGION M</b>									
<b>SURFACE WATER</b>	<b>COUNTY</b>	<b>BASIN</b>	<b>SALINITY</b>	<b>SOURCE AVAILABILITY (ACRE-FEET PER YEAR)</b>					
				<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
NUECES-RIO GRANDE RUN-OF-RIVER	CAMERON	NUECES-RIO GRANDE	FRESH	50	50	50	50	50	50
NUECES-RIO GRANDE RUN-OF-RIVER	HIDALGO	NUECES-RIO GRANDE	FRESH	7,522	7,522	7,522	7,522	7,522	7,522
NUECES-RIO GRANDE RUN-OF-RIVER	WILLACY	NUECES-RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE RUN-OF-RIVER	MAVERICK	RIO GRANDE	FRESH	243	243	243	243	243	243
RIO GRANDE RUN-OF-RIVER	WEBB	RIO GRANDE	FRESH	0	0	0	0	0	0
<b>SURFACE WATER TOTAL SOURCE AVAILABILITY</b>				<b>1,070,131</b>	<b>1,068,775</b>	<b>1,067,418</b>	<b>1,066,062</b>	<b>1,064,706</b>	<b>1,063,349</b>
<b>REGION M TOTAL SOURCE AVAILABILITY</b>				<b>1,295,871</b>	<b>1,307,892</b>	<b>1,310,529</b>	<b>1,315,076</b>	<b>1,320,157</b>	<b>1,321,600</b>

### Water User Group (WUG) Existing Water Supply

REGION M	SOURCE REGION   SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
<b>CAMERON COUNTY</b>							
<b>NUECES-RIO GRANDE BASIN</b>							
HARLINGEN	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	14,583	14,583	14,583	14,583	14,583	14,583
HARLINGEN	M   DIRECT REUSE	1,120	1,120	1,120	1,120	1,120	1,120
NORTH ALAMO WSC	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	45	42	42	40	40	40
NORTH ALAMO WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	1	0	0	0	0	0
NORTH ALAMO WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	25	24	23	22	22	22
NORTH ALAMO WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	4	4	4	4	3	3
BROWNSVILLE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	31,799	31,803	31,807	31,811	31,814	31,816
BROWNSVILLE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	11,322	11,324	11,325	11,326	11,328	11,328
COMBES	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	322	322	322	322	322	322
EAST RIO HONDO WSC	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3,644	3,645	3,644	3,645	3,645	3,645
EAST RIO HONDO WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	402	402	402	402	402	403
INDIAN LAKE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	33	33	33	33	33	33
INDIAN LAKE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	4	26	26	26	26	26
LA FERIA	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,020	1,020	1,020	1,020	1,020	1,020
LAGUNA VISTA	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	993	993	993	993	993	993
LAGUNA VISTA	M   DIRECT REUSE	336	336	336	336	336	336
LOS FRESNOS	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	513	513	513	513	513	513
LOS FRESNOS	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	302	280	280	280	280	280
LOS INDIOS	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	26	26	26	26	26	26
LOS INDIOS	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	31	31	31	31	31	31
LOS INDIOS	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	28	28	28	28	28	28
LOS INDIOS	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	0	0
MILITARY HIGHWAY WSC	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	525	515	505	500	497	495
MILITARY HIGHWAY WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	1,206	1,178	1,157	1,147	1,140	1,137
MILITARY HIGHWAY WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	572	559	550	545	542	540
MILITARY HIGHWAY WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	1	1	1	1	1	1
OLMITO WSC	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	745	745	745	745	745	745
OLMITO WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	8	8	8	8	8	8
PALM VALLEY	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	285	285	285	285	285	285
PORT ISABEL	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	657	657	657	657	657	657
PORT ISABEL	M   DIRECT REUSE	67	67	67	67	67	67
PRIMERA	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	428	428	428	428	428	428
PRIMERA	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	16	16	16	16	16	16



### Water User Group (WUG) Existing Water Supply

REGION M	SOURCE REGION   SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
<b>CAMERON COUNTY</b>							
<b>NUECES-RIO GRANDE BASIN</b>							
PRIMERA	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	2	2	2	2	2	2
RANCHO VIEJO	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	620	620	620	620	620	620
RANCHO VIEJO	M   DIRECT REUSE	112	112	112	112	112	112
RANCHO VIEJO	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	563	563	563	563	563	563
RIO HONDO	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	605	605	605	605	605	605
SAN BENITO	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4,782	4,782	4,782	4,782	4,782	4,782
SANTA ROSA	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	238	238	238	238	238	238
SOUTH PADRE ISLAND	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,762	1,762	1,762	1,762	1,762	1,762
EL JARDIN WSC	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,457	1,457	1,457	1,457	1,457	1,457
COUNTY-OTHER	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,258	2,258	2,258	2,258	2,258	2,258
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	365	365	365	365	365	365
MANUFACTURING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,919	2,919	2,919	2,919	2,919	2,919
MANUFACTURING	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	1,092	1,092	1,092	1,092	1,092	1,092
MANUFACTURING	M   NUECES-RIO GRANDE RUN-OF-RIVER	10	10	10	10	10	10
MINING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	419	418	417	417	416	415
MINING	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	73	73	73	73	73	73
STEAM ELECTRIC POWER	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	447	447	447	447	447	447
STEAM ELECTRIC POWER	M   NUECES-RIO GRANDE RUN-OF-RIVER	40	40	40	40	40	40
LIVESTOCK	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3,540	3,540	3,540	3,540	3,540	3,540
LIVESTOCK	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	57	57	57	57	57	57
IRRIGATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	148,432	148,170	147,442	147,620	147,380	147,120
IRRIGATION	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	2,660	2,660	2,660	2,660	2,660	2,660
<b>NUECES-RIO GRANDE BASIN TOTAL EXISTING SUPPLY</b>		<b>243,516</b>	<b>243,204</b>	<b>242,438</b>	<b>242,599</b>	<b>242,349</b>	<b>242,084</b>
<b>RIO GRANDE BASIN</b>							
BROWNSVILLE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	354	350	346	342	339	337
BROWNSVILLE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	126	124	123	122	120	120
MILITARY HIGHWAY WSC	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3	3	3	3	3	3
MILITARY HIGHWAY WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	7	7	7	7	7	7
MILITARY HIGHWAY WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	4	4	3	3	3	3
MILITARY HIGHWAY WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	0	0
EL JARDIN WSC	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	43	43	43	43	43	43
COUNTY-OTHER	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	8	8	8	8	8	8
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	1	1	1	1	1	1
LIVESTOCK	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	214	214	214	214	214	214
LIVESTOCK	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	3	3	3	3	3	3

### Water User Group (WUG) Existing Water Supply

REGION M	SOURCE REGION   SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
<b>CAMERON COUNTY</b>							
<b>RIO GRANDE BASIN</b>							
IRRIGATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	9,475	9,457	9,410	9,422	9,409	9,390
IRRIGATION	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	460	460	460	460	460	460
<b>RIO GRANDE BASIN TOTAL EXISTING SUPPLY</b>		<b>10,698</b>	<b>10,674</b>	<b>10,621</b>	<b>10,628</b>	<b>10,610</b>	<b>10,589</b>
<b>CAMERON COUNTY TOTAL EXISTING SUPPLY</b>		<b>254,214</b>	<b>253,878</b>	<b>253,059</b>	<b>253,227</b>	<b>252,959</b>	<b>252,673</b>
<b>HIDALGO COUNTY</b>							
<b>NUECES-RIO GRANDE BASIN</b>							
MCALLEN	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	28,196	28,196	28,196	28,196	28,196	28,196
MCALLEN	M   DIRECT REUSE	2,251	2,251	2,251	2,251	2,251	2,251
MCALLEN	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	984	984	984	984	984	984
NORTH ALAMO WSC	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	14,003	14,057	14,094	14,120	14,141	14,155
NORTH ALAMO WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	160	161	161	161	161	162
NORTH ALAMO WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	7,638	7,667	7,688	7,702	7,713	7,721
NORTH ALAMO WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	1,154	1,158	1,161	1,163	1,165	1,166
SHARYLAND WSC	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4,985	4,985	4,985	4,985	4,985	4,985
ALAMO	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,603	1,603	1,603	1,603	1,603	1,603
ALAMO	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	624	624	624	624	624	624
ALTON	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,286	1,286	1,286	1,286	1,286	1,286
DONNA	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,975	2,975	2,975	2,975	2,975	2,975
EDCOUCH	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	330	330	330	330	330	330
EDINBURG	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	9,046	9,046	9,046	9,046	9,046	9,046
EDINBURG	M   DIRECT REUSE	1	1	1	1	1	1
EDINBURG	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	0	0	0	0
EDINBURG	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	48	48	48	48	48	48
EDINBURG	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	2	2	2	2	2	2
ELSA	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	910	909	909	909	908	908
HIDALGO	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	12	12	12	12	12	12
HIDALGO	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	1,472	1,472	1,472	1,472	1,472	1,472
HIDALGO COUNTY MUD #1	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	272	272	272	272	272	272
LA JOYA	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	439	439	439	439	439	439
LA JOYA	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	470	470	470	470	470	470
LA VILLA	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	246	246	246	246	246	246
MERCEDES	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,287	1,287	1,287	1,287	1,287	1,287
MERCEDES	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	655	655	655	655	655	655
MILITARY HIGHWAY WSC	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	319	329	338	343	346	348
MILITARY HIGHWAY WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	732	759	779	789	796	799

### Water User Group (WUG) Existing Water Supply

REGION M	SOURCE REGION   SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
<b>HIDALGO COUNTY</b>							
<b>NUECES-RIO GRANDE BASIN</b>							
MILITARY HIGHWAY WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	353	366	375	380	383	385
MILITARY HIGHWAY WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	0	0
MISSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	12,099	12,099	12,099	12,099	12,099	12,099
MISSION	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	83	83	83	83	83	83
PALMHURST	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	578	578	578	578	578	578
PALMVIEW	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	640	640	640	640	640	640
PENITAS	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	520	520	520	520	520	520
PHARR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	6,739	6,739	6,739	6,739	6,739	6,739
PHARR	M   DIRECT REUSE	3,075	3,075	3,075	3,075	3,075	3,075
PROGRESO	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	127	127	127	127	127	127
PROGRESO	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	296	296	296	296	296	296
PROGRESO	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	142	142	142	142	142	142
PROGRESO	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	0	0
SAN JUAN	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3,167	3,167	3,167	3,167	3,167	3,167
SAN JUAN	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	30	30	30	30	30	30
SAN JUAN	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	973	973	973	973	973	973
SAN JUAN	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	85	85	85	85	85	85
WESLACO	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3,745	3,745	3,745	3,745	3,745	3,745
WESLACO	M   DIRECT REUSE	1,052	1,052	1,052	1,052	1,052	1,052
AGUA SUD	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4,257	4,260	4,261	4,261	4,264	4,264
COUNTY-OTHER	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3,226	3,226	3,226	3,226	3,226	3,226
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	12	12	12	12	12	12
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	259	254	254	254	254	254
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	1	1	1	1	1	1
COUNTY-OTHER	M   OTHER AQUIFER   HIDALGO COUNTY	0	0	0	0	0	0
MANUFACTURING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,192	1,192	1,192	1,192	1,192	1,192
MANUFACTURING	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	2,522	2,522	2,522	2,522	2,522	2,522
MINING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	766	765	762	760	757	754
MINING	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	635	635	635	635	635	635
STEAM ELECTRIC POWER	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,733	2,733	2,733	2,733	2,733	2,733
STEAM ELECTRIC POWER	M   DIRECT REUSE	7,270	7,270	7,270	7,270	7,270	7,270
STEAM ELECTRIC POWER	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	2,200	2,200	2,200	2,200	2,200	2,200
LIVESTOCK	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,022	1,022	1,022	1,022	1,022	1,022
LIVESTOCK	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	580	580	580	580	580	580



### Water User Group (WUG) Existing Water Supply

REGION M	SOURCE REGION   SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
<b>HIDALGO COUNTY</b>							
<b>NUECES-RIO GRANDE BASIN</b>							
IRRIGATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	231,640	231,172	230,703	230,233	229,762	229,293
IRRIGATION	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	5,914	5,914	5,914	5,914	5,914	5,914
<b>NUECES-RIO GRANDE BASIN TOTAL EXISTING SUPPLY</b>		<b>380,033</b>	<b>379,699</b>	<b>379,327</b>	<b>378,917</b>	<b>378,492</b>	<b>378,051</b>
<b>RIO GRANDE BASIN</b>							
HIDALGO	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1	1	1	1	1	1
HIDALGO	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	14	14	14	14	14	14
LA JOYA	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	117	117	117	117	117	117
LA JOYA	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	125	125	125	125	125	125
MILITARY HIGHWAY WSC	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	12	12	13	13	13	13
MILITARY HIGHWAY WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	25	26	27	27	27	27
MILITARY HIGHWAY WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	12	12	13	13	13	13
MILITARY HIGHWAY WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	0	0
MISSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	7	7	7	7	7	7
MISSION	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	1	1	1	1	1	1
PHARR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2	2	2	2	2	2
PHARR	M   DIRECT REUSE	1	1	1	1	1	1
SULLIVAN CITY	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	469	469	469	469	469	469
AGUA SUD	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	559	559	560	560	559	560
COUNTY-OTHER	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	87	87	87	87	87	87
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	0	0	0	0
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	2	7	7	7	7	7
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	0	0
COUNTY-OTHER	M   OTHER AQUIFER   HIDALGO COUNTY	0	0	0	0	0	0
MINING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	61	60	60	60	60	60
LIVESTOCK	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	103	103	103	103	103	103
LIVESTOCK	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	20	20	20	20	20	20
IRRIGATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	9,654	9,634	9,613	9,593	9,576	9,554
IRRIGATION	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	246	246	246	246	246	246
<b>RIO GRANDE BASIN TOTAL EXISTING SUPPLY</b>		<b>11,518</b>	<b>11,503</b>	<b>11,486</b>	<b>11,466</b>	<b>11,448</b>	<b>11,427</b>
<b>HIDALGO COUNTY TOTAL EXISTING SUPPLY</b>		<b>391,551</b>	<b>391,202</b>	<b>390,813</b>	<b>390,383</b>	<b>389,940</b>	<b>389,478</b>
<b>JIM HOGG COUNTY</b>							
<b>NUECES-RIO GRANDE BASIN</b>							
HEBBRONVILLE	M   GULF COAST AQUIFER FRESH/BRACKISH   STARR COUNTY	592	592	592	592	592	592
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   JIM HOGG COUNTY	272	273	273	272	272	273
MINING	M   GULF COAST AQUIFER FRESH/BRACKISH   JIM HOGG COUNTY	84	87	65	48	31	20

### Water User Group (WUG) Existing Water Supply

REGION M	SOURCE REGION   SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
<b>JIM HOGG COUNTY</b>							
<b>NUECES-RIO GRANDE BASIN</b>							
LIVESTOCK	M   GULF COAST AQUIFER FRESH/BRACKISH   JIM HOGG COUNTY	105	105	105	105	105	105
LIVESTOCK	M   LIVESTOCK LOCAL SUPPLY	222	222	222	222	222	222
IRRIGATION	M   GULF COAST AQUIFER FRESH/BRACKISH   JIM HOGG COUNTY	140	140	140	140	140	140
<b>NUECES-RIO GRANDE BASIN TOTAL EXISTING SUPPLY</b>		<b>1,415</b>	<b>1,419</b>	<b>1,397</b>	<b>1,379</b>	<b>1,362</b>	<b>1,352</b>
<b>RIO GRANDE BASIN</b>							
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   JIM HOGG COUNTY	14	13	13	14	14	13
MINING	M   GULF COAST AQUIFER FRESH/BRACKISH   JIM HOGG COUNTY	9	10	7	5	3	2
LIVESTOCK	M   GULF COAST AQUIFER FRESH/BRACKISH   JIM HOGG COUNTY	60	60	60	60	60	60
LIVESTOCK	M   LIVESTOCK LOCAL SUPPLY	49	49	49	49	49	49
IRRIGATION	M   GULF COAST AQUIFER FRESH/BRACKISH   JIM HOGG COUNTY	60	60	60	60	60	60
<b>RIO GRANDE BASIN TOTAL EXISTING SUPPLY</b>		<b>192</b>	<b>192</b>	<b>189</b>	<b>188</b>	<b>186</b>	<b>184</b>
<b>JIM HOGG COUNTY TOTAL EXISTING SUPPLY</b>		<b>1,607</b>	<b>1,611</b>	<b>1,586</b>	<b>1,567</b>	<b>1,548</b>	<b>1,536</b>
<b>MAVERICK COUNTY</b>							
<b>NUECES BASIN</b>							
COUNTY-OTHER	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	12	12	12	11	12	12
COUNTY-OTHER	M   CARRIZO-WILCOX AQUIFER   MAVERICK COUNTY	5	5	5	5	5	5
MINING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	75	75	75	75	74	74
LIVESTOCK	M   CARRIZO-WILCOX AQUIFER   MAVERICK COUNTY	15	15	15	15	15	15
LIVESTOCK	M   LIVESTOCK LOCAL SUPPLY	49	49	49	49	49	49
LIVESTOCK	M   RIO GRANDE RUN-OF-RIVER	61	61	61	61	61	61
IRRIGATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	45	44	44	44	44	44
IRRIGATION	M   CARRIZO-WILCOX AQUIFER   MAVERICK COUNTY	420	420	420	420	420	420
<b>NUECES BASIN TOTAL EXISTING SUPPLY</b>		<b>682</b>	<b>681</b>	<b>681</b>	<b>680</b>	<b>680</b>	<b>680</b>
<b>RIO GRANDE BASIN</b>							
EAGLE PASS	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	7,877	7,877	7,877	7,877	7,877	7,877
EAGLE PASS	M   CARRIZO-WILCOX AQUIFER   MAVERICK COUNTY	70	70	70	70	70	70
COUNTY-OTHER	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	6,863	6,863	6,863	6,864	6,863	6,863
COUNTY-OTHER	M   CARRIZO-WILCOX AQUIFER   MAVERICK COUNTY	70	70	70	70	70	70
MANUFACTURING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	14	14	14	14	14	14
MINING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	329	328	327	326	326	325
LIVESTOCK	M   CARRIZO-WILCOX AQUIFER   MAVERICK COUNTY	45	45	45	45	45	45
LIVESTOCK	M   LIVESTOCK LOCAL SUPPLY	147	147	147	147	147	147
LIVESTOCK	M   RIO GRANDE RUN-OF-RIVER	182	182	182	182	182	182
IRRIGATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	38,820	38,757	38,694	38,631	38,568	38,504
<b>RIO GRANDE BASIN TOTAL EXISTING SUPPLY</b>		<b>54,417</b>	<b>54,353</b>	<b>54,289</b>	<b>54,226</b>	<b>54,162</b>	<b>54,097</b>
<b>MAVERICK COUNTY TOTAL EXISTING SUPPLY</b>		<b>55,099</b>	<b>55,034</b>	<b>54,970</b>	<b>54,906</b>	<b>54,842</b>	<b>54,777</b>

### Water User Group (WUG) Existing Water Supply

REGION M	SOURCE REGION   SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
<b>STARR COUNTY</b>							
<b>NUECES-RIO GRANDE BASIN</b>							
COUNTY-OTHER	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	35	35	35	35	35	35
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   STARR COUNTY	6	6	6	6	6	6
COUNTY-OTHER	M   YEGUA-JACKSON AQUIFER   STARR COUNTY	1	1	1	1	1	1
MINING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	82	82	82	82	82	82
LIVESTOCK	M   GULF COAST AQUIFER FRESH/BRACKISH   STARR COUNTY	240	240	240	240	240	240
<b>NUECES-RIO GRANDE BASIN TOTAL EXISTING SUPPLY</b>		<b>364</b>	<b>364</b>	<b>364</b>	<b>364</b>	<b>364</b>	<b>364</b>
<b>RIO GRANDE BASIN</b>							
LA GRULLA	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	552	552	552	552	552	552
RIO GRANDE CITY	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3,703	3,703	3,703	3,703	3,703	3,703
RIO WSC	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	330	330	330	330	330	330
ROMA	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,989	1,974	1,955	1,937	1,920	1,905
AGUA SUD	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	28	25	23	23	21	20
UNION WSC	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	446	446	446	446	446	446
ESCOBARES	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	169	184	203	221	238	253
COUNTY-OTHER	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	769	769	769	769	769	769
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   STARR COUNTY	113	113	113	113	113	113
COUNTY-OTHER	M   YEGUA-JACKSON AQUIFER   STARR COUNTY	14	14	14	14	14	14
MANUFACTURING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	14	14	14	14	14	14
MINING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	278	277	277	276	275	275
MINING	M   GULF COAST AQUIFER FRESH/BRACKISH   STARR COUNTY	200	200	200	200	200	200
LIVESTOCK	M   GULF COAST AQUIFER FRESH/BRACKISH   STARR COUNTY	640	640	640	640	640	640
LIVESTOCK	M   LIVESTOCK LOCAL SUPPLY	65	65	65	65	65	65
LIVESTOCK	M   YEGUA-JACKSON AQUIFER   STARR COUNTY	160	160	160	160	160	160
IRRIGATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	8,509	8,481	8,453	8,425	8,397	8,369
IRRIGATION	M   GULF COAST AQUIFER FRESH/BRACKISH   STARR COUNTY	280	280	280	280	280	280
IRRIGATION	M   YEGUA-JACKSON AQUIFER   STARR COUNTY	40	40	40	40	40	40
<b>RIO GRANDE BASIN TOTAL EXISTING SUPPLY</b>		<b>18,299</b>	<b>18,267</b>	<b>18,237</b>	<b>18,208</b>	<b>18,177</b>	<b>18,148</b>
<b>STARR COUNTY TOTAL EXISTING SUPPLY</b>		<b>18,663</b>	<b>18,631</b>	<b>18,601</b>	<b>18,572</b>	<b>18,541</b>	<b>18,512</b>
<b>WEBB COUNTY</b>							
<b>NUECES BASIN</b>							
COUNTY-OTHER	M   CARRIZO-WILCOX AQUIFER   WEBB COUNTY	2	2	2	2	2	2
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   WEBB COUNTY	1	1	1	1	14	26
MANUFACTURING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	18	18	18	19	19	18
MINING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,998	1,999	1,998	1,999	1,999	1,999
MINING	M   CARRIZO-WILCOX AQUIFER   WEBB COUNTY	149	149	149	149	149	149
MINING	M   GULF COAST AQUIFER FRESH/BRACKISH   WEBB COUNTY	264	264	264	264	264	264
LIVESTOCK	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	45	45	45	45	45	45
LIVESTOCK	M   CARRIZO-WILCOX AQUIFER   WEBB COUNTY	34	34	34	34	34	34



### Water User Group (WUG) Existing Water Supply

REGION M	SOURCE REGION   SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
<b>WEBB COUNTY</b>							
<b>NUECES BASIN</b>							
LIVESTOCK	M   GULF COAST AQUIFER FRESH/BRACKISH   WEBB COUNTY	15	15	15	15	15	15
LIVESTOCK	M   LIVESTOCK LOCAL SUPPLY	413	413	413	413	413	413
<b>NUECES BASIN TOTAL EXISTING SUPPLY</b>		<b>2,939</b>	<b>2,940</b>	<b>2,939</b>	<b>2,941</b>	<b>2,954</b>	<b>2,965</b>
<b>NUECES-RIO GRANDE BASIN</b>							
COUNTY-OTHER	M   CARRIZO-WILCOX AQUIFER   WEBB COUNTY	2	2	2	2	2	2
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   WEBB COUNTY	90	90	90	90	77	65
MINING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	333	333	333	332	332	332
MINING	M   CARRIZO-WILCOX AQUIFER   WEBB COUNTY	20	20	20	20	20	20
MINING	M   GULF COAST AQUIFER FRESH/BRACKISH   WEBB COUNTY	44	44	44	44	44	44
LIVESTOCK	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	6	6	6	6	6	6
LIVESTOCK	M   CARRIZO-WILCOX AQUIFER   WEBB COUNTY	5	5	5	5	5	5
LIVESTOCK	M   GULF COAST AQUIFER FRESH/BRACKISH   WEBB COUNTY	3	3	3	3	3	3
LIVESTOCK	M   LIVESTOCK LOCAL SUPPLY	55	55	55	55	55	55
<b>NUECES-RIO GRANDE BASIN TOTAL EXISTING SUPPLY</b>		<b>558</b>	<b>558</b>	<b>558</b>	<b>557</b>	<b>544</b>	<b>532</b>
<b>RIO GRANDE BASIN</b>							
EL CENIZO	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	390	464	537	606	639	639
LAREDO	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	57,938	57,938	57,938	57,938	57,938	57,938
LAREDO	M   CARRIZO-WILCOX AQUIFER   WEBB COUNTY	15	15	15	15	15	15
LAREDO	M   DIRECT REUSE	773	773	773	773	773	773
RIO BRAVO	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	959	959	959	959	959	959
COUNTY-OTHER	M   CARRIZO-WILCOX AQUIFER   WEBB COUNTY	8	8	8	8	8	8
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   WEBB COUNTY	88	88	88	88	88	88
MANUFACTURING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3	3	3	2	2	3
MINING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4,352	4,351	4,352	4,352	4,352	4,352
MINING	M   CARRIZO-WILCOX AQUIFER   WEBB COUNTY	323	323	323	323	323	323
MINING	M   GULF COAST AQUIFER FRESH/BRACKISH   WEBB COUNTY	573	573	573	573	573	573
STEAM ELECTRIC POWER	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,725	2,725	2,725	2,725	2,725	2,725
LIVESTOCK	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	49	49	49	49	49	49
LIVESTOCK	M   CARRIZO-WILCOX AQUIFER   WEBB COUNTY	36	36	36	36	36	36
LIVESTOCK	M   GULF COAST AQUIFER FRESH/BRACKISH   WEBB COUNTY	17	17	17	17	17	17
LIVESTOCK	M   LIVESTOCK LOCAL SUPPLY	451	451	451	451	451	451
IRRIGATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	6,274	6,262	6,250	6,238	6,227	6,215
IRRIGATION	M   CARRIZO-WILCOX AQUIFER   WEBB COUNTY	40	40	40	40	40	40
<b>RIO GRANDE BASIN TOTAL EXISTING SUPPLY</b>		<b>75,014</b>	<b>75,075</b>	<b>75,137</b>	<b>75,193</b>	<b>75,215</b>	<b>75,204</b>
<b>WEBB COUNTY TOTAL EXISTING SUPPLY</b>		<b>78,511</b>	<b>78,573</b>	<b>78,634</b>	<b>78,691</b>	<b>78,713</b>	<b>78,701</b>
<b>WILLACY COUNTY</b>							
<b>NUECES-RIO GRANDE BASIN</b>							
NORTH ALAMO WSC	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	576	525	488	464	443	429

### Water User Group (WUG) Existing Water Supply

REGION M	SOURCE REGION   SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
<b>WILLACY COUNTY</b>							
<b>NUECES-RIO GRANDE BASIN</b>							
NORTH ALAMO WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	6	6	6	6	6	5
NORTH ALAMO WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	314	286	266	253	242	234
NORTH ALAMO WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	47	43	40	38	37	36
EAST RIO HONDO WSC	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	5	4	5	4	4	4
EAST RIO HONDO WSC	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	1	1	1	1	1	0
LYFORD	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	588	588	588	588	588	588
RAYMONDVILLE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3,402	3,402	3,402	3,402	3,402	3,402
RAYMONDVILLE	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	2,240	2,240	2,240	2,240	2,240	2,240
SAN PERLITA	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	134	134	134	134	134	134
SAN PERLITA	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	2	2	2	2	2	2
SAN PERLITA	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	75	75	75	75	75	75
SAN PERLITA	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	12	12	12	12	12	12
SEBASTIAN MUD	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	204	204	204	204	204	204
COUNTY-OTHER	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	150	150	150	150	150	150
COUNTY-OTHER	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	18	18	18	18	18	18
MANUFACTURING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	84	84	84	84	84	84
MANUFACTURING	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	36	36	36	36	36	36
MINING	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	49	49	49	49	49	49
LIVESTOCK	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	343	343	343	343	343	343
LIVESTOCK	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	95	95	95	95	95	95
IRRIGATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	19,829	19,796	19,764	19,731	19,398	19,665
IRRIGATION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	120	120	120	120	120	120
<b>NUECES-RIO GRANDE BASIN TOTAL EXISTING SUPPLY</b>		<b>28,330</b>	<b>28,213</b>	<b>28,122</b>	<b>28,049</b>	<b>27,683</b>	<b>27,925</b>
<b>WILLACY COUNTY TOTAL EXISTING SUPPLY</b>		<b>28,330</b>	<b>28,213</b>	<b>28,122</b>	<b>28,049</b>	<b>27,683</b>	<b>27,925</b>
<b>ZAPATA COUNTY</b>							
<b>RIO GRANDE BASIN</b>							
SAN YGNACIO MUD	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	284	284	284	284	284	284
ZAPATA COUNTY WATERWORKS	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,118	2,118	2,118	2,118	2,118	2,118
COUNTY-OTHER	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	184	184	184	184	184	184
COUNTY-OTHER	M   YEGUA-JACKSON AQUIFER   ZAPATA COUNTY	3	3	3	3	3	3
MINING	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	99	99	99	98	98	98
MINING	M   YEGUA-JACKSON AQUIFER   ZAPATA COUNTY	884	884	884	884	884	884
LIVESTOCK	M   LIVESTOCK LOCAL SUPPLY	249	249	249	249	249	249
LIVESTOCK	M   YEGUA-JACKSON AQUIFER   ZAPATA COUNTY	230	230	230	230	230	230

### Water User Group (WUG) Existing Water Supply

REGION M	SOURCE REGION   SOURCE NAME	EXISTING SUPPLY (ACRE-FEET PER YEAR)					
		2020	2030	2040	2050	2060	2070
<b>ZAPATA COUNTY</b>							
<b>RIO GRANDE BASIN</b>							
IRRIGATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3,352	3,341	3,331	3,320	3,309	3,298
IRRIGATION	M   YEGUA-JACKSON AQUIFER   ZAPATA COUNTY	80	80	80	80	80	80
<b>RIO GRANDE BASIN TOTAL EXISTING SUPPLY</b>		<b>7,483</b>	<b>7,472</b>	<b>7,462</b>	<b>7,450</b>	<b>7,439</b>	<b>7,428</b>
<b>ZAPATA COUNTY TOTAL EXISTING SUPPLY</b>		<b>7,483</b>	<b>7,472</b>	<b>7,462</b>	<b>7,450</b>	<b>7,439</b>	<b>7,428</b>
<b>REGION M TOTAL EXISTING SUPPLY</b>		<b>835,458</b>	<b>834,614</b>	<b>833,247</b>	<b>832,845</b>	<b>831,665</b>	<b>831,030</b>



### Water User Group (WUG) Category Summary

REGION M	2020	2030	2040	2050	2060	2070
<b>MUNICIPAL</b>						
POPULATION	1,799,926	2,194,660	2,587,179	2,980,668	3,372,124	3,752,822
DEMANDS (acre-feet per year)	289,511	344,462	400,547	458,649	518,212	576,729
EXISTING SUPPLIES (acre-feet per year)	288,986	289,059	289,132	289,201	289,233	289,233
NEEDS (acre-feet per year)*	(38,425)	(74,269)	(117,948)	(174,353)	(233,168)	(291,303)
<b>COUNTY-OTHER</b>						
POPULATION	160,812	184,562	207,760	231,270	254,261	276,516
DEMANDS (acre-feet per year)	22,080	24,535	27,064	29,800	32,618	35,398
EXISTING SUPPLIES (acre-feet per year)	14,939	14,939	14,939	14,939	14,939	14,939
NEEDS (acre-feet per year)*	(10,109)	(12,124)	(14,225)	(16,481)	(18,808)	(21,107)
<b>MANUFACTURING</b>						
DEMANDS (acre-feet per year)	10,433	11,292	12,147	12,898	13,896	14,971
EXISTING SUPPLIES (acre-feet per year)	7,904	7,904	7,904	7,904	7,904	7,904
NEEDS (acre-feet per year)*	(2,529)	(3,388)	(4,243)	(4,994)	(5,992)	(7,067)
<b>MINING</b>						
DEMANDS (acre-feet per year)	17,051	16,480	14,952	12,823	10,458	10,361
EXISTING SUPPLIES (acre-feet per year)	12,099	12,098	12,068	12,044	12,019	12,002
NEEDS (acre-feet per year)*	(5,290)	(4,641)	(5,488)	(5,565)	(5,758)	(6,337)
<b>STEAM ELECTRIC POWER</b>						
DEMANDS (acre-feet per year)	16,972	19,842	23,340	27,605	32,806	38,916
EXISTING SUPPLIES (acre-feet per year)	15,415	15,415	15,415	15,415	15,415	15,415
NEEDS (acre-feet per year)*	(2,984)	(5,635)	(8,866)	(12,805)	(17,608)	(23,501)
<b>LIVESTOCK</b>						
DEMANDS (acre-feet per year)	4,986	4,986	4,986	4,986	4,986	4,986
EXISTING SUPPLIES (acre-feet per year)	9,625	9,625	9,625	9,625	9,625	9,625
NEEDS (acre-feet per year)*	0	0	0	0	0	0
<b>IRRIGATION</b>						
DEMANDS (acre-feet per year)	1,144,135	1,093,749	1,040,789	983,283	924,558	924,558
EXISTING SUPPLIES (acre-feet per year)	486,490	485,574	484,164	483,717	482,530	481,912
NEEDS (acre-feet per year)*	(658,049)	(608,580)	(557,158)	(502,526)	(447,439)	(448,029)
<b>REGION TOTALS</b>						
POPULATION	1,960,738	2,379,222	2,794,939	3,211,938	3,626,385	4,029,338
DEMANDS (acre-feet per year)	1,505,168	1,515,346	1,523,825	1,530,044	1,537,534	1,605,919
EXISTING SUPPLIES (acre-feet per year)	835,458	834,614	833,247	832,845	831,665	831,030
NEEDS (acre-feet per year)*	(717,386)	(708,637)	(707,928)	(716,724)	(728,773)	(797,344)

\*WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The needs shown in the WUG Category Summary report are calculated by first deducting the WUG split's projected demand from its total existing water supply volume. If the WUG split has a greater existing supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG category level, calculated surpluses are updated to zero so that only the WUGs with needs in the decade are included with the Needs totals.

### Water User Group (WUG) Needs/Surplus

REGION M	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
<b>CAMERON COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
BROWNSVILLE	7,426	1,669	(4,339)	(11,078)	(18,245)	(25,648)
COMBES	0	(36)	(75)	(123)	(176)	(232)
EAST RIO HONDO WSC	226	(319)	(895)	(1,535)	(2,214)	(2,917)
EL JARDIN WSC	(198)	(419)	(653)	(920)	(1,209)	(1,508)
HARLINGEN	2,157	274	(1,697)	(3,933)	(6,332)	(8,813)
INDIAN LAKE	(14)	(1)	(9)	(19)	(28)	(38)
LA FERIA	(106)	(254)	(412)	(593)	(789)	(992)
LAGUNA VISTA	(1,106)	(1,502)	(1,907)	(2,347)	(2,801)	(3,268)
LOS FRESNOS	375	279	204	124	41	(45)
LOS INDIOS	(59)	(76)	(94)	(116)	(141)	(166)
MILITARY HIGHWAY WSC	(628)	(1,090)	(1,566)	(2,075)	(2,609)	(3,154)
NORTH ALAMO WSC	(4)	(20)	(33)	(49)	(64)	(79)
OLMITO WSC	21	(82)	(188)	(310)	(439)	(574)
PALM VALLEY	0	(39)	(80)	(126)	(177)	(229)
PORT ISABEL	(603)	(793)	(990)	(1,212)	(1,450)	(1,695)
PRIMERA	24	(26)	(80)	(144)	(215)	(289)
RANCHO VIEJO	460	330	196	49	(104)	(262)
RIO HONDO	401	381	354	320	285	249
SAN BENITO	1,175	729	253	(306)	(923)	(1,564)
SANTA ROSA	(57)	(87)	(120)	(162)	(210)	(260)
SOUTH PADRE ISLAND	(1,466)	(1,993)	(2,530)	(3,113)	(3,716)	(4,336)
COUNTY-OTHER	(5,109)	(5,460)	(5,852)	(6,348)	(6,924)	(7,530)
MANUFACTURING	(687)	(1,090)	(1,489)	(1,835)	(2,303)	(2,808)
MINING	228	214	299	364	428	460
STEAM ELECTRIC POWER	(1,036)	(1,293)	(1,607)	(1,990)	(2,457)	(2,941)
LIVESTOCK	3,282	3,282	3,282	3,282	3,282	3,282
IRRIGATION	(183,512)	(168,272)	(153,163)	(136,911)	(121,245)	(121,505)
<b>RIO GRANDE BASIN</b>						
BROWNSVILLE	83	19	(46)	(118)	(194)	(271)
EL JARDIN WSC	(6)	(12)	(19)	(27)	(35)	(44)
MILITARY HIGHWAY WSC	(4)	(7)	(10)	(13)	(16)	(20)
COUNTY-OTHER	(8)	(8)	(10)	(12)	(13)	(14)
LIVESTOCK	198	198	198	198	198	198
IRRIGATION	(11,423)	(10,451)	(9,487)	(8,449)	(7,447)	(7,466)
<b>HIDALGO COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
AGUA SUD	(684)	(1,694)	(2,744)	(3,829)	(4,942)	(6,036)
ALAMO	(1,004)	(1,682)	(2,380)	(3,099)	(3,837)	(4,560)
ALTON	(785)	(1,238)	(1,704)	(2,178)	(2,657)	(3,127)
DONNA	365	(151)	(685)	(1,244)	(1,827)	(2,400)
EDCOUCH	(28)	(89)	(154)	(224)	(300)	(375)
EDINBURG	(4,016)	(6,802)	(9,675)	(12,617)	(15,624)	(18,570)
ELSA	99	(54)	(212)	(380)	(558)	(733)
HIDALGO	(358)	(749)	(1,153)	(1,567)	(1,989)	(2,403)
HIDALGO COUNTY MUD #1	(298)	(410)	(529)	(651)	(777)	(902)
LA JOYA	394	290	183	71	(45)	(159)
LA VILLA	(29)	(82)	(139)	(197)	(258)	(318)

### Water User Group (WUG) Needs/Surplus

REGION M	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
<b>HIDALGO COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
MCALLEN	(7,297)	(15,788)	(24,444)	(33,291)	(42,317)	(51,132)
MERCEDDES	(281)	(706)	(1,149)	(1,616)	(2,107)	(2,589)
MILITARY HIGHWAY WSC	(376)	(703)	(1,050)	(1,426)	(1,820)	(2,213)
MISSION	(8,019)	(12,508)	(17,092)	(21,753)	(26,480)	(31,099)
NORTH ALAMO WSC	(1,060)	(6,197)	(11,494)	(16,918)	(22,445)	(27,865)
PALMHURST	(354)	(571)	(791)	(1,013)	(1,235)	(1,452)
PALMVIEW	(103)	(257)	(416)	(580)	(748)	(914)
PENTAS	(83)	(212)	(345)	(481)	(619)	(755)
PHARR	(106)	(2,115)	(4,203)	(6,364)	(8,596)	(10,787)
PROGRESO	(157)	(303)	(455)	(612)	(774)	(933)
SAN JUAN	(1,897)	(3,193)	(4,527)	(5,899)	(7,306)	(8,685)
SHARYLAND WSC	(3,041)	(4,737)	(6,475)	(8,267)	(10,109)	(11,911)
WESLACO	(3,076)	(4,754)	(6,474)	(8,243)	(10,055)	(11,828)
COUNTY-OTHER	(1,326)	(2,425)	(3,552)	(4,683)	(5,814)	(6,922)
MANUFACTURING	(1,747)	(2,195)	(2,643)	(3,042)	(3,562)	(4,122)
MINING	(1,235)	(1,956)	(2,495)	(3,072)	(3,736)	(4,575)
STEAM ELECTRIC POWER	(1,948)	(4,342)	(7,259)	(10,815)	(15,151)	(20,304)
LIVESTOCK	848	848	848	848	848	848
IRRIGATION	(376,535)	(348,278)	(317,742)	(283,018)	(246,784)	(247,253)
<b>RIO GRANDE BASIN</b>						
AGUA SUD	(90)	(223)	(360)	(502)	(649)	(792)
HIDALGO	(2)	(6)	(10)	(13)	(17)	(21)
LA JOYA	105	78	49	20	(11)	(41)
MILITARY HIGHWAY WSC	(12)	(24)	(34)	(48)	(62)	(75)
MISSION	(3)	(6)	(8)	(11)	(14)	(16)
PHARR	0	(1)	(1)	(2)	(2)	(3)
SULLIVAN CITY	(75)	(178)	(286)	(400)	(520)	(638)
COUNTY-OTHER	(39)	(63)	(93)	(123)	(152)	(182)
MINING	(147)	(204)	(246)	(292)	(344)	(410)
LIVESTOCK	47	47	47	47	47	47
IRRIGATION	(15,687)	(14,510)	(13,239)	(11,793)	(10,281)	(10,303)
<b>JIM HOGG COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
HEBBRONVILLE	0	(24)	(46)	(81)	(117)	(153)
COUNTY-OTHER	177	174	170	164	158	153
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(211)	(190)	(178)	(191)	(221)	(221)
<b>RIO GRANDE BASIN</b>						
COUNTY-OTHER	9	8	8	8	8	7
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(28)	(23)	(20)	(23)	(30)	(30)
<b>MAVERICK COUNTY</b>						
<b>NUECES BASIN</b>						
COUNTY-OTHER	10	9	8	7	7	6
MINING	(323)	(472)	(512)	(385)	(261)	(169)



### Water User Group (WUG) Needs/Surplus

REGION M	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
<b>MAVERICK COUNTY</b>						
<b>NUECES BASIN</b>						
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	404	405	406	407	408	408
<b>RIO GRANDE BASIN</b>						
EAGLE PASS	1,943	1,106	308	(559)	(1,427)	(2,268)
COUNTY-OTHER	2,671	2,244	1,829	1,364	887	421
MANUFACTURING	(79)	(84)	(89)	(93)	(100)	(107)
MINING	(1,261)	(1,862)	(2,019)	(1,516)	(1,013)	(649)
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(14,112)	(13,070)	(12,151)	(11,263)	(10,452)	(10,516)
<b>STARR COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
COUNTY-OTHER	(113)	(127)	(140)	(155)	(169)	(183)
MINING	(49)	(78)	(96)	(115)	(139)	(169)
LIVESTOCK	87	87	87	87	87	87
<b>RIO GRANDE BASIN</b>						
AGUA SUD	(4)	(10)	(15)	(19)	(24)	(28)
ESCOBARES	0	0	0	0	0	0
LA GRULLA	215	179	146	111	77	46
RIO GRANDE CITY	(136)	(559)	(957)	(1,372)	(1,761)	(2,117)
RIO WSC	(66)	(105)	(143)	(183)	(221)	(257)
ROMA	632	498	365	218	71	(63)
UNION WSC	(381)	(464)	(545)	(630)	(710)	(785)
COUNTY-OTHER	(2,589)	(2,891)	(3,181)	(3,514)	(3,847)	(4,155)
MANUFACTURING	0	(1)	(2)	(3)	(4)	(5)
MINING	38	(60)	(120)	(185)	(265)	(365)
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(4,654)	(2,284)	127	2,553	5,003	4,975
<b>WEBB COUNTY</b>						
<b>NUECES BASIN</b>						
COUNTY-OTHER	(187)	(221)	(257)	(293)	(313)	(332)
MANUFACTURING	0	(2)	(4)	(4)	(6)	(8)
MINING	(688)	(2)	600	1,178	1,858	2,009
LIVESTOCK	0	0	0	0	0	0
<b>NUECES-RIO GRANDE BASIN</b>						
COUNTY-OTHER	(29)	(51)	(74)	(97)	(131)	(163)
MINING	(120)	(5)	95	191	304	329
LIVESTOCK	0	0	0	0	0	0
<b>RIO GRANDE BASIN</b>						
EL CENIZO	0	0	0	0	(36)	(98)
LAREDO	16,859	8,389	139	(7,610)	(15,179)	(22,059)
RIO BRAVO	374	269	164	64	(37)	(130)
COUNTY-OTHER	(505)	(613)	(730)	(842)	(950)	(1,046)
MANUFACTURING	0	0	0	(1)	(1)	(1)
MINING	(1,467)	16	1,323	2,575	4,048	4,375
STEAM ELECTRIC POWER	1,427	1,208	941	615	217	(256)
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(1,298)	(1,310)	(1,322)	(1,334)	(1,345)	(1,357)

### Water User Group (WUG) Needs/Surplus

REGION M	WUG (NEEDS)/SURPLUS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
<b>WILLACY COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
EAST RIO HONDO WSC	0	(1)	(1)	(2)	(3)	(4)
LYFORD	297	274	250	220	188	156
NORTH ALAMO WSC	(44)	(231)	(397)	(554)	(704)	(844)
RAYMONDVILLE	4,120	3,990	3,858	3,698	3,527	3,356
SAN PERLITA	(12)	(37)	(63)	(92)	(121)	(148)
SEBASTIAN MUD	55	45	28	9	(8)	(26)
COUNTY-OTHER	101	93	85	77	69	61
MANUFACTURING	(16)	(16)	(16)	(16)	(16)	(16)
MINING	0	(2)	11	21	31	37
LIVESTOCK	177	177	177	177	177	177
IRRIGATION	(49,304)	(49,158)	(49,052)	(48,963)	(49,223)	(48,956)
<b>ZAPATA COUNTY</b>						
<b>RIO GRANDE BASIN</b>						
SAN YGNACIO MUD	94	67	36	1	(37)	(77)
ZAPATA COUNTY WATERWORKS	(297)	(649)	(1,049)	(1,507)	(1,996)	(2,510)
COUNTY-OTHER	(204)	(265)	(336)	(414)	(495)	(580)
MINING	72	29	276	457	650	768
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	(1,285)	(1,034)	(804)	(581)	(411)	(422)

**Source Water Balance (Availability- WUG Supply)**

<b>REGION M</b>									
<b>GROUNDWATER</b>	<b>COUNTY</b>	<b>BASIN</b>	<b>SALINITY</b>	<b>SOURCE WATER BALANCE (ACRE-FEET PER YEAR)</b>					
				<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
CARRIZO-WILCOX AQUIFER	MAVERICK	NUECES	FRESH	312	312	7	7	7	7
CARRIZO-WILCOX AQUIFER	MAVERICK	RIO GRANDE	FRESH	1,106	-1,087	1,045	938	900	900
CARRIZO-WILCOX AQUIFER	WEBB	NUECES	FRESH	0	0	0	0	0	0
CARRIZO-WILCOX AQUIFER	WEBB	RIO GRANDE	FRESH	282	282	282	282	282	282
GULF COAST AQUIFER	CAMERON	NUECES-RIO GRANDE	FRESH/BRAC KISH	29,289	29,289	29,289	29,289	29,289	29,289
GULF COAST AQUIFER	CAMERON	RIO GRANDE	FRESH/BRAC KISH	1,324	1,324	1,324	1,324	1,324	1,324
GULF COAST AQUIFER	HIDALGO	NUECES-RIO GRANDE	FRESH/BRAC KISH	14,618	14,618	14,618	14,618	14,618	14,618
GULF COAST AQUIFER	HIDALGO	RIO GRANDE	FRESH/BRAC KISH	302	302	302	302	302	302
GULF COAST AQUIFER	JIM HOGG	NUECES-RIO GRANDE	FRESH/BRAC KISH	20,486	20,482	20,507	20,526	20,545	20,557
GULF COAST AQUIFER	JIM HOGG	RIO GRANDE	FRESH/BRAC KISH	3,184	3,184	3,184	3,184	3,184	3,184
GULF COAST AQUIFER	STARR	NUECES-RIO GRANDE	FRESH/BRAC KISH	2,028	2,028	2,028	2,028	2,028	2,028
GULF COAST AQUIFER	STARR	RIO GRANDE	FRESH/BRAC KISH	3,427	3,427	3,427	3,427	3,427	3,427
GULF COAST AQUIFER	WEBB	NUECES	FRESH/BRAC KISH	0	0	0	0	0	0
GULF COAST AQUIFER	WEBB	NUECES-RIO GRANDE	FRESH/BRAC KISH	1,725	1,725	1,725	1,725	1,725	1,725
GULF COAST AQUIFER	WEBB	RIO GRANDE	FRESH/BRAC KISH	182	182	182	182	182	182
GULF COAST AQUIFER	WILLACY	NUECES-RIO GRANDE	FRESH/BRAC KISH	16,147	16,147	16,147	16,147	16,147	16,147
GULF COAST AQUIFER   CATAHOULA FORMATION	ZAPATA	RIO GRANDE	FRESH	0	0	0	0	0	0
OTHER AQUIFER	MAVERICK	NUECES	FRESH	0	0	0	0	0	0
OTHER AQUIFER	WEBB	RIO GRANDE	FRESH	0	0	0	0	0	0
OTHER AQUIFER	ZAPATA	RIO GRANDE	FRESH	0	0	0	0	0	0
OTHER AQUIFER   ALLUVIUM	MAVERICK	RIO GRANDE	FRESH	0	0	0	0	0	0
OTHER AQUIFER   ALLUVIUM	STARR	RIO GRANDE	FRESH	0	0	0	0	0	0
OTHER AQUIFER   ALLUVIUM	WEBB	NUECES	FRESH	0	0	0	0	0	0
OTHER AQUIFER   RIO GRANDE ALLUVIUM	HIDALGO	NUECES-RIO GRANDE	FRESH	0	0	0	0	0	0
OTHER AQUIFER   RIO GRANDE ALLUVIUM	HIDALGO	RIO GRANDE	FRESH	0	0	0	0	0	0
QUEEN CITY AQUIFER	WEBB	NUECES	FRESH	0	0	0	0	0	0
QUEEN CITY AQUIFER	WEBB	RIO GRANDE	FRESH	0	0	0	0	0	0
SPARTA AQUIFER	WEBB	NUECES	FRESH	0	0	0	0	0	0
SPARTA AQUIFER	WEBB	RIO GRANDE	FRESH	0	0	0	0	0	0
YEGUA-JACKSON AQUIFER	JIM HOGG	RIO GRANDE	FRESH	0	0	0	0	0	0



**Source Water Balance (Availability- WUG Supply)**

<b>REGION M</b>									
<b>GROUNDWATER</b>	<b>COUNTY</b>	<b>BASIN</b>	<b>SALINITY</b>	<b>SOURCE WATER BALANCE (ACRE-FEET PER YEAR)</b>					
				<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
YEGUA-JACKSON AQUIFER	STARR	RIO GRANDE	FRESH	1,785	1,785	1,785	1,785	1,785	1,785
YEGUA-JACKSON AQUIFER	WEBB	NUECES	FRESH	11,969	11,969	11,969	11,969	11,969	11,969
YEGUA-JACKSON AQUIFER	WEBB	RIO GRANDE	FRESH	8,030	8,030	8,030	8,030	8,030	8,030
YEGUA-JACKSON AQUIFER	ZAPATA	RIO GRANDE	FRESH	6,802	6,802	6,802	6,802	6,802	6,802
<b>GROUNDWATER TOTAL SOURCE WATER BALANCE</b>				<b>122,998</b>	<b>122,975</b>	<b>122,653</b>	<b>122,565</b>	<b>122,546</b>	<b>122,558</b>

<b>REGION M</b>									
<b>REUSE</b>	<b>COUNTY</b>	<b>BASIN</b>	<b>SALINITY</b>	<b>SOURCE WATER BALANCE (ACRE-FEET PER YEAR)</b>					
				<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
DIRECT REUSE   CITY OF EAGLE PASS WWTP	MAVERICK	RIO GRANDE	FRESH	650	650	650	650	650	650
DIRECT REUSE   ISLA BLANCA WWTP; HARLINGEN WWTP; LAGUNA VISTA WWTP	CAMERON	NUECES-RIO GRANDE	FRESH	7,541	11,542	13,367	13,367	14,367	14,367
DIRECT REUSE   NORTH LAREDO WWTP; UNITED WATER LAREDO SOUTHSIDE WWTP; ZACATE CREEK WWTP	WEBB	RIO GRANDE	FRESH	0	5,725	5,725	5,725	8,960	11,760
DIRECT REUSE   RANCHO VIEJO WWTP	CAMERON	RIO GRANDE	FRESH	0	0	0	0	0	0
DIRECT REUSE   STEAM ELECTRIC	HIDALGO	NUECES-RIO GRANDE	FRESH	18,206	19,876	20,996	25,796	28,036	28,036
DIRECT REUSE   WESLACO SOUTH WWTP	HIDALGO	RIO GRANDE	FRESH	2,887	4,887	6,283	7,493	7,493	7,493
<b>REUSE TOTAL SOURCE WATER BALANCE</b>				<b>29,284</b>	<b>42,680</b>	<b>47,021</b>	<b>53,031</b>	<b>59,506</b>	<b>62,306</b>

<b>REGION M</b>									
<b>SURFACE WATER</b>	<b>COUNTY</b>	<b>BASIN</b>	<b>SALINITY</b>	<b>SOURCE WATER BALANCE (ACRE-FEET PER YEAR)</b>					
				<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	RESERVOIR	RIO GRANDE	FRESH	300,609	300,101	300,086	299,113	298,918	298,184
LIVESTOCK LOCAL SUPPLY	JIM HOGG	NUECES-RIO GRANDE	FRESH	0	0	0	0	0	0
LIVESTOCK LOCAL SUPPLY	JIM HOGG	RIO GRANDE	FRESH	0	0	0	0	0	0
LIVESTOCK LOCAL SUPPLY	MAVERICK	NUECES	FRESH	0	0	0	0	0	0
LIVESTOCK LOCAL SUPPLY	MAVERICK	RIO GRANDE	FRESH	0	0	0	0	0	0
LIVESTOCK LOCAL SUPPLY	STARR	RIO GRANDE	FRESH	0	0	0	0	0	0
LIVESTOCK LOCAL SUPPLY	WEBB	NUECES	FRESH	0	0	0	0	0	0
LIVESTOCK LOCAL SUPPLY	WEBB	NUECES-RIO GRANDE	FRESH	0	0	0	0	0	0
LIVESTOCK LOCAL SUPPLY	WEBB	RIO GRANDE	FRESH	0	0	0	0	0	0
LIVESTOCK LOCAL SUPPLY	ZAPATA	RIO GRANDE	FRESH	0	0	0	0	0	0

**Source Water Balance (Availability- WUG Supply)**

<b>REGION M</b>									
<b>SURFACE WATER</b>	<b>COUNTY</b>	<b>BASIN</b>	<b>SALINITY</b>	<b>SOURCE WATER BALANCE (ACRE-FEET PER YEAR)</b>					
				<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
NUECES-RIO GRANDE RUN-OF-RIVER	CAMERON	NUECES-RIO GRANDE	FRESH	0	0	0	0	0	0
NUECES-RIO GRANDE RUN-OF-RIVER	HIDALGO	NUECES-RIO GRANDE	FRESH	7,522	7,522	7,522	7,522	7,522	7,522
NUECES-RIO GRANDE RUN-OF-RIVER	WILLACY	NUECES-RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE RUN-OF-RIVER	MAVERICK	RIO GRANDE	FRESH	0	0	0	0	0	0
RIO GRANDE RUN-OF-RIVER	WEBB	RIO GRANDE	FRESH	0	0	0	0	0	0
<b>SURFACE WATER TOTAL SOURCE WATER BALANCE</b>				<b>308,131</b>	<b>307,623</b>	<b>307,608</b>	<b>306,635</b>	<b>306,440</b>	<b>305,706</b>
<b>REGION M TOTAL SOURCE WATER BALANCE</b>				<b>460,413</b>	<b>473,278</b>	<b>477,282</b>	<b>482,231</b>	<b>488,492</b>	<b>490,570</b>

### Water User Group (WUG) Unmet Needs Summary

**REGION M**

	2020	2030	2040	2050	2060	2070
<b>MUNICIPAL</b>	0	0	0	0	0	0
<b>COUNTY-OTHER</b>	0	0	0	0	0	0
<b>MANUFACTURING</b>	65	391	1,110	1,278	1,279	1,280
<b>MINING</b>	3,581	3,722	4,457	4,502	4,651	5,149
<b>STEAM ELECTRIC POWER</b>	0	0	0	0	0	0
<b>LIVESTOCK</b>	0	0	0	0	0	0
<b>IRRIGATION</b>	500,138	453,905	408,406	359,810	311,970	294,477

\*WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The unmet needs shown in the WUG Unmet Needs Summary report are calculated by first deducting the WUG split's projected demand from the sum of its total existing water supply volume and all associated recommended water management strategy water volumes. If the WUG split has a greater future supply volume than projected demand in any given decade, this amount is considered a surplus volume. Before aggregating the difference between supplies and demands to the WUG category level, calculated surpluses are updated to zero so that only the WUGs with unmet needs in the decade are included with the Needs totals. Unmet needs water volumes are shown as absolute values.



### Water User Group (WUG) Unmet Needs

REGION M	WUG UNMET NEEDS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
<b>CAMERON COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
MANUFACTURING	65	391	544	542	541	537
IRRIGATION	163,370	150,607	138,749	126,068	114,058	109,605
<b>RIO GRANDE BASIN</b>						
IRRIGATION	10,137	9,324	8,567	7,757	6,990	6,707
<b>HIDALGO COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
MANUFACTURING	0	0	566	736	738	743
MINING	865	1,495	1,956	2,458	3,040	3,779
IRRIGATION	271,498	243,145	214,381	183,363	151,750	141,441
<b>RIO GRANDE BASIN</b>						
MINING	117	169	204	244	290	348
IRRIGATION	11,460	10,281	9,081	7,790	6,474	6,045
<b>MAVERICK COUNTY</b>						
<b>NUECES BASIN</b>						
MINING	270	403	437	322	208	125
<b>RIO GRANDE BASIN</b>						
MINING	1,052	1,587	1,722	1,264	805	472
<b>STARR COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
MINING	36	62	78	95	117	144
<b>RIO GRANDE BASIN</b>						
MINING	0	6	60	119	191	281
IRRIGATION	3,714	2,624	1,601	662	0	0
<b>WEBB COUNTY</b>						
<b>NUECES BASIN</b>						
MINING	378	0	0	0	0	0
<b>NUECES-RIO GRANDE BASIN</b>						
MINING	68	0	0	0	0	0
<b>RIO GRANDE BASIN</b>						
MINING	795	0	0	0	0	0
IRRIGATION	343	351	359	366	372	381
<b>WILLACY COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
IRRIGATION	38,842	36,918	35,114	33,346	31,936	29,899
<b>ZAPATA COUNTY</b>						
<b>RIO GRANDE BASIN</b>						
IRRIGATION	774	655	554	458	390	399

\*WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. The unmet needs shown in the WUG Unmet Needs report are calculated by first deducting the WUG split's projected demand from the sum of its total existing water supply volume and all associated recommended water management strategy water volumes. If the WUG split has a greater future supply volume than projected demand in any given decade, this amount is considered a surplus volume. In order to display only unmet needs associated with the WUG split, these surplus volumes are updated to a zero and the unmet needs water volumes are shown as absolute values.

### Water User Group (WUG) Second-Tier Identified Water Need Summary

**REGION M**

	2020	2030	2040	2050	2060	2070
<b>MUNICIPAL</b>	23,622	42,789	59,881	77,095	98,065	122,969
<b>COUNTY-OTHER</b>	9,776	11,447	13,107	14,635	15,938	17,087
<b>MANUFACTURING</b>	288	1,496	2,815	3,655	4,547	5,512
<b>MINING</b>	3,756	3,923	4,684	4,753	4,927	5,450
<b>STEAM ELECTRIC POWER</b>	533	2,687	5,313	8,513	12,416	17,053
<b>LIVESTOCK</b>	0	0	0	0	0	0
<b>IRRIGATION</b>	560,113	510,644	460,874	406,242	351,322	351,901

\*Second-tier needs are WUG split needs adjusted to include the implementation of recommended demand reduction and direct reuse water management strategies.

### Water User Group (WUG) Second-Tier Identified Water Need

REGION M	WUG SECOND-TIER NEEDS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
<b>CAMERON COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
BROWNSVILLE	0	0	0	5,331	10,999	18,132
COMBES	0	36	31	63	92	115
EAST RIO HONDO WSC	0	220	583	967	1,318	1,637
EL JARDIN WSC	187	0	104	273	741	881
HARLINGEN	0	0	0	0	188	1,222
INDIAN LAKE	14	1	9	19	28	38
LA FERIA	82	230	363	478	584	679
LAGUNA VISTA	639	766	854	924	966	984
LOS FRESNOS	0	0	0	0	0	45
LOS INDIOS	59	76	94	114	128	140
MILITARY HIGHWAY WSC	628	1,011	1,336	1,647	1,926	2,174
NORTH ALAMO WSC	1	14	23	33	41	47
OLMITO WSC	0	0	48	114	174	228
PALM VALLEY	0	8	0	19	43	64
PORT ISABEL	395	467	516	556	640	729
PRIMERA	0	26	23	65	104	139
RANCHO VIEJO	0	0	0	0	0	0
RIO HONDO	0	0	0	0	0	0
SAN BENITO	0	0	0	160	503	814
SANTA ROSA	57	87	120	162	209	236
SOUTH PADRE ISLAND	839	1,008	1,123	1,216	1,272	1,295
COUNTY-OTHER	4,880	4,955	5,060	5,190	5,303	5,399
MANUFACTURING	216	556	893	1,204	1,620	2,074
MINING	0	0	0	0	0	0
STEAM ELECTRIC POWER	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	182,204	166,964	151,855	135,603	119,937	120,197
<b>RIO GRANDE BASIN</b>						
BROWNSVILLE	0	0	0	57	117	192
EL JARDIN WSC	6	0	3	8	21	26
MILITARY HIGHWAY WSC	4	6	8	10	12	14
COUNTY-OTHER	7	7	8	9	9	9
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	11,339	10,367	9,403	8,365	7,363	7,382
<b>HIDALGO COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
AGUA SUD	0	582	1,327	1,989	2,633	3,172
ALAMO	1,004	1,682	2,221	2,696	3,115	3,463
ALTON	785	1,168	1,504	1,802	2,065	2,283
DONNA	0	151	681	1,072	1,416	1,702
EDCOUCH	28	89	154	224	299	340
EDINBURG	1,394	3,539	5,131	6,888	8,579	9,988
ELSA	0	54	212	369	479	570
HIDALGO	358	738	1,042	1,313	1,551	1,749
HIDALGO COUNTY MUD #1	298	410	529	651	777	846
LA JOYA	0	0	0	0	0	0
LA VILLA	29	82	139	180	216	247
MCALEEN	5,623	8,180	9,936	10,419	12,913	16,164



**Water User Group (WUG) Second-Tier Identified Water Need**

REGION M	WUG SECOND-TIER NEEDS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
<b>HIDALGO COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
MERCEDES	0	0	0	0	4	240
MILITARY HIGHWAY WSC	376	652	895	1,131	1,343	1,524
MISSION	3,170	5,539	7,287	5,476	7,644	9,450
NORTH ALAMO WSC	237	4,347	8,038	11,326	14,221	16,636
PALMHURST	297	405	485	541	576	591
PALMVIEW	0	82	0	60	158	239
PENITAS	0	65	0	32	109	174
PHARR	0	0	0	0	100	1,185
PROGRESO	157	303	448	557	652	731
SAN JUAN	1,897	3,178	4,197	5,100	5,895	6,557
SHARYLAND WSC	2,810	3,769	4,968	6,032	6,968	7,747
WESLACO	1,715	2,741	3,927	4,979	3,665	4,436
COUNTY-OTHER	1,310	2,358	3,353	4,308	5,231	6,095
MANUFACTURING	0	864	1,841	2,366	2,834	3,338
MINING	968	1,617	2,095	2,612	3,210	3,966
STEAM ELECTRIC POWER	533	2,687	5,313	8,513	12,416	17,053
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	301,309	273,052	242,516	207,792	171,558	172,027
<b>RIO GRANDE BASIN</b>						
AGUA SUD	0	77	174	260	346	416
HIDALGO	2	6	9	11	13	15
LA JOYA	0	0	0	0	0	0
MILITARY HIGHWAY WSC	12	22	29	38	46	52
MISSION	0	2	3	2	4	4
PHARR	0	0	0	0	0	0
SULLIVAN CITY	0	50	0	20	92	153
COUNTY-OTHER	0	7	33	59	82	106
MINING	126	178	214	256	303	362
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	12,553	11,376	10,105	8,659	7,147	7,169
<b>JIM HOGG COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
HEBBRONVILLE	0	23	32	44	48	48
COUNTY-OTHER	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	168	147	135	148	178	178
<b>RIO GRANDE BASIN</b>						
COUNTY-OTHER	0	0	0	0	0	0
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	17	12	9	12	19	19
<b>MAVERICK COUNTY</b>						
<b>NUECES BASIN</b>						
COUNTY-OTHER	0	0	0	0	0	0
MINING	283	417	453	339	227	145
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	0	0	0	0	0	0

**Water User Group (WUG) Second-Tier Identified Water Need**

REGION M	WUG SECOND-TIER NEEDS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
<b>MAVERICK COUNTY</b>						
<b>RIO GRANDE BASIN</b>						
EAGLE PASS	0	0	0	0	0	0
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	70	74	79	82	89	95
MINING	1,102	1,643	1,784	1,332	879	552
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	7,627	6,585	5,666	4,778	3,967	4,031
<b>STARR COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
COUNTY-OTHER	111	125	138	148	152	155
MINING	36	62	78	95	117	144
LIVESTOCK	0	0	0	0	0	0
<b>RIO GRANDE BASIN</b>						
AGUA SUD	0	3	7	9	13	15
ESCOBARES	0	0	0	0	0	0
LA GRULLA	0	0	0	0	0	0
RIO GRANDE CITY	0	0	0	0	0	0
RIO WSC	0	0	0	0	4	11
ROMA	0	0	0	0	0	0
UNION WSC	293	376	432	472	498	512
COUNTY-OTHER	2,543	2,845	3,135	3,352	3,462	3,521
MANUFACTURING	0	0	0	1	2	3
MINING	0	6	60	119	191	281
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	3,002	632	0	0	0	0
<b>WEBB COUNTY</b>						
<b>NUECES BASIN</b>						
COUNTY-OTHER	187	221	257	287	291	291
MANUFACTURING	0	0	0	0	0	0
MINING	378	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
<b>NUECES-RIO GRANDE BASIN</b>						
COUNTY-OTHER	29	51	74	93	117	137
MINING	68	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
<b>RIO GRANDE BASIN</b>						
EL CENIZO	0	0	0	0	7	33
LAREDO	0	0	0	0	0	0
RIO BRAVO	0	0	0	0	0	34
COUNTY-OTHER	505	613	730	821	878	918
MANUFACTURING	0	0	0	0	0	0
MINING	795	0	0	0	0	0
STEAM ELECTRIC POWER	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	366	378	390	402	413	425
<b>WILLACY COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
EAST RIO HONDO WSC	0	1	1	1	2	3
LYFORD	0	0	0	0	0	0

### Water User Group (WUG) Second-Tier Identified Water Need

REGION M	WUG SECOND-TIER NEEDS (ACRE-FEET PER YEAR)					
	2020	2030	2040	2050	2060	2070
<b>WILLACY COUNTY</b>						
<b>NUECES-RIO GRANDE BASIN</b>						
NORTH ALAMO WSC	10	162	277	370	446	504
RAYMONDVILLE	0	0	0	0	0	0
SAN PERLITA	0	0	0	0	0	0
SEBASTIAN MUD	0	0	0	0	8	26
COUNTY-OTHER	0	0	0	0	0	0
MANUFACTURING	2	2	2	2	2	2
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	40,821	40,675	40,569	40,480	40,740	40,473
<b>ZAPATA COUNTY</b>						
<b>RIO GRANDE BASIN</b>						
SAN YGNACIO MUD	0	0	0	0	0	0
ZAPATA COUNTY WATERWORKS	216	355	558	815	1,054	1,278
COUNTY-OTHER	204	265	319	368	413	456
MINING	0	0	0	0	0	0
LIVESTOCK	0	0	0	0	0	0
IRRIGATION	707	456	226	3	0	0

\*Second-tier needs are WUG split needs adjusted to include the implementation of recommended demand reduction and direct reuse water management strategies.



Contract Demand by Planning Decade (acre-feet/year)									
ADAMS GARDEN IRRIGATION DISTRICT #19									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
IRRIGATION, CAMERON	IRRIGATION	CAMERON	NUECES-RIO GRANDE	8,252	8,238	8,224	8,211	8,197	8,184
IRRIGATION, CAMERON	IRRIGATION	CAMERON	RIO GRANDE	526	525	525	524	523	522
AGUA SUD									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	62	62	62	62	62	62
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	RIO GRANDE	2	2	2	2	2	2
LA JOYA	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	145	145	145	145	145	145
LA JOYA	MUNICIPAL	HIDALGO	RIO GRANDE	39	39	39	39	39	39
MINING, HIDALGO	MINING	HIDALGO	NUECES-RIO GRANDE	12	12	12	12	12	12
MINING, HIDALGO	MINING	HIDALGO	RIO GRANDE	0	0	0	0	0	0
MISSION	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	33	33	33	33	33	33
MISSION	MUNICIPAL	HIDALGO	RIO GRANDE	0	0	0	0	0	0
PALMVIEW	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	743	897	1,056	1,220	1,388	1,554
PENITAS	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	603	732	865	1,001	1,139	1,275
SULLIVAN CITY	MUNICIPAL	HIDALGO	RIO GRANDE	544	647	755	869	989	1,107
BAYVIEW IRRIGATION DISTRICT #11									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
IRRIGATION, CAMERON	IRRIGATION	CAMERON	NUECES-RIO GRANDE	5,290	5,278	5,271	5,261	5,251	5,242
IRRIGATION, CAMERON	IRRIGATION	CAMERON	RIO GRANDE	338	338	337	336	336	335
LAGUNA MADRE WD	WWP	CAMERON	NUECES-RIO GRANDE	5,018	5,018	5,018	5,018	5,018	5,018
LIVESTOCK, CAMERON	LIVESTOCK	CAMERON	NUECES-RIO GRANDE	93	93	93	93	93	93
LIVESTOCK, CAMERON	LIVESTOCK	CAMERON	RIO GRANDE	6	6	6	6	6	6
MANUFACTURING, CAMERON	MANUFACTURING	CAMERON	NUECES-RIO GRANDE	20	20	20	20	20	20
BROWNSVILLE									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
EL JARDIN WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	1,457	1,457	1,457	1,457	1,457	1,457
EL JARDIN WSC	MUNICIPAL	CAMERON	RIO GRANDE	43	43	43	43	43	43
MANUFACTURING, CAMERON	MANUFACTURING	CAMERON	NUECES-RIO GRANDE	220	220	220	220	220	220
STEAM ELECTRIC POWER, CAMERON	STEAM ELECTRIC POWER	CAMERON	NUECES-RIO GRANDE	125	125	125	125	125	125
BROWNSVILLE IRRIGATION DISTRICT									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
BROWNSVILLE	MUNICIPAL	CAMERON		1,500	1,500	1,500	1,500	1,500	1,500
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	333	333	333	333	333	333
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	RIO GRANDE	1	1	1	1	1	1
HIDALGO COUNTY WID #3	WWP	CAMERON		2,000	2,000	2,000	2,000	2,000	2,000
IRRIGATION, CAMERON	IRRIGATION	CAMERON	NUECES-RIO GRANDE	14,878	14,852	14,825	14,799	14,773	14,745
IRRIGATION, CAMERON	IRRIGATION	CAMERON	RIO GRANDE	950	948	947	945	943	942
CAMERON COUNTY IRRIGATION DISTRICT #10									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
IRRIGATION, CAMERON	IRRIGATION	CAMERON	NUECES-RIO GRANDE	2,196	2,192	2,189	2,185	2,181	2,178
IRRIGATION, CAMERON	IRRIGATION	CAMERON	RIO GRANDE	140	140	139	139	139	139



Contract Demand by Planning Decade (acre-feet/year)									
CAMERON COUNTY IRRIGATION DISTRICT #16									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
IRRIGATION, CAMERON	IRRIGATION	CAMERON	NUECES-RIO GRANDE	1,501	1,499	1,496	1,494	1,491	1,489
IRRIGATION, CAMERON	IRRIGATION	CAMERON	RIO GRANDE	96	95	95	95	95	95
CAMERON COUNTY IRRIGATION DISTRICT #2									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	849	849	849	849	849	849
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	RIO GRANDE	1	1	1	1	1	1
EAST RIO HONDO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	5,159	5,159	5,159	5,159	5,159	5,159
EAST RIO HONDO WSC	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	8	8	8	8	8	8
IRRIGATION, CAMERON	IRRIGATION	CAMERON	NUECES-RIO GRANDE	61,810	61,708	61,606	61,505	61,403	61,302
IRRIGATION, CAMERON	IRRIGATION	CAMERON	RIO GRANDE	3,946	3,939	3,933	3,926	3,920	3,913
RIO HONDO	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	890	890	890	890	890	890
SAN BENITO	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	7,032	7,032	7,032	7,032	7,032	7,032
STEAM ELECTRIC POWER, CAMERON	STEAM ELECTRIC POWER	CAMERON	NUECES-RIO GRANDE	192	192	192	192	192	192
CAMERON COUNTY IRRIGATION DISTRICT #6									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
BAYVIEW IRRIGATION DISTRICT #11	WWP	CAMERON		16,005	15,990	15,974	15,959	15,944	15,929
BROWNSVILLE	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	383	383	383	383	383	383
BROWNSVILLE	MUNICIPAL	CAMERON	RIO GRANDE	4	4	4	4	4	4
CAMERON COUNTY IRRIGATION DISTRICT #10	WWP	CAMERON		3,435	3,429	3,424	3,418	3,412	3,407
IRRIGATION, CAMERON	IRRIGATION	CAMERON	NUECES-RIO GRANDE	21,764	21,727	21,688	21,650	21,611	21,574
IRRIGATION, CAMERON	IRRIGATION	CAMERON	RIO GRANDE	1,390	1,387	1,385	1,382	1,380	1,377
LOS FRESNOS	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	1,051	1,051	1,051	1,051	1,051	1,051
OLMITO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	1,160	1,160	1,160	1,160	1,160	1,160
DELTA LAKE IRRIGATION DISTRICT									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	585	585	585	585	585	585
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	RIO GRANDE	15	15	15	15	15	15
COUNTY-OTHER, WILLACY	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	250	250	250	250	250	250
ENGLEMAN IRRIGATION DISTRICT	WWP			8,044	8,030	8,017	8,004	7,991	7,978
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	41,422	41,354	41,286	41,218	41,150	41,082
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	1,727	1,724	1,721	1,718	1,715	1,712
IRRIGATION, WILLACY	IRRIGATION	WILLACY	NUECES-RIO GRANDE	32,951	32,897	32,843	32,789	32,734	32,680
LIVESTOCK, HIDALGO	LIVESTOCK	HIDALGO	NUECES-RIO GRANDE	680	680	680	680	680	680
LIVESTOCK, HIDALGO	LIVESTOCK	HIDALGO	RIO GRANDE	68	68	68	68	68	68
LIVESTOCK, WILLACY	LIVESTOCK	WILLACY	NUECES-RIO GRANDE	572	572	572	572	572	572
LYFORD	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	980	980	980	980	980	980
NORTH ALAMO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	27	27	27	27	27	27
NORTH ALAMO WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	8,336	8,336	8,336	8,336	8,336	8,336
NORTH ALAMO WSC	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	342	342	342	342	342	342
RAYMONDVILLE	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	5,670	5,670	5,670	5,670	5,670	5,670
VALLEY ACRES IRRIGATION DISTRICT	WWP			7,433	7,422	7,411	7,399	7,388	7,377



Contract Demand by Planning Decade (acre-feet/year)									
DONNA IRRIGATION DISTRICT-HIDALGO COUNTY #1									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	12	12	12	12	12	12
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	RIO GRANDE	1	1	1	1	1	1
DONNA IRRIGATION, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	4,190	4,190	4,190	4,190	4,190	4,190
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	39,998	39,932	39,864	39,798	39,732	39,666
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	1,666	1,663	1,661	1,658	1,655	1,652
NORTH ALAMO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	9	9	9	9	9	9
NORTH ALAMO WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	2,575	2,575	2,575	2,575	2,575	2,575
NORTH ALAMO WSC	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	105	105	105	105	105	105
EAGLE PASS									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, MAVERICK	MUNICIPAL	MAVERICK	NUECES	8	8	8	8	8	8
COUNTY-OTHER, MAVERICK	MUNICIPAL	MAVERICK	RIO GRANDE	4,705	4,705	4,705	4,705	4,705	4,705
MANUFACTURING, MAVERICK	MANUFACTURING	MAVERICK	RIO GRANDE	114	114	114	114	114	114
EAST RIO HONDO WSC									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	182	182	182	182	182	182
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	RIO GRANDE	0	0	0	0	0	0
INDIAN LAKE	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	51	51	51	51	51	51
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	21	21	21	21	21	21
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	RIO GRANDE	0	0	0	0	0	0
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	12	12	12	12	12	12
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	RIO GRANDE	0	0	0	0	0	0
EDINBURG									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
MANUFACTURING, HIDALGO	MANUFACTURING	HIDALGO	NUECES-RIO GRANDE	203	203	203	203	203	203
ENGLEMAN IRRIGATION DISTRICT									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	4,633	4,625	4,618	4,611	4,603	4,596
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	193	193	192	192	192	191
HARLINGEN									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COMBES	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	322	322	322	322	322	322
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	152	152	152	152	152	152
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	RIO GRANDE	1	1	1	1	1	1
EAST RIO HONDO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	221	257	293	329	365	403
EAST RIO HONDO WSC	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	0	0	0	0	0	0
MANUFACTURING, CAMERON	MANUFACTURING	CAMERON	NUECES-RIO GRANDE	185	185	185	185	185	185
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	88	88	88	88	88	88
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	RIO GRANDE	0	0	0	0	0	0
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	54	54	54	54	54	54
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	RIO GRANDE	2	2	2	2	2	2
PALM VALLEY	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	285	285	285	285	285	285
PRIMERA	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	400	400	400	400	400	400



Contract Demand by Planning Decade (acre-feet/year)									
HARLINGEN IRRIGATION DISTRICT-CAMERON COUNTY #1									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	69	69	69	69	69	69
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	RIO GRANDE	0	0	0	0	0	0
EAST RIO HONDO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	345	345	345	345	345	345
EAST RIO HONDO WSC	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	0	0	0	0	0	0
HARLINGEN	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	23,692	23,692	23,692	23,692	23,692	23,692
IRRIGATION, CAMERON	IRRIGATION	CAMERON	NUECES-RIO GRANDE	39,737	39,672	39,607	39,543	39,478	39,413
IRRIGATION, CAMERON	IRRIGATION	CAMERON	RIO GRANDE	2,537	2,533	2,529	2,524	2,520	2,516
LA FERIA IRRIGATION DISTRICT-CAMERON COUNTY #3	WWP			126	126	126	125	125	125
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	598	598	598	598	598	598
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	RIO GRANDE	4	4	4	4	4	4
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	364	364	364	364	364	364
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	RIO GRANDE	12	12	12	12	12	12
HIDALGO COUNTY IRRIGATION DISTRICT #1									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
EDINBURG	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	9,530	9,530	9,530	9,530	9,530	9,530
HIDALGO COUNTY IRRIGATION DISTRICT #13	WWP			1,874	1,870	1,867	1,864	1,861	1,858
HIDALGO COUNTY MUD #1	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	802	800	799	798	796	795
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	30,992	30,943	30,892	30,842	30,791	30,741
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	1,292	1,289	1,287	1,285	1,283	1,281
MCALLEN	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	4,000	4,000	4,000	4,000	4,000	4,000
NORTH ALAMO WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	1,802	1,802	1,802	1,802	1,802	1,802
NORTH ALAMO WSC	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	74	74	74	74	74	74
SANTA CRUZ IRRIGATION DISTRICT #15	WWP			36,904	36,852	36,799	36,747	36,694	36,642
SHARYLAND WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	3,465	3,465	3,465	3,465	3,465	3,465
STEAM ELECTRIC POWER, HIDALGO	STEAM ELECTRIC POWER	HIDALGO	NUECES-RIO GRANDE	250	250	250	250	250	250
HIDALGO COUNTY IRRIGATION DISTRICT #13									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
		HIDALGO	NUECES-RIO GRANDE	1,276	1,275	1,273	1,271	1,269	1,266
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	54	53	53	53	53	53
HIDALGO COUNTY IRRIGATION DISTRICT #16									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
AGUA SUD	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	3,213	3,213	3,213	3,213	3,213	3,213
AGUA SUD	MUNICIPAL	HIDALGO	RIO GRANDE	422	422	422	422	422	422
AGUA SUD	MUNICIPAL	STARR	RIO GRANDE	22	22	22	22	22	22
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	97	97	97	97	97	97
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	RIO GRANDE	3	3	3	3	3	3
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	13,710	13,685	13,661	13,637	13,612	13,588
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	572	571	570	569	568	567
LA JOYA	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	442	442	442	442	442	442
LA JOYA	MUNICIPAL	HIDALGO	RIO GRANDE	117	117	117	117	117	117
MINING, HIDALGO	MINING	HIDALGO	NUECES-RIO GRANDE	214	214	213	212	212	211
MINING, HIDALGO	MINING	HIDALGO	RIO GRANDE	17	17	17	17	17	17



<b>Contract Demand by Planning Decade (acre-feet/year)</b>									
<b>HIDALGO COUNTY IRRIGATION DISTRICT #19</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	3,660	3,654	3,647	3,642	3,636	3,629
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	152	152	152	151	151	151
<b>HIDALGO COUNTY IRRIGATION DISTRICT #2</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
ALAMO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	2,258	2,258	2,258	2,258	2,258	2,258
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	59	59	59	59	59	59
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	RIO GRANDE	1	1	1	1	1	1
EDINBURG	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	3,373	3,373	3,373	3,373	3,373	3,373
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	59,060	58,961	58,861	58,760	58,660	58,560
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	2,461	2,456	2,452	2,448	2,444	2,440
MCALLEN	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	8,111	8,111	8,111	8,111	8,111	8,111
NORTH ALAMO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	12	12	12	12	12	12
NORTH ALAMO WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	3,589	3,589	3,589	3,589	3,589	3,589
NORTH ALAMO WSC	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	148	148	148	148	148	148
PHARR	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	9,492	9,492	9,492	9,492	9,492	9,492
PHARR	MUNICIPAL	HIDALGO	RIO GRANDE	3	3	3	3	3	3
RIO GRANDE CITY	MUNICIPAL	STARR	RIO GRANDE	600	600	600	600	600	600
SAN JUAN	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	3,016	3,016	3,016	3,016	3,016	3,016
<b>HIDALGO COUNTY IRRIGATION DISTRICT #5</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	6,149	6,138	6,128	6,117	6,106	6,097
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	256	256	255	255	255	254
<b>HIDALGO COUNTY IRRIGATION DISTRICT #6</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
AGUA SUD	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	5,112	5,112	5,112	5,112	5,112	5,112
AGUA SUD	MUNICIPAL	HIDALGO	RIO GRANDE	671	671	671	671	671	671
AGUA SUD	MUNICIPAL	STARR	RIO GRANDE	33	33	33	33	33	33
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	358	358	358	358	358	358
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	RIO GRANDE	10	10	10	10	10	10
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	15,502	15,476	15,451	15,425	15,399	15,373
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	646	645	644	643	642	641
STEAM ELECTRIC POWER, HIDALGO	STEAM ELECTRIC POWER	HIDALGO	NUECES-RIO GRANDE	125	125	125	125	125	125
<b>HIDALGO COUNTY MUD #1</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	400	399	398	397	395	394
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	18	17	17	17	17	17
<b>HIDALGO COUNTY WCID #18</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	262	261	260	259	258	257
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	11	11	11	11	11	11
MINING, HIDALGO	MINING	HIDALGO	NUECES-RIO GRANDE	758	756	754	751	748	746
MINING, HIDALGO	MINING	HIDALGO	RIO GRANDE	61	60	60	60	60	59



Contract Demand by Planning Decade (acre-feet/year)									
HIDALGO COUNTY WID #3									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	3,585	3,579	3,572	3,566	3,561	3,555
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	149	149	149	149	148	148
MCALLEN	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	16,950	16,950	16,950	16,950	16,950	16,950
MINING, HIDALGO	MINING	HIDALGO	NUECES-RIO GRANDE	92	92	92	92	92	92
MINING, HIDALGO	MINING	HIDALGO	RIO GRANDE	8	8	8	8	8	8
HIDALGO-CAMERON COUNTY IRRIGATION DISTRICT #9									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	224	224	224	224	224	224
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	RIO GRANDE	1	1	1	1	1	1
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	3,017	3,017	3,017	3,017	3,017	3,017
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	RIO GRANDE	80	80	80	80	80	80
EDCOUCH	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	472	472	471	471	471	471
ELSA	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	1,300	1,299	1,299	1,298	1,298	1,297
IRRIGATION, CAMERON	IRRIGATION	CAMERON	NUECES-RIO GRANDE	5,062	5,054	5,045	5,038	5,029	5,021
IRRIGATION, CAMERON	IRRIGATION	CAMERON	RIO GRANDE	323	322	322	321	321	320
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	52,450	52,264	52,078	51,893	51,706	51,520
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	2,186	2,178	2,170	2,162	2,155	2,147
LA VILLA	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	352	352	352	352	352	352
LIVESTOCK, CAMERON	LIVESTOCK	CAMERON	NUECES-RIO GRANDE	71	71	71	71	71	71
LIVESTOCK, CAMERON	LIVESTOCK	CAMERON	RIO GRANDE	4	4	4	4	4	4
LIVESTOCK, HIDALGO	LIVESTOCK	HIDALGO	NUECES-RIO GRANDE	877	877	877	877	877	877
LIVESTOCK, HIDALGO	LIVESTOCK	HIDALGO	RIO GRANDE	89	89	89	89	89	89
MERCEDES	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	1,840	1,840	1,840	1,840	1,840	1,840
NORTH ALAMO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	17	17	17	17	17	17
NORTH ALAMO WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	5,363	5,363	5,363	5,363	5,363	5,363
NORTH ALAMO WSC	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	220	220	220	220	220	220
WESLACO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	5,611	5,611	5,611	5,611	5,611	5,611
LA FERIA IRRIGATION DISTRICT-CAMERON COUNTY #3									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	899	899	899	899	899	899
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	RIO GRANDE	1	1	1	1	1	1
IRRIGATION, CAMERON	IRRIGATION	CAMERON	NUECES-RIO GRANDE	34,985	34,929	34,871	34,814	34,758	34,700
IRRIGATION, CAMERON	IRRIGATION	CAMERON	RIO GRANDE	2,234	2,230	2,227	2,223	2,219	2,216
LA FERIA	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	1,500	1,500	1,500	1,500	1,500	1,500
LIVESTOCK, CAMERON	LIVESTOCK	CAMERON	NUECES-RIO GRANDE	315	315	315	315	315	315
LIVESTOCK, CAMERON	LIVESTOCK	CAMERON	RIO GRANDE	19	19	19	19	19	19
SANTA ROSA	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	350	350	350	350	350	350
SEBASTIAN MUD	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	300	300	300	300	300	300
LAGUNA MADRE WD									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
LAGUNA VISTA	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	2,435	2,831	3,236	3,676	4,130	4,597
MANUFACTURING, CAMERON	MANUFACTURING	CAMERON	NUECES-RIO GRANDE	1	1	1	1	1	1
PORT ISABEL	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	1,327	1,517	1,714	1,936	2,174	2,419
SOUTH PADRE ISLAND	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	3,228	3,755	4,292	4,875	5,478	6,098



<b>Contract Demand by Planning Decade (acre-feet/year)</b>									
<b>LAREDO</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
MANUFACTURING, WEBB	MANUFACTURING	WEBB	NUECES	18	18	18	18	18	18
MANUFACTURING, WEBB	MANUFACTURING	WEBB	RIO GRANDE	3	3	3	3	3	3
MINING, WEBB	MINING	WEBB	RIO GRANDE	21	21	21	21	21	21
STEAM ELECTRIC POWER, WEBB	STEAM ELECTRIC POWER	WEBB	RIO GRANDE	30	30	30	30	30	30
<b>LOS FRESNOS</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	199	199	199	199	199	199
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	RIO GRANDE	1	1	1	1	1	1
MANUFACTURING, CAMERON	MANUFACTURING	CAMERON	NUECES-RIO GRANDE	2	2	2	2	2	2
<b>MAVERICK COUNTY WCID #1</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, MAVERICK	MUNICIPAL	MAVERICK	NUECES	6	6	6	6	6	6
COUNTY-OTHER, MAVERICK	MUNICIPAL	MAVERICK	RIO GRANDE	3,325	3,325	3,325	3,325	3,325	3,325
IRRIGATION, MAVERICK	IRRIGATION	MAVERICK	NUECES	67	67	67	67	67	67
IRRIGATION, MAVERICK	IRRIGATION	MAVERICK	RIO GRANDE	57,940	57,846	57,751	57,657	57,562	57,468
MINING, MAVERICK	MINING	MAVERICK	RIO GRANDE	43	43	43	42	42	42
<b>MCALLEN</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
EDINBURG	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	0	0	0	0	0	0
MANUFACTURING, HIDALGO	MANUFACTURING	HIDALGO	NUECES-RIO GRANDE	600	600	600	600	600	600
MISSION	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	83	83	83	83	83	83
MISSION	MUNICIPAL	HIDALGO	RIO GRANDE	1	1	1	1	1	1
<b>MERCEDES</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
MANUFACTURING, HIDALGO	MANUFACTURING	HIDALGO	NUECES-RIO GRANDE	2	2	2	2	2	2
<b>MILITARY HIGHWAY WSC</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	30	30	30	30	30	30
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	RIO GRANDE	0	0	0	0	0	0
LOS INDIOS	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	144	144	144	144	144	144
PROGRESO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	722	868	1,020	1,177	1,339	1,498
SAN JUAN	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	45	45	45	45	45	45
<b>MISSION</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
MANUFACTURING, HIDALGO	MANUFACTURING	HIDALGO	NUECES-RIO GRANDE	191	191	191	191	191	191











<b>Contract Demand by Planning Decade (acre-feet/year)</b>									
<b>WEBB COUNTY WATER UTILITY</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
COUNTY-OTHER, WEBB	MUNICIPAL	WEBB	NUECES	2	2	2	2	2	2
COUNTY-OTHER, WEBB	MUNICIPAL	WEBB	NUECES-RIO GRANDE	2	2	2	2	2	2
COUNTY-OTHER, WEBB	MUNICIPAL	WEBB	RIO GRANDE	8	8	8	8	8	8
EL CENIZO	MUNICIPAL	WEBB	RIO GRANDE	390	464	537	606	675	737
LAREDO	MUNICIPAL	WEBB	RIO GRANDE	182	182	182	182	182	182
RIO BRAVO	MUNICIPAL	WEBB	RIO GRANDE	585	690	795	895	996	1,089
<b>WESLACO</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	107	107	107	107	107	107
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	RIO GRANDE	1	1	1	1	1	1
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	65	65	65	65	65	65
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	RIO GRANDE	2	2	2	2	2	2
<b>ZAPATA COUNTY WATERWORKS</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
COUNTY-OTHER, ZAPATA	MUNICIPAL	ZAPATA	RIO GRANDE	184	184	184	184	184	184

<b>Contract Demand Needs/Surplus (-/+)</b> by Planning Decade (acre-feet/year)									
<b>CAMERON COUNTY IRRIGATION DISTRICT #6</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
BAYVIEW IRRIGATION DISTRICT #11	WWP	CAMERON		16,005	15,990	15,974	15,959	15,944	15,929
BROWNSVILLE	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	-123	-123	-123	-123	-123	-123
BROWNSVILLE	MUNICIPAL	CAMERON	RIO GRANDE	-1	-1	-1	-1	-1	-1
CAMERON COUNTY IRRIGATION DISTRICT #10	WWP	CAMERON		3,435	3,429	3,424	3,418	3,412	3,407
IRRIGATION, CAMERON	IRRIGATION	CAMERON	NUECES-RIO GRANDE	-6,964	-6,953	-6,940	-6,928	-6,915	-6,904
IRRIGATION, CAMERON	IRRIGATION	CAMERON	RIO GRANDE	-445	-444	-443	-442	-442	-441
LOS FRESNOS	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	1,051	1,051	1,051	1,051	1,051	1,051
OLMITO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	1,160	1,160	1,160	1,160	1,160	1,160
<b>DELTA LAKE IRRIGATION DISTRICT</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-234	-234	-234	-234	-234	-234
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	RIO GRANDE	-6	-6	-6	-6	-6	-6
COUNTY-OTHER, WILLACY	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	250	250	250	250	250	250
ENGLEMAN IRRIGATION DISTRICT	WWP			8,044	8,030	8,017	8,004	7,991	7,978
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	-16,569	-16,541	-16,515	-16,488	-16,460	-16,433
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	-691	-690	-688	-687	-686	-685
IRRIGATION, WILLACY	IRRIGATION	WILLACY	NUECES-RIO GRANDE	32,951	32,897	32,843	32,789	32,734	32,680
LIVESTOCK, HIDALGO	LIVESTOCK	HIDALGO	NUECES-RIO GRANDE	-272	-272	-272	-272	-272	-272
LIVESTOCK, HIDALGO	LIVESTOCK	HIDALGO	RIO GRANDE	-27	-27	-27	-27	-27	-27
LIVESTOCK, WILLACY	LIVESTOCK	WILLACY	NUECES-RIO GRANDE	572	572	572	572	572	572
LYFORD	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	980	980	980	980	980	980
NORTH ALAMO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	-11	-11	-11	-11	-11	-11
NORTH ALAMO WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-3,334	-3,334	-3,334	-3,334	-3,334	-3,334
NORTH ALAMO WSC	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	-137	-137	-137	-137	-137	-137
RAYMONDVILLE	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	5,670	5,670	5,670	5,670	5,670	5,670
VALLEY ACRES IRRIGATION DISTRICT	WWP			7,433	7,422	7,411	7,399	7,388	7,377



<b>Contract Demand Needs/Surplus (-/+)</b> by Planning Decade (acre-feet/year)									
<b>DONNA IRRIGATION DISTRICT-HIDALGO COUNTY #1</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-4	-4	-4	-4	-4	-4
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	RIO GRANDE	0	0	0	0	0	0
DONNA	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	4,190	4,190	4,190	4,190	4,190	4,190
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	-11,600	-11,581	-11,560	-11,541	-11,522	-11,504
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	-483	-482	-482	-481	-480	-479
NORTH ALAMO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	-3	-3	-3	-3	-3	-3
NORTH ALAMO WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-747	-747	-747	-747	-747	-747
NORTH ALAMO WSC	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	-31	-31	-31	-31	-31	-31
<b>EAGLE PASS</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, MAVERICK	MUNICIPAL	MAVERICK	NUECES	0	0	0	0	0	0
COUNTY-OTHER, MAVERICK	MUNICIPAL	MAVERICK	RIO GRANDE	0	0	0	0	0	0
MANUFACTURING, MAVERICK	MANUFACTURING	MAVERICK	RIO GRANDE	114	114	114	114	114	114
<b>EAST RIO HONDO WSC</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	0	0	0	0	0	0
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	RIO GRANDE	0	0	0	0	0	0
INDIAN LAKE	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	51	51	51	51	51	51
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	0	0	0	0	0	0
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	RIO GRANDE	0	0	0	0	0	0
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	0	0	0	0	0	0
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	RIO GRANDE	0	0	0	0	0	0
<b>EDINBURG</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
MANUFACTURING, HIDALGO	MANUFACTURING	HIDALGO	NUECES-RIO GRANDE	203	203	203	203	203	203
<b>ENGLEMAN IRRIGATION DISTRICT</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	-1,343	-1,341	-1,339	-1,337	-1,335	-1,333
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	-56	-56	-56	-56	-56	-55



<b>Contract Demand Needs/Surplus (-/+)</b> by Planning Decade (acre-feet/year)									
<b>HARLINGEN</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
COMBES	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	322	322	322	322	322	322
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	0	0	0	0	0	0
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	RIO GRANDE	0	0	0	0	0	0
EAST RIO HONDO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	0	-36	-72	-108	-144	-182
EAST RIO HONDO WSC	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	0	0	0	0	0	0
MANUFACTURING, CAMERON	MANUFACTURING	CAMERON	NUECES-RIO GRANDE	185	185	185	185	185	185
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	0	0	0	0	0	0
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	RIO GRANDE	0	0	0	0	0	0
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	0	0	0	0	0	0
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	RIO GRANDE	0	0	0	0	0	0
PALM VALLEY	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	285	285	285	285	285	285
PRIMERA	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	400	400	400	400	400	400
<b>HARLINGEN IRRIGATION DISTRICT-CAMERON COUNTY #1</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	-22	-22	-22	-22	-22	-22
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	RIO GRANDE	0	0	0	0	0	0
EAST RIO HONDO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	-110	-110	-110	-110	-110	-110
EAST RIO HONDO WSC	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	0	0	0	0	0	0
HARLINGEN	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	23,692	23,692	23,692	23,692	23,692	23,692
IRRIGATION, CAMERON	IRRIGATION	CAMERON	NUECES-RIO GRANDE	-12,716	-12,696	-12,675	-12,653	-12,633	-12,612
IRRIGATION, CAMERON	IRRIGATION	CAMERON	RIO GRANDE	-812	-810	-809	-808	-806	-805
LA FERIA IRRIGATION DISTRICT-CAMERON COUNTY #3	WWP			126	126	126	125	125	125
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	-191	-191	-191	-191	-191	-191
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	RIO GRANDE	-1	-1	-1	-1	-1	-1
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-117	-117	-117	-117	-117	-117
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	RIO GRANDE	-4	-4	-4	-4	-4	-4



<b>Contract Demand Needs/Surplus (-/+)</b> by Planning Decade (acre-feet/year)									
<b>HIDALGO COUNTY IRRIGATION DISTRICT #1</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
EDINBURG	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	9,530	9,530	9,530	9,530	9,530	9,530
HIDALGO COUNTY IRRIGATION DISTRICT #13	WWP			1,874	1,870	1,867	1,864	1,861	1,858
HIDALGO COUNTY MUD #1	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	802	800	799	798	796	795
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	-8,987	-8,973	-8,959	-8,944	-8,929	-8,915
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	-375	-374	-373	-373	-372	-372
MCALLEN	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	4,000	4,000	4,000	4,000	4,000	4,000
NORTH ALAMO WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-522	-522	-522	-522	-522	-522
NORTH ALAMO WSC	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	-22	-22	-22	-22	-22	-22
SANTA CRUZ IRRIGATION DISTRICT #15	WWP			36,904	36,852	36,799	36,747	36,694	36,642
SHARYLAND WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	3,465	3,465	3,465	3,465	3,465	3,465
STEAM ELECTRIC POWER, HIDALGO	STEAM ELECTRIC POWER	HIDALGO	NUECES-RIO GRANDE	250	250	250	250	250	250
<b>HIDALGO COUNTY IRRIGATION DISTRICT #13</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	-370	-370	-370	-369	-369	-367
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	-16	-15	-15	-15	-15	-15
<b>HIDALGO COUNTY IRRIGATION DISTRICT #16</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
AGUA SUD	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-932	-932	-932	-932	-932	-932
AGUA SUD	MUNICIPAL	HIDALGO	RIO GRANDE	-123	-123	-123	-123	-123	-123
AGUA SUD	MUNICIPAL	STARR	RIO GRANDE	-6	-6	-6	-6	-6	-6
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-28	-28	-28	-28	-28	-28
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	RIO GRANDE	-1	-1	-1	-1	-1	-1
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	-3,976	-3,968	-3,962	-3,955	-3,947	-3,941
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	-166	-166	-165	-165	-165	-164
LA JOYA	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-128	-128	-128	-128	-128	-128
LA JOYA	MUNICIPAL	HIDALGO	RIO GRANDE	-34	-34	-34	-34	-34	-34
MINING, HIDALGO	MINING	HIDALGO	NUECES-RIO GRANDE	-62	-62	-62	-61	-62	-61
MINING, HIDALGO	MINING	HIDALGO	RIO GRANDE	-5	-5	-5	-5	-5	-5
<b>HIDALGO COUNTY IRRIGATION DISTRICT #19</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	-1,062	-1,060	-1,058	-1,056	-1,054	-1,052
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	-44	-44	-44	-44	-44	-44



<b>Contract Demand Needs/Surplus (-/+)</b> by Planning Decade (acre-feet/year)									
<b>HIDALGO COUNTY IRRIGATION DISTRICT #2</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
ALAMO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	2,258	2,258	2,258	2,258	2,258	2,258
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-17	-17	-17	-17	-17	-17
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	RIO GRANDE	0	0	0	0	0	0
EDINBURG	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	3,373	3,373	3,373	3,373	3,373	3,373
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	-17,127	-17,099	-17,070	-17,040	-17,011	-16,982
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	-714	-712	-711	-710	-709	-708
MCALLEN	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	8,111	8,111	8,111	8,111	8,111	8,111
NORTH ALAMO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	-4	-4	-4	-4	-4	-4
NORTH ALAMO WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-1,040	-1,040	-1,040	-1,040	-1,040	-1,040
NORTH ALAMO WSC	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	-43	-43	-43	-43	-43	-43
PHARR	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-2,753	-2,753	-2,753	-2,753	-2,753	-2,753
PHARR	MUNICIPAL	HIDALGO	RIO GRANDE	-1	-1	-1	-1	-1	-1
RIO GRANDE CITY	MUNICIPAL	STARR	RIO GRANDE	600	600	600	600	600	600
SAN JUAN	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	3,016	3,016	3,016	3,016	3,016	30,166
<b>HIDALGO COUNTY IRRIGATION DISTRICT #5</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	-1,784	-1,780	-1,777	-1,774	-1,770	-1,768
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	-74	-74	-74	-74	-74	-74
<b>HIDALGO COUNTY IRRIGATION DISTRICT #6</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
AGUA SUD	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-1,483	-1,483	-1,483	-1,483	-1,483	-1,483
AGUA SUD	MUNICIPAL	HIDALGO	RIO GRANDE	-195	-195	-195	-195	-195	-195
AGUA SUD	MUNICIPAL	STARR	RIO GRANDE	-10	-10	-10	-10	-10	-10
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-104	-104	-104	-104	-104	-104
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	RIO GRANDE	-3	-3	-3	-3	-3	-3
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	-4,496	-4,488	-4,481	-4,473	-4,466	-4,458
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	-187	-187	-187	-187	-186	-186
STEAM ELECTRIC POWER, HIDALGO	STEAM ELECTRIC POWER	HIDALGO	NUECES-RIO GRANDE	125	125	125	125	125	125
<b>HIDALGO COUNTY MUD #1</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	-227	-226	-226	-225	-224	-224
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	-10	-10	-10	-10	-10	-10







<b>Contract Demand Needs/Surplus (-/+)</b> by Planning Decade (acre-feet/year)									
<b>LA FERIA IRRIGATION DISTRICT-CAMERON COUNTY #3</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	-288	-288	-288	-288	-288	-288
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	RIO GRANDE	0	0	0	0	0	0
IRRIGATION, CAMERON	IRRIGATION	CAMERON	NUECES-RIO GRANDE	-11,195	-11,177	-11,159	-11,166	-11,123	-11,104
IRRIGATION, CAMERON	IRRIGATION	CAMERON	RIO GRANDE	-715	-714	-712	-713	-710	-709
LA FERIA	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	1,500	1,500	1,500	1,500	1,500	1,500
LIVESTOCK, CAMERON	LIVESTOCK	CAMERON	NUECES-RIO GRANDE	0	0	0	0	0	0
LIVESTOCK, CAMERON	LIVESTOCK	CAMERON	RIO GRANDE	0	0	0	0	0	0
SANTA ROSA	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	350	350	350	350	350	350
SEBASTIAN MUD	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	300	300	300	300	300	300
<b>LAGUNA MADRE WD</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
LAGUNA VISTA	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	2,435	2,831	3,236	3,676	4,130	4,597
MANUFACTURING, CAMERON	MANUFACTURING	CAMERON	NUECES-RIO GRANDE	1	1	1	1	1	1
PORT ISABEL	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	1,327	1,517	1,714	1,936	2,174	2,419
SOUTH PADRE ISLAND	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	3,228	3,755	4,292	4,875	5,478	6,098
<b>LAREDO</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
MANUFACTURING, WEBB	MANUFACTURING	WEBB	NUECES	0	0	0	0	0	0
MANUFACTURING, WEBB	MANUFACTURING	WEBB	RIO GRANDE	0	0	0	0	0	0
MINING, WEBB	MINING	WEBB	RIO GRANDE	21	21	21	21	21	21
STEAM ELECTRIC POWER, WEBB	STEAM ELECTRIC POWER	WEBB	RIO GRANDE	30	30	30	30	30	30
<b>LOS FRESNOS</b>									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	0	0	0	0	0	0
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	RIO GRANDE	0	0	0	0	0	0
MANUFACTURING, CAMERON	MANUFACTURING	CAMERON	NUECES-RIO GRANDE	2	2	2	2	2	2



<b>Contract Demand Needs/Surplus (-/+)</b> by Planning Decade (acre-feet/year)									
<b>MAVERICK COUNTY WCID #1</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
COUNTY-OTHER, MAVERICK	MUNICIPAL	MAVERICK	NUECES	-2	-2	-2	-2	-2	-2
COUNTY-OTHER, MAVERICK	MUNICIPAL	MAVERICK	RIO GRANDE	-1,097	-1,097	-1,097	-1,097	-1,097	-1,097
IRRIGATION, MAVERICK	IRRIGATION	MAVERICK	NUECES	-22	-22	-22	-22	-22	-22
IRRIGATION, MAVERICK	IRRIGATION	MAVERICK	RIO GRANDE	-19,120	-19,090	-19,058	-19,027	-18,995	-18,965
MINING, MAVERICK	MINING	MAVERICK	RIO GRANDE	43	43	43	42	42	42
<b>MCALLEN</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
EDINBURG	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	0	0	0	0	0	0
MANUFACTURING, HIDALGO	MANUFACTURING	HIDALGO	NUECES-RIO GRANDE	600	600	600	600	600	600
MISSION	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	0	0	0	0	0	0
MISSION	MUNICIPAL	HIDALGO	RIO GRANDE	0	0	0	0	0	0
<b>MERCEDES</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
MANUFACTURING, HIDALGO	MANUFACTURING	HIDALGO	NUECES-RIO GRANDE	2	2	2	2	2	2
<b>MILITARY HIGHWAY WSC</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-7	-7	-7	-7	-7	-7
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	RIO GRANDE	0	0	0	0	0	0
LOS INDIOS	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	144	144	144	144	144	144
PROGRESO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	722	868	1,020	1,177	1,339	1,498
SAN JUAN	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	45	45	45	45	45	45
<b>MISSION</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
MANUFACTURING, HIDALGO	MANUFACTURING	HIDALGO	NUECES-RIO GRANDE	191	191	191	191	191	191



Contract Demand Needs/Surplus (-/+ ) by Planning Decade (acre-feet/year)									
NORTH ALAMO WSC									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-2	-2	-2	-2	-2	-2
COUNTY-OTHER, HIDALGO	MUNICIPAL	HIDALGO	RIO GRANDE	0	0	0	0	0	0
EDINBURG	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	253	253	253	253	253	253
MANUFACTURING, CAMERON	MANUFACTURING	CAMERON	NUECES-RIO GRANDE	19	19	19	19	19	19
MANUFACTURING, HIDALGO	MANUFACTURING	HIDALGO	NUECES-RIO GRANDE	554	554	554	554	554	554
MANUFACTURING, WILLACY	MANUFACTURING	WILLACY	NUECES-RIO GRANDE	212	212	212	212	212	212
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	0	0	0	0	0	0
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	RIO GRANDE	0	0	0	0	0	0
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	-1	-1	-1	-1	-1	-1
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	RIO GRANDE	0	0	0	0	0	0
PRIMERA	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	50	50	50	50	50	50
SAN JUAN	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	1,682	1,682	1,682	1,682	1,682	1,682
SAN PERLITA	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	235	235	235	235	235	235
OLMITO WSC									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
EAST RIO HONDO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	0	0	0	0	0	0
EAST RIO HONDO WSC	MUNICIPAL	WILLACY	NUECES-RIO GRANDE	0	0	0	0	0	0
RIO GRANDE CITY									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, STARR	MUNICIPAL	STARR	NUECES-RIO GRANDE	-2	-2	-2	-2	-2	-2
COUNTY-OTHER, STARR	MUNICIPAL	STARR	RIO GRANDE	-48	-48	-48	-48	-48	-48
RIO WSC	MUNICIPAL	STARR	RIO GRANDE	788	788	788	788	788	788
RIO WSC									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
IRRIGATION, STARR	IRRIGATION	STARR	RIO GRANDE	30	30	30	30	30	30
MINING, STARR	MINING	STARR	NUECES-RIO GRANDE	0	0	0	0	0	0
MINING, STARR	MINING	STARR	RIO GRANDE	0	0	0	0	0	0
ROMA									
Buyer	Buyer Category	County	River Basin	2020	2030	2040	2050	2060	2070
COUNTY-OTHER, STARR	MUNICIPAL	STARR	NUECES-RIO GRANDE	0	0	0	0	0	0
COUNTY-OTHER, STARR	MUNICIPAL	STARR	RIO GRANDE	0	0	0	0	0	0
ESCOBARES	MUNICIPAL	STARR	RIO GRANDE	169	184	203	221	238	253







<b>Contract Demand Needs/Surplus (-/+)</b> by Planning Decade (acre-feet/year)									
<b>VALLEY ACRES IRRIGATION DISTRICT</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
IRRIGATION, CAMERON	IRRIGATION	CAMERON	NUECES-RIO GRANDE	-144	-144	-144	-144	-144	-143
IRRIGATION, CAMERON	IRRIGATION	CAMERON	RIO GRANDE	-9	-9	-9	-9	-9	-9
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	NUECES-RIO GRANDE	-1,047	-1,045	-1,043	-1,042	-1,041	-1,039
IRRIGATION, HIDALGO	IRRIGATION	HIDALGO	RIO GRANDE	-44	-44	-44	-44	-43	-43
MANUFACTURING, HIDALGO	MANUFACTURING	HIDALGO	NUECES-RIO GRANDE	120	120	120	120	120	120
STEAM ELECTRIC POWER, CAMERON	STEAM ELECTRIC POWER	CAMERON	NUECES-RIO GRANDE	456	456	456	456	456	456
<b>VALLEY MUD #2</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
BROWNSVILLE	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	0	0	0	0	0	0
BROWNSVILLE	MUNICIPAL	CAMERON	RIO GRANDE	0	0	0	0	0	0
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	0	0	0	0	0	0
COUNTY-OTHER, CAMERON	MUNICIPAL	CAMERON	RIO GRANDE	0	0	0	0	0	0
IRRIGATION, CAMERON	IRRIGATION	CAMERON	NUECES-RIO GRANDE	-528	-526	-524	-522	-520	-519
IRRIGATION, CAMERON	IRRIGATION	CAMERON	RIO GRANDE	-33	-33	-33	-33	-33	-33
OLMITO WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	14	14	14	14	14	14
RANCHO VIEJO	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	1,307	1,307	1,307	1,307	1,307	1,307
<b>WEBB COUNTY WATER UTILITY</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
COUNTY-OTHER, WEBB	MUNICIPAL	WEBB	NUECES	0	0	0	0	0	0
COUNTY-OTHER, WEBB	MUNICIPAL	WEBB	NUECES-RIO GRANDE	0	0	0	0	0	0
COUNTY-OTHER, WEBB	MUNICIPAL	WEBB	RIO GRANDE	0	0	0	0	0	0
EL CENIZO	MUNICIPAL	WEBB	RIO GRANDE	390	464	537	606	675	737
LAREDO	MUNICIPAL	WEBB	RIO GRANDE	182	182	182	182	182	182
RIO BRAVO	MUNICIPAL	WEBB	RIO GRANDE	585	690	795	895	996	1,089
<b>WESLACO</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	NUECES-RIO GRANDE	0	0	0	0	0	0
MILITARY HIGHWAY WSC	MUNICIPAL	CAMERON	RIO GRANDE	0	0	0	0	0	0
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	NUECES-RIO GRANDE	0	0	0	0	0	0
MILITARY HIGHWAY WSC	MUNICIPAL	HIDALGO	RIO GRANDE	0	0	0	0	0	0
<b>ZAPATA COUNTY WATERWORKS</b>									
<b>Buyer</b>	<b>Buyer Category</b>	<b>County</b>	<b>River Basin</b>	<b>2020</b>	<b>2030</b>	<b>2040</b>	<b>2050</b>	<b>2060</b>	<b>2070</b>
COUNTY-OTHER, ZAPATA	MUNICIPAL	ZAPATA	RIO GRANDE	184	184	184	184	184	184



### Recommended Water User Group (WUG) Water Management Strategies (WMS)

**WUG Entity Primary Region: M**

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
AGUA SUD	M	ADVANCED MUNICIPAL CONSERVATION - AGUA SUD	DEMAND REDUCTION	0	0	131	527	1,058	1,688	N/A	\$681
AGUA SUD	M	AGUA SUD EAST WWTP POTABLE REUSE	M   DIRECT REUSE	700	700	700	785	785	785	\$2358	\$1649
AGUA SUD	M	AGUA SUD WEST WWTP POTABLE REUSE	M   DIRECT REUSE	565	565	780	780	780	780	\$2974	\$1500
AGUA SUD	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	180	360	900	1,620	2,340	2,340	\$143	\$143
AGUA SUD	M	HIDALGO COUNTY ID NO. 16 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	204	264	323	383	443	502	\$149	\$0
AGUA SUD	M	HIDALGO COUNTY ID NO. 6 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	520	575	630	685	741	796	\$382	\$0
ALAMO	M	ADVANCED MUNICIPAL CONSERVATION - ALAMO	DEMAND REDUCTION	0	0	159	403	722	1,097	N/A	\$652
ALAMO	M	ALAMO BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	1,000	1,000	1,000	1,000	1,000	1,000	\$2183	\$1147
ALAMO	M	ALAMO GROUNDWATER WELL	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	1,120	1,120	1,120	1,120	1,120	1,120	\$114	\$26
ALAMO	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	1,000	1,000	1,000	N/A	\$143
ALAMO	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	100	166	232	297	363	429	\$289	\$6
ALAMO	M	NAWSC CONVERTED WATER RIGHTS AND WTP NO. 5 EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	50	50	50	50	50	50	\$505	\$210
ALTON	M	ADVANCED MUNICIPAL CONSERVATION - ALTON	DEMAND REDUCTION	0	70	200	376	592	844	N/A	\$652
ALTON	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	180	552	930	1,365	1,972	1,992	\$143	\$143
ALTON	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	88	95	102	109	116	123	\$346	\$0
ALTON	M	SANTA CRUZ ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	43	47	51	55	60	64	\$89	\$0
ALTON	M	SHARYLAND WSC WELL AND RO UNIT AT WTP #2	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	189	189	189	189	189	189	\$2630	\$1398
ALTON	M	SHARYLAND WSC WELL AND RO UNIT AT WTP #3	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	171	171	171	171	171	171	\$2630	\$1398
ALTON	M	UNITED ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	115	129	143	157	171	184	\$141	\$2
BROWNSVILLE	M	ADVANCED MUNICIPAL CONSERVATION - BROWNSVILLE	DEMAND REDUCTION	1,081	2,695	2,421	2,396	2,608	2,880	\$652	\$652
BROWNSVILLE	M	BROWNSVILLE BANCO MORALES RESERVOIR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3,564	3,577	3,591	3,604	3,617	3,630	\$168	\$24
BROWNSVILLE	M	BROWNSVILLE RESACA RESTORATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	827	827	827	827	827	827	\$1182	\$0
BROWNSVILLE	M	BROWNSVILLE SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	2,603	2,603	2,603	2,603	26,022	26,022	\$5560	\$3708

### Recommended Water User Group (WUG) Water Management Strategies (WMS)

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
BROWNSVILLE	M	BROWNSVILLE SOUTHSIDE WWTP POTABLE REUSE	M   DIRECT REUSE	0	3,412	3,412	3,412	4,715	4,715	N/A	\$1153
BROWNSVILLE	M	CAMERON COUNTY ID NO. 6 (LOS FRESNOS) CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	84	101	119	136	153	170	\$385	\$0
COMBES	M	ADVANCED MUNICIPAL CONSERVATION - COMBES	DEMAND REDUCTION	0	0	5	21	45	74	N/A	\$652
COMBES	M	HARLINGEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	9	36	51	73	94	115	\$214	\$6
COMBES	M	HARLINGEN WWTP 2 POTABLE REUSE	M   DIRECT REUSE	0	0	39	39	39	43	N/A	\$1078
COUNTY-OTHER, CAMERON	M	ADVANCED MUNICIPAL CONSERVATION - COUNTY-OTHER, CAMERON	DEMAND REDUCTION	230	506	776	1,143	1,607	2,118	\$652	\$652
COUNTY-OTHER, CAMERON	M	BAYVIEW ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	23	26	28	31	33	36	\$324	\$0
COUNTY-OTHER, CAMERON	M	BROWNSVILLE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	47	52	57	63	68	73	\$443	\$0
COUNTY-OTHER, CAMERON	M	CAMERON COUNTY EXPANSION OF GROUNDWATER WELLS	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	4,500	4,500	4,500	4,500	4,500	4,500	\$236	\$28
COUNTY-OTHER, CAMERON	M	CAMERON COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	222	271	321	371	420	470	\$597	\$0
COUNTY-OTHER, CAMERON	M	CAMERON COUNTY ID NO. 6 (LOS FRESNOS) CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	20	24	28	32	36	40	\$385	\$0
COUNTY-OTHER, CAMERON	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	59	1,777	283	283	283	283	\$211	\$211
COUNTY-OTHER, CAMERON	M	HARLINGEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4	14	24	34	45	55	\$214	\$6
COUNTY-OTHER, CAMERON	M	HARLINGEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	16	57	97	137	178	218	\$214	\$6
COUNTY-OTHER, CAMERON	M	HARLINGEN WWTP 2 POTABLE REUSE	M   DIRECT REUSE	0	0	18	18	18	18	N/A	\$1078
COUNTY-OTHER, CAMERON	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	11	18	24	31	38	45	\$1069	\$5
COUNTY-OTHER, CAMERON	M	LA FERIA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	185	188	190	193	195	198	\$461	\$0
COUNTY-OTHER, HIDALGO	M	ADVANCED MUNICIPAL CONSERVATION - COUNTY-OTHER, HIDALGO	DEMAND REDUCTION	0	52	179	353	567	817	N/A	\$652
COUNTY-OTHER, HIDALGO	M	AGUA SUD EAST WWTP POTABLE REUSE	M   DIRECT REUSE	65	65	65	71	71	71	\$2358	\$1649
COUNTY-OTHER, HIDALGO	M	AGUA SUD WEST WWTP POTABLE REUSE	M   DIRECT REUSE	6	6	15	15	15	15	\$2974	\$1500
COUNTY-OTHER, HIDALGO	M	CAMERON COUNTY CONVERSION OF WRS	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	435	435	435	435	435	435	\$211	\$211
COUNTY-OTHER, HIDALGO	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	351	1,571	2,333	3,170	3,975	4,686	\$211	\$211
COUNTY-OTHER, HIDALGO	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2	6	9	13	19	24	\$143	\$143
COUNTY-OTHER, HIDALGO	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1	3	3	3	14	15	\$143	\$143
COUNTY-OTHER, HIDALGO	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	31	61	91	121	150	180	\$673	\$5

**Recommended Water User Group (WUG) Water Management Strategies (WMS)**

**Water Management Strategy Supplies**

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
COUNTY-OTHER, HIDALGO	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	1	1	2	2	3	N/A	\$5
COUNTY-OTHER, HIDALGO	M	DONNA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	1	2	3	3	4	N/A	\$4
COUNTY-OTHER, HIDALGO	M	DONNA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	1	1	1	N/A	\$4
COUNTY-OTHER, HIDALGO	M	ERHWSO SURFACE WATER TREATMENT PLANT AND CONVERTED WR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	5	5	5	5	5	5	\$5963	\$2324
COUNTY-OTHER, HIDALGO	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	147	242	336	431	525	619	\$1069	\$5
COUNTY-OTHER, HIDALGO	M	HIDALGO COUNTY CONVERSION OF WR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	270	776	1,328	1,963	2,637	2,637	\$211	\$211
COUNTY-OTHER, HIDALGO	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3	3	4	4	4	4	\$330	\$0
COUNTY-OTHER, HIDALGO	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	6	7	7	8	8	9	\$330	\$0
COUNTY-OTHER, HIDALGO	M	HIDALGO COUNTY ID NO. 16 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2	3	4	4	5	6	\$149	\$0
COUNTY-OTHER, HIDALGO	M	HIDALGO COUNTY ID NO. 16 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	8	10	12	14	17	19	\$149	\$0
COUNTY-OTHER, HIDALGO	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3	4	6	8	10	11	\$289	\$6
COUNTY-OTHER, HIDALGO	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	1	1	1	N/A	\$6
COUNTY-OTHER, HIDALGO	M	HIDALGO COUNTY ID NO. 6 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	6	7	7	8	8	9	\$382	\$0
COUNTY-OTHER, HIDALGO	M	HIDALGO COUNTY ID NO. 6 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	46	51	55	60	65	70	\$382	\$0
COUNTY-OTHER, HIDALGO	M	MHWSO EXPAND EXISTING GW SUPPLIES - CAMERON COUNTY	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	3	3	3	3	3	3	\$1254	\$534
COUNTY-OTHER, HIDALGO	M	NAWSO CONVERTED WATER RIGHTS AND DELTA WTP EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	104	105	105	105	N/A	\$244
COUNTY-OTHER, HIDALGO	M	NAWSO CONVERTED WATER RIGHTS AND WTP NO. 5 EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	4	4	4	4	4	N/A	\$210
COUNTY-OTHER, HIDALGO	M	NAWSO DELTA AREA RO WTP EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	2	2	N/A	\$1781
COUNTY-OTHER, HIDALGO	M	NAWSO I.A SARA RO PLANT EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	0	37	N/A	\$2104
COUNTY-OTHER, HIDALGO	M	NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	1	1	1	1	1	1	\$843	\$33
COUNTY-OTHER, HIDALGO	M	SANTA CRUZ ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3	3	4	4	4	4	\$89	\$0
COUNTY-OTHER, HIDALGO	M	SANTA CRUZ ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3	3	4	4	4	4	\$89	\$0



## Recommended Water User Group (WUG) Water Management Strategies (WMS)

## Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
COUNTY-OTHER, HIDALGO	M	UNITED ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	8	9	10	11	12	13	\$141	\$2
COUNTY-OTHER, MAVERICK	M	ADVANCED MUNICIPAL CONSERVATION - COUNTY-OTHER, MAVERICK	DEMAND REDUCTION	0	0	0	0	0	306	N/A	\$652
COUNTY-OTHER, MAVERICK	M	MAVERICK COUNTY WCID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	381	428	476	524	571	619	\$381	\$0
COUNTY-OTHER, STARR	M	ADVANCED MUNICIPAL CONSERVATION - COUNTY-OTHER, STARR	DEMAND REDUCTION	0	0	0	121	354	614	N/A	\$652
COUNTY-OTHER, STARR	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2	3	5	6	7	9	\$289	\$6
COUNTY-OTHER, STARR	M	RIO GRANDE CITY WATER METER REPLACEMENT	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	48	48	48	48	48	48	\$1143	\$0
COUNTY-OTHER, STARR	M	ROMA WATER RIGHT PURCHASE AND REGIONAL WTP	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,987	1,962	1,937	1,887	1,837	1,812	\$1336	\$684
COUNTY-OTHER, STARR	M	STARR COUNTY CONVERSION OF WR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	863	2,391	4,030	5,794	7,752	7,751	\$211	\$211
COUNTY-OTHER, STARR	M	STARR COUNTY-OTHER ADDITIONAL GROUNDWATER WELLS	M   GULF COAST AQUIFER FRESH/BRACKISH   STARR COUNTY	400	400	400	400	400	400	\$595	\$63
COUNTY-OTHER, WEBB	M	ADVANCED MUNICIPAL CONSERVATION - COUNTY-OTHER, WEBB	DEMAND REDUCTION	0	0	0	31	108	195	N/A	\$652
COUNTY-OTHER, WEBB	M	WEBB COUNTY-OTHER ADDITIONAL GROUNDWATER WELLS	M   GULF COAST AQUIFER FRESH/BRACKISH   WEBB COUNTY	1,400	1,400	1,400	1,400	1,400	1,400	\$593	\$61
COUNTY-OTHER, WILLACY	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	13	25	38	50	63	75	\$673	\$5
COUNTY-OTHER, ZAPATA	M	ADVANCED MUNICIPAL CONSERVATION - COUNTY-OTHER, ZAPATA	DEMAND REDUCTION	0	0	17	46	82	124	N/A	\$652
COUNTY-OTHER, ZAPATA	M	ZAPATA COUNTY CONVERSION OF WR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	86	247	397	545	661	661	\$211	\$0
COUNTY-OTHER, ZAPATA	M	ZAPATA NEW GROUNDWATER SUPPLY	M   YEGUA-JACKSON AQUIFER   ZAPATA COUNTY	380	380	380	380	380	380	\$175	\$60
DONNA	M	ADVANCED MUNICIPAL CONSERVATION - DONNA	DEMAND REDUCTION	0	0	4	172	411	698	N/A	\$652
DONNA	M	DONNA CONVERTED WATER RIGHTS AND WTP EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	950	950	2,240	2,240	2,240	2,240	\$2512	\$359
DONNA	M	DONNA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	85	336	587	839	1,090	1,341	\$469	\$4
DONNA	M	NAWSC CONVERTED WATER RIGHTS AND WTP NO. 5 EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	50	50	50	50	50	N/A	\$505
EAGLE PASS	M	ADVANCED MUNICIPAL CONSERVATION - EAGLE PASS	DEMAND REDUCTION	208	728	1,313	1,758	2,290	2,869	\$652	\$652
EAGLE PASS	M	EAGLE PASS NEW GROUNDWATER SUPPLY	M   CARRIZO-WILCOX AQUIFER   MAVERICK COUNTY	0	0	0	700	700	700	N/A	\$70
EAST RIO HONDO WSC	M	ADVANCED MUNICIPAL CONSERVATION - EAST RIO HONDO WSC	DEMAND REDUCTION	1	58	245	502	830	1,214	\$652	\$652
EAST RIO HONDO WSC	M	CAMERON COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	525	643	760	877	995	1,112	\$597	\$0
EAST RIO HONDO WSC	M	ERHWSC FM 2925 WATER TRANSMISSION LINE	DEMAND REDUCTION	30	30	30	30	30	30	\$16000	\$1800

### Recommended Water User Group (WUG) Water Management Strategies (WMS)

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
EAST RIO HONDO WSC	M	ERHWSC HARLINGEN INTERCONNECT	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	112	112	112	0	0	0	\$1768	N/A
EAST RIO HONDO WSC	M	ERHWSC MUNICIPAL (UV DISINFECTION FM 510 WTP)	DEMAND REDUCTION	11	11	11	11	11	11	\$24282	\$19545
EAST RIO HONDO WSC	M	ERHWSC SURFACE WATER TREATMENT PLANT AND CONVERTED WR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	320	320	320	320	320	320	\$5963	\$2324
EAST RIO HONDO WSC	M	HARLINGEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	6	35	44	80	115	153	\$214	\$6
EAST RIO HONDO WSC	M	HARLINGEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	6	19	33	47	61	74	\$214	\$6
EAST RIO HONDO WSC	M	HARLINGEN WWTP 2 POTABLE REUSE	M   DIRECT REUSE	0	0	26	26	26	26	N/A	\$1078
EAST RIO HONDO WSC	M	NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	240	240	240	240	240	240	\$843	\$33
EDCOUCH	M	ADVANCED MUNICIPAL CONSERVATION - EDCOUCH	DEMAND REDUCTION	0	0	0	0	1	35	N/A	\$652
EDCOUCH	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	40	40	40	100	100	100	\$143	\$143
EDCOUCH	M	EDCOUCH EMERGENCY GROUNDWATER SUPPLY	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	500	500	500	500	500	500	\$218	\$33
EDCOUCH	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	22	36	50	64	78	92	\$1069	\$5
EDCOUCH	M	NAWSC CONVERTED WATER RIGHTS AND DELTA WTP EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	50	50	50	50	N/A	\$244
EDINBURG	M	ADVANCED MUNICIPAL CONSERVATION - EDINBURG	DEMAND REDUCTION	0	83	790	1,809	3,125	4,662	N/A	\$652
EDINBURG	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	200	2,100	3,500	5,500	8,000	8,000	\$148	\$143
EDINBURG	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1	2	2	3	4	4	\$673	\$5
EDINBURG	M	DONNA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	1	1	1	2	N/A	\$4
EDINBURG	M	EDINBURG NON-POTABLE REUSE	M   DIRECT REUSE	2,622	3,180	3,754	3,920	3,920	3,920	\$414	\$182
EDINBURG	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	1	1	1	2	2	N/A	\$5
EDINBURG	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,292	1,396	1,499	1,603	1,707	1,811	\$330	\$0
EDINBURG	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	1	1	1	1	N/A	\$0
EDINBURG	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	140	233	325	417	510	602	\$289	\$6
EDINBURG	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	1	1	1	1	1	N/A	\$6
EDINBURG	M	NAWSC CONVERTED WATER RIGHTS AND DELTA WTP EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	12	20	20	20	N/A	\$244
EDINBURG	M	NAWSC CONVERTED WATER RIGHTS AND WTP NO. 5 EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	205	205	205	205	205	205	\$654	\$210

## Recommended Water User Group (WUG) Water Management Strategies (WMS)

### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
EDINBURG	M	NAWSC DELTA AREA RO WTP EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	4	4	N/A	\$1781
EDINBURG	M	NAWSC LA SARA RO PLANT EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	0	2	N/A	\$2104
EDINBURG	M	NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	1	1	1	1	1	1	\$843	\$33
EDINBURG	M	SANTA CRUZ ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1	1	1	1	1	1	\$89	\$0
EL CENIZO	M	ADVANCED MUNICIPAL CONSERVATION - EL CENIZO	DEMAND REDUCTION	0	0	0	0	29	65	N/A	\$652
EL CENIZO	M	WEBB COUNTY WATER UTILITY EXPAND EXISTING GROUNDWATER SUPPLY	M   CARRIZO-WILCOX AQUIFER   WEBB COUNTY	0	0	0	0	50	50	N/A	\$570
EL JARDIN WSC	M	ADVANCED MUNICIPAL CONSERVATION - EL JARDIN WSC	DEMAND REDUCTION	0	0	37	138	275	438	N/A	\$652
EL JARDIN WSC	M	BROWNSVILLE BANCO MORALES RESERVOIR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	148	149	149	150	150	151	\$168	\$24
EL JARDIN WSC	M	BROWNSVILLE RESACA RESTORATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	34	34	34	34	34	34	\$1182	\$0
EL JARDIN WSC	M	BROWNSVILLE SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	108	108	108	108	1,081	1,081	\$5560	\$3708
EL JARDIN WSC	M	BROWNSVILLE SOUTHSIDE WWTP POTABLE REUSE	M   DIRECT REUSE	0	517	517	517	196	196	N/A	\$1153
EL JARDIN WSC	M	EL JARDIN NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	560	560	560	560	560	560	\$2557	\$1320
EL JARDIN WSC	M	EL JARDIN WSC DISTRIBUTION PIPELINE REPLACEMENT	DEMAND REDUCTION	11	11	11	11	11	11	\$192909	\$14727
ELSA	M	ADVANCED MUNICIPAL CONSERVATION - ELSA	DEMAND REDUCTION	0	0	0	11	79	163	N/A	\$652
ELSA	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	0	100	150	N/A	\$143
ELSA	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	62	101	141	180	220	259	\$1069	\$5
ELSA	M	NAWSC CONVERTED WATER RIGHTS AND DELTA WTP EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	200	200	200	200	N/A	\$244
HARLINGEN	M	ADAMS GARDEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	40	62	85	107	129	151	\$41	\$0
HARLINGEN	M	ADVANCED MUNICIPAL CONSERVATION - HARLINGEN	DEMAND REDUCTION	401	1,540	2,260	3,258	4,523	5,974	\$652	\$652
HARLINGEN	M	HARLINGEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	362	1,238	2,145	3,020	3,896	4,768	\$214	\$6
HARLINGEN	M	HARLINGEN WWTP 2 POTABLE REUSE	M   DIRECT REUSE	0	0	1,621	1,621	1,621	1,617	N/A	\$1078
HEBBRONVILLE	M	ADVANCED MUNICIPAL CONSERVATION - HEBBRONVILLE	DEMAND REDUCTION	0	1	14	37	69	105	N/A	\$652
HEBBRONVILLE	M	HEBBRONVILLE NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   JIM HOGG COUNTY	560	560	560	560	560	560	\$2557	\$1321
HIDALGO	M	ADVANCED MUNICIPAL CONSERVATION - HIDALGO	DEMAND REDUCTION	0	11	112	256	442	660	N/A	\$652



### Recommended Water User Group (WUG) Water Management Strategies (WMS)

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
HIDALGO	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	400	500	1,050	1,050	1,500	1,500	\$211	\$211
HIDALGO	M	HIDALGO EXPAND EXISTING GROUNDWATER SUPPLY	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	300	300	300	300	300	300	\$297	\$88
HIDALGO COUNTY MUD #1	M	ADVANCED MUNICIPAL CONSERVATION - HIDALGO COUNTY MUD #1	DEMAND REDUCTION	0	0	0	0	0	56	N/A	\$652
HIDALGO COUNTY MUD #1	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	500	500	500	1,500	1,500	1,500	\$172	\$175
HIDALGO COUNTY MUD #1	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	203	219	235	252	268	284	\$330	\$0
HIDALGO COUNTY MUD #1	M	HIDALGO COUNTY MUNICIPAL UTILITY DISTRICT NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	171	187	204	221	238	256	\$720	\$0
INDIAN LAKE	M	CAMERON COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	5	6	7	8	9	10	\$597	\$0
INDIAN LAKE	M	ERHWSO SURFACE WATER TREATMENT PLANT AND CONVERTED WR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	80	80	80	80	80	80	\$5963	\$2324
INDIAN LAKE	M	HARLINGEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	1	2	2	N/A	\$6
INDIAN LAKE	M	NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	40	40	40	40	40	40	\$843	\$33
IRRIGATION, CAMERON	M	ADAMS GARDEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	459	721	980	1,237	1,491	1,747	\$41	\$0
IRRIGATION, CAMERON	M	ARRUNDO DONAX BIOLOGICAL CONTROL	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,087	1,198	1,310	1,426	1,547	1,661	\$49	\$10
IRRIGATION, CAMERON	M	BAYVIEW ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,058	1,164	1,270	1,379	1,491	1,610	\$324	\$0
IRRIGATION, CAMERON	M	BROWNSVILLE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,211	2,461	2,704	2,943	3,179	3,421	\$443	\$0
IRRIGATION, CAMERON	M	BRUSH CONTROL	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0	N/A	N/A
IRRIGATION, CAMERON	M	CAMERON COUNTY ID NO. 16 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	271	291	310	329	348	367	\$396	\$0
IRRIGATION, CAMERON	M	CAMERON COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	6,816	8,330	9,818	11,291	12,745	14,219	\$597	\$0
IRRIGATION, CAMERON	M	CAMERON COUNTY ID NO. 6 (LOS FRESNOS) CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	899	1,081	1,260	1,437	1,611	1,789	\$385	\$0
IRRIGATION, CAMERON	M	CAMERON COUNTY ID NO. 6 (LOS FRESNOS) CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	373	449	523	597	669	743	\$385	\$0
IRRIGATION, CAMERON	M	CAMERON COUNTY ID NO. 6 (LOS FRESNOS) CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,515	3,024	3,525	4,020	4,509	5,005	\$385	\$0
IRRIGATION, CAMERON	M	CAMERON COUNTY WATER IMPROVEMENTS DISTRICT NO. 10 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	457	498	539	580	623	669	\$341	\$0
IRRIGATION, CAMERON	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	50	98	145	192	238	285	\$673	\$5
IRRIGATION, CAMERON	M	HARLINGEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	693	2,408	4,109	5,796	7,466	9,142	\$214	\$6

### Recommended Water User Group (WUG) Water Management Strategies (WMS)

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
IRRIGATION, CAMERON	M	HARLINGEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2	7	12	17	22	27	\$214	\$6
IRRIGATION, CAMERON	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	256	419	581	741	899	1,059	\$1069	\$5
IRRIGATION, CAMERON	M	LA FERIA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	7,660	7,758	7,838	7,914	7,985	8,073	\$461	\$0
IRRIGATION, CAMERON	M	ON-FARM IRRIGATION CONSERVATION	DEMAND REDUCTION	1,392	1,392	1,392	1,392	1,392	1,392	\$1392	\$1392
IRRIGATION, CAMERON	M	VALLEY ACRES ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	67	83	102	121	143	166	\$333	\$0
IRRIGATION, HIDALGO	M	ARRUNDO DONAX BIOLOGICAL CONTROL	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,954	2,152	2,344	2,525	2,694	2,892	\$49	\$10
IRRIGATION, HIDALGO	M	BRUSH CONTROL	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0	N/A	N/A
IRRIGATION, HIDALGO	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,490	4,843	7,174	9,484	11,771	14,068	\$673	\$5
IRRIGATION, HIDALGO	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	420	817	1,210	1,599	1,985	2,373	\$673	\$5
IRRIGATION, HIDALGO	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	323	628	930	1,229	1,526	1,823	\$673	\$5
IRRIGATION, HIDALGO	M	DELTA WATERSHED PROJECT - EDINBURG RESERVOIR	M   NUECES-RIO GRANDE RUN-OF-RIVER	1,739	1,739	1,739	1,739	1,739	1,739	\$1271	\$706
IRRIGATION, HIDALGO	M	DELTA WATERSHED PROJECT - NEW RESERVOIR	M   NUECES-RIO GRANDE RUN-OF-RIVER	1,878	1,878	1,878	1,878	1,878	1,878	\$1790	\$801
IRRIGATION, HIDALGO	M	DONNA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	846	3,334	5,802	8,250	10,673	13,104	\$469	\$4
IRRIGATION, HIDALGO	M	ENGLEMAN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	901	989	1,076	1,165	1,256	1,352	\$394	\$1
IRRIGATION, HIDALGO	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,576	4,222	5,850	7,464	9,061	10,668	\$1069	\$5
IRRIGATION, HIDALGO	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4,584	4,947	5,296	5,641	5,980	6,329	\$330	\$0
IRRIGATION, HIDALGO	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	253	273	293	312	331	350	\$330	\$0
IRRIGATION, HIDALGO	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	56	61	65	69	73	78	\$330	\$0
IRRIGATION, HIDALGO	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4,367	4,712	5,045	5,373	5,696	6,030	\$330	\$0
IRRIGATION, HIDALGO	M	HIDALGO COUNTY ID NO. 13 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	121	159	197	235	275	315	\$428	\$3
IRRIGATION, HIDALGO	M	HIDALGO COUNTY ID NO. 16 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,101	1,421	1,735	2,047	2,355	2,666	\$149	\$0
IRRIGATION, HIDALGO	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,714	4,499	6,264	8,014	9,745	11,487	\$289	\$6
IRRIGATION, HIDALGO	M	HIDALGO COUNTY ID NO. 5 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,212	1,211	1,207	1,203	1,198	1,196	\$336	\$0
IRRIGATION, HIDALGO	M	HIDALGO COUNTY ID NO. 6 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,999	2,209	2,413	2,614	2,812	3,015	\$382	\$0

### Recommended Water User Group (WUG) Water Management Strategies (WMS)

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
IRRIGATION, HIDALGO	M	HIDALGO COUNTY MUNICIPAL UTILITY DISTRICT NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	43	47	51	55	59	63	\$720	\$0
IRRIGATION, HIDALGO	M	HIDALGO COUNTY WCID NO. 18 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	30	34	38	42	46	51	\$367	\$0
IRRIGATION, HIDALGO	M	HIDALGO COUNTY WID NO. 19 (SHARLAND) CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	553	586	618	649	680	712	\$366	\$0
IRRIGATION, HIDALGO	M	HIDALGO COUNTY WID NO. 3 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	411	470	527	584	640	697	\$313	\$3
IRRIGATION, HIDALGO	M	ON-FARM IRRIGATION CONSERVATION	DEMAND REDUCTION	78,360	78,360	78,360	78,360	78,360	78,360	\$1392	\$1392
IRRIGATION, HIDALGO	M	SANTA CRUZ ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3,740	4,075	4,405	4,739	5,074	5,427	\$79	\$0
IRRIGATION, HIDALGO	M	UNITED ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,694	3,014	3,325	3,633	3,936	4,246	\$141	\$2
IRRIGATION, HIDALGO	M	UNITED ID OFF-CHANNEL RESERVOIR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	667	678	688	697	707	717	\$298	\$35
IRRIGATION, HIDALGO	M	VALLEY ACRES ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	427	535	652	778	914	1,061	\$333	\$0
IRRIGATION, JIM HOGG	M	JIM HOGG IRRIGATION ADDITIONAL GROUNDWATER WELLS	M   GULF COAST AQUIFER FRESH/BRACKISH   JIM HOGG COUNTY	300	300	300	300	300	300	\$657	\$67
IRRIGATION, JIM HOGG	M	ON-FARM IRRIGATION CONSERVATION	DEMAND REDUCTION	54	54	54	54	54	54	\$1392	\$1392
IRRIGATION, MAVERICK	M	ARRUNDO DONAX BIOLOGICAL CONTROL	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	162	183	207	233	263	282	\$49	\$10
IRRIGATION, MAVERICK	M	BRUSH CONTROL	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0	N/A	N/A
IRRIGATION, MAVERICK	M	MAVERICK COUNTY WCID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	8,194	9,207	10,195	11,170	12,132	13,114	\$381	\$0
IRRIGATION, MAVERICK	M	ON-FARM IRRIGATION CONSERVATION	DEMAND REDUCTION	6,492	6,492	6,492	6,492	6,492	6,492	\$1392	\$1392
IRRIGATION, STARR	M	ARRUNDO DONAX BIOLOGICAL CONTROL	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	41	39	35	29	20	21	\$49	\$10
IRRIGATION, STARR	M	BRUSH CONTROL	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0	N/A	N/A
IRRIGATION, STARR	M	ON-FARM IRRIGATION CONSERVATION	DEMAND REDUCTION	1,652	1,652	1,652	1,652	1,652	1,652	\$1392	\$1392
IRRIGATION, WEBB	M	ARRUNDO DONAX BIOLOGICAL CONTROL	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	23	27	31	36	41	44	\$49	\$10
IRRIGATION, WEBB	M	BRUSH CONTROL	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0	N/A	N/A
IRRIGATION, WEBB	M	ON-FARM IRRIGATION CONSERVATION	DEMAND REDUCTION	932	932	932	932	932	932	\$1392	\$1392
IRRIGATION, WILLACY	M	ARRUNDO DONAX BIOLOGICAL CONTROL	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	212	243	279	320	368	397	\$49	\$10
IRRIGATION, WILLACY	M	BRUSH CONTROL	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0	N/A	N/A
IRRIGATION, WILLACY	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,902	3,699	5,479	7,243	8,989	10,743	\$673	\$5
IRRIGATION, WILLACY	M	ON-FARM IRRIGATION CONSERVATION	DEMAND REDUCTION	8,483	8,483	8,483	8,483	8,483	8,483	\$1392	\$1392



### Recommended Water User Group (WUG) Water Management Strategies (WMS)

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
IRRIGATION, ZAPATA	M	ARRUNDO DONAX BIOLOGICAL CONTROL	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	14	16	17	19	20	22	\$49	\$10
IRRIGATION, ZAPATA	M	BRUSH CONTROL	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	0	0	0	N/A	N/A
IRRIGATION, ZAPATA	M	ON-FARM IRRIGATION CONSERVATION	DEMAND REDUCTION	578	578	578	578	578	578	\$1392	\$1392
LA FERIA	M	ADVANCED MUNICIPAL CONSERVATION - LA FERIA	DEMAND REDUCTION	0	0	25	91	181	289	N/A	\$652
LA FERIA	M	LA FERIA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	309	313	317	321	326	330	\$461	\$0
LA FERIA	M	LA FERIA RAINWATER HARVESTING	DEMAND REDUCTION	24	24	24	24	24	24	\$831	\$831
LA FERIA	M	LA FERIA WATER WELL WITH RO UNIT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	1,120	1,120	1,120	1,120	1,120	1,120	\$1163	\$695
LA GRULLA	M	ADVANCED MUNICIPAL CONSERVATION - LA GRULLA	DEMAND REDUCTION	11	40	40	40	40	40	\$652	\$652
LA JOYA	M	ADVANCED MUNICIPAL CONSERVATION - LA JOYA	DEMAND REDUCTION	0	0	0	0	56	125	N/A	\$652
LA JOYA	M	AGUA SUD EAST WWTP POTABLE REUSE	M   DIRECT REUSE	25	25	25	33	33	33	\$2358	\$1649
LA JOYA	M	AGUA SUD WEST WWTP POTABLE REUSE	M   DIRECT REUSE	18	18	45	45	45	45	\$2974	\$1500
LA JOYA	M	HIDALGO COUNTY ID NO. 16 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	7	9	11	13	14	16	\$149	\$0
LA JOYA	M	HIDALGO COUNTY ID NO. 16 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	42	55	67	79	91	104	\$149	\$0
LA JOYA	M	HIDALGO COUNTY ID NO. 6 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	17	19	21	22	24	26	\$382	\$0
LA VILLA	M	ADVANCED MUNICIPAL CONSERVATION - LA VILLA	DEMAND REDUCTION	0	0	0	17	42	71	N/A	\$652
LA VILLA	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	50	55	50	50	100	100	\$143	\$143
LA VILLA	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	17	27	38	49	60	70	\$1069	\$5
LA VILLA	M	NAWSC CONVERTED WATER RIGHTS AND DELTA WTP EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	100	100	100	100	N/A	\$244
LAGUNA VISTA	M	ADVANCED MUNICIPAL CONSERVATION - LAGUNA VISTA	DEMAND REDUCTION	182	451	768	1,138	1,550	1,999	\$652	\$652
LAGUNA VISTA	M	BAYVIEW ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	330	357	397	433	471	509	\$324	\$0
LAGUNA VISTA	M	CAMERON COUNTY ID NO. 6 (LOS FRESNOS) CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	280	337	394	451	508	566	\$385	\$0
LAGUNA VISTA	M	LAGUNA MADRE NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	780	780	780	780	780	780	\$1773	\$930
LAGUNA VISTA	M	LAGUNA MADRE WD - PORT ISABEL WATER RECLAMATION FACILITY	M   DIRECT REUSE	285	285	285	285	285	285	\$2865	\$1476
LAREDO	M	ADVANCED MUNICIPAL CONSERVATION - LAREDO	DEMAND REDUCTION	0	0	0	2,600	6,242	10,397	N/A	\$652
LAREDO	M	SOUTH LAREDO WWTP POTABLE REUSE	M   DIRECT REUSE	0	5,725	5,723	5,722	8,955	11,754	N/A	\$1298
LIVESTOCK, CAMERON	M	BAYVIEW ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	19	20	22	24	27	29	\$324	\$0

### Recommended Water User Group (WUG) Water Management Strategies (WMS)

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
LIVESTOCK, CAMERON	M	CAMERON COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	42	51	60	69	79	88	\$597	\$0
LIVESTOCK, CAMERON	M	CAMERON COUNTY ID NO. 6 (LOS FRESNOS) CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	16	19	22	25	29	32	\$385	\$0
LIVESTOCK, CAMERON	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4	6	8	10	13	15	\$1069	\$5
LIVESTOCK, CAMERON	M	LA FERIA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	69	70	71	72	73	73	\$461	\$0
LIVESTOCK, HIDALGO	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	39	76	113	150	187	225	\$673	\$5
LIVESTOCK, HIDALGO	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	46	75	105	134	164	193	\$1069	\$5
LIVESTOCK, WILLACY	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	30	58	87	115	143	171	\$673	\$5
LOS FRESNOS	M	CAMERON COUNTY ID NO. 6 (LOS FRESNOS) CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	114	138	161	185	208	231	\$385	\$0
LOS INDIOS	M	ADVANCED MUNICIPAL CONSERVATION - LOS INDIOS	DEMAND REDUCTION	0	0	0	2	13	26	N/A	\$652
LOS INDIOS	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	8	28	45	64	92	114	\$143	\$143
LOS INDIOS	M	ERHWSC SURFACE WATER TREATMENT PLANT AND CONVERTED WR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	10	10	10	10	10	10	\$5963	\$2324
LOS INDIOS	M	MHWSC EXPAND EXISTING GW SUPPLIES - CAMERON COUNTY	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	50	50	50	50	50	50	\$1254	\$534
LYFORD	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	51	100	148	197	245	294	\$673	\$5
LYFORD	M	LYFORD BRACKISH GROUNDWATER WELL AND DESALINATION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	1,120	1,120	1,120	1,120	1,120	1,120	\$1217	\$697
MANUFACTURING, CAMERON	M	BAYVIEW ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4	4	5	5	5	6	\$324	\$0
MANUFACTURING, CAMERON	M	BROWNSVILLE BANCO MORALES RESERVOIR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	77	78	78	78	78	79	\$168	\$24
MANUFACTURING, CAMERON	M	BROWNSVILLE RESACA RESTORATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	5	5	5	5	5	5	\$1182	\$0
MANUFACTURING, CAMERON	M	BROWNSVILLE SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	56	56	56	56	565	565	\$5560	\$3708
MANUFACTURING, CAMERON	M	BROWNSVILLE SOUTHSIDE WWTP POTABLE REUSE	M   DIRECT REUSE	0	23	23	23	29	29	N/A	\$1153
MANUFACTURING, CAMERON	M	CAMERON COUNTY CONVERSION OF WRS	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	170	470	365	808	N/A	\$211
MANUFACTURING, CAMERON	M	CAMERON COUNTY ID NO. 6 (LOS FRESNOS) CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3	4	5	5	6	7	\$385	\$0
MANUFACTURING, CAMERON	M	HARLINGEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	5	17	29	42	54	66	\$214	\$6
MANUFACTURING, CAMERON	M	HARLINGEN WWTP 2 POTABLE REUSE	M   DIRECT REUSE	0	0	22	22	22	22	N/A	\$1078
MANUFACTURING, CAMERON	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	471	511	551	586	632	683	\$2500	\$2500

## Recommended Water User Group (WUG) Water Management Strategies (WMS)

### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
MANUFACTURING, CAMERON	M	LAGUNA MADRE NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	1	1	1	1	1	1	\$1773	\$930
MANUFACTURING, HIDALGO	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	202	551	909	1,222	1,645	2,100	\$211	\$211
MANUFACTURING, HIDALGO	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	18	35	52	69	86	103	\$673	\$5
MANUFACTURING, HIDALGO	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	10	20	30	40	50	60	\$673	\$5
MANUFACTURING, HIDALGO	M	EDINBURG NON-POTABLE REUSE	M   DIRECT REUSE	1,298	740	166	0	0	0	\$414	N/A
MANUFACTURING, HIDALGO	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4	5	5	5	6	6	\$330	\$0
MANUFACTURING, HIDALGO	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	11	12	13	14	15	16	\$330	\$0
MANUFACTURING, HIDALGO	M	HIDALGO COUNTY WID NO. 3 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	66	76	85	95	104	114	\$313	\$3
MANUFACTURING, HIDALGO	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	546	591	636	676	728	784	\$2500	\$2500
MANUFACTURING, HIDALGO	M	NAWSC LA SARA RO PLANT EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	0	1	N/A	\$2104
MANUFACTURING, HIDALGO	M	NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	160	160	160	160	160	160	\$843	\$33
MANUFACTURING, HIDALGO	M	VALLEY ACRES ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	14	17	21	25	30	35	\$333	\$0
MANUFACTURING, MAVERICK	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	9	10	10	11	11	12	\$2500	\$2500
MANUFACTURING, MAVERICK	M	MAVERICK MANUFACTURING NEW GROUNDWATER SUPPLY	M   CARRIZO-WILCOX AQUIFER   MAVERICK COUNTY	100	100	100	100	100	100	\$500	\$50
MANUFACTURING, STARR	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	1	2	2	2	2	2	\$2500	\$2500
MANUFACTURING, STARR	M	STARR COUNTY CONVERSION OF WR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	1	2	3	N/A	\$211
MANUFACTURING, WEBB	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	2	2	2	2	4	4	\$2500	\$2500
MANUFACTURING, WEBB	M	SOUTH LAREDO WWTP POTABLE REUSE	M   DIRECT REUSE	0	0	2	3	5	6	N/A	\$1298
MANUFACTURING, WILLACY	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4	9	13	17	21	25	\$673	\$5
MANUFACTURING, WILLACY	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3	3	3	3	4	4	\$330	\$0
MANUFACTURING, WILLACY	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	14	14	14	14	14	14	\$2500	\$2500
MANUFACTURING, WILLACY	M	NAWSC LA SARA RO PLANT EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	0	1	N/A	\$2104
MANUFACTURING, WILLACY	M	NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	85	85	85	85	85	85	\$843	\$33
MANUFACTURING, WILLACY	M	WILLACY COUNTY CONVERSION OF WR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2	4	7	9	10	10	\$198	\$0



**Recommended Water User Group (WUG) Water Management Strategies (WMS)**

**Water Management Strategy Supplies**

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
MCALLEN	M	ADVANCED MUNICIPAL CONSERVATION - MCALLEN	DEMAND REDUCTION	1,674	5,608	10,888	17,372	23,904	29,468	\$652	\$652
MCALLEN	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	800	800	2,200	4,700	N/A	\$143
MCALLEN	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	542	586	629	673	716	760	\$330	\$0
MCALLEN	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	359	595	832	1,068	1,305	1,541	\$289	\$6
MCALLEN	M	HIDALGO COUNTY WID NO. 3 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1,802	2,063	2,324	2,585	2,846	3,107	\$313	\$3
MCALLEN	M	MCALLEN BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	2,688	2,688	2,688	2,688	2,688	2,688	\$2034	\$1062
MCALLEN	M	MCALLEN HCID NO. 1 RAW WATER LINE PROJECT	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	800	800	800	800	800	800	\$313	\$49
MCALLEN	M	MCALLEN NORTH WWTP POTABLE REUSE	M   DIRECT REUSE	0	0	1,120	2,000	2,000	2,000	N/A	\$1323
MCALLEN	M	MCALLEN SOUTH WWTP POTABLE REUSE	M   DIRECT REUSE	0	2,000	2,500	3,500	3,500	3,500	N/A	\$1212
MCALLEN	M	UNITED ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,052	2,298	2,544	2,791	3,037	3,283	\$141	\$2
MCALLEN	M	UNITED ID OFF-CHANNEL RESERVOIR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	133	135	137	140	142	144	\$298	\$35
MERCEDES	M	ADVANCED MUNICIPAL CONSERVATION - MERCEDES	DEMAND REDUCTION	0	0	80	225	433	679	N/A	\$652
MERCEDES	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	136	223	310	397	484	571	\$1069	\$5
MERCEDES	M	MERCEDES POTABLE REUSE	M   DIRECT REUSE	1,670	1,670	1,670	1,670	1,670	1,670	\$1958	\$1105
MILITARY HIGHWAY WSC	M	ADVANCED MUNICIPAL CONSERVATION - MILITARY HIGHWAY WSC	DEMAND REDUCTION	0	133	375	719	1,163	1,681	N/A	\$652
MILITARY HIGHWAY WSC	M	CAMERON COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	7	9	10	12	13	15	\$597	\$0
MILITARY HIGHWAY WSC	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	255	919	1,505	2,131	2,730	3,489	\$143	\$143
MILITARY HIGHWAY WSC	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	1	1	1	1	2	N/A	\$5
MILITARY HIGHWAY WSC	M	DONNA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	0	0	1	N/A	\$4
MILITARY HIGHWAY WSC	M	ERHWSW SURFACE WATER TREATMENT PLANT AND CONVERTED WR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	280	280	280	280	280	280	\$5963	\$2324
MILITARY HIGHWAY WSC	M	HARLINGEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	1	2	3	3	N/A	\$6
MILITARY HIGHWAY WSC	M	HARLINGEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4	13	23	32	42	52	\$214	\$6
MILITARY HIGHWAY WSC	M	HARLINGEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	16	56	96	135	175	215	\$214	\$6
MILITARY HIGHWAY WSC	M	HARLINGEN WWTP 2 POTABLE REUSE	M   DIRECT REUSE	0	0	17	17	17	17	N/A	\$1078
MILITARY HIGHWAY WSC	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	1	1	1	N/A	\$5

**Recommended Water User Group (WUG) Water Management Strategies (WMS)**

**Water Management Strategy Supplies**

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
MILITARY HIGHWAY WSC	M	MHWSC EXPAND EXISTING GW SUPPLIES - CAMERON COUNTY	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	401	401	401	401	401	401	\$1254	\$534
MILITARY HIGHWAY WSC	M	NAWSC CONVERTED WATER RIGHTS AND DELTA WTP EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	2	3	3	3	N/A	\$244
MILITARY HIGHWAY WSC	M	NAWSC CONVERTED WATER RIGHTS AND WTP NO. 5 EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	2	2	2	2	2	N/A	\$210
MILITARY HIGHWAY WSC	M	NAWSC DELTA AREA RO WTP EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	1	1	N/A	\$1781
MILITARY HIGHWAY WSC	M	NAWSC LA SARA RO PLANT EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	0	1	N/A	\$2104
MILITARY HIGHWAY WSC	M	NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	60	60	60	60	60	60	\$843	\$33
MILITARY HIGHWAY WSC	M	NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	1	1	1	1	1	1	\$843	\$33
MINING, CAMERON	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	26	28	19	13	6	3	\$2500	\$2500
MINING, HIDALGO	M	AGUA SUD EAST WWTP POTABLE REUSE	M   DIRECT REUSE	2	2	2	4	4	4	\$2358	\$1649
MINING, HIDALGO	M	AGUA SUD WEST WWTP POTABLE REUSE	M   DIRECT REUSE	1	1	10	10	10	10	\$2974	\$1500
MINING, HIDALGO	M	HIDALGO COUNTY ID NO. 16 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	1	1	1	1	1	N/A	\$0
MINING, HIDALGO	M	HIDALGO COUNTY ID NO. 16 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	11	14	18	21	24	27	\$149	\$0
MINING, HIDALGO	M	HIDALGO COUNTY ID NO. 6 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1	1	1	1	2	2	\$382	\$0
MINING, HIDALGO	M	HIDALGO COUNTY WCID NO. 18 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	89	102	115	127	139	152	\$367	\$0
MINING, HIDALGO	M	HIDALGO COUNTY WID NO. 3 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	11	13	14	16	17	19	\$313	\$3
MINING, HIDALGO	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	285	362	420	482	553	643	\$2500	\$2500
MINING, JIM HOGG	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	9	10	8	6	3	2	\$2500	\$2500
MINING, MAVERICK	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	199	274	294	230	168	121	\$2500	\$2500
MINING, MAVERICK	M	MAVERICK COUNTY WCID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	63	70	78	85	93	100	\$381	\$0
MINING, STARR	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	57	70	78	86	96	109	\$2500	\$2500
MINING, WEBB	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	1,034	804	604	411	184	134	\$2500	\$2500
MINING, WILLACY	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	5	5	4	3	2	1	\$2500	\$2500
MINING, ZAPATA	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	91	95	71	53	33	21	\$2500	\$2500
MISSION	M	ADVANCED MUNICIPAL CONSERVATION - MISSION	DEMAND REDUCTION	925	3,046	5,874	8,424	10,984	13,799	\$652	\$652
MISSION	M	AGUA SUD EAST WWTP POTABLE REUSE	M   DIRECT REUSE	4	4	4	10	10	10	\$2358	\$1649
MISSION	M	AGUA SUD WEST WWTP POTABLE REUSE	M   DIRECT REUSE	3	3	12	12	12	12	\$2974	\$1500

### Recommended Water User Group (WUG) Water Management Strategies (WMS)

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
MISSION	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	600	2,100	3,500	3,500	3,500	N/A	\$162
MISSION	M	HIDALGO COUNTY ID NO. 16 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1	2	2	2	3	3	\$149	\$0
MISSION	M	HIDALGO COUNTY ID NO. 6 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3	3	4	4	4	5	\$382	\$0
MISSION	M	MISSION BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	2,688	2,688	2,688	2,688	2,688	2,688	\$2069	\$1075
MISSION	M	MISSION WWTP POTABLE REUSE	M   DIRECT REUSE	3,920	3,920	3,920	7,840	7,840	7,840	\$1597	\$1160
MISSION	M	UNITED ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,052	2,298	2,544	2,791	3,037	3,283	\$141	\$2
MISSION	M	UNITED ID OFF-CHANNEL RESERVOIR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	41	41	42	43	44	44	\$298	\$35
NORTH ALAMO WSC	M	ADVANCED MUNICIPAL CONSERVATION - NORTH ALAMO WSC	DEMAND REDUCTION	860	1,925	3,586	5,792	8,505	11,601	\$652	\$652
NORTH ALAMO WSC	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	399	776	1,156	1,534	1,912	2,292	\$673	\$5
NORTH ALAMO WSC	M	DONNA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	51	200	348	495	646	792	\$469	\$4
NORTH ALAMO WSC	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	247	403	562	719	875	1,033	\$1069	\$5
NORTH ALAMO WSC	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	221	242	257	274	292	310	\$330	\$0
NORTH ALAMO WSC	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	366	395	425	454	484	513	\$330	\$0
NORTH ALAMO WSC	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	161	267	373	480	586	692	\$289	\$6
NORTH ALAMO WSC	M	NAWSC CONVERTED WATER RIGHTS AND DELTA WTP EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	3,753	4,900	4,900	4,900	N/A	\$244
NORTH ALAMO WSC	M	NAWSC CONVERTED WATER RIGHTS AND WTP NO. 5 EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	481	3,533	3,533	3,533	3,533	3,533	\$505	\$210
NORTH ALAMO WSC	M	NAWSC DELTA AREA RO WTP EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	1,410	1,410	N/A	\$1781
NORTH ALAMO WSC	M	NAWSC LA SARA RO PLANT EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	0	997	N/A	\$2104
NORTH ALAMO WSC	M	NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	492	492	492	492	492	492	\$843	\$33
NORTH ALAMO WSC	M	SANTA CRUZ ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	267	292	316	342	367	394	\$89	\$0
OLMITO WSC	M	ADVANCED MUNICIPAL CONSERVATION - OLMITO WSC	DEMAND REDUCTION	22	85	140	196	265	346	\$652	\$652
OLMITO WSC	M	CAMERON COUNTY ID NO. 6 (LOS FRESNOS) CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	84	101	119	136	153	170	\$385	\$0
OLMITO WSC	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	200	200	200	300	300	300	\$143	\$143



## Recommended Water User Group (WUG) Water Management Strategies (WMS)

### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
PALM VALLEY	M	ADVANCED MUNICIPAL CONSERVATION - PALM VALLEY	DEMAND REDUCTION	8	31	52	73	100	131	\$652	\$652
PALM VALLEY	M	HARLINGEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	85	26	45	64	83	102	\$214	\$6
PALM VALLEY	M	HARLINGEN WWTP 2 POTABLE REUSE	M   DIRECT REUSE	0	0	34	34	34	34	N/A	\$1078
PALMHURST	M	ADVANCED MUNICIPAL CONSERVATION - PALMHURST	DEMAND REDUCTION	57	166	306	472	659	861	\$652	\$652
PALMHURST	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	39	118	195	285	432	438	\$143	\$143
PALMHURST	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	40	44	47	50	53	57	\$346	\$0
PALMHURST	M	SANTA CRUZ ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	20	22	24	25	27	29	\$89	\$0
PALMHURST	M	SHARYLAND WSC WELL AND RO UNIT AT WTP #2	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	90	90	90	90	90	90	\$2630	\$1398
PALMHURST	M	SHARYLAND WSC WELL AND RO UNIT AT WTP #3	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	72	72	72	72	72	72	\$2630	\$1398
PALMHURST	M	UNITED ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	53	59	66	72	78	85	\$141	\$2
PALMVIEW	M	ADVANCED MUNICIPAL CONSERVATION - PALMVIEW	DEMAND REDUCTION	0	0	21	75	145	230	N/A	\$652
PALMVIEW	M	AGUA SUD EAST WWTP POTABLE REUSE	M   DIRECT REUSE	100	100	100	146	146	146	\$2358	\$1649
PALMVIEW	M	AGUA SUD WEST WWTP POTABLE REUSE	M   DIRECT REUSE	75	75	299	299	299	299	\$2974	\$1500
PALMVIEW	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	8	16	40	72	104	104	\$143	\$143
PALMVIEW	M	HIDALGO COUNTY ID NO. 16 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	27	35	43	51	59	66	\$149	\$0
PALMVIEW	M	HIDALGO COUNTY ID NO. 6 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	69	76	83	91	98	105	\$382	\$0
PENITAS	M	ADVANCED MUNICIPAL CONSERVATION - PENITAS	DEMAND REDUCTION	0	5	39	86	147	218	N/A	\$652
PENITAS	M	AGUA SUD EAST WWTP POTABLE REUSE	M   DIRECT REUSE	81	81	81	123	123	123	\$2358	\$1649
PENITAS	M	AGUA SUD WEST WWTP POTABLE REUSE	M   DIRECT REUSE	61	61	240	240	240	240	\$2947	\$1500
PENITAS	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4	8	20	36	52	52	\$143	\$143
PENITAS	M	HIDALGO COUNTY ID NO. 16 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	22	28	35	41	47	54	\$149	\$0
PENITAS	M	HIDALGO COUNTY ID NO. 6 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	56	62	68	74	79	85	\$382	\$0
PHARR	M	ADVANCED MUNICIPAL CONSERVATION - PHARR	DEMAND REDUCTION	0	0	167	848	1,777	2,884	N/A	\$652
PHARR	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	420	697	974	1,250	1,527	1,804	\$289	\$6
PHARR	M	PHARR DIRECT POTABLE REUSE	M   DIRECT REUSE	6,721	6,721	6,721	6,721	6,721	6,721	\$808	\$339
PORT ISABEL	M	ADVANCED MUNICIPAL CONSERVATION - PORT ISABEL	DEMAND REDUCTION	52	170	318	500	654	810	\$652	\$652

### Recommended Water User Group (WUG) Water Management Strategies (WMS)

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
PORT ISABEL	M	BAYVIEW ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	180	204	217	236	256	277	\$324	\$0
PORT ISABEL	M	CAMERON COUNTY ID NO. 6 (LOS FRESNOS) CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	153	184	215	246	277	308	\$385	\$0
PORT ISABEL	M	LAGUNA MADRE NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	425	425	425	425	425	425	\$1773	\$930
PORT ISABEL	M	LAGUNA MADRE WD - PORT ISABEL WATER RECLAMATION FACILITY	M   DIRECT REUSE	156	156	156	156	156	156	\$2865	\$1476
PRIMERA	M	ADVANCED MUNICIPAL CONSERVATION - PRIMERA	DEMAND REDUCTION	0	0	9	31	63	102	N/A	\$652
PRIMERA	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1	2	2	3	4	4	\$673	\$5
PRIMERA	M	DONNA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	1	1	1	2	N/A	\$4
PRIMERA	M	HARLINGEN ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	11	37	64	90	117	143	\$214	\$6
PRIMERA	M	HARLINGEN WWTP 2 POTABLE REUSE	M   DIRECT REUSE	0	0	48	48	48	48	N/A	\$1078
PRIMERA	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	1	1	1	2	2	N/A	\$5
PRIMERA	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	1	1	1	1	N/A	\$0
PRIMERA	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	1	1	1	1	1	N/A	\$6
PRIMERA	M	NAWSC CONVERTED WATER RIGHTS AND DELTA WTP EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	2	3	3	3	N/A	\$244
PRIMERA	M	NAWSC CONVERTED WATER RIGHTS AND WTP NO. 5 EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	6	6	6	6	6	N/A	\$210
PRIMERA	M	NAWSC DELTA AREA RO WTP EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	4	4	N/A	\$1781
PRIMERA	M	NAWSC LA SARA RO PLANT EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	0	2	N/A	\$2104
PRIMERA	M	NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	1	1	1	1	1	1	\$843	\$33
PRIMERA	M	PRIMERA RO PLANT WITH WELL	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	1,120	1,120	1,120	1,120	1,120	1,120	\$2190	\$1121
PRIMERA	M	SANTA CRUZ ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	1	1	1	1	1	1	\$89	\$0
PROGRESO	M	ADVANCED MUNICIPAL CONSERVATION - PROGRESO	DEMAND REDUCTION	0	0	7	55	122	202	N/A	\$652
PROGRESO	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	34	139	227	321	460	573	\$143	\$143
PROGRESO	M	ERHWSC SURFACE WATER TREATMENT PLANT AND CONVERTED WR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	100	100	100	100	100	100	\$5963	\$2324
PROGRESO	M	MHWSC EXPAND EXISTING GW SUPPLIES - CAMERON COUNTY	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	150	150	150	150	150	150	\$1254	\$534

### Recommended Water User Group (WUG) Water Management Strategies (WMS)

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
RANCHO VIEJO	M	ADVANCED MUNICIPAL CONSERVATION - RANCHO VIEJO	DEMAND REDUCTION	50	135	239	361	500	652	\$652	\$652
RAYMONDVILLE	M	ADVANCED MUNICIPAL CONSERVATION - RAYMONDVILLE	DEMAND REDUCTION	0	0	34	107	208	324	N/A	\$652
RAYMONDVILLE	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	297	577	858	1,139	1,420	1,701	\$673	\$5
RIO BRAVO	M	ADVANCED MUNICIPAL CONSERVATION - RIO BRAVO	DEMAND REDUCTION	0	0	0	0	41	96	N/A	\$652
RIO BRAVO	M	WEBB COUNTY WATER UTILITY EXPAND EXISTING GROUNDWATER SUPPLY	M   CARRIZO-WILCOX AQUIFER   WEBB COUNTY	0	0	0	0	150	150	N/A	\$290
RIO GRANDE CITY	M	ADVANCED MUNICIPAL CONSERVATION - RIO GRANDE CITY	DEMAND REDUCTION	173	512	906	1,356	1,801	2,108	\$652	\$652
RIO GRANDE CITY	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	22	37	51	66	80	95	\$289	\$6
RIO GRANDE CITY	M	RIO GRANDE CITY WATER METER REPLACEMENT	DEMAND REDUCTION	160	160	160	160	160	160	\$1143	\$0
RIO HONDO	M	CAMERON COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	92	113	134	154	175	196	\$597	\$0
RIO HONDO	M	RIO HONDO EMERGENCY INTERCONNECTS	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	35	35	35	35	35	35	\$3167	\$210
RIO HONDO	M	RIO HONDO EMERGENCY INTERCONNECTS	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	35	35	35	35	35	35	\$3167	\$210
RIO WSC	M	ADVANCED MUNICIPAL CONSERVATION - RIO WSC	DEMAND REDUCTION	0	0	9	29	55	84	N/A	\$652
RIO WSC	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3	4	6	7	9	11	\$289	\$6
RIO WSC	M	RIO GRANDE CITY WATER METER REPLACEMENT	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	162	162	162	162	162	162	\$1143	\$0
ROMA	M	ADVANCED MUNICIPAL CONSERVATION - ROMA	DEMAND REDUCTION	0	0	0	0	0	93	N/A	\$652
ROMA	M	ROMA WATER RIGHT PURCHASE AND REGIONAL WTP	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	100	100	100	100	100	100	\$1336	\$684
SAN BENITO	M	ADVANCED MUNICIPAL CONSERVATION - SAN BENITO	DEMAND REDUCTION	0	0	0	146	420	750	N/A	\$652
SAN BENITO	M	CAMERON COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	730	894	1,057	1,220	1,384	1,547	\$597	\$0
SAN BENITO	M	SAN BENITO GROUNDWATER SUPPLY	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	1,120	1,120	1,120	1,120	1,120	1,120	\$181	\$29
SAN JUAN	M	ADVANCED MUNICIPAL CONSERVATION - SAN JUAN	DEMAND REDUCTION	0	15	330	799	1,411	2,128	N/A	\$652
SAN JUAN	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	200	800	1,600	1,600	1,600	1,600	\$143	\$143
SAN JUAN	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2	9	14	20	350	350	\$143	\$143
SAN JUAN	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	28	54	80	106	132	158	\$673	\$5
SAN JUAN	M	DONNA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4	14	24	35	45	56	\$469	\$4
SAN JUAN	M	ERHWSC SURFACE WATER TREATMENT PLANT AND CONVERTED WR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	5	5	5	5	5	5	\$5963	\$2324



### Recommended Water User Group (WUG) Water Management Strategies (WMS)

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
SAN JUAN	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	17	28	39	50	61	72	\$1069	\$5
SAN JUAN	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	15	16	18	19	20	21	\$330	\$0
SAN JUAN	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	133	221	309	397	485	573	\$289	\$6
SAN JUAN	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	11	19	26	34	41	49	\$289	\$6
SAN JUAN	M	MHWSC EXPAND EXISTING GW SUPPLIES - CAMERON COUNTY	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	5	5	5	5	5	5	\$1254	\$534
SAN JUAN	M	NAWSC CONVERTED WATER RIGHTS AND DELTA WTP EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	227	735	735	735	N/A	\$244
SAN JUAN	M	NAWSC CONVERTED WATER RIGHTS AND WTP NO. 5 EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	12	230	230	230	230	230	\$505	\$210
SAN JUAN	M	NAWSC DELTA AREA RO WTP EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	800	800	N/A	\$1781
SAN JUAN	M	NAWSC LA SARA RO PLANT EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	0	70	N/A	\$2104
SAN JUAN	M	NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	52	52	52	52	52	52	\$834	\$33
SAN JUAN	M	SAN JUAN WTP UPGRADE AND EXPANSION TO INCLUDE BGD	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	1,792	1,792	1,792	1,792	1,792	1,792	\$1058	\$612
SAN JUAN	M	SANTA CRUZ ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	19	20	22	24	26	28	\$89	\$0
SAN PERLITA	M	ADVANCED MUNICIPAL CONSERVATION - SAN PERLITA	DEMAND REDUCTION	14	38	63	93	121	153	\$652	\$652
SAN PERLITA	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4	7	11	14	18	21	\$673	\$5
SAN PERLITA	M	DONNA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	2	3	5	6	7	N/A	\$4
SAN PERLITA	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2	4	5	7	8	10	\$1069	\$5
SAN PERLITA	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2	2	2	3	3	3	\$330	\$0
SAN PERLITA	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2	3	4	5,203	5	6	\$289	\$6
SAN PERLITA	M	NAWSC CONVERTED WATER RIGHTS AND DELTA WTP EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	30	44	44	44	N/A	\$244
SAN PERLITA	M	NAWSC CONVERTED WATER RIGHTS AND WTP NO. 5 EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2	30	30	30	30	30	\$505	\$210
SAN PERLITA	M	NAWSC DELTA AREA RO WTP EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	19	19	N/A	\$1781
SAN PERLITA	M	NAWSC LA SARA RO PLANT EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   WILLACY COUNTY	0	0	0	0	0	9	N/A	\$2104

**Recommended Water User Group (WUG) Water Management Strategies (WMS)**

**Water Management Strategy Supplies**

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
SAN PERLITA	M	NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	7	7	7	7	7	7	\$843	\$33
SAN PERLITA	M	SANTA CRUZ ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	3	3	3	3	3	4	\$89	\$0
SAN YGNACIO MUD	M	ADVANCED MUNICIPAL CONSERVATION - SAN YGNACIO MUD	DEMAND REDUCTION	6	23	40	55	74	97	\$652	\$652
SANTA ROSA	M	ADVANCED MUNICIPAL CONSERVATION - SANTA ROSA	DEMAND REDUCTION	0	0	0	0	1	24	N/A	\$652
SANTA ROSA	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	25	50	100	150	175	N/A	\$143
SANTA ROSA	M	LA FERIA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	72	73	74	75	76	77	\$461	\$0
SEBASTIAN MUD	M	LA FERIA ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	62	63	63	64	65	66	\$461	\$0
SHARYLAND WSC	M	ADVANCED MUNICIPAL CONSERVATION - SHARYLAND WSC	DEMAND REDUCTION	231	968	1,507	2,235	3,141	4,164	\$652	\$652
SHARYLAND WSC	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	470	1,378	2,323	3,298	4,982	5,055	\$143	\$143
SHARYLAND WSC	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	336	362	389	416	443	470	\$330	\$0
SHARYLAND WSC	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	244	264	283	303	322	342	\$330	\$0
SHARYLAND WSC	M	SANTA CRUZ ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	166	181	196	212	228	244	\$89	\$0
SHARYLAND WSC	M	SHARYLAND WSC WELL AND RO UNIT AT WTP #2	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	621	621	621	621	621	621	\$2630	\$1398
SHARYLAND WSC	M	SHARYLAND WSC WELL AND RO UNIT AT WTP #3	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	657	657	657	657	657	657	\$2630	\$1398
SHARYLAND WSC	M	UNITED ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	441	494	547	600	653	706	\$141	\$2
SHARYLAND WSC	M	UNITED ID OFF-CHANNEL RESERVOIR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	4	4	4	4	4	4	\$298	\$35
SOUTH PADRE ISLAND	M	ADVANCED MUNICIPAL CONSERVATION - SOUTH PADRE ISLAND	DEMAND REDUCTION	248	606	1,028	1,518	2,065	2,662	\$652	\$652
SOUTH PADRE ISLAND	M	BAYVIEW ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	437	481	527	574	624	675	\$324	\$0
SOUTH PADRE ISLAND	M	CAMERON COUNTY ID NO. 6 (LOS FRESNOS) CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	371	447	523	598	674	750	\$385	\$0
SOUTH PADRE ISLAND	M	LAGUNA MADRE NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	1,034	1,034	1,034	1,034	1,034	1,034	\$1773	\$930
SOUTH PADRE ISLAND	M	LAGUNA MADRE WD - PORT ISABEL WATER RECLAMATION FACILITY	M   DIRECT REUSE	379	379	379	379	379	379	\$2685	\$1476
STEAM ELECTRIC POWER, CAMERON	M	BROWNSVILLE BANCO MORALES RESERVOIR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	46	46	46	46	46	46	\$168	\$24
STEAM ELECTRIC POWER, CAMERON	M	BROWNSVILLE NON-POTABLE WATER REUSE PIPELINE	M   DIRECT REUSE	6,721	6,721	6,721	6,721	6,721	6,721	\$1095	\$694

### Recommended Water User Group (WUG) Water Management Strategies (WMS)

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
STEAM ELECTRIC POWER, CAMERON	M	BROWNSVILLE RESACA RESTORATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	11	11	11	11	11	11	\$1182	\$0
STEAM ELECTRIC POWER, CAMERON	M	BROWNSVILLE SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	33	33	33	33	332	332	\$5560	\$3708
STEAM ELECTRIC POWER, CAMERON	M	BROWNSVILLE SOUTHSIDE WWTP POTABLE REUSE	M   DIRECT REUSE	0	48	48	48	60	60	N/A	\$1153
STEAM ELECTRIC POWER, CAMERON	M	DELTA LAKE ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	40	77	115	153	190	228	\$673	\$5
STEAM ELECTRIC POWER, CAMERON	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	152	178	209	248	294	343	\$2500	\$2500
STEAM ELECTRIC POWER, HIDALGO	M	CAMERON COUNTY CONVERSION OF WRS	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	813	1,484	2,048	3,021	2,578	N/A	\$211
STEAM ELECTRIC POWER, HIDALGO	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	318	1,743	3,753	6,987	10,638	14,249	\$211	\$211
STEAM ELECTRIC POWER, HIDALGO	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	34	37	39	42	45	48	\$330	\$0
STEAM ELECTRIC POWER, HIDALGO	M	HIDALGO COUNTY ID NO. 6 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	16	17	19	20	22	24	\$382	\$0
STEAM ELECTRIC POWER, HIDALGO	M	HIDALGO STEAM-ELEC. ADDITIONAL GROUNDWATER WELLS	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	100	100	100	100	100	100	\$500	\$50
STEAM ELECTRIC POWER, HIDALGO	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	1,415	1,655	1,946	2,302	2,735	3,251	\$2500	\$2500
STEAM ELECTRIC POWER, HIDALGO	M	VALLEY ACRES ID CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	67	83	102	121	143	166	\$333	\$0
STEAM ELECTRIC POWER, WEBB	M	IMPLEMENTATION OF BEST MANAGEMENT PRACTICES	DEMAND REDUCTION	130	152	178	211	251	298	\$2500	\$2500
SULLIVAN CITY	M	ADVANCED MUNICIPAL CONSERVATION - SULLIVAN CITY	DEMAND REDUCTION	0	0	0	13	61	118	N/A	\$652
SULLIVAN CITY	M	AGUA SUD EAST WWTP POTABLE REUSE	M   DIRECT REUSE	73	73	73	88	88	88	\$2358	\$1649
SULLIVAN CITY	M	AGUA SUD WEST WWTP POTABLE REUSE	M   DIRECT REUSE	55	55	279	279	279	279	\$2974	\$1500
SULLIVAN CITY	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	8	16	40	72	104	104	\$143	\$143
SULLIVAN CITY	M	HIDALGO COUNTY ID NO. 16 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	20	26	31	37	43	49	\$149	\$0
SULLIVAN CITY	M	HIDALGO COUNTY ID NO. 6 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	50	56	61	66	72	77	\$382	\$0
UNION WSC	M	ADVANCED MUNICIPAL CONSERVATION - UNION WSC	DEMAND REDUCTION	0	0	25	70	124	185	N/A	\$652
UNION WSC	M	UNION WSC BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   STARR COUNTY	560	560	560	560	560	560	\$2570	\$1332
UNION WSC	M	UNION WSC WATER METER AND WATER LINE REPLACEMENT	DEMAND REDUCTION	88	88	88	88	88	88	\$4045	\$0
WESLACO	M	ADVANCED MUNICIPAL CONSERVATION - WESLACO	DEMAND REDUCTION	241	893	1,427	2,144	3,030	4,032	\$652	\$652
WESLACO	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	679	1,375	3,000	3,500	3,500	3,500	\$143	\$143
WESLACO	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	479	785	1,092	1,399	1,706	2,013	\$1069	\$5



### Recommended Water User Group (WUG) Water Management Strategies (WMS)

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
WESLACO	M	NAWSC CONVERTED WATER RIGHTS AND WTP NO. 5 EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	370	370	370	370	370	370	\$505	\$210
WESLACO	M	WESLACO GROUNDWATER DEVELOPMENT AND BLENDING	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	560	560	560	560	560	560	\$160	\$13
WESLACO	M	WESLACO NORTH WWTP POTABLE REUSE	M   DIRECT REUSE	1,120	1,120	1,120	1,120	3,360	3,360	\$2378	\$1496
ZAPATA COUNTY WATERWORKS	M	ADVANCED MUNICIPAL CONSERVATION - ZAPATA COUNTY WATERWORKS	DEMAND REDUCTION	81	294	491	692	942	1,232	\$652	\$652
ZAPATA COUNTY WATERWORKS	M	ZAPATA NEW GROUNDWATER SUPPLY	M   YEGUA-JACKSON AQUIFER   ZAPATA COUNTY	1,300	1,300	1,300	1,300	1,300	1,300	\$175	\$60
<b>Region M Total Recommended WMS Supplies</b>				<b>281,828</b>	<b>350,968</b>	<b>417,564</b>	<b>497,805</b>	<b>598,698</b>	<b>668,705</b>		

### Alternative Water User Group (WUG) Water Management Strategies (WMS)

**WUG Entity Primary Region: M**

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
AGUA SUD	M	AGUA SUD NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	0	0	1,212	1,212	1,212	N/A	\$994
AGUA SUD	M	AGUA SUD NON-POTABLE REUSE	M   DIRECT REUSE	280	280	280	280	280	280	\$2946	\$1743
AGUA SUD	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	160	222	818	1,198	1,577	N/A	\$1652
AGUA SUD	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	136	817	1,187	1,571	N/A	\$1652
AGUA SUD	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	358	226	607	709	780	N/A	\$1652
AGUA SUD	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	113	72	192	224	246	N/A	\$1652
AGUA SUD	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	0	69	43	467	1,282	2,176	N/A	\$1652
ALAMO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	344	699	832	951	1,093	N/A	\$1652
ALAMO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	428	830	942	1,088	N/A	\$1652
ALAMO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	667	767	712	617	563	541	\$3237	\$1652
ALAMO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	242	225	195	178	171	N/A	\$1652
ALAMO	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	183	147	137	475	1,017	1,508	\$3237	\$1652
BROWNSVILLE	M	BROWNSVILLE -MATAMOROS WEIR AND RESERVOIR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	17,821	17,887	17,953	18,020	18,086	18,152	\$77	\$10
BROWNSVILLE	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	159	2,144	3,946	5,699	N/A	\$1652
BROWNSVILLE	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	97	2,140	3,908	5,677	N/A	\$1652
BROWNSVILLE	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	162	1,590	2,336	2,819	N/A	\$1652
BROWNSVILLE	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	0	162	1,590	2,336	2,819	N/A	\$1652
BROWNSVILLE	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	0	0	31	1,224	4,222	7,864	N/A	\$1652
BROWNSVILLE	M	VALLEY MUD 2 NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	0	0	10	10	N/A	\$6430
COMBES	M	COMBES NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	0	125	125	125	N/A	\$2717

**Alternative Water User Group (WUG) Water Management Strategies (WMS)**

**Water Management Strategy Supplies**

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
COMBES	M	HARLINGEN NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	21	21	21	21	N/A	\$1149
COUNTY-OTHER, CAMERON	M	HARLINGEN NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	10	10	10	10	N/A	\$1149
COUNTY-OTHER, CAMERON	M	VALLEY MUD 2 NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	0	0	3	3	N/A	\$6430
COUNTY-OTHER, HIDALGO	M	AGUA SUD NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	0	0	14	14	14	N/A	\$994
COUNTY-OTHER, HIDALGO	M	MHWSC EXPAND EXISTING GW SUPPLIES - HIDALGO COUNTY	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	1	1	1	3	3	3	\$316	\$86
COUNTY-OTHER, STARR	M	RIO GRANDE CITY NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   STARR COUNTY	0	43	43	43	43	43	N/A	\$1332
DONNA	M	DONNA NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	700	700	700	1,000	1,000	1,000	\$2356	\$1375
DONNA	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	34	207	353	469	596	N/A	\$1652
DONNA	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	127	352	465	593	N/A	\$1652
DONNA	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	77	210	261	278	295	N/A	\$1652
DONNA	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	24	66	83	88	93	N/A	\$1652
DONNA	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	0	15	40	201	502	822	N/A	\$1652
EAGLE PASS	M	EAGLE PASS NEW BGD PLANT	M   CARRIZO-WILCOX AQUIFER   MAVERICK COUNTY	0	0	0	560	560	560	N/A	\$1332
EAST RIO HONDO WSC	M	HARLINGEN NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	14	14	14	14	N/A	\$1149
EAST RIO HONDO WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	11	207	367	521	670	N/A	\$1652
EAST RIO HONDO WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	127	366	516	668	N/A	\$1652
EAST RIO HONDO WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	26	210	272	308	332	N/A	\$1652
EAST RIO HONDO WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	8	66	86	97	105	N/A	\$1652
EAST RIO HONDO WSC	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	0	5	40	209	557	925	N/A	\$1652
EDINBURG	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	1,456	2,924	3,427	3,946	4,494	N/A	\$1652



## Alternative Water User Group (WUG) Water Management Strategies (WMS)

## Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
EDINBURG	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	1,788	3,422	3,908	4,478	N/A	\$1652
EDINBURG	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	2,788	3,246	2,976	2,541	2,336	2,223	\$3237	\$1652
EDINBURG	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	1,025	940	803	738	702	N/A	\$1652
EDINBURG	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	762	623	571	1,957	4,222	6,202	\$3237	\$1652
EL JARDIN WSC	M	BROWNSVILLE -MATAMOROS WEIR AND RESERVOIR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	741	743	746	749	752	754	\$77	\$10
ELSA	M	ELSA NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	560	560	560	560	560	560	\$2593	\$1338
ELSA	M	ELSA WTP EXPANSION AND INTERCONNECT TO ENGLEMAN ID	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	2,240	2,240	2,240	2,240	2,240	2,240	\$671	\$304
HARLINGEN	M	HARLINGEN NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	888	888	888	888	N/A	\$1149
HARLINGEN	M	HARLINGEN NON-POTABLE REUSE	M   DIRECT REUSE	677	677	677	677	677	677	\$1678	\$826
HARLINGEN	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	350	987	1,576	2,160	N/A	\$1652
HARLINGEN	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	214	985	1,560	2,152	N/A	\$1652
HARLINGEN	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	356	732	933	1,069	N/A	\$1652
HARLINGEN	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	0	112	231	295	338	N/A	\$1652
HARLINGEN	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	0	0	68	564	1,686	2,981	N/A	\$1652
HIDALGO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	183	381	451	534	608	N/A	\$1652
HIDALGO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	233	450	529	606	N/A	\$1652
HIDALGO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	314	409	388	335	316	301	\$3237	\$1652
HIDALGO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	129	123	106	100	95	N/A	\$1652
HIDALGO	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	86	78	75	258	571	840	\$3237	\$1652
HIDALGO COUNTY MUD #1	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	103	175	183	208	236	N/A	\$1652
HIDALGO COUNTY MUD #1	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	107	183	207	235	N/A	\$1652

### Alternative Water User Group (WUG) Water Management Strategies (WMS)

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
HIDALGO COUNTY MUD #1	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	236	230	178	136	123	117	\$3237	\$1652
HIDALGO COUNTY MUD #1	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	73	56	43	39	37	N/A	\$1652
HIDALGO COUNTY MUD #1	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	64	44	34	105	223	326	\$3237	\$1652
LA FERIA	M	LA FERIA NON-POTABLE REUSE	M   DIRECT REUSE	174	174	174	174	174	174	\$2834	\$1469
LA FERIA	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	11	64	113	156	199	N/A	\$1652
LA FERIA	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	39	113	155	198	N/A	\$1652
LA FERIA	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	26	65	84	93	98	N/A	\$1652
LA FERIA	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	8	20	26	29	31	N/A	\$1652
LA FERIA	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	0	5	12	64	167	274	N/A	\$1652
LA JOYA	M	AGUA SUD NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	0	0	40	40	40	N/A	\$994
LA VILLA	M	DELTA WATERSHED PROJECT - NEW RESERVOIR	M   NUCES-RIO GRANDE RUN-OF-RIVER	400	400	400	400	400	400	\$1790	\$801
LA VILLA	M	LA VILLA NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	560	560	560	560	560	560	\$2559	\$1321
LAGUNA VISTA	M	LAGUNA MADRE NON-POTABLE REUSE	M   DIRECT REUSE	122	122	122	122	122	122	\$1929	\$989
LAGUNA VISTA	M	LAGUNA MADRE SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	390	390	390	390	390	390	\$7175	\$4963
LAGUNA VISTA	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	287	524	592	664	745	N/A	\$1652
LAGUNA VISTA	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	320	592	658	742	N/A	\$1652
LAGUNA VISTA	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	667	639	534	439	393	369	\$3237	\$1652
LAGUNA VISTA	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	202	169	139	124	116	N/A	\$1652
LAGUNA VISTA	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	183	123	102	338	711	1,028	\$3237	\$1652
LAREDO	M	LAREDO EL PICO WTP EXPANSION	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	16,800	33,600	53,760	96,960	96,960	96,960	\$321	\$135
LAREDO	M	LAREDO NEW BGD PLANT	M   CARRIZO-WILCOX AQUIFER   WEBB COUNTY	0	0	0	5,000	5,000	5,000	N/A	\$821
LAREDO	M	LAREDO NON-POTABLE REUSE	M   DIRECT REUSE	2,100	2,100	2,100	2,100	2,100	2,100	\$1005	\$531

## Alternative Water User Group (WUG) Water Management Strategies (WMS)

## Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
LOS INDIOS	M	MHWSC EXPAND EXISTING GW SUPPLIES - HIDALGO COUNTY	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	6	6	6	16	16	16	\$316	\$86
MANUFACTURING, CAMERON	M	BROWNSVILLE -MATAMOROS WEIR AND RESERVOIR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	387	388	389	391	392	394	\$77	\$10
MANUFACTURING, CAMERON	M	HARLINGEN NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	12	12	12	12	N/A	\$1149
MCALLEN	M	MCALLEN EXPAND EXISTING GROUNDWATER SUPPLY	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	500	500	500	1,500	1,500	N/A	\$124
MCALLEN	M	MCALLEN NON-POTABLE REUSE	M   DIRECT REUSE	1,950	1,950	1,950	1,950	1,950	1,950	\$1064	\$544
MCALLEN	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	2,934	6,834	8,561	10,249	11,956	N/A	\$1652
MCALLEN	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	4,180	8,547	10,150	11,912	N/A	\$1652
MCALLEN	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	3,416	6,543	6,955	6,348	6,069	5,915	\$3237	\$1652
MCALLEN	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	2,066	2,496	2,005	1,916	1,868	N/A	\$1652
MCALLEN	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	934	1,256	1,335	4,889	10,966	16,500	\$3237	\$1652
MERCEDES	M	MERCEDES EXPAND EXISTING GROUNDWATER SUPPLY	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	560	560	560	560	560	560	\$222	\$72
MERCEDES	M	MERCEDES NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	0	435	435	435	435	N/A	\$2607
MERCEDES	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	160	366	451	547	633	N/A	\$1652
MERCEDES	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	223	450	542	630	N/A	\$1652
MERCEDES	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	196	358	372	335	324	313	\$3237	\$1652
MERCEDES	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	113	117	106	102	99	N/A	\$1652
MERCEDES	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	54	69	71	258	585	874	\$3237	\$1652
MILITARY HIGHWAY WSC	M	HARLINGEN NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	9	9	9	9	N/A	\$1149
MILITARY HIGHWAY WSC	M	MHWSC EXPAND EXISTING GW SUPPLIES - HIDALGO COUNTY	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	209	209	209	522	522	522	\$316	\$86
MILITARY HIGHWAY WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	470	969	1,171	1,367	1,589	N/A	\$1652
MILITARY HIGHWAY WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	593	1,168	1,355	1,583	N/A	\$1652



**Alternative Water User Group (WUG) Water Management Strategies (WMS)**

**Water Management Strategy Supplies**

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
MILITARY HIGHWAY WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	864	1,048	987	868	810	786	\$3237	\$1652
MILITARY HIGHWAY WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	190	331	312	274	256	248	\$3237	\$1652
MILITARY HIGHWAY WSC	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	236	201	189	669	1,463	2,193	\$3237	\$1652
MISSION	M	AGUA SUD NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	0	0	7	7	7	N/A	\$994
MISSION	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	2,556	4,990	5,740	6,537	7,375	N/A	\$1652
MISSION	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	3,051	5,730	6,475	7,347	N/A	\$1652
MISSION	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	5,222	5,700	5,079	4,257	3,871	3,648	\$3237	\$1652
MISSION	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	1,800	1,604	1,344	1,222	1,152	N/A	\$1652
MISSION	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	1,428	1,094	975	3,278	6,995	10,177	\$3237	\$2652
NORTH ALAMO WSC	M	DELTA WATERSHED PROJECT - EDINBURG RESERVOIR	M   NUECES-RIO GRANDE RUN-OF-RIVER	2,000	2,000	2,000	2,000	2,000	2,000	\$1271	\$706
NORTH ALAMO WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	401	985	2,468	3,217	4,209	N/A	\$1652
NORTH ALAMO WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	603	2,464	3,185	4,193	N/A	\$1652
NORTH ALAMO WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	895	1,003	1,830	1,905	2,082	N/A	\$1652
NORTH ALAMO WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	283	317	578	601	658	N/A	\$1652
NORTH ALAMO WSC	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	0	172	192	1,410	3,442	5,808	N/A	\$1652
OLMITO WSC	M	OLMITO WSC NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	560	560	560	560	560	560	\$2582	\$1327
OLMITO WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	28	65	99	N/A	\$1652
OLMITO WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	0	28	65	99	N/A	\$1652
OLMITO WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	0	21	39	49	N/A	\$1652
OLMITO WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	0	0	7	12	16	N/A	\$1652
OLMITO WSC	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	0	0	0	16	70	137	N/A	\$1652

## Alternative Water User Group (WUG) Water Management Strategies (WMS)

## Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
PALM VALLEY	M	HARLINGEN NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	19	19	19	19	N/A	\$1149
PALMVIEW	M	AGUA SUD NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	0	0	160	160	160	N/A	\$994
PENITAS	M	AGUA SUD NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	0	0	130	130	130	N/A	\$994
PHARR	M	PHARR NON-POTABLE REUSE	M   DIRECT REUSE	500	500	500	500	500	500	\$1696	\$840
PHARR	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	470	1,319	1,777	2,240	2,669	N/A	\$1652
PHARR	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	807	1,774	2,218	2,660	N/A	\$1652
PHARR	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	16	1,048	1,343	1,318	1,326	1,321	\$3237	\$1652
PHARR	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	331	424	416	419	417	N/A	\$1652
PHARR	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	4	201	258	1,015	2,397	3,684	\$3237	\$1652
PORT ISABEL	M	LAGUNA MADRE NON-POTABLE REUSE	M   DIRECT REUSE	66	66	66	66	66	66	\$1929	\$989
PORT ISABEL	M	LAGUNA MADRE SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	213	213	213	213	213	213	\$7175	\$4963
PORT ISABEL	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	149	270	310	339	385	N/A	\$1652
PORT ISABEL	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	165	310	335	383	N/A	\$1652
PORT ISABEL	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	353	332	275	230	300	190	\$3237	\$1652
PORT ISABEL	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	105	87	73	63	60	N/A	\$1652
PORT ISABEL	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	97	64	53	177	362	531	\$3237	\$1652
PRIMERA	M	HARLINGEN NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	26	26	26	26	N/A	\$1149
PROGRESO	M	MHWSC EXPAND EXISTING GW SUPPLIES - HIDALGO COUNTY	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	31	31	31	79	79	79	\$316	\$86
RANCHO VIEJO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	0	26	62	N/A	\$1652
RANCHO VIEJO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	0	0	25	62	N/A	\$1652
RANCHO VIEJO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	0	0	15	31	N/A	\$1652

**Alternative Water User Group (WUG) Water Management Strategies (WMS)**

**Water Management Strategy Supplies**

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
RANCHO VIEJO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	0	0	0	5	10	N/A	\$1652
RANCHO VIEJO	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	0	0	0	0	28	86	N/A	\$1652
RANCHO VIEJO	M	VALLEY MUD 2 NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	0	0	87	87	N/A	\$6430
RIO GRANDE CITY	M	CONVERSION OF IRRIGATION WATER RIGHTS TO DMI	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	280	280	280	560	560	560	\$143	\$143
RIO GRANDE CITY	M	RIO GRANDE CITY NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   STARR COUNTY	0	469	469	469	469	469	N/A	\$1332
RIO WSC	M	RIO GRANDE CITY NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   STARR COUNTY	0	48	48	48	48	48	N/A	\$1332
SAN BENITO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	0	0	0	156	310	N/A	\$1652
SAN BENITO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	0	0	155	310	N/A	\$1652
SAN BENITO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	0	0	0	93	154	N/A	\$1652
SAN BENITO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	0	0	0	29	48	N/A	\$1652
SAN BENITO	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	0	0	0	0	167	428	N/A	\$1652
SAN BENITO	M	SAN BENITO NON-POTABLE REUSE	M   NUECES-RIO GRANDE INDIRECT REUSE	1,120	1,120	1,120	1,120	1,120	1,120	\$192	\$48
SAN BENITO	M	SAN BENITO POTABLE REUSE	M   DIRECT REUSE	1,120	1,120	1,120	1,120	1,120	3,360	\$1349	\$732
SAN JUAN	M	MHWSC EXPAND EXISTING GW SUPPLIES - HIDALGO COUNTY	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	2	2	2	5	5	5	\$316	\$86
SAN JUAN	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	653	1,240	1,481	1,706	1,949	N/A	\$1652
SAN JUAN	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	758	1,478	1,690	1,942	N/A	\$1652
SAN JUAN	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	1,374	1,457	1,262	1,098	1,010	964	\$3237	\$1652
SAN JUAN	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	460	398	347	319	305	N/A	\$1652
SAN JUAN	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	376	280	242	846	1,825	2,690	\$3237	\$1652
SANTA ROSA	M	SANTA ROSA NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	0	560	560	560	560	560	N/A	\$1323
SHARYLAND WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	986	2,447	3,159	4,089	4,432	N/A	\$1652



### Alternative Water User Group (WUG) Water Management Strategies (WMS)

#### Water Management Strategy Supplies

WUG Entity Name	WMS Sponsor Region	WMS Name	Source Name	2020	2030	2040	2050	2060	2070	Unit Cost 2020	Unit Cost 2070
SHARYLAND WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	1,497	3,154	4,050	4,415	N/A	\$1652
SHARYLAND WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	824	2,198	2,491	2,343	2,421	2,193	\$3237	\$1652
SHARYLAND WSC	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	694	787	740	765	692	N/A	\$1652
SHARYLAND WSC	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	226	422	478	1,804	4,375	6,117	\$3237	\$1652
SOUTH PADRE ISLAND	M	LAGUNA MADRE NON-POTABLE REUSE	M   DIRECT REUSE	162	162	162	162	162	162	\$1929	\$989
SOUTH PADRE ISLAND	M	LAGUNA MADRE SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	517	517	517	517	517	517	\$7175	\$4963
SOUTH PADRE ISLAND	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	378	699	776	873	993	N/A	\$1652
SOUTH PADRE ISLAND	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	428	775	864	990	N/A	\$1652
SOUTH PADRE ISLAND	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	864	843	712	575	517	491	\$3237	\$1652
SOUTH PADRE ISLAND	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	266	225	182	163	155	N/A	\$1652
SOUTH PADRE ISLAND	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	236	162	137	443	934	1,371	\$3237	\$1652
STEAM ELECTRIC POWER, CAMERON	M	BROWNSVILLE -MATAMOROS WEIR AND RESERVOIR	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	228	228	229	230	231	232	\$77	\$10
SULLIVAN CITY	M	AGUA SUD NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	0	0	117	117	117	N/A	\$994
WESLACO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   AMISTAD-FALCON LAKE/RESERVOIR SYSTEM	0	1,032	1,971	2,242	2,552	2,868	N/A	\$1652
WESLACO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   DIRECT REUSE	0	0	739	1,361	1,529	1,737	N/A	\$1652
WESLACO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   CAMERON COUNTY	2,199	2,300	2,006	1,663	1,511	1,419	\$3237	\$1652
WESLACO	M	RGRWA REGIONAL FACILITY PROJECT - GROUNDWATER, SURFACE WATER, AND REUSE	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	726	633	525	477	448	N/A	\$1652
WESLACO	M	RGRWA REGIONAL FACILITY PROJECT - SEAWATER DESALINATION	M   GULF OF MEXICO SALINE	601	442	385	1,281	2,731	3,958	\$3237	\$1652
WESLACO	M	WESLACO NEW BGD PLANT	M   GULF COAST AQUIFER FRESH/BRACKISH   HIDALGO COUNTY	0	1,630	1,630	1,630	1,630	1,630	N/A	\$997
WESLACO	M	WESLACO SCALPING PLANTS	M   DIRECT REUSE	1	1	1	1	1	1	\$145500 0	\$113000
<b>Region M Total Alternative WMS Supplies</b>				<b>79,138</b>	<b>129,346</b>	<b>183,305</b>	<b>283,315</b>	<b>333,528</b>	<b>383,144</b>		

**Recommended Projects Associated with Water Management Strategies**

**Project Sponsor Region: M**

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
ADAMS GARDEN IRRIGATION DISTRICT #19	Y	ADAMS GARDEN ID CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; ON FARM IRRIGATION CONSERVATION; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; WATER LOSS CONTROL	\$424,495	2020
AGUA SUD	N	AGUA SUD ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$340,000	2020
AGUA SUD	N	AGUA SUD EAST WWTP POTABLE REUSE PHASE I	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$13,019,000	2020
AGUA SUD	N	AGUA SUD EAST WWTP POTABLE REUSE PHASE II	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$3,561,000	2050
AGUA SUD	N	AGUA SUD WEST WWTP POTABLE REUSE PHASE I	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$14,455,000	2020
AGUA SUD	N	AGUA SUD WEST WWTP POTABLE REUSE PHASE II	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$8,796,000	2040
ALAMO	N	ALAMO ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$1,700,000	2050
ALAMO	N	ALAMO BGD PLANT	MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT	\$13,532,000	2020
ALAMO	N	ALAMO GROUNDWATER WELL	SINGLE WELL	\$1,181,000	2020
BAYVIEW IRRIGATION DISTRICT #11	Y	BAYVIEW ID CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; WATER LOSS CONTROL; ON FARM IRRIGATION CONSERVATION	\$8,658,699	2020
BROWNSVILLE	Y	BROWNSVILLE BANCO MORALES RESERVOIR	RESERVOIR CONSTRUCTION	\$8,853,000	2020
BROWNSVILLE	Y	BROWNSVILLE NON-POTABLE WATER REUSE PIPELINE	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$32,271,000	2020
BROWNSVILLE	Y	BROWNSVILLE RESACA RESTORATION	DREDGE TO RECOVER CAPACITY	\$12,396,000	2020
BROWNSVILLE	Y	BROWNSVILLE SEAWATER DESALINATION DEMONSTRATION	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT	\$56,756,000	2020
BROWNSVILLE	Y	BROWNSVILLE SEAWATER DESALINATION IMPLEMENTATION	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; WATER TREATMENT PLANT EXPANSION	\$319,115,000	2060
BROWNSVILLE	Y	BROWNSVILLE SOUTHSIDE WWTP POTABLE REUSE -PHASE I	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$36,282,000	2030
BROWNSVILLE	Y	BROWNSVILLE SOUTHSIDE WWTP POTABLE REUSE -PHASE II	WATER TREATMENT PLANT EXPANSION; PUMP STATION	\$9,822,000	2060
BROWNSVILLE IRRIGATION DISTRICT	Y	BROWNSVILLE ID CONSERVATION	CONVEYANCE/TRANSMISSION PIPELINE; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT	\$12,863,514	2020
CAMERON COUNTY IRRIGATION DISTRICT #10	Y	CAMERON COUNTY WATER IMPROVEMENT DISTRICT NO. 10 CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; DREDGE TO RECOVER CAPACITY; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; PUMP STATION; RESERVOIR CONSTRUCTION; WATER LOSS CONTROL	\$2,019,664	2020
CAMERON COUNTY IRRIGATION DISTRICT #16	Y	CAMERON COUNTY ID NO. 16 CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$1,393,698	2020
CAMERON COUNTY IRRIGATION DISTRICT #2	Y	CAMERON COUNTY ID #2 CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$63,144,906	2020

### Recommended Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
CAMERON COUNTY IRRIGATION DISTRICT #6	Y	CAMERON COUNTY ID NO. 6 CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$24,587,310	2020
COUNTY-OTHER, CAMERON	N	CAMERON COUNTY GROUNDWATER WELLS	MULTIPLE WELLS/WELL FIELD	\$11,220,000	2020
COUNTY-OTHER, CAMERON	N	CAMERON COUNTY-OTHER ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$147,500	2020
COUNTY-OTHER, HIDALGO	N	HIDALGO COUNTY-OTHER ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$877,500	2020
COUNTY-OTHER, HIDALGO	N	HIDALGO COUNTY-OTHER ACQUISITION OF WR FROM UNAFFILIATED CAMERON IRRIGATION	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$1,087,500	2020
COUNTY-OTHER, HIDALGO	N	HIDALGO COUNTY-OTHER ACQUISITION OF WR FROM UNAFFILIATED HIDALGO IRRIGATION	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$675,000	2020
COUNTY-OTHER, STARR	N	STARR COUNTY-OTHER ACQUISITION OF WR FROM UNAFFILIATED STARR IRRIGATION	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$2,157,165	2020
COUNTY-OTHER, STARR	N	STARR COUNTY-OTHER ADDITIONAL GROUNDWATER WELLS	MULTIPLE WELLS/WELL FIELD	\$2,541,000	2020
COUNTY-OTHER, WEBB	N	WEBB COUNTY-OTHER ADDITIONAL GROUNDWATER WELLS	MULTIPLE WELLS/WELL FIELD	\$8,891,000	2020
COUNTY-OTHER, ZAPATA	N	ZAPATA COUNTY-OTHER ACQUISITION OF WR FROM UNAFFILIATED ZAPATA IRRIGATION	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$215,000	2020
DELTA LAKE IRRIGATION DISTRICT	Y	DELTA LAKE ID CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$52,377,800	2020
DONNA	N	DONNA PURCHASE OF CONVERTED WATER RIGHTS FOR WTP EXPANSION - PHASE I	NEW WATER RIGHT/PERMIT	\$1,975,000	2020
DONNA	N	DONNA PURCHASE OF CONVERTED WATER RIGHTS FOR WTP EXPANSION - PHASE II	NEW WATER RIGHT/PERMIT	\$2,193,000	2040
DONNA	N	DONNA RESERVOIR AND PUMP STATION	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION; RESERVOIR CONSTRUCTION	\$7,817,000	2020
DONNA	N	DONNA WTP EXPANSION	WATER TREATMENT PLANT EXPANSION	\$13,753,000	2020
DONNA IRRIGATION DISTRICT-HIDALGO COUNTY #1	Y	DONNA ID CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$6,379,000	2020
EAGLE PASS	Y	EAGLE PASS NEW GROUNDWATER SUPPLY	NEW WATER TREATMENT PLANT; SINGLE WELL	\$1,072,000	2050
EAST RIO HONDO WSC	N	ERHWSC CONVERSION OF WATER RIGHTS	NEW WATER RIGHT/PERMIT	\$1,360,000	2020
EAST RIO HONDO WSC	N	ERHWSC FM 2925 TRANSMISSION LINE	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	\$5,089,000	2020
EAST RIO HONDO WSC	N	ERHWSC HARLINGEN WW INTERCONNECT	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	\$2,051,000	2020
EAST RIO HONDO WSC	N	ERHWSC MUNICIPAL (UV DISINFECTION FM 510 WTP)	WATER TREATMENT PLANT EXPANSION	\$687,000	2020
EAST RIO HONDO WSC	N	ERHWSC SURFACE WATER TREATMENT PLANT	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$34,794,000	2020
EAST RIO HONDO WSC	N	NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	MULTIPLE WELLS/WELL FIELD	\$627,000	2020
EDCOUCH	N	EDCOUCH ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$68,000	2020
EDCOUCH	N	EDCOUCH EMERGENCY GROUNDWATER SUPPLY	CONVEYANCE/TRANSMISSION PIPELINE; SINGLE WELL	\$1,106,000	2020
EDINBURG	N	EDINBURG ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$340,000	2020
EDINBURG	N	EDINBURG NON-POTABLE REUSE	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$9,971,000	2020
EL JARDIN WSC	N	EL JARDIN DISTRIBUTION PIPELINE REPLACEMENT	CONVEYANCE/TRANSMISSION PIPELINE	\$23,421,000	2020
EL JARDIN WSC	N	EL JARDIN NEW BGD PLANT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$8,272,000	2020
ELSA	N	ELSA ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$170,000	2060



### Recommended Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
ENGLEMAN IRRIGATION DISTRICT	Y	ENGLEMAN ID CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$4,500,000	2020
HARLINGEN	Y	HARLINGEN WWTP 2 POTABLE REUSE	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$19,164,000	2040
HARLINGEN IRRIGATION DISTRICT-CAMERON COUNTY #1	Y	HARLINGEN ID CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$3,262,278	2020
HEBBRONVILLE	N	HEBBRONVILLE NEW BGD PLANT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$8,275,000	2020
HIDALGO	N	HIDALGO ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$1,000,000	2020
HIDALGO	N	HIDALGO EXPAND EXISTING GROUNDWATER SUPPLY	NEW WATER TREATMENT PLANT; SINGLE WELL	\$656,000	2020
HIDALGO COUNTY DRAINAGE DISTRICT #1	Y	DELTA WATERSHED PROJECT - EDINBURG LAKE	NEW WATER TREATMENT PLANT; RESERVOIR CONSTRUCTION	\$27,471,000	2020
HIDALGO COUNTY DRAINAGE DISTRICT #1	Y	DELTA WATERSHED PROJECT - NEW RESERVOIR	DIVERSION AND CONTROL STRUCTURE; NEW WATER TREATMENT PLANT; PUMP STATION; RESERVOIR CONSTRUCTION	\$30,728,000	2020
HIDALGO COUNTY IRRIGATION DISTRICT #1	Y	HIDALGO COUNTY ID NO. 1 CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$54,933,275	2020
HIDALGO COUNTY IRRIGATION DISTRICT #13	Y	HIDALGO COUNTY ID NO. 13 CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$660,339	2020
HIDALGO COUNTY IRRIGATION DISTRICT #16	Y	HIDALGO COUNTY ID NO. 16 CONSERVATION	CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$3,533,600	2020
HIDALGO COUNTY IRRIGATION DISTRICT #19	Y	HIDALGO COUNTY WID NO. 19 (SHARYLAND) CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$2,644,166	2020
HIDALGO COUNTY IRRIGATION DISTRICT #2	Y	HIDALGO COUNTY ID NO. 2 CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$14,688,870	2020
HIDALGO COUNTY IRRIGATION DISTRICT #5	Y	HIDALGO COUNTY ID NO. 5 CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$5,210,000	2020
HIDALGO COUNTY IRRIGATION DISTRICT #6	Y	HIDALGO COUNTY ID NO. 6 CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$13,819,638	2020
HIDALGO COUNTY MUD #1	N	HIDALGO MUD NO. 1 CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$859,115	2020
HIDALGO COUNTY WCID #18	Y	HIDALGO COUNTY WCID NO. 18 CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$569,047	2020
HIDALGO COUNTY WID #3	Y	HIDALGO COUNTY WID NO. 3 CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$9,050,000	2020

### Recommended Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
HIDALGO-CAMERON COUNTY IRRIGATION DISTRICT #9	Y	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$54,000,000	2020
IRRIGATION, JIM HOGG	N	JIM HOGG IRRIGATION ADDITIONAL GROUNDWATER WELLS	MULTIPLE WELLS/WELL FIELD	\$2,117,000	2020
LA FERIA	N	LA FERIA RAINWATER HARVESTING	RAINWATER HARVESTING CAPITAL COST	\$204,000	2020
LA FERIA	N	LA FERIA WATER WELL WITH RO UNIT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$6,260,000	2020
LA FERIA IRRIGATION DISTRICT-CAMERON COUNTY #3	Y	LA FERIA ID CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; DREDGE TO RECOVER CAPACITY; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; PUMP STATION; RESERVOIR CONSTRUCTION; WATER LOSS CONTROL	\$51,300,000	2020
LA VILLA	N	LA VILLA ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$85,000	2020
LAGUNA MADRE WD	Y	LAGUNA MADRE NEW BGD PLANT	MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT	\$22,564,000	2020
LAGUNA MADRE WD	Y	LAGUNA MADRE POTABLE REUSE	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION	\$13,613,000	2020
LAREDO	Y	SOUTH LAREDO WWTP POTABLE REUSE - PHASE I	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$43,467,000	2030
LAREDO	Y	SOUTH LAREDO WWTP POTABLE REUSE - PHASE II	PUMP STATION; STORAGE TANK; WATER TREATMENT PLANT EXPANSION; CONVEYANCE/TRANSMISSION PIPELINE	\$36,408,000	2060
LAREDO	Y	SOUTH LAREDO WWTP POTABLE REUSE - PHASE III	WATER TREATMENT PLANT EXPANSION	\$19,857,000	2070
LYFORD	N	LYFORD BGD	NEW WATER TREATMENT PLANT; SINGLE WELL	\$6,950,000	2020
MANUFACTURING, CAMERON	N	CAMERON MANUFACTURING ACQUISITION OF WR FROM UNAFFILIATED CAMERON IRRIGATION	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$425,000	2040
MANUFACTURING, HIDALGO	N	HIDALGO MANUFACTURING ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$505,000	2020
MANUFACTURING, MAVERICK	N	MAVERICK MANUFACTURING NEW GROUNDWATER SUPPLY	MULTIPLE WELLS/WELL FIELD	\$538,000	2020
MANUFACTURING, STARR	N	STARR MANUFACTURING ACQUISITION OF WR FROM UNAFFILIATED STARR IRRIGATION	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$2,500	2050
MANUFACTURING, WILLACY	N	WILLACY MANUFACTURING ACQUISITION OF WR FROM UNAFFILIATED WILLACY IRRIGATION	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$5,000	2020
MAVERICK COUNTY WCID #1	Y	MAVERICK COUNTY WCID CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$42,874,475	2020
MCALLEN	N	MCALLEN ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$1,360,000	2040
MCALLEN	N	MCALLEN BGD PLANT	NEW WATER TREATMENT PLANT; MULTIPLE WELLS/WELL FIELD	\$31,218,000	2020
MCALLEN	N	MCALLEN HCID NO. 1 RAW WATER LINE	CONVEYANCE/TRANSMISSION PIPELINE	\$2,532,000	2020
MCALLEN	N	MCALLEN NORTH WWTP POTABLE REUSE -PHASE I	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$14,145,000	2040
MCALLEN	N	MCALLEN NORTH WWTP POTABLE REUSE -PHASE II	STORAGE TANK; WATER TREATMENT PLANT EXPANSION	\$8,888,000	2050
MCALLEN	N	MCALLEN SOUTH WWTP POTABLE REUSE - PHASE I	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$20,143,000	2030
MCALLEN	N	MCALLEN SOUTH WWTP POTABLE REUSE - PHASE II	WATER TREATMENT PLANT EXPANSION	\$6,232,000	2040
MCALLEN	N	MCALLEN SOUTH WWTP POTABLE REUSE - PHASE III	WATER TREATMENT PLANT EXPANSION	\$9,732,000	2050
MERCEDES	N	MERCEDES WWTP POTABLE REUSE	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$11,722,000	2030
MILITARY HIGHWAY WSC	Y	MHWSC EXPAND EXISTING GW SUPPLY - CAMERON COUNTY	SINGLE WELL; WATER TREATMENT PLANT EXPANSION	\$5,373,000	2020

### Recommended Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
MILITARY HIGHWAY WSC	Y	MILITARY HIGHWAY WSC ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$510,000	2020
MISSION	N	MISSION ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$1,020,000	2030
MISSION	N	MISSION BGD PLANT	NEW WATER TREATMENT PLANT; MULTIPLE WELLS/WELL FIELD	\$31,914,000	2020
MISSION	N	MISSION WWTP POTABLE REUSE - PHASE I	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$32,565,000	2020
MISSION	N	MISSION WWTP POTABLE REUSE - PHASE II	STORAGE TANK; WATER TREATMENT PLANT EXPANSION	\$2,763,000	2050
NORTH ALAMO WSC	Y	NAWSC DELTA AREA RO WTP EXPANSION	MULTIPLE WELLS/WELL FIELD; WATER TREATMENT PLANT EXPANSION	\$22,709,000	2020
NORTH ALAMO WSC	Y	NAWSC EXPANSION OF DELTA WTP AND PURCHASE OF CONVERTED WATER RIGHTS - PHASE I	WATER RIGHT/PERMIT LEASE OR PURCHASE; WATER TREATMENT PLANT EXPANSION	\$28,802,000	2040
NORTH ALAMO WSC	Y	NAWSC EXPANSION OF DELTA WTP AND PURCHASE OF CONVERTED WATER RIGHTS - PHASE II	WATER RIGHT/PERMIT LEASE OR PURCHASE; WATER TREATMENT PLANT EXPANSION	\$13,702,000	2050
NORTH ALAMO WSC	Y	NAWSC EXPANSION OF WTP NO. 5	WATER TREATMENT PLANT EXPANSION; WATER RIGHT/PERMIT LEASE OR PURCHASE	\$23,794,000	2020
NORTH ALAMO WSC	Y	NAWSC LA SARA R.O. PLANT EXPANSION	SINGLE WELL; WATER TREATMENT PLANT EXPANSION	\$13,260,000	2070
NORTH ALAMO WSC	Y	NORTH CAMERON REGIONAL WTP WELLFIELD EXPANSION	MULTIPLE WELLS/WELL FIELD	\$1,254,000	2020
OLMITO WSC	N	OLMITO WSC ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$340,000	2020
PHARR	N	PHARR RAW WATER RESERVOIR AUGMENTATION	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$38,422,000	2020
PRIMERA	N	PRIMERA NEW BGD PLANT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$14,318,000	2020
RIO GRANDE CITY	Y	RIO GRANDE CITY WATER METER REPLACEMENT	METER REPLACEMENT	\$5,059,000	2020
RIO HONDO	N	RIO HONDO EMERGENCY INTERCONNECTS	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	\$1,646,000	2020
ROMA	N	ROMA WTP AND PURCHASE OF WATER RIGHTS	NEW WATER TREATMENT PLANT; WATER RIGHT/PERMIT LEASE OR PURCHASE	\$45,625,000	2020
SAN BENITO	N	SAN BENITO NEW BGD SUPPLY	MULTIPLE WELLS/WELL FIELD	\$2,033,000	2020
SAN JUAN	N	SAN JUAN ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$340,000	2020
SAN JUAN	N	SAN JUAN WTP NO. 1 EXPANSION	MULTIPLE WELLS/WELL FIELD; WATER TREATMENT PLANT EXPANSION	\$9,561,000	2020
SANTA CRUZ IRRIGATION DISTRICT #15	Y	SANTA CRUZ ID CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$4,580,179	2020
SANTA ROSA	N	SANTA ROSA ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$42,500	2030
SHARYLAND WSC	Y	SHARYLAND WELL AND RO AT WTP 2	NEW WATER TREATMENT PLANT; SINGLE WELL	\$13,253,000	2020
SHARYLAND WSC	Y	SHARYLAND WELL AND RO AT WTP 3	NEW WATER TREATMENT PLANT; SINGLE WELL	\$13,253,000	2020
STEAM ELECTRIC POWER, HIDALGO	N	HIDALGO STEAM-ELEC. ADDITIONAL GROUNDWATER WELLS	MULTIPLE WELLS/WELL FIELD	\$538,000	2020
STEAM ELECTRIC POWER, HIDALGO	N	HIDALGO STEAM-ELECTRIC ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$8,295,000	2020
STEAM ELECTRIC POWER, HIDALGO	N	HIDALGO STEAM-ELECTRIC ACQUISITION OF WR FROM UNAFFILIATED CAMERON IRRIGATION	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$2,032,500	2030
UNION WSC	N	UNION WSC BGD PLANT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$8,282,000	2030
UNION WSC	N	UNION WSC METER AND LINE REPLACEMENT	CONVEYANCE/TRANSMISSION PIPELINE; METER REPLACEMENT; WATER LOSS CONTROL	\$4,258,000	2018
UNITED IRRIGATION DISTRICT	Y	UNITED ID CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; WATER LOSS CONTROL	\$12,000,000	2020



**Recommended Projects Associated with Water Management Strategies**

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
UNITED IRRIGATION DISTRICT	Y	UNITED ID OFF-CHANNEL STORAGE	RESERVOIR CONSTRUCTION	\$8,412,000	2020
VALLEY ACRES IRRIGATION DISTRICT	Y	VALLEY ACRES ID CONSERVATION	CANAL LINING; CONVEYANCE/TRANSMISSION PIPELINE; DIVERSION AND CONTROL STRUCTURE; DREDGE TO RECOVER CAPACITY; METER REPLACEMENT; ON FARM IRRIGATION CONSERVATION; PUMP STATION; RESERVOIR CONSTRUCTION; WATER LOSS CONTROL	\$2,434,160	2020
WEBB COUNTY WATER UTILITY	Y	WEBB COUNTY WATER UTILITY EXPAND EXISTING GROUNDWATER SUPPLY	NEW WATER TREATMENT PLANT; SINGLE WELL	\$504,000	2060
WESLACO	Y	WESLACO ACQUISITION OF WR FROM IDS	WATER RIGHT/PERMIT LEASE OR PURCHASE	\$1,154,300	2020
WESLACO	Y	WESLACO GROUNDWATER DEVELOPMENT AND BLENDING	SINGLE WELL	\$980,000	2020
WESLACO	Y	WESLACO NORTH WWTP POTABLE REUSE - PHASE I	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$14,444,000	2020
WESLACO	Y	WESLACO NORTH WWTP POTABLE REUSE - PHASE II	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION; WATER TREATMENT PLANT EXPANSION	\$19,548,000	2060
ZAPATA COUNTY WATERWORKS	N	ZAPATA NEW GROUNDWATER SUPPLY	MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT	\$2,323,000	2020
<b>Region M Total Recommended Capital Cost</b>				<b>\$1,866,020,693</b>	

\*Projects with a capital cost of zero are excluded from the report list.

**Alternative Projects Associated with Water Management Strategies**

**Project Sponsor Region: M**

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
AGUA SUD	N	AGUA SUD NEW BGD PLANT	MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT	\$18,136,000	2050
AGUA SUD	N	AGUA SUD NON-POTABLE REUSE	NEW WATER TREATMENT PLANT; STORAGE TANK	\$4,026,000	2020
BROWNSVILLE	Y	BROWNSVILLE-MATAMOROS WEIR AND RESERVOIR	DIVERSION AND CONTROL STRUCTURE; RESERVOIR CONSTRUCTION	\$20,508,000	2020
COMBES	N	COMBES NEW BGD PLANT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$3,891,000	2050
DONNA	N	DONNA NEW BGD PLANT	MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT	\$15,289,000	2020
EAGLE PASS	Y	EAGLE PASS NEW BGD PLANT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$8,272,000	2050
ELSA	N	ELSA NEW BGD PLANT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$8,400,000	2020
ELSA	N	ELSA WTP EXPANSION AND INTERCONNECT TO ENGLEMAN ID	CONVEYANCE/TRANSMISSION PIPELINE; WATER TREATMENT PLANT EXPANSION	\$9,836,000	2020
HARLINGEN	Y	HARLINGEN NEW BGD PLANT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$12,327,000	2040
HARLINGEN	Y	HARLINGEN NON-POTABLE REUSE	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION; STORAGE TANK; WATER TREATMENT PLANT EXPANSION	\$6,898,000	2020
LA FERIA	N	LA FERIA NON-POTABLE REUSE	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$2,830,000	2020
LA VILLA	N	LA VILLA NEW BGD PLANT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$8,276,000	2020
LAGUNA MADRE WD	Y	LAGUNA MADRE NON-POTABLE REUSE	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION; STORAGE TANK; WATER TREATMENT PLANT EXPANSION	\$3,931,000	2020
LAGUNA MADRE WD	Y	LAGUNA MADRE SEAWATER DESALINATION	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT	\$29,609,000	2020
LAREDO	Y	LAREDO EL PICO WTP EXPANSION #1	NEW WATER RIGHT/PERMIT; WATER TREATMENT PLANT EXPANSION	\$34,963,000	2020
LAREDO	Y	LAREDO EL PICO WTP EXPANSION #2	NEW WATER RIGHT/PERMIT; WATER TREATMENT PLANT EXPANSION	\$34,963,000	2030
LAREDO	Y	LAREDO EL PICO WTP EXPANSION #3	NEW WATER RIGHT/PERMIT; WATER TREATMENT PLANT EXPANSION	\$40,126,000	2040
LAREDO	Y	LAREDO EL PICO WTP EXPANSION #4	NEW WATER RIGHT/PERMIT; WATER TREATMENT PLANT EXPANSION	\$75,571,000	2050
LAREDO	Y	LAREDO NEW BGD PLANT	MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT	\$44,574,000	2050
LAREDO	Y	LAREDO NON-POTABLE REUSE	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$11,878,000	2020
MCALLEN	N	MCALLEN EXPAND EXISTING GW SUPPLY	MULTIPLE WELLS/WELL FIELD	\$1,944,000	2030
MCALLEN	N	MCALLEN NON-POTABLE REUSE	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; STORAGE TANK; PUMP STATION	\$12,123,000	2020
MERCEDES	N	MERCEDES EXPAND EXISTING GW SUPPLY	MULTIPLE WELLS/WELL FIELD	\$1,001,000	2020
MERCEDES	N	MERCEDES NEW BGD PLANT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$12,062,000	2040
MILITARY HIGHWAY WSC	Y	MHWSC EXPAND EXISTING GW SUPPLY - HIDALGO COUNTY -PHASE I	SINGLE WELL; WATER TREATMENT PLANT EXPANSION	\$668,000	2020
MILITARY HIGHWAY WSC	Y	MHWSC EXPAND EXISTING GW SUPPLY - HIDALGO COUNTY -PHASE II	SINGLE WELL; WATER TREATMENT PLANT EXPANSION	\$810,000	2050
OLMITO WSC	N	OLMITO WSC NEW BGD PLANT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$8,400,000	2020
PHARR	N	PHARR NON-POTABLE REUSE	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$5,118,000	2020
RIO GRANDE CITY	Y	RIO GRANDE CITY NEW BGD PLANT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$8,282,000	2030

### Alternative Projects Associated with Water Management Strategies

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA CAMERON BGD PLANT - PHASE I	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION; SINGLE WELL	\$206,997,000	2020
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA CAMERON BGD PLANT - PHASE II	MULTIPLE WELLS/WELL FIELD; STORAGE TANK; WATER TREATMENT PLANT EXPANSION	\$72,030,000	2030
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA HIDALGO BGD PLANT	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$100,334,000	2030
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA OCEAN DESAL - PHASE I	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$142,269,000	2020
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA OCEAN DESAL - PHASE II	STORAGE TANK; WATER TREATMENT PLANT EXPANSION	\$237,335,000	2050
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA OCEAN DESAL - PHASE III	STORAGE TANK; WATER TREATMENT PLANT EXPANSION	\$383,954,000	2060
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA OCEAN DESAL - PHASE IV	STORAGE TANK; WATER TREATMENT PLANT EXPANSION	\$367,123,000	2070
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA REGIONAL PIPELINE SYSTEM - PHASE I	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	\$183,450,231	2020
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA REGIONAL PIPELINE SYSTEM - PHASE II	PUMP STATION	\$13,709,000	2030
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA REGIONAL PIPELINE SYSTEM - PHASE III	PUMP STATION	\$14,655,000	2040
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA REGIONAL PIPELINE SYSTEM - PHASE IV	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	\$148,540,524	2050
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA REGIONAL PIPELINE SYSTEM - PHASE V	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION	\$51,485,716	2060
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA REGIONAL PIPELINE SYSTEM - PHASE VI	PUMP STATION	\$30,713,000	2070
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA SURFACE WTP, REUSE, AND ASR - PHASE I	CONVEYANCE/TRANSMISSION PIPELINE; NEW SURFACE WATER INTAKE; NEW WATER TREATMENT PLANT; PUMP STATION; RESERVOIR CONSTRUCTION	\$74,137,000	2030
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA SURFACE WTP, REUSE, AND ASR - PHASE II	CONVEYANCE/TRANSMISSION PIPELINE; MULTIPLE WELLS/WELL FIELD; NEW WATER TREATMENT PLANT; PUMP STATION; WATER TREATMENT PLANT EXPANSION	\$289,492,000	2040
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA SURFACE WTP, REUSE, AND ASR - PHASE III	WATER TREATMENT PLANT EXPANSION	\$154,253,000	2050
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA SURFACE WTP, REUSE, AND ASR - PHASE IV	WATER TREATMENT PLANT EXPANSION	\$81,334,000	2060
RIO GRANDE REGIONAL WATER AUTHORITY	Y	RGRWA SURFACE WTP, REUSE, AND ASR - PHASE V	WATER TREATMENT PLANT EXPANSION	\$83,349,000	2070
SAN BENITO	N	SAN BENITO NON-POTABLE REUSE	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$1,921,000	2020
SAN BENITO	N	SAN BENITO POTABLE REUSE PHASE I	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT; PUMP STATION; STORAGE TANK	\$11,511,000	2020
SAN BENITO	N	SAN BENITO POTABLE REUSE PHASE II	CONVEYANCE/TRANSMISSION PIPELINE; PUMP STATION; STORAGE TANK; WATER TREATMENT PLANT EXPANSION	\$18,148,000	2070
SANTA ROSA	N	SANTA ROSA NEW BGD PLANT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$8,272,000	2030



**Alternative Projects Associated with Water Management Strategies**

Sponsor Name	Is Sponsor a WWP?	Project Name	Project Description	Capital Cost	Online Decade
VALLEY MUD #2	Y	VALLEY MUD 2 NEW BGD PLANT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$3,760,000	2060
WESLACO	Y	WESLACO NEW BGD PLANT	NEW WATER TREATMENT PLANT; SINGLE WELL	\$17,694,000	2030
WESLACO	Y	WESLACO SCALPING PLANTS	CONVEYANCE/TRANSMISSION PIPELINE; NEW WATER TREATMENT PLANT	\$1,346,000	2020
<b>Region M Total Alternative Capital Cost</b>				<b>\$3,142,524,471</b>	

\*Projects with a capital cost of zero are excluded from the report list.

### Water User Group (WUG) Management Supply Factor

REGION M	WUG MANAGEMENT SUPPLY FACTOR					
	2020	2030	2040	2050	2060	2070
AGUA SUD	1.2	1.1	1.0	1.0	1.1	1.0
ALAMO	1.4	1.2	1.0	1.1	1.1	1.0
ALTON	1.0	1.0	1.0	1.1	1.2	1.1
BROWNSVILLE	1.4	1.4	1.2	1.0	1.3	1.2
COMBES	1.0	1.0	1.1	1.0	1.0	1.0
COUNTY-OTHER, CAMERON	1.0	1.2	1.1	1.1	1.1	1.1
COUNTY-OTHER, HIDALGO	1.0	1.1	1.2	1.2	1.3	1.3
COUNTY-OTHER, JIM HOGG	2.9	2.8	2.6	2.5	2.4	2.3
COUNTY-OTHER, MAVERICK	1.7	1.6	1.5	1.3	1.2	1.2
COUNTY-OTHER, STARR	1.2	1.5	1.7	2.0	2.3	2.2
COUNTY-OTHER, WEBB	1.7	1.5	1.3	1.1	1.1	1.0
COUNTY-OTHER, WILLACY	2.7	2.6	2.5	2.4	2.3	2.3
COUNTY-OTHER, ZAPATA	1.7	1.8	1.9	1.9	1.9	1.8
DONNA	1.5	1.4	1.6	1.5	1.4	1.4
EAGLE PASS	1.4	1.3	1.2	1.2	1.2	1.1
EAST RIO HONDO WSC	1.4	1.3	1.2	1.1	1.1	1.0
EDCOUCH	2.5	2.2	2.0	1.9	1.7	1.6
EDINBURG	1.0	1.0	1.0	1.0	1.1	1.0
EL CENIZO	1.0	1.0	1.0	1.0	1.1	1.0
EL JARDIN WSC	1.4	1.5	1.3	1.2	1.4	1.3
ELSA	1.2	1.0	1.1	1.0	1.0	1.0
ESCOBARES	1.0	1.0	1.0	1.0	1.0	1.0
HARLINGEN	1.2	1.2	1.3	1.2	1.2	1.2
HEBBRONVILLE	1.9	1.9	1.8	1.8	1.7	1.7
HIDALGO	1.2	1.0	1.1	1.0	1.1	1.0
HIDALGO COUNTY MUD #1	2.0	1.7	1.5	2.4	2.2	2.0
INDIAN LAKE	3.2	3.1	2.7	2.4	2.2	2.0
IRRIGATION, CAMERON	0.5	0.5	0.5	0.6	0.6	0.6
IRRIGATION, HIDALGO	0.6	0.6	0.6	0.6	0.7	0.7
IRRIGATION, JIM HOGG	1.3	1.3	1.4	1.3	1.2	1.2
IRRIGATION, MAVERICK	1.0	1.0	1.1	1.1	1.1	1.1
IRRIGATION, STARR	0.7	0.8	0.8	0.9	1.0	1.0
IRRIGATION, WEBB	1.0	1.0	1.0	1.0	1.0	0.9
IRRIGATION, WILLACY	0.4	0.5	0.5	0.5	0.5	0.6
IRRIGATION, ZAPATA	0.8	0.9	0.9	0.9	0.9	0.9
LA FERIA	2.2	1.9	1.8	1.6	1.5	1.4
LA GRULLA	1.7	1.6	1.5	1.3	1.2	1.2
LA JOYA	1.9	1.6	1.4	1.3	1.2	1.1
LA VILLA	1.1	1.0	1.1	1.0	1.1	1.0
LAGUNA VISTA	1.3	1.3	1.2	1.2	1.2	1.2
LAREDO	1.4	1.3	1.1	1.0	1.0	1.0
LIVESTOCK, CAMERON	11.9	11.9	12.0	12.0	12.1	12.1
LIVESTOCK, HIDALGO	2.2	2.3	2.3	2.4	2.5	2.6
LIVESTOCK, JIM HOGG	1.0	1.0	1.0	1.0	1.0	1.0
LIVESTOCK, MAVERICK	1.0	1.0	1.0	1.0	1.0	1.0
LIVESTOCK, STARR	1.1	1.1	1.1	1.1	1.1	1.1
LIVESTOCK, WEBB	1.0	1.0	1.0	1.0	1.0	1.0
LIVESTOCK, WILLACY	1.8	1.9	2.0	2.1	2.2	2.3
LIVESTOCK, ZAPATA	1.0	1.0	1.0	1.0	1.0	1.0
LOS FRESNOS	2.1	1.8	1.6	1.5	1.3	1.2

**Water User Group (WUG) Management Supply Factor**

REGION M	WUG MANAGEMENT SUPPLY FACTOR					
	2020	2030	2040	2050	2060	2070
LOS INDIOS	1.1	1.1	1.1	1.0	1.1	1.1
LYFORD	6.0	5.8	5.5	5.2	4.9	4.6
MANUFACTURING, CAMERON	1.0	0.9	0.9	0.9	0.9	0.9
MANUFACTURING, HIDALGO	1.1	1.0	0.9	0.9	0.9	0.9
MANUFACTURING, MAVERICK	1.3	1.3	1.2	1.2	1.1	1.0
MANUFACTURING, STARR	1.1	1.1	1.0	1.0	1.0	1.0
MANUFACTURING, WEBB	1.1	1.0	1.0	1.0	1.1	1.0
MANUFACTURING, WILLACY	1.7	1.7	1.8	1.8	1.9	1.9
MCALEN	1.1	1.0	1.0	1.0	1.0	1.0
MERCEDES	1.7	1.4	1.3	1.2	1.1	1.1
MILITARY HIGHWAY WSC	1.0	1.0	1.0	1.0	1.0	1.1
MINING, CAMERON	2.0	1.9	2.7	4.0	8.1	17.5
MINING, HIDALGO	0.7	0.5	0.5	0.4	0.4	0.4
MINING, JIM HOGG	1.1	1.1	1.1	1.1	1.1	1.1
MINING, MAVERICK	0.3	0.3	0.3	0.3	0.4	0.5
MINING, STARR	1.1	0.9	0.8	0.8	0.7	0.6
MINING, WEBB	0.9	1.1	1.4	2.1	4.5	6.1
MINING, WILLACY	1.1	1.1	1.4	1.9	2.8	4.2
MINING, ZAPATA	1.2	1.1	1.5	2.0	3.1	4.7
MISSION	1.1	1.0	1.0	1.1	1.0	1.0
NORTH ALAMO WSC	1.1	1.1	1.1	1.0	1.0	1.0
OLMITO WSC	1.4	1.4	1.3	1.3	1.2	1.2
PALM VALLEY	1.3	1.1	1.1	1.1	1.1	1.1
PALMHURST	1.0	1.0	1.0	1.0	1.1	1.1
PALMVIEW	1.2	1.1	1.2	1.1	1.1	1.0
PENITAS	1.2	1.0	1.2	1.1	1.1	1.0
PHARR	1.7	1.4	1.3	1.2	1.1	1.0
PORT ISABEL	1.3	1.2	1.2	1.2	1.1	1.1
PRIMERA	3.7	3.4	3.2	3.0	2.8	2.6
PROGRESO	1.2	1.1	1.0	1.0	1.0	1.1
RANCHO VIEJO	1.6	1.5	1.4	1.3	1.3	1.3
RAYMONDVILLE	3.9	3.8	3.7	3.5	3.4	3.4
RIO BRAVO	1.6	1.4	1.2	1.1	1.2	1.1
RIO GRANDE CITY	1.1	1.0	1.0	1.0	1.1	1.0
RIO HONDO	3.8	3.5	3.2	2.9	2.7	2.4
RIO WSC	1.3	1.1	1.1	1.0	1.0	1.0
ROMA	1.5	1.4	1.3	1.2	1.1	1.1
SAN BENITO	1.8	1.7	1.5	1.4	1.4	1.3
SAN JUAN	1.1	1.0	1.0	1.0	1.0	1.0
SAN PERLITA	1.1	1.2	1.3	17.9	1.4	1.4
SAN YGNACIO MUD	1.5	1.4	1.3	1.2	1.1	1.1
SANTA ROSA	1.1	1.0	1.0	1.0	1.0	1.0
SEBASTIAN MUD	1.8	1.7	1.5	1.4	1.3	1.2
SHARYLAND WSC	1.0	1.0	1.0	1.0	1.1	1.0
SOUTH PADRE ISLAND	1.3	1.3	1.2	1.2	1.2	1.2
STEAM ELECTRIC POWER, CAMERON	4.9	4.3	3.7	3.1	2.8	2.4
STEAM ELECTRIC POWER, HIDALGO	1.0	1.0	1.0	1.0	1.1	1.0
STEAM ELECTRIC POWER, WEBB	2.2	1.9	1.6	1.4	1.2	1.0
SULLIVAN CITY	1.2	1.1	1.3	1.2	1.1	1.1
UNION WSC	1.3	1.2	1.1	1.1	1.1	1.0



### Water User Group (WUG) Management Supply Factor

REGION M	WUG MANAGEMENT SUPPLY FACTOR					
	2020	2030	2040	2050	2060	2070
WESLACO	1.0	1.0	1.1	1.1	1.2	1.1
ZAPATA COUNTY WATERWORKS	1.4	1.3	1.2	1.1	1.1	1.0

\*WUG supplies and projected demands are entered for each of a WUG's region-county-basin divisions. To calculate the Management Supply Factor for each WUG as a whole, not split by region-county-basin the combined total of existing and future supply is divided by the total projected demand.



**Texas Water Development Board**



**2016 Region M Water Plan**

**Appendix C: Potentially Feasible  
Water Management Strategies**







Appendix C: Potentially Feasible Water Management Strategies

County	Entity	WMS Name	WMS Category	Capital Cost Year of Implementation	Max Unit Cost (\$/AY)	2020 Unit Cost (\$/AF)	2030 Unit Cost (\$/AF)	2040 Unit Cost (\$/AF)	2050 Unit Cost (\$/AF)	2060 Unit Cost (\$/AF)	2070 Unit Cost (\$/AF)	Max Yield (AF/Y)	2020 Yield (AF/Y)	2030 Yield (AF/Y)	2040 Yield (AF/Y)	2050 Yield (AF/Y)	2060 Yield (AF/Y)	2070 Yield (AF/Y)	Status
Cameron	Adam Gardens Irrigation District	Irrigation District Conservation	Irrigation District Conservation	\$424,495	\$41	\$41	\$36	\$1	\$0	-\$1	-\$2	1,898	500	783	1,065	1,344	1,620	1,898	Recommended
Cameron	Bayview Irrigation District No. 11	Irrigation District Conservation	Irrigation District Conservation	\$8,658,699	\$380	\$380	\$297	-\$4	-\$4	-\$4	-\$4	3,142	1,750	2,256	2,466	2,684	2,907	3,142	Recommended
Cameron	Brownsville Irrigation District	Irrigation District Conservation	Irrigation District Conservation	\$12,863,514	\$442	\$442	\$400	-\$3	-\$3	-\$3	-\$3	3,495	2,264	2,513	2,761	3,006	3,247	3,495	Recommended
Cameron	Brownsville Public Utilities Board	Seawater Desalination Implementation	Seawater Desalination	\$393,497,000	\$3,889	\$0	\$0	\$0	\$0	\$3,889	\$3,889	28,000	0	0	0	0	28,000	28,000	Recommended
Cameron	Brownsville Public Utilities Board	Non-Potable Water Reuse Pipeline	Direct Reuse	\$32,271,000	\$1,094	\$1,094	\$1,094	\$694	\$694	\$694	\$694	6,721	6,721	6,721	6,721	6,721	6,721	6,721	Recommended
Cameron	Brownsville Public Utilities Board	Southside WWTP Potable Reuse	Direct Reuse	\$36,282,000	\$1,651	\$0	\$1,651	\$1,651	\$892	\$1,153	\$1,153	5,000	0	4,000	4,000	4,000	5,000	5,000	Recommended
Cameron	Brownsville Public Utilities Board	Banco Morales Reservoir	Storage	\$8,853,000	\$168	\$168	\$168	\$168	\$168	\$24	\$24	3,906	3,835	3,849	3,864	3,878	3,892	3,906	Recommended
Cameron	Brownsville Public Utilities Board	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	2,880	1,081	2,695	2,421	2,396	2,608	2,880	Recommended
Cameron	Brownsville Public Utilities Board	Seawater Desalination Demonstration - Build-Out	Seawater Desalination	\$56,002,000	\$5,522	\$5,522	\$5,522	\$3,841	\$3,841	\$0	\$0	2,800	2,800	2,800	2,800	2,800	0	0	Recommended
Cameron	Brownsville Public Utilities Board	Resaca Restoration	Storage	\$12,396,000	\$1,182	\$1,182	\$1,182	\$0	\$0	\$0	\$0	877	877	877	877	877	877	877	Recommended
Cameron	Brownsville Public Utilities Board	Brownsville/Matamoros Weir and Reservoir	Storage	\$20,508,000	\$77	\$77	\$77	\$77	\$77	\$10	\$10	19,532	19,176	19,216	19,256	19,296	19,336	19,532	Alternative
Cameron	Brownsville Public Utilities Board	Southmost Regional Water Authority – Microfiltration	Brackish Groundwater		\$0	\$0	\$0	\$0	\$0	\$0	\$0	5,600	5,600	5,600	5,600	5,600	5,600	5,600	Not Recommended
Cameron	Cameron County Irrigation District No. 16	Irrigation District Conservation	Irrigation District Conservation	\$1,393,698	\$395	\$395	\$394	-\$7	-\$7	-\$7	-\$7	345	272	274	292	310	327	345	Recommended
Cameron	Cameron County Irrigation District No. 2	Irrigation District Conservation	Irrigation District Conservation	\$63,144,906	\$668	\$668	\$482	\$1	\$0	-\$1	\$1	17,656	8,264	10,316	12,167	14,002	15,820	17,656	Recommended
Cameron	Cameron County Irrigation District No. 6	Irrigation District Conservation	Irrigation District Conservation	\$24,587,310	\$386	\$386	\$324	-\$1	-\$2	-\$2	-\$2	9,810	4,902	5,909	6,892	7,867	8,834	9,810	Recommended
Cameron	Cameron County Water Improvement District No. 10	Irrigation District Conservation	Irrigation District Conservation	\$2,019,664	\$394	\$394	\$315	-\$5	-\$5	-\$4	-\$4	669	395	498	539	580	623	669	Recommended
Cameron	Combes	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$652	\$652	\$652	\$652	74	0	0	5	21	45	74	Recommended
Cameron	Combes	Brackish Groundwater Desalination Plant	Brackish Groundwater	\$3,891,000	\$5,320	\$0	\$0	\$0	\$5,320	\$5,320	\$2,712	125	0	0	0	125	125	125	Alternative
Cameron	County-Other	Expand Groundwater Supply	Fresh Groundwater	\$5,880,000	\$236	\$236	\$236	\$28	\$28	\$28	\$28	4,500	4,500	4,500	4,500	4,500	4,500	4,500	Recommended
Cameron	County-Other	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	2,118	230	506	776	1,143	1,607	2,118	Recommended
Cameron	County-Other	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$147,500	\$211	\$211	\$211	\$211	\$211	\$211	\$211	1,777	59	1,777	283	283	283	283	Recommended
Cameron	East Rio Hondo WSC	Surface Water Treatment Plant (Phase I)	Surface Water Treatment	\$34,794,000	\$5,963	\$5,963	\$5,963	\$2,324	\$2,324	\$2,324	\$2,324	800	800	800	800	800	800	800	Recommended
Cameron	East Rio Hondo WSC	North Cameron Regional WTP Wellfield Expansion	Brackish Groundwater	\$1,881,000	\$843	\$843	\$843	\$713	\$713	\$713	\$713	400	400	400	400	400	400	400	Recommended
Cameron	East Rio Hondo WSC	Harlingen WW Interconnect	Distribution & Transmission	\$3,268,000	\$1,768	\$1,768	\$1,768	\$232	\$0	\$0	\$0	112	112	112	112	112	0	0	Recommended
Cameron	East Rio Hondo WSC	FM 2925 Water Transmission Line	Municipal Conservation	\$5,089,000	\$16,000	\$16,000	\$16,000	\$1,800	\$1,800	\$1,800	\$1,800	30	30	30	30	30	30	30	Recommended
Cameron	East Rio Hondo WSC	Municipal (UV Disinfection FM 510 WTP)	Municipal Conservation	\$687,000	\$24,286	\$24,286	\$24,286	\$19,545	\$19,545	\$19,545	\$19,545	11	11	11	11	11	11	11	Recommended
Cameron	East Rio Hondo WSC	Surface Water Treatment (Phase II)	Surface Water Treatment	\$14,540,000	\$774	\$0	\$0	\$0	\$774	\$774	\$287	2,500	0	0	0	2,500	2,500	2,500	Alternative
Cameron	East Rio Hondo WSC	Other distribution as needed for new sources of water	Distribution & Transmission		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Cameron	East Rio Hondo WSC	FM 510 to SH 100 16" Transmission Pipeline	Distribution & Transmission		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Cameron	East Rio Hondo WSC	Interconnect with BPUB, SRWA, or RGRQA	Distribution & Transmission	\$3,268,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Cameron	East Rio Hondo WSC	Partial AMI	Municipal Conservation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Cameron	El Jardin WSC	Brackish Desalination Plant	Brackish Groundwater	\$8,272,000	\$2,557	\$2,557	\$2,557	\$1,320	\$1,320	\$1,320	\$1,320	560	560	560	560	560	560	560	Recommended
Cameron	El Jardin WSC	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$652	\$652	\$652	\$652	438	0	0	37	138	275	438	Recommended
Cameron	El Jardin WSC	Distribution Pipeline Replacement	Municipal Conservation	\$23,421,000	\$192,909	\$192,909	\$192,909	\$14,727	\$14,727	\$14,727	\$14,727	11	11	11	11	11	11	11	Recommended
Cameron	El Jardin WSC	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$210,000	\$211	\$0	\$0	\$0	\$211	\$211	\$211	563	0	0	84	258	418	563	Not Recommended
Cameron	Harlingen	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	5,974	401	1,540	2,260	3,258	4,523	5,974	Recommended
Cameron	Harlingen	Harlingen Wastewater Treatment Plant 2 Potable Reuse	Direct Reuse	\$19,164,000	\$1,957	\$0	\$0	\$1,957	\$1,957	\$1,078	\$1,078	1,825	0	0	1,825	1,825	1,825	1,825	Recommended
Cameron	Harlingen	Brackish Groundwater Desalination Plant	Brackish Groundwater	\$12,327,000	\$2,180	\$0	\$0	\$2,180	\$2,180	\$1,149	\$1,149	1,000	0	0	1,000	1,000	1,000	1,000	Alternative
Cameron	Harlingen	Non-potable Reuse Project	Direct Reuse	\$6,898,000	\$1,678	\$1,678	\$1,678	\$826	\$826	\$826	\$826	677	677	677	677	677	677	677	Alternative
Cameron	Harlingen Irrigation District	Irrigation District Conservation	Irrigation District Conservation	\$3,262,278	\$213	\$213	\$79	\$19	\$12	\$8	\$6	15,136	1,137	3,965	6,775	9,572	12,351	15,136	Recommended
Cameron	Indian Lake	Brackish Groundwater Desalination Plant	Brackish Groundwater		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Cameron	Indian Lake	Advanced Municipal Water Conservation	Municipal Conservation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Cameron	Irrigation - Nueces-Rio Grande	On-Farm Conservation	On-Farm Conservation		\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	40,989	40,989	40,989	40,989	40,989	40,989	40,989	Recommended
Cameron	Irrigation - Nueces-Rio Grande	Biological Control of A. Donax	Brush Control	\$172,000	\$49	\$49	\$49	\$49	\$49	\$49	\$49	1,560	1,022	1,125	1,230	1,340	1,453	1,560	Recommended
Cameron	Irrigation - Nueces-Rio Grande	Brush Control	Brush Control		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Recommended
Cameron	Irrigation - Rio Grande	On-Farm Conservation	On-Farm Conservation		\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	2,616	2,616	2,616	2,616	2,616	2,616	2,616	Recommended







Appendix C: Potentially Feasible Water Management Strategies

County	Entity	WMS Name	WMS Category	Capital Cost Year of Implementation	Max Unit Cost (\$/AY)	2020 Unit Cost (\$/AF)	2030 Unit Cost (\$/AF)	2040 Unit Cost (\$/AF)	2050 Unit Cost (\$/AF)	2060 Unit Cost (\$/AF)	2070 Unit Cost (\$/AF)	Max Yield (AF/Y)	2020 Yield (AF/Y)	2030 Yield (AF/Y)	2040 Yield (AF/Y)	2050 Yield (AF/Y)	2060 Yield (AF/Y)	2070 Yield (AF/Y)	Status	
Cameron	Irrigation - Rio Grande	Biological Control of A. Donax	Brush Control	\$172,000	\$49	\$49	\$49	\$49	\$49	\$49	\$49	100	65	72	79	86	93	100	Recommended	
Cameron	Irrigation - Rio Grande	Brush Control	Brush Control		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	0	Recommended
Cameron	La Feria Irrigation District No. 3	Irrigation District Conservation	Irrigation District Conservation	\$51,300,000	\$460	\$460	\$455	-\$5	-\$5	-\$5	-\$5	9,218	8,750	8,843	8,938	9,028	9,114	9,218	Recommended	
Cameron	La Feria	Brackish Groundwater Desalination	Brackish Groundwater	\$6,260,000	\$1,163	\$1,163	\$1,163	\$695	\$695	\$695	\$695	1,120	1,120	1,120	1,120	1,120	1,120	1,120	Recommended	
Cameron	La Feria	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$652	\$652	\$652	\$652	289	0	0	25	91	181	289	Recommended	
Cameron	La Feria	Rainwater Harvesting	Municipal Conservation	\$204,000	\$831	\$831	\$831	\$125	\$125	\$125	\$125	24	24	24	24	24	24	24	Recommended	
Cameron	La Feria	Non-Potable Wastewater Reuse	Direct Reuse	\$2,830,000	\$2,834	\$2,834	\$2,834	\$1,469	\$1,469	\$1,469	\$1,469	174	174	174	174	174	174	174	Alternative	
Cameron	Laguna Madre Water District	Brackish Groundwater Desalination Plant	Brackish Groundwater	\$22,564,000	\$1,773	\$1,773	\$1,773	\$930	\$930	\$930	\$930	2,240	2,240	2,240	2,240	2,240	2,240	2,240	Recommended	
Cameron	Laguna Madre Water District	Potable Reuse	Direct Reuse	\$13,613,000	\$2,865	\$2,865	\$2,865	\$1,476	\$1,476	\$1,476	\$1,476	820	820	820	820	820	820	820	Recommended	
Cameron	Laguna Madre Water District	Seawater Desalination Plant	Seawater Desalination	\$29,609,000	\$7,175	\$7,175	\$7,175	\$4,963	\$4,963	\$4,963	\$4,963	1,120	1,120	1,120	1,120	1,120	1,120	1,120	Alternative	
Cameron	Laguna Madre Water District	Non-potable Reuse	Direct Reuse	\$3,931,000	\$1,929	\$1,929	\$1,929	\$989	\$989	\$989	\$989	350	350	350	350	350	350	350	Alternative	
Cameron	Laguna Vista	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	1,999	182	451	768	1,138	1,550	1,999	Recommended	
Cameron	Laguna Vista	Seawater Desalination Plant	Seawater Desalination		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended	
Cameron	Los Fresnos	Brackish Groundwater Desalination Plant	Brackish Groundwater		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended	
Cameron	Los Fresnos	Advanced Municipal Water Conservation	Municipal Conservation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended	
Cameron	Los Indios	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$652	\$652	\$652	26	0	0	0	2	13	26	Recommended	
Cameron	Manufacturing - Nueces-Rio Grande	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$425,000	\$211	\$0	\$0	\$211	\$211	\$211	\$211	808	0	0	170	470	365	808	Recommended	
Cameron	Manufacturing - Nueces-Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	683	471	511	551	586	632	683	Recommended	
Cameron	Military Highway WSC	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$510,000	\$143	\$143	\$143	\$143	\$143	\$143	\$143	4,550	300	1,100	1,800	2,550	3,650	4,550	Recommended	
Cameron	Military Highway WSC	Expand Existing Groundwater Wells (Cameron County)	Fresh Groundwater	\$5,373,000	\$1,254	\$1,254	\$1,254	\$534	\$534	\$534	\$534	625	625	625	625	625	625	625	Recommended	
Cameron	Mining - Nueces-Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	28	26	28	19	13	6	3	Recommended	
Cameron	North Alamo WSC	North Cameron Regional WTP Wellfield Expansion	Brackish Groundwater	\$1,881,000	\$843	\$843	\$843	\$713	\$713	\$713	\$713	800	800	800	800	800	800	800	Recommended	
Cameron	Olmito WSC	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	346	22	85	140	196	265	346	Recommended	
Cameron	Olmito WSC	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$340,000	\$143	\$143	\$143	\$143	\$143	\$143	\$143	300	200	200	200	300	300	300	Recommended	
Cameron	Olmito WSC	Brackish Desalination Plant	Brackish Groundwater	\$8,400,000	\$2,582	\$2,582	\$2,582	\$1,327	\$1,327	\$1,327	\$1,327	560	560	560	560	560	560	560	Alternative	
Cameron	Palm Valley	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	131	8	31	52	73	100	131	Recommended	
Cameron	Port Isabel	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	810	52	170	318	500	654	810	Recommended	
Cameron	Primera	Brackish Groundwater Desalination	Brackish Groundwater	\$14,318,000	\$2,190	\$2,190	\$2,190	\$1,121	\$1,121	\$1,121	\$1,121	1,120	1,120	1,120	1,120	1,120	1,120	1,120	Recommended	
Cameron	Primera	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$652	\$652	\$652	\$652	102	0	9	31	63	102	Recommended		
Cameron	Rancho Viejo	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	652	50	135	239	361	500	652	Recommended	
Cameron	Rio Hondo	Emergency Interconnects	Distribution & Transmission	\$2,470,000	\$3,167	\$3,167	\$3,167	\$210	\$210	\$210	\$210	70	70	70	70	70	70	70	Recommended	
Cameron	Rio Hondo	Advanced Municipal Water Conservation	Municipal Conservation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended	
Cameron	Rio Hondo	Water Loss Audit, Meter and Pipe Replacement	Municipal Conservation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended	
Cameron	San Benito	Groundwater Supply	Brackish Groundwater	\$2,033,000	\$181	\$181	\$181	\$29	\$29	\$29	\$29	1,120	1,120	1,120	1,120	1,120	1,120	1,120	Recommended	
Cameron	San Benito	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$652	\$652	\$652	750	0	0	0	146	420	750	Recommended	
Cameron	San Benito	Potable Reuse of Treated Effluent From City's Wastewater Treatment Plant	Direct Reuse	\$11,303,000	\$1,349	\$1,349	\$1,349	\$504	\$504	\$504	\$732	3,360	1,120	1,120	1,120	1,120	1,120	1,120	Alternative	
Cameron	San Benito	Non-Potable Reuse of Treated Effluent From City's Wastewater Treatment Plant	Direct Reuse	\$1,921,000	\$192	\$192	\$192	\$48	\$48	\$48	\$48	1,120	1,120	1,120	1,120	1,120	1,120	1,120	Alternative	
Cameron	Santa Rosa	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$42,500	\$143	\$0	\$143	\$143	\$143	\$143	\$143	175	0	25	50	100	150	175	Recommended	
Cameron	Santa Rosa	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$0	\$652	\$652	24	0	0	0	0	1	24	Recommended	
Cameron	Santa Rosa	Brackish Desalination Plant	Brackish Groundwater	\$8,272,000	\$2,559	\$0	\$2,559	\$2,559	\$1,323	\$1,323	\$1,323	560	0	560	560	560	560	560	Alternative	
Cameron	South Padre Island	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	2,662	248	606	1,028	1,518	2,065	2,662	Recommended	
Cameron	Steam Elec - Nueces-Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	343	152	178	209	248	294	343	Recommended	
Cameron	Valley Acres Irrigation District	Irrigation District Conservation	Irrigation District Conservation	\$2,434,160	\$366	\$366	\$271	\$1	\$1	\$1	\$0	1,394	510	701	855	1,022	1,200	1,394	Recommended	
Cameron	Valley MUD #2	Brackish Groundwater Desalination Plant	Brackish Groundwater	\$3,760,000	\$6,430	\$0	\$0	\$0	\$0	\$6,430	\$6,430	100	0	0	0	0	100	100	Alternative	







**Appendix C: Potentially Feasible Water Management Strategies**

County	Entity	WMS Name	WMS Category	Capital Cost Year of Implementation	Max Unit Cost (\$/AY)	2020 Unit Cost (\$/AF)	2030 Unit Cost (\$/AF)	2040 Unit Cost (\$/AF)	2050 Unit Cost (\$/AF)	2060 Unit Cost (\$/AF)	2070 Unit Cost (\$/AF)	Max Yield (AF/Y)	2020 Yield (AF/Y)	2030 Yield (AF/Y)	2040 Yield (AF/Y)	2050 Yield (AF/Y)	2060 Yield (AF/Y)	2070 Yield (AF/Y)	Status
Cameron & Hidalgo	RGRWA	Regional Facility Project - Groundwater, Surface Water, and Reuse	Supply	\$73,608,000	\$3,237	\$3,237	\$2,172	\$1,468	\$1,430	\$1,629	\$1,652	152,500	20,000	50,280	82,630	114,300	133,300	152,500	Alternative
Cameron & Hidalgo	RGRWA	Regional Facility Project - Seawater Desal	Seawater Desalination	\$142,269,000	\$3,237	\$3,237	\$2,172	\$1,468	\$1,430	\$1,629	\$1,652	79,500	5,470	5,470	5,470	21,950	51,500	79,500	Alternative
Cameron & Willacy	East Rio Hondo WSC	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	1,214	1	58	245	502	830	1,214	Recommended
Cameron, Hidalgo, & Willacy	North Alamo WSC	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	11,601	860	1,925	3,586	5,792	8,505	11,601	Recommended
Cameron/Hidalgo	Military Highway WSC	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$652	\$652	\$652	\$652	\$652	1,681	0	133	375	719	1,163	1,681	Recommended
Hidalgo	Agua SUD	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$340,000	\$143	\$143	\$143	\$143	\$143	\$143	\$143	2,600	200	400	1,000	1,800	2,600	2,600	Recommended
Hidalgo	Agua SUD	West WWTP Direct Potable Reuse - Phase 2	Direct Reuse	\$8,796,000	\$2,145	\$0	\$0	\$2,145	\$2,145	\$1,500	\$1,500	1,680	0	0	1,680	1,680	1,680	1,680	Recommended
Hidalgo	Agua SUD	East WWTP Direct Potable Reuse - Phase 2	Direct Reuse	\$3,561,000	\$3,881	\$0	\$0	\$0	\$3,881	\$3,881	\$1,649	1,260	0	0	0	1,260	1,260	1,260	Recommended
Hidalgo	Agua SUD	East WWTP Direct Potable Reuse - Phase 1	Direct Reuse	\$13,019,000	\$2,358	\$2,358	\$2,358	\$1,860	\$0	\$0	\$0	1,050	1,050	1,050	1,050	0	0	0	Recommended
Hidalgo	Agua SUD	West WWTP Direct Potable Reuse - Phase 1	Direct Reuse	\$14,455,000	\$2,974	\$2,974	\$2,974	\$0	\$0	\$0	\$0	784	784	784	0	0	0	0	Recommended
Hidalgo	Agua SUD	New Brackish Water Treatment Plant	Brackish Groundwater	\$18,136,000	\$2,616	\$0	\$0	\$0	\$2,616	\$2,616	\$1,363	1,344	0	0	0	1,344	1,344	1,344	Alternative
Hidalgo	Agua SUD	Non-Potable Reuse	Direct Reuse	\$4,026,000	\$2,946	\$2,946	\$2,946	\$1,743	\$1,743	\$1,743	\$1,743	280	280	280	280	280	280	280	Alternative
Hidalgo	Alamo	Groundwater Well	Fresh Groundwater	\$1,181,000	\$113	\$113	\$113	\$25	\$25	\$25	\$25	1,100	1,100	1,100	1,100	1,100	1,100	1,100	Recommended
Hidalgo	Alamo	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$652	\$652	\$652	\$652	1,097	0	0	159	403	722	1,097	Recommended
Hidalgo	Alamo	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$1,700,000	\$143	\$0	\$0	\$0	\$143	\$143	\$143	1,000	0	0	0	1,000	1,000	1,000	Recommended
Hidalgo	Alamo	Brackish Groundwater Desalination Plant	Brackish Groundwater	\$13,532,000	\$2,655	\$2,655	\$2,655	\$1,392	\$1,392	\$1,392	\$1,392	896	896	896	896	896	896	896	Recommended
Hidalgo	Alamo	Potable Water Reservoir	Storage		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Hidalgo	Alton	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$652	\$652	\$652	\$652	\$652	844	0	70	200	376	592	844	Recommended
Hidalgo	County-Other	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$2,640,604	\$211	\$211	\$211	\$211	\$211	\$211	\$211	7,758	1,056	2,782	4,096	5,568	7,047	7,758	Recommended
Hidalgo	County-Other	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$652	\$652	\$652	\$652	\$652	817	0	52	179	353	567	817	Recommended
Hidalgo	Donna	WTP Expansion & Urbanized Water Rights	Surface Water Treatment	\$23,545,000	\$2,512	\$2,512	\$2,512	\$712	\$712	\$359	\$359	2,240	950	950	2,240	2,240	2,240	2,240	Recommended
Hidalgo	Donna	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$652	\$652	\$652	\$652	698	0	0	4	172	411	698	Recommended
Hidalgo	Donna	Brackish Groundwater Desalination Plant	Brackish Groundwater	\$9,440,000	\$3,357	\$2,349	\$2,349	\$1,220	\$3,357	\$3,357	\$3,357	1,000	700	700	700	1,000	1,000	1,000	Alternative
Hidalgo	Donna	Expand Existing Groundwater Wells	Fresh Groundwater		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Hidalgo	Donna Irrigation District	Irrigation District Conservation	Irrigation District Conservation	\$6,379,000	\$468	\$468	\$138	\$15	\$9	\$6	\$4	15,309	989	3,887	6,769	9,629	12,165	15,309	Recommended
Hidalgo	Edcouch	New Groundwater Supply	Fresh Groundwater	\$1,106,000	\$218	\$218	\$218	\$33	\$33	\$33	\$33	500	500	500	500	500	500	500	Recommended
Hidalgo	Edcouch	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$68,000	\$143	\$143	\$143	\$143	\$143	\$143	\$143	100	40	40	40	100	100	100	Recommended
Hidalgo	Edcouch	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$0	\$652	\$652	35	0	0	0	0	1	35	Recommended
Hidalgo	Edinburg	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$340,000	\$143	\$143	\$143	\$143	\$143	\$143	\$143	8,000	200	2,100	3,500	5,500	8,000	8,000	Recommended
Hidalgo	Edinburg	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$652	\$652	\$652	\$652	\$652	4,662	0	83	790	1,809	3,125	4,662	Recommended
Hidalgo	Edinburg	Reuse Water (Reclaimed Wastewater) for Cooling Tower and Landscaping Usage	Direct Reuse	\$9,971,000	\$400	\$400	\$400	\$188	\$188	\$188	\$188	3,920	3,920	3,920	3,920	3,920	3,920	3,920	Recommended
Hidalgo	Elsa	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$652	\$652	\$652	163	0	0	0	11	79	163	Recommended
Hidalgo	Elsa	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$170,000	\$143	\$0	\$0	\$0	\$0	\$143	\$143	150	0	0	0	0	100	150	Recommended
Hidalgo	Elsa	WTP Expansion and Interconnect to Engleman ID	Surface Water Treatment	\$9,836,000	\$671	\$671	\$671	\$304	\$304	\$304	\$304	2,240	2,240	2,240	2,240	2,240	2,240	2,240	Alternative
Hidalgo	Elsa	New Brackish Water Treatment Plant	Brackish Groundwater	\$8,400,000	\$2,593	\$2,593	\$2,593	\$1,338	\$1,338	\$1,338	\$1,338	560	560	560	560	560	560	560	Alternative
Hidalgo	Elsa	Distribution System Improvements	Distribution & Transmission		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Hidalgo	Engelman Irrigation District	Irrigation District Conservation	Irrigation District Conservation	\$4,500,000	\$427	\$427	\$361	\$2	\$2	\$1	\$1	1,352	831	989	1,076	1,165	1,256	1,352	Recommended
Hidalgo	Hidalgo	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$1,000,000	\$211	\$211	\$211	\$211	\$211	\$211	\$211	1,500	400	500	1,050	1,050	1,500	1,500	Recommended
Hidalgo	Hidalgo	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$652	\$652	\$652	\$652	\$652	660	0	11	112	256	442	660	Recommended
Hidalgo	Hidalgo	Expand Existing Groundwater Wells	Fresh Groundwater	\$656,000	\$260	\$260	\$260	\$77	\$77	\$77	\$77	300	300	300	300	300	300	300	Recommended







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County	Entity	WMS Name	WMS Category	Capital Cost Year of Implementation	Max Unit Cost (\$/AY)	2020 Unit Cost (\$/AF)	2030 Unit Cost (\$/AF)	2040 Unit Cost (\$/AF)	2050 Unit Cost (\$/AF)	2060 Unit Cost (\$/AF)	2070 Unit Cost (\$/AF)	Max Yield (AF/Y)	2020 Yield (AF/Y)	2030 Yield (AF/Y)	2040 Yield (AF/Y)	2050 Yield (AF/Y)	2060 Yield (AF/Y)	2070 Yield (AF/Y)	Status
Hidalgo	Hidalgo County Drainage District No. 1	Delta Watershed Project - Edinburg Lake	Storage	\$27,471,000	\$1,271	\$1,271	\$1,271	\$850	\$850	\$706	\$706	3,739	3,739	3,739	3,739	3,739	3,739	3,739	Recommended
Hidalgo	Hidalgo County Drainage District No. 1	Delta Watershed Project - New Reservoir	Storage	\$30,728,000	\$1,790	\$1,790	\$1,790	\$1,245	\$1,245	\$801	\$801	2,278	2,278	2,278	2,278	2,278	2,278	2,278	Recommended
Hidalgo	Hidalgo County Irrigation District No. 1	Irrigation District Conservation	Irrigation District Conservation	\$54,933,275	\$330	\$330	\$322	\$2	\$1	\$1	\$0	17,370	13,112	13,526	14,495	15,453	16,401	17,370	Recommended
Hidalgo	Hidalgo County Irrigation District No. 13	Irrigation District Conservation	Irrigation District Conservation	\$660,339	\$508	\$508	\$332	\$7	\$5	\$4	\$3	315	102	159	197	235	275	315	Recommended
Hidalgo	Hidalgo County Irrigation District No. 16	Irrigation District Conservation	Irrigation District Conservation	\$3,533,600	\$148	\$148	\$121	-\$19	-\$17	-\$15	-\$14	3,529	1,455	1,875	2,292	2,705	3,116	3,529	Recommended
Hidalgo	Hidalgo County Irrigation District No. 2	Irrigation District Conservation	Irrigation District Conservation	\$14,688,870	\$288	\$288	\$184	\$16	\$11	\$8	\$6	17,313	4,077	6,748	9,408	12,052	14,677	17,313	Recommended
Hidalgo	Hidalgo County Irrigation District No. 5	Irrigation District Conservation	Irrigation District Conservation	\$5,210,000	\$337	\$335	\$337	-\$5	-\$5	-\$5	-\$5	1,215	1,215	1,211	1,207	1,203	1,198	1,196	Recommended
Hidalgo	Hidalgo County Irrigation District No. 6	Irrigation District Conservation	Irrigation District Conservation	\$13,819,638	\$381	\$381	\$348	-\$6	-\$6	-\$6	-\$6	4,214	2,787	3,075	3,362	3,646	3,928	4,214	Recommended
Hidalgo	Hidalgo County Water Control and Improvement District No. 18	Irrigation District Conservation	Irrigation District Conservation	\$569,047	\$366	\$366	\$324	-\$4	-\$5	-\$5	-\$5	203	119	136	153	169	186	203	Recommended
Hidalgo	Hidalgo County Water Improvement District No. 3	Irrigation District Conservation	Irrigation District Conservation	\$9,050,000	\$313	\$313	\$277	\$5	\$4	\$3	\$3	3,937	2,291	2,621	2,950	3,279	3,608	3,937	Recommended
Hidalgo	Hidalgo Municipal Utility District No. 1	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$1,022,000	\$211	\$211	\$211	\$211	\$211	\$211	\$211	1,500	500	500	500	1,500	1,500	1,500	Recommended
Hidalgo	Hidalgo Municipal Utility District No. 1	Irrigation District Conservation	Irrigation District Conservation	\$859,115	\$660	\$366	\$660	-\$18	-\$17	-\$16	-\$15	180	180	100	109	117	126	135	Recommended
Hidalgo	Hidalgo Municipal Utility District No. 1	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$0	\$0	\$652	56	0	0	0	0	0	56	Recommended
Hidalgo	Irrigation - Nueces-Rio Grande	On-Farm Conservation	On-Farm Conservation		\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	75,226	75,226	75,226	75,226	75,226	75,226	75,226	Recommended
Hidalgo	Irrigation - Nueces-Rio Grande	Biological Control of A. Donax	Brush Control	\$172,000	\$49	\$49	\$49	\$49	\$49	\$49	\$49	2,775	1,875	2,065	2,249	2,423	2,585	2,775	Recommended
Hidalgo	Irrigation - Nueces-Rio Grande	Brush Control	Brush Control		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Recommended
Hidalgo	Irrigation - Rio Grande	On-Farm Conservation	On-Farm Conservation		\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	3,134	3,134	3,134	3,134	3,134	3,134	3,134	Recommended
Hidalgo	Irrigation - Rio Grande	Biological Control of A. Donax	Brush Control	\$172,000	\$49	\$49	\$49	\$49	\$49	\$49	\$49	116	78	86	94	101	108	116	Recommended
Hidalgo	Irrigation - Rio Grande	Brush Control	Brush Control		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Recommended
Hidalgo	La Joya	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$0	\$652	\$652	125	0	0	0	0	56	125	Recommended
Hidalgo	La Joya	Brackish Groundwater Desalination Plant	Brackish Groundwater		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Hidalgo	La Villa	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$85,000	\$143	\$143	\$143	\$143	\$143	\$143	\$143	100	50	55	50	50	100	100	Recommended
Hidalgo	La Villa	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$652	\$652	\$652	71	0	0	0	17	42	71	Recommended
Hidalgo	La Villa	New Brackish Water Treatment Plant	Brackish Groundwater	\$8,276,000	\$2,559	\$2,559	\$2,559	\$1,321	\$1,321	\$1,321	\$1,321	560	560	560	560	560	560	560	Alternative
Hidalgo	Manufacturing - Nueces-Rio Grande	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$505,000	\$211	\$211	\$211	\$211	\$211	\$211	\$211	2,100	202	551	909	1,222	1,645	2,100	Recommended
Hidalgo	Manufacturing - Nueces-Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	784	546	591	636	676	728	784	Recommended
Hidalgo	McAllen	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	29,468	1,674	5,608	10,888	17,372	23,904	29,468	Recommended
Hidalgo	McAllen	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$1,360,000	\$143	\$0	\$0	\$143	\$143	\$143	\$143	4,700	0	0	800	800	2,240	4,700	Recommended
Hidalgo	McAllen	South WWTP Potable Reuse	Direct Reuse	\$20,143,000	\$2,105	\$0	\$1,885	\$2,105	\$1,593	\$1,444	\$1,212	3,500	0	2,000	2,500	3,500	3,500	3,500	Recommended
Hidalgo	McAllen	Brackish Groundwater Desalination Treatment	Brackish Groundwater	\$31,218,000	\$2,034	\$2,034	\$2,034	\$1,062	\$1,062	\$1,062	\$1,062	2,688	2,688	2,688	2,688	2,688	2,688	2,688	Recommended
Hidalgo	McAllen	North WWTP Potable Reuse	Direct Reuse	\$14,145,000	\$2,353	\$0	\$0	\$2,353	\$2,353	\$989	\$989	2,000	0	0	1,120	2,000	2,000	2,000	Recommended
Hidalgo	McAllen	Raw Water Line Project	Distribution & Transmission	\$1,662,000	\$225	\$225	\$225	\$51	\$51	\$51	\$51	800	800	800	800	800	800	800	Recommended
Hidalgo	McAllen	Non-potable Reuse Project	Direct Reuse	\$12,123,000	\$1,064	\$1,064	\$1,064	\$544	\$544	\$544	\$544	1,950	1,950	1,950	1,950	1,950	1,950	1,950	Alternative
Hidalgo	McAllen	Expand Existing Groundwater Wells	Fresh Groundwater	\$940,000	\$234	\$0	\$234	\$234	\$76	\$146	\$146	1,500	0	500	500	550	1,500	1,500	Alternative
Hidalgo	McAllen	GeoWater	Other		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Hidalgo	Mercedes	Potable Reuse	Direct Reuse	\$17,051,000	\$1,958	\$1,958	\$1,958	\$1,104	\$1,104	\$1,104	\$1,104	1,670	1,670	1,670	1,670	1,670	1,670	1,670	Recommended
Hidalgo	Mercedes	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$652	\$652	\$652	\$652	679	0	0	80	225	433	679	Recommended
Hidalgo	Mercedes	Expand Existing Groundwater Wells	Fresh Groundwater	\$1,001,000	\$223	\$223	\$223	\$73	\$73	\$73	\$73	560	560	560	560	560	560	560	Alternative
Hidalgo	Mercedes	Brackish Groundwater Desalination Plant	Brackish Groundwater	\$12,062,000	\$4,926	\$0	\$0	\$4,926	\$4,926	\$2,607	\$2,607	435	0	0	435	435	435	435	Alternative
Hidalgo	Military Highway WSC	Expand Existing Groundwater Wells (Hidalgo County)	Fresh Groundwater	\$668,000	\$316	\$316	\$316	\$92	\$195	\$195	\$86	625	250	250	250	625	625	625	Alternative
Hidalgo	Mining - Nueces-Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	596	264	336	389	447	513	596	Recommended







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Hidalgo	Mining - Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	47	21	26	31	35	40	47	Recommended
Hidalgo	Mission	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	13,799	925	3,046	5,874	8,424	10,984	13,799	Recommended
Hidalgo	Mission	WWTP Potable Reuse Phase 2	Direct Reuse	\$27,630,000	\$734	\$0	\$0	\$0	\$734	\$734	\$439	7,840	0	0	0	7,840	7,840	7,840	Recommended
Hidalgo	Mission	WWTP Potable Reuse Phase 1	Direct Reuse	\$32,565,000	\$1,572	\$1,572	\$1,572	\$877	\$0	\$0	\$0	3,920	3,920	3,920	3,920	0	0	0	Recommended
Hidalgo	Mission	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$1,020,000	\$143	\$0	\$143	\$143	\$143	\$143	\$143	3,500	0	600	2,100	3,500	3,500	3,500	Recommended
Hidalgo	Mission	Brackish Groundwater Desalination Plant	Brackish Groundwater	\$31,914,000	\$2,070	\$2,070	\$2,070	\$1,077	\$1,077	\$1,077	\$1,077	2,688	2,688	2,688	2,688	2,688	2,688	2,688	Recommended
Hidalgo	Mission	Use of Treated Sewer Effluent to Irrigate City Parks	Direct Reuse		\$244	\$244	\$244	\$46	\$46	\$46	\$46	3,920	3,920	3,920	3,920	800	800	800	Not Recommended
Hidalgo	North Alamo WSC	NAWSC Converted WR and Delta WTP Expansion	Surface Water Treatment	\$28,802,000	\$821	\$0	\$0	\$748	\$821	\$430	\$244	6,160	0	0	4,480	6,160	6,160	6,160	Recommended
Hidalgo	North Alamo WSC	NAWSC Converted WR and Water Treatment Plant No. 5 Expansion	Surface Water Treatment	\$23,794,000	\$654	\$505	\$654	\$210	\$210	\$210	\$210	4,480	1,120	4,480	4,480	4,480	4,480	4,480	Recommended
Hidalgo	North Alamo WSC	Waterline Extension- Phase I and II	Distribution & Transmission		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Hidalgo	North Alamo WSC	1 MG Water Tower - Edinburg/Pharr	Distribution & Transmission	\$2,343,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Hidalgo	North Alamo WSC	1 MG Water Tower - Mid Valley	Distribution & Transmission	\$2,343,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Hidalgo	North Alamo WSC	Plant No. 5 - 16" Waterline Expansion	Distribution & Transmission	\$1,374,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Hidalgo	Palmhurst	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	861	57	166	306	472	659	861	Recommended
Hidalgo	Palmview	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$652	\$652	\$652	\$652	230	0	0	21	75	145	230	Recommended
Hidalgo	Penitas	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$652	\$652	\$652	\$652	\$652	218	0	5	39	86	147	218	Recommended
Hidalgo	Pharr	Potable Reuse	Direct Reuse	\$38,422,000	\$807	\$807	\$807	\$340	\$340	\$340	\$340	6,721	6,721	6,721	6,721	6,721	6,721	6,721	Recommended
Hidalgo	Pharr	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$652	\$652	\$652	\$652	2,884	0	0	167	848	1,777	2,884	Recommended
Hidalgo	Pharr	Non-potable Reuse Project	Direct Reuse	\$5,118,000	\$1,696	\$1,696	\$1,696	\$840	\$840	\$840	\$840	500	500	500	500	500	500	500	Alternative
Hidalgo	Pharr	Expand Existing Groundwater Wells	Fresh Groundwater		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Hidalgo	Progreso	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$652	\$652	\$652	\$652	202	0	0	7	55	122	202	Recommended
Hidalgo	San Juan	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$652	\$652	\$652	\$652	\$652	2,128	0	15	330	799	1,411	2,128	Recommended
Hidalgo	San Juan	WTP No. 1 Upgrade and Expansion to include BGD	Brackish Groundwater	\$9,561,000	\$1,058	\$1,058	\$1,058	\$612	\$612	\$612	\$612	1,792	1,792	1,792	1,792	1,792	1,792	1,792	Recommended
Hidalgo	San Juan	Raw Water Reservoir Improvements	Storage		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Hidalgo	Santa Cruz Irrigation District No. 15	Irrigation District Conservation	Irrigation District Conservation	\$4,580,709	\$89	\$89	\$71	-\$5	-\$5	-\$5	-\$4	6,217	3,599	4,660	5,040	5,424	5,812	6,217	Recommended
Hidalgo	Sharyland WSC	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$1,173,000	\$143	\$143	\$143	\$143	\$143	\$143	\$143	7,500	690	2,050	3,450	4,950	7,400	7,500	Recommended
Hidalgo	Sharyland WSC	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	4,164	231	968	1,507	2,235	3,141	4,164	Recommended
Hidalgo	Sharyland WSC	Water Treatment Plant No. 2 Brackish Groundwater Desalination	Brackish Groundwater	\$13,253,000	\$2,630	\$2,630	\$2,630	\$1,398	\$1,398	\$1,398	\$1,398	900	900	900	900	900	900	900	Recommended
Hidalgo	Sharyland WSC	Water Treatment Plant No. 3 Brackish Groundwater Desalination	Brackish Groundwater	\$13,253,000	\$2,630	\$2,630	\$2,630	\$1,398	\$1,398	\$1,398	\$1,398	900	900	900	900	900	900	900	Recommended
Hidalgo	Sharyland WSC	Reservoir at WTP #1 for Additional Storage Capacity	Storage		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Hidalgo	Sharyland/ Hidalgo County Improvement District No. 19	Irrigation District Conservation	Irrigation District Conservation	\$2,644,166	\$366	\$366	\$347	-\$9	-\$9	-\$9	-\$9	712	554	586	618	649	680	712	Recommended
Hidalgo	Steam Elec - Nueces-Rio Grande	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$10,357,500	\$211	\$211	\$211	\$211	\$211	\$211	\$211	16,827	318	2,556	5,237	9,035	13,659	16,827	Recommended
Hidalgo	Steam Elec - Nueces-Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	3,251	1,415	1,655	1,946	2,302	2,735	3,251	Recommended
Hidalgo	Steam Elec - Nueces-Rio Grande	Additional Groundwater Wells	Fresh Groundwater	\$538,000	\$500	\$500	\$500	\$50	\$50	\$50	\$50	100	100	100	100	100	100	100	Recommended
Hidalgo	Sullivan City	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$652	\$652	\$652	118	0	0	0	13	61	118	Recommended
Hidalgo	United Irrigation District	Irrigation District Conservation	Irrigation District Conservation	\$12,000,000	\$134	\$134	\$129	\$4	\$4	\$3	\$2	10,655	7,093	7,499	8,291	9,080	9,864	10,655	Recommended
Hidalgo	United Irrigation District	Off-Channel Reservoir	Storage	\$8,379,000	\$298	\$298	\$298	\$298	\$298	\$35	\$35	2,000	2,000	2,000	2,000	2,000	2,000	2,000	Recommended
Hidalgo	Weslaco	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	4,032	241	893	1,427	2,144	3,030	4,032	Recommended
Hidalgo	Weslaco	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$1,154,300	\$143	\$143	\$143	\$143	\$143	\$143	\$143	3,500	679	1,375	3,000	3,500	3,500	3,500	Recommended
Hidalgo	Weslaco	North WWTP Potable Reuse	Direct Reuse	\$14,444,000	\$2,378	\$2,378	\$2,378	\$1,298	\$1,298	\$1,738	\$1,738	3,360	1,120	1,120	1,120	1,120	3,360	3,360	Recommended
Hidalgo	Weslaco	Groundwater Development and Blending	Brackish Groundwater	\$980,000	\$159	\$159	\$159	\$13	\$13	\$13	\$13	560	560	560	560	560	560	560	Recommended
Hidalgo	Weslaco	Brackish Groundwater Desalination Plant	Brackish Groundwater	\$17,694,000	\$1,900	\$0	\$1,900	\$1,900	\$991	\$991	\$991	1,630	0	1,630	1,630	1,630	1,630	1,630	Alternative
Hidalgo	Weslaco	Scalping Plants	Direct Reuse	\$1,346,000	\$1,455,000	\$1,455,000	\$1,455,000	\$113,000	\$113,000	\$113,000	\$113,000	1	1	1	1	1	1	1	Alternative
Hidalgo	Weslaco	Water Conservation Practices	Municipal Conservation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Hidalgo	Weslaco	Expanded Use of Existing Supplies	Storage		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Hidalgo	Weslaco	Emergency Transfers of Surface Water or Interconnects Between Systems	Distribution & Transmission		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended







Appendix C: Potentially Feasible Water Management Strategies

County	Entity	WMS Name	WMS Category	Capital Cost Year of Implementation	Max Unit Cost (\$/AY)	2020 Unit Cost (\$/AF)	2030 Unit Cost (\$/AF)	2040 Unit Cost (\$/AF)	2050 Unit Cost (\$/AF)	2060 Unit Cost (\$/AF)	2070 Unit Cost (\$/AF)	Max Yield (AF/Y)	2020 Yield (AF/Y)	2030 Yield (AF/Y)	2040 Yield (AF/Y)	2050 Yield (AF/Y)	2060 Yield (AF/Y)	2070 Yield (AF/Y)	Status
Hidalgo	San Juan	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$340,000	\$143	\$143	\$143	\$143	\$143	\$143	\$143	1,600	200	800	1,600	1,600	1,600	1,600	Recommended
Hidalgo & Cameron	Hidalgo and Cameron Counties Irrigation District No. 9	Irrigation District Conservation	Irrigation District Conservation	\$54,000,000	\$1,069	\$1,069	\$702	\$13	\$9	\$7	\$5	15,671	4,000	6,181	8,572	10,948	13,304	15,671	Recommended
Hidalgo & Starr	Agua SUD	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$652	\$652	\$652	\$652	1,688	0	0	131	527	1,058	1,688	Recommended
Jim Hogg	County-Other	Advanced Municipal Water Conservation	Municipal Conservation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Jim Hogg	Hebbronville	New Brackish Water Treatment Plant	Brackish Groundwater	\$8,275,000	\$2,557	\$2,557	\$2,557	\$1,321	\$1,321	\$1,321	\$1,321	560	560	560	560	560	560	560	Recommended
Jim Hogg	Hebbronville	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$652	\$652	\$652	\$652	\$652	105	0	1	14	37	69	105	Recommended
Jim Hogg	Irrigation	Additional Groundwater Wells	Fresh Groundwater	\$2,117,000	\$657	\$657	\$657	\$67	\$67	\$67	\$67	300	300	300	300	300	300	300	Recommended
Jim Hogg	Irrigation - Nueces-Rio Grande	On-Farm Conservation	On-Farm Conservation		\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	43	43	43	43	43	43	43	Recommended
Jim Hogg	Irrigation - Rio Grande	On-Farm Conservation	On-Farm Conservation		\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	11	11	11	11	11	11	11	Recommended
Jim Hogg	Jim Hogg County-Other	Advanced Municipal Water Conservation	Municipal Conservation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Jim Hogg	Mining - Nueces-Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	9	8	9	7	5	3	2	Recommended
Jim Hogg	Mining - Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	1	1	1	1	1	0	0	Recommended
Maverick	County-Other	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$0	\$0	\$652	306	0	0	0	0	0	306	Recommended
Maverick	Eagle Pass	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	2,869	208	728	1,313	1,758	2,290	2,869	Recommended
Maverick	Eagle Pass	New Groundwater Supply	Fresh Groundwater	\$1,072,000	\$199	\$0	\$0	\$0	\$199	\$199	\$70	700	0	0	0	700	700	700	Recommended
Maverick	Eagle Pass	Brackish Groundwater Desalination Plant	Brackish Groundwater	\$8,272,000	\$2,568	\$0	\$0	\$0	\$2,568	\$2,568	\$1,332	560	0	0	0	560	560	560	Alternative
Maverick	Irrigation - Nueces	On-Farm Conservation	On-Farm Conservation		\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	5	5	5	5	5	5	5	Recommended
Maverick	Irrigation - Nueces	Biological Control of A. Donax	Brush Control	\$172,000	\$49	\$49	\$49	\$49	\$49	\$49	\$49	3	2	2	2	2	3	3	Recommended
Maverick	Irrigation - Nueces	Brush Control	Brush Control		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Recommended
Maverick	Irrigation - Rio Grande	On-Farm Conservation	On-Farm Conservation		\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	4,499	4,499	4,499	4,499	4,499	4,499	4,499	Recommended
Maverick	Irrigation - Rio Grande	Biological Control of A. Donax	Brush Control	\$172,000	\$49	\$49	\$49	\$49	\$49	\$49	\$49	279	160	181	205	231	260	279	Recommended
Maverick	Irrigation - Rio Grande	Brush Control	Brush Control		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Recommended
Maverick	Manufacturing - Rio Grande	New Groundwater Supply	Fresh Groundwater	\$538,000	\$500	\$500	\$500	\$50	\$50	\$50	\$50	100	100	100	100	100	100	100	Recommended
Maverick	Manufacturing - Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	12	9	10	10	11	11	12	Recommended
Maverick	Maverick County Water Control and Improvements District	Irrigation District Conservation	Irrigation District Conservation	\$42,874,475	\$380	\$380	\$342	-\$5	-\$5	-\$5	-\$5	13,833	8,659	9,706	10,749	11,779	12,796	13,833	Recommended
Maverick	Mining - Nueces	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	59	40	55	59	46	34	24	Recommended
Maverick	Mining - Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	235	159	219	235	184	134	97	Recommended
Starr	County-Other	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$2,157,165	\$211	\$211	\$211	\$211	\$211	\$211	\$211	7,752	863	2,391	4,030	5,794	7,752	7,751	Recommended
Starr	County-Other	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$652	\$652	\$652	614	0	0	0	121	354	614	Recommended
Starr	County-Other	Additional Groundwater Wells	Fresh Groundwater	\$2,541,000	\$595	\$595	\$595	\$63	\$63	\$63	\$63	400	400	400	400	400	400	400	Recommended
Starr	Escobares	Advanced Municipal Water Conservation	Municipal Conservation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Starr	Irrigation - Rio Grande	On-Farm Conservation	On-Farm Conservation		\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	1,652	1,652	1,652	1,652	1,652	1,652	1,652	Recommended
Starr	Irrigation - Rio Grande	Biological Control of A. Donax	Brush Control	\$172,000	\$49	\$49	\$49	\$49	\$49	\$49	\$49	41	41	39	35	29	20	21	Recommended
Starr	Irrigation - Rio Grande	Brush Control	Brush Control		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Recommended
Starr	La Grulla	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	40	11	40	40	40	40	40	Recommended
Starr	La Grulla	Expand Existing Groundwater Wells	Fresh Groundwater		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Starr	Manufacturing - Rio Grande	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$2,500	\$211	\$0	\$0	\$0	\$211	\$211	\$211	3	0	0	0	1	2	3	Recommended
Starr	Manufacturing - Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	2	1	2	2	2	2	2	Recommended
Starr	Mining - Nueces-Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	25	13	16	18	20	22	25	Recommended
Starr	Mining - Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	84	44	54	60	66	74	84	Recommended
Starr	Rio Grande City	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	2,108	173	512	906	1,356	1,801	2,108	Recommended
Starr	Rio Grande City	Rio Grande City Water Meter Replacement	Municipal Conservation	\$5,059,000	\$1,143	\$1,143	\$1,143	\$0	\$0	\$0	\$0	370	370	370	370	370	370	370	Recommended
Starr	Rio Grande City	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$476,000	\$143	\$143	\$143	\$0	\$143	\$143	\$0	560	280	280	280	560	560	560	Alternative
Starr	Rio Grande City	Brackish Groundwater Desalination Plant	Brackish Groundwater	\$8,282,000	\$2,570	\$0	\$2,570	\$2,570	\$1,332	\$1,332	\$1,332	560	0	560	560	560	560	560	Alternative
Starr	Rio Grande City	Non-potable Reuse	Direct Reuse		\$0	\$0	\$0	\$0	\$0	\$0	\$0	125	10	50	60	87	125	-	Not Recommended







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County	Entity	WMS Name	WMS Category	Capital Cost Year of Implementation	Max Unit Cost (\$/AY)	2020 Unit Cost (\$/AF)	2030 Unit Cost (\$/AF)	2040 Unit Cost (\$/AF)	2050 Unit Cost (\$/AF)	2060 Unit Cost (\$/AF)	2070 Unit Cost (\$/AF)	Max Yield (AF/Y)	2020 Yield (AF/Y)	2030 Yield (AF/Y)	2040 Yield (AF/Y)	2050 Yield (AF/Y)	2060 Yield (AF/Y)	2070 Yield (AF/Y)	Status
Starr	Rio Grande City	Expand Existing Groundwater Wells	Fresh Groundwater		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	0 Not Recommended
Starr	Rio WSC	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$652	\$652	\$652	\$652	84	0	0	9	29	55	84	Recommended
Starr	Roma	Water Right Purchase and Regional Water Treatment Plant	Surface Water Treatment	\$45,625,000	\$1,366	\$1,366	\$1,366	\$684	\$684	\$684	\$684	1,500	1,500	1,500	1,500	1,500	1,500	1,500	Recommended
Starr	Roma	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$0	\$0	\$652	93	0	0	0	0	0	93	Recommended
Starr	Union WSC	Brackish Groundwater Desalination Plant	Brackish Groundwater	\$8,282,000	\$2,570	\$2,570	\$2,570	\$1,332	\$1,332	\$1,322	\$1,332	560	560	560	560	560	560	560	Recommended
Starr	Union WSC	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$652	\$652	\$652	\$652	185	0	0	25	70	124	185	Recommended
Starr	Union WSC	Water Line Replacement and Automatic Meter Reading System	Municipal Conservation	\$4,258,000	\$4,045	\$4,045	\$4,045	\$0	\$0	\$0	\$0	88	88	88	88	88	88	88	Recommended
Webb	County-Other	Additional Groundwater Wells	Fresh Groundwater	\$8,891,000	\$593	\$593	\$593	\$61	\$61	\$61	\$61	1,400	1,400	1,400	1,400	1,400	1,400	1,400	Recommended
Webb	County-Other	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$652	\$652	\$652	195	0	0	0	31	108	195	Recommended
Webb	El Cenizo	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$0	\$652	\$652	65	0	0	0	0	29	65	Recommended
Webb	Irrigation - Rio Grande	On-Farm Conservation	On-Farm Conservation		\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	932	932	932	932	932	932	932	Recommended
Webb	Irrigation - Rio Grande	Biological Control of A. Donax	Brush Control	\$172,000	\$49	\$49	\$49	\$49	\$49	\$49	\$49	44	73	27	31	36	41	44	Recommended
Webb	Irrigation - Rio Grande	Brush Control	Brush Control		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Recommended
Webb	Laredo	South Laredo WWTP Potable Reuse	Direct Reuse	\$43,467,000	\$1,479	\$0	\$1,479	\$1,479	\$843	\$1,219	\$1,298	11,760	0	5,725	5,725	5,725	8,960	11,760	Recommended
Webb	Laredo	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$652	\$652	\$652	10,397	0	0	0	2,600	6,242	10,397	Recommended
Webb	Laredo	Expansion of El Pico WTP (Phases 1-4)	Surface Water Treatment	\$34,963,000	\$321	\$321	\$321	\$261	\$235	\$200	\$135	96,960	16,800	33,600	53,760	96,960	96,960	96,960	Alternative
Webb	Laredo	Brackish Groundwater Desalination Plant	Brackish Groundwater	\$44,574,000	\$1,567	\$0	\$0	\$0	\$1,567	\$1,567	\$821	5,000	0	0	0	5,000	5,000	5,000	Alternative
Webb	Laredo	Non-potable Reuse Project	Direct Reuse	\$11,878,000	\$1,005	\$1,005	\$1,005	\$531	\$531	\$531	\$531	2,100	2,100	2,100	2,100	2,100	2,100	2,100	Alternative
Webb	Laredo	Expand Existing Groundwater Wells	Fresh Groundwater	\$1,210,000	\$143	\$0	\$0	\$0	\$0	\$0	\$143	1,120	0	0	0	0	0	1,120	Not Recommended
Webb	Laredo	Laredo Low Water Weir	Storage	\$316,649,044	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Webb	Manufacturing - Nueces	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	3	2	2	2	2	3	3	Recommended
Webb	Manufacturing - Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	0	0	0	0	0	0	0	Not Recommended
Webb	Mining - Nueces	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	310	310	741	181	123	55	40	Recommended
Webb	Mining - Nueces-Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	52	52	40	30	21	9	7	Recommended
Webb	Mining - Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	672	672	523	393	267	120	87	Recommended
Webb	Rio Bravo	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$0	\$0	\$652	\$652	96	0	0	0	0	41	96	Recommended
Webb	Steam Elec - Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	298	130	152	178	211	251	298	Recommended
Webb	Webb County Water Utility	Expand Existing Groundwater Supply	Fresh Groundwater	\$504,000	\$570	\$0	\$0	\$0	\$0	\$570	\$570	100	0	0	0	0	100	100	Recommended
Willacy	County-Other	Advanced Municipal Water Conservation	Municipal Conservation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Willacy	Delta Lake Irrigation District	Irrigation District Conservation	Irrigation District Conservation	\$52,377,800	\$671	\$671	\$358	\$16	\$11	\$8	\$5	34,837	6,166	11,967	17,735	23,461	29,138	34,837	Recommended
Willacy	Irrigation - Nueces-Rio Grande	On-Farm Conservation	On-Farm Conservation		\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	8,483	8,483	8,483	8,483	8,483	8,483	8,483	Recommended
Willacy	Irrigation - Nueces-Rio Grande	Biological Control of A. Donax	Brush Control	\$172,000	\$49	\$49	\$49	\$49	\$49	\$49	\$49	395	211	244	280	321	368	395	Recommended
Willacy	Irrigation - Nueces-Rio Grande	Brush Control	Brush Control		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Recommended
Willacy	Lyford	Brackish Groundwater Desalination	Brackish Groundwater	\$6,950,000	\$1,217	\$1,217	\$1,217	\$697	\$697	\$697	\$697	1,120	1,120	1,120	1,120	1,120	1,120	1,120	Recommended
Willacy	Lyford	Advanced Municipal Water Conservation	Municipal Conservation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Willacy	Manufacturing - Nueces-Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	14	14	14	14	14	14	14	Recommended
Willacy	Manufacturing - Nueces-Rio Grande	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$5,000	\$211	\$211	\$211	\$211	\$211	\$211	\$211	10	2	4	7	9	10	10	Recommended
Willacy	Mining - Nueces-Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	5	5	5	4	3	2	1	Recommended
Willacy	North Alamo WSC	Delta Area Brackish Groundwater Desalination Plant	Brackish Groundwater	\$22,709,000	\$1,781	\$0	\$0	\$0	\$0	\$1,781	\$1,781	2,240	0	0	0	0	2,240	2,240	Recommended
Willacy	North Alamo WSC	La Sara Desalination Plant Expansion	Brackish Groundwater	\$13,260,000	\$2,104	\$0	\$0	\$0	\$0	\$0	\$2,104	1,120	0	0	0	0	0	1,120	Recommended
Willacy	Raymondville	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$652	\$652	\$652	\$652	324	0	0	34	107	208	324	Recommended
Willacy	Raymondville	Brackish Groundwater Desalination Plant	Brackish Groundwater		\$0	\$0	\$0	\$0	\$0	\$0	\$0	2,240	2,240	2,240	2,240	2,240	2,240	2,240	Not Recommended
Willacy	San Perlita	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	153	14	38	63	93	121	153	Recommended
Willacy	San Perlita	Brackish Groundwater Desalination Plant	Brackish Groundwater		\$6,429	\$0	\$0	\$0	\$6,429	\$6,429	\$3,281	100	0	0	0	100	100	100	Not Recommended
Willacy	Sebastian MUD	Advanced Municipal Water Conservation	Municipal Conservation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Willacy	Willacy County	Regional Brackish Groundwater Desalination	Brackish Groundwater		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Willacy	Willacy County	Regional Seawater Desalination	Seawater Desalination		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended
Willacy	Willacy County-Other	Advanced Municipal Water Conservation	Municipal Conservation		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Not Recommended







Appendix C: Potentially Feasible Water Management Strategies

County	Entity	WMS Name	WMS Category	Capital Cost Year of Implementation	Max Unit Cost (\$/AY)	2020 Unit Cost (\$/AF)	2030 Unit Cost (\$/AF)	2040 Unit Cost (\$/AF)	2050 Unit Cost (\$/AF)	2060 Unit Cost (\$/AF)	2070 Unit Cost (\$/AF)	Max Yield (AF/Y)	2020 Yield (AF/Y)	2030 Yield (AF/Y)	2040 Yield (AF/Y)	2050 Yield (AF/Y)	2060 Yield (AF/Y)	2070 Yield (AF/Y)	Status	
Zapata	County-Other	Acquisition of Water Rights through Urbanization	Acquisition of Water Rights	\$215,000	\$211	\$211	\$211	\$211	\$211	\$211	\$211	661	86	247	397	545	661	661	Recommended	
Zapata	County-Other	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$0	\$0	\$652	\$652	\$652	\$652	124	0	0	17	46	82	124	Recommended	
Zapata	Irrigation - Rio Grande	On-Farm Conservation	On-Farm Conservation		\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	\$1,392	578	578	578	578	578	578	578	578	Recommended
Zapata	Irrigation - Rio Grande	Biological Control of A. Donax	Brush Control	\$172,000	\$49	\$49	\$49	\$49	\$49	\$49	\$49	22	14	16	17	19	20	22	Recommended	
Zapata	Irrigation - Rio Grande	Brush Control	Brush Control		\$0	\$0	\$0	\$0	\$0	\$0	\$0	0	0	0	0	0	0	0	Recommended	
Zapata	Mining - Rio Grande	Implementation of Best Management Practices	Industrial Conservation		\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	95	91	95	71	53	33	21	Recommended	
Zapata	San Ygnacio MUD	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	97	6	23	40	55	74	97	Recommended	
Zapata	Zapata County Waterworks	New Groundwater Supply	Fresh Groundwater	\$2,323,000	\$175	\$175	\$175	\$60	\$60	\$60	\$60	1,680	1,680	1,680	1,680	1,680	1,680	1,680	Recommended	
Zapata	Zapata County Waterworks	Advanced Municipal Water Conservation	Municipal Conservation		\$652	\$652	\$652	\$652	\$652	\$652	\$652	1,232	81	294	491	692	942	1,232	Recommended	



# Texas Water Development Board



## 2016 Region M Water Plan

### Appendix D: Drought Contingency Plans Summary







Public Water Supply Drought Contingency Plans, Region M

ENTITY DATE	BASIS OF DROUGHT		Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Agua Special Utility District 4/1/2014	Reservoir level, water demand/WTP and pump capacity, emergency situation	TRIGGERS:	a) US waters of the Amistad and Falcon reservoirs is equal to or less than 40% storage capacity, b) any of the WTP are operating at or above 65% total daily capacity for 3 consecutive days, c) water system pumps are operating at or above 65% total daily capacity for 3 consecutive days	a) US waters of the Amistad and Falcon reservoirs is equal to or less than 30% storage capacity, b) any of the WTPs are operating at or above 75% total daily capacity for 3 consecutive days, c) water system pumps are operating at or above 75% total daily capacity for 3 consecutive days	a) US waters of the Amistad and Falcon reservoirs is equal to or less than 25% storage capacity, b) any of the WTPs are operating at or above 85% total daily capacity for 3 consecutive days, c) water system pumps are operating at or above 75% total daily capacity for 3 consecutive days	a) US waters of the Amistad and Falcon reservoirs is equal to or less than 20% storage capacity, b) any of the WTPs are operating at or above 90% total daily capacity for 24 consecutive hours, c) water system pumps are operating at or above 90% total daily capacity for 24 consecutive hours, d) an immediate reduction in water use is required to protect the public health and safety and/or integrity of the water system	
		ACTIONS:	Customers are required to follow a certain schedule in order to: irrigate landscapes, wash vehicles, add water to pools, and irrigate golf courses/parks/greenbelt. The following are prohibited: operating ornamental fountains unless required to support aquatic life or if recirculation is used, use of water from hydrants or flush valves unless required to maintain public health, safety, and welfare, washing down hard-surfaced areas or structures, use of water for dust control, permitting water to run into any gutter or street, failure to repair controllable leaks within a reasonable period of time, any waste of water.	Customers are required to follow a certain schedule in order to: irrigate landscapes in a hand-help watering manner, wash vehicles, and add water to pools. The following are prohibited: irrigating landscapes with a sprinkler, irrigating gold courses/parks/greenbelt, operating ornamental fountains unless required to support aquatic life or if recirculation is used, use of water from hydrants or flush valves unless required to maintain public health, safety, and welfare, washing down hard-surfaced areas or structures, use of water for dust control, permitting water to run into any gutter or street, failure to repair controllable leaks within a reasonable period of time, any waste of water.	Customers are required to follow a stricter schedule in order to irrigate landscapes in a hand-help watering manner. The following are prohibited: washing vehicles, adding water to pools, irrigating landscapes with a sprinkler, irrigating gold courses/parks/greenbelt, operating ornamental fountains unless required to support aquatic life or if recirculation is used, use of water from hydrants or flush valves unless required to maintain public health, safety, and welfare, washing down hard-surfaced areas or structures, use of water for dust control, permitting water to run into any gutter or street, failure to repair controllable leaks within a reasonable period of time, any waste of water. No applications for any new or expanded water service connections will be approved.	The following are prohibited: irrigation of landscaped area, all outdoor use of water, washing vehicles, adding water to pools, irrigating gold courses/parks/greenbelt, operating ornamental fountains unless required to support aquatic life or if recirculation is used, use of water from hydrants or flush valves unless required to maintain public health, safety, and welfare, washing down hard-surfaced areas or structures, use of water for dust control, permitting water to run into any gutter or street, failure to repair controllable leaks within a reasonable period of time, any waste of water. No applications for any new or expanded water service connections will be approved.	
City of Alamo 3/28/2014		TRIGGERS:	Initiated automatically May 1 through Sept. 30 each year	Daily water use equals or exceeds 85% of treatment capacity for 7 consecutive days	Daily water use equals or exceeds 95% of treatment capacity for 7 consecutive days and/or reservoir levels continually recede on a daily basis and remain below 74% of capacity for 48 consecutive hours, and/or water pressure below 20 psi occurs in distribution system.	Daily water use equals or exceeds 120% of treatment capacity for 3 consecutive days and/or the reservoir levels continually recede on a daily basis and remain below 50% capacity for 24 consecutive hours, and/or water pressure below 20 psi occurs in distribution system and the City Manager determines such conditions are a hazard to public health and safety.	1. Major water lines break, or pump or system failures occur, which cause unprecedented loss of capability to provide water service; or 2. Natural or man-made contamination of the water supply source(s).
		ACTIONS:	a) customers requested to voluntarily limit landscape irrigation to certain days and times. b) all operations of the city of Alamo will adhere to restrictions in Stage 2. c) customers requested to practice water conservation and minimize or discontinue water use for non-essential purposes.	a) City to reduce flushing of water mains. b) required schedule and/or means restricted for the following: landscape irrigation, washing motor vehicles, filling pools, irrigation of golf courses unless using alternate water source. c) the following are prohibited: operation of fountains or ponds except to support aquatic life or with recirculation system; use of hydrants except for fire fighting, construction with special permit, and other necessary activities; serving water in restaurants except when requested; all non-essential uses and failure to repair controllable leak(s).	City to reduce or discontinue flushing of water mains and irrigation of public landscaped areas, as well as use alternative supply sources.  All requirements from Stage 2 except: schedule and means further restricted for landscape irrigation, watering of golf courses prohibited unless using alternate water source, use of hydrants for construction with special permit to be discontinued.	City to reduce or discontinue flushing of water mains and irrigation of public landscaped areas, as well as use alternative supply sources.  All requirements from Stage 2 and 3 except: schedule and means further restricted for landscape irrigation and washing of motor vehicles; use of water for swimming pools prohibited; no applications for new, additional, or expanded water connections, meters, lines, etc. shall be approved.	City to discontinue flushing of water mains, fire hydrants, and irrigation of public landscaped areas.  All requirements from Stages 2, 3, and 4 except: irrigation of landscaped areas and use of water to wash motor vehicles is absolutely prohibited.  Stage 6 - Water allocation according to water allocation plan.
Brownsville Public Utilities Board 5/1/2014	Time of year, reservoir level, system break/failure or contamination, water demand/WTP capacity, projected water demand	TRIGGERS:	Automatically initiated on May 1 of each year and for any of the following: a) TCEQ Rio Grande Watermaster advises that a water shortage is possible due to low levels in Amistad and Falcon reservoirs, b) level of US' water in Amistad and Falcon reservoirs reaches 51%, c) line break, pump, or system failure may result in unprecedented loss of capability to provide service, or d) peak demand on the distribution system and/or treatment plants is nearing capacity limits	a) Level of US' water in Amistad and Falcon reservoirs reaches 25%, b) analyses of water supply and demand indicate that the annual water allotment may be exhausted, c) line break or pump, or system failure will result in unprecedented loss of capability to provide service, d) peak demands on the distribution system and/or treatment plants are nearing capacity levels, or e) contamination of the water supply and/or transmission system may result in unprecedented loss of capability to provide service	a) Level of US' water in Amistad and Falcon reservoirs reaches 15%, b) analyses of water supply and demand the annual water allotment will be exhausted, c) major line break, or pump or system failure may result in unprecedented loss of capability to provide service, d) peak demand on the distribution system and/or treatment plants has exceeded capacity levels for three days, e) contamination of the water supply and/or transmission system will result in unprecedented loss of capability to provide service, or f) the inability to maintain or replenish adequate volumes of water in storage to provide for public health and safety	a) Major line breaks, or pump or system failures occur which cause unprecedented loss of capability to provide water service, or b) contamination of water supply and/or transmission system	
		ACTIONS:	Customers shall be requested to voluntarily conserve water and adhere to the prescribed restrictions on certain water uses.	Customers shall only be allowed to irrigate and wash vehicles following a certain schedule, golf courses shall follow restrictions in their approved water management plans, restaurants may only serve water to customers upon request, and the following are prohibited unless necessary for public health and safety: washing hard-surfaced areas, washing buildings or structures, using water for dust control, flushing gutters, and failing to repair controllable leaks within a reasonable period of time	All requirements of Stage 2 shall remain in effect and in addition the schedule irrigation and vehicle washing will be further restricted, the use of water from hydrants is only allowed when necessary to maintain public health, safety, and/or welfare, and the following are prohibited: refilling outdoor pools (with some exceptions), operation of outdoor fountains or ponds without recirculation systems unless required to maintain aquatic life, hydrant and sewer flushing except for emergencies, and use of water from or pumping water into resacas.	All requirements of Stage 3 shall remain in effect and in addition the following are prohibited: all landscaping watering, use of water for construction purposes under special permit, adding water to swimming pools, adding water to any outdoor or indoor fountain or pond, except to maintain aquatic life	
City of Donna 9/1/2007		TRIGGERS:	Total daily water demand equals or exceeds 82.2 percent of the system's safe operating capacity for 3 consecutive days.	Total daily water demand equals or exceeds 86.6 percent of the system's safe operating capacity for 3 consecutive days.	Total daily water demand equals or exceeds 91.1 percent of the system's safe operating capacity for 3 consecutive days.	Total daily water demand equals or exceeds 95.5 percent of the system's safe operating capacity for 3 consecutive days.	a) Major water line breaks or pump or system failures occur, causing unprecedented loss of capability to provide water service, or b) Natural or man-made contamination of water supply source(s), or c) unavailability of water supply, unavailability of alternate sources of water, or drought of record conditions which cause unprecedented loss of capability to provide water service.
		ACTIONS:	a) customers requested to voluntarily limit landscape irrigation to certain days and times. b) all operations of the city of Alamo will adhere to restrictions in Stage 2. c) customers requested to practice water conservation and minimize or discontinue non-essential water use.	City shall reduce flushing of water mains. a) schedule and/or means of the following are restricted: landscape irrigation, washing of motor vehicles, use of water for pools, golf course irrigation. b) The following are prohibited: use of water for fountains or ponds, except to support aquatic life; use of hydrants, except for fire fighting, construction with special permit, and necessary activities; serving water in restaurants unless requested; all non-essential uses.	City shall discontinue flushing of water mains and inspect water distribution system, tanks, and treatment plants to locate leaks and make repairs. All requirements of Stage 2 in effect except: Further restrictions on schedule and means of landscape irrigation, watering of golf courses prohibited unless using alternate water source, use of hydrants for construction with special permit discontinued.	City shall actively pursue the detection, repair, and correction of leaks by means of watering, analysis of water system and billing data, use of leak detection equipment, or use of control devices. All requirements of Stage 3 in effect except: further restrictions on schedule and means of landscape irrigation and washing motor vehicles; water for pools prohibited; water for fountains prohibited except for aquatic life; and no applications for new, additional, or expanded water service connections, lines, etc. shall be allowed.	All requirements of stage 4 remain in effect except: landscape irrigation and use of water to wash motor vehicles is absolutely prohibited.
Eagle Pass Water Works System 7/1/2009	Water demand, distribution system pressure, system break/failure or contamination	TRIGGERS:	a) Daily Water demand exceeds 85% of the rated plant capacity for three consecutive days, or b) distribution pressure remains below 45 psi for more than six consecutive days	a) Daily water demand exceeds 90% of the rated plant capacity for three consecutive days, or b) distribution pressure remains below 43 psi for more than six consecutive days	a) Daily water demand exceeds 95% of the rated plant capacity for three consecutive days, b) distribution system pressure remains below 40 psi for more than six consecutive days, c) contamination of the supply sources, or d) system outage due to the failure or damage of major water system components		
		ACTIONS:	Customers shall be requested to voluntarily conserve water and adhere to the prescribed restrictions on certain water uses.	Customers are required to follow an irrigation schedule and the following are prohibited unless necessary for public health and safety: waste of water, car, window, or pavement washing without the use of a bucket, street washing, fire hydrant flushing, filling swimming pools, athletic field watering	All requirements of Stage 2 shall remain in effect and in addition all outdoor water use is banned and limits will be set on water use by both commercial and resident users		





Public Water Supply Drought Contingency Plans, Region M

ENTITY DATE	BASIS OF DROUGHT	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
East Rio Hondo Water Supply Corporation 5/1/2014	Reservoir level, irrigation district notice to disallow irrigation, water demand, system break/failure or contamination, distribution system pressure	TRIGGERS: Falcon and Amistad Reservoirs reach 40% of capacity as determined by the TCEQ	a) Cameron County Irrigation District No. 2 or other IDs provide notice to ERHWSC that they will disallow farm irrigation water use within 60-90 days, b) distribution system pressures fall below 35 psi requirements for two consecutive days, c) ERHWSC consumer demand exceeds 85% of ERHWSC plan capacity for 15 days out of any consecutive 30 day period, or d) Falcon and Amistad Reservoirs reach 15% of capacity as determined by TCEQ.	a) Major water line breaks, or pump or system failures occur, which cause loss of capability to provide water service, b) natural or man-made contamination of the water supply source(s), c) rapidly occurring low-pressure conditions (less than 20 psi) due to any reason.		
		ACTIONS: Customers shall be requested to voluntarily conserve water and adhere to the prescribed restrictions on certain water uses.	Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses, such as irrigation, washing vehicles, and ornamental fountains and ponds.	All requirements of Stage 2 shall remain in effect, except the following are prohibited: all irrigation of landscape, using water to wash any vehicle, and adding water to any type of pool.		
Harlingen Waterworks System 6/15/2015		TRIGGERS: When three or more of the following criteria are met: 1) City reservoir levels = 43' MFR & 40' DTW and falling, 2) Rio Grande River flows = 13.0 cm/s, 3) PDSI = moderate drought (-2.0 to -2.9), 4) Water demand = 70% of WTP Capacity (26.2 MGD)	When three or more of the following criteria are met: 1) City reservoir levels = 42' MFR & 39' DTW and falling, 2) Rio Grande River flows = 12.0 cm/s, 3) PDSI = severe drought (-3.0 to -3.9), 4) Water demand = 80% of WTP Capacity (26.2 MGD)	When three or more of the following criteria are met: 1) City reservoir levels = 41' MFR & 38' DTW and falling, 2) Rio Grande River flows = 11.0 cm/s, 3) PDSI = extreme drought (-4.0 or less), 4) Water demand = 90% of WTP Capacity (26.2 MGD)	All four of the criteria of Stage 3 are met; a major pipeline breaks or pump system failure occurs which causes unprecedented loss of capacity to provide water service; or contamination of the water supply	
		ACTIONS: Customers are requested to voluntarily conserve water by limiting the irrigation of landscaped areas and minimize waster use for non-essential purposes. All operations of Harlingen Waterworks System shall adhere to water restrictions prescribed for Stage 2.	Irrigation of landscape not by use of a hand-held hose, bucket, or drip irrigation shall be on a schedule based on location. Automobile washing not at a commercial facility will be limited to the irrigation schedule and will only be permitted with a hand-held bucket or hose with shut off nozzle. Use of water from fire hydrants will only be allowed for fire fighting or activities to maintain public health, safety, and welfare without a special permit. Golf course irrigation will only be allowed between 11pm and 6am.	The schedule for landscape irrigation is limited further. Use of water to fill pools is only allowed on watering days. Operation of ornamental fountains will only be allowed if they are necessary to sustain aquatic life or equipped with recirculation system. Only greens and tees on golf courses may be watered. Restaurants may only serve water to their customers when it is requested. The following are prohibited: wash down of sidewalks, walkways, driveways, parking lots, tennis courts, or other hard surfaces; wash down of buildings or structures; use of water for dust control; flushing gutters or permitting water to accumulate in a gutter or street; failure to repair a controllable leak within a reasonable period of time	The following are prohibited: all outdoor use of water (including irrigation) except for the direct need to protect the health, safety, and welfare of the public; washing automobiles; filling pools; operation of ornamental fountains unless necessary to sustain aquatic life. The General Manager is authorized to deny any new or expanded water connections, pipeline extensions, etc.	
Laguna Madre Water District		TRIGGERS: Voluntary conservation is the first stage. It is always in effect unless a higher stage is required and enacted.	1. When the level of U.S. water stored in Amistad and Falcon Reservoirs reaches 51% or 1,660,000 AF (or below). When the level of water is above this amount, this phase is terminated. 2. Average daily water use is approaching 90% of system capacity, 3. Net storage in District's raw water reservoirs are at 75% and is continually decreasing on a daily basis such that a more serious problem may develop, 4. The availability of raw water is low. 5. The availability of water rights based on quarterly capacity: 1st-20%, 2nd-40%, 3rd-70%. 6. The capacity to transport and/or treat raw water has been affected. 7. The distribution capacity to customers is approaching a maximum. 8. The reservoir III level at WTP #2 is at 7 feet and dropping.	1. During peak demand days such as Texas Week, Easter, Memorial Day, and Labor Day. 2. When the level of US water stored in Amistad and Falcon Reservoirs reaches 25% or 834,600 AF (or below). When the level of water is above this amount, this phase may be terminated. 3. Net storage in District's raw water reservoirs is at 50% and is continually decreasing on a daily basis such that a more serious problem may develop. 4. The availability of raw water is low. 5. The availability of water rights based on quarterly capacity: 1st-22%, 2nd-46%, 3rd-81%	1. When the level of US water stored in Amistad and Falcon Reservoirs reaches 15% or 504,600 AF (or below). 2. When a condition related to unexpected circumstances, such as a major problem on the water system due to natural disaster or unanticipated restriction on the raw water delivery system that immediately diminishes the LMWD's ability to deliver a normal water level. 3. Net storage in district's raw water reservoirs is at 25% and is continually decreasing on a daily basis such that a more serious problem may develop. 4. water demand is exceeding the system's capacity on a regular basis. 5. Rio Grande River level is so low that the River Pumps cannot pump the daily raw water demand. 6. All raw water is being pumped from District's Storage Reservoirs and all replenishment of raw Water Reservoirs has stopped. 7. The availability of water rights based on quarterly capacity: 1st-24%, 2nd-50%, 3rd-89%. 8. Contamination of the water supply and/or transmission and distribution system due to hurricanes, freezes and/or other natural disasters or man-made cause may result in extraordinary loss of capability to provide service. 9. The alternative water source for the LMWD is to purchase "water" from another system or from a retail entity.	
		ACTIONS: Voluntary Water Use Restrictions: 1. Recommend that all landscape areas be irrigated on a twice per week or less schedule and that such irrigation occur from midnight through 7 am or other schedules as determined from the General manager; 2. Recommend water customers to discontinue water use for non-essential purposes such as washing any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard surface areas.	1. Landscape irrigation will be permitted from 7 pm through 7 am and on designated water days. 2. Use of water to wash any motor vehicle, trucks, trailers, boats, airplanes, and other mobile equipment will be prohibited except of the landscape water days described above. 3. Water use for non-essential purposes is prohibited.	1. During Spring Break (Texas Week) landscape irrigation will be restricted from 9am the Friday before the actual date of Spring Break through Monday at 9am. Peak demands on other Holidays falling on a Tuesday, Wednesday, or Thursday will have restrictions beginning at 9am a day before the holiday and ending a day after at 9am. Holidays falling on Friday thru Monday will have restrictions beginning on Friday 9am and end on Monday at 9am. 2. Landscape irrigation will be permitted on designated water days. Landscape irrigation with a hand-held garden hose, soaker hose, hand-held bucket or water can, no more than 5 gallons capacity or drip irrigation. Landscape irrigation time will be 7pm to 7am. 3. Commercial nurseries and other similar establishments will have these water restrictions: hand-held buckets or water cans from 7pm - 7am, drip or sprinkler irrigation systems from 7pm-7am. 4. Water use for non-essential purposes is prohibited. 5. Permitting or maintaining defective plumbing in a home or business is prohibited. 6. Operation of any outdoor ornamental fountain or pond for aesthetic or scenic purposes is prohibited, except where necessary to support aquatic life or where such fountain or ponds are equipped with a water recirculation system. 7. Landscape irrigation variances are available but customers need to apply by mail. Facsimile, or email their name, address where the new landscape is to be installed, and the date of installation	1. Water use for non-essential purposes is prohibited, including landscape water irrigation, washing of mobile vehicles, watering of golf courses, use of fountains. 2. The use of fire hydrants for any purpose other than fire fighting is prohibited. The water District's General Manager may permit the use of metered fire hydrant water to clear or clean sanitary or storm sewers. 3. The use of water by golf courses for landscape irrigation is prohibited except: areas designated as tees and greens, between 7pm and 7am on designated days. 4. Industrial customers are required to implement an individual water conservation plans. The plans are subject to approval by the Water District's General manager and/or his designee. 5. If the customer already has a water connection, a new water service connection is prohibited. 6. Restaurants will be prohibited from serving water to customers except when requested by customers. 7. The use of water for the expansion of commercial nursery facilities is prohibited. 8. No applications for new, additional, expanded, or increased-in-size water service connections, meters, service lines, or other water service facilities shall be allowed, approved, or installed except as directed by the water District's General Manager. 9. Maximum amounts of monthly water usage and surcharges may be implemented during the emergency as directed by the LMWD's General Manager with approval of the water district's Board of Directors. 10. The water Districts General Manager is authorized to take any actions deemed necessary to meet conditions resulting from the emergency. 11. Violation of this policy is subject to any or all of the following: \$200 fine, disconnection of service. 12. Imposing of surcharges fee would be initiated.	
City of Laredo 4/1/2014	Water demand/WTP capacity, reservoir level	TRIGGERS: a) WTP flow is less than 85% capacity for 5 consecutive days, b) Amistad reservoir level reaches 51% capacity	a) WTP flow is at 85% capacity for 3 consecutive days, b) Amistad reservoir level reaches 25% capacity	a) WTP flow is at 90% capacity for 1 day, b) Amistad reservoir level reaches 20% capacity	a) WTP flow is at 95% capacity for 1 day, b) Amistad reservoir level is less than 20% capacity	





Public Water Supply Drought Contingency Plans, Region M

ENTITY DATE	BASIS OF DROUGHT	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
City of Laredo 4/1/2014		<b>ACTIONS:</b> Customer are asked to voluntarily reduce their water usage and the following are prohibited: allowing irrigation water to run off into a gutter, ditch, drain, street and failure to repair a controllable leak	All requirements for stage 1 remain in effect and the following are only allowed during certain scheduled times: irrigation with sprinkler systems, washing of vehicles, adding water to pools, irrigating parks/plazas/squares. The following are prohibited: operating any ornamental fountain or similar structure without a recycling system and washing paved areas, except to alleviate immediate fire hazards.	All requirements for stage 2 remain in effect, except the schedules to use water for certain activities are even stricter and irrigating athletic fields is also held to a certain schedule. No bulk water sales will be made by the City when the water will be transported outside of the City except for domestic/residential/livestock use. Fire hydrant water sales shall cease.	All requirements for stage 3 remain in effect and no applications for new or expanded water service connections will be approved with permission from the Utilities Director, water delivered to non-essential industrial and commercial customers will be reduced, and a maximum monthly water use allocation may be established for residential customers. The following are prohibited: irrigation, washing vehicles, adding water to pools.	
City of Lyford		<b>TRIGGERS:</b> Falcon and Amistad conservation level between 51% and 26% or flow capacity at 90% for 5 consecutive days. Cumulative reduction goal is 5%.  <b>ACTIONS:</b> Customers are requested to voluntarily limit the amount of water used to that amount absolutely necessary for health, business, and irrigation. The following uses are prohibited: Allowing irrigation water to run off into a gutter, ditch, or drain; and failure to repair a controllable leak.	Falcon and Amistad conservation level between 25% and 20% or flow capacity at 95% for 5 consecutive days. Cumulative reduction goal is 10%.  All elements of Stage 1 remain in effect except that: 1. Irrigation utilizing hose-end sprinkler systems for lawns, gardens, landscaped areas, trees, shrubs, and other plants is prohibited except during designated hours which shall be between the hours of 6am to 8am and 8pm to 11pm. Customers with an address east of Whey 77 are only allowed to water between designated hours on M, W, F. Customers with an address west of Whey 77 are only allowed to water between designated hours on T, The, Sat. Irrigation of lawns, gardens, landscaped areas, trees, shrubs, or other plants is permitted at any time if: A continuously hand-held is used; or a drip irrigation system is used. Exception: commercial nurseries, sod farmers, and similar establishments are exempt but requested to curtail all nonessential water use. 2. The washing of mobile vehicles and equipment is prohibited except on designated hours between 6am and 8 am and 8pm to 11pm on same days designated above. Exception: washing can be done on premises of a commercial carwash or service station and for cleaning of garbage trucks and vehicles to transport food and perishables. 3. The refilling or adding to residential swimming and/or wading pools is prohibited except on designated hours between 8pm to 8am on designated days above. 4. The operation of any ornamental fountain or other structure making similar use of water is prohibited except for those with a recycling system. 5. The use of water for irrigation of parks, plazas, and squares is prohibited except between 8pm to 8am. the irrigation of golf course fairway areas is absolutely prohibited. 6. Essential and utility Use: Fire fighting-no restrictions; medical use by care facilities -no restrictions; Utility-reduction of average system pressure to 60 psi recommended, leak detection and system repairs recommended, stabilizing and equalizing system pressure recommended, sewer line	Falcon and Amistad conservation level between 20% and 15% or flow capacity at 95% for 5 consecutive days. Cumulative reduction goal is 15%.  All elements of Stage 2 shall remain in effect except that: 1. irrigation utilizing hose-end sprinklers or automatic sprinkler systems for lawns, gardens, landscaped areas, trees, shrubs, and other plants is prohibited except during designated hours of 6am to 8am and 8pm to 11pm. Customers east of Whey 77 on M and F, and west of HWY 77 T and Sat. Irrigation by hand-held hoses or drip irrigation systems are exempt. 2. Irrigation using hose-end sprinklers or automatic sprinkler systems for athletic fields is prohibited except during designated house between 8pm to 8am. 3. The watering of golf fairway areas is prohibited unless done with treated wastewater, reused water, or well water. 4. A water use surcharge of \$10 shall be levied against all customers that use over 8,000 gallons per month.	Falcon and Amistad conservation level between 15% and 10% or flow capacity at 100% for 3 consecutive days. Cumulative reduction goal is 25%.  All elements of Stage 3 remain in effect except that: 1. irrigation utilizing hose-end sprinklers or automatic sprinkler systems for lawns, gardens, landscaped areas, trees, shrubs, and other plants is prohibited except during designated hours of 6am to 8am and 8pm to 11pm. Customers east of Whey 77 on Wednesdays, and west of HWY 77 only on Saturdays. Irrigation by hand-held hoses or drip irrigation systems are exempt. 2. Washing of mobile vehicles not occurring on the premises of commercial carwashes and service stations, and not in the immediate interest of public health shall be prohibited except between the hours of 6am-8am and 8pm to 11pm and only on the owner's premises. Customers East of HWY 77 are allowed to on Wednesdays, customers west of HWY 77 are allowed to on Saturdays. 3. Commercial car washes and service stations in the immediate interest of public health, safety and welfare shall be limited to five (5%) percent of their monthly average usage based on the last twelve billing periods for each of such customer. After such usage, the Mayor or his designee shall enforce this subsection by terminating water service. 4. Commercial nurseries, sod farmers, and similar establishments shall water only on designated days between 10pm and 5am and shall use only hand-held hoses, drip irrigation systems or hand-held buckets. 5. The filling, refilling or adding of water, except to maintain the structural integrity of a pool, to swimming and/or wading pools is prohibited. 6. The operation of any ornamental fountain with or without recirculating features is prohibited. 7. Irrigation for athletic fields is prohibited except between the hour of 8pm to 8am with same designated days as other customers. 8. A water surcharge of \$15 shall be levied against all customers that use over 8,000 gallons per month.	Falcon and Amistad conservation level at 10% or less or flow capacity at 100% for 3 consecutive days. Cumulative reduction goal is 35%.  All elements of Stage 4 shall remain in effect in Stage 5 except that: 1. No applications for new, additional, further expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or other water service facilities of any kind shall be allowed, approved or installed except as approved by the City Council. 2. All allocations of water use to non-essential Industrial and Commercial customers shall be reduced to amounts as established by the Mayor, his designee or the Water Advisory Council. 3. The maximum monthly water use allocation for residential customers may be established with revised rate schedules and penalties by the City Council upon recommendation by the Mayor, his designee or the Water Advisory Council. 4. Irrigation by hose-end sprinklers or automatic sprinkler systems is prohibited. Irrigation by hand-held hoses or drip irrigation systems is allowed between 6am to 8am and 8pm to 11pm for customers east of HWY 77 on Wednesdays and customers west of HWY 77 on Saturdays. 5. The washing of mobile vehicles not occurring on the premises of commercial car washes and service stations and not in the immediate interest of the public health, safety, and welfare is prohibited. 6. Irrigation for athletic fields is prohibited. 6. A water use surcharge of \$20 shall be levied against all customers that use over 8,000 gallons per month.
City of McAllen McAllen Public Utility 2/25/2013		<b>TRIGGERS:</b> In effect at all times  <b>ACTIONS:</b> Customers asked to voluntarily limit water use to an amount absolutely necessary for health, business, and irrigation.	1. Demand reaches or exceeds 85% of capacity for 3 consecutive days 2. Amistad-Falcon reservoirs reach 40% capacity 3. Including but not limited to: system outage, equipment failure, or supply contamination  The means and/or schedule of the following is restricted: Irrigation, but drip method or hand-held buckets permitted at any time; washing motor vehicles, except commercial carwashes or service stations; washing or sprinkling foundations; adding water to swimming pools; operation of fountains or ponds, except with a recycling system; irrigation for golf courses, except those using wastewater effluent; hydrants restricted to fire fighting and necessary activities. The following are absolutely prohibited: allowing irrigation water to run off into gutter, ditch, or rain; failure to repair controllable leaks; washing paved surfaces.	1. Demand reaches or exceeds 90% of capacity for 3 consecutive days 2. Amistad-Falcon reservoirs reach 25% capacity 3. Including but not limited to: system outage, equipment failure, or supply contamination  All stage 2 restrictions except: further restrictions on means and schedule for irrigation, except by drip or hand-held buckets; watering of golf fairways is prohibited unless with wastewater effluent, reused water, or well water; customers to pay a water surcharge.	1. Demand reaches or exceeds 95% of capacity for 3 consecutive days 2. Amistad-Falcon reservoirs reach 20% capacity 3. Including but not limited to: system outage, equipment failure, or supply contamination  All stage 2 and 3 restrictions except: further restrictions on means and schedule for irrigation; washing of motor vehicles not occurring on commercial carwashes and not in the immediate interest of public health and safety is prohibited; carwashes in the interest of public health and safety limited to 50% of monthly average; commercial nurseries, sod farmers, etc. limited to means and schedule restrictions; adding water to pools, except to maintain structural integrity, is prohibited; operation of fountains prohibited; customers to pay a water surcharge.	1. Demand reaches or exceeds 100% of capacity 2. Amistad-Falcon reservoirs reach 15% capacity 3. Including but not limited to: system outage, equipment failure, or supply contamination  All stage 2, 3, and 4 restrictions except: no applications for new, additional, or expanded water connections, lines, etc. are allowed except as approved by PUB; water allocations to non-essential customers reduced as established by the PUB; max monthly water allocation for residential customers established with revised rate schedules and penalties by the PUB; irrigation permitted only by handheld hoses, handheld faucet filled buckets; drip irrigation on set schedule; customers to pay a water surcharge.
Military Highway Water Supply Corporation 5/5/2014		<b>TRIGGERS:</b> Automatically initiated annually from May 1 through October 31 of each year.  <b>ACTIONS:</b> Military Highway WSC will reduce or discontinue flushing of water mains and activate use of alternative supply source(s). Customers are asked to voluntarily limit irrigation of landscaped areas to certain days and times. All operations of Military Highway WSC shall voluntarily adhere to Stage 2 water restrictions. Customers are asked to voluntarily practice water conservation and to minimize or discontinue water use for non-essential purposes.	a) Consumption of 80% of daily max supply for 3 consecutive days. b) Supply is reduced to only 20% greater than the average consumption for the previous month. c) Extended period (at least 8 weeks) of low rainfall and daily use is 20% above the use for the same period during the previous year.  Military Highway WSC will discontinue flushing of water mains and irrigation of landscaped areas. The means and/or schedule for the following is restricted: irrigation of landscaped areas; washing of motor vehicles, boats, cars, etc.; use of water to fill swimming pool; irrigation of golf courses; operation of fountains or ponds except when necessary to support aquatic life; use of water for hydrants limited to fire fighting or activities to maintain public health, safety and welfare, and construction with special permit; and restaurants are prohibited from serving water except when requested. The following are non-essential and prohibited: wash down sidewalks, driveways, parking lots; use of water to wash down buildings or structures; use of water for dust control; flushing gutters; and failure to repair a controllable leak(s).	a) Consumption of 90% of supply for 3 consecutive days. b) Water level in any water storage tanks cannot be replenished for 3 consecutive days.  Military Highway WSC will discontinue flushing of water mains and irrigation of landscaped areas. All requirements for Stage 2 restrictions remain in effect except: the means and schedule for irrigation of landscaped areas is further restricted, watering of golf courses is prohibited, and the use of water for construction purposes from fire hydrants under special permit is to be discontinued.	a) Failure of major system component or an event which reduces the minimum residual pressure in the system below 20 psi for 24 hours or longer. b) Consumption of 95% or more of max supply for 3 consecutive days. c) Consumption of 100% of max supply at water storage levels in system drop during one 24-hour period. d) Natural or man-made contamination of water supply source(s) e) Declaration of a state of disaster due to drought conditions in a county or counties served by the Corporation. f) Reduction of wholesale water supply due to drought conditions. g) Other unforeseen events which could cause imminent health or safety risks to public.  Military Highway WSC will discontinue flushing of water mains and irrigation of landscaped areas. All requirements for Stage 2 and 3 remain in effect except: the means and schedule for irrigation of landscaped areas is further restricted; use of water to wash motor vehicles, boats, airplanes, etc. is prohibited and schedules for commercial car washes are restricted; adding water to swimming pools is prohibited; operation of fountains or ponds is prohibited except where necessary to support aquatic life; and no applications for new, additional, or expanded water service connections, meters, mains, etc. of any kind shall be allowed or approved.	a)Major water line breaks, or pump or system failures occur, which case unprecedented loss of capability to provide water service. b) Natural or man-made contamination of the water supply source(s).  Military Highway WSC will use an alternative supply source(s). All requirements of Stage 2, 3, and 4 restrictions remain in effect except: irrigation of landscaped areas is prohibited, of water to wash any motor vehicle, boat, plane, etc. is prohibited.  In the event water shortage conditions threaten public health, safety, and welfare, the GM is authorized to ration water according to a set water allocation plan.
North Alamo Water Supply Corporation 1/15/2010	Reservoir level	<b>TRIGGERS:</b> Level in Amistad and Falcon Reservoirs reaches 49% of capacity	Level in Amistad and Falcon Reservoirs reaches 40% of capacity	Level in Amistad and Falcon Reservoirs reaches 23% of capacity	Level in Amistad and Falcon Reservoirs reaches 13% of capacity or in response to 1. supply source contamination, 2. water production or distribution system limitation, 3. system outage due to failure or damage of major water system components	





Public Water Supply Drought Contingency Plans, Region M

ENTITY DATE	BASIS OF DROUGHT	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
North Alamo Water Supply Corporation 1/15/2010		<b>ACTIONS:</b> All customers are asked to check their plumbing fixtures and facilities to ensure that they are working properly and no water is being wasted. Industrial, wholesale, and certain other customers are asked required to develop and submit a Water Rationing Plan within 60 days.	All WSC owned facilities will be placed on mandatory conservation practices. All customers will be asked to comply with a voluntary watering schedule based on their location.	The voluntary lawn watering provisions from Stage 2 will become mandatory. Allowing water to run off yards, plants, or vegetation into gutters or streets will be prohibited. Non commercial washing of vehicles must be done with a hand-held hose or bucket between 6am and 9am or 7pm and 9pm. Commercial washing of any vehicle will only be allowed on commercial washing facilities. Industrial and wholesale customers are required to implement their Water Rationing Plans. The following are prohibited: exterior washing of structures; use of water to wash down sidewalks, driveways, or hard surfaces; continued use of defective plumbing; use of fire hydrants for purposes other than fire fighting; use of water for dust control.	All nonessential water use not necessary to maintain public health, safety and welfare is prohibited. A pro rata curtailment of deliveries of wholesale water will occur. No application for new or expanded water connections, pipeline extensions, etc. will be allowed except as approved by the Review Committee. The maximum amount of water usage for customers and surcharges may be revised.	
North Cameron Regional Water Supply Corporation 9/11/2014		<b>TRIGGERS:</b> North Cameron Regional Water Plant (NCRWP) ground storage tank falls below 50% capacity.	NCRWP ground storage tank capacity falls to 25% capacity.	NCRWP ground storage tank capacity fall to 10% capacity.	NCRWP has no production capacity.	
		<b>ACTIONS:</b> Request wholesale water customers initiate voluntary measure to reduce water use.	a) Discuss water supply/demand conditions with customers and request they initiate measures to reduce water use b) Implement pro rata curtailment of water diversions and/or deliveries to add 50,000 gallons per day to storage tank	a) Increase water blend ratios if possible, not exceeding 1000 ppm TDS b) Discuss water supply/demand conditions with customers and request they initiate measures to reduce water use and utilize alternative water supplies c) Implement pro rata curtailment of water diversions and/or deliveries to add 75,000 gallons per day to storage tank	a) Notify customers of the need to switch to alternate water supplies b) If appropriate, notify member, county, and/or state emergency response officials c) Undertake necessary actions, including repairs and/or clean-up as needed. d) Prepare post-event assessment report on incident and critique of emergency response procedures	
Pharr 5/1/2014		<b>TRIGGERS:</b> WTP capacity flow is between 17.5 MGD and 18.0 MGD	WTP capacity flow is between 18.0 MGD and 18.45 MGD	WTP capacity flow is between 18.45 MGD and 20.0 MGD		
		<b>ACTIONS:</b> The public is asked to voluntarily follow certain schedules for landscape irrigation and vehicle washing and to stop using ornamental water features.	The public is required to follow a certain schedule for landscape irrigation and vehicle washing. The following is prohibited: use of ornamental water features without recirculation, washing down paved areas, failure to repair a leak in a timely manner	The requirements for stage 2 are still in effect, except that the schedule to irrigate landscape and wash vehicles is stricter.		
Raymondville		<b>TRIGGERS:</b> 1. Water demand reaches 90% of firm production capacity; or 2. A disruption due to equipment or distribution system failure that would limit the capacity of the water system below 85% of capacity during high demand periods.	1. Water demand reaches 95% of firm production capacity; or 2. A disruption due to equipment or distribution system failure that would limit the capacity of the water system below 75% of capacity during high demand periods.	1. Water demand reaches 100% of firm production capacity; or 2. A disruption due to equipment or distribution system failure that would limit the capacity of the water system below 70% of capacity during high demand periods.	In the event of an extended period of the severe condition or any natural catastrophic situations that interrupt or have the potential to interrupt the City's potable water supply, the City is authorized to take all reasonable measures as deemed necessary to provide for the public's safety.	Customers shall be required to comply with the requirements and restrictions for Stage 5 of this Plan when Board President, or his/her designee, determines that a water supply emergency exists based on: 1. Major water line breaks, or pump or system failures occur, which cause unprecedented loss of capability to provide water service; or, 2. Natural or man-made contamination of the water supply source(s).
		<b>ACTIONS:</b> Goal: Achieve a voluntary 35% reduction in daily water use per capita. Voluntary water use restrictions include: a) Water customers are requested to voluntarily limit the irrigation of landscaped areas to Sundays and Thursdays for customers with a street address ending in an even number (0, 2, 4, 6 or 8), and Saturdays and Wednesdays for water customers with a street address ending in an odd number (1, 3, 5, 7 or 9), and to irrigate landscapes only between the hours of midnight and 10:00 a.m. and 8:00 pm to midnight on designated watering days. (b) All operations of the City shall adhere to water use restrictions prescribed for Stage 2 of the Plan. (c) Water customers are requested to practice water conservation and to minimize or discontinue water use for non-essential purposes.	Goal: achieve 40% reduction in daily water use per capita. Restrictions include: (a) Irrigation of landscaped areas with hose-end sprinklers or automatic irrigation systems shall be limited to Sundays and Thursdays for customers with a street address ending in an even number, and Saturdays and Wednesdays for water customers with a street address ending in an odd number, and irrigation of landscaped areas is further limited to the hours of 12:00 midnight until 10:00 a.m. and between 8:00 p.m. and 12:00 midnight on designated watering days. However, irrigation of landscaped areas is permitted at anytime if it is by means of a hand-held hose, a faucet filled bucket or watering can of five (5) gallons or less, or drip irrigation system. (b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited except on designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shutoff nozzle for quick rises. Vehicle washing may be done at any time on the immediate premises of a commercial car wash or commercial service station. Further, such washing may be exempted from these regulations if the health, safety, and welfare of the public are contingent upon frequent vehicle cleansing, such as garbage trucks and vehicles used to transport food and perishables. (c) Use of water to fill, refill, or add to any indoor or outdoor swimming pools, wading pools, or Jacuzzi-type pools is prohibited except on designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight.	Goal: achieve 50% reduction in daily water use per capita. Restrictions include all requirements from Stage 2 except: (a) Irrigation of landscaped areas shall be limited to designate watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight and shall be by means of hand-held hoses, hand-held buckets, drip irrigation, or permanently installed automatic sprinkler system only. The use of hose-end sprinklers is prohibited at all times. (b) The watering of golf course tees is prohibited unless the golf course utilizes a water source other than that provided by the City. (c) The use of water for construction purposes from designated fire hydrants under special permit is to be discontinued.	Goal: achieve a 60% reduction in daily water use per capita. Restrictions include all requirements of Stage 2 and 3 except: (a) Irrigation of landscaped areas shall be limited to designated watering days between the hours of 6:00 a.m. and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight and shall be by means of hand-held hoses, hand-held buckets, or drip irrigation only. The use of hose-end sprinklers or permanently installed automatic sprinkler systems are prohibited at all times. (b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle not occurring on the premises of a commercial car wash and commercial service stations and not in the immediate interest of public health, safety, and welfare is prohibited. Further, such vehicle washing at commercial car washes and commercial service stations shall occur only between the hours of 6:00 a.m. and 10:00 a.m. and between 6:00 p.m. and 10 p.m. (c) The filling, refilling, or adding of water to swimming pools, wading pools, and Jacuzzi-type pools is prohibited. (d) Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life or where such fountains or ponds are equipped with a recirculation system. (e) No application for new, additional, expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or water service facilities of any kind shall be approved, and time limits for approval of such applications are hereby suspended for such time as this drought response stage or a higher-numbered stage shall be in effect.	Goal: achieve a 60% reduction in daily use per capita. Restrictions include all requirements from Stages 2, 3, and 4 except: (a) Irrigation of landscaped areas is absolutely prohibited. (b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is absolutely prohibited.
Rio Grande City 5/1/2014		<b>TRIGGERS:</b> Amistad-Falcon Reservoirs reach 50% conservation levels or City's system demand is at 7.48 MGD.	Amistad-Falcon Reservoirs reach 40% conservation levels or City's system demand is at 7.7 MGD.	Amistad-Falcon Reservoirs reach 25% conservation levels or City's system demand is at 7.92 MGD.	Amistad-Falcon Reservoirs reach 20% conservation levels or City's system demand is at 8.14 MGD.	Amistad-Falcon Reservoirs reach 15% conservation levels, City's system demand is at 8.36 MGD, or in response to emergency conditions.
		<b>ACTIONS:</b> Customers requested to voluntarily limited water use to the amount absolutely necessary for health, business, and irrigation.	schedule restrictions apply to the following: irrigation of outdoors vegetation; washing motor vehicles; washing or sprinkling foundations; water for swimming pools; water for fountains or structures prohibited except with recycling system; water for hydrants limited to firefighting and necessary activities. The following are prohibited: allowing irrigation water to run off; failure to repair controllable leaks; washing paved surfaces. No bulk water sales if transported by truck.	Restrictions from Stage 2 except: it shall be unlawful to irrigate outdoor vegetation other than on schedule, except drip or hand-held bucket permitted; water surcharge for residential, irrigation-metered, and commercial and industrial metered customers.	Restrictions from Stage 3 except: commercial carwashes and service station limited to 50% of monthly average; schedule restrictions for irrigation, nurseries, washing of vehicles, sod farms and only with hand-held hoses, buckets, or drip irrigation; filling pools prohibited except to maintain structural integrity; operation of fountains prohibited; increased surcharge for customers.	Restrictions from Stage 4 except: no applications for new, additional, or expanded water connections, meters, lines, etc. are allowed except as approved by the PUB; All non-essential customer amounts reduced as established by the PUB; Max monthly allocation for residential customers established with revised rate schedules and penalties on recommendation by the PUB; Washing of vehicles not necessary for public safety and health prohibited; increased surcharge for customers.
City of Roma 6/1/2014	Water demand/WTP capacity, reservoir level, system break/failure	<b>TRIGGERS:</b> a) Average daily water use reaches 90% of WTP capacity for 5 consecutive days, b) Falcon and Amistad conservation level is between 26% and 51%	a) Average daily water use reaches 95% WTP capacity for 5 consecutive days, b) Falcon and Amistad conservation level is between 20% and 25%	a) Average daily water use reaches 100% WTP capacity for 5 consecutive days, b) Falcon and Amistad conservation level is between 15% and 20%	a) Average daily water use reaches 100% WTP capacity for 5 consecutive days, b) Falcon and Amistad conservation level is between 10% and 15%	a) Average daily water use reaches 100% WTP capacity for 5 consecutive days, b) Falcon and Amistad conservation level is less than 10%, c) the imminent or immediate failure of a major component of the system causes an immediate health or safety hazard, water levels in the distribution system storage tanks drop to levels such that service pumps cannot pump daily water demand





Public Water Supply Drought Contingency Plans, Region M

ENTITY DATE	BASIS OF DROUGHT	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
City of Roma 6/1/2014		<b>ACTIONS:</b> Users are requested to voluntarily limit water usage and the following are prohibited: allowing irrigation water to run off into a gutter/ditch/drain and failure to repair a controllable leak	All requirements for stage 1 remain in effect and users are required to follow a certain schedule irrigation of landscapes/parks/plazas/squares/athletic fields, and vehicle washing. The following is prohibited: use of ornamental water features without recirculation, washing down paved areas unless it's a fire hazard, irrigating golf course fairway. No bulk water sales will be allowed when water will be transported by a truck or vehicle outside of City limits.	All requirements of stage 2 remain in effect except the schedule for irrigation is stricter.	All requirements of stage 3 remain in effect except the schedules for irrigation and vehicle washing are even stricter. The following are prohibited: adding water to a pool unless required to maintain structural integrity and operation of any ornamental fountain or similar structure.	All requirements of stage 4 remain in effect and any application for new or expanded water service connection will not be allowed unless approved by City Council, allocations of water to non-essential industrial and commercial customers will be reduced, and maximum monthly water use allocations for residential customers may be established. The following are prohibited: irrigation by sprinkler systems, irrigation of athletic fields, and vehicle washing not at commercial locations except as required for public health, safety, or welfare.
City of San Benito 12/31/2013	Reservoir level and water treatment capacity.	<b>TRIGGERS:</b> Falcon and Amistad US storage level is 51% of capacity, or upon request from Cameron County Irrigation District #2 as applied to customers within the city with lawn watering contracts.	Falcon and Amistad US storage level is 25% of capacity, or upon request from Cameron County Irrigation District #2 as applied to customers within the city with lawn watering contracts. Or the City Manager may implement Stage 2 at his discretion if the water treatment plant reaches 95% of capacity.	Falcon and Amistad US storage level is 10% of capacity, or upon request from Cameron County Irrigation District #2 as applied to customers within the city with lawn watering contracts. Or the City Manager may implement Stage 2 at his discretion if the water treatment plant reaches 95% of capacity.	Falcon and Amistad US storage level is 15% of capacity, or upon request from Cameron County Irrigation District #2 as applied to customers within the city with lawn watering contracts. Or the City Manager may implement Stage 2 at his discretion if the water treatment plant reaches 95% of capacity.	
		<b>ACTIONS:</b> Users are requested to voluntarily limit water usage and the following are prohibited: allowing irrigation water to run off into a gutter/ditch/drain and failure to repair a controllable leak	City Manager notifies, by public announcement and publication, customers of the water system of mandatory conservation and limitation of use. All municipal operations are placed on mandatory conservation. Lawn watering is not allowed between 10:00 am and 6:00 pm. Grass, trees, shrubbery, annual, biennial or perennial vines, gardens, and other similar vegetation may be watered with a hand-held hose equipped with a positive shut-off nozzle or a hand-held bucket or water can no larger than 5 gallons in capacity. Drip irrigation and sprinkler systems are allowed. Car, trailer, and boat washing are limited to 5-gallon buckets or hand-held hose between 6:00 pm and 9:00 pm. Wasting of water as a result of defective plumbing is prohibited. Hydrants may only be used for fire-fighting. Ornamental fountains or artificial waterfalls where water is not reused or recirculated are prohibited. Washing sidewalks, driveways, parking lots, tennis courts, and buildings is prohibited. Water may only be used for dust control for health hazards. Swimming pools and jacuzzis are not permitted to use water except where required to maintain structural integrity. The city may not use water to place new agricultural land into service. Rate surcharges are put into place.	All requirements of stage 2 remain in effect, plus water allowed to run off of yards, plants or vegetation into gutters is prohibited. Rates are increased for high-volume users.	All nonessential water use not necessary to maintain public health, safety and welfare is prohibited. Plant watering, car washing, and fountains as described above are prohibited. No new or expanded water service connections, services or facilities may be approved. Residential use may be capped and surcharges associated by the City Commission. The City Manager may take any other actions necessary.	
San Juan 8/19/2011		<b>TRIGGERS:</b> Always in effect unless a more stringent plan is required	Agricultural use of irrigation water is discontinued and/or when the demand on the City's system is at 3.7 MGD for a three consecutive day period	Service or deliver water storage in Falcon and Amistad Reservoirs is reduced by 50% by the Watermaster and/or demand on the City's system is at 4.1 MGD for a three consecutive day period	Municipal allocations are reduced to 75% of full amounts by the Watermaster and/or demand on the City's system is at 4.5 MGD for three consecutive days	Municipal allocations are reduced to 80% of full amounts by the Watermaster and/or demand on the City's system is at 4.8 MGD for three consecutive days
		<b>ACTIONS:</b> Users are requested to voluntarily limit the amount of water used to that amount absolutely necessary for health, business, and irrigation.	Public is required to limit landscape irrigation with hose-end sprinklers automatic irrigation systems to certain days based on location and only between 8am and 8pm (excludes hand-held hose or drip irrigation). Car washing is limited to the same days as irrigation. Public must discontinue use of ornamental water features unless provisions are made for recirculation of water.	Public is required to limit landscape irrigation with hand-held hose or drip irrigation systems to certain days of the week based on location and only between 8am and 8pm. Car washing is only allowed at residences on irrigation days and with hoses with flow control devices. Public must discontinue use of ornamental water features unless provisions are made for recirculation of water.	All elements of Stage 3 remain in effect except that: 1. irrigation of vegetation is only allowed between 12am to 10 am and 8pm to 12 am, 2. automobiles may only be washed at non-commercial facilities on irrigation days and on the owner of the vehicle's property, 3. commercial nurseries, sod farmers, and similar shall only water between 10pm and 5am and shall use only hand-held hoses, drip irrigation, or buckets, 4. residential/domestic meter customers shall pay an additional 75% surcharge for any water used over 10,000 gallons per month	All elements of Stage 4 remain in effect except that: 1. no applications for new or increased water connections, pipeline extensions, etc. shall be allowed, except as approved by the City Commission on recommendation by the Public Utilities Director, 2. maximum monthly water use allocation for residential customers may be established with revised rate schedules and penalties, 3. irrigation is only permitted by hand-held hose, bucket, or drip irrigation between 6am to 8am once every 10 days
San Ygnacio Municipal Utility District 4/1/2014	Reservoir level, water demand, system break/failure	<b>TRIGGERS:</b> a) Falcon lake level drops below 270 ft., b) daily demand exceeds 60% of supply capacity for 3 consecutive days	a) Falcon lake level drops below 265 ft., b) daily demand exceeds 65% of supply capacity for 3 consecutive days	a) Falcon lake level drops below 360 ft., b) daily demand exceeds 70% of supply capacity for 3 consecutive days	Major water line breaks or pump system failure occurs, which cause unprecedented loss of capability to provide water service	
		<b>ACTIONS:</b> Wholesale water users will be requested to voluntarily reduce water use	Wholesale water customers will be requested to initiate mandatory measures to reduce non-essential water use and preparations for implementing pro rata curtailment of water deliveries will be made.	Wholesale water customers will be requested to initiate additional mandatory measures to reduce non-essential water use and pro rata curtailment of water deliveries will be implemented.	Inform wholesale water customers of the problem and take necessary actions to resolve it.	
Union Water Supply Corporation 7/26/2011	Falcon reservoir level and/or demand	<b>TRIGGERS:</b> Always in effect between April 1st and September 30th of every year.	Implemented when: 1. drought conditions are officially declared for the County, 2. water levels in Falcon Reservoir drop below 80% of conservation levels, 3. daily water consumption exceeds 90% of daily supply capacity for ten consecutive days	Implemented when: 1. extreme drought conditions are officially declared for the County, 2. water levels in Falcon Reservoir drop below 70% of conservation levels, 3. raw water supply drop to 10% below projected needs, 4. daily water consumption exceeds 100% of daily supply capacity for ten consecutive days	Implemented when: 1. emergency drought conditions are officially declared for the County, 2. water levels in Falcon Reservoir drop below 60% of conservation levels, 3. raw water supply drop to 30% below projected needs, 4. daily water consumption exceeds 105% of daily supply capacity for ten consecutive days	
		<b>ACTIONS:</b> Customers are asked to voluntarily limit water use by the following measures: 1. only irrigate between 6pm and 10am, 2. irrigate on certain days, based on address, 3. prevent significant run off from lawn irrigation, 4. wash vehicles only on same days as lawn watering, 5. minimize use of potable water for washing sidewalks, drives, and dust control.	Customers will be required to implement the following measures: 1. only irrigate between 6pm and 10am, 2. irrigate on certain days, based on address, 3. prevent significant run off from lawn irrigation, 4. wash vehicles only on same days as lawn watering, 5. do not use of potable water for washing sidewalks, drives, and dust control.	Customers will be required to implement the following measures: 1. irrigation of landscaped areas only allowed on certain days based on location and between 8pm and 10am, except for irrigation with a hand-held hose, bucket, or drip system, 2. vehicle washing not at a commercial facility is only allowed on watering days between 8pm and 10am and with a bucket or hand-held hose with shut off nozzle, 3. filling pools is only allowed on water days between 8pm and 10am, 4. operation of ornamental fountains is prohibited unless they are required to support aquatic life or are equipped with recirculation system, 5. use of water from hydrants or flush valves are only permitted to maintain public health, safety, or welfare, 6. water golf course and parks is only allowed on water days between 8pm and 10am and with a hand-held hose, 7. the following are prohibited: wash down of sidewalks, walkways, driveways, etc.; wash down of building and structures; use of water for dust control; flushing gutters or permitting water to accumulate in gutters or streets; failure to repair a controllable leak within a reasonable amount of time; any waste of water.	Customers will be required to implement the following measures: 1. irrigation of lawns and landscaped areas is prohibited, 2. vehicle washing is only permitted at a commercial facility, 3. filling pools is prohibited, 4. operation of ornamental fountains is prohibited unless required to sustain aquatic life or if it is equipped with a recirculation system, 4. use of water from hydrants or flush valves is only permitted to maintain public health, safety, and welfare, 5. use of water to irrigate golf course and parks is prohibited, 6. the following are prohibited: wash down of sidewalks, walkways, driveways, etc.; wash down of building and structures; use of water for dust control; flushing gutters or permitting water to accumulate in gutters or streets; failure to repair a controllable leak within a reasonable amount of time; any waste of water.	





Public Water Supply Drought Contingency Plans, Region M

ENTITY DATE	BASIS OF DROUGHT	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Valley MUD No. 2		<b>TRIGGERS:</b> 1) When the level of United States water stored in Rio-Grande River Basin Reservoirs reaches 60 % of capacity, or Valley MUD #2 allocation of irrigation water has reached 5400 acre-ft. 2) When equipment failure or treatment problems causes the capacity of Valley MUD #2's treatment and pumping facilities to fall to within 90% of the daily consumption of potable water.	1) When the level of United States water stored in Rio-Grande River Basin Reservoirs reaches 50 % of capacity, or Valley MUD #2 allocation of water has reached 3350 acre-ft. 2) When equipment failure or treatment problems causes the capacity of Valley MUD #2's treatment and pumping facilities to fall to within 70% of the daily consumption of potable water.	1) When the level of United States water stored in Rio-Grande River Basin Reservoirs reaches 30%, or Valley MUD #2 allocation of water has reached 1900 acre-ft. 2) When equipment failure or treatment problems causes the capacity of Valley MUD #2's treatment and pumping facilities to fall to within 50% of the daily consumption of potable water.	1) When the level of United States water stored in Rio-Grande River Basin Reservoirs reaches 20%, or Valley MUD #2 allocation of water has reached 800 acre-ft. 2) When equipment failure or treatment problems causes the capacity of Valley MUD #2's treatment and pumping facilities to fall to within 25% of the daily consumption of potable water. 3) When water levels in the Rio Grande are low enough to restrict pumping.	
Valley MUD No. 2		<b>ACTIONS:</b> 1) Water customers are requested to voluntarily limit the irrigation of landscaped areas to no more than 3 days a week. Do not water between the hours of 10:00 a.m. and 7:00 p.m. 2) Water customers are requested to practice water conservation and to minimize or discontinue water use for non-essential purposes.	1) Irrigation of landscaped areas with hose-end sprinklers or automatic irrigation systems shall be limited to Sundays and Thursdays for customers with a street address ending in an even number, and Saturdays and Wednesdays for water customers with a street address ending in an odd number. Irrigation of landscaped areas is further restricted and prohibited between the hours of 10:00 a.m. and 7:00 p.m. on designated watering days. However, irrigation of landscaped areas is permitted at any time if it is by means of a hand-held hose, a faucet filled bucket or watering can of five (5) gallons or less, or drip irrigation system. 2) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited except on designated watering days. Such washing shall be done with a bucket and a hand-held hose equipped with a positive shutoff nozzle for quick rinses. Vehicle washing may be done at any time on the immediate premises of a commercial car wash or commercial service station. Further, such washing may be exempted from these regulations if the health, safety, and welfare of the public are contingent upon frequent vehicle cleansing, such as garbage trucks and vehicles used to transport food and perishables. 3) Operation of any ponds or ornamental fountain for aesthetic or scenic purposes is prohibited. 4) Use of water from hydrants shall be limited to firefighting, related activities, or other activities necessary to maintain public health, safety, and welfare. Use of water from designated fire hydrants for construction purposes may be allowed under special permit from the Valley MUD #2. 5) Irrigation of golf course greens, tees, and fairways is permitted between the hours 7:00 p.m. and 10:00 a.m. 6) The following uses of water are defined as non-essential and are prohibited:	1) Irrigation of landscaped areas with hose-end sprinklers or automatic irrigation systems shall be limited to Thursdays for customers with a street address ending in an even number, and Wednesdays for water customers with a street address ending in an odd number. Irrigation of landscaped areas is further restricted and prohibited between the hours of 10:00 a.m. and 7:00 p.m. on designated watering days. Irrigation of landscaped areas is permitted at any time if it is by means of a hand-held hose, a faucet filled bucket or watering can of five (5) gallons or less, or drip irrigation system. 2) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited except on designated watering days. Such washing shall be done with a bucket and a hand-held hose equipped with a positive shutoff nozzle for quick rinses. Vehicle washing may be done at any time on the immediate premises of a commercial car wash or commercial service station. Further, such washing may be exempted from these regulations if the health, safety, and welfare of the public are contingent upon frequent vehicle cleansing, such as garbage trucks and vehicles used to transport food and perishables. 3) Operation of any ponds or ornamental fountain for aesthetic or scenic purposes is prohibited. 4) Use of water from hydrants shall be limited to firefighting, related activities, or other activities necessary to maintain public health, safety, and welfare. The use of water for construction purposes from designated fire hydrants under special permit is to be discontinued. 5) Irrigation of golf course greens, tees, is permitted between the hours 7:00 p.m. and 10:00 a.m. The watering of golf course fairways is limited	1) All irrigation of landscapes is prohibited except for minimal hand watering of drought stressed trees and shrubs. 2) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited. Washing may be exempted from these regulations if the health, safety, and welfare of the public are contingent upon frequent vehicle cleansing, such as garbage trucks and vehicles used to transport food and perishables. 3) Operation of any ponds or ornamental fountain for aesthetic or scenic purposes is prohibited. Fountains that are equipped with a recirculation system are not exempt at this stage. 4) Use of water from hydrants shall be limited to firefighting, related activities, or other activities necessary to maintain public health, safety, and welfare. The use of water for construction purposes from designated fire hydrants under special permit is to be discontinued. 5) Hand watering of golf course greens and tees is permitted between the hours 7:00 p.m. and 10:00 a.m. Treated effluent must be used for this hand watering. The watering of golf course fairways is prohibited. 6) The following uses of water are defined as non-essential and are prohibited: a) Wash down of any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas; b) use of water to wash down buildings or structures for purposes other than immediate fire protection; c) use of water for dust control; d) flushing gutters or permitting water to run or accumulate in any gutter or street; and e) failure to repair a controllable leak(s) within 3 working days after having been given notice directing the repair of such leak(s).	
City of Weslaco 5/1/2009	Reservoir level, projected water demand, system break/failure	<b>TRIGGERS:</b> a) Level of US waters in Amistad and Falcon reservoirs reaches 51%, b) water demand projections for the year suggest available water rights may be used at 95%	a) Level of US water in Amistad and Falcon reservoirs reaches 25%, b) a condition causes system-wide problems so the normal level of water service may be diminished for a period of time, c) water demand projections for the year suggest available water rights may be used at 98%	a) Level of US water in Amistad and Falcon reservoirs reaches 15%, b) a condition related to extraordinary circumstances severely and immediately diminish the ability to deliver a normal level of water, c) water demand projections for the year suggest available water rights may be used at 100%		
		<b>ACTIONS:</b> Request customers to voluntarily reduce water usage	The means and/or schedule for the following will be restricted: watering of grass and vegetation, washing of vehicles, adding water to pools, and irrigating golf courses. The following are prohibited: allowing water to run off into gutters or streets, washing of buildings, trailers, railroad cars, maintaining defective home plumbing, use of hydrants except for fire fighting, ornamental fountain without recirculation, use of water to wash down hard surfaced area, and use of water for dust control.	The following are prohibited: new service connections to the water system if another water source is already used, serving restaurant customers water when they do not ask for it, use of water for scenic and recreational ponds or lakes, use of water for pools, use of water to put new agricultural land into production, use of water for new planting or landscaping, and acceptance of applications for new or extended water service connections without approval by City. Industrial and commercial users must implement an individual curtailment plan and residential customers will receive a maximum monthly usage amount.		
Zapata County Waterworks 7/1/2014	Time of year, reservoir level, system break/failure or contamination, water demand/WTP capacity	<b>TRIGGERS:</b> Automatically initiated on April 1 of each year	a) Level of Falcon reservoir drops below 270 feet, or b) recorded drinking water treatment as a percentage of total drinking water capacity exceeds 70%	a) Level of Falcon reservoir drops below 260 feet, or b) recorded drinking water treatment as percentage of total treatment capacity exceeds 80%	a) Level of Falcon reservoir drops below 250 feet, or b) recorded drinking water treatment as percentage of total treatment capacity exceeds 90%	System outage or supply contamination
		<b>ACTIONS:</b> Customers are requested to voluntarily limit the use of water for nonessential purposes	Customers are requested to voluntarily reduce their water use and to follow an irrigation schedule and county and nonessential governmental water use will be reduced.	Customers will be limited to certain schedules and methods for irrigation, vehicle washing, and adding water to pools and the following are prohibited: operation of fountains or ponds without recirculation except when necessary to maintain aquatic life, using water from hydrants or flush valves except when maintaining public health, safety, and welfare, washing down hard-surfaced areas, use of water to wash down buildings or structures, use of water for dust control, flushing gutters, failure to repair controllable leaks within a reasonable period of time, any waste of water	In addition to Stage 3 restrictions, emergency interconnects or alternative supply arrangements shall be investigated, and implemented, if available.	The TCEQ Regional Office will be immediately notified





# **Texas Water Development Board**



## **2016 Region M Water Plan**

### **Appendix E: Model Drought Contingency Plans and Water Conservation Plans**







**2016 Region M Water Plan**  
**Appendix E.1: Drought Contingency Plan for an**  
**Irrigation District**



# Drought Contingency Plan for an Irrigation District

Texas Commission on Environmental Quality

Instructions: The following form is a model of a drought contingency plan for an irrigation district. Not all items may apply to your district's situation. This form is supplied for your convenience, but you are not required to use this form to submit your plan to the TCEQ. Submit completed plans to: Water Supply Division MC 160, TCEQ, P.O. Box 13087, Austin TX 78711-3087.

\_\_\_\_\_  
(Irrigation District)

\_\_\_\_\_  
(Address, City, Zip Code)

\_\_\_\_\_  
(Date)

## Section I: Declaration of Policy, Purpose, and Intent

The Board of Directors of the \_\_\_\_\_ (name of irrigation district) deems it to be in the interest of the District to adopt Rules and Regulations governing the equitable and efficient allocation of limited water supplies during times of shortage. These Rules and Regulations constitute the District's drought contingency plan required under Section 11.1272, Texas Water Code, *Vernon's Texas Codes Annotated*, and associated administrative rules of the Texas Commission on Environmental Quality (Title 30, Texas Administrative Code, Chapter 288).

## Section II: User Involvement

Opportunity for users of water from the \_\_\_\_\_ (name of irrigation district) was provided by means of \_\_\_\_\_ (describe methods used to inform water users about the preparation of the plan and opportunities for input; for example, scheduling and providing notice of a public meeting to accept user input on the plan).

## Section III: User Education

The \_\_\_\_\_ (name of irrigation district) will periodically provide water users with information about the Plan, including information about the conditions under which water allocation is to be initiated or terminated and the district's policies and procedures for water allocation. This information will be provided by means of \_\_\_\_\_ (e.g. describe methods to be used to provide water users with information about the Plan; for example, by providing copies of the Plan and by posting water allocation rules and regulations on the district's public bulletin board).



**Section IV: Authorization**

The \_\_\_\_\_ (e.g., general manager) is hereby authorized and directed to implement the applicable provision of the Plan upon determination by the Board that such implementation is necessary to ensure the equitable and efficient allocation of limited water supplies during times of shortage.

**Section V: Application**

The provisions of the Plan shall apply to all persons utilizing water provided by the \_\_\_\_\_ (name of irrigation district). The term “person” as used in the Plan includes individuals, corporations, partnerships, associations, and all other legal entities.

**Section VI: Initiation of Water Allocation**

The \_\_\_\_\_ (designated official) shall monitor water supply conditions on a \_\_\_\_\_ (e.g. weekly, monthly) basis and shall make recommendations to the Board regarding irrigation of water allocation. Upon approval of the Board, water allocation will become effective when \_\_\_\_\_ (describe the criteria and the basis for the criteria):

**Below are examples of the types of triggering criteria that might be used; singly or in combination, in an irrigation district’s drought contingency plan:**

- *Example 1: Combined storage in the \_\_\_\_\_ Amistad-Falcon reservoir system is equal to or less than \_\_\_\_\_ (acre-feet and/or percentage of storage capacity).*
- *Example 2: The storage balance in the district’s irrigation water rights account reaches \_\_\_\_\_ acre-feet.*
- *Example 3: The storage balance in the district’s irrigation water rights account reaches an amount equivalent to \_\_\_\_\_ (number) irrigations for each flat rate acre in which all flat rate assessments are paid and current.*
- *Example 4: The \_\_\_\_\_ Rio Grande Watermaster notifies the district that water deliveries will be limited to \_\_\_\_\_ acre-feet per year (i.e. a level below that required for unrestricted irrigation).*

**Section VII: Termination of Water Allocation**

The district’s water allocation policies will remain in effect until the conditions defined in Section IV of the Plan no longer exist and the Board deems that the need to allocate water no longer exists.

**Section VIII: Notice**

Notice of the initiation of water allocation will be given by notice posted on the District’s public bulletin board and by mail to each \_\_\_\_\_ (e.g. landowner, holders of active irrigation accounts, etc.).

**Section IX: Water Allocation**

(a) In identifying **specific, quantified targets** for water allocation to be achieved during periods of water shortages and drought, each irrigation user shall be allocated \_\_\_\_\_ irrigations or \_\_\_\_\_ acre-feet of water each flat rate acre on which all taxes, fees, and charges have been paid. The water allotment in each irrigation account will be expressed in acre-feet of water.

**Include explanation of water allocation procedure. For example, in the Lower Rio Grande Valley, an “irrigation” is typically considered to be equivalent to eight (8) inches of water per irrigation acre; consisting of six (6) inches of water per acre applied plus two (2) inches of water lost in transporting the water from the river to the land. Thus, three irrigations would be equal to 24 inches of water per acre or an allocation of 2.0 acre-feet of water measured at the diversion from the river.**

(b) As additional water supplies become available to the District in an amount reasonably sufficient for allocation to the District’s irrigation users, the additional water made available to the District will be equally distributed, on a pro rata basis, to those irrigation users having

- *Example 1: An account balance of less than \_\_\_\_\_ irrigations for each flat rate acre (i.e. \_\_\_\_\_ acre-feet).*
- *Example 2: An account balance of less than \_\_\_\_\_ acre-feet of water for each flat rate acre.*
- *Example 3: An account balance of less than \_\_\_\_\_ acre-feet of water.*

(c) The amount of water charged against a user’s water allocation will be \_\_\_\_\_ (e.g. eight inches) per irrigation, or one allocation unit, unless water deliveries to the land are metered. Metered water deliveries will be charges based on actual measured use. In order to maintain parity in charging use against a water allocation between non-metered and metered deliveries, a loss factor of \_\_\_\_\_ percent of the water delivered in a metered situation will be added to the measured use and will be charged against the user’s water allocation. Any metered use, with the loss factor applied, that is less than eight (8) inches per acre shall be credited back to the allocation unit and will be available to the user. It shall be a violation of the Rules and Regulations for a water user to use water in excess of the amount of water contained in the users irrigation account.

(d) Acreage in an irrigation account that has not been irrigated for any reason within the last two (2) consecutive years will be considered inactive and will not be allocated water. Any landowner whose land has not been irrigated within the last two (2) consecutive years, may, upon application to the District expressing intent to irrigate the land, receive future allocations. However, irrigation water allocated shall be applied only upon the acreage to which it was allocated and such water allotment cannot be transferred until there have been two consecutive years of use.

#### **Section X: Transfers of Allotments**

(a) A water allocation in an active irrigation account may be transferred within the boundaries of the District from one irrigation account to another. The transfer of water can only be made by the landowner’s agent who is authorized in writing to act on behalf of the landowner in the transfer of all or part of the water allocation from the described land of the landowner covered by the irrigation account.

(b) A water allocation may not be transferred to land owned by a landowner outside the District boundaries.

**OR**

A water allocation may be transferred to land outside the District’s boundaries by paying the current water charge as if the water was actually delivered by the District to the land covered by an irrigation account. The amount of water allowed to be transferred shall be stated in terms of acre-feet and deducted from the landowner’s current allocation balance in the irrigation account.

Transfers of water outside the District shall not affect the allocation of water under Section VII of these Rules and Regulations.

(c) Water from outside the District may not be transferred by a landowner for use within the District.

or

Water from outside the District may be transferred by a landowner for use within the District. The District will divert and deliver the water on the same basis as District water is delivered, except that a \_\_\_ percent conveyance loss will be charged against the amount of water transferred for use in the District as the water is delivered.

#### **Section XI: Penalties**

Any person who willfully opens, closes, changes or interferes with any headgate or uses water in violation of these Rules and Regulations, shall be considered in violation of Section 11.0083, Texas Water Code, *Vernon's Texas Codes Annotated*, which provides for punishment by fine of not less than \$10.00 nor more than \$200.00 or by confinement in the county jail for not more than thirty (30) days, or both, for each violation, and these penalties provided by the laws of the State and may be enforced by complaints filed in the appropriate court jurisdiction in \_\_\_\_\_ County, all in accordance with Section 11.083; and in addition, the District may pursue a civil remedy in the way of damages and/or injunction against the violation of any of the foregoing Rules and Regulations.

#### **Section XII: Severability**

It is hereby declared to be the intention of the Board of Directors of the \_\_\_\_\_ (name of irrigation district) that the sections, paragraphs, sentences, clauses, and phrases of this Plan shall be declared unconstitutional by the valid judgment or decree of any court of competent jurisdiction, such unconstitutionality shall not affect any of the remaining phrases, clauses, sentences, paragraphs, and sections of this Plan, since the same would not have been enacted by the Board without the incorporation into this Plan of any such unconstitutional phrase, clause, sentence, paragraph, or section.

#### **Section XIII: Authority**

The foregoing rules and regulations are adopted pursuant to and in accordance with Sections 11.039, 11.083, 11.1272; Section 49.004; and Section 58.127-130 of the Texas Water Code, *Vernon's Texas Codes Annotated*.

#### **Section XIV: Effective Date of Plan**

The effective date of this Rule shall be five (5) days following the date of Publication hereof and ignorance of the Rules and Regulations is not a defense for a prosecution for enforcement of the violation of the Rules and Regulations.



## **2016 Region M Water Plan**

# **Appendix E.2: Drought Contingency Plan for a Retail Public Water Supplier**

# Drought Contingency Plan for a Retail Public Water Supplier

Texas Commission on Environmental Quality

Instructions: The following form is a model of a drought contingency plan for a retail public water supplier. Not all items may apply to your system's situation. This form is supplied for your convenience, but you are not required to use this form to submit your plan to the TCEQ. Submit completed plans to: Water Supply Division MC 160, TCEQ, P.O. Box 13087, Austin TX 78711-3087.

\_\_\_\_\_  
(Name of Utility)

\_\_\_\_\_  
(Address, City, Zip Code)

\_\_\_\_\_  
(CCN#)

\_\_\_\_\_  
(PWS #s)

\_\_\_\_\_  
(Date)

## Section I: Declaration of Policy, Purpose, and Intent

In order to conserve the available water supply and protect the integrity of water supply facilities, with particular regard for domestic water use, sanitation, and fire protection, and to protect and preserve public health, welfare, and safety and minimize the adverse impacts of water supply shortage or other water supply emergency conditions, the \_\_\_\_\_ (name of your water supplier) hereby adopts the following regulations and restrictions on the delivery and consumption of water through an ordinance/or resolution (see Appendix C for an example). Water uses regulated or prohibited under this Drought Contingency Plan (the Plan) are considered to be non-essential and continuation of such uses during times of water shortage or other emergency water supply condition are deemed to constitute a waste of water which subjects the offender(s) to penalties as defined in Section XI of this Plan.

## Section II: Public Involvement

Opportunity for the public to provide input into the preparation of the Plan was provided by the \_\_\_\_\_ (name of your water supplier) by means of \_\_\_\_\_ (describe methods used to inform the public about the preparation of the plan and provide opportunities for input; for example, scheduling and providing public notice of a public meeting to accept input on the Plan).

## Section III: Public Education

The \_\_\_\_\_ (name of your water supplier) will periodically provide the public with information about the Plan, including information about the conditions under which each stage of the Plan is to be initiated or terminated and the drought response measures to be implemented in each stage. This information will be provided by means of \_\_\_\_\_ (describe

methods to be used to provide information to the public about the Plan; for example, public events, press releases or utility bill inserts).

#### **Section IV: Coordination with Regional Water Planning Groups**

The service area of the \_\_\_\_\_ (name of your water supplier) is located within the \_\_\_\_\_ (name of regional water planning area or areas) and \_\_\_\_\_ (name of your water supplier) has provided a copy of this Plan to the \_\_\_\_\_ (name of your regional water planning group or groups).

#### **Section V: Authorization**

The \_\_\_\_\_ (designated official; for example, the mayor, city manager, utility director, general manager, etc.), or his/her designee is hereby authorized and directed to implement the applicable provisions of this Plan upon determination that such implementation is necessary to protect public health, safety, and welfare. The \_\_\_\_\_, (designated official) or his/her designee shall have the authority to initiate or terminate drought or other water supply emergency response measures as described in this Plan.

#### **Section VI: Application**

The provisions of this Plan shall apply to all persons, customers, and property utilizing water provided by the \_\_\_\_\_ (name of your water supplier). The terms person and customer as used in the Plan include individuals, corporations, partnerships, associations, and all other legal entities.

#### **Section VII: Definitions**

For the purposes of this Plan, the following definitions shall apply:

Aesthetic water use: water use for ornamental or decorative purposes such as fountains, reflecting pools, and water gardens.

Commercial and institutional water use: water use which is integral to the operations of commercial and non-profit establishments and governmental entities such as retail establishments, hotels and motels, restaurants, and office buildings.

Conservation: those practices, techniques, and technologies that reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water or increase the recycling and reuse of water so that a supply is conserved and made available for future or alternative uses.

Customer: any person, company, or organization using water supplied by \_\_\_\_\_ (name of your water supplier).

Domestic water use: water use for personal needs or for household or sanitary purposes such as drinking, bathing, heating, cooking, sanitation, or for cleaning a residence, business, industry, or institution.

Even number address: street addresses, box numbers, or rural postal route numbers ending in 0, 2, 4, 6, or 8 and locations without addresses.

Industrial water use: the use of water in processes designed to convert materials of lower value into forms having greater usability and value.

Landscape irrigation use: water used for the irrigation and maintenance of landscaped areas, whether publicly or privately owned, including residential and commercial lawns, gardens, golf courses, parks, and rights-of-way and medians.



Non-essential water use: water uses that are not essential nor required for the protection of public, health, safety, and welfare, including:

- a) irrigation of landscape areas, including parks, athletic fields, and golf courses, except otherwise provided under this Plan;
- b) use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle;
- c) use of water to wash down any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
- d) use of water to wash down buildings or structures for purposes other than immediate fire protection;
- e) flushing gutters or permitting water to run or accumulate in any gutter or street;
- f) use of water to fill, refill, or add to any indoor or outdoor swimming pools or Jacuzzi-type pools;
- g) use of water in a fountain or pond for aesthetic or scenic purposes except where necessary to support aquatic life;
- h) failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s); and
- i) use of water from hydrants for construction purposes or any other purposes other than firefighting.

Odd numbered address: street addresses, box numbers, or rural postal route numbers ending in 1, 3, 5, 7, or 9.

### **Section VIII: Criteria for Initiation and Termination of Drought Response Stages**

The \_\_\_\_\_ (designated official) or his/her designee shall monitor water supply and/or demand conditions on a \_\_\_\_\_ (example: daily, weekly, monthly) basis and shall determine when conditions warrant initiation or termination of each stage of the Plan, that is, when the specified triggers are reached.

The triggering criteria described below are based on

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*(provide a brief description of the rationale for the triggering criteria; for example, triggering criteria / trigger levels based on a statistical analysis of the vulnerability of the water source under drought of record conditions, or based on known system capacity limits).*

### **Stage 1 Triggers -- MILD Water Shortage Conditions**

#### Requirements for initiation

Customers shall be requested to voluntarily conserve water and adhere to the prescribed restrictions on certain water uses, defined in Section VII. Definitions, when

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*(Describe triggering criteria / trigger levels; see examples below).*

*Following are examples of the types of triggering criteria that might be used in one or more successive stages of a drought contingency plan. One or a combination of such criteria must be defined for each drought response stage, but usually not all will apply. Select those appropriate to your system:*

- Example 1: Annually, beginning on May 1 through September 30.
- Example 2: When the useable balance of water rights exceeds planned amount, based on time of year

- Example 3: When, pursuant to requirements specified in the \_\_\_\_\_ (name of **your** water supplier) wholesale water purchase contract with \_\_\_\_\_ (name of your wholesale water supplier), notification is received requesting initiation of Stage 1 of the Drought Contingency Plan.
- Example 4: When the water supply available to the \_\_\_\_\_ (name of your water supplier) is equal to or less than \_\_\_\_\_ (acre-feet, percentage of storage, etc.).
- Example 5: When the static water level in the \_\_\_\_\_ (name of your water supplier) well(s) is equal to or less than \_\_\_\_\_ feet above/below mean sea level.
- Example 6: When the specific capacity of the \_\_\_\_\_ (name of your water supplier) well(s) is equal to or less than \_\_\_\_\_ percent of the well's original specific capacity.
- Example 7: When total daily water demand equals or exceeds \_\_\_\_\_ million gallons for \_\_\_\_\_ consecutive days of \_\_\_\_\_ million gallons on a single day (example: based on the safe operating capacity of water supply facilities).

*The public water supplier may devise other triggering criteria which are tailored to its system.*

Requirements for termination

Stage 1 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of \_\_\_\_ (e.g. 3) consecutive days.

**Stage 2 Triggers -- MODERATE Water Shortage Conditions**

Requirements for initiation

Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses provided in Section IX of this Plan when \_\_\_\_\_ (*describe triggering criteria; see examples in Stage 1*).

Requirements for termination

Stage 2 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of \_\_\_\_ (example: 3) consecutive days. Upon termination of Stage 2, Stage 1 becomes operative.

**Stage 3 Triggers ■ SEVERE Water Shortage Conditions**

Requirements for initiation

Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses for Stage 3 of this Plan when \_\_\_\_\_ (*describe triggering criteria; see examples in Stage 1*).

Requirements for termination

Stage 3 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of \_\_\_\_ (example: 3) consecutive days. Upon termination of Stage 3, Stage 2 becomes operative.

**Stage 4 Triggers -- CRITICAL Water Shortage Conditions**

Requirements for initiation

Customers shall be required to comply with the requirements and restrictions on certain non-essential water uses for Stage 4 of this Plan when \_\_\_\_\_ (*describe triggering criteria; see examples in Stage 1*).

Requirements for termination

Stage 4 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of \_\_\_ (example: 3) consecutive days. Upon termination of Stage 4, Stage 3 becomes operative.

### **Stage 5 Triggers -- EMERGENCY Water Shortage Conditions**

#### Requirements for initiation

Customers shall be required to comply with the requirements and restrictions for Stage 5 of this Plan when \_\_\_\_\_ (designated official), or his/her designee, determines that a water supply emergency exists based on:

1. Major water line breaks, or pump or system failures occur, which cause unprecedented loss of capability to provide water service; **or**
2. Natural or man-made contamination of the water supply source(s).

#### Requirements for termination

Stage 5 of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of \_\_\_ (example: 3) consecutive days.

### **Stage 6 Triggers -- WATER ALLOCATION**

#### Requirements for initiation

Customers shall be required to comply with the water allocation plan prescribed in Section IX of this Plan and comply with the requirements and restrictions for Stage 5 of this Plan when \_\_\_\_\_ (describe triggering criteria, see examples in Stage 1).

Requirements for termination - Water allocation may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of \_\_\_ (example: 3) consecutive days.

*Note: The inclusion of WATER ALLOCATION as part of a drought contingency plan may not be required in all cases. For example, for a given water supplier, an analysis of water supply availability under drought of record conditions may indicate that there is essentially no risk of water supply shortage. Hence, a drought contingency plan for such a water supplier might only address facility capacity limitations and emergency conditions (example: supply source contamination and system capacity limitations).*

### **Section IX: Drought Response Stages**

The \_\_\_\_\_ (designated official), or his/her designee, shall monitor water supply and/or demand conditions on a daily basis and, in accordance with the triggering criteria set forth in Section VIII of this Plan, shall determine that a mild, moderate, severe, critical, emergency or water shortage condition exists and shall implement the following notification procedures:

#### **Notification**

##### Notification of the Public:

The \_\_\_\_\_ (designated official) or his/ her designee shall notify the public by means of:

*Examples:*

*publication in a newspaper of general circulation,  
direct mail to each customer,  
public service announcements,  
signs posted in public places  
take-home fliers at schools.*

##### Additional Notification:



The \_\_\_\_\_ (designated official) or his/ her designee shall notify directly, or cause to be notified directly, the following individuals and entities:

*Examples:*

*Mayor / Chairman and members of the City Council / Utility Board*

*Fire Chief(s)*

*City and/or County Emergency Management Coordinator(s)*

*County Judge & Commissioner(s)*

*State Disaster District / Department of Public Safety*

*TCEQ (required when mandatory restrictions are imposed)*

*Major water users*

*Critical water users, i.e. hospitals*

*Parks / street superintendents & public facilities managers*

*Note: The plan should specify direct notice only as appropriate to respective drought stages.*

### **Stage 1 Response -- MILD Water Shortage Conditions**

**Target: Achieve a voluntary \_\_\_ percent reduction in \_\_\_\_\_ (example: total water use, daily water demand, etc.).**

**Best Management Practices for Supply Management:**

*Describe additional measures, if any, to be implemented directly by (name of your water supplier) to manage limited water supplies and/or reduce water demand. Examples include: reduced or discontinued flushing of water mains, activation and use of an alternative supply source(s); use of reclaimed water for non-potable purposes.*

**Voluntary Water Use Restrictions for Reducing Demand :**

(a) Water customers are requested to voluntarily limit the irrigation of landscaped areas to Sundays and Thursdays for customers with a street address ending in an even number (0, 2, 4, 6 or 8), and Saturdays and Wednesdays for water customers with a street address ending in an odd number (1, 3, 5, 7 or 9), and to irrigate landscapes only between the hours of midnight and 10:00 a.m. and 8:00 p.m. to midnight on designated watering days.

(b) All operations of the \_\_\_\_\_ (name of your water supplier) shall adhere to water use restrictions prescribed for Stage 2 of the Plan.

(c) Water customers are requested to practice water conservation and to minimize or discontinue water use for non-essential purposes.

### **Stage 2 Response -- MODERATE Water Shortage Conditions**

**Target: Achieve a \_\_\_ percent reduction in \_\_\_\_\_ (example: total water use, daily water demand, etc.).**

**Best Management Practices for Supply Management:**

*Describe additional measures, if any, to be implemented directly by \_\_\_\_\_ (name of your water supplier) to manage limited water supplies and/or reduce water demand. Examples include: reduced or discontinued flushing of water mains, reduced or discontinued irrigation of public landscaped areas; use of an alternative supply source(s); use of reclaimed water for non-potable purposes.*

**Water Use Restrictions for Demand Reduction:**

Under threat of penalty for violation, the following water use restrictions shall apply to all persons:

- (a) Irrigation of landscaped areas with hose-end sprinklers or automatic irrigation systems shall be limited to Sundays and Thursdays for customers with a street address ending in an even number (0, 2, 4, 6 or 8), and Saturdays and Wednesdays for water customers with a street address ending in an odd number (1, 3, 5, 7 or 9), and irrigation of landscaped areas is further limited to the hours of 12:00 midnight until 10:00 a.m. and between 8:00 p.m. and 12:00 midnight on designated watering days. However, irrigation of landscaped areas is permitted at anytime if it is by means of a hand-held hose, a faucet filled bucket or watering can of five (5) gallons or less, or drip irrigation system.
- (b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited except on designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shutoff nozzle for quick rises. Vehicle washing may be done at any time on the immediate premises of a commercial car wash or commercial service station. Further, such washing may be exempted from these regulations if the health, safety, and welfare of the public is contingent upon frequent vehicle cleansing, such as garbage trucks and vehicles used to transport food and perishables.
- (c) Use of water to fill, refill, or add to any indoor or outdoor swimming pools, wading pools, or Jacuzzi-type pools is prohibited except on designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight.
- (d) Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life or where such fountains or ponds are equipped with a recirculation system.
- (e) Use of water from hydrants shall be limited to fire fighting, related activities, or other activities necessary to maintain public health, safety, and welfare, except that use of water from designated fire hydrants for construction purposes may be allowed under special permit from the \_\_\_\_\_ (name of your water supplier).
- (f) Use of water for the irrigation of golf course greens, tees, and fairways is prohibited except on designated watering days between the hours 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight. However, if the golf course utilizes a water source other than that provided by the \_\_\_\_\_ (name of your water supplier), the facility shall not be subject to these regulations.
- (g) All restaurants are prohibited from serving water to patrons except upon request of the patron.
- (h) The following uses of water are defined as non-essential and are prohibited:
1. wash down of any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
  2. use of water to wash down buildings or structures for purposes other than immediate fire protection;
  3. use of water for dust control;
  4. flushing gutters or permitting water to run or accumulate in any gutter or street; and
  5. failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s).

### Stage 3 Response -- SEVERE Water Shortage Conditions

**Target:** Achieve a \_\_\_ percent reduction in \_\_\_\_\_ (example: total water use, daily water demand, etc.).

**Best Management Practices for Supply Management:**

*Describe additional measures, if any, to be implemented directly by \_\_\_\_\_ (name of your water supplier) to manage limited water supplies and/or reduce water demand. Examples include: reduced or discontinued flushing of water mains, reduced or discontinued irrigation of public landscaped areas; use of an alternative supply source(s); use of reclaimed water for non-potable purposes.*

**Water Use Restrictions for Demand Reduction:**

All requirements of Stage 2 shall remain in effect during Stage 3 except:

- (a) Irrigation of landscaped areas shall be limited to designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8 p.m. and 12:00 midnight and shall be by means of hand-held hoses, hand-held buckets, drip irrigation, or permanently installed automatic sprinkler system only. The use of hose-end sprinklers is prohibited at all times.
- (b) The watering of golf course tees is prohibited unless the golf course utilizes a water source other than that provided by the \_\_\_\_\_ (name of your water supplier).
- (c) The use of water for construction purposes from designated fire hydrants under special permit is to be discontinued.

**Stage 4 Response -- CRITICAL Water Shortage Conditions**

**Target:** Achieve a \_\_\_ percent reduction in \_\_\_\_\_ (example: total water use, daily water demand, etc.).

**Best Management Practices for Supply Management:**

*Describe additional measures, if any, to be implemented directly by \_\_\_\_\_ (name of your water supplier) to manage limited water supplies and/or reduce water demand. Examples include: reduced or discontinued flushing of water mains, reduced or discontinued irrigation of public landscaped areas; use of an alternative supply source(s); use of reclaimed water for non-potable purposes.*

**Water Use Restrictions for Reducing Demand:** All requirements of Stage 2 and 3 shall remain in effect during Stage 4 except:

- (a) Irrigation of landscaped areas shall be limited to designated watering days between the hours of 6:00 a.m. and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight and shall be by means of hand-held hoses, hand-held buckets, or drip irrigation only. The use of hose-end sprinklers or permanently installed automatic sprinkler systems are prohibited at all times.
- (b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle not occurring on the premises of a commercial car wash and commercial service stations and not in the immediate interest of public health, safety, and welfare is prohibited. Further, such vehicle washing at commercial car washes and commercial service stations shall occur only between the hours of 6:00 a.m. and 10:00 a.m. and between 6:00 p.m. and 10 p.m.
- (c) The filling, refilling, or adding of water to swimming pools, wading pools, and Jacuzzi-type pools is prohibited.
- (d) Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life or where such fountains or ponds are equipped with a recirculation system.



(e) No application for new, additional, expanded, or increased-in-size water service connections, meters, service lines, pipeline extensions, mains, or water service facilities of any kind shall be approved, and time limits for approval of such applications are hereby suspended for such time as this drought response stage or a higher-numbered stage shall be in effect.

**Stage 5 Response -- EMERGENCY Water Shortage Conditions**

**Target:** Achieve a \_\_\_ percent reduction in \_\_\_\_\_ (example: total water use, daily water demand, etc.).

**Best Management Practices for Supply Management:**

*Describe additional measures, if any, to be implemented directly by \_\_\_\_\_ (name of your water supplier) to manage limited water supplies and/or reduce water demand. Examples include: reduced or discontinued flushing of water mains, reduced or discontinued irrigation of public landscaped areas; use of an alternative supply source(s); use of reclaimed water for non-potable purposes.*

**Water Use Restrictions for Reducing Demand.** All requirements of Stage 2, 3, and 4 shall remain in effect during Stage 5 except:

- (a) Irrigation of landscaped areas is absolutely prohibited.
- (b) Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is absolutely prohibited.

**Stage 6 Response -- WATER ALLOCATION**

In the event that water shortage conditions threaten public health, safety, and welfare, the \_\_\_\_\_ (designated official) is hereby authorized to allocate water according to the following water allocation plan:

**Single-Family Residential Customers**

The allocation to residential water customers residing in a single-family dwelling shall be as follows:

<b>Persons per Household</b>	<b>Gallons per Month</b>
1 or 2	6,000
3 or 4	7,000
5 or 6	8,000
7 or 8	9,000
9 or 10	10,000
11 or more	12,000

Household means the residential premises served by the customer’s meter. Persons per household include only those persons currently physically residing at the premises and expected to reside there for the entire billing period. It shall be assumed that a particular customer’s household is comprised of two (2) persons unless the customer notifies the \_\_\_\_\_ (name of your water supplier) of a greater number of persons per household on a form prescribed by the \_\_\_\_\_ (designated official). The \_\_\_\_\_ (designated official) shall give his/her best effort to see that such forms are mailed, otherwise provided, or made available to every residential customer. If, however, a customer does not receive such a form, it shall be the customer’s responsibility to go to the \_\_\_\_\_ (name of your water supplier) offices to complete and sign the form claiming more than two (2) persons per household. New customers may claim more persons per household at the time of applying for water service on the form prescribed by the \_\_\_\_\_ (designated official). When the number of persons per household increases so as to place the customer in a different allocation category,

the customer may notify the \_\_\_\_\_ (name of water supplier) on such form and the change will be implemented in the next practicable billing period. If the number of persons in a household is reduced, the customer shall notify the \_\_\_\_\_ (name of your water supplier) in writing within two (2) days. In prescribing the method for claiming more than two (2) persons per household, the \_\_\_\_\_ (designated official) shall adopt methods to insure the accuracy of the claim. Any person who knowingly, recklessly, or with criminal negligence falsely reports the number of persons in a household or fails to timely notify the \_\_\_\_\_ (name of your water supplier) of a reduction in the number of person in a household shall be fined not less than \$ \_\_\_\_\_.

Residential water customers shall pay the following surcharges:

- \$ \_\_\_\_\_ for the first 1,000 gallons over allocation.
- \$ \_\_\_\_\_ for the second 1,000 gallons over allocation.
- \$ \_\_\_\_\_ for the third 1,000 gallons over allocation.
- \$ \_\_\_\_\_ for each additional 1,000 gallons over allocation.

Surcharges shall be cumulative.

### **Master-Metered Multi-Family Residential Customers**

The allocation to a customer billed from a master meter which jointly measures water to multiple permanent residential dwelling units (example: apartments, mobile homes) shall be allocated 6,000 gallons per month for each dwelling unit. It shall be assumed that such a customer's meter serves two dwelling units unless the customer notifies the \_\_\_\_\_ (name of your water supplier) of a greater number on a form prescribed by the \_\_\_\_\_ (designated official). The \_\_\_\_\_ (designated official) shall give his/her best effort to see that such forms are mailed, otherwise provided, or made available to every such customer. If, however, a customer does not receive such a form, it shall be the customer's responsibility to go to the \_\_\_\_\_ (name of your water supplier) offices to complete and sign the form claiming more than two (2) dwellings. A dwelling unit may be claimed under this provision whether it is occupied or not. New customers may claim more dwelling units at the time of applying for water service on the form prescribed by the \_\_\_\_\_ (designated official). If the number of dwelling units served by a master meter is reduced, the customer shall notify the \_\_\_\_\_ (name of your water supplier) in writing within two (2) days. In prescribing the method for claiming more than two (2) dwelling units, the \_\_\_\_\_ (designated official) shall adopt methods to insure the accuracy of the claim. Any person who knowingly, recklessly, or with criminal negligence falsely reports the number of dwelling units served by a master meter or fails to timely notify the \_\_\_\_\_ (name of your water supplier) of a reduction in the number of person in a household shall be fined not less than \$ \_\_\_\_\_. Customers billed from a master meter under this provision shall pay the following monthly surcharges:

- \$ \_\_\_\_\_ for 1,000 gallons over allocation up through 1,000 gallons for each dwelling unit.
- \$ \_\_\_\_\_, thereafter, for each additional 1,000 gallons over allocation up through a second 1,000 gallons for each dwelling unit.
- \$ \_\_\_\_\_, thereafter, for each additional 1,000 gallons over allocation up through a third 1,000 gallons for each dwelling unit.
- \$ \_\_\_\_\_, thereafter for each additional 1,000 gallons over allocation.

Surcharges shall be cumulative.

### Commercial Customers

A monthly water allocation shall be established by the \_\_\_\_\_ (designated official), or his/her designee, for each nonresidential commercial customer other than an industrial customer who uses water for processing purposes. The non-residential customer's allocation shall be approximately \_\_ (e.g. 75%) percent of the customer's usage for corresponding months billing period for the previous 12 months. If the customer's billing history is shorter than 12 months, the monthly average for the period for which there is a record shall be used for any monthly period for which no history exists. Provided, however, a customer, \_\_ percent of whose monthly usage is less than \_\_\_\_\_ gallons, shall be allocated \_\_\_\_\_ gallons. The \_\_\_\_\_ (designated official) shall give his/her best effort to see that notice of each non-residential customer's allocation is mailed to such customer. If, however, a customer does not receive such notice, it shall be the customer's responsibility to contact the \_\_\_\_\_ (name of your water supplier) to determine the allocation. Upon request of the customer or at the initiative of the \_\_\_\_\_ (designated official), the allocation may be reduced or increased if, (1) the designated period does not accurately reflect the customer's normal water usage, (2) one nonresidential customer agrees to transfer part of its allocation to another nonresidential customer, or (3) other objective evidence demonstrates that the designated allocation is inaccurate under present conditions. A customer may appeal an allocation established hereunder to the \_\_\_\_\_ (designated official or alternatively, a special water allocation review committee). Nonresidential commercial customers shall pay the following surcharges:

Customers whose allocation is \_\_\_\_\_ gallons through \_\_\_\_\_ gallons per month:

\$ \_\_\_\_\_ per thousand gallons for the first 1,000 gallons over allocation.

\$ \_\_\_\_\_ per thousand gallons for the second 1,000 gallons over allocation.

\$ \_\_\_\_\_ per thousand gallons for the third 1,000 gallons over allocation.

\$ \_\_\_\_\_ per thousand gallons for each additional 1,000 gallons over allocation.

Customers whose allocation is \_\_\_\_\_ gallons per month or more:

\_\_\_ times the block rate for each 1,000 gallons in excess of the allocation up through 5 percent above allocation.

\_\_\_ times the block rate for each 1,000 gallons from 5 percent through 10 percent above allocation.

\_\_\_ times the block rate for each 1,000 gallons from 10 percent through 15 percent above allocation.

\_\_\_ times the block rate for each 1,000 gallons more than 15 percent above allocation.

The surcharges shall be cumulative. As used herein, block rate means the charge to the customer per 1,000 gallons at the regular water rate schedule at the level of the customer's allocation.

### Industrial Customers

A monthly water allocation shall be established by the \_\_\_\_\_ (designated official), or his/her designee, for each industrial customer, which uses water for processing purposes. The industrial customer's allocation shall be approximately \_\_ (example: 90%) percent of the customer's water usage baseline. Ninety (90) days after the initial imposition of the allocation for industrial customers, the industrial customer's allocation shall be further reduced to \_\_ (example: 85%) percent of the customer's water usage baseline. The industrial customer's water use baseline will be computed on the average water use for the \_\_\_\_\_ month period ending



prior to the date of implementation of Stage 2 of the Plan. If the industrial water customer's billing history is shorter than \_\_\_ months, the monthly average for the period for which there is a record shall be used for any monthly period for which no billing history exists. The \_\_\_\_\_ (designated official) shall give his/her best effort to see that notice of each industrial customer's allocation is mailed to such customer. If, however, a customer does not receive such notice, it shall be the customer's responsibility to contact the \_\_\_\_\_ (name of your water supplier) to determine the allocation, and the allocation shall be fully effective notwithstanding the lack of receipt of written notice. Upon request of the customer or at the initiative of the \_\_\_\_\_ (designated official), the allocation may be reduced or increased, (1) if the designated period does not accurately reflect the customer's normal water use because the customer had shut down a major processing unit for repair or overhaul during the period, (2) the customer has added or is in the process of adding significant additional processing capacity, (3) the customer has shut down or significantly reduced the production of a major processing unit, (4) the customer has previously implemented significant permanent water conservation measures such that the ability to further reduce water use is limited, (5) the customer agrees to transfer part of its allocation to another industrial customer, or (6) if other objective evidence demonstrates that the designated allocation is inaccurate under present conditions. A customer may appeal an allocation established hereunder to the \_\_\_\_\_ (designated official or alternatively, a special water allocation review committee). Industrial customers shall pay the following surcharges:

Customers whose allocation is \_\_\_ gallons through \_\_\_ gallons per month:

\$ \_\_\_ per thousand gallons for the first 1,000 gallons over allocation.

\$ \_\_\_ per thousand gallons for the second 1,000 gallons over allocation.

\$ \_\_\_ per thousand gallons for the third 1,000 gallons over allocation.

\$ \_\_\_ per thousand gallons for each additional 1,000 gallons over allocation.

Customers whose allocation is \_\_\_ gallons per month or more:

\_\_\_ times the block rate for each 1,000 gallons in excess of the allocation up through 5 percent above allocation.

\_\_\_ times the block rate for each 1,000 gallons from 5 percent through 10 percent above allocation.

\_\_\_ times the block rate for each 1,000 gallons from 10 percent through 15 percent above allocation.

\_\_\_ times the block rate for each 1,000 gallons more than 15 percent above allocation.

The surcharges shall be cumulative. As used herein, block rate means the charge to the customer per 1,000 gallons at the regular water rate schedule at the level of the customer's allocation.

**Section X: Enforcement**

(a) No person shall knowingly or intentionally allow the use of water from the \_\_\_\_\_ (name of your water supplier) for residential, commercial, industrial, agricultural, governmental, or any other purpose in a manner contrary to any provision of this Plan, or in an amount in excess of that permitted by the drought response stage in effect at the time pursuant to action taken by \_\_\_\_\_ (designated official), or his/her designee, in accordance with provisions of this Plan.

(b) Any person who violates this Plan is guilty of a misdemeanor and, upon conviction shall be punished by a fine of not less than \_\_\_\_\_ dollars (\$) and not more than \_\_\_\_\_ dollars

(\$ \_\_\_\_). Each day that one or more of the provisions in this Plan is violated shall constitute a separate offense. If a person is convicted of three or more distinct violations of this Plan, the \_\_\_\_\_ (designated official) shall, upon due notice to the customer, be authorized to discontinue water service to the premises where such violations occur. Services discontinued under such circumstances shall be restored only upon payment of a re-connection charge, hereby established at \$ \_\_\_\_\_, and any other costs incurred by the \_\_\_\_\_ (name of your water supplier) in discontinuing service. In addition, suitable assurance must be given to the \_\_\_\_\_ (designated official) that the same action shall not be repeated while the Plan is in effect. Compliance with this plan may also be sought through injunctive relief in the district court.

(c) Any person, including a person classified as a water customer of the \_\_\_\_\_ (name of your water supplier), in apparent control of the property where a violation occurs or originates shall be presumed to be the violator, and proof that the violation occurred on the person's property shall constitute a rebuttable presumption that the person in apparent control of the property committed the violation, but any such person shall have the right to show that he/she did not commit the violation. Parents shall be presumed to be responsible for violations of their minor children and proof that a violation, committed by a child, occurred on property within the parents' control shall constitute a rebuttable presumption that the parent committed the violation, but any such parent may be excused if he/she proves that he/she had previously directed the child not to use the water as it was used in violation of this Plan and that the parent could not have reasonably known of the violation.

(d) Any employee of the \_\_\_\_\_ (name of your water supplier), police officer, or other \_\_\_\_\_ employee designated by the \_\_\_\_\_ (designated official), may issue a citation to a person he/she reasonably believes to be in violation of this Ordinance. The citation shall be prepared in duplicate and shall contain the name and address of the alleged violator, if known, the offense charged, and shall direct him/her to appear in the \_\_\_\_\_ (example: municipal court) on the date shown on the citation for which the date shall not be less than 3 days nor more than 5 days from the date the citation was issued. The alleged violator shall be served a copy of the citation. Service of the citation shall be complete upon delivery of the citation to the alleged violator, to an agent or employee of a violator, or to a person over 14 years of age who is a member of the violator's immediate family or is a resident of the violator's residence. The alleged violator shall appear in \_\_\_\_\_ (example: municipal court) to enter a plea of guilty or not guilty for the violation of this Plan. If the alleged violator fails to appear in \_\_\_\_\_ (example: municipal court), a warrant for his/her arrest may be issued. A summons to appear may be issued in lieu of an arrest warrant. These cases shall be expedited and given preferential setting in \_\_\_\_\_ (example: municipal court) before all other cases.

#### **Section XI: Variances**

The \_\_\_\_\_ (designated official), or his/her designee, may, in writing, grant temporary variance for existing water uses otherwise prohibited under this Plan if it is determined that failure to grant such variance would cause an emergency condition adversely affecting the health, sanitation, or fire protection for the public or the person requesting such variance and if one or more of the following conditions are met:

- (a) Compliance with this Plan cannot be technically accomplished during the duration of the water supply shortage or other condition for which the Plan is in effect.
- (b) Alternative methods can be implemented which will achieve the same level of reduction in water use.

Persons requesting an exemption from the provisions of this Ordinance shall file a petition for variance with the \_\_\_\_\_ (name of your water supplier) within 5 days after the Plan or a particular drought response stage has been invoked. All petitions for variances shall be reviewed by the \_\_\_\_\_ (designated official), or his/her designee, and shall include the following:

- (a) Name and address of the petitioner(s).
- (b) Purpose of water use.
- (c) Specific provision(s) of the Plan from which the petitioner is requesting relief.
- (d) Detailed statement as to how the specific provision of the Plan adversely affects the petitioner or what damage or harm will occur to the petitioner or others if petitioner complies with this Ordinance.
- (e) Description of the relief requested.
- (f) Period of time for which the variance is sought.
- (g) Alternative water use restrictions or other measures the petitioner is taking or proposes to take to meet the intent of this Plan and the compliance date.
- (h) Other pertinent information.





## **2016 Region M Water Plan**

# **Appendix E.3: Drought Contingency Plan for a Water Supply Corporation**

# Drought Contingency Plan for a Water Supply Corporation

Texas Commission on Environmental Quality

\_\_\_\_\_

(Name of Utility)

\_\_\_\_\_

(Address, City, Zip Code)

\_\_\_\_\_

(CCN#)

\_\_\_\_\_

(PWS #s)

\_\_\_\_\_

(Date)

### Section 1 Declaration of Policy, Purpose, and Intent

In cases of extreme drought, periods of abnormally high usage, system contamination, or extended reduction in ability to supply water due to equipment failure, temporary restrictions may be instituted to limit nonessential water usage. The purpose of the Drought Contingency Plan (Plan) is to encourage customer conservation in order to maintain supply, storage, or pressure or to comply with the requirements of a court, government agency or other authority.

**Please note:** Water restriction is not a legitimate alternative if a water system does not meet the Texas Commission on Environmental Quality (TCEQ) capacity requirements under normal conditions **or** if the utility fails to take all immediate and necessary steps to replace or repair malfunctioning equipment.

### Section 2 Public Involvement

Opportunity for the public to provide input into the preparation of the Plan was provided by:

(check at least one of the following)

€ *scheduling and providing public notice of a public meeting to accept input on the Plan*

The meeting took place at:

Date: \_\_\_\_\_ Time: \_\_\_\_\_

Location: \_\_\_\_\_

€ *mailed survey with summary of results (attach survey and results)*

€ *bill insert inviting comment (attach bill insert)*

€ *other method* \_\_\_\_\_

### Section 3 Public Education

The \_\_\_\_\_ (*name of utility*) will periodically provide the public with information about the Plan, including information about the conditions under which each stage of the Plan is to be initiated or terminated and the drought response measures to be implemented in each stage.

Drought plan information will be provided by:

(check at least one of the following)



- € public meeting
- € press releases
- € utility bill inserts
- € other \_\_\_\_\_

#### Section 4 Coordination with Regional Water Planning Groups

The service area of the \_\_\_\_\_ (name of your utility) is located within Regional Water Planning Group (RWPG) \_\_\_\_\_.

\_\_\_\_\_ (name of your utility) has mailed a copy of this Plan to the RWPG.

#### Section 5 Notice Requirements

Written notice will be provided to each customer **prior to implementation or termination of each stage of the water restriction program**. Mailed notice must be given to each customer 72 hours prior to the start of water restriction. If notice is hand delivered, the utility cannot enforce the provisions of the plan for 24 hours after notice is provided. The written notice to customers will contain the following information:

1. the date restrictions will begin;
2. the circumstances that triggered the restrictions;
3. the stages of response and explanation of the restrictions to be implemented; and
4. an explanation of the consequences for violations.

The utility must notify the TCEQ by telephone at (512) 239-4691, or electronic mail at [watermon@tceq.state.tx.us](mailto:watermon@tceq.state.tx.us) prior to implementing Stage III and **must notify in writing the Public Drinking Water Section at MC - 155, P.O. Box 13087, Austin, Texas 78711-3087 within five (5) working days of implementation including a copy of the utility's restriction notice.** The utility must file a status report of its restriction program with the TCEQ at the initiation and termination of mandatory water use restrictions (i.e., Stages III and IV).

#### Section 6 Violations

1. First violation - The customer will be notified by written notice of their specific violation.
2. Subsequent violations:
  - a. After written notice, the utility may install a flow restricting device in the line to limit the amount of water which will pass through the meter in a 24-hour period. The utility may charge the customer for the actual cost of installing and removing the flow restricting device, not to exceed \$50.00.
  - b. After written notice, the utility may discontinue service at the meter for a period of seven (7) days, or until the end of the calendar month, whichever is LESS. The normal reconnect fee of the utility will apply for restoration of service.

#### Section 7 Exemptions or Variances

The utility may grant any customer an exemption or variance from the drought contingency plan for good cause **upon written request**. A customer who is refused an exemption or variance may appeal such action of the utility in writing to the Texas Commission on Environmental Quality. The utility will treat all customers equally concerning exemptions and variances, and shall not discriminate in granting exemptions and variances. No exemption or variance shall be retroactive or otherwise justify any violation of this Plan occurring prior to the issuance of the variance.

#### Section 8 Response Stages

Unless there is an immediate and extreme reduction in water production, or other absolute necessity to declare an emergency or severe condition, the utility will initially declare Stage I restrictions. If, after a reasonable period of time, demand is not reduced enough to alleviate outages, reduce the risk of outages, or comply with restrictions required by a court, government agency or other authority, Stage II may be implemented with Stage III to follow if necessary.

**STAGE I - CUSTOMER AWARENESS**

Stage I will begin:

**Every April 1<sup>st</sup>, the utility will mail a public announcement to its customers. No notice to TCEQ required.**

Stage I will end:

**Every September 30<sup>th</sup>, the utility will mail a public announcement to its customers. No notice to TCEQ required.**

Utility Measures:

This announcement will be designed to increase customer awareness of water conservation and encourage the most efficient use of water. A copy of the current public announcement on water conservation awareness shall be kept on file available for inspection by the TCEQ.

Voluntary Water Use Restrictions:

Water customers are requested to voluntarily limit the use of water for nonessential purposes and to practice water conservation.

**STAGE II - VOLUNTARY WATER CONSERVATION:**

**Target: Achieve a \_\_\_\_\_ percent reduction in \_\_\_\_\_ (example: total water use, daily water demand, etc.)**

The water utility will implement Stage II when any one of the selected triggers is reached:

Supply-Based Triggers: (check at least one and fill in the appropriate value)

- € Well level reaches \_\_\_\_\_ ft. mean sea level (m.s.l.)
- € Overnight recovery rate reaches \_\_\_\_\_ ft.
- € Reservoir elevation reaches \_\_\_\_\_ ft. (m.s.l.)
- € Stream flow reaches \_\_\_\_\_ cfs at USGS gage # \_\_\_\_\_
- € Wholesale supplier s drought Stage II \_\_\_\_\_
- € Annual water use equals \_\_\_\_\_ % of well permit/Water Right/purchased water contract amount
- € Other \_\_\_\_\_

Demand- or Capacity-Based Triggers: (check at least one and fill in the appropriate value)

- € Drinking water treatment as % of capacity \_\_\_\_\_ %
- € Total daily demand as % of pumping capacity \_\_\_\_\_ %
- € Total daily demand as % of storage capacity \_\_\_\_\_ %
- € Pump hours per day \_\_\_\_\_ hrs.
- € Useable balance of water rights exceeds planned amount, based on time of year
- € Other \_\_\_\_\_

**Upon initiation and termination of Stage II, the utility will mail a public announcement to its customers. No notice to TCEQ required.**

Requirements for Termination:

Stage II of the Plan may end when all of the conditions listed as triggering events have ceased to exist for a period of three (3) consecutive days. Upon termination of Stage II, Stage I becomes operative.

**Utility Measures:**

Visually inspect lines and repair leaks on a daily basis. Monthly review of customer use records and follow-up on any that have unusually high usage.

*Describe additional measures, if any, to be implemented directly by the utility to manage limited water supplies and/or reduce water demand. Examples include: reduced or discontinued flushing of water mains, activation and use of an alternative supply source(s); use of reclaimed water for non-potable purposes.*

The second water source for \_\_\_\_\_ (name of utility) is:

(check one)

- € Other well
- € Inter-connection with other system
- € Purchased water
- € Other \_\_\_\_\_

**Voluntary Water Use Restrictions:**

1. **Restricted Hours:** Outside watering is allowed daily, but only during periods specifically described in the customer notice; between 10:00 p.m. and 5:00 a.m. for example;
2. **Restricted Days/Hours:** Water customers are requested to voluntarily limit the irrigation of landscaped areas with hose-end sprinklers or automatic irrigation systems. Customers are requested to limit outdoor water use to **Mondays for water customers with a street address ending with the numbers 1, 2, or 3, Wednesdays for water customers with a street address ending with the numbers 4, 5, or 6, and Fridays for water customers with a street address ending with the numbers 7, 8, 9, or 0.** Irrigation of landscaped areas is further limited to the hours of 12:00 midnight until 10:00 a.m. and between 8:00 p.m. and 12:00 midnight on designated watering days. However, irrigation of landscaped areas is permitted at anytime if it is by means of a hand-held hose, a faucet-filled bucket or watering can of five (5) gallons or less, or drip irrigation system; or
3. Other uses that waste water such as water running down the gutter.

**STAGE III - MANDATORY WATER USE RESTRICTIONS:**

**Target:** Achieve a \_\_\_\_\_ percent reduction in \_\_\_\_\_ (example: total water use, daily water demand, etc.)

The water utility will implement Stage III when any one of the selected triggers is reached:

**Supply-Based Triggers:** (check at least one and fill in the appropriate value)

- € Well level reaches \_\_\_\_\_ ft. (m.s.l.)
- € Overnight recovery rate reaches \_\_\_\_\_ ft.
- € Reservoir elevation reaches \_\_\_\_\_ ft. (m.s.l.)
- € Stream flow reaches \_\_\_\_\_ cfs at USGS gage # \_\_\_\_\_
- € Wholesale supplier s drought Stage III \_\_\_\_\_
- € Annual water use equals \_\_\_\_\_ % of well permit/Water Right/purchased water contract amount
- € Other \_\_\_\_\_

**Demand- or Capacity-Based Triggers:** (check at least one and fill in the appropriate value)

- € Drinking water treatment as % of capacity \_\_\_\_\_ %
- € Total daily demand as % of pumping capacity \_\_\_\_\_ %
- € Total daily demand as % of storage capacity \_\_\_\_\_ %



- € Pump hours per day \_\_\_\_\_ hrs.
- € Production or distribution limitations
- € Other \_\_\_\_\_

**Upon initiation and termination of Stage III, the utility will mail a public announcement to its customers. Notice to TCEQ required.**

Requirements for Termination:

Stage III of the Plan may end when all of the conditions listed as triggering events have ceased to exist for a period of three (3) consecutive days. Upon termination of Stage III, Stage II becomes operative.

Utility Measures:

Visually inspect lines and repair leaks on a regular basis. Flushing is prohibited except for dead end mains.

*Describe additional measures, if any, to be implemented directly by the utility to manage limited water supplies and/or reduce water demand. Examples include: activation and use of an alternative supply source(s); use of reclaimed water for non-potable purposes; offering low-flow fixtures and water restrictors.*

Mandatory Water Use Restrictions:

The following water use restrictions shall apply to all customers.

1. Irrigation of landscaped areas with hose-end sprinklers or automatic irrigation systems **shall be limited to Mondays for water customers with a street address ending with the numbers 1, 2, or 3, Wednesdays for water customers with a street address ending with the numbers 4, 5, or 6, and Fridays for water customers with a street address ending with the numbers 7, 8, 9, or 0.** Irrigation of landscaped areas is further limited to the hours of 12:00 midnight until 10:00 a.m. and between 8:00 p.m. and 12:00 midnight on designated watering days. However, irrigation of landscaped areas is permitted at anytime if it is by means of a hand-held hose, a faucet-filled bucket or watering can of five (5) gallons or less, or drip irrigation system.
2. Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is prohibited except on designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight. Such washing, when allowed, shall be done with a hand-held bucket or a hand-held hose equipped with a positive shutoff nozzle for quick rinses. Vehicle washing may be done at any time on the immediate premises of a commercial car wash or commercial service station. Further, such washing may be exempted from these regulations if the health, safety, and welfare of the public are contingent upon frequent vehicle cleansing, such as garbage trucks and vehicles used to transport food and perishables.
3. Use of water to fill, refill, or add to any indoor or outdoor swimming pools, wading pools, or Jacuzzi type pool is prohibited except on designated watering days between the hours of 12:00 midnight and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight.
4. Operation of any ornamental fountain or pond for aesthetic or scenic purposes is prohibited except where necessary to support aquatic life or where such fountains or ponds are equipped with a recirculation system.

5. Use of water from hydrants or flush valves shall be limited to maintaining public health, safety, and welfare.
6. Use of water for the irrigation of golf courses, parks, and green belt area is prohibited except by hand-held hose and only on designated watering days between the hours 12:00 midnight and 10:00 a.m. and between 8:00 p.m. and 12:00 midnight.
7. The following uses of water are defined as nonessential and are prohibited:
  - a. wash down of any sidewalks, walkways, driveways, parking lots, tennis courts, or other hard-surfaced areas;
  - b. use of water to wash down buildings or structures for purposes other than immediate fire protection;
  - c. use of water for dust control;
  - d. flushing gutters or permitting water to run or accumulate in any gutter or street;
  - e. failure to repair a controllable leak(s) within a reasonable period after having been given notice directing the repair of such leak(s); and
  - f. any waste of water.

**STAGE IV - CRITICAL WATER USE RESTRICTIONS:**

**Target:** Achieve a \_\_\_\_\_ percent reduction in \_\_\_\_\_ (example: total water use, daily water demand, etc.)

The water utility will implement Stage IV when any one of the selected triggers is reached:

Supply-Based Triggers: (check at least one and fill in the appropriate value)

- € Well level reaches \_\_\_\_\_ ft. (m.s.l.)
- € Overnight recovery rate reaches \_\_\_\_\_ ft.
- € Reservoir elevation reaches \_\_\_\_\_ ft. (m.s.l.)
- € Stream flow reaches \_\_\_\_\_ cfs at USGS gage # \_\_\_\_\_
- € Wholesale \_\_\_\_\_ supplier s \_\_\_\_\_ drought Stage IV \_\_\_\_\_
- € Annual water use equals \_\_\_\_\_ % of well permit/Water Right/purchased water contract amount
- € Supply contamination
- € Other \_\_\_\_\_

Demand- or Capacity-Based Triggers: (check at least one and fill in the appropriate value)

- € Drinking water treatment as % of capacity \_\_\_\_\_ %
- € Total daily demand as % of pumping capacity \_\_\_\_\_ %
- € Total daily demand as % of storage capacity \_\_\_\_\_ %
- € Pump hours per day \_\_\_\_\_ hrs.
- € Production or distribution limitations
- € System outage
- € Other \_\_\_\_\_

**Upon initiation and termination of Stage IV, the utility will mail a public announcement to its customers. Notice to TCEQ required.**

Requirements for Termination:

Stage IV of the Plan may be rescinded when all of the conditions listed as triggering events have ceased to exist for a period of three (3) consecutive days. Upon termination of Stage IV, Stage III becomes operative.

Operational Measures:

The utility shall visually inspect lines and repair leaks on a daily basis. Flushing is prohibited except for dead end mains and only between the hours of 9:00 p.m. and 3:00 a.m. Emergency interconnects or alternative supply arrangements shall be initiated. All meters shall be read as often as necessary to insure compliance with this program for the benefit of all the customers. *Describe additional measures, if any, to be implemented directly to manage limited water supplies and/or reduce water demand.*

Mandatory Water Use Restrictions: (all outdoor use of water is prohibited)

1. Irrigation of landscaped areas is absolutely prohibited.
2. Use of water to wash any motor vehicle, motorbike, boat, trailer, airplane or other vehicle is absolutely prohibited.

**SYSTEM OUTAGE or SUPPLY CONTAMINATION**

Notify TCEQ Regional Office immediately.



## **2016 Region M Water Plan**

### **Appendix E.4: Water Conservation Plan for a Wholesale Public Water**



4. Population served for previous five years:

5. Projected population for service area in the following decades:

<u>Year</u>	<u>Population</u>	<u>Year</u>	<u>P</u> <u>opulatio</u> <u>n</u>
_____	_____	<u>2010</u>	—
_____	_____	<u>2020</u>	—
_____	_____	<u>2030</u>	—
_____	_____	<u>2040</u>	—
_____	_____	<u>2050</u>	—

6. List source or method for the calculation of current and projected population:

\_\_\_\_\_

—

\_\_\_\_\_

—

\_\_\_\_\_

—

\_\_\_\_\_

—

**B. Customers Data**



*Appendix E.4 - Water Conservation Plan for a Wholesale Public Water Supplier*

List (or attach) the names of all wholesale customers, amount of annual contract, and amount of the annual use for each for the previous year:

	Wholesale Customer	Contracted Amount (acre-feet)	Previous Year Amount of Water Delivered (acre- feet)
(1)	_____	_____	_____
(2)	_____	_____	_____
(3)	_____	_____	_____
(4)	_____	_____	_____
(5)	_____	_____	_____

**II. WATER USE DATA FOR SERVICE AREA**

**A. Water Delivery**

Indicated if the water provided under wholesale contracts is treated or raw water and the annual amount for each for previous year:

Total amount delivered or sold for previous year (acre-feet)

Treated \_\_\_\_\_  
 Raw \_\_\_\_\_

**B. Water Accounting Data**

1. Total amount of water diverted at point of diversion(s) for previous five years (in acre-feet) for all water uses:

Year					
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
<b>TOTAL</b>					

2. Wholesale population served and total amount of water diverted for **municipal use** for previous five years:

Year	Total Population Served	Total Annual Water Diverted for Municipal Use (acre feet)

**II. WATER USE DATA FOR SERVICE AREA**

**A. Water Delivery**

Indicated if the water provided under wholesale contracts is treated or raw water and the annual amount for each for previous year:

Total amount delivered or sold for previous year (acre-feet)

Treated \_\_\_\_\_

Raw \_\_\_\_\_

**B. Water Accounting Data**

- Total amount of water diverted at point of diversion(s) for previous five years (in acre-feet) for all water uses:

Year					
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
<b>TOTAL</b>					

- Wholesale population served and total amount of water diverted for **municipal use** for previous five years:

Year	Total Population Served	Total Annual Water Diverted for Municipal Use (acre feet)



**C. Projected Water Demands**

If applicable, project and attach water supply demands for the next ten years using information such as population trends, historical water use, and economic growth in the service area over the next ten years and any additional water supply requirement from such growth.

**III. WATER SUPPLY SYSTEM DATA**

**A. Water Supply Sources**

List all current water supply sources and the amounts authorized with each:

	Source	Amount Authorized
Surface Water:	_____	_____ acre- feet
Groundwater:	_____	_____ acre- feet
Other:	_____	_____ acre- feet

**B. Treatment and Distribution System (if provide treated water)**

1. Design daily capacity of system: \_\_\_\_\_ MGD
2. Storage Capacity: Elevated \_\_\_\_\_ MGD, Ground \_\_\_\_\_ MGD
3. Please describe the water system and attach. Include the number of treatment plants, wells, and storage tanks. If possible, attach a sketch of the system layout.

**IV. WASTEWATER SYSTEM DATA**

**A. Wastewater System Data (if applicable)**

- MGD
1. Design capacity of wastewater treatment plant(s): \_\_\_\_\_
  2. Briefly describe the wastewater system(s) of the area serviced by the wholesale public water supplier. Describe how treated wastewater is disposed of. Where applicable, identify treatment plant(s) with the

TCEQ name and number, the operator, owner, and, if wastewater is discharged, the receiving stream. If possible, attach a sketch or map which locates the plant(s) and discharge points or disposal sites.

**B. Wastewater Data for Service Area (if applicable)**

1. Percent of water service area served by wastewater system: \_\_\_\_\_%
2. Monthly volume treated for previous three years (in 1,000 gallons):

<b>Year</b>			
<b>January</b>			
<b>February</b>			
<b>March</b>			
<b>April</b>			
<b>May</b>			
<b>June</b>			
<b>July</b>			
<b>August</b>			
<b>September</b>			
<b>October</b>			
<b>November</b>			
<b>December</b>			
<b>TOTAL</b>			

## REQUIREMENTS FOR WATER CONSERVATION PLANS FOR WHOLESALER PUBLIC WATER SUPPLIERS

In addition to the description of the wholesaler's service area (profile from above), a water conservation plan for a wholesale public water supplier must include, at a minimum, additional information as required by Title 30, Texas Administrative Code, §288.5. Note: If the water conservation plan does not provide information for each requirement, an explanation must be included as to why the requirement is not applicable.

### Specific, Quantified 5 & 10-Year Targets

The water conservation plan must include specific, quantified five-year and ten-year targets for water savings including, where appropriate, target goals for municipal use in gallons per capita per day for the wholesaler's service area, maximum acceptable unaccounted-for water, and the basis for the development of these goals. Note that the goals established by wholesale water suppliers under this subparagraph are not enforceable.

### Metering Devices

The water conservation plan must include a description as to which practice(s) and/or device(s) will be utilized to measure and account for the amount of water diverted from the source(s) of supply.

### Record Management Program

The water conservation plan must include a monitoring and record management program for determining water deliveries, sales, and losses.

### Metering/Leak-Detection and Repair Program

The water conservation plan must include a program of metering and leak detection and repair for the wholesaler's water storage, delivery, and distribution system.

### Reservoir Systems Operations Plan

The water conservation plan must include a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin. The reservoir systems operations plans shall include optimization of water supplies as one of the significant goals of the plan.

### Contract Requirements for Successive Customer Conservation



The water conservation plan must include a requirement in every water supply contract entered into or renewed after official adoption of the water conservation plan, and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements of this chapter. If the customer intends to resell the water, then the contract between the initial supplier and customer must provide that the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with the provisions of Title 30 TAC Chapter 288.

### **Enforcement Procedure & Official Adoption**

The water conservation plan must include a means for implementation and enforcement, which shall be evidenced by a copy of the ordinance, rule, resolution, or tariff, indicating official adoption of the water conservation plan by the water supplier; and a description of the authority by which the water supplier will implement and enforce the conservation plan.

### **Coordination with the Regional Water Planning Group(s)**

The water conservation plan must include documentation of coordination with the regional water planning groups for the service area of the wholesale water supplier in order to ensure consistency with the appropriate approved regional water plans.

Example statement to be included within the water conservation plan:

*The service area of the \_\_\_\_\_ (name of water supplier) is located within the \_\_\_\_\_ (name of regional water planning area or areas) and \_\_\_\_\_ (name of water supplier) has provided a copy of this water conservation plan to the \_\_\_\_\_ (name of regional water planning group or groups).*

### **Plan Review and Update**

Beginning May 1, 2005, the wholesale water supplier shall review and update its water conservation plan, as appropriate based on an assessment of previous five-year and ten-year targets and any other new or updated information. A wholesale water supplier shall review and update the next revision of its water conservation plan not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. The revised plan must also include an implementation report.

On November 2004, the Texas Water Development Board's (TWDB) Report 362 was completed by the Water Conservation Implementation Task Force. Report 362 is the Water Conservation Best Management Practices (BMP) Guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The BMP Guide is available on the TWDB's website at the link below or by calling (512) 463-7847.

<http://www.twdb.state.tx.us/assistance/conservation/TaskForceDocs/WCITFBMPGuide.pdf>

**If you have any questions on how to fill out this form or about the Wholesale Public Water Suppliers program, please contact us at 512/239-4691.**

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512-239-3282.





## Appendix A

### Definitions of Commonly Used Terms

**Conservation** ■ Those practices, techniques, and technologies that reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water, or increase the recycling and reuse of water so that a water supply is made available for future or alternative uses.

**Industrial use** ■ The use of water in processes designed to convert materials of a lower order of value into forms having greater usability and commercial value, commercial fish production, and the development of power by means other than hydroelectric, but does not include agricultural use.

**Irrigation** ■ The agricultural use of water for the irrigation of crops, trees, and pastureland, including, but not limited to, golf courses and parks which do not receive water through a municipal distribution system.

**Municipal per capita water use** ■ The sum total of water diverted into a water supply system for residential, commercial, and public and institutional uses divided by actual population served.

**Municipal use** ■ The use of potable water within or outside a municipality and its environs whether supplied by a person, privately owned utility, political subdivision, or other entity as well as the use of sewage effluent for certain purposes, including the use of treated water for domestic purposes, fighting fires, sprinkling streets, flushing sewers and drains, watering parks and parkways, and recreational purposes, including public and private swimming pools, the use of potable water in industrial and commercial enterprises supplied by a municipal distribution system without special construction to meet its demands, and for the watering of lawns and family gardens.

**Municipal use in gallons per capita per day** ■ The total average daily amount of water diverted or pumped for treatment for potable use by a public water supply system. The calculation is made by dividing the water diverted or pumped for treatment for potable use by population served. Indirect reuse volumes shall be credited against total diversion volumes for the purpose of calculating gallons per capita per day for targets and goals.

**Public water supplier** ■ An individual or entity that supplies water to the public for human consumption.

**Regional water planning group** ■ A group established by the Texas Water Development Board to prepare a regional water plan under Texas Water Code, §16.053.

**Retail public water supplier** ■ An individual or entity that for compensation supplies water to the public for human consumption. The term does not include an individual or

entity that supplies water to itself or its employees or tenants when that water is not resold to or used by others.

**Reuse** ■ The authorized use for one or more beneficial purposes of use of water that remains unconsumed after the water is used for the original purpose of use and before that water is either disposed of or discharged or otherwise allowed to flow into a watercourse, lake, or other body of state-owned water.

**Water conservation plan** ■ A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s).

**Water loss** - The difference between water diverted or treated and water delivered (sold). Water loss can result from:

1. inaccurate or incomplete record keeping;
2. meter error;
3. unmetered uses such as firefighting, line flushing, and water for public buildings and water treatment plants;
4. leaks; and
5. water theft and unauthorized use.


**Wholesale public water supplier** ■ An individual or entity that for compensation supplies water to another for resale to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants as an incident of that employee service or tenancy when that water is not resold to or used by others, or an individual or entity that conveys water to another individual or entity, but does not own the right to the water which is conveyed, whether or not for a delivery fee.

## **2016 Region M Water Plan**

# **Appendix E.5: Water Conservation Plan for a Municipal Public Water Supplier**



**Texas Commission on Environmental Quality**



**UTILITY PROFILE & WATER CONSERVATION  
PLAN REQUIREMENTS  
FOR MUNICIPAL WATER USE BY PUBLIC WATER  
SUPPLIERS**

This form is provided to assist entities in water conservation plan development for municipal water use by a retail public water supplier. Information from this form should be included within a water conservation plan for municipal use. If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resource Protection Team in the Water Supply Division at (512) 239-4691.

**Name of Entity:** \_\_\_\_\_

**Address & Zip:** \_\_\_\_\_

**Telephone Number:** (     ) **Fax:** (     )

**Form Completed By:** \_\_\_\_\_

**Title:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Signature** \_\_\_\_\_

**Name and Phone Number of Person/Department responsible for implementing a water conservation program:** \_\_\_\_\_

**UTILITY PROFILE**

**I. POPULATION AND CUSTOMER DATA**

**A. Population and Service Area Data**

1. Attach a copy of your service-area map and, if applicable, a copy of your Certificate of Convenience and Necessity (CCN).
2. Service area size (square miles):
3. Current population of service area:

4. Current population served: \_\_\_\_\_

a. water \_\_\_\_\_

b. wastewater \_\_\_\_\_

5.

for the previous five years:

Population served by  
water utility 6.

Projected  
population for

service  
area in the following  
decades:

Year

Population

Year

Population

\_\_\_\_\_

\_\_\_\_\_

2010

\_\_\_\_\_

\_\_\_\_\_

_____	-
_____	-
_____	2
_____	<u>020</u>
_____	-
_____	-
_____	-
_____	2
_____	<u>030</u>
_____	-
_____	-
_____	-
_____	2
_____	<u>040</u>
_____	-
_____	-
_____	-
_____	2
_____	<u>050</u>
_____	-
_____	-

7. List source/method for the calculation of current and projected population:



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**B. Active Connections**

1. Current number of active connections. Check whether multi-family service is counted as Residential \_\_\_\_\_ or Commercial \_\_\_\_\_

Treated water users:	Metered	Not-metered Total
Residential		— _____
		— _____
		— _____
		— _____
		— _____
		— _____
		— _____
		— _____
		— _____
Industrial		— _____

C  
ommerci  
al

Other

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. List the net number of new connections per year for most recent three years:

Year	_____	_____	_____
Residential	_____	_____	_____
Commercial	_____	_____	_____
Industrial	_____	_____	_____
Other	_____	_____	_____

**C. High Volume Customers**

List annual water use for the five highest volume customers  
(indicate if treated or raw water delivery)

Customer  
Use (1,000gal./yr.)  
Treated/Raw Water

(1) \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(2)				
(3)				
(4)				
(5)				

**II. WATER USE DATA FOR SERVICE AREA**

**A. Water Accounting Data**

1. Amount of water use for previous five years (in 1,000 gal.):

Please indicate:      Diverted Water  
    Treated Water

Year				
January				
February				
March				
April				
May				
June				
July				
August				
September				
October				
November				



December \_\_\_\_\_

**Total** \_\_\_\_\_

Indicate how the above figures were determined (e.g., from a master meter located at the point of a diversion from the source or located at a point where raw water enters the treatment plant, or from water sales).

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2. Amount of water (in 1,000 gallons) delivered (sold) as recorded by the following account types for the past five years.

Year	Residential	Commercial	Industrial	Wholesale	Other	Total Sold
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

3. List previous five years records for water loss (the difference between water diverted (or treated) and water delivered (or sold))

Year	Amount (gal.)	%
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

4. Municipal water use for previous five years:

Year	Population	Total Water Diverted or Pumped for Treatment (1,000 gal.)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____



**A. Wastewater System Data**

1. Design capacity of wastewater treatment plant(s): \_\_\_\_\_ MGD
2. Is treated effluent used for irrigation on-site \_\_\_\_\_, off-site \_\_\_\_\_, plant washdown \_\_\_\_\_, or chlorination/dechlorination \_\_\_\_\_?  
If yes, approximately \_\_\_\_\_ gallons per month.
3. Briefly describe the wastewater system(s) of the area serviced by the water utility. Describe how treated wastewater is disposed of. Where applicable, identify treatment plant(s) with the TCEQ name and number, the operator, owner, and, if wastewater is discharged, the receiving stream. If possible, attach a sketch or map which locates the plant(s) and discharge points or disposal sites.

**B. Wastewater Data for Service Area**

1. Percent of water service area served by wastewater system: \_\_\_\_\_%

2. Monthly volume treated for previous three years (in 1,000 gallons):

Year	_____	_____	_____
January	_____	_____	_____
February	_____	_____	_____
March	_____	_____	_____
April	_____	_____	_____
May	_____	_____	_____
June	_____	_____	_____
July	_____	_____	_____
August	_____	_____	_____
September	_____	_____	_____
October	_____	_____	_____
November	_____	_____	_____
December	_____	_____	_____
<b>Total</b>	_____	_____	_____



**REQUIREMENTS FOR WATER CONSERVATION  
PLANS FOR MUNICIPAL WATER USE BY  
PUBLIC WATER SUPPLIERS**

In addition to the utility profile, a water conservation plan for municipal use by a public water supplier must include, at minimum, additional information as required by Title 30, Texas Administrative Code, §288.2. Note: If the water conservation plan does not provide information for each requirement, an explanation must be included as to why the requirement is not applicable.

**Specific, Quantified 5 & 10-Year Targets**

The water conservation plan must include specific, quantified five-year and ten-year targets for water savings to include goals for water loss programs and goals for *municipal use in gallons per capita per day* (see Appendix A). Note that the goals established by a public water supplier under this subparagraph are not enforceable.

**Metering Devices**

The water conservation plan must include a statement about the water supplier's metering device(s), within an accuracy of plus or minus 5.0% in order to measure and account for the amount of water diverted from the source of supply.

**Universal Metering**

The water conservation plan must include and a program for universal metering of both customer and public uses of water, for meter testing and repair, and for periodic meter replacement.

**Unaccounted-For Water Use**

The water conservation plan must include measures to determine and control unaccounted-for uses of water (for example, periodic visual inspections along distribution lines; annual or monthly audit of the water system to determine illegal connections; abandoned services; etc.).

**Continuing Public Education & Information**

The water conservation plan must include a description of the program of continuing public education and information regarding water conservation by the water supplier.

**Non-Promotional Water Rate Structure**

The water supplier must have a water rate structure which is not "promotional," i.e., a rate structure which is cost-based and which does not encourage the excessive use of water. This rate structure must be listed in the water conservation plan.

### **Reservoir Systems Operations Plan**

The water conservation plan must include a reservoir systems operations plan, if applicable, providing for the coordinated operation of reservoirs owned by the applicant within a common watershed or river basin in order to optimize available water supplies.

### **Enforcement Procedure & Plan Adoption**

The water conservation plan must include a means of implementation and enforcement which shall be evidenced by 1) a copy of the ordinance, resolution, or tariff indicating **official adoption** of the water conservation plan by the water supplier; and 2) a description of the authority by which the water supplier will implement and enforce the conservation plan.

### **Coordination with the Regional Water Planning Group(s)**

The water conservation plan must include documentation of coordination with the regional water planning group(s) for the service area of the public water supplier in order to ensure consistency with the appropriate approved regional water plans.

Example statement to be included within the water conservation plan:

*The service area of the \_\_\_\_\_ (name of water supplier) is located within the \_\_\_\_\_ (name of regional water planning area or areas) and \_\_\_\_\_ (name of water supplier) has provided a copy of this water conservation plan to the \_\_\_\_\_ (name of regional water planning group or groups).*

### **Additional Requirements:**

**required of suppliers serving population of 5,000 or more or a projected population of 5,000 or more within ten years)**

#### **1. Program for Leak Detection, Repair, and Water Loss Accounting**

The plan must include a description of the program of leak detection, repair, and water loss accounting for the water transmission, delivery, and distribution system in order to control unaccounted-for uses of water.

#### **2. Record Management System**

The plan must include a record management system to record water pumped, water deliveries, water sales, and water losses which allows for the desegregation of water sales and uses into the following user classes (residential; commercial; public and institutional; and industrial).

## Plan Review and Update

Beginning May 1, 2005, a public water supplier for municipal use shall review and update its water conservation plan, as appropriate, based on an assessment of previous five-year and ten-year targets and any other new or updated information. The public water supplier for municipal use shall review and update the next revision of its water conservation plan not later than May 1, 2009, and every five years after that date to coincide with the regional water planning group. The revised plan must also include an implementation report.

### ***Best Management Practices Guide***

*On November 2004, the Texas Water Development Board's (TWDB) Report 362 was completed by the Water Conservation Implementation Task Force. Report 362 is the Water Conservation Best Management Practices (BMP) Guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The BMP Guide is available on the TWDB's website at the link below or by calling (512) 463-7847.*

<http://www.twdb.state.tx.us/assistance/conservation/TaskForceDocs/WCITFBMPGuide.pdf>





## Appendix A

### Definitions of Commonly Used Terms

**Conservation** ■ Those practices, techniques, and technologies that reduce the consumption of water, reduce the loss or waste of water, improve the efficiency in the use of water, or increase the recycling and reuse of water so that a water supply is made available for future or alternative uses.

**Industrial use** ■ The use of water in processes designed to convert materials of a lower order of value into forms having greater usability and commercial value, commercial fish production, and the development of power by means other than hydroelectric, but does not include agricultural use.

**Irrigation** ■ The agricultural use of water for the irrigation of crops, trees, and pastureland, including, but not limited to, golf courses and parks which do not receive water through a municipal distribution system.

**Municipal per capita water use** ■ The sum total of water diverted into a water supply system for residential, commercial, and public and institutional uses divided by actual population served.

**Municipal use** ■ The use of potable water within or outside a municipality and its environs whether supplied by a person, privately owned utility, political subdivision, or other entity as well as the use of sewage effluent for certain purposes, including the use of treated water for domestic purposes, fighting fires, sprinkling streets, flushing sewers and drains, watering parks and parkways, and recreational purposes, including public and private swimming pools, the use of potable water in industrial and commercial enterprises supplied by a municipal distribution system without special construction to meet its demands, and for the watering of lawns and family gardens.

**Municipal use in gallons per capita per day** ■ The total average daily amount of water diverted or pumped for treatment for potable use by a public water supply system. The calculation is made by dividing the water diverted or pumped for treatment for potable use by population served. Indirect reuse volumes shall be credited against total diversion volumes for the purpose of calculating gallons per capita per day for targets and goals.

**Pollution** ■ The alteration of the physical, thermal, chemical, or biological quality of, or the contamination of, any water in the state that renders the water harmful, detrimental, or injurious to humans, animal life, vegetation, or property, or to the public health, safety, or welfare, or impairs the usefulness or the public enjoyment of the water for any lawful or reasonable purpose.

**Public water supplier** ■ An individual or entity that supplies water to the public for human consumption.

**Regional water planning group** ■ A group established by the Texas Water Development Board to prepare a regional water plan under Texas Water Code, §16.053.

**Retail public water supplier** ■ An individual or entity that for compensation supplies water to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants when that water is not resold to or used by others.

**Reuse** ■ The authorized use for one or more beneficial purposes of use of water that remains unconsumed after the water is used for the original purpose of use and before that water is either disposed of or discharged or otherwise allowed to flow into a watercourse, lake, or other body of state-owned water.

**Water conservation plan** ■ A strategy or combination of strategies for reducing the volume of water withdrawn from a water supply source, for reducing the loss or waste of water, for maintaining or improving the efficiency in the use of water, for increasing the recycling and reuse of water, and for preventing the pollution of water. A water conservation plan may be a separate document identified as such or may be contained within another water management document(s).

**Water loss** - The difference between water diverted or treated and water delivered (sold). Water loss can result from:

1. inaccurate or incomplete record keeping;
2. meter error;
3. unmetered uses such as firefighting, line flushing, and water for public buildings and water treatment plants;
4. leaks; and
5. water theft and unauthorized use.

**Wholesale public water supplier** ■ An individual or entity that for compensation supplies water to another for resale to the public for human consumption. The term does not include an individual or entity that supplies water to itself or its employees or tenants as an incident of that employee service or tenancy when that water is not resold to or used by others, or an individual or entity that conveys water to another individual or entity, but does not own the right to the water which is conveyed, whether or not for a delivery fee.

If you have any questions on how to fill out this form or about the \_\_\_\_\_ program, please contact us at 512/239-\_\_\_\_\_.

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512-239-3282.



## **2016 Region M Water Plan**

### **Appendix E.6: Water Conservation Plan for Industrial and Mining**



2. How was the surface water data provided above (B1) obtained?  
Master meter \_\_\_\_; Customer meter \_\_\_\_;  
If both, % raw \_\_\_\_, % treated \_\_\_\_.  
Supplier(s): \_\_\_\_\_
  
3. Was purchased water raw \_\_\_\_ or treated \_\_\_\_?  
If both, % raw \_\_\_\_, % treated \_\_\_\_.  
Supplier(s): \_\_\_\_\_
  
4. How was the groundwater data provided above (B1) obtained?  
Master meter \_\_\_\_; Customer meter \_\_\_\_; Estimated \_\_\_\_; Other \_\_\_\_  
If other, identify source: \_\_\_\_\_
  
5. What is the rate and cost of purchased water? Rate \_\_\_\_\_  
Cost \_\_\_\_\_

C. Industrial/Mining Information

1. Major product or service produced by applicant:  
\_\_\_\_\_  
\_\_\_\_\_
  
2. Major Standard Industrial Classification Code(SIC):  
\_\_\_\_\_  
North American Industry Classification System (NAICS):  
\_\_\_\_\_
  
3. Total number of employees at facility: \_\_\_\_\_



**II. WATER USE AND CONSERVATION PRACTICES**

**A. Water Use in Industrial or Mining Process:**

Production Use	% Groundwater	% Surface Water	% Saline Water	% Treated Water	Water Use (In Acre-Feet)
Cooling, condensing, & refrigeration					
Processing, washing, transport					
Boiler feed					
Incorporated into product					
Other					

Facility Use	% Groundwater	% Surface Water	% Saline Water	% Treated Water	Water Use (In Acre-Feet)
Cooling tower(s)					
Pond(s)					
Once through					
Sanitary & drinking water					
Irrigation & dust control					

1. Was fresh water recirculated at this facility? ■ Yes ■ No
2. Was electric power generated at this facility (for in-plant use or for sale)?  
■ Yes ■ No
3. Description of the above use(s) of water (e.g., if water is being used for cooling, indicate the cooling system: tower, pond, etc.):

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4. Describe or illustrate how surface water is diverted and delivered to the point(s) of use, the location of the diversion(s) and points of use, and how diversions are measured:

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5. Monthly water demand for previous year (in acre-feet):

	<u>Diversion</u>	Percent of Return Flow	Monthly Demand
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			
TOTAL			

6. Projected monthly water demand for next year (in acre-feet):

	Diversion	Return Flow	Percent of Monthly Demand
January			
February			
March			
April			
May			
June			
July			
August			
September			
October			
November			
December			
TOTAL			

B. Specific and Quantified Conservation Goal

Water conservation goals for the industrial and mining sector are generally established either for (1) the amount of water recycled, (2) the amount of water reused, or (3) the amount of water not lost or consumed, and therefore is available for return flow.

1. Water conservation goal (water use efficiency measure):

Type of goal to be used:

- Percent of water reused
- Percent of water not consumed, and therefore returned as flow
- Other (specify)

2. Provide the specific and quantified five-year and ten-year targets for water savings and the basis for development of such goals for this water use/facility:

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3. Describe the methods and/or device within an accuracy of plus or minus 5% used to measure and account for the amount of water diverted from the source of supply:

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4. Leak-detection, repair, and water-loss accounting measures used:

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5. Equipment and/or process modifications used to improve water use efficiency:



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6. Other conservation techniques used:

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**III. WASTEWATER USE CHARACTERISTICS**

A. Check the type(s) of wastewater disposal system(s) used at this facility:

- On-site wastewater plant
- Septic tank(s)
- Injection well(s)
- City or regional wastewater system
- Other (Please identify) \_\_\_\_\_

B. What quantity of fresh water was consumed, and therefore not returned to a wastewater treatment system (public or private), or to a water course (including loss to product, evaporation, injection, etc.)?

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**IV. ADDITIONAL COMMENTS/INFORMATION**

Please provide any additional information that may indicate the present and future water needs at this facility, and any water problems.

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**Best Management Practices Guide**

*On November 2004, the Texas Water Development Board's (TWDB) Report 362 was completed by the Water Conservation Implementation Task Force. Report 362 is the Water Conservation Best Management Practices (BMP) Guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The BMP Guide is available on the TWDB's website at the link below or by calling (512) 463-7847.*

<http://www.twdb.state.tx.us/assistance/conservation/TaskForceDocs/WCITFBMPGuide.pdf>

**If you have any questions on how to fill out this form or about the Industrial/Mining Water Conservation program, please contact us at 512/239-4691.**

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512-239-3282.

## **2016 Region M Water Plan**

# **Appendix E.7: Water Conservation Plan for Individually-Operated Irrigation Systems**





# Texas Commission on Environmental Quality

## SYSTEM INVENTORY AND WATER CONSERVATION PLAN FOR INDIVIDUALLY-OPERATED IRRIGATION SYSTEMS

This form is provided to assist entities in conservation plan development for individually-operated irrigation systems. If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resource Protection Team in the Water Availability Division at (512) 239-4691.

Name: Click to add text.

Address: \_\_\_\_\_

Telephone Number: ( ) Fax: ( )

Form Completed by: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date:  / /

**NOTE: If the plan does not provide information for each requirement, include an explanation of why the requirement is not applicable.**

### I. BACKGROUND DATA

#### A. Water Use

1. Annual diversion appropriated or requested (in acre-feet):

<i>Type of crop (include hybrid name e.g., type of coastal Bermuda)</i>	<i>Growing season (months)</i>	<i>Acres irrigated/year</i>
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
<b>Total acres</b>		_____

2. In the table below, list the total amount of water (in acre-feet) on average that is or will be diverted monthly for irrigation during the year.

January	February	March	April	<b>Subtotals</b>
_____	_____	_____	_____	_____
May	June	July	August	
_____	_____	_____	_____	_____
September	October	November	December	
_____	_____	_____	_____	_____
<b>Total All Months</b>				_____

3. Are crops rotated seasonally or annually?  Yes  No

If yes, please describe:

4. Describe soil type (including permeability characteristics, if applicable).

**B. Irrigation system information**

- Describe the existing irrigation method or system and associated equipment including pumps, flow rates, plans, and/or sketches of system the layout. Include the rate (in gallons per minute or cubic feet per second) that water is diverted from the source of supply.
- Describe the method(s) and/or device(s) within an accuracy of plus or minus 5% used to measure and account for the amount of water diverted from the source of supply.
- Describe the specific and quantified five-year and ten-year targets for water savings including, where appropriate, quantitative goals for irrigation water use efficiency.

Quantified five-year and ten-year targets are:

- 5 year goal \_\_\_\_\_ % system efficiency or save \_\_\_\_\_ acre-feet
  - 10 year goal \_\_\_\_\_ % system efficiency or save \_\_\_\_\_ acre-feet
- (Ex. System efficiencies 80 % sprinkler, 90 % LEPA, 95 % drip)

4. If there is an existing irrigation system, have any system evaluations been performed on the efficiency of the system?

Yes       No

If yes, please provide the date of the evaluation, evaluator's name and the results of the evaluation:

*C. Conservation practices*

1. Describe any water conserving equipment, application system or method in the irrigation system.
  
2. Describe any methods that will be used for water loss control and leak detection and repair.
  
3. Describe any water-saving scheduling or practices to be used in the application of water (e.g., irrigation only in early morning, late evening or night hours and/or during lower temperatures and winds) and the utilization of soil-moisture monitoring.
  
4. Describe any water-saving land improvements or plans to be incorporated into the irrigation practices (e.g., land leveling, conservation tillage, furrow diking, weed control, etc.).
  
5. Describe any recovery and reuse of tail water runoff.
  
6. Describe any other water conservation practices, methods, or techniques for preventing waste and achieving conservation.



### **Best Management Practices**

*The Texas Water Developmental Board's (TWDB) Report 362 is the Water Conservation Best Management Practices (BMP) guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The Best Management Practices Guide broken out by sector, including Agriculture, Commercial, and Institutional, Industrial, Municipal and Wholesale along with any new or revised BMP's can be found at the following link on the Texas Water Developments Board's website: <http://www.twdb.state.tx.us/conservation/bmps/index.asp>*

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact 512-239-3282.



## **2016 Region M Water Plan**

# **Appendix E.8: Water Conservation Plan for Agricultural Water Suppliers to Multiple Users**





## Texas Commission on Environmental Quality

### SYSTEM INVENTORY AND WATER CONSERVATION PLAN FOR AGRICULTURAL WATER SUPPLIERS PROVIDING WATER TO MORE THAN ONE USER

This form is provided to assist entities in conservation plan development for agricultural water suppliers providing water to more than one user. If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resource Protection Team in the Water Availability Division at (512) 239-4691.

Name: Click to add text

Address: \_\_\_\_\_

Telephone Number: (    ) Fax: (    )

Form Completed by: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date:  / /

**NOTE: If the plan does not provide information for each requirement, include an explanation of why the requirement is not applicable.**

#### I. BACKGROUND DATA

##### A. Structural Facilities

1. Description of service area:
  
2. Total miles of main canals and pipelines:
  
3. Total miles of lateral canals and pipelines:
  
4. Description of canal construction:
  - a. Miles of unlined canals \_\_\_\_\_
  - b. Miles of lined canals \_\_\_\_\_
  - c. Miles of enclosed pipelines \_\_\_\_\_
  - d. Other \_\_\_\_\_
  
5. Description of canal conditions and recent or planned improvements:

6. Reservoir capacity, if applicable:
7. Description of pumps and pumping stations:
8. Description of meters and/or measuring devices:
9. Description of customer gates and measuring devices:
10. Description of any other structural facilities not covered above:

*B. Management Practices*

1. Total water available to district (in acre-feet/year): \_\_\_\_\_
  - a. Maximum water rights allocation to district: \_\_\_\_\_
  - b. Water rights number(s): \_\_\_\_\_
  - c. Other water contracted to be delivered by district: \_\_\_\_\_
2. Average annual water diverted by district (in acre-feet/year):
3. Average annual water delivered to customers (in acre-feet/year):
4. Delivery efficiency (percentage):

5. Historical diversion and deliveries for the previous three years (**in acre-feet/year**):

<i>Year</i>	<i>Total Water Diverted Annually</i>	<i>Irrigation Water Delivered Annually</i>	<i>Municipal Water Delivered Annually</i>	<i>Total Water Delivered Annually</i>	<i>Estimated Delivery Efficiency (%)</i>
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
<b>Average</b>	_____	_____	_____	_____	_____

6. Practices and/or devices used to account for water deliveries:

7. Water pricing policy:

8. Operating rules and policies which encourage water conservation:

9. Describe **specific and quantified five-year and ten-year targets for water savings** including maximum allowable losses for the storage and distribution system:

10. Describe the practice(s) and/or device(s) which will be utilized to measure and account for the amount of water diverted from the source(s) of supply:

11. Describe the monitoring and record management program for water deliveries, sales, and losses:



12. Describe any methods that will be used for water loss control, leak detection, and repair:
13. Describe any program for customer assistance in the development of on-farm water conservation and pollution prevention measures:
14. Describe any other water conservation practice, method, or technique which the supplier shows to be appropriate for achieving conservation (if applicable):

*C. User profile*

1. Total number of acres or square miles in service area:
2. Average number of acres irrigated annually:
3. Projected number of acres to be irrigated in 10 years:
4. Number of active irrigation customers:
5. Total irrigation water delivered annually (in acre-feet):
6. Types of crops grown by customers:
7. Types of irrigation systems used by customers:
8. Types of drainage systems used by customers:
9. Further description of irrigation customers:

10. List of municipal customers and number of acre-feet allocated annually:
  
11. List of industrial and other large customers and number of acre-feet allocated annually:

**D. Additional Requirements**

1. A requirement in every wholesale water supply contract entered into or renewed after official adoption of the plan (by either ordinance, resolution, or tariff), and including any contract extension, that each successive wholesale customer develop and implement a water conservation plan or water conservation measures using the applicable elements in 30 TAC chapter 288; if the customer intends to resell the water, then the contract for the resale of the water must have water conservation requirements so that each successive customer in the resale of the water will be required to implement water conservation measures in accordance with applicable provisions of this chapter. Provide a detailed description of how the water will be utilized in the production process including how the water is diverted and transported from the supply source(s).
2. Evidence of official adoption of the water conservation plan and goals, by ordinance, rule, resolution, or tariff, indicating that the plan reflects official policy of the supplier.
3. Documentation of coordination with the Regional Water Planning Groups in order to insure consistency with the appropriate approved regional water plans.

**Best Management Practices**

*The Texas Water Developmental Board's (TWDB) Report 362 is the Water Conservation Best Management Practices (BMP) guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The Best Management Practices Guide broken out by sector, including Agriculture, Commercial, and Institutional, Industrial, Municipal and Wholesale along with any new or revised BMP's can be found at the following link on the Texas Water Developments Board's website: <http://www.twdb.state.tx.us/conservation/bmps/index.asp>*

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact 512-239-3282.

**2016 Region M Water Plan**  
**Appendix E.9: Water Conservation Plan for**  
**Agricultural (Non-Irrigation)**





**Texas Commission on Environmental Quality**

**AGRICULTURAL WATER CONSERVATION PLAN  
(NON-IRRIGATION)**

This form is provided to assist entities in conservation plan development for agricultural water uses. If you need assistance in completing this form or in developing your plan, please contact the conservation staff of the Resource Protection Team in the Water Supply Division at (512) 239-4691.

**If you have any questions on how to fill out this form or about the \_\_\_\_\_ program, please contact us at 512/239-\_\_\_\_\_.**

Individuals are entitled to request and review their personal information that the agency gathers on its forms. They may also have any errors in their information corrected. To review such information, contact us at 512-239-3282.

**Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Telephone Number:** (    ) \_\_\_\_\_ **Fax:** (    ) \_\_\_\_\_

**Form Completed By:** \_\_\_\_\_ **Title:** \_\_\_\_\_

**Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**NOTE: If the plan does not provide information for each requirement below, include an explanation of why the requirement is not applicable.**

**I. BACKGROUND DATA**

**A. Diversion**

1. Annual diversion requested or appropriated (in acre-feet): \_\_\_\_\_
2. Maximum diversion rate (cubic feet per second): \_\_\_\_\_

**B. Water Sources**

1. Indicate next to the appropriate source(s) below, the maximum or average annual amounts of water currently used and anticipated to be used (in acre-feet) for agricultural uses (other than for irrigation):

Source	Current Use	Anticipated Use
Surface water		
Groundwater		
Purchased		
<b>TOTAL</b>		

2. How was the surface water figure provided in (B1) above obtained?

- Master meter
                         
  Customer meter
                         
  Other

If other, identify source: \_\_\_\_\_

3. How was the groundwater figure provided in (B1) above obtained?

- Master meter
                         
  Customer meter
                         
  Other

If other, identify source: \_\_\_\_\_

4. Was purchased water  raw or  treated

If both, \_\_\_ % raw and \_\_\_ % treated

Supplier(s): \_\_\_\_\_

**C. Agricultural Activity**

Indicate below the major agricultural activity.

- cultivating the soil to produce crops for human food, animal feed, or planting seed or for the production of fibers;
- the practice of floriculture, viticulture, silviculture, and horticulture, including the cultivation of plants in containers or non-soil media by a nursery grower;
- raising, feeding, or keeping animals for breeding purposes or for the production of food or fiber, leather, pelts, or other tangible products having a commercial value;
- raising or keeping equine animals;
- wildlife management; or
- planting cover crops, including cover crops cultivated for transplantation, or leaving land idle for the purpose of participating in any governmental program or normal crop or livestock rotation procedure.

**II. WATER USE AND CONSERVATION PRACTICES**

**A. Agricultural Activity Water Use**

1. Describe how the water is diverted and transported from the source of supply and how the water is utilized in the agricultural activity.

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2. List the monthly surface water demand or projected demand if requesting a new appropriation (in acre-feet).

	<b>Diversion</b>	<b>Return Flow (if applicable)</b>	<b>Percent of Monthly Demand(if applicable)</b>
<b>January</b>			
<b>February</b>			
<b>March</b>			
<b>April</b>			
<b>May</b>			
<b>June</b>			
<b>July</b>			
<b>August</b>			
<b>September</b>			
<b>October</b>			
<b>November</b>			
<b>December</b>			
<b>TOTAL</b>			



**B. Conservation Practices**

1. Indicate specific and quantified five-year and ten-year targets for water savings and the basis for developing of such goals.

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2. Describe the device(s) and/or method(s) used to measure and account for the amount of water diverted from the source of supply.

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3. Can the amount of water diverted from the source be measured and accounted for within an accuracy of plus or minus 5%? ■ YES ■ NO

4. Describe the leak-detection, repair, and water-loss accounting measures to be used.

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5. Describe the equipment and/or process modifications to be used to improve water use efficiency.

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6. List any other appropriate practice, method, or technique, not listed above, for achieving water conservation.

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### III. ADDITIONAL COMMENTS/INFORMATION

Please provide any additional information that may indicate present and future water needs for this water use and any water problems that may have.

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#### ***Best Management Practices Guide***

*On November 2004, the Texas Water Development Board (TWDB) Report 362 was completed by the Water Conservation Implementation Task Force. Report 362 is the Water Conservation Best Management Practices (BMP) Guide. The BMP Guide is a voluntary list of management practices that water users may implement in addition to the required components of Title 30, Texas Administrative Code, Chapter 288. The BMP Guide is available on the TWDB's website at the link below or by calling (512) 463-7847.*

<http://www.twdb.state.tx.us/assistance/conservation/TaskForceDocs/WCITFBMPGuide.pdf>

**Texas Water Development Board**



**2016 Region M Water Plan**

**Appendix F: Infrastructure Financing  
Report Survey Results**







2016 RWP Infrastructure Funding Report (IFR) Survey

Region M

SponsorEntityName	SponsorEntityPrimaryRegion	ProjectName	WMSProject SponsorRegion	IFRElementName	IFRElementValue	YearOfNeed	IFRProject DataId	EntityRwpId	WMSProjectId	IFRProject ElementsId
AGUA SUD	M	ACQUISITION OF WATER RIGHTS	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2806		
AGUA SUD	M	ACQUISITION OF WATER RIGHTS	M	CONSTRUCTION FUNDING				2806		
AGUA SUD	M	ACQUISITION OF WATER RIGHTS	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2806		
ADAMS GARDEN IRRIGATION DISTRICT #19	M	ADAMS GARDEN ID CONSERVATION	M	CONSTRUCTION FUNDING	\$212,247.50	2017		6869	1128	2
ADAMS GARDEN IRRIGATION DISTRICT #19	M	ADAMS GARDEN ID CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING	\$0.00			6869	1128	1
ADAMS GARDEN IRRIGATION DISTRICT #19	M	ADAMS GARDEN ID CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY	\$0.00			6869	1128	3
AGUA SUD	M	AGUA SUD EAST WWTP POTABLE REUSE PHASE I	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2806	2610	1
AGUA SUD	M	AGUA SUD EAST WWTP POTABLE REUSE PHASE I	M	CONSTRUCTION FUNDING				2806	2610	2
AGUA SUD	M	AGUA SUD EAST WWTP POTABLE REUSE PHASE I	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2806	2610	3
AGUA SUD	M	AGUA SUD EAST WWTP POTABLE REUSE PHASE II	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2806	2611	1
AGUA SUD	M	AGUA SUD EAST WWTP POTABLE REUSE PHASE II	M	CONSTRUCTION FUNDING				2806	2611	2
AGUA SUD	M	AGUA SUD EAST WWTP POTABLE REUSE PHASE II	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2806	2611	3
AGUA SUD	M	AGUA SUD WEST WWTP POTABLE REUSE PHASE I	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2806	2365	1
AGUA SUD	M	AGUA SUD WEST WWTP POTABLE REUSE PHASE I	M	CONSTRUCTION FUNDING				2806	2365	2
AGUA SUD	M	AGUA SUD WEST WWTP POTABLE REUSE PHASE I	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2806	2365	3
AGUA SUD	M	AGUA SUD WEST WWTP POTABLE REUSE PHASE II	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2806	2609	1
AGUA SUD	M	AGUA SUD WEST WWTP POTABLE REUSE PHASE II	M	CONSTRUCTION FUNDING				2806	2609	2
AGUA SUD	M	AGUA SUD WEST WWTP POTABLE REUSE PHASE II	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2806	2609	3
ALAMO	M	ALAMO BGD PLANT	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				159	1120	1
ALAMO	M	ALAMO BGD PLANT	M	CONSTRUCTION FUNDING				159	1120	2
ALAMO	M	ALAMO BGD PLANT	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				159	1120	3
ALAMO	M	ALAMO GROUNDWATER WELL	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				159	1601	1
ALAMO	M	ALAMO GROUNDWATER WELL	M	CONSTRUCTION FUNDING				159	1601	2
ALAMO	M	ALAMO GROUNDWATER WELL	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				159	1601	3
BAYVIEW IRRIGATION DISTRICT #11	M	BAYVIEW ID CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				6864	2216	1
BAYVIEW IRRIGATION DISTRICT #11	M	BAYVIEW ID CONSERVATION	M	CONSTRUCTION FUNDING				6864	2216	2
BAYVIEW IRRIGATION DISTRICT #11	M	BAYVIEW ID CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				6864	2216	3
BROWNSVILLE	M	BROWNSVILLE BANCO MORALES RESERVOIR	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				278	2343	1
BROWNSVILLE	M	BROWNSVILLE BANCO MORALES RESERVOIR	M	CONSTRUCTION FUNDING				278	2343	2
BROWNSVILLE	M	BROWNSVILLE BANCO MORALES RESERVOIR	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				278	2343	3
BROWNSVILLE IRRIGATION DISTRICT	M	BROWNSVILLE ID CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				16	2215	1
BROWNSVILLE IRRIGATION DISTRICT	M	BROWNSVILLE ID CONSERVATION	M	CONSTRUCTION FUNDING				16	2215	2
BROWNSVILLE IRRIGATION DISTRICT	M	BROWNSVILLE ID CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				16	2215	3
BROWNSVILLE	M	BROWNSVILLE NON-POTABLE WATER REUSE PIPELINE	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				278	2355	1
BROWNSVILLE	M	BROWNSVILLE NON-POTABLE WATER REUSE PIPELINE	M	CONSTRUCTION FUNDING				278	2355	2
BROWNSVILLE	M	BROWNSVILLE NON-POTABLE WATER REUSE PIPELINE	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				278	2355	3
BROWNSVILLE	M	BROWNSVILLE RESACA RESTORATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				278	2524	1
BROWNSVILLE	M	BROWNSVILLE RESACA RESTORATION	M	CONSTRUCTION FUNDING				278	2524	2
BROWNSVILLE	M	BROWNSVILLE RESACA RESTORATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				278	2524	3
BROWNSVILLE	M	BROWNSVILLE SOUTHSIDE WWTP POTABLE REUSE -PHASE I	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				278	2356	1
BROWNSVILLE	M	BROWNSVILLE SOUTHSIDE WWTP POTABLE REUSE -PHASE I	M	CONSTRUCTION FUNDING				278	2356	2
BROWNSVILLE	M	BROWNSVILLE SOUTHSIDE WWTP POTABLE REUSE -PHASE I	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				278	2356	3
BROWNSVILLE	M	BROWNSVILLE SOUTHSIDE WWTP POTABLE REUSE -PHASE II	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				278	2607	1
BROWNSVILLE	M	BROWNSVILLE SOUTHSIDE WWTP POTABLE REUSE -PHASE II	M	CONSTRUCTION FUNDING				278	2607	2
BROWNSVILLE	M	BROWNSVILLE SOUTHSIDE WWTP POTABLE REUSE -PHASE II	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				278	2607	3
COUNTY-OTHER, CAMERON	M	CAMERON COUNTY GROUNDWATER WELLS	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				397	2680	1
COUNTY-OTHER, CAMERON	M	CAMERON COUNTY GROUNDWATER WELLS	M	CONSTRUCTION FUNDING				397	2680	2
COUNTY-OTHER, CAMERON	M	CAMERON COUNTY GROUNDWATER WELLS	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				397	2680	3
CAMERON COUNTY IRRIGATION DISTRICT #1	M	CAMERON COUNTY ID #2 CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING	\$0.00			18	2218	1
CAMERON COUNTY IRRIGATION DISTRICT #1	M	CAMERON COUNTY ID #2 CONSERVATION	M	CONSTRUCTION FUNDING	\$0.00			18	2218	2
CAMERON COUNTY IRRIGATION DISTRICT #1	M	CAMERON COUNTY ID #2 CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY	\$0.00			18	2218	3
CAMERON COUNTY IRRIGATION DISTRICT #1	M	CAMERON COUNTY ID NO. 16 CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING	\$0.00			6871	2217	1
CAMERON COUNTY IRRIGATION DISTRICT #1	M	CAMERON COUNTY ID NO. 16 CONSERVATION	M	CONSTRUCTION FUNDING	\$0.00			6871	2217	2
CAMERON COUNTY IRRIGATION DISTRICT #1	M	CAMERON COUNTY ID NO. 16 CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY	\$0.00			6871	2217	3
CAMERON COUNTY IRRIGATION DISTRICT #1	M	CAMERON COUNTY ID NO. 6 CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				6865	2222	1
CAMERON COUNTY IRRIGATION DISTRICT #1	M	CAMERON COUNTY ID NO. 6 CONSERVATION	M	CONSTRUCTION FUNDING				6865	2222	2
CAMERON COUNTY IRRIGATION DISTRICT #1	M	CAMERON COUNTY ID NO. 6 CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				6865	2222	3
CAMERON COUNTY IRRIGATION DISTRICT #1	M	CAMERON COUNTY WATER IMPROVEMENT DISTRICT NO. 1	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				6876	2229	1
CAMERON COUNTY IRRIGATION DISTRICT #1	M	CAMERON COUNTY WATER IMPROVEMENT DISTRICT NO. 1	M	CONSTRUCTION FUNDING				6876	2229	2
CAMERON COUNTY IRRIGATION DISTRICT #1	M	CAMERON COUNTY WATER IMPROVEMENT DISTRICT NO. 1	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				6876	2229	3
DELTA LAKE IRRIGATION DISTRICT	M	DELTA LAKE ID CONSERVATION	M	CONSTRUCTION FUNDING	\$1,263,150.00	2016		37	2312	2
DELTA LAKE IRRIGATION DISTRICT	M	DELTA LAKE ID CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY	\$0.00			37	2312	3
DELTA LAKE IRRIGATION DISTRICT	M	DELTA LAKE ID CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				37	2312	1
HIDALGO COUNTY DRAINAGE DISTRICT #1	M	DELTA WATERSHED PROJECT - EDINBURG LAKE	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				12881	2669	1
HIDALGO COUNTY DRAINAGE DISTRICT #1	M	DELTA WATERSHED PROJECT - EDINBURG LAKE	M	CONSTRUCTION FUNDING				12881	2669	2
HIDALGO COUNTY DRAINAGE DISTRICT #1	M	DELTA WATERSHED PROJECT - EDINBURG LAKE	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				12881	2669	3
HIDALGO COUNTY DRAINAGE DISTRICT #1	M	DELTA WATERSHED PROJECT - NEW RESERVOIR	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				12881	2670	1
HIDALGO COUNTY DRAINAGE DISTRICT #1	M	DELTA WATERSHED PROJECT - NEW RESERVOIR	M	CONSTRUCTION FUNDING				12881	2670	2
HIDALGO COUNTY DRAINAGE DISTRICT #1	M	DELTA WATERSHED PROJECT - NEW RESERVOIR	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				12881	2670	3







2016 RWP Infrastructure Funding Report (IFR) Survey

Region M

SponsorEntityName	SponsorEntityPrimaryRegion	ProjectName	WMSProjectSponsorRegion	IFRElementName	IFRElementValue	YearOfNeed	IFRProjectDataId	EntityRwpId	WMSProjectId	IFRProjectElementsId
DONNA IRRIGATION DISTRICT-HIDALGO COU	M	DONNA ID CONSERVATION	M	CONSTRUCTION FUNDING	\$5,406,000.00			39	2327	2
DONNA IRRIGATION DISTRICT-HIDALGO COU	M	DONNA ID CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING	\$973,000.00			39	2327	1
DONNA IRRIGATION DISTRICT-HIDALGO COU	M	DONNA ID CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				39	2327	3
DONNA	M	DONNA PURCHASE OF CONVERTED WATER RIGHTS FOR	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				666	2596	1
DONNA	M	DONNA PURCHASE OF CONVERTED WATER RIGHTS FOR	M	CONSTRUCTION FUNDING				666	2596	2
DONNA	M	DONNA PURCHASE OF CONVERTED WATER RIGHTS FOR	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				666	2596	3
DONNA	M	DONNA PURCHASE OF CONVERTED WATER RIGHTS FOR	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				666	2597	1
DONNA	M	DONNA PURCHASE OF CONVERTED WATER RIGHTS FOR	M	CONSTRUCTION FUNDING				666	2597	2
DONNA	M	DONNA PURCHASE OF CONVERTED WATER RIGHTS FOR	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				666	2597	3
DONNA	M	DONNA RESERVOIR AND PUMP STATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				666	2377	1
DONNA	M	DONNA RESERVOIR AND PUMP STATION	M	CONSTRUCTION FUNDING				666	2377	2
DONNA	M	DONNA RESERVOIR AND PUMP STATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				666	2377	3
DONNA	M	DONNA WTP EXPANSION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				666	2379	1
DONNA	M	DONNA WTP EXPANSION	M	CONSTRUCTION FUNDING				666	2379	2
DONNA	M	DONNA WTP EXPANSION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				666	2379	3
EAGLE PASS	M	EAGLE PASS NEW GROUNDWATER SUPPLY	M	CONSTRUCTION FUNDING	\$380,500.00	2025		42	1710	2
EAGLE PASS	M	EAGLE PASS NEW GROUNDWATER SUPPLY	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING	\$155,500.00	2020		42	1710	1
EAGLE PASS	M	EAGLE PASS NEW GROUNDWATER SUPPLY	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY	\$0.00			42	1710	3
EDCOUCH	M	EDCOUCH EMERGENCY GROUNDWATER SUPPLY	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				685	1712	1
EDCOUCH	M	EDCOUCH EMERGENCY GROUNDWATER SUPPLY	M	CONSTRUCTION FUNDING				685	1712	2
EDCOUCH	M	EDCOUCH EMERGENCY GROUNDWATER SUPPLY	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				685	1712	3
EDINBURG	M	EDINBURG NON-POTABLE REUSE	M	CONSTRUCTION FUNDING	\$6,996,000.00			688	2366	2
EDINBURG	M	EDINBURG NON-POTABLE REUSE	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING	\$2,975,000.00			688	2366	1
EDINBURG	M	EDINBURG NON-POTABLE REUSE	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				688	2366	3
EL JARDIN WSC	M	EL JARDIN DISTRIBUTION PIPELINE REPLACEMENT	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2975	2428	1
EL JARDIN WSC	M	EL JARDIN DISTRIBUTION PIPELINE REPLACEMENT	M	CONSTRUCTION FUNDING				2975	2428	2
EL JARDIN WSC	M	EL JARDIN DISTRIBUTION PIPELINE REPLACEMENT	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2975	2428	3
EL JARDIN WSC	M	EL JARDIN NEW BGD PLANT	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2975	1611	1
EL JARDIN WSC	M	EL JARDIN NEW BGD PLANT	M	CONSTRUCTION FUNDING				2975	1611	2
EL JARDIN WSC	M	EL JARDIN NEW BGD PLANT	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2975	1611	3
ENGLEMAN IRRIGATION DISTRICT	M	ENGLEMAN ID CONSERVATION	M	CONSTRUCTION FUNDING	\$2,250,000.00			6872	2234	2
ENGLEMAN IRRIGATION DISTRICT	M	ENGLEMAN ID CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY	\$0.00			6872	2234	3
ENGLEMAN IRRIGATION DISTRICT	M	ENGLEMAN ID CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				6872	2234	1
EAST RIO HONDO WSC	M	ERHWSC CONVERSION OF WATER RIGHTS	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				679	2615	1
EAST RIO HONDO WSC	M	ERHWSC CONVERSION OF WATER RIGHTS	M	CONSTRUCTION FUNDING				679	2615	2
EAST RIO HONDO WSC	M	ERHWSC CONVERSION OF WATER RIGHTS	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				679	2615	3
EAST RIO HONDO WSC	M	ERHWSC FM 2925 TRANSMISSION LINE	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				679	2340	1
EAST RIO HONDO WSC	M	ERHWSC FM 2925 TRANSMISSION LINE	M	CONSTRUCTION FUNDING				679	2340	2
EAST RIO HONDO WSC	M	ERHWSC FM 2925 TRANSMISSION LINE	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				679	2340	3
EAST RIO HONDO WSC	M	ERHWSC HARLINGEN WW INTERCONNECT	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				679	2341	1
EAST RIO HONDO WSC	M	ERHWSC HARLINGEN WW INTERCONNECT	M	CONSTRUCTION FUNDING				679	2341	2
EAST RIO HONDO WSC	M	ERHWSC HARLINGEN WW INTERCONNECT	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				679	2341	3
EAST RIO HONDO WSC	M	ERHWSC MUNICIPAL (UV DISINFECTION FM 510 WTP)	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				679	2418	1
EAST RIO HONDO WSC	M	ERHWSC MUNICIPAL (UV DISINFECTION FM 510 WTP)	M	CONSTRUCTION FUNDING				679	2418	2
EAST RIO HONDO WSC	M	ERHWSC MUNICIPAL (UV DISINFECTION FM 510 WTP)	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				679	2418	3
EAST RIO HONDO WSC	M	ERHWSC NEW GROUNDWATER SUPPLY DEVELOPMENT	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				679	1604	1
EAST RIO HONDO WSC	M	ERHWSC NEW GROUNDWATER SUPPLY DEVELOPMENT	M	CONSTRUCTION FUNDING				679	1604	2
EAST RIO HONDO WSC	M	ERHWSC NEW GROUNDWATER SUPPLY DEVELOPMENT	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				679	1604	3
EAST RIO HONDO WSC	M	ERHWSC SURFACE WATER TREATMENT PLANT	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				679	2380	1
EAST RIO HONDO WSC	M	ERHWSC SURFACE WATER TREATMENT PLANT	M	CONSTRUCTION FUNDING				679	2380	2
EAST RIO HONDO WSC	M	ERHWSC SURFACE WATER TREATMENT PLANT	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				679	2380	3
HARLINGEN IRRIGATION DISTRICT-CAMERO	M	HARLINGEN ID CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				65	2294	1
HARLINGEN IRRIGATION DISTRICT-CAMERO	M	HARLINGEN ID CONSERVATION	M	CONSTRUCTION FUNDING				65	2294	2
HARLINGEN IRRIGATION DISTRICT-CAMERO	M	HARLINGEN ID CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				65	2294	3
HARLINGEN	M	HARLINGEN WWTP 2 POTABLE REUSE	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				66	2367	1
HARLINGEN	M	HARLINGEN WWTP 2 POTABLE REUSE	M	CONSTRUCTION FUNDING				66	2367	2
HARLINGEN	M	HARLINGEN WWTP 2 POTABLE REUSE	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				66	2367	3
HEBBRONVILLE	M	HEBBRONVILLE NEW BGD PLANT	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				830	1615	1
HEBBRONVILLE	M	HEBBRONVILLE NEW BGD PLANT	M	CONSTRUCTION FUNDING				830	1615	2
HEBBRONVILLE	M	HEBBRONVILLE NEW BGD PLANT	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				830	1615	3
HIDALGO-CAMERON COUNTY IRRIGATION D	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				72	2354	1
HIDALGO-CAMERON COUNTY IRRIGATION D	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M	CONSTRUCTION FUNDING				72	2354	2
HIDALGO-CAMERON COUNTY IRRIGATION D	M	HIDALGO AND CAMERON COUNTY ID NO. 9 CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				72	2354	3
HIDALGO COUNTY IRRIGATION DISTRICT #1	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M	CONSTRUCTION FUNDING	\$5,000,000.00	2017		68	2325	2
HIDALGO COUNTY IRRIGATION DISTRICT #1	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY	\$0.00			68	2325	3
HIDALGO COUNTY IRRIGATION DISTRICT #1	M	HIDALGO COUNTY ID NO. 1 CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				68	2325	1
HIDALGO COUNTY IRRIGATION DISTRICT #13	M	HIDALGO COUNTY ID NO. 13 CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				6874	2353	1
HIDALGO COUNTY IRRIGATION DISTRICT #13	M	HIDALGO COUNTY ID NO. 13 CONSERVATION	M	CONSTRUCTION FUNDING				6874	2353	2
HIDALGO COUNTY IRRIGATION DISTRICT #13	M	HIDALGO COUNTY ID NO. 13 CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				6874	2353	3
HIDALGO COUNTY IRRIGATION DISTRICT #16	M	HIDALGO COUNTY ID NO. 16 CONSERVATION	M	CONSTRUCTION FUNDING	\$1,766,800.00	2016		69	2306	2







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SponsorEntityName	SponsorEntityPrimaryRegion	ProjectName	WMSProject SponsorRegion	IFRElementName	IFRElementValue	YearOfNeed	IFRProject DataId	EntityRwpId	WMSProjectId	IFRProject ElementsId
HIDALGO COUNTY IRRIGATION DISTRICT #16	M	HIDALGO COUNTY ID NO. 16 CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY	\$0.00			69	2306	3
HIDALGO COUNTY IRRIGATION DISTRICT #16	M	HIDALGO COUNTY ID NO. 16 CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				69	2306	1
HIDALGO COUNTY IRRIGATION DISTRICT #2	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				70	2613	1
HIDALGO COUNTY IRRIGATION DISTRICT #2	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M	CONSTRUCTION FUNDING				70	2613	2
HIDALGO COUNTY IRRIGATION DISTRICT #2	M	HIDALGO COUNTY ID NO. 2 CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				70	2613	3
HIDALGO COUNTY IRRIGATION DISTRICT #5	M	HIDALGO COUNTY ID NO. 5 CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING	\$0.00			6873	2303	1
HIDALGO COUNTY IRRIGATION DISTRICT #5	M	HIDALGO COUNTY ID NO. 5 CONSERVATION	M	CONSTRUCTION FUNDING	\$0.00			6873	2303	2
HIDALGO COUNTY IRRIGATION DISTRICT #5	M	HIDALGO COUNTY ID NO. 5 CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY	\$0.00			6873	2303	3
HIDALGO COUNTY IRRIGATION DISTRICT #6	M	HIDALGO COUNTY ID NO. 6 CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				67	2304	1
HIDALGO COUNTY IRRIGATION DISTRICT #6	M	HIDALGO COUNTY ID NO. 6 CONSERVATION	M	CONSTRUCTION FUNDING				67	2304	2
HIDALGO COUNTY IRRIGATION DISTRICT #6	M	HIDALGO COUNTY ID NO. 6 CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				67	2304	3
HIDALGO COUNTY WCID #18	M	HIDALGO COUNTY WCID NO. 18 CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				6875	2310	1
HIDALGO COUNTY WCID #18	M	HIDALGO COUNTY WCID NO. 18 CONSERVATION	M	CONSTRUCTION FUNDING				6875	2310	2
HIDALGO COUNTY WCID #18	M	HIDALGO COUNTY WCID NO. 18 CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				6875	2310	3
HIDALGO COUNTY IRRIGATION DISTRICT #19	M	HIDALGO COUNTY WID NO. 19 (SHARYLAND) CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				6880	2315	1
HIDALGO COUNTY IRRIGATION DISTRICT #19	M	HIDALGO COUNTY WID NO. 19 (SHARYLAND) CONSERVATION	M	CONSTRUCTION FUNDING				6880	2315	2
HIDALGO COUNTY IRRIGATION DISTRICT #19	M	HIDALGO COUNTY WID NO. 19 (SHARYLAND) CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				6880	2315	3
HIDALGO COUNTY WID #3	M	HIDALGO COUNTY WID NO. 3 CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				71	2308	1
HIDALGO COUNTY WID #3	M	HIDALGO COUNTY WID NO. 3 CONSERVATION	M	CONSTRUCTION FUNDING				71	2308	2
HIDALGO COUNTY WID #3	M	HIDALGO COUNTY WID NO. 3 CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				71	2308	3
HIDALGO	M	HIDALGO EXPAND EXISTING GROUNDWATER SUPPLY	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				843	1715	1
HIDALGO	M	HIDALGO EXPAND EXISTING GROUNDWATER SUPPLY	M	CONSTRUCTION FUNDING				843	1715	2
HIDALGO	M	HIDALGO EXPAND EXISTING GROUNDWATER SUPPLY	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				843	1715	3
HIDALGO COUNTY MUD #1	M	HIDALGO MUD NO. 1 CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				844	2352	1
HIDALGO COUNTY MUD #1	M	HIDALGO MUD NO. 1 CONSERVATION	M	CONSTRUCTION FUNDING				844	2352	2
HIDALGO COUNTY MUD #1	M	HIDALGO MUD NO. 1 CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				844	2352	3
IRRIGATION, JIM HOGG	M	JIM HOGG IRRIGATION ADDITIONAL GROUNDWATER WELL	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				996	1718	1
IRRIGATION, JIM HOGG	M	JIM HOGG IRRIGATION ADDITIONAL GROUNDWATER WELL	M	CONSTRUCTION FUNDING				996	1718	2
IRRIGATION, JIM HOGG	M	JIM HOGG IRRIGATION ADDITIONAL GROUNDWATER WELL	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				996	1718	3
LA FERIA IRRIGATION DISTRICT-CAMERON	CM	LA FERIA ID CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING	\$0.00			78	2326	1
LA FERIA IRRIGATION DISTRICT-CAMERON	CM	LA FERIA ID CONSERVATION	M	CONSTRUCTION FUNDING	\$0.00			78	2326	2
LA FERIA IRRIGATION DISTRICT-CAMERON	CM	LA FERIA ID CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY	\$0.00			78	2326	3
LA FERIA	M	LA FERIA RAINWATER HARVESTING	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				1172	2431	1
LA FERIA	M	LA FERIA RAINWATER HARVESTING	M	CONSTRUCTION FUNDING				1172	2431	2
LA FERIA	M	LA FERIA RAINWATER HARVESTING	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				1172	2431	3
LA FERIA	M	LA FERIA WATER WELL WITH RO UNIT	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				1172	1619	1
LA FERIA	M	LA FERIA WATER WELL WITH RO UNIT	M	CONSTRUCTION FUNDING				1172	1619	2
LA FERIA	M	LA FERIA WATER WELL WITH RO UNIT	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				1172	1619	3
LAGUNA MADRE WD	M	LAGUNA MADRE NEW BGD PLANT	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				80	2357	1
LAGUNA MADRE WD	M	LAGUNA MADRE NEW BGD PLANT	M	CONSTRUCTION FUNDING				80	2357	2
LAGUNA MADRE WD	M	LAGUNA MADRE NEW BGD PLANT	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				80	2357	3
LAGUNA MADRE WD	M	LAGUNA MADRE POTABLE REUSE	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				80	2368	1
LAGUNA MADRE WD	M	LAGUNA MADRE POTABLE REUSE	M	CONSTRUCTION FUNDING				80	2368	2
LAGUNA MADRE WD	M	LAGUNA MADRE POTABLE REUSE	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				80	2368	3
LYFORD	M	LYFORD CONSTRUCTION OF WATER FACILITIES	M	CONSTRUCTION FUNDING	\$3,425,000.00			1498	1674	2
LYFORD	M	LYFORD CONSTRUCTION OF WATER FACILITIES	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY	\$0.00			1498	1674	3
LYFORD	M	LYFORD CONSTRUCTION OF WATER FACILITIES	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				1498	1674	1
MAVERICK COUNTY WCID #1	M	MAVERICK COUNTY WCID CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				6867	2314	1
MAVERICK COUNTY WCID #1	M	MAVERICK COUNTY WCID CONSERVATION	M	CONSTRUCTION FUNDING				6867	2314	2
MAVERICK COUNTY WCID #1	M	MAVERICK COUNTY WCID CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				6867	2314	3
MCALLEN	M	MCALLEN BGD PLANT	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				93	1679	1
MCALLEN	M	MCALLEN BGD PLANT	M	CONSTRUCTION FUNDING				93	1679	2
MCALLEN	M	MCALLEN BGD PLANT	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				93	1679	3
MCALLEN	M	MCALLEN HCID NO. 1 RAW WATER LINE	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				93	2336	1
MCALLEN	M	MCALLEN HCID NO. 1 RAW WATER LINE	M	CONSTRUCTION FUNDING				93	2336	2
MCALLEN	M	MCALLEN HCID NO. 1 RAW WATER LINE	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				93	2336	3
MCALLEN	M	MCALLEN NORTH WWTP POTABLE REUSE -PHASE I	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				93	2370	1
MCALLEN	M	MCALLEN NORTH WWTP POTABLE REUSE -PHASE I	M	CONSTRUCTION FUNDING				93	2370	2
MCALLEN	M	MCALLEN NORTH WWTP POTABLE REUSE -PHASE I	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				93	2370	3
MCALLEN	M	MCALLEN NORTH WWTP POTABLE REUSE - PHASE II	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				93	2684	1
MCALLEN	M	MCALLEN NORTH WWTP POTABLE REUSE -PHASE II	M	CONSTRUCTION FUNDING				93	2684	2
MCALLEN	M	MCALLEN NORTH WWTP POTABLE REUSE -PHASE II	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				93	2684	3
MCALLEN	M	MCALLEN SOUTH WWTP POTABLE REUSE - PHASE I	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				93	2371	1
MCALLEN	M	MCALLEN SOUTH WWTP POTABLE REUSE - PHASE I	M	CONSTRUCTION FUNDING				93	2371	2
MCALLEN	M	MCALLEN SOUTH WWTP POTABLE REUSE - PHASE I	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				93	2371	3
MCALLEN	M	MCALLEN SOUTH WWTP POTABLE REUSE - PHASE II	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				93	2686	1
MCALLEN	M	MCALLEN SOUTH WWTP POTABLE REUSE - PHASE II	M	CONSTRUCTION FUNDING				93	2686	2
MCALLEN	M	MCALLEN SOUTH WWTP POTABLE REUSE - PHASE II	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				93	2686	3
MCALLEN	M	MCALLEN SOUTH WWTP POTABLE REUSE - PHASE III	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				93	2687	1
MCALLEN	M	MCALLEN SOUTH WWTP POTABLE REUSE - PHASE III	M	CONSTRUCTION FUNDING				93	2687	2







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SponsorEntityName	SponsorEntityPrimaryRegion	ProjectName	WMSProject SponsorRegion	IFRElementName	IFRElementValue	YearOfNeed	IFRProject DataId	EntityRwpId	WMSProjectId	IFRProject ElementsId
MCALLEN	M	MCALLEN SOUTH WWTP POTABLE REUSE - PHASE III	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				93	2687	3
MERCEDES	M	MERCEDES WWTP POTABLE REUSE	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				1711	2372	1
MERCEDES	M	MERCEDES WWTP POTABLE REUSE	M	CONSTRUCTION FUNDING				1711	2372	2
MERCEDES	M	MERCEDES WWTP POTABLE REUSE	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				1711	2372	3
MILITARY HIGHWAY WSC	M	MHWSC EXPAND EXISTING GW SUPPLY - CAMERON COU	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING	\$0.00			1722	2364	1
MILITARY HIGHWAY WSC	M	MHWSC EXPAND EXISTING GW SUPPLY - CAMERON COU	M	CONSTRUCTION FUNDING	\$0.00			1722	2364	2
MILITARY HIGHWAY WSC	M	MHWSC EXPAND EXISTING GW SUPPLY - CAMERON COU	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY	\$0.00			1722	2364	3
MISSION	M	MISSION BGD PLANT	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				1952	1680	1
MISSION	M	MISSION BGD PLANT	M	CONSTRUCTION FUNDING				1952	1680	2
MISSION	M	MISSION BGD PLANT	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				1952	1680	3
MISSION	M	MISSION WWTP POTABLE REUSE - PHASE I	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				1952	2373	1
MISSION	M	MISSION WWTP POTABLE REUSE - PHASE I	M	CONSTRUCTION FUNDING				1952	2373	2
MISSION	M	MISSION WWTP POTABLE REUSE - PHASE I	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				1952	2373	3
MISSION	M	MISSION WWTP POTABLE REUSE - PHASE II	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				1952	2689	1
MISSION	M	MISSION WWTP POTABLE REUSE - PHASE II	M	CONSTRUCTION FUNDING				1952	2689	2
MISSION	M	MISSION WWTP POTABLE REUSE - PHASE II	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				1952	2689	3
NORTH ALAMO WSC	M	NAWSC DELTA AREA RO WTP EXPANSION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				98	2358	1
NORTH ALAMO WSC	M	NAWSC DELTA AREA RO WTP EXPANSION	M	CONSTRUCTION FUNDING				98	2358	2
NORTH ALAMO WSC	M	NAWSC DELTA AREA RO WTP EXPANSION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				98	2358	3
NORTH ALAMO WSC	M	NAWSC EXPANSION OF DELTA WTP AND PURCHASE OF	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				98	2381	1
NORTH ALAMO WSC	M	NAWSC EXPANSION OF DELTA WTP AND PURCHASE OF	M	CONSTRUCTION FUNDING				98	2381	2
NORTH ALAMO WSC	M	NAWSC EXPANSION OF DELTA WTP AND PURCHASE OF	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				98	2381	3
NORTH ALAMO WSC	M	NAWSC EXPANSION OF DELTA WTP AND PURCHASE OF	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				98	2606	1
NORTH ALAMO WSC	M	NAWSC EXPANSION OF DELTA WTP AND PURCHASE OF	M	CONSTRUCTION FUNDING				98	2606	2
NORTH ALAMO WSC	M	NAWSC EXPANSION OF DELTA WTP AND PURCHASE OF	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				98	2606	3
NORTH ALAMO WSC	M	NAWSC EXPANSION OF WTP NO. 5	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				98	2382	1
NORTH ALAMO WSC	M	NAWSC EXPANSION OF WTP NO. 5	M	CONSTRUCTION FUNDING				98	2382	2
NORTH ALAMO WSC	M	NAWSC EXPANSION OF WTP NO. 5	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				98	2382	3
NORTH ALAMO WSC	M	NAWSC LA SARA R.O. PLANT EXPANSION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				98	2410	1
NORTH ALAMO WSC	M	NAWSC LA SARA R.O. PLANT EXPANSION	M	CONSTRUCTION FUNDING				98	2410	2
NORTH ALAMO WSC	M	NAWSC LA SARA R.O. PLANT EXPANSION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				98	2410	3
PHARR	M	PHARR RAW WATER RESERVOIR AUGMENTATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2067	2374	1
PHARR	M	PHARR RAW WATER RESERVOIR AUGMENTATION	M	CONSTRUCTION FUNDING				2067	2374	2
PHARR	M	PHARR RAW WATER RESERVOIR AUGMENTATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2067	2374	3
PRIMERA	M	PRIMERA NEW BGD PLANT	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2102	2359	1
PRIMERA	M	PRIMERA NEW BGD PLANT	M	CONSTRUCTION FUNDING				2102	2359	2
PRIMERA	M	PRIMERA NEW BGD PLANT	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2102	2359	3
RIO GRANDE CITY	M	RIO GRANDE CITY WATER METER REPLACEMENT	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2136	2589	1
RIO GRANDE CITY	M	RIO GRANDE CITY WATER METER REPLACEMENT	M	CONSTRUCTION FUNDING				2136	2589	2
RIO GRANDE CITY	M	RIO GRANDE CITY WATER METER REPLACEMENT	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2136	2589	3
RIO HONDO	M	RIO HONDO EMERGENCY INTERCONNECTS	M	CONSTRUCTION FUNDING	\$823,000.00	2016		2137	2725	2
RIO HONDO	M	RIO HONDO EMERGENCY INTERCONNECTS	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2137	2725	1
RIO HONDO	M	RIO HONDO EMERGENCY INTERCONNECTS	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2137	2725	3
ROMA	M	ROMA WTP AND PURCHASE OF WATER RIGHTS	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2589	2595	1
ROMA	M	ROMA WTP AND PURCHASE OF WATER RIGHTS	M	CONSTRUCTION FUNDING				2589	2595	2
ROMA	M	ROMA WTP AND PURCHASE OF WATER RIGHTS	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2589	2595	3
SAN BENITO	M	SAN BENITO NEW BGD SUPPLY	M	CONSTRUCTION FUNDING	\$1,015,000.00			2175	2083	2
SAN BENITO	M	SAN BENITO NEW BGD SUPPLY	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY	\$0.00			2175	2083	3
SAN BENITO	M	SAN BENITO NEW BGD SUPPLY	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2175	2083	1
SAN JUAN	M	SAN JUAN WTP NO. 1 EXPANSION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2178	2383	1
SAN JUAN	M	SAN JUAN WTP NO. 1 EXPANSION	M	CONSTRUCTION FUNDING				2178	2383	2
SAN JUAN	M	SAN JUAN WTP NO. 1 EXPANSION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2178	2383	3
SANTA CRUZ IRRIGATION DISTRICT #15	M	SANTA CRUZ ID CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2979	2328	1
SANTA CRUZ IRRIGATION DISTRICT #15	M	SANTA CRUZ ID CONSERVATION	M	CONSTRUCTION FUNDING				2979	2328	2
SANTA CRUZ IRRIGATION DISTRICT #15	M	SANTA CRUZ ID CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2979	2328	3
SHARYLAND WSC	M	SHARYLAND WELL AND RO AT WTP 2	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				122	2360	1
SHARYLAND WSC	M	SHARYLAND WELL AND RO AT WTP 2	M	CONSTRUCTION FUNDING				122	2360	2
SHARYLAND WSC	M	SHARYLAND WELL AND RO AT WTP 2	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				122	2360	3
SHARYLAND WSC	M	SHARYLAND WELL AND RO AT WTP 3	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				122	2361	1
SHARYLAND WSC	M	SHARYLAND WELL AND RO AT WTP 3	M	CONSTRUCTION FUNDING				122	2361	2
SHARYLAND WSC	M	SHARYLAND WELL AND RO AT WTP 3	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				122	2361	3
LAREDO	M	SOUTH LAREDO WWTP POTABLE REUSE - PHASE I	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				1199	2369	1
LAREDO	M	SOUTH LAREDO WWTP POTABLE REUSE - PHASE I	M	CONSTRUCTION FUNDING				1199	2369	2
LAREDO	M	SOUTH LAREDO WWTP POTABLE REUSE - PHASE I	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				1199	2369	3
LAREDO	M	SOUTH LAREDO WWTP POTABLE REUSE - PHASE II	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				1199	2608	1
LAREDO	M	SOUTH LAREDO WWTP POTABLE REUSE - PHASE II	M	CONSTRUCTION FUNDING				1199	2608	2
LAREDO	M	SOUTH LAREDO WWTP POTABLE REUSE - PHASE II	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				1199	2608	3
LAREDO	M	SOUTH LAREDO WWTP POTABLE REUSE - PHASE III	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				1199	2614	1
LAREDO	M	SOUTH LAREDO WWTP POTABLE REUSE - PHASE III	M	CONSTRUCTION FUNDING				1199	2614	2
LAREDO	M	SOUTH LAREDO WWTP POTABLE REUSE - PHASE III	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				1199	2614	3





2016 RWP Infrastructure Funding Report (IFR) Survey  
Region M

SponsorEntityName	SponsorEntityPrimaryRegion	ProjectName	WMSProjectSponsorRegion	IFRElementName	IFRElementValue	YearOfNeed	IFRProjectDataId	EntityRwpId	WMSProjectId	IFRProjectElementsId
COUNTY-OTHER, STARR	M	STARR COUNTY-OTHER ADDITIONAL GROUNDWATER WE	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				580	2616	1
COUNTY-OTHER, STARR	M	STARR COUNTY-OTHER ADDITIONAL GROUNDWATER WE	M	CONSTRUCTION FUNDING				580	2616	2
COUNTY-OTHER, STARR	M	STARR COUNTY-OTHER ADDITIONAL GROUNDWATER WE	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				580	2616	3
UNION WSC	M	UNION WSC BGD PLANT	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2856	1700	1
UNION WSC	M	UNION WSC BGD PLANT	M	CONSTRUCTION FUNDING				2856	1700	2
UNION WSC	M	UNION WSC BGD PLANT	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2856	1700	3
UNION WSC	M	UNION WSC METER AND LINE REPLACEMENT	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2856	2435	1
UNION WSC	M	UNION WSC METER AND LINE REPLACEMENT	M	CONSTRUCTION FUNDING				2856	2435	2
UNION WSC	M	UNION WSC METER AND LINE REPLACEMENT	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2856	2435	3
UNITED IRRIGATION DISTRICT	M	UNITED ID CONSERVATION	M	CONSTRUCTION FUNDING	\$6,000,000.00	2020		136	2318	2
UNITED IRRIGATION DISTRICT	M	UNITED ID CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY	\$0.00			136	2318	3
UNITED IRRIGATION DISTRICT	M	UNITED ID CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				136	2318	1
UNITED IRRIGATION DISTRICT	M	UNITED ID OFF-CHANNEL STORAGE	M	CONSTRUCTION FUNDING	\$4,000,000.00	2020		136	2547	2
UNITED IRRIGATION DISTRICT	M	UNITED ID OFF-CHANNEL STORAGE	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY	\$0.00			136	2547	3
UNITED IRRIGATION DISTRICT	M	UNITED ID OFF-CHANNEL STORAGE	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				136	2547	1
VALLEY ACRES IRRIGATION DISTRICT	M	VALLEY ACRES ID CONSERVATION	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				6866	2257	1
VALLEY ACRES IRRIGATION DISTRICT	M	VALLEY ACRES ID CONSERVATION	M	CONSTRUCTION FUNDING				6866	2257	2
VALLEY ACRES IRRIGATION DISTRICT	M	VALLEY ACRES ID CONSERVATION	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				6866	2257	3
WEBB COUNTY WATER UTILITY	M	WEBB COUNTY WATER UTILITY EXPAND EXISTING GROU	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2422	2643	1
WEBB COUNTY WATER UTILITY	M	WEBB COUNTY WATER UTILITY EXPAND EXISTING GROU	M	CONSTRUCTION FUNDING				2422	2643	2
WEBB COUNTY WATER UTILITY	M	WEBB COUNTY WATER UTILITY EXPAND EXISTING GROU	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2422	2643	3
COUNTY-OTHER, WEBB	M	WEBB COUNTY-OTHER ADDITIONAL GORUNDWATER WE	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				606	1709	1
COUNTY-OTHER, WEBB	M	WEBB COUNTY-OTHER ADDITIONAL GORUNDWATER WE	M	CONSTRUCTION FUNDING				606	1709	2
COUNTY-OTHER, WEBB	M	WEBB COUNTY-OTHER ADDITIONAL GORUNDWATER WE	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				606	1709	3
WESLACO	M	WESLACO GROUNDWATER DEVELOPMENT AND BLENDIN	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2429	1702	1
WESLACO	M	WESLACO GROUNDWATER DEVELOPMENT AND BLENDIN	M	CONSTRUCTION FUNDING				2429	1702	2
WESLACO	M	WESLACO GROUNDWATER DEVELOPMENT AND BLENDIN	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2429	1702	3
WESLACO	M	WESLACO NORTH WWTP POTABLE REUSE - PHASE I	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2429	2376	1
WESLACO	M	WESLACO NORTH WWTP POTABLE REUSE - PHASE I	M	CONSTRUCTION FUNDING				2429	2376	2
WESLACO	M	WESLACO NORTH WWTP POTABLE REUSE - PHASE I	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2429	2376	3
WESLACO	M	WESLACO NORTH WWTP POTABLE REUSE - PHASE II	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2429	2692	1
WESLACO	M	WESLACO NORTH WWTP POTABLE REUSE - PHASE II	M	CONSTRUCTION FUNDING				2429	2692	2
WESLACO	M	WESLACO NORTH WWTP POTABLE REUSE - PHASE II	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2429	2692	3
ZAPATA COUNTY WATERWORKS	M	ZAPATA NEW GROUNDWATER SUPPLY	M	PLANNING, DESIGN, PERMITTING & ACQUISITION FUNDING				2864	1727	1
ZAPATA COUNTY WATERWORKS	M	ZAPATA NEW GROUNDWATER SUPPLY	M	CONSTRUCTION FUNDING				2864	1727	2
ZAPATA COUNTY WATERWORKS	M	ZAPATA NEW GROUNDWATER SUPPLY	M	PERCENT STATE PARTICIPATION IN OWNING EXCESS CAPACITY				2864	1727	3





**Texas Water Development Board**



**2016 Region M Water Plan**

**Appendix G: Implementation Survey  
for 2011 Regional Water Plan**





Implementation Survey for 2011 Regional Water Plan

Sponsor Region	wms Sponsor Entity Id	Sponsor	Recommended Water Management Strategy	DB Project Id	Capital Cost	SS2010	SS2020	SS2030	SS2040	SS2050	SS2060	Y denotes strategies with supply volumes included in other strategies	Project Description	Infrastructure Type*	At what level of implementation is the project?*	If not implemented, why?*	Initial Volume of Water Provided (acft/yr)	Funds Expended to Date (\$)	Project Cost (\$) (should include development and construction costs)	Year the Project is Online?*	Is this a phased project?*	(Phased) Ultimate Volume (acft/yr)	(Phased) Ultimate Project Cost (\$)	Year project reaches maximum capacity?*	What is the project funding source(s)?*	Included in the 2016 Plan?*	Comments	
M	1082	IRRIGATION, HIDALGO	Irrigation conveyance system conservation	56	\$71,777,565	6,038	20,453	34,622	48,542	62,211	75,683	N		Canal	Acquisition and Design Phase			\$7,000,000		2015	Yes				TWDB	Yes		
M	300	BROWNSVILLE	Acquisition of water rights through purchase	57	\$8,024,294	0	0	0	0	0	1,923	N	Water Rights Purchase	No Infrastructure	Acquisition and Design Phase		2000											
M	761	ELSA	Proposed elevated storage tank and infrastructure improvements for City of Elsa	907	\$8,325,386	105	105	105	105	105	105	N	Rehabilitation of water system infrastructure	Impoundment	All Phases Fully Implemented			\$ 4,243,998									TWDB	No
M	300	BROWNSVILLE	Brackish water desalination	53	\$62,973,417	8,414	8,417	8,420	8,424	16,828	17,129	N	Expansion of treatment of brackish water	Water Treatment Plant	Not Implemented	Too soon												
M	300	BROWNSVILLE	Brownsville weir and reservoir	54	\$98,411,077	0	20,643	20,643	20,643	20,643	23,643	N		Impoundment	Not Implemented	Too soon												
M	300	BROWNSVILLE	Seawater desalination	52	\$165,021,993	0	0	0	5,600	5,600	7,013	N		Water Treatment Plant	Not Implemented	Financing												
M	44	EAGLE PASS	Advanced water conservation	60	\$37,877	10	21	31	40	48	55	N		No Infrastructure	Not Implemented	Financing												
M	44	EAGLE PASS	Brackish water desalination	53	\$2,430,010	0	390	390	390	402	771	N		No Infrastructure	Not Implemented	Financing												
M	761	ELSA	Advanced water conservation	60	\$11,707	2	5	7	10	14	17	N		No Infrastructure	Not Implemented													
M	1610	LYFORD	Acquisition of water rights through purchase	57	\$417,280	0	100	100	100	100	100	N		No Infrastructure	Not Implemented	Financing												
M	1610	LYFORD	Advanced water conservation	60	\$2,755	1	2	3	3	4	4	N		No Infrastructure	Not Implemented	Financing												
M	1839	MILITARY HIGHWAY WSC	Acquisition of water rights through contract	58	\$271,587	0	0	15	34	56	78	N		No Infrastructure	Not Implemented	Financing												
M	1839	MILITARY HIGHWAY WSC	Acquisition of water rights through purchase	57	\$6,213,299	0	0	289	653	1,061	1,489	N		No Infrastructure	Not Implemented	Financing												
M	1839	MILITARY HIGHWAY WSC	Advanced water conservation	60	\$80,575	18	38	58	78	98	117	N		No Infrastructure	Not Implemented	Financing												
M	1839	MILITARY HIGHWAY WSC	Expand existing groundwater wells	51	\$1,415,326	0	250	500	750	1,000	1,250	N		Wells	Not Implemented	Financing												
M	2317	SAN BENITO	Acquisition of water rights through contract	58	\$146,239	0	0	0	0	11	42	N		No Infrastructure	Not Implemented	Financing												
M	2317	SAN BENITO	Acquisition of water rights through purchase	57	\$3,292,339	0	0	0	0	200	789	N		No Infrastructure	Not Implemented	Financing												
M	2317	SAN BENITO	Advanced water conservation	60	\$112,943	26	53	81	109	137	164	N		No Infrastructure	Not Implemented	Financing												
M	145	UNITED IRRIGATION DISTRICT	On-farm water conservation	55	\$152,028	100	100	100	100	100	100	N		No Infrastructure	Not Implemented													
M	300	BROWNSVILLE	Banco Morales Reservoir	908	\$25,790,900	0	238	238	238	238	238	N	New Reservoir	Impoundment	Sponsor Has Taken Official Action to Initiate Project				0									
M	145	UNITED IRRIGATION DISTRICT	Irrigation conveyance system conservation	56	\$1,141,825	100	100	100	100	100	100	N	Canal Lining/Pipeline	Canal	Sponsor Has Taken Official Action to Initiate Project													
M	300	BROWNSVILLE	Advanced water conservation	60	\$1,488,915	253	521	798	1,074	1,350	2,162	N	Rebates, Leak detection	No Infrastructure	Under Construction					2015	Yes						Yes	
M	300	BROWNSVILLE	Resaca restoration	909	\$52,000,000	877	877	877	877	877	877	N		Impoundment	Under Construction					2015	Yes						Yes	
M	96	MCALLEN	Non-potable reuse	49	\$38,212,973	0	447	4,047	10,299	18,706	27,627	N		Other											TWDB	No	Contacted Sponsor, no response received.	
M	2197	PHARR	Acquisition of water rights through purchase	57	\$37,117,053	0	698	2,478	4,721	7,086	8,895	N		No Infrastructure											TWDB	No	Contacted Sponsor, no response received.	
M	2253	RAYMONDVILLE	Brackish water desalination	53	\$367,642	0	100	100	100	100	100	N		Wells											TWDB		Contacted Sponsor, no response received.	
M	168	ALAMO	Acquisition of water rights through contract	58	\$83,565	0	5	10	14	19	24	N		No Infrastructure													Contacted Sponsor, no response received.	







Implementation Survey for 2011 Regional Water Plan

Sponsor Region	wms Sponsor Entity Id	Sponsor	Recommended Water Management Strategy	DB Project Id	Capital Cost	SS2010	SS2020	SS2030	SS2040	SS2050	SS2060	Y denotes strategies with supply volumes included in other strategies	Project Description	Infrastructure Type*	At what level of Implementation is the project?*	If not implemented, why?*	Initial Volume of Water Provided (acft/yr)	Funds Expended to Date (\$)	Project Cost (\$ (should include development and construction costs)	Year the Project is Online?*	Is this a phased project?*	(Phased) Ultimate Volume (acft/yr)	(Phased) Ultimate Project Cost (\$)	Year project reaches maximum capacity?*	What is the project funding source(s)?*	Included in the 2016 Plan?*	Comments
M	168	ALAMO	Acquisition of water rights through purchase	57	\$1,965,389	0	100	200	277	381	471	N		No Infrastructure													Contacted Sponsor, no response received.
M	168	ALAMO	Acquisition of water rights through urbanization	59	\$7,189,497	0	400	800	1,330	1,700	2,100	N		No Infrastructure													Contacted Sponsor, no response received.
M	168	ALAMO	Advanced water conservation	60	\$154,952	25	25	25	25	125	225	N		No Infrastructure													Contacted Sponsor, no response received.
M	168	ALAMO	Brackish water desalination	53	\$4,794,053	0	83	288	469	882	1,304	N															Contacted Sponsor, no response received.
M	168	ALAMO	Non-potable reuse	49	\$1,873,605	34	150	225	300	400	500	N															Contacted Sponsor, no response received.
M	177	ALTON	Advanced water conservation	60	\$3,857,956	59	82	2,446	3,419	4,482	5,602	N		No Infrastructure													Contacted Sponsor, no response received.
M	300	BROWNSVILLE	Acquisition of water rights through contract	58	\$449,163	0	0	0	0	0	129	N		No Infrastructure													Contacted Sponsor, no response received.
M	300	BROWNSVILLE	Expand existing groundwater wells	51	\$1,132,261	0	1,000	1,000	1,000	1,000	1,000	N		Wells													Contacted Sponsor, no response received.
M	300	BROWNSVILLE	Non-potable reuse	49	\$1,873,605	0	500	500	500	500	500	N		Water Treatment Plant													Contacted Sponsor, no response received.
M	388	COMBES	Advanced water conservation	60	\$17,217	4	8	12	17	21	25	N		No Infrastructure													Contacted Sponsor, no response received.
M	388	COMBES	Brackish water desalination	53	\$91,911	0	25	25	25	25	25	N															Contacted Sponsor, no response received.
M	442	COUNTY-OTHER, CAMERON	Advanced water conservation	60	\$201,782	46	95	145	195	245	293	N		No Infrastructure													Contacted Sponsor, no response received.
M	519	COUNTY-OTHER, HIDALGO	Acquisition of water rights through purchase	57	\$32,906,698	0	1,277	4,297	6,512	11,026	15,600	N		No Infrastructure													Contacted Sponsor, no response received.
M	519	COUNTY-OTHER, HIDALGO	Advanced water conservation	60	\$981,362	144	357	595	854	1,136	1,425	N		No Infrastructure													Contacted Sponsor, no response received.
M	519	COUNTY-OTHER, HIDALGO	Expand existing groundwater wells	51	\$4,969,492	0	1,089	1,887	3,861	4,098	4,389	N		Wells													Contacted Sponsor, no response received.
M	535	COUNTY-OTHER, JIM HOGG	Acquisition of water rights through purchase	57	\$9,288,652	7	7	8	8	8	7	N		No Infrastructure													Contacted Sponsor, no response received.
M	535	COUNTY-OTHER, JIM HOGG	Advanced water conservation	60	\$689	0	1	1	1	1	1	N		No Infrastructure													Contacted Sponsor, no response received.
M	535	COUNTY-OTHER, JIM HOGG	Expand existing groundwater wells	51	\$73,597	60	66	70	73	71	65	N		Wells													Contacted Sponsor, no response received.
M	573	COUNTY-OTHER, MAVERICK	Acquisition of water rights through purchase	57	\$7,565,286	27	549	1,042	1,483	1,873	2,226	N		No Infrastructure													Contacted Sponsor, no response received.







Implementation Survey for 2011 Regional Water Plan

Sponsor Region	wms Sponsor Entity Id	Sponsor	Recommended Water Management Strategy	DB Project Id	Capital Cost	SS2010	SS2020	SS2030	SS2040	SS2050	SS2060	Y denotes strategies with supply volumes included in other strategies	Project Description	Infrastructure Type*	At what level of Implementation is the project?*	If not implemented, why?*	Initial Volume of Water Provided (acft/yr)	Funds Expended to Date (\$)	Project Cost (\$ (should include development and construction costs)	Year the Project is Online?*	Is this a phased project?*	(Phased) Ultimate Volume (acft/yr)	(Phased) Ultimate Project Cost (\$)	Year project reaches maximum capacity?*	What is the project funding source(s)?*	Included in the 2016 Plan?*	Comments	
M	573	COUNTY-OTHER, MAVERICK	Advanced water conservation	60	\$148,754	40	83	123	158	190	216	N		No Infrastructure													Contacted Sponsor, no response received.	
M	625	COUNTY-OTHER, STARR	Acquisition of water rights through purchase	57	\$65,095,675	3,041	2,786	4,553	5,334	6,512	7,886	N		No Infrastructure														Contacted Sponsor, no response received.
M	625	COUNTY-OTHER, STARR	Advanced water conservation	60	\$296,130	67	139	212	286	360	430	N		No Infrastructure														Contacted Sponsor, no response received.
M	625	COUNTY-OTHER, STARR	Expand existing groundwater wells	51	\$4,404,494	1,580	3,195	2,869	3,557	3,826	3,890	N		Wells														Contacted Sponsor, no response received.
M	651	COUNTY-OTHER, WEBB	Acquisition of water rights through purchase	57	\$3,647,027	123	240	370	518	686	874	N		No Infrastructure														Contacted Sponsor, no response received.
M	651	COUNTY-OTHER, WEBB	Advanced water conservation	60	\$364,309	74	144	224	313	416	529	N		No Infrastructure														Contacted Sponsor, no response received.
M	664	COUNTY-OTHER, ZAPATA	Acquisition of water rights through purchase	57	\$29,210	571	853	1,131	1,387	1,632	1,813	N		No Infrastructure														Contacted Sponsor, no response received.
M	664	COUNTY-OTHER, ZAPATA	Advanced water conservation	60	\$58,537	14	30	46	61	75	85	N		No Infrastructure														Contacted Sponsor, no response received.
M	718	DONNA	Advanced water conservation	60	\$81,264	15	32	51	72	95	118	N		No Infrastructure														Contacted Sponsor, no response received.
M	718	DONNA	Brackish water desalination	53	\$183,821	0	50	50	50	50	50	N																Contacted Sponsor, no response received.
M	718	DONNA	Expand existing groundwater wells	51	\$28,307	0	25	25	25	25	25	N		Wells														Contacted Sponsor, no response received.
M	734	EAST RIO HONDO WSC	Acquisition of water rights through contract	58	\$17,409	0	0	0	0	5	5	N		No Infrastructure														Contacted Sponsor, no response received.
M	734	EAST RIO HONDO WSC	Acquisition of water rights through purchase	57	\$396,416	0	0	0	0	95	95	N		No Infrastructure														Contacted Sponsor, no response received.
M	734	EAST RIO HONDO WSC	Advanced water conservation	60	\$167,348	0	46	94	144	193	243	N		No Infrastructure														Contacted Sponsor, no response received.
M	734	EAST RIO HONDO WSC	Brackish water desalination	53	\$3,330,838	100	100	100	100	177	906	N																Contacted Sponsor, no response received.
M	740	EDCOUCH	Acquisition of water rights through purchase	57	\$1,502,208	65	118	175	246	299	360	N		No Infrastructure														Contacted Sponsor, no response received.
M	740	EDCOUCH	Advanced water conservation	60	\$107,433	65	70	81	86	121	156	N		No Infrastructure														Contacted Sponsor, no response received.
M	744	EDINBURG	Acquisition of water rights through purchase	57	\$27,619,761	0	0	1,631	3,114	4,591	6,619	N		No Infrastructure														Contacted Sponsor, no response received.
M	744	EDINBURG	Advanced water conservation	60	\$755,476	74	328	500	686	889	1,097	N		No Infrastructure														Contacted Sponsor, no response received.







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M	744	EDINBURG	Non-potable reuse	49	\$14,988,840	0	0	500	1,500	3,000	4,000	N															Contacted Sponsor, no response received.	
M	747	EL CENIZO	Acquisition of water rights through contract	58	\$271,587	0	3	19	36	56	78	N		No Infrastructure														Contacted Sponsor, no response received.
M	747	EL CENIZO	Acquisition of water rights through purchase	57	\$6,159,052	0	56	357	689	1,072	1,476	N		No Infrastructure														Contacted Sponsor, no response received.
M	747	EL CENIZO	Advanced water conservation	60	\$99,169	18	38	62	87	115	144	N		No Infrastructure														Contacted Sponsor, no response received.
M	719	EL INDIO WSC	Acquisition of water rights through purchase	57	\$0	1	1	0	0	0	0	N		No Infrastructure														Contacted Sponsor, no response received.
M	749	EL INDIO WSC	Advanced water conservation	60	\$48,207	13	27	40	51	61	70	N		No Infrastructure														Contacted Sponsor, no response received.
M	750	EL JARDIN	Acquisition of water rights through contract	58	\$435,235	15	37	59	81	103	125	N		No Infrastructure														Contacted Sponsor, no response received.
M	750	EL JARDIN	Acquisition of water rights through purchase	57	\$9,889,535	294	696	1,112	1,535	1,953	2,370	N		No Infrastructure														Contacted Sponsor, no response received.
M	750	EL JARDIN	Advanced water conservation	60	\$81,952	19	38	59	79	99	119	N		No Infrastructure														Contacted Sponsor, no response received.
M	761	ELSA	Acquisition of water rights through purchase	57	\$208,640	0	0	0	0	50	50	N		No Infrastructure														Contacted Sponsor, no response received.
M	761	ELSA	Brackish water desalination	53	\$367,642	0	100	100	100	100	100	N																Contacted Sponsor, no response received.
M	68	HARLINGEN	Acquisition of water rights through purchase	57	\$521,600	0	0	0	0	75	125	N		No Infrastructure														Contacted Sponsor, no response received.
M	68	HARLINGEN	Advanced water conservation	60	\$666,637	68	141	215	290	691	968	N		No Infrastructure														Contacted Sponsor, no response received.
M	68	HARLINGEN	Brackish water desalination	53	\$7,072,621	0	50	50	50	611	1,948	N																Contacted Sponsor, no response received.
M	68	HARLINGEN	Non-potable reuse	49	\$93,680	0	0	0	0	25	25	N																Contacted Sponsor, no response received.
M	926	HEBBRONVILLE	Advanced water conservation	60	\$4,132	2	4	6	8	7	6	N		No Infrastructure														Contacted Sponsor, no response received.
M	940	HIDALGO	Acquisition of water rights through contract	58	\$177,576	0	0	0	8	29	51	N		No Infrastructure														Contacted Sponsor, no response received.
M	940	HIDALGO	Acquisition of water rights through purchase	57	\$4,060,134	0	0	0	154	558	973	N		No Infrastructure														Contacted Sponsor, no response received.
M	940	HIDALGO	Advanced water conservation	60	\$161,839	32	66	104	145	189	235	N		No Infrastructure														Contacted Sponsor, no response received.







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M	940	HIDALGO	Expand existing groundwater wells	51	\$742,763	112	253	354	454	555	656	N		Wells													Contacted Sponsor, no response received.
M	941	HIDALGO COUNTY MUD #1	Acquisition of water rights through contract	58	\$954,036	66	100	139	181	227	274	N		No Infrastructure													Contacted Sponsor, no response received.
M	941	HIDALGO COUNTY MUD #1	Acquisition of water rights through purchase	57	\$20,450,891	1,051	1,684	2,401	3,173	4,026	4,901	N		No Infrastructure													Contacted Sponsor, no response received.
M	941	HIDALGO COUNTY MUD #1	Advanced water conservation	60	\$77,132	14	30	48	68	89	112	N		No Infrastructure													Contacted Sponsor, no response received.
M	973	INDIAN LAKE	Advanced water conservation	60	\$4,821	1	2	4	5	6	7	N		No Infrastructure													Contacted Sponsor, no response received.
M	973	INDIAN LAKE	Brackish water desalination	53	\$235,291	18	27	36	46	54	64	N															Contacted Sponsor, no response received.
M	1009	IRRIGATION, CAMERON	Irrigation conveyance system conservation	56	\$39,543,934	3,597	12,182	20,616	28,895	37,020	45,022	N															Contacted Sponsor, no response received.
M	1009	IRRIGATION, CAMERON	On-farm water conservation	55	\$54,946,207	478	3,241	8,226	15,372	24,618	35,928	N		No Infrastructure													Contacted Sponsor, no response received.
M	1082	IRRIGATION, HIDALGO	On-farm water conservation	55	\$115,491,102	803	5,441	13,815	25,825	41,371	60,394	N		No Infrastructure													Contacted Sponsor, no response received.
M	1132	IRRIGATION, MAVERICK	Irrigation conveyance system conservation	56	\$13,797,827	924	3,131	5,302	7,435	9,530	11,597	N															Contacted Sponsor, no response received.
M	1132	IRRIGATION, MAVERICK	On-farm water conservation	55	\$11,455,561	123	833	2,115	3,955	6,338	9,254	N		No Infrastructure													Contacted Sponsor, no response received.
M	1179	IRRIGATION, STARR	On-farm water conservation	55	\$5,600,456	46	313	797	1,493	2,396	3,505	N		No Infrastructure													Contacted Sponsor, no response received.
M	1209	IRRIGATION, WILLACY	Irrigation conveyance system conservation	56	\$5,638,652	545	1,845	3,122	4,375	5,604	6,815	N															Contacted Sponsor, no response received.
M	1209	IRRIGATION, WILLACY	On-farm water conservation	55	\$6,924,367	72	491	1,246	2,328	3,727	5,438	N		No Infrastructure													Contacted Sponsor, no response received.
M	1277	LA FERIA	Acquisition of water rights through purchase	57	\$417,280	0	100	100	100	100	100	N		No Infrastructure													Contacted Sponsor, no response received.
M	1277	LA FERIA	Advanced water conservation	60	\$53,028	14	18	33	48	62	77	N		No Infrastructure													Contacted Sponsor, no response received.
M	1277	LA FERIA	Brackish water desalination	53	\$661,756	0	180	180	180	180	180	N															Contacted Sponsor, no response received.
M	1277	LA FERIA	Expand existing groundwater wells	51	\$11,323	0	10	10	10	10	10	N		Wells													Contacted Sponsor, no response received.
M	1279	LA GRULLA	Acquisition of water rights through contract	58	\$355,152	32	45	54	56	88	102	N		No Infrastructure													Contacted Sponsor, no response received.







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M	1279	LA GRULLA	Acquisition of water rights through purchase	57	\$1,268,531	243	252	259	270	279	304	N		No Infrastructure													Contacted Sponsor, no response received.
M	1279	LA GRULLA	Advanced water conservation	60	\$44,075	20	25	30	35	56	64	N		No Infrastructure													Contacted Sponsor, no response received.
M	1279	LA GRULLA	Expand existing groundwater wells	51	\$207,204	50	75	112	155	159	183	N		Wells													Contacted Sponsor, no response received.
M	1280	LA JOYA	Acquisition of water rights through urbanization	59	\$633,360	0	0	0	2	87	185	N		No Infrastructure													Contacted Sponsor, no response received.
M	1280	LA JOYA	Advanced water conservation	60	\$50,273	7	14	21	49	62	73	N		No Infrastructure													Contacted Sponsor, no response received.
M	1280	LA JOYA	Brackish water desalination	53	\$441,171	50	50	100	120	120	120	N															Contacted Sponsor, no response received.
M	1284	LA VILLA	Advanced water conservation	60	\$689	0	1	1	1	1	1	N		No Infrastructure													Contacted Sponsor, no response received.
M	82	LAGUNA MADRE WD	Acquisition of water rights through contract	58	\$174,094	0	0	2	12	25	50	N		No Infrastructure													Contacted Sponsor, no response received.
M	82	LAGUNA MADRE WD	Acquisition of water rights through purchase	57	\$3,755,520	0	0	48	188	475	900	N		No Infrastructure													Contacted Sponsor, no response received.
M	82	LAGUNA MADRE WD	Advanced water conservation	60	\$112,943	26	53	81	109	137	164	N		No Infrastructure													Contacted Sponsor, no response received.
M	82	LAGUNA MADRE WD	Brackish water desalination	53	\$7,581,934	200	200	800	2,000	3,000	4,000	N															Contacted Sponsor, no response received.
M	82	LAGUNA MADRE WD	Non-potable reuse	49	\$93,680	50	50	50	50	25	25	N															Contacted Sponsor, no response received.
M	82	LAGUNA MADRE WD	Seawater desalination	52	\$20,330,672	100	100	118	424	796	864	N															Contacted Sponsor, no response received.
M	1290	LAGUNA VISTA	Advanced water conservation	60	\$16,528	4	8	12	16	20	24	N		No Infrastructure													Contacted Sponsor, no response received.
M	1290	LAGUNA VISTA	Seawater desalination	52	\$588,272	25	25	25	25	25	25	N															Contacted Sponsor, no response received.
M	1306	LAREDO	Acquisition of water rights through contract	58	\$3,861,409	75	133	409	494	621	1,109	N		No Infrastructure													Contacted Sponsor, no response received.
M	1306	LAREDO	Acquisition of water rights through purchase	57	\$208,068,312	1,425	2,524	7,766	18,367	36,313	49,863	N		No Infrastructure													Contacted Sponsor, no response received.
M	1306	LAREDO	Advanced water conservation	60	\$2,411,739	428	930	1,493	2,111	2,788	3,502	N		No Infrastructure													Contacted Sponsor, no response received.
M	1306	LAREDO	Brackish water desalination	53	\$37,131,853	1,120	5,600	5,600	10,100	10,100	10,100	N															Contacted Sponsor, no response received.







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M	1306	LAREDO	Expand existing groundwater wells	51	\$8,965,239	800	799	7,920	7,920	7,919	7,918	N		Wells													Contacted Sponsor, no response received.
M	1306	LAREDO	Laredo low water weir	910	\$294,400,000	0	0	0	0	0	0	N		Impoundment													Contacted Sponsor, no response received.
M	1306	LAREDO	Non-potable reuse	49	\$45,427,426	1,120	5,600	5,600	6,521	6,522	12,123	N															Contacted Sponsor, no response received.
M	1599	LOS FRESNOS	Advanced water conservation	60	\$69,556	16	32	50	67	84	101	N		No Infrastructure													Contacted Sponsor, no response received.
M	1599	LOS FRESNOS	Brackish water desalination	53	\$3,665,392	0	0	206	474	740	997	N															Contacted Sponsor, no response received.
M	1600	LOS INDIOS	Advanced water conservation	60	\$8,953	2	4	6	8	11	13	N		No Infrastructure													Contacted Sponsor, no response received.
M	1642	MANUFACTURING, CAMERON	Acquisition of water rights through purchase	57	\$417,280	100	100	100	100	100	100	N		No Infrastructure													Contacted Sponsor, no response received.
M	1642	MANUFACTURING, CAMERON	Expand existing groundwater wells	51	\$1,132,261	1,000	1,000	1,000	1,000	1,000	1,000	N		Wells													Contacted Sponsor, no response received.
M	1642	MANUFACTURING, CAMERON	Non-potable reuse	49	\$10,510,924	796	1,230	1,623	2,012	2,349	2,805	N															Contacted Sponsor, no response received.
M	1693	MANUFACTURING, HIDALGO	Acquisition of water rights through purchase	57	\$809,523	0	0	0	0	35	194	N		No Infrastructure													Contacted Sponsor, no response received.
M	1693	MANUFACTURING, HIDALGO	Expand existing groundwater wells	51	\$226,452	0	0	0	0	100	200	N		Wells													Contacted Sponsor, no response received.
M	1693	MANUFACTURING, HIDALGO	Non-potable reuse	49	\$749,442	0	0	0	0	100	200	N															Contacted Sponsor, no response received.
M	1789	MANUFACTURING, WILLACY	Acquisition of water rights through purchase	57	\$41,728	10	10	10	10	10	10	N		No Infrastructure													Contacted Sponsor, no response received.
M	1789	MANUFACTURING, WILLACY	Non-potable reuse	49	\$56,208	15	15	15	15	15	15	N															Contacted Sponsor, no response received.
M	96	MCALLEN	Acquisition of water rights through contract	58	\$1,504,174	0	0	225	329	393	432	N		No Infrastructure													Contacted Sponsor, no response received.
M	96	MCALLEN	Acquisition of water rights through purchase	57	\$30,649,214	0	1	999	4,085	5,721	7,345	N		No Infrastructure													Contacted Sponsor, no response received.
M	96	MCALLEN	Advanced water conservation	60	\$2,357,334	191	382	925	1,250	2,177	3,423	N		No Infrastructure													Contacted Sponsor, no response received.
M	96	MCALLEN	Brackish water desalination	53	\$32,429,710	3,360	3,360	6,139	6,600	8,121	8,821	N															Contacted Sponsor, no response received.
M	96	MCALLEN	Expand existing groundwater wells	51	\$1,747,078	0	0	487	619	945	1,543	N		Wells													Contacted Sponsor, no response received.







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M	1827	MERCEDES	Advanced water conservation	60	\$36,500	7	14	23	32	43	53	N		No Infrastructure													Contacted Sponsor, no response received.
M	1827	MERCEDES	Brackish water desalination	53	\$2,058,796	560	560	560	560	560	560	N															Contacted Sponsor, no response received.
M	1827	MERCEDES	Expand existing groundwater wells	51	\$634,066	0	560	560	560	560	560	N		Wells													Contacted Sponsor, no response received.
M	2070	MISSION	Acquisition of water rights through urbanization	59	\$41,486,821	299	2,633	4,901	7,236	10,014	12,118	N		No Infrastructure													Contacted Sponsor, no response received.
M	2070	MISSION	Advanced water conservation	60	\$1,470,321	260	637	598	789	1,394	2,135	N		No Infrastructure													Contacted Sponsor, no response received.
M	2070	MISSION	Brackish water desalination	53	\$2,058,796	560	560	560	560	560	560	N															Contacted Sponsor, no response received.
M	2070	MISSION	Non-potable reuse	49	\$19,938,904	352	839	1,765	2,780	3,909	5,321	N															Contacted Sponsor, no response received.
M	103	NORTH ALAMO WSC	Acquisition of water rights through contract	58	\$167,130	0	0	0	0	0	48	N		No Infrastructure													Contacted Sponsor, no response received.
M	103	NORTH ALAMO WSC	Acquisition of water rights through purchase	57	\$3,763,865	0	0	0	0	0	907	N		No Infrastructure													Contacted Sponsor, no response received.
M	103	NORTH ALAMO WSC	Advanced water conservation	60	\$2,787,755	259	560	895	1,255	3,143	4,048	N		No Infrastructure													Contacted Sponsor, no response received.
M	103	NORTH ALAMO WSC	Brackish water desalination	53	\$84,925,241	33,603	33,603	33,603	33,603	33,603	33,603	N															Contacted Sponsor, no response received.
M	2153	OLMITO WSC	Acquisition of water rights through contract	58	\$316,851	0	16	35	53	72	91	N		No Infrastructure													Contacted Sponsor, no response received.
M	2153	OLMITO WSC	Acquisition of water rights through purchase	57	\$7,189,734	0	303	661	1,011	1,376	1,723	N		No Infrastructure													Contacted Sponsor, no response received.
M	2153	OLMITO WSC	Advanced water conservation	60	\$90,216	21	42	65	87	110	131	N		No Infrastructure													Contacted Sponsor, no response received.
M	2170	PALM VALLEY	Acquisition of water rights through contract	58	\$45,264	4	6	8	10	12	13	N		No Infrastructure													Contacted Sponsor, no response received.
M	2170	PALM VALLEY	Acquisition of water rights through purchase	57	\$1,064,064	78	116	151	185	220	255	N		No Infrastructure													Contacted Sponsor, no response received.
M	2170	PALM VALLEY	Advanced water conservation	60	\$689	1	1	1	1	1	1	N		No Infrastructure													Contacted Sponsor, no response received.
M	2171	PALM VALLEY ESTATES UD	Acquisition of water rights through contract	58	\$13,928	0	2	1	2	3	4	N		No Infrastructure													Contacted Sponsor, no response received.
M	2171	PALM VALLEY ESTATES UD	Acquisition of water rights through purchase	57	\$312,960	3	12	27	41	57	75	N		No Infrastructure													Contacted Sponsor, no response received.







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M	2171	PALM VALLEY ESTATES UD	Advanced water conservation	60	\$2,755	1	1	2	3	4	4	N		No Infrastructure													Contacted Sponsor, no response received.
M	2173	PALMHURST	Acquisition of water rights through contract	58	\$285,514	0	0	0	15	46	82	N		No Infrastructure													Contacted Sponsor, no response received.
M	2173	PALMHURST	Acquisition of water rights through purchase	57	\$6,472,012	0	0	0	281	883	1,551	N		No Infrastructure													Contacted Sponsor, no response received.
M	2173	PALMHURST	Advanced water conservation	60	\$174,923	32	68	110	155	203	254	N		No Infrastructure													Contacted Sponsor, no response received.
M	2174	PALMVIEW	Acquisition of water rights through contract	58	\$156,685	0	0	0	0	22	45	N		No Infrastructure													Contacted Sponsor, no response received.
M	2174	PALMVIEW	Acquisition of water rights through purchase	57	\$3,588,608	0	0	0	0	425	860	N		No Infrastructure													Contacted Sponsor, no response received.
M	2174	PALMVIEW	Advanced water conservation	60	\$88,150	16	34	55	78	102	128	N		No Infrastructure													Contacted Sponsor, no response received.
M	2192	PENITAS	Advanced water conservation	60	\$11,019	1	1	2	2	7	16	N		No Infrastructure													Contacted Sponsor, no response received.
M	2197	PHARR	Acquisition of water rights through contract	58	\$1,928,963	0	89	205	311	423	554	N		No Infrastructure													Contacted Sponsor, no response received.
M	2197	PHARR	Acquisition of water rights through urbanization	59	\$6,857,411	0	400	766	928	1,067	2,003	N		No Infrastructure													Contacted Sponsor, no response received.
M	2197	PHARR	Advanced water conservation	60	\$649,420	143	392	478	589	798	943	N		No Infrastructure													Contacted Sponsor, no response received.
M	2197	PHARR	Expand existing groundwater wells	51	\$283,065	100	150	175	200	225	250	N		Wells													Contacted Sponsor, no response received.
M	2197	PHARR	Non-potable reuse	49	\$187,361	50	50	50	50	50	50	N															Contacted Sponsor, no response received.
M	2221	PORT ISABEL	Acquisition of water rights through contract	58	\$254,177	47	52	57	62	68	73	N		No Infrastructure													Contacted Sponsor, no response received.
M	2221	PORT ISABEL	Acquisition of water rights through purchase	57	\$5,796,019	897	993	1,091	1,187	1,289	1,389	N		No Infrastructure													Contacted Sponsor, no response received.
M	2221	PORT ISABEL	Advanced water conservation	60	\$13,773	3	6	10	13	16	20	N		No Infrastructure													Contacted Sponsor, no response received.
M	2221	PORT ISABEL	Brackish water desalination	53	\$5,378,604	944	1,045	1,149	1,249	1,357	1,463	N															Contacted Sponsor, no response received.
M	2235	PRIMERA	Acquisition of water rights through contract	58	\$295,960	0	16	40	60	82	85	N		No Infrastructure													Contacted Sponsor, no response received.
M	2235	PRIMERA	Acquisition of water rights through purchase	57	\$1,414,579	31	68	95	123	211	339	N		No Infrastructure													Contacted Sponsor, no response received.







Implementation Survey for 2011 Regional Water Plan

Sponsor Region	wms Sponsor Entity Id	Sponsor	Recommended Water Management Strategy	DB Project Id	Capital Cost	SS2010	SS2020	SS2030	SS2040	SS2050	SS2060	Y denotes strategies with supply volumes included in other strategies	Project Description	Infrastructure Type*	At what level of implementation is the project?*	If not implemented, why?*	Initial Volume of Water Provided (acft/yr)	Funds Expended to Date (\$)	Project Cost (\$) (should include development and construction costs)	Year the Project is Online?*	Is this a phased project?*	(Phased) Ultimate Volume (acft/yr)	(Phased) Ultimate Project Cost (\$)	Year project reaches maximum capacity?*	What is the project funding source(s)?*	Included in the 2016 Plan?*	Comments
M	2235	PRIMERA	Advanced water conservation	60	\$103,301	57	88	107	137	147	150	N		No Infrastructure													Contacted Sponsor, no response received.
M	2235	PRIMERA	Brackish water desalination	53	\$415,436	51	70	95	111	124	113	N															Contacted Sponsor, no response received.
M	2235	PRIMERA	Expand existing groundwater wells	51	\$190,220	70	90	120	158	158	168	N		Wells													Contacted Sponsor, no response received.
M	2238	PROGRESO	Advanced water conservation	60	\$61,292	11	24	38	54	71	89	N		No Infrastructure													Contacted Sponsor, no response received.
M	2248	RANCHO VIEJO	Advanced water conservation	60	\$4,132	4	4	5	5	6	6	N		No Infrastructure													Contacted Sponsor, no response received.
M	2253	RAYMONDVILLE	Advanced water conservation	60	\$7,575	2	5	7	9	10	11	N		No Infrastructure													Contacted Sponsor, no response received.
M	2270	RIO BRAVO	Acquisition of water rights through contract	58	\$414,344	0	14	37	62	89	119	N		No Infrastructure													Contacted Sponsor, no response received.
M	2270	RIO BRAVO	Acquisition of water rights through purchase	57	\$9,413,836	0	271	700	1,171	1,700	2,256	N		No Infrastructure													Contacted Sponsor, no response received.
M	2270	RIO BRAVO	Advanced water conservation	60	\$115,009	20	44	71	101	133	167	N		No Infrastructure													Contacted Sponsor, no response received.
M	2271	RIO GRANDE CITY	Acquisition of water rights through purchase	57	\$588,365	5	14	24	50	84	141	N		No Infrastructure													Contacted Sponsor, no response received.
M	2271	RIO GRANDE CITY	Advanced water conservation	60	\$106,745	23	35	48	78	120	155	N		No Infrastructure													Contacted Sponsor, no response received.
M	2271	RIO GRANDE CITY	Brackish water desalination	53	\$5,507,279	560	1,120	1,120	1,123	1,314	1,498	N															Contacted Sponsor, no response received.
M	2271	RIO GRANDE CITY	Expand existing groundwater wells	51	\$130,210	0	10	50	50	87	115	N		Wells													Contacted Sponsor, no response received.
M	2271	RIO GRANDE CITY	Non-potable reuse	49	\$468,401	0	10	50	60	87	125	N															Contacted Sponsor, no response received.
M	2272	RIO HONDO	Acquisition of water rights through purchase	57	\$834,560	200	200	200	200	200	200	N		No Infrastructure													Contacted Sponsor, no response received.
M	2272	RIO HONDO	Advanced water conservation	60	\$6,887	2	4	5	7	8	10	N		No Infrastructure													Contacted Sponsor, no response received.
M	2274	RIO WSC	Acquisition of water rights through contract	58	\$156,685	9	16	23	30	38	45	N		No Infrastructure													Contacted Sponsor, no response received.
M	2274	RIO WSC	Acquisition of water rights through purchase	57	\$3,551,053	166	298	439	573	715	851	N		No Infrastructure													Contacted Sponsor, no response received.
M	2274	RIO WSC	Advanced water conservation	60	\$28,236	6	13	20	27	34	41	N		No Infrastructure													Contacted Sponsor, no response received.







Implementation Survey for 2011 Regional Water Plan

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M	2293	ROMA CITY	Acquisition of water rights through contract	58	\$306,406	0	20	36	51	75	88	N		No Infrastructure													Contacted Sponsor, no response received.
M	2293	ROMA CITY	Acquisition of water rights through purchase	57	\$8,207,897	65	410	784	1,183	1,564	1,967	N		No Infrastructure													Contacted Sponsor, no response received.
M	2293	ROMA CITY	Advanced water conservation	60	\$82,641	39	61	75	80	104	120	N		No Infrastructure													Contacted Sponsor, no response received.
M	2322	SAN JUAN	Acquisition of water rights through contract	58	\$1,340,525	24	82	147	218	300	385	N		No Infrastructure													Contacted Sponsor, no response received.
M	2322	SAN JUAN	Acquisition of water rights through purchase	57	\$30,511,511	454	1,560	2,786	4,143	5,708	7,312	N		No Infrastructure													Contacted Sponsor, no response received.
M	2322	SAN JUAN	Advanced water conservation	60	\$524,770	95	206	330	465	612	762	N		No Infrastructure													Contacted Sponsor, no response received.
M	2325	SAN PERLITA	Advanced water conservation	60	\$1,377	0	1	1	2	2	2	N		No Infrastructure													Contacted Sponsor, no response received.
M	2325	SAN PERLITA	Brackish water desalination	53	\$91,911	25	25	25	25	25	25	N		No Infrastructure													Contacted Sponsor, no response received.
M	2333	SANTA ROSA	Advanced water conservation	60	\$20,660	5	10	15	20	25	30	N		No Infrastructure													Contacted Sponsor, no response received.
M	2342	SEBASTIAN MUD	Acquisition of water rights through contract	58	\$17,409	0	0	2	3	4	5	N		No Infrastructure													Contacted Sponsor, no response received.
M	2342	SEBASTIAN MUD	Acquisition of water rights through purchase	57	\$367,206	0	0	31	59	78	88	N		No Infrastructure													Contacted Sponsor, no response received.
M	2342	SEBASTIAN MUD	Advanced water conservation	60	\$9,641	3	6	9	11	13	14	N		No Infrastructure													Contacted Sponsor, no response received.
M	131	SHARYLAND WSC	Acquisition of water rights through contract	58	\$581,475	0	20	20	67	115	167	N		No Infrastructure													Contacted Sponsor, no response received.
M	131	SHARYLAND WSC	Acquisition of water rights through purchase	57	\$13,219,429	0	372	377	1,264	2,181	3,168	N		No Infrastructure													Contacted Sponsor, no response received.
M	131	SHARYLAND WSC	Advanced water conservation	60	\$159,084	29	62	100	141	186	231	N		No Infrastructure													Contacted Sponsor, no response received.
M	2379	SOUTH PADRE ISLAND	Acquisition of water rights through contract	58	\$689,413	38	69	102	134	167	198	N		No Infrastructure													Contacted Sponsor, no response received.
M	2379	SOUTH PADRE ISLAND	Acquisition of water rights through purchase	57	\$15,727,282	713	1,312	1,933	2,555	3,174	3,769	N		No Infrastructure													Contacted Sponsor, no response received.
M	2379	SOUTH PADRE ISLAND	Advanced water conservation	60	\$25,481	6	12	18	24	31	37	N		No Infrastructure													Contacted Sponsor, no response received.
M	133	SOUTHMOST REGIONAL WATER AUTHORITY	Brackish water desalination	53	\$788,992	6,888	6,888	6,888	6,888	6,888	6,888	N		No Infrastructure													Contacted Sponsor, no response received.







Implementation Survey for 2011 Regional Water Plan

Sponsor Region	wms Sponsor Entity Id	Sponsor	Recommended Water Management Strategy	DB Project Id	Capital Cost	SS2010	SS2020	SS2030	SS2040	SS2050	SS2060	Y denotes strategies with supply volumes included in other strategies	Project Description	Infrastructure Type*	At what level of Implementation is the project?*	If not implemented, why?*	Initial Volume of Water Provided (acft/yr)	Funds Expended to Date (\$)	Project Cost (\$ (should include development and construction costs)	Year the Project is Online?*	Is this a phased project?*	(Phased) Ultimate Volume (acft/yr)	(Phased) Ultimate Project Cost (\$)	Year project reaches maximum capacity?*	What is the project funding source(s)?*	Included in the 2016 Plan?*	Comments
M	2409	STEAM ELECTRIC POWER, CAMERON	Expand existing groundwater wells	51	\$163,046	0	0	0	0	27	144	N		Wells													Contacted Sponsor, no response received.
M	2409	STEAM ELECTRIC POWER, CAMERON	Non-potable reuse	49	\$1,498,884	0	0	0	0	50	400	N															Contacted Sponsor, no response received.
M	2436	STEAM ELECTRIC POWER, HIDALGO	Acquisition of water rights through purchase	57	\$21,627,621	0	980	2,374	3,291	3,847	5,183	N		No Infrastructure													Contacted Sponsor, no response received.
M	2436	STEAM ELECTRIC POWER, HIDALGO	Non-potable reuse	49	\$37,472,099	0	1,000	2,000	4,000	7,000	10,000	N															Contacted Sponsor, no response received.
M	2477	STEAM ELECTRIC POWER, WEBB	Expand existing groundwater wells	51	\$0	0	0	0	0	90	255	N		Wells													Contacted Sponsor, no response received.
M	2477	STEAM ELECTRIC POWER, WEBB	Non-potable reuse	49	\$1,498,884	0	0	0	0	200	400	N															Contacted Sponsor, no response received.
M	2494	SULLIVAN CITY	Acquisition of water rights through contract	58	\$73,120	0	0	0	0	10	21	N		No Infrastructure													Contacted Sponsor, no response received.
M	2494	SULLIVAN CITY	Acquisition of water rights through purchase	57	\$1,627,392	0	0	0	0	186	390	N		No Infrastructure													Contacted Sponsor, no response received.
M	2494	SULLIVAN CITY	Advanced water conservation	60	\$62,669	11	25	39	55	73	91	N		No Infrastructure													Contacted Sponsor, no response received.
M	151	VALLEY MUD #2	Acquisition of water rights through contract	58	\$59,192	0	6	8	11	14	17	N		No Infrastructure													Contacted Sponsor, no response received.
M	151	VALLEY MUD #2	Acquisition of water rights through purchase	57	\$1,127,483	0	268	269	269	269	269	N		No Infrastructure													Contacted Sponsor, no response received.
M	151	VALLEY MUD #2	Brackish water desalination	53	\$1,019,770	0	536	537	537	537	537	N															Contacted Sponsor, no response received.
M	2582	WEBB COUNTY WATER UTILITY	Acquisition of water rights through contract	58	\$111,420	2	7	12	18	25	32	N		No Infrastructure													Contacted Sponsor, no response received.
M	2582	WEBB COUNTY WATER UTILITY	Acquisition of water rights through purchase	57	\$2,466,125	41	132	234	334	459	591	N		No Infrastructure													Contacted Sponsor, no response received.
M	2582	WEBB COUNTY WATER UTILITY	Advanced water conservation	60	\$19,972	4	8	12	17	23	29	N		No Infrastructure													Contacted Sponsor, no response received.
M	2590	WESLACO	Acquisition of water rights through contract	58	\$348,188	0	0	0	0	0	100	N		No Infrastructure													Contacted Sponsor, no response received.
M	2590	WESLACO	Acquisition of water rights through purchase	57	\$417,280	0	0	0	0	0	100	N		No Infrastructure													Contacted Sponsor, no response received.
M	2590	WESLACO	Advanced water conservation	60	\$721,731	44	82	124	217	793	1,048	N		No Infrastructure													Contacted Sponsor, no response received.
M	2590	WESLACO	Brackish water desalination	53	\$1,286,747	100	100	100	100	250	350	N															Contacted Sponsor, no response received.





Implementation Survey for 2011 Regional Water Plan

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M	2590	WESLACO	Expand existing groundwater wells	51	\$1,017,902	0	0	0	100	429	899	N		Wells													Contacted Sponsor, no response received.
M	2590	WESLACO	Potable reuse	50	\$7,519,850	1,120	1,120	1,120	1,120	1,150	1,290	N															Contacted Sponsor, no response received.





**Texas Water Development Board**



**2016 Region M Water Plan**

**Appendix H: Response to Comments**





## TWDB Comments on the Initially Prepared 2016 Rio Grande (Region M) Regional Water Plan

**Level 1: Comments and questions must be satisfactorily addressed in order to meet statutory, agency rule, and/or contract requirements.**

1. Chapter 2: The plan does not appear to include wholesale water provider (WWP) demands by county, river basin, and water use category. Please include WWP demands by county, river basin, and water use category in the final, adopted regional water plan. *[31 Texas Administrative Code (TAC) §357.31(b)]*

The WWP demands tables have been included in Chapter 2 with WUGs contract demand separated by River Basin.

2. Please include a summary of the the municipal demand savings due to plumbing fixture requirements (as previously provided by TWDB) in the final, adopted regional water plan. *[31 TAC §357.31(d)]*

The municipal demand savings due to plumbing fixture requirements have been included.

3. Section 3.1.1, Pages 3-7 and 3-8: Please clarify that the approved Region M Rio Grande Basin hydrologic variance for the "Simplified Rio Grande WAM Run 3" is considered the most current Texas Commission on Environmental Quality (TCEQ) WAM Run 3 for this basin, per TCEQ letter dated January 14, 2014. *[31 TAC §357.32(c)]*

This clarification has been added to Chapter 3.

4. It is not clear whether the plan presents all contractual obligations of water user groups (WUGs) and WWPs. Please confirm that the plan includes the current contractual obligations of WUGs and WWPs in addition to any demands projected for the WUG and WWP in the final, adopted regional water plan. *[31 TAC §357.31(c)]*

All current contractual relationships between WUGs/WWPs have been shown in the appendix.

5. The plan does not appear to include a listing of the water rights that are the basis for the surface water availability in the plan. Please include such a listing in the final, adopted regional water plan. *[Contract Exhibit 'C', Section 3.1]*

All water rights have been shown in the appendix.

6. The plan does not appear to tabulate the local supplies used in the plan, along with an explanation of the basis of the associated local supply water volumes. Please include the required information on local supplies in the final, adopted regional water plan. *[Contract Exhibit 'C', Section 3.3]*

Local supplies, limited in the plan to livestock supplies, have been tabulated and included in Chapter 3. The current livestock demands and known groundwater and

surface water supplies are used to estimate the local supplies that are used to meet the remainder of livestock demand.

7. Page 4-3: The plan does not appear to include projected needs associated with each WWP, by category of use and county and river basin splits. Please include WWP needs in the final, adopted regional water plan. [31 TAC §357.33(b),(d)]

The WWP needs/surplus tables have been included as an appendix to Chapter 4. Additionally, the supply and demand evaluation tables in Chapter 5 show the needs and the secondary needs analysis (needs after conservation WMS).

8. Pages 4-2 and 4-3: The plan appears to consider a water management strategy of "short-term contracts" and describe that such a strategy is not available under drought of record conditions. Please remove strategy or confirm whether the short-term contracts will provide supplies available under drought of record conditions in the final, adopted regional water plan. [31 TAC §357.10(10) and §357.34(b)]

The language has been changed so that the supply chapter does not appear to make a recommendation, rather describes a current practice of obtaining water through short-term contracts. Short term contracts are not included anywhere in the "recommended WMS" section.

9. The plan does not appear to indicate whether there are any unmet needs remaining after water management strategies have been recommended. Please include a summary of unmet needs, if any, in the final, adopted regional water plan. If no unmet needs exist, please include a statement to that effect. [31 TAC §357.35(d) and §357.40(c)]

A summary of unmet needs has been added.

10. Pages 4-10 and 4-11; Appendix B: The plan does not appear to recommend water management strategies to meet all identified irrigation needs. Please provide documentation for reasons that strategies were not considered feasible to meet these identified needs in the final, adopted regional water plan. [31 TAC §357.35(d)(1)]

Additional discussion and documentation has been added regarding unmet needs.

11. Section 5.2.5, Page 5-16; Chapter 5: It is not clear from the information presented in the plan what specific best management practices (BMPs) compose the Advanced Municipal Water Conservation strategy and how the costs were estimated. For example, page 5-17 presents 20 BMPs that appear to be considered as part of the Advanced Municipal Water Conservation strategy, but it is not clear whether all 20 BMPs are to be applied to each WUG for which conservation is recommended in order to achieve the estimated 0.5% water savings. For each entity that has municipal conservation as a recommended or alternative water management strategy, please clarify what conservation BMP components and associated costs have been assigned to each entity in the final, adopted regional water plan and regional water planning database. [31 TAC §357.34(e)]

Although we discuss all of the best management practices for Advanced Municipal Conservation, the Unified Cost Model (UCM) 'simple approach' only includes certain

portions of these strategies. We have identified the conservation strategies on which the costs are based.

12. Chapter 5: The plan does not appear to provide all of the required cost elements for each water management strategy evaluation. For example, the Brownsville PUB Banco Morales Reservoir strategy evaluation on page 5-36 provides total capital cost, total O&M cost, total annual cost, and a unit cost as "\$/1,000 gallons", but does not present power and permitting and mitigation costs. Please include these required cost elements where appropriate throughout in the final, adopted regional water plan. *[Contract Exhibit 'C', Section 5.1.2]*

Additional cost detail has been added for all water management strategies. Where the UCM was applicable, all cost estimates are reported through the cost summary from the UCM. Where the UCM was not used, additional information was provided.

13. Chapter 5: The plan does not appear to present all unit costs of water in the dollars per acre-foot format. For example, pages 5-34 through 5-99, 5-113 to 5-192, and others present cost as "\$/1,000 gallons" rather than dollars per acre-foot. Please present information in the dollar per acre-foot format in the final, adopted regional water plan. *[Contract Exhibit 'C', Section 5.1.2]*

All costs have been presented in dollars per acre foot per year.

14. Chapter 5: The plan in some instances, does not appear to include a quantitative reporting of impacts to agricultural resources. For example, pages 5-50 and 6-2 describe acquisition of irrigation water rights through urbanization, but there appears to be no quantification of agricultural impacts from the strategy. Additionally, there does not appear to be quantification of agricultural impacts, even when there may not be any impacts, for the strategy evaluations in Chapter 5. Please include quantitative reporting of impacts to agricultural resources in the final, adopted regional water plan. *[31 TAC §357.34(d)(3)(C)]*

Impacts of WMS on agricultural and natural resources have been quantified and included in each WMS discussion.

15. Pages 5-4, 5-8, 5-105, 5-111, 7-20, Table 5-118; Appendix B: The irrigation district (Hidalgo County Drainage District No.1 (HCDD1) and United Irrigation District) recommended conservation water management strategies appear to be combined with non-conservation strategies, including new reservoir construction, reservoir improvement, new pump stations and canal dredging work. For example, Table 5-118 provides partial cost information for a proposed storage reservoir to be built by the HCDD1. It appears this strategy belongs as a component within the subsequent HCDD1 Delta Watershed Project strategy. Additionally, the plan states that "drought management WMS that were evaluated for all possible WUGs include advanced municipal conservation, irrigation district conservation, municipal potable reuse, municipal non-potable reuse, mining conservation and reuse, steam-electric conservation and reuse, and livestock conservation." Strategy types must remain independent of one another for purposes of accounting of water availability, to reflect implementation, and to facilitate project prioritizations for funding. Please revise as appropriate throughout the final, adopted regional water plan and in the regional water planning database. *[31 TAC §357.10(26), 31 TAC §357.34(e); Contract Exhibit 'D', Section 5.3]*



Reservoir WMS have been separated from Conservation WMS, and presented as separate strategies.

Pg. 5-4: Revisions have been made to clarify what measures are considered conservation WMS. Reservoirs are included in "ID Improvements" but not conservation.

Pg. 5-8: New Reservoir and Reservoir Improvements were further clarified to require documented water loss data in DOR conditions. Also, miscellaneous ID improvement recommendations were refined to education and evaluation of existing systems, and some of the recommendations from this section were moved into Chapter 8.

Pg. 5-105: The Delta Watershed Project was identified as development of surface water supply rather than a conservation measure. More detailed cost information has been added.

Pg. 5-111: United ID projects were separated into two distinct projects: ID conservation and off-channel reservoir.

16. Pages 5-4, 5-8 and 5-111: The United Irrigation District's recommended water management strategy evaluation information does not appear to clearly describe the project location and layout of the storage reservoir and associated infrastructure. Please include information regarding the locations of the proposed reservoir and associated infrastructure, for example, using a map/figure in the final, adopted regional water plan. *[31 TAC §357.34(e)]*

Detailed information and figures have been added for United ID's off-channel storage WMS.

17. Pages 5-4, 5-8 and 5-111; Appendix B: The United Irrigation District's recommended water management strategy evaluation information does not appear to provide drought of record firm yield supply as determined by the TCEQ Rio Grande WAM that is associated with this project. Please include this additional firm yield supply information in the final, adopted regional water plan. *[31 TAC §357.32(c); §357.34(b); Contract Exhibit 'C', Section 5.1.1]*

Detailed information and figures have been added for United ID's off-channel storage WMS.

18. Page 5-35: The plan in some instances, does not appear to include a quantitative reporting of environmental factors. For example, on page 5-35, the Banco Morales Reservoir states that the reservoir site has "several environmental issues including... potential impacts to habitat from reservoir construction" however these potential impacts are not quantified in plan. Additionally, on page 5-36, the Brownsvill PUB Non-Potable Reuse strategy states that impacts could include "decreases to streamflow/level and effects to fish and wildlife that inhabit the streams," however these potential impacts are not quantified in the plan. Please include quantitative reporting in the final, adopted regional water plan. *[31 TAC §357.34(d)(3)(b)]*

Impacts of WMS on agricultural and natural resources have been quantified and included in each WMS discussion.

19. Pages 5-36, 5-106, 5-246, and 5-243: The plan does not clearly state whether the Banco Morales, Delta Watershed Project, and Brownsville-Matamoros Weir and Reservoir water management strategy evaluations incorporated environmental flow requirements. Please clarify whether analyses considered environmental flow requirements in the final, adopted regional water plan. If environmental flow requirements were not considered, please present results with environmental flow requirement considerations in the final, adopted regional water plan. *[31 TAC §357.34(d)(3)(B)]*

A discussion of Environmental Flow requirements has been added for all relevant WMS.

20. Pages 5-44, 5-45, 5-62, 5-241, and others: From the information presented in the plan, it is not clear whether the Unified Costing Model was utilized for cost estimates or if other project-specific methodologies were utilized. Please clarify the costing methodology utilized for any water management strategy cost estimates that were not produced using the Unified Costing Model and include the cost output sheets from the Unified Costing Model, for example as an Appendix, in the final, adopted regional water plan. *[31 TAC §357.34(d)(3)(A), Contract Exhibit 'C', Sections 5.1.2 and 5.1.2.1]*

The method of estimating costs for each type of strategy is included in section 5.2, WMS Evaluation Assumptions and Methodology. The UCM was utilized where it was appropriate, and UCM summary tables have been used in place of the cost tables that were previously included. For those projects that were not able to be estimated using UCM (e.g. irrigation district improvements) cost methodology is explicitly explained and cost data is included with each WMS.

21. Pages 5-68, 5-126, and 5-204; Appendix B: The plan appears to include recommended strategies that do not provide strategy supply under drought of record conditions. For example, the "Advanced Municipal Conservation" for Los Fresnos, "New Raw Water Reservoir" for the City of Donna, and "Meter Replacement" for the Rio Grande City reflect zero strategy supply. Please remove or include a justification for including recommended strategies that do not provide an increase to water supply volumes under drought of record conditions in the final, adopted regional water plan. *[Contract Exhibit 'C', Section 5.1.1]*

The following strategies were removed from the RWP because data is not available to quantify water savings in DOR conditions:

Entity	Water Management Strategy
East Rio Hondo WSC	FM 510 to SH 100 16" Transmission Pipeline
East Rio Hondo WSC	Interconnect with BPUB, SRWA, or RGRQA
East Rio Hondo WSC	Partial AMI
Escobares	Advanced Municipal Conservation
Indian Lake	Advanced Municipal Conservation
Jim Hogg County-Other	Advanced Municipal Conservation
La Joya	Brackish Groundwater Desalination Plant
Los Fresnos	Advanced Municipal Conservation
Lyford	Advanced Municipal Conservation

Entity	Water Management Strategy
Manufacturing - Webb -Rio Grande	Implementation of Best Management Practices
Mining - Starr - Nueces Rio Grande	Rio Grande City Brackish Groundwater Desalination Plant
North Alamo WSC	NAWSC 1 MG Water Tower - Edinburg/Pharr
North Alamo WSC	NAWSC 1 MG Water Tower - Mid Valley
North Alamo WSC	NAWSC Plant No. 5 - 16" Waterline Expansion
Rio Hondo	Advanced Municipal Conservation
San Juan	Raw Water Reservoir Improvements
Sebastian MUD	Advanced Municipal Conservation
Sharyland WSC	Construction of 10 MG Reservoir
Weslaco	Water Conservation Practices for AMI
Weslaco	Expanded Use of Existing Supplies (Reservoir)
Weslaco	Emergency Transfers of Surface Water or Interconnects Between Systems
Willacy County-Other	Advanced Municipal Conservation
Willacy County	Meeting Willacy County's Existing and Future Water Needs
Portions of Irrigation District Conservation WMS for which an amount of water produced or conserved could not be determined.	

22. Section 5.3.2, Page 5-106: The HCDD1 Delta Watershed Project recommended strategy evaluation information does not adequately describe the project location and layout of associated infrastructure. Please include additional information regarding the general locations of the proposed reservoirs and associated infrastructure, for example, using a map/figure in the final, adopted regional water plan. [31 TAC §357.34(e)]

Detailed information and figures have been added for the Delta Watershed WMS.

23. Section 5.3.2, Page 5-106: The HCDD1 Delta Watershed Project recommended strategy evaluation information does not appear to provide drought of record firm yield supply as determined by the modified TCEQ Nueces-Rio Grande WAM and the associated required TCEQ water rights permit. Please include firm yield supply information in the final, adopted regional water plan. [31 TAC §357.32(c); §357.34(b); Contract Exhibit 'C', Section 5.1.1]

Firm Yield has been added for the Delta Watershed WMS.

24. Page 5-118: The project description for the City of Alamo's recommended water management strategy, Brackish Groundwater Well, appears to contain contradicting water quality information. The plan states that "The new well will be located approximately 1,000 feet from the existing well. It is assumed that the salinity of the new well will be similar to the existing well, so it is assumed primary desalination treatment will not be needed." Please clarify the strategy source and water quality in the final, adopted regional water plan. [31 TAC §357.34(e)]

The project was mislabeled as brackish well, and the name has been corrected to Groundwater Well.



25. Sections 5.3 and 5.4; Appendix B: Please clearly identify each reuse water management strategy evaluation as either direct or indirect reuse in the final, adopted regional water plan and in the regional water planning database. [31 TAC §357.34(e)]

All of the Reuse WMS have been identified as direct or indirect.

26. Page 5-192: The plan does not appear to consider conservation as a potentially feasible strategy for all identified water supply needs, such as the Jim Hogg County Irrigation WUG. Please include documentation that conservation was considered to meet all identified needs and, if not recommended, please document the reason in the final, adopted regional water plan. [31 TAC §357.34(f)(2)(B)]

Conservation has been considered to for all WUG with needs. For all industrial WUG, Best Management Practices were recommended as a means of conservation, on-farm conservation was recommended for all irrigation WUG, Advanced municipal was considered for all Muni WUG, Livestock has no needs.

27. Section 5.4.1, Page 5-240 and 5-241: From the information presented in the plan, it is not clear what the costs, supply yields, and locations are for the individual facilities that appear to be aggregated as "RGRWA Regional Brackish Desalination Project." Strategy costs must be prepared and presented separately and discretely for separate facilities to be located in multiple locations. Please provide strategy description, location, and costing information for each of the three separate regional desalination plant projects, in the final, adopted regional water plan. [31 TAC §357.34(e); Contract Exhibit 'C', Section 5.1.2]

Detailed information about the RGRWA Project has been added.

28. Section 5.4, Pages 5-240, 5-243, 5-315, 5-316; Appendix B: The plan does not appear to provide complete strategy evaluations for alternative water management strategies. For example, the "Rio Grande Regional Water Authority Regional Brackish Desalination" strategy does not identify the three potential well field/treatment plant locations; the Resaca Restoration strategy does not present the strategy firm yield, capital costs, or location of water supply source(s); and, the Willacy County Desalination strategies each state that "there is not enough information to cost this project." Please relabel strategies or include fully evaluated alternative water management strategy information in the final, adopted regional water plan. [31 TAC §357.34(d) and (e), §357.35(g)(3); Contract Exhibit 'C', Section 5.1.5]

Detailed evaluations have been included for all alternative WMS where available, and Willacy County Desalination has been reclassified as not recommended based on a lack of information.

29. The plan does not appear to present, separately, the reservoir and mitigation land costs. Please include reservoir and mitigation land costs, separately, in the final, adopted regional water plan. [Contract Exhibit 'C', Section 5.1.2]

UCM cost summaries have been included for all Reservoir WMS, which include mitigation land costs as a separate line item.

30. Please indicate how the planning group considered the Texas Clean Rivers program in the final, adopted regional water plan. [31 TAC §357.22(a)(7)]

Chapter 6 and Section 1.2.4 have been revised to discuss the Texas Clean Rivers program and considerations.

31. Please indicate how the planning group considered the U.S. Clean Water Act in the final, adopted regional water plan. [31 TAC §357.22(a)(8)]

Chapter 6 and Section 1.2.4 have been revised to discuss the Clean Water Act and considerations.

32. Section 7.4, Page 7-20; Appendix B: The plan does not appear to consider drought management as a potentially feasible strategy for all identified water supply needs. Please include documentation that drought management was considered to meet identified needs and, if not recommended, please document the reason in the final, adopted regional water plan. [Texas Water Code (TWC) §16.053(e)(5); 31 TAC §357.34(c)(3); 31 TAC §357.42(f); Contract Exhibit 'C', Section 5.1]

Section 7.4 has been revised to include further discussion of potentially feasible WMS evaluated for all identified water supply needs.

33. The plan does not appear to include a consideration of third-party social and economic impacts resulting from voluntary redistribution of water, including analysis of third-party impacts of moving water from rural and agricultural areas. Please include this information in the final, adopted regional water plan. [31 TAC §357.34(d)(7)]

Voluntary redistribution has been evaluated and is discussed in Chapter 6.

34. The plan does not appear to include model water conservation plans. Please include model conservation plans in the final, adopted regional water plan. [31 TAC §357.34(g)]

Model Conservation plans have been included along with the Model Drought Contingency Plans.

35. The plan does not appear to include information on impacts of other other water resources of the state, including potential impacts to groundwater and surface water interrelationships. Please include this information in the final, adopted regional water plan. [31 TAC §357.40(b)(2)]

Impacts of 'other water resources of the state' have been considered and are discussed in Chapter 6.

36. Chapter 7: Please indicate how the planning group considered relevant recommendations from the Drought Preparedness Council (a letter was provided to planning groups with relevant recommendations in November 2014) in the final, adopted regional water plan. [31 TAC §357.42(h)]

Drought Preparedness Council recommendations have been considered and documented.

37. Chapter 7: The plan does not appear to provide drought response recommendations regarding the management of each existing groundwater and surface water source in the planning area,

by the manager of each water source and the entities relying on each water source, for a minimum of 'severe' and 'critical/emergency' conditions. Please include this information in the final, adopted regional water plan. [31 TAC §357.42(c); Contract Exhibit 'C', Section 7.4]

Recommendations for management of each water source have been included in Chapter 7.

38. Chapter 7: The plan does not appear to provide drought response recommendations regarding the development and implementation of local drought contingency plans, including drought response triggers and actions. Please include this information in the final, adopted regional water plan. [TWC §16.053(e), 31 TAC §357.42(i)]

Recommendations for drought response and drought contingency plans including triggers and responses have been further clarified in Chapter 7.

39. Chapter 7: The plan does not appear to provide a general description of the local drought contingency plans that involve making emergency connections between water systems or wholesale systems. Please include these descriptions of local drought contingency plans, if any, in the final, adopted regional water plan or, if no local drought contingency plans involve making emergency connections, please indicate so in the final, adopted regional water plan. [31 TAC §357.42(e)]

General discussion of emergency interconnects as drought contingency measures was included.

40. Page 7-17, Table 7-11: The plan does not appear to include Maverick County in the analysis of the potential emergency responses evaluation. For example, there is no representation of "Maverick County-Other". Please include this information in the final, adopted regional water plan. [31 TAC §357.42(g); Contract Exhibit 'C', Section 7.5]

Table 7-11 has been revised to include Maverick County.

41. Please clarify in the final, adopted regional water plan whether plan development was guided by the principal that the designated water quality and related water uses as shown in the state water quality management plan shall be improved or maintained. [31 TAC §358.3(19)]

The plan has been revised to reflect this.

42. Appendix B: The plan's "Potentially Feasible Water Management Strategies" table appears to present incomplete information (e.g., blank fields) for strategy yield, total capital cost and unit cost. For example, the Agua SUD Non-Potable Reuse and Brownsville PUB Resaca Restoration alternative strategies and the Webb County-Other Supply from Other Entity recommended strategy. Please provide a complete summary of water management strategy evaluations in the final, adopted regional water plan. [31 TAC §357.34(d)(2)]

All Recommended/Alternative WMS have been revised to include complete evaluations.

43. Appendix B: The plan's "Potentially Feasible Water Management Strategies" table appears to not include all strategies considered potentially feasible as mentioned in Section 5.1.1 and



Section 5.2. For example, the On-Farm Irrigation Conservation strategies presented in Section 5.2.8 and the Biological Control strategies presented in Section 5.2.9 are not included in the Appendix B table. Please revise as appropriate throughout the final, adopted regional water plan. [*Contract Exhibit 'C', Section 12.1.2*]

All Recommended/Alternative WMS have been revised to include complete evaluations.

**Level 2: Comments and suggestions for consideration that may improve the readability and overall understanding of the regional water plan.**

1. Section 3.2, Page 3-20; Section 11.3, Page 11-10: Please consider providing a complete description of the groundwater availability methodology employed for Non-MAG groundwater sources in the final, adopted regional water plan.

Has been included

2. Page 5-14: Please consider adding the City of Weslaco's Brackish Groundwater Mixing project (page 5-182) to the List of Local Brackish Groundwater Development and Treatment, in the final, adopted regional water plan.

Has been included

3. Pages 5-118 and 5-119: Please consider further clarification to distinguish between the two City of Alamo recommended brackish groundwater WMSs: "Brackish GW Well" and "Brackish GW Well/Desalination Plant" in the final, adopted regional water plan.

Has been included

4. For all direct potable reuse "Implementation Issues" sections, including pages 5-145, 5-147, 5-152, 5-157, and 5-165, please consider revising, if appropriate, the first sentence that refers to each of these strategies as "indirect" potable reuse.

Has been included

5. Section 5.3.2, Page 5-106, and HCDD1 Delta Watershed Project: Please consider including the updated versions of the Black & Veatch and TEDSI technical memos dated February 10, 2014 and September 25, 2014, respectively that are associated with this water management strategy project, for example as an appendix.

Has been included



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August 14, 2015

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Carter P. Smith  
Executive Director

Mr. Kenneth N. Jones, Executive Director  
Lower Rio Grande Valley Development Council  
301 W. Railroad  
Weslaco, Texas 78596

Re: 2016 Rio Grande Regional Water Planning Group Initially Prepared Plan

Dear Mr. Jones,

Thank you for seeking review and comment from the Texas Parks and Wildlife Department ("TPWD") on the 2016 Initially Prepared Regional Water Plan (IPP) for the Rio Grande Regional Water Planning Group (RGRWPG) Region M. As you know, water impacts every aspect of TPWD's mission to manage and conserve the natural and cultural resources of Texas. As the agency charged with primary responsibility for protecting the state's fish and wildlife resources, TPWD is positioned to provide technical assistance during the water planning process. Although TPWD has limited regulatory authority over the use of state waters, TPWD is committed to working with stakeholders and others to provide science-based information during the water planning process intended to avoid or minimize impacts to state fish and wildlife resources.

TPWD understands that regional water planning groups are guided by 31 TAC §357 when preparing regional water plans. These water planning rules spell out requirements related to natural resource and environmental protection. Accordingly, TPWD staff reviewed the IPP with a focus on the following questions:

- Does the IPP include a quantitative reporting of environmental factors including the effects on environmental water needs and habitat?
- Does the IPP include a description of natural resources and threats to natural resources due to water quantity or quality problems?
- Does the IPP discuss how these threats will be addressed?
- Does the IPP describe how it is consistent with long-term protection of natural resources?
- Does the IPP include water conservation as a water management strategy?
- Does the IPP include Drought Contingency Plans?
- Does the IPP recommend any stream segments be nominated as ecologically unique?
- If the IPP includes strategies identified in the 2010 regional water plan, does it address concerns raised by TPWD in connection with the 2010 Water Plan.



According to the IPP, the population of the 8 county Lower Rio Grande Regional Water Planning Area (RGRWPA) is expected to grow from about 1.2 million in 2013 to about 4 million by 2070. Population in the region is concentrated in Cameron, Hidalgo, and Webb counties, accounting for 90.5% of the regional total in 2010. Total water needs are expected to grow slightly from about 1.5 million acre-feet in 2020 to about 1.6 million acre-feet/year in 2070. Irrigation represents the largest water demand in the region but is projected to decrease as a result of both urbanization of lands and increasing pressure on the region's water resources. Municipal demands are expected to approximately double from a projected 311,591 acre-feet/year in 2020 to 612,127 acre-feet/year in 2070. Livestock, mining, steam-electric power generation, and manufacturing demands make up a very small portion of the region's water use as a whole, relative to irrigation and municipal demands. It is not clear whether additional demands related to Liquefied Natural Gas (LNG) facilities have been included in the water demand projections. The water requirements of these facilities may prove substantial.

The IPP recommends water conservation and wastewater reuse (potable and non-potable) for meeting future water needs in the Region. In addition, the IPP recommends development of fresh and brackish groundwater as well as the development of a seawater desalination project. Finally, conversion and/or purchase of existing surface water rights is recommended for meeting future water needs for growing municipal areas.

The IPP includes a complete description of natural resources including fish and wildlife resources. The importance of the lower Laguna Madre, and its dependence on freshwater inflows from the Arroyo Colorado and the Rio Grande, is described in detail. Wildlife refuges and preserves, and the roles these areas play in protecting the habitats of threatened and endangered species found there are discussed as well.

Potential threats to natural resources including unchecked development of groundwater and urbanization are discussed in Chapter 1 of the IPP. In particular, groundwater pumping in the Devils and Pecos river basins has been shown to directly impact these streamflows and the flows in Goodenough Springs. TPWD concurs with the statement "Without a GCD, the conservation goals described in the Desired Future Conditions for each aquifer cannot be implemented or monitored."

The RGRWPG is to be commended for its strong emphasis on water conservation, reuse and drought contingency planning. The IPP includes irrigation, industrial and municipal water conservation water management strategies. According to the IPP, per capita water use in the Region is projected to decline over the planning period from 141.8 gallons per person per day in 2020 to 135.6 gallons per person per day in 2070, bringing it under the Texas Water Conservation Task Force goal of 140 gallons per person per day. Potential negative impacts related to wastewater reuse, including decreased streamflows and changes in water quality are Potential environment impacts may be seen due to lower effluent flows to the discharge streams. are described in Chapter 5. This information should also be included in the Executive Summary.

In general, the 2016 Region IPP is a well-written document that acknowledges the importance of environmental protection in the planning area and provides narrative descriptions of potential impacts from recommended water management strategies. However, TPWD believes that as

Mr. Kenneth Jones

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information becomes available a more quantitative analysis rather than narrative description is needed for the environmental impacts associated with each water management strategy.

While TPWD is pleased to see that many of our earlier comments have been addressed, concerns remain regarding potential impacts associated with several strategies. Several water management strategies are recommended for stream segments identified by TPWD as ecologically significant. Increased groundwater development may impact small springs and adversely impact groundwater-surface water interactions. Increased use of previously unused water rights from the Rio Grande will impact instream flows and freshwater inflows to the Rio Grande estuary that will likely reduce long-term inflows and increase salinities, potentially leading to complex estuarine community changes. Both seawater and brackish groundwater desalination can be ecologically advantageous strategies, as long as issues such as impingement and entrainment at intake locations and brine disposal options are carefully considered. Continued consultation with TPWD staff will help to ensure that fish and wildlife impacts can be avoided or minimized. Please be advised that HB 2031 passed by the 84<sup>th</sup> legislature requires consultation with TPWD and the General Land Office regarding siting of seawater desalination intakes and discharges.

The plan does not recommend nomination of any stream segments as ecologically unique. As indicated in Table 8.1, TPWD has identified several stream segments in the region that meet at least one of the criteria for classification as ecologically unique should the regional planning group decide to pursue nomination of an ecologically significant stream in the future. These segments include portions of the tidal segment of the Arroyo Colorado, Las Moras Creek, and the Lower Rio Grande. TPWD continues to see importance in recommending and designating significant stream segments and will support the RGRWPG in this regard if requested in the next planning cycle.

Thank you for your consideration of these comments. TPW looks forward to continuing to work with the planning group to develop water supply strategies that not only meet the future water supply needs of the region but also preserve the ecological health of the region's aquatic resources. Please contact Cindy Loeffler at (512) 389-8715 if you have any questions or comments.

Sincerely,



Ross Melinchuk,  
Deputy Executive Director, Natural Resources

RM: CL:ms

cc: Robin Riechers, Division Director, Coastal Fisheries Division, TPWD  
Willy Cupit, Coastal Fisheries Division, TPWD