

CHAPTER 11
IMPLEMENTATION AND
COMPARISON TO THE PREVIOUS
REGIONAL WATER PLAN

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11 IMPLEMENTATION AND COMPARISON TO THE PREVIOUS REGIONAL WATER PLAN

Chapter 11 provides a survey of the level of implementation and identified impediments to the development of previously (*2016 Plan*) recommended Water Management Strategies that have affected progress in meeting projected water-supply needs. To best appreciate the continued improvements to the Far West Texas water planning process, this Chapter also offers a comparison of key components in the *2016 Far West Texas Water Plan* to those in this current *2021 Far West Texas Water Plan*. And, this Chapter also assesses the progress of the Far West Texas planning area in encouraging cooperation between water user groups for the purpose of achieving economies of scale and otherwise incentivizing strategies that benefit the entire region.

11.1 IMPLEMENTATION OF PREVIOUS REGIONAL WATER PLAN

Information needed to report on the level of implementation and identified impediments to the development of previously (*2016 Plan*) recommended Water Management Strategies that have affected progress in meeting projected water-supply needs was collected through a survey conducted by the Far West Texas Planning Group. Additional methods that were considered for identifying projects that may potentially have been implemented include:

- Tracking changes since the last Plan;
- Using TWDB funding records; and
- Using conservation implementation reports submitted to the TWDB.

Survey results are provided in Table 11-1.

Table 11-1. 2021 Far West Texas Strategy Implementation Survey

WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Has Sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))	If yes, in what year did this occur?	If yes, by what date is the action on schedule for implementation?	At what level of implementation is the project currently?*	If not implemented, why?*(When "If other, please describe" is selected, please add the descriptive text to that field)	What impediments presented to implementation?*(When "If other, please describe" is selected, please add the descriptive text to that field)	Current water supply project yield (ac-ft/yr)	Funds expended to date (\$)	Project Cost (\$)	Year the project is online?*	Is this a phased project?*	(Phased) Ultimate volume (ac-ft/yr)	(Phased) Ultimate project cost (\$)	Year project reaches maximum capacity?*	What is the project funding source(s)?*	Funding Mechanism if Other?	Included in 2021 plan?*	Does the project or WMS involve reallocation of flood control?*	Does the project or WMS provide any measurable flood risk reduction?*	Optional Comments
BREWSTER COUNTY OTHER (MARATHON WSSSERVICE) - WATER LOSS AUDIT AND MAIN-LINE REPAIR	2020	PROJECT SPONSOR(S): COUNTY-OTHER (BREWSTER)																				
BREWSTER COUNTY OTHER (PANTHER JUNCTION BBNP PLT) - WATER LOSS AUDIT AND MAIN-LINE REPAIR	2020	PROJECT SPONSOR(S): COUNTY-OTHER (BREWSTER)																				
BREWSTER COUNTY OTHER (RIO GRANDE VILLAGE BBNP) - WATER LOSS AUDIT AND MAIN-LINE REPAIR	2020	PROJECT SPONSOR(S): COUNTY-OTHER (BREWSTER)																				
CITY OF MARFA - ADDITIONAL GROUNDWATER WELL	2020	PROJECT SPONSOR(S): MARFA	Yes	2019	2020	Under construction	If other, please describe. Pump meter has not been installed due to Covid issues.	Covid affecting all completion lead times.	376 ac-ft/yr	\$600,000	\$1,143,000	2020	No		2020	TWDB SWIFT		No	No	No	Covid 19 has affected all project lead times.	
CITY OF PRESIDIO - ADDITIONAL GROUNDWATER WELL	2020	PROJECT SPONSOR(S): PRESIDIO																				
CITY OF PRESIDIO - WATER LOSS AUDIT AND MAIN-LINE REPAIR	2020	PROJECT SPONSOR(S): PRESIDIO																				
CITY OF SOCORRO - PUBLIC CONSERVATION EDUCATION	2020	WUG REDUCING DEMAND: SOCORRO																				
CITY OF SOCORRO - PURCHASE WATER FROM LVWD	2020	WMS SELLER: LOWER VALLEY WD; WMS SUPPLY RECIPIENT: SOCORRO																				

Table 11-2. (continued) 2021 Far West Texas Strategy Implementation Survey

WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Has Sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))	If yes, in what year did this occur?	If yes, by what date is the action on schedule for implementation?	At what level of implementation is the project currently?*	If not implemented, why?*(When "If other, please describe" is selected, please add the descriptive text to that field)	What impediments presented to implementation?*(When "If other, please describe" is selected, please add the descriptive text to that field)	Current water supply project yield (ac-ft/yr)	Funds expended to date (\$)	Project Cost (\$)	Year the project is online?*	Is this a phased project?*	(Phased) Ultimate volume (ac-ft/yr)	(Phased) Ultimate project cost (\$)	Year project reaches maximum capacity?*	What is the project funding source(s)?*	Funding Mechanism if Other?	Included in 2021 plan?*	Does the project or WMS involve reallocation of flood control?*	Does the project or WMS provide any measurable flood risk reduction?*	Optional Comments
CITY OF VAN HORN - WATER LOSS AUDIT AND MAIN-LINE REPAIR	2020	PROJECT SPONSOR(S): VAN HORN																				
CITY OF VINTON - HIGH CAPACITY WATER LINES	2020	PROJECT SPONSOR(S): VINTON																				
CULBERSON COUNTY - ADDITIONAL GROUNDWATER WELL - WEST TEXAS BOLSONS AQUIFER	2020	PROJECT SPONSOR(S): MINING (CULBERSON)																				
CULBERSON COUNTY - ADDITIONAL GROUNDWATER WELLS - RUSTLER AQUIFER	2020	PROJECT SPONSOR(S): MINING (CULBERSON)																				
EL PASO CO. TORNILLO WID - ADDITIONAL GROUNDWATER WELL AND TRANSMISSION LINE	2020	PROJECT SPONSOR(S): EL PASO COUNTY TORNILLO WID	Yes	2016	2019	All phases fully implemented		Not applicable	645 ac-ft/yr	\$1,136,432	\$1,236,534	2020	No		2020		Federal - USDA		Yes	No	No	
EL PASO CO. TORNILLO WID - ARSENIC TREATMENT FACILITY	2020	PROJECT SPONSOR(S): EL PASO COUNTY TORNILLO WID	Yes	2016	2016	All phases fully implemented		Not applicable	968 ac-ft/yr	\$3,614,000	\$3,614,000	2017	No		2017		Federal - EPA		No	No	No	Project was placed online in March, 2017.
EL PASO COUNTY - EPCWID #1 - IMPROVEMENTS TO WATER DISTRICT DELIVERY SYSTEM	2020	PROJECT SPONSOR(S): IRRIGATION (EL PASO)																				
EL PASO COUNTY - MINING - ADDITIONAL GROUNDWATER WELLS	2020	PROJECT SPONSOR(S): MINING (EL PASO)																				

Table 11-3. (continued) 2021 Far West Texas Strategy Implementation Survey

WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Has Sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))	If yes, in what year did this occur?	If yes, by what date is the action on schedule for implementation?	At what level of implementation is the project currently?*	If not implemented, why?*(When "if other, please describe" is selected, please add the descriptive text to that field)	What impediments presented to implementation?*(When "if other, please describe" is selected, please add the descriptive text to that field)	Current water supply project yield (ac-ft/yr)	Funds expended to date (\$)	Project Cost (\$)	Year the project is online?*	Is this a phased project?*	(Phased) Ultimate volume (ac-ft/yr)	(Phased) Ultimate project cost (\$)	Year project reaches maximum capacity?*	What is the project funding source(s)?*	Funding Mechanism if Other?	Included in 2021 plan?*	Does the project or WMS involve reallocation of flood control?*	Does the project or WMS provide any measurable flood risk reduction?*	Optional Comments
EL PASO COUNTY MANUFACTURING - PURCHASE WATER FROM EPWU	2020	WMS SELLER: EL PASO; WMS SUPPLY RECIPIENT: MANUFACTURING, EL PASO																				
EL PASO COUNTY OTHER - PURCHASE WATER FROM EPWU	2020	WMS SELLER: EL PASO; WMS SUPPLY RECIPIENT: COUNTY-OTHER, EL PASO																				
EL PASO SEP - PURCHASE WATER FROM EPWU	2020	WMS SELLER: EL PASO; WMS SUPPLY RECIPIENT: STEAM ELECTRIC POWER, EL PASO	Yes	Ongoing contract	Continuation of contract	Currently operating		Not applicable					No				Other	Company funds	Yes	No	No	RWP numbers largely underestimate total annualized purchase from EPW.
EPCWID #1 - IRRIGATION SCHEDULING	2020	WUG REDUCING DEMAND: IRRIGATION, EL PASO	Yes	Ongoing	2021	Under construction	Financing	Access to funding	402 ac-ft/yr	\$125,000	\$100,000 annually	2020	Yes	1,740 ac-ft/yr	\$100,000 annually		TWDB - Other	TWDB Ag Water Conservation Grant; USBR	Yes	No	Potentially, but no technical flood analysis performed	
EPCWID #1 - TAILWATER REUSE	2020	WUG REDUCING DEMAND: IRRIGATION, EL PASO	No			Not implemented	Financing	Access to funding	Not implemented	\$0	\$973,368 annually		Yes	1,723 ac-ft/yr	\$973,368 annually		TWDB - Other	TWDB Ag Water Conservation Grant; USBR	Yes	No	No	
EPWU - ADVANCED PURIFIED WATER AT THE BUSTAMANTE WWTP	2020	PROJECT SPONSOR(S): EL PASO																				
EPWU - EXPANSION OF LOCAL WELL FIELDS	2020	PROJECT SPONSOR(S): EL PASO																				
EPWU - EXPANSION OF THE JONATHAN ROGERS WWTP	2020	PROJECT SPONSOR(S): EL PASO																				

Table 11-4. (continued) 2021 Far West Texas Strategy Implementation Survey

WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Has Sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))	If yes, in what year did this occur?	If yes, by what date is the action on schedule for implementation?	At what level of implementation is the project currently?*	If not implemented, why?*(When "If other, please describe" is selected, please add the descriptive text to that field)	What impediments presented to implementation?*(When "If other, please describe" is selected, please add the descriptive text to that field)	Current water supply project yield (ac-ft/yr)	Funds expended to date (\$)	Project Cost (\$)	Year the project is online?*	Is this a phased project?*	(Phased) Ultimate volume (ac-ft/yr)	(Phased) Ultimate project cost (\$)	Year project reaches maximum capacity?*	What is the project funding source(s)?*	Funding Mechanism if Other?	Included in 2021 plan?*	Does the project or WMS involve reallocation of flood control?*	Does the project or WMS provide any measurable flood risk reduction?*	Optional Comments
EPWU - EXPANSION OF THE KAY BAILEY HUTCHINSON DESAL PLANT	2020	PROJECT SPONSOR(S): EL PASO																				
EPWU - GROUNDWATER FROM SOUTHERN HUDSPETH COUNTY	2020	PROJECT SPONSOR(S): EL PASO																				
EPWU - MUNICIPAL CONSERVATION PROGRAMS	2020	WUG REDUCING DEMAND: EL PASO																				
EPWU - RECHARGE OF HUECO AQUIFER GROUNDWATER WITH TREATED SURFACE WATER	2020	PROJECT SPONSOR(S): EL PASO																				
EPWU - RIVERSIDE REGULATING RESERVOIR	2020	PROJECT SPONSOR(S): EL PASO																				
FORT BLISS - PUBLIC CONSERVATION EDUCATION	2020	WUG REDUCING DEMAND: FORT BLISS																				
FORT BLISS - PURCHASE WATER FROM EPWU	2020	WMS SELLER: EL PASO; WMS SUPPLY RECIPIENT: FORT BLISS																				
FORT DAVIS WSC - ADDITIONAL GROUNDWATER WELL	2020	PROJECT SPONSOR(S): FORT DAVIS	Yes	2018	Uncertain	Permit application submitted/pending	Permit constraints	If other, please describe. Need sanitary control easement from Fort Davis ISD.	107 ac-ft/yr	\$250,000	\$250,000	2020	No		2020	Other	Texas CDBG	Yes	No	No		

Table 11-5. (continued) 2021 Far West Texas Strategy Implementation Survey

WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Has Sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))	If yes, in what year did this occur?	If yes, by what date is the action on schedule for implementation?	At what level of implementation is the project currently?*	If not implemented, why?*(When "If other, please describe" is selected, please add the descriptive text to that field)	What impediments presented to implementation?*(When "If other, please describe" is selected, please add the descriptive text to that field)	Current water supply project yield (ac-ft/yr)	Funds expended to date (\$)	Project Cost (\$)	Year the project is online?*	Is this a phased project?*	(Phased) Ultimate volume (ac-ft/yr)	(Phased) Ultimate project cost (\$)	Year project reaches maximum capacity?*	What is the project funding source(s)?*	Funding Mechanism if Other?	Included in 2021 plan?*	Does the project or WMS involve reallocation of flood control?*	Does the project or WMS provide any measurable flood risk reduction?*	Optional Comments
FORT DAVIS WSC - ADDITIONAL TRANSMISSION LINE	2020	PROJECT SPONSOR(S): FORT DAVIS	No			Not implemented	Too soon	Not applicable					No						Yes	No	No	
HORIZON CITY - PUBLIC CONSERVATION EDUCATION	2020	WUG REDUCING DEMAND: HORIZON CITY																				
HORIZON CITY - PURCHASE WATER FROM HORIZON REGIONAL MUD	2020	WMS SELLER: HORIZON REGIONAL MUD; WMS SUPPLY RECIPIENT: HORIZON CITY																				
HORIZON REGIONAL MUD - ADDITIONAL WELLS AND EXPANSION OF DESAL PLANT	2020	PROJECT SPONSOR(S): HORIZON REGIONAL MUD																				
HORIZON REGIONAL MUD - PUBLIC CONSERVATION EDUCATION	2020	WUG REDUCING DEMAND: HORIZON REGIONAL MUD																				
HUDSPETH COUNTY OTHER (CITY OF SIERRA BLANCA - HUDSPETH CO. WCID #1) - ADDITIONAL TRANSMISSION LINE	2020	PROJECT SPONSOR(S): COUNTY-OTHER (HUDSPETH)																				
HUDSPETH COUNTY OTHER (DELL CITY) - BRACKISH GROUNDWATER DESALINATION FACILITY	2020	PROJECT SPONSOR(S): COUNTY-OTHER (HUDSPETH)																				
HUDSPETH COUNTY OTHER (DELL CITY) - WATER LOSS AUDIT AND MAIN-LINE REPAIR	2020	PROJECT SPONSOR(S): COUNTY-OTHER (HUDSPETH)																				

Table 11-6. (continued) 2021 Far West Texas Strategy Implementation Survey

WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Has Sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))	If yes, in what year did this occur?	If yes, by what date is the action on schedule for implementation?	At what level of implementation is the project currently?*	If not implemented, why?*(When "If other, please describe" is selected, please add the descriptive text to that field)	What impediments presented to implementation?*(When "If other, please describe" is selected, please add the descriptive text to that field)	Current water supply project yield (ac-ft/yr)	Funds expended to date (\$)	Project Cost (\$)	Year the project is online?*	Is this a phased project?*	(Phased) Ultimate volume (ac-ft/yr)	(Phased) Ultimate project cost (\$)	Year project reaches maximum capacity?*	What is the project funding source(s)?*	Funding Mechanism if Other?	Included in 2021 plan?*	Does the project or WMS involve reallocation of flood control?*	Does the project or WMS provide any measurable flood risk reduction?*	Optional Comments
HUDSPETH COUNTY OTHER (FORT HANCOCK WCID #1) - ADDITIONAL WELL AND RO TREATMENT FACILITY	2020	PROJECT SPONSOR(S): COUNTY-OTHER (HUDSPETH)																				
HUDSPETH COUNTY OTHER (FORT HANCOCK WCID) - WATER LOSS AUDIT AND MAIN-LINE REPAIR	2020	PROJECT SPONSOR(S): COUNTY-OTHER (HUDSPETH)																				
HUDSPETH IRRIGATION - HCCRD #1 - ADDITIONAL GROUNDWATER WELLS	2020	PROJECT SPONSOR(S): IRRIGATION (HUDSPETH)																				
HUDSPETH IRRIGATION - HCUWCD #1 - IRRIGATION SCHEDULING	2020	WUG REDUCING DEMAND: IRRIGATION, HUDSPETH																				
HUDSPETH IRRIGATION - HCUWCD #1 - TAILWATER REUSE	2020	WUG REDUCING DEMAND: IRRIGATION, HUDSPETH																				
HUDSPETH MINING - ADDITIONAL GROUNDWATER WELL	2020	PROJECT SPONSOR(S): MINING (HUDSPETH)																				
JEFF DAVIS COUNTY OTHER (TOWN OF VALENTINE) - ADDITIONAL GROUNDWATER WELL	2020	PROJECT SPONSOR(S): COUNTY-OTHER (JEFF DAVIS)	Yes	2019	Uncertain	Not implemented	Financing	Access to funding	52	\$0	\$900,000		No					Yes	No	No	Town is in need of well, but unable to afford loan component.	
LVWD - GROUNDWATER FROM PROPOSED WELL FIELD - HUECO BOLSON AQUIFER	2020	PROJECT SPONSOR(S): LOWER VALLEY WD																				

Table 11-7. (continued) 2021 Far West Texas Strategy Implementation Survey

WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Has Sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))	If yes, in what year did this occur?	If yes, by what date is the action on schedule for implementation?	At what level of implementation is the project currently?*	If not implemented, why?*(When "If other, please describe" is selected, please add the descriptive text to that field)	What impediments presented to implementation?*(When "If other, please describe" is selected, please add the descriptive text to that field)	Current water supply project yield (ac-ft/yr)	Funds expended to date (\$)	Project Cost (\$)	Year the project is online?*	Is this a phased project?*	(Phased) Ultimate volume (ac-ft/yr)	(Phased) Ultimate project cost (\$)	Year project reaches maximum capacity?*	What is the project funding source(s)?*	Funding Mechanism if Other?	Included in 2021 plan?*	Does the project or WMS involve reallocation of flood control?*	Does the project or WMS provide any measurable flood risk reduction?*	Optional Comments
LVWD - GROUNDWATER FROM PROPOSED WELL FIELD - RIO GRANDE ALLUVIUM AQUIFER	2020	PROJECT SPONSOR(S): LOWER VALLEY WD																				
LVWD - PUBLIC CONSERVATION EDUCATION	2020	WUG REDUCING DEMAND: LOWER VALLEY WD																				
LVWD - PURCHASE WATER FROM EPWU	2020	WMS SELLER: EL PASO; WMS SUPPLY RECIPIENT: LOWER VALLEY WD																				
LVWD - SURFACE WATER TREATMENT PLANT AND TRANSMISSION LINES	2020	PROJECT SPONSOR(S): LOWER VALLEY WD																				
LVWD - WASTEWATER TREATMENT AND ASR FACILITY	2020	PROJECT SPONSOR(S): LOWER VALLEY WD																				
TOWN OF ANTHONY - ADDITIONAL GROUNDWATER WELL	2020	PROJECT SPONSOR(S): ANTHONY	Yes	2016	2020	Under construction		If other, please describe: Loan agency delays; Bid process difficulties; "Buy American Steel" requirement results in 20% increase in cost of material.	960 ac-ft/yr	\$600,000	\$1,244,471	2020	No		2045	TWDB - Other	Town capital improvement funds.	Yes	No	No	Would be more advantageous to pursue SWIFT funds instead of DWSRF due to less restrictions.	

Table 11-8. (continued) 2021 Far West Texas Strategy Implementation Survey

WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Has Sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))	If yes, in what year did this occur?	If yes, by what date is the action on schedule for implementation?	At what level of implementation is the project currently?*	If not implemented, why?*(When "If other, please describe" is selected, please add the descriptive text to that field)	What impediments presented to implementation?*(When "If other, please describe" is selected, please add the descriptive text to that field)	Current water supply project yield (ac-ft/yr)	Funds expended to date (\$)	Project Cost (\$)	Year the project is online?*	Is this a phased project?*	(Phased) Ultimate volume (ac-ft/yr)	(Phased) Ultimate project cost (\$)	Year project reaches maximum capacity?*	What is the project funding source(s)?*	Funding Mechanism if Other?	Included in 2021 plan?*	Does the project or WMS involve reallocation of flood control?*	Does the project or WMS provide any measurable flood risk reduction?*	Optional Comments
TOWN OF ANTHONY - ARSENIC TREATMENT FACILITY	2020	PROJECT SPONSOR(S): ANTHONY	Yes	2016	Uncertain	Acquisition and design phase		Access to funding	2,800 ac-ft/yr	\$250,000	\$10,000,000	2023	Yes	2,800 ac-ft/yr	\$10,000,000	2045	TWDB - SWIFT	TWDB other	Yes	No	No	Town will need grant funding to fully implement arsenic treatment in order to keep customer water rates affordable.
TOWN OF ANTHONY - WATER LOSS AUDIT AND MAIN-LINE REPAIR	2020	PROJECT SPONSOR(S): ANTHONY	Yes	2016	Uncertain	Acquisition and design phase		Access to funding	7 ac-ft/yr	\$65,000	\$1,00,000	2023	No			2045	TWDB - Other	Customer rate increases and taxes.	No	No	No	
EL PASO COUNTY- OTHER - PUBLIC CONSERVATION EDUCATION	2030	WUG REDUCING DEMAND: COUNTY- OTHER, EL PASO																				
EPWU - TREATMENT AND REUSE OF AGRICULTURAL DRAIN WATER	2030	PROJECT SPONSOR(S): EL PASO																				
EPWU - ADVANCED PURIFIED WATER AT THE HASKELL AND NW WWTPS	2040	PROJECT SPONSOR(S): EL PASO																				
EPWU - BRACKISH GROUNDWATER AT THE JONATHAN ROGERS WWTP	2040	PROJECT SPONSOR(S): EL PASO																				
EPWU - GROUNDWATER FROM HUECO RANCH	2040	PROJECT SPONSOR(S): EL PASO																				

Table 11-9. (continued) 2021 Far West Texas Strategy Implementation Survey

WMS or WMS Project Name	Database Online Decade	Related Sponsor Entity and/or Benefitting WUGs	Has Sponsor taken affirmative vote or actions? (TWC 16.053(h)(10))	If yes, in what year did this occur?	If yes, by what date is the action on schedule for implementation?	At what level of implementation is the project currently?*	If not implemented, why?*(When "If other, please describe" is selected, please add the descriptive text to that field)	What impediments presented to implementation?*(When "If other, please describe" is selected, please add the descriptive text to that field)	Current water supply project yield (ac-ft/yr)	Funds expended to date (\$)	Project Cost (\$)	Year the project is online?*	Is this a phased project?*	(Phased) Ultimate volume (ac-ft/yr)	(Phased) Ultimate project cost (\$)	Year project reaches maximum capacity?*	What is the project funding source(s)?*	Funding Mechanism if Other?	Included in 2021 plan?*	Does the project or WMS involve reallocation of flood control?*	Does the project or WMS provide any measurable flood risk reduction?*	Optional Comments
EPWU - GROUNDWATER FROM DIABLO FARMS	2050	PROJECT SPONSOR(S): EL PASO																				
EPWU - GROUNDWATER FROM THE DELL CITY AREA	2060	PROJECT SPONSOR(S): EL PASO																				

11.2 COMPARISON TO PREVIOUS PLAN

The following section includes a summary of how the *2021 Plan* differs from the *2016 Plan*.

Comparisons include:

- Water demand projections;
- Drought of record and the hydrologic and modeling assumptions on which the *2021 Plan* is based;
- Source water availability;
- Existing water supplies of WUGs and WWP;
- WUG and WWP needs; and
- Recommended and alternative water management strategies.

Comparisons include an explanation for the changes that occurred regarding each of the categories.

11.2.1 Water Demand Projections

The following [Table 11-2](#) provides a comparison between *2016 and 2021 Plan* water demand projections by county, while [Table 11-3](#) compares demand projects by water-use category. The overall decrease in water demand in the *2021 Plan* is mostly the result of significantly lower irrigation and manufacturing use projections.

Table 11-2. Water Demand Projections Comparison by County (Acre-Feet/Year)

County	Plan	2020	2030	2040	2050	2060	2070
Brewster	2016	5,192	5,210	5,190	5,181	5,176	5,171
	2021	4,925	4,958	4,950	4,952	4,960	4,966
Culberson	2016	41,461	41,395	40,739	39,664	38,611	37,634
	2021	40,984	41,772	41,953	41,695	41,443	41,250
El Paso	2016	406,422	421,884	430,571	445,175	461,048	476,929
	2021	307,830	324,380	339,295	355,288	371,529	387,190
Hudspeth	2016	180,360	176,653	173,040	169,502	166,032	162,635
	2021	116,959	116,960	116,979	116,996	117,008	117,022
Fort Davis	2016	3,520	3,497	3,475	3,458	3,439	3,425
	2021	1,687	1,677	1,669	1,664	1,664	1,664
Presidio	2016	6,938	6,530	6,533	6,566	6,596	6,625
	2021	6,265	5,953	6,046	6,170	6,287	6,400
Terrell	2016	1,511	1,604	1,556	1,416	1,283	1,178
	2021	1,774	1,877	1,840	1,705	1,582	1,484
Total	2016	645,404	656,773	661,104	670,962	682,185	693,597
	2021	480,424	497,577	512,732	528,470	544,473	559,976

Table 11-3. Water Demand Projections Comparison by Water-User Category (Acre-Feet/Year)

Water Use Category	Plan	2020	2030	2040	2050	2060	2070
Municipal	2016	133,761	147,990	161,620	176,250	191,117	205,328
	2021	139,241	153,458	167,131	181,839	196,770	211,047
County-Other	2016	8,057	8,509	8,980	9,545	10,080	10,595
	2021	3,266	4,048	4,760	5,506	6,214	6,885
Manufacturing	2016	16,144	17,271	18,361	19,288	20,764	22,353
	2021	7,033	8,163	8,163	8,163	8,163	8,163
Mining	2016	6,069	7,093	7,863	8,147	8,511	9,066
	2021	7,835	8,859	9,629	9,913	10,277	10,832
Steam Electric Power	2016	6,937	8,111	9,541	11,284	13,410	15,937
	2021	10,545	10,545	10,545	10,545	10,545	10,545
Livestock	2016	2,997	2,997	2,997	2,997	2,997	2,997
	2021	2,101	2,101	2,101	2,101	2,101	2,101
Irrigation	2016	471,439	464,802	451,742	443,451	435,306	427,321
	2021	310,403	310,403	310,403	310,403	310,403	310,403

11.2.2 Drought of Record and Hydrologic and Modeling Assumptions

The **drought of record** consideration for water supply analysis for both the *2016 and 2021 Plans* is the drought of the 1950s. However, the *2016 Plan* does recognize that the current drought conditions as particularly witnessed in the summer of 2011 with a significantly low lake level at Elephant Butte Reservoir and corresponding cutback on irrigation allocations is having a significant impact on local water supply sources. The *2021 Plan* continues to recognize that, compared to the rest of the State, Far West Texas is perennially under drought or near-drought conditions. The *Plan* also recognizes that consistent flows of the Rio Grande of less than 250 cfs below Presidio has detrimental impacts on the local agricultural economy as well as threatens important wildlife habitat.

11.2.3 Source Water Availability

Surface water availability for both the *2016 and 2021 Plans* is based on Run 3 of the TCEQ Water Availability Models (WAMs) for the Rio Grande and Pecos Rivers. Rio Grande flows entering Texas from New Mexico are subject to the requirements set forth in the Rio Grande Compact and administered through the Rio Grande Project.

Groundwater availability in both the *2016 and 2021 Plans* is based on the Modeled Available Groundwater (MAG) volumes that may be produced on an average annual basis to achieve a Desired Future Condition (DFC) as adopted by Groundwater Management Areas (GMAs) (per Texas Water Code §36.001). Groundwater availability volumes for parts of the Region where MAGs are not determined by the TWDB are calculated separately based on science-based aquifer hydrologic characteristics.

Surface water source availability differs between the two *Plans* as a result of an updated running of the WAM. Likewise, changes in groundwater availability results from updated GMA criteria and MAG runs. Compared to 2016 source-supply volumes, 2021 surface water volumes decreased, groundwater volumes decreased, and reuse volumes increased. In total, projected source-supply volumes decreased by

approximately nine percent from the 2016 Plan to the 2021 Plan. [A Source Data Comparison table is provided in the Executive Summary of this Plan. The following Table 11-4 depicts these changes.](#)

11.2.4 Existing Water Supplies of WUGs and WWP

[A WUG Data Comparison Table is provided in the Executive Summary of this Plan, which compares Table 11-5 and 11-6 compare 2016 Plan and 2021 Plan](#)-water supplies available to Water User Groups (WUGs) based on the current infrastructure ability of each to obtain water supplies. These abilities primarily include existing infrastructure, water-rights limitations, and groundwater conservation district permit limitations. Municipal WUGs differ between the two Tables due to the change to utility base in the 2021 Plan.

11.2.5 WUG and MWP Needs

Water supply needs occur when an entity's (WUG's) projected water demand (~~Table 11-2 and Table 11-3~~) exceeds its supply availability (~~Table 11-5 and Table 11-6~~). Table 11-47 and Table 11-58 compare those entities in the 2016 and 2021 Plans that are projected to experience a water supply need at some decade in the next 50 years. The dramatic difference between WUG needs in the two Plans is primarily the result of the decreased source supply availability (~~Table 11-4~~) shown in the 2021 Plan.

**Table 11-47. 2016 WUG and MWP With Needs
(Acre-Foot/Year)**

County	2020	2030	2040	2050	2060	2070
Culberson County						
Mining	291	1,025	1,178	895	628	425
El Paso County						
El Paso Water				8,978	19,602	29,792
Fort Bliss	26	40	74	128	178	228
Horizon City	1,352	3,203	4,941	6,669	8,308	9,853
Horizon Regional MUD	1,233	2,582	3,851	5,115	6,317	7,451
Lower Valley Water District	2,453	3,228	3,965	4,734	5,500	6,227
Socorro	217	488	757	1,069	1,406	1,732
County Other	368	764	1,220	1,754	2,259	2,745
Manufacturing	8,841	9,968	11,058	11,985	13,461	15,050
Mining				242	987	1,833
Steam Electric Power	3,651	4,825	6,255	7,998	10,124	12,651
Irrigation	75,165	71,278	60,950	55,026	50,512	46,834
Hudspeth County						
Mining				2	11	21
Irrigation	94,847	91,139	87,508	83,952	80,470	77,060
Terrell County						
Mining	449	552	516	382	259	161

**Table 11-58. 2021 WUG and MWP With Needs
(Acre-Feet/Year)**

County	2020	2030	2040	2050	2060	2070
Culberson County						
Irrigation	333	333	5,858	5,858	5,858	5,858
El Paso County						
El Paso Water				8,978	19,6018	29,792
Horizon Regional MUD	2,709	5,816	8,735	11,641	14,403	17,008
Lower Valley Water District	1,358	2,207	3,042	3,934	4,833	5,689
County-Other Vinton Hills Estates				4	24	42
County-Other Vinton Hills Subdivision				10	54	96
Manufacturing		860	860	860	860	860
Mining	1,851	2,469	3,105	3,791	4,536	5,382
Steam Electric Power	7,260	7,260	7,260	7,260	7,260	7,260
Irrigation	41,404	41,404	41,404	41,404	41,404	41,404
Hudspeth County						
County-Other	35	38	38	38	38	39
Mining	196	168	185	200	209	219
Terrell County						
Mining	483	586	550	416	293	195

11.2.6 Recommended and Alternate Water Management Strategies and Projects

A total of 63 recommended and one alternate water management strategies (Table 11-6~~Table 11-9~~) for 30 water user groups (WUGs) occur in the *2016 Plan*, with a total capital cost of \$1,903,771,872. The *2021 Plan* contains a total of 57 recommended and 10 alternate strategies (Table 11-7~~Table 11-10~~) for **24** **WUGs** with a total capital cost of \$2,110,409,105.00. Tables 11-8 and 11-9 provide similar comparisons between 2016 and 2021 strategy projects.

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**Table 11-69. Summary of 2016 Plan Recommended Water Management Strategies and Projects
(Acre-Feet per Year)**

County	Water User Group	Strategy	Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost
				2020	2030	2040	2050	2060	2070	
Brewster	Brewster County-Other Marathon WSSService	Water loss audit and main-line repair	E-1	40	40	40	40	40	40	\$265,000
	Brewster County-Other Rio Grande Village BBNP	Water loss audit and main-line repair	E-2	6	6	6	6	6	6	\$616,000
Culberson	*Culberson County Mining	Additional groundwater wells	E-3	590	590	590	590	590	590	\$608,000
		Additional groundwater well	E-4	590	590	590	590	590	590	\$675,000
El Paso	*City of Anthony	Public conservation education	E-5	7	9	10	11	12	13	\$0
		Arsenic treatment facility	E-6	2,800	2,800	2,800	2,800	2,800	2,800	\$9,952,000
	*City of El Paso (EPWU)	Municipal conservation programs	E-7	1,870	2,110	1,160	2,550	5,530	5,910	\$0
		Advanced purified water at the Haskell and NW WWTPs	E-8	3,000	7,500	12,000	16,500	21,000	24,000	\$395,241,000
		Advanced purified water at the Bustamante WWTP	E-9	8,000	9,000	10,000	10,000	10,000	10,000	\$94,096,000
		Recharge of Hueco Aquifer groundwater with treated surface water from Jonathan Rogers Plant	E-10	5,000	5,000	5,000	5,000	5,000	5,000	\$1,800,000
Treatment & reuse of agricultural drain water	E-11		8,100	8,100	8,100	8,100	8,100	8,100	\$125,000,000	

**Table 11-69. (Continued) Summary of 2016 Plan Recommended Water Management Strategies and Projects
(Acre-Feet per Year)**

County	Water User Group	Strategy	Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost
				2020	2030	2040	2050	2060	2070	
El Paso	*City of El Paso (EPWU)	Expansion of local well fields	E-12	3,880	7,760	11,640	15,520	19,400	23,280	\$32,712,000
		Brackish Groundwater at the Jonathan Rogers WTP	E-13	11,000	11,000	11,000	11,000	11,000	11,000	\$65,924,000
		Expansion of the Kay Bailey Hutchinson Desal Plant	E-14	1,260	2,520	2,520	2,520	2,520	2,520	\$37,200,000
		Groundwater from Hueco Ranch	E-15			5,000	5,000	5,000	5,000	\$156,000,000
		Groundwater from Southern Hudspeth County	E-16	10,000	10,000	10,000	10,000	10,000	10,000	\$98,980,000
		Expansion of the Jonathan Rogers WTP	E-17	6,500	6,500	6,500	6,500	6,500	6,500	\$95,186,653
		Riverside Regulating Reservoir	E-18	1,500	1,500	1,500	1,500	1,500	1,500	\$93,526,200
		Groundwater from Diablo Farms	E-19				10,000	10,000	10,000	\$273,507,000
		Groundwater from Dell City area	E-20					10,000	20,000	\$257,901,000
	*Lower Valley Water District	Public conservation education	E-21	36	43	51	59	66	73	\$0
		Purchased water from EPWU	E-22	4,356	4,356	4,356	4,356	4,356	4,356	0
	*City of Socorro	Public conservation education	E-23	32	34	37	40	44	47	\$0
		Purchased water from LVWD	E-24	2,959	2,959	2,959	2,959	2,959	2,959	\$0
	*Horizon City	Public conservation education	E-25	45	63	80	98	114	130	\$0
		Purchased water from Horizon MUD	E-26	3,106	3,106	3,106	3,106	3,106	3,106	\$0
	*Horizon Regional MUD	Public conservation education	E-27	37	50	63	76	88	99	\$0
		Additional wells & expansion of desal plant	E-28							

**Table 11-69. (Continued) Summary of 2016 Plan Recommended Water Management Strategies and Projects
(Acre-Feet per Year)**

County	Water User Group	Strategy	Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost
				2020	2030	2040	2050	2060	2070	
El Paso	*Fort Bliss	Public conservation education	E-29	16	17	17	18	18	19	\$0
		Purchased water from EPWU	E-30	435	435	435	435	435	435	\$0
	El Paso County Tornillo WID	Additional groundwater well & transmission line	E-31	333	333	333	333	333	333	\$1,726,000
		Arsenic treatment facility	E-32	276	276	276	276	276	276	\$3,114,000
	City of Vinton	High capacity water lines for improved distribution of water from EPWU	E-33	400	400	400	400	400	400	\$4,192,000
	*El Paso County Other	Purchased water from EPWU	E-34	6,278	6,278	6,278	6,278	6,278	6,278	\$0
	*El Paso County Irrigation (EPCWID #1)	Irrigation scheduling	E-35	1,740	1,740	1,740	1,740	1,740	1,740	\$0
		Tailwater reuse	E-36	1,723	1,723	1,723	1,723	1,723	1,723	\$0
		Improvements to water district delivery system	E-37	25,000	25,000	25,000	25,000	25,000	25,000	\$157,777,783
	*El Paso County Manufacturing	Purchased water from EPWU	E-38	7,297	7,297	7,297	7,297	7,297	7,297	\$0
	*El Paso County Mining	Additional groundwater wells	E-39	1,840	1,840	1,840	1,840	1,840	1,840	\$969,000
*El Paso County Steam Electric Power	Purchased water from EPWU	E-40	3,286	3,286	3,286	3,286	3,286	3,286	\$0	
Hudspeth	Hudspeth County Other (Dell City)	Water loss audit and main-line repair	E-41	1	1	1	1	1	1	\$120,000
		Brackish groundwater desal facility	E-42	111	111	111	111	111	111	\$1,299,000
	Hudspeth County Other (Fort Hancock WCID)	Water loss audit and main-line repair	E-43	2	2	2	2	2	2	\$265,000

**Table 11-69. (Continued) Summary of 2016 Plan Recommended Water Management Strategies and Projects
(Acre-Feet per Year)**

County	Water User Group	Strategy	Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost
				2020	2030	2040	2050	2060	2070	
Hudspeth	Hudspeth County Other (Fort Hancock WCID)	Additional well & RO treatment facility	E-44	565	565	565	565	565	565	\$6,109,000
	Hudspeth County Other (City of Sierra Blanca) Hudspeth Co. WCID #1	Additional transmission line to supply connections outside of the District	E-45	351	351	351	351	351	351	\$1,429,000
	*Hudspeth Irrigation (HCCRD #1)	Additional groundwater wells	E-46	230	230	230	230	230	230	\$173,000
	Hudspeth Irrigation (HCUWCD #1)	Irrigation scheduling	E-47	3,535	3,535	3,535	3,535	3,535	3,535	\$0
		Tailwater reuse	E-48	589	589	589	589	589	589	\$0
*Hudspeth County Mining	Additional groundwater well	E-49	30	30	30	30	30	30	\$449,000	
Jeff Davis	Fort Davis WSC	Additional groundwater well	E-50	274	274	274	274	274	274	\$507,000
		Additional transmission line to connect Fort Davis WSC to Fort Davis Estates	E-51	114	114	114	114	114	114	\$1,068,000
Presidio	City of Marfa	Additional groundwater well	E-52	785	785	785	785	785	785	\$1,143,000
	City of Presidio	Water supply for the City of Presidio	E-53							
Terrell	*Terrell County Mining	Additional groundwater wells	E-54	560	560	560	560	560	560	\$738,000

Table 11-740. Summary of 2021 Plan Recommended and Alternate Water Management Strategies (Acre-Feet per Year)

County	Water User Group	Strategy	Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost (Table 5-3)
				2020	2030	2040	2050	2060	2070	
Brewster	City of Alpine	Modification to wastewater treatment facility & irrigation system	E-1		25	25	25	25	25	\$2,318,000
		Irrigation and recharge application of captured rainwater runoff	E-2		70	70	70	70	70	\$1,296,000
	Marathon WSSService	Water loss audit and main-line repair	E-3	12	12	12	12	12	12	\$255,000
	Lajitas Municipal Services	Water loss audit and main-line repair	E-4	51	51	51	51	51	51	\$2,545,000
	Brewster County Other (Study Butte Terlingua WS)	Water loss audit and main-line repair	E-5	25	25	25	25	25	25	\$3,054,000
Culberson	*Culberson County Irrigation	Irrigation scheduling	E-6	107	107	107	107	107	107	\$0
		Additional groundwater wells	E-7	333	333	333	333	333	333	\$510,000
El Paso	Town of Anthony	Arsenic treatment facility	E-8	2,800	2,800	2,800	2,800	2,800	2,800	\$10,334,000
		Additional groundwater well	E-9	960	960	960	960	960	960	\$1,913,000
	*El Paso Water	Municipal conservation programs	E-10	4,950	5,530	5,080	9,940	13,140	17,820	\$1,070,000
		Advanced water purification at the Bustamante WWTP	E-11	8,500	9,200	9,900	10,600	10,600	10,600	\$100,361,400
		Hueco Bolson artificial recharge	E-14		5,000	5,000	5,000	5,000	5,000	\$38,003,000
		Groundwater from Dell City Area (Phase 1)	E-16			4,475	4,475	4,475	4,475	\$569,357,000

Table 11-710. (continued) Summary of 2021 Plan Recommended and Alternate Water Management Strategies (Acre-Feet per Year)

County	Water User Group	Strategy	Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost (Table 5-3)
				2020	2030	2040	2050	2060	2070	
El Paso	*El Paso Water	Groundwater from Dell City Area (Phase 2)	E-17				10,000	10,000	10,000	\$320,226,000
	*El Paso Water ALTERNATE STRATEGIES	Treatment and reuse of agricultural drain water	E-18			2,700	2,700	2,700	2,700	\$21,466,000
		Expansion of the Kay Bailey Hutchison Desal Plant	E-13					5,000	5,000	\$26,490,000
		Expansion of Canutillo Mesilla Bolson Well Field	E-19		7,760	11,640	15,520	19,400	23,280	\$6,444,000
		Riverside Regulating Reservoir	E-15			3,250	3,250	3,250	3,250	\$6,754,036
		Lower Valley well head RO	E-20			5,000	5,000	5,000	5,000	\$52,681,000
		Expansion of Jonathan Rogers WTP	E-21			6,500	6,500	6,500	6,500	\$88,679,000
		Conjunctive treatment of groundwater and surface water at the Upper Valley WWTP	E-22		10,000	10,000	10,000	10,000	10,000	\$72,873,000
		Advanced water purification at the Haskell Street RWP	E-12						10,000	\$189,356,000
		Advanced water purification at the Fred Hervey WWTP	E-23			10,000	10,000	10,000	10,000	\$140,394,000
		*Lower Valley Water District	Public conservation education	E-24	57	66	74	83	92	100
	Purchase water from EPW		E-26	1,344	2,185	3,012	3,895	4,785	5,632	\$0
	Surface water treatment plant & transmission line		E-27		5,000	5,000	5,000	5,000	5,000	\$74,338,000

**Table 11-710. (continued) Summary of 2021 Plan Recommended and Alternate Water Management Strategies
(Acre-Feet per Year)**

County	Water User Group	Strategy	Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost (Table 5-3)
				2020	2030	2040	2050	2060	2070	
El Paso	*Lower Valley Water District	Groundwater from proposed Well field	E-28		6,800	6,800	6,800	6,800	6,800	\$39,236,000
		Groundwater from proposed Well field	E-29		6,800	6,800	6,800	6,800	6,800	\$36,110,000
		Wastewater treatment facility and ASR	E-30		5,589	5,589	5,589	5,589	5,589	\$23,509,000
	*Horizon Regional MUD	Water loss audit and main-line repair	E-31	197	274	346	418	487	551	\$255,000
		Public conservation education	E-32	79	110	140	169	196	222	\$0
		Additional wells & expansion of desalination plant	E-33	16,786	16,786	16,786	16,786	16,786	16,786	\$71,809,000
	Haciendas Del Norte WID	Water loss audit and main-line repair	E-34	12	13	15	16	17	19	\$764,000
	East Montana WS	Water loss audit and main-line repair	E-35	41	46	50	54	59	63	\$1,018,000
	El Paso County Tornillo WID	Additional groundwater well & transmission line	E-36	333	333	333	333	333	333	\$2,060,000
	*El Paso County Other (Vinton Hills)	Public conservation education	E-37	0	0	0	4	5	5	\$0
		Purchase water from EPW	E-38				10	73	133	\$0
	*El Paso County Irrigation (EPCWID #1)	Irrigation scheduling	E-40	1,740	1,740	1,740	1,740	1,740	1,740	\$102,595
		Tailwater reuse	E-41	1,723	1,723	1,723	1,723	1,723	1,723	\$973,368

**Table 11-710. (continued) Summary of 2021 Plan Recommended and Alternate Water Management Strategies
(Acre-Feet per Year)**

County	Water User Group	Strategy	Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost (Table 5-3)
				2020	2030	2040	2050	2060	2070	
El Paso	*El Paso County Irrigation (EPCWID #1)	Improvements to water district delivery system	E-42	25,000	25,000	25,000	25,000	25,000	25,000	\$157,777,783
		Riverside Regulating Reservoir	E-43		3,250	3,250	3,250	3,250	3,250	\$6,754,036
		New Wasteway 32 River Diversion Pumping Point	E-44	5,000	5,000	5,000	5,000	5,000	5,000	\$4,055,887
	*El Paso County Manufacturing	Purchase water from EPW	E-46		860	860	860	860	860	\$0
	*El Paso County Mining	Additional groundwater wells	E-48	4,251	4,251	4,251	4,251	4,251	4,251	\$1,208,000
	*El Paso County Steam Electric Power	Purchase water from EPW	E-50	7,260	7,260	7,260	7,260	7,260	7,260	\$0
Hudspeth	Hudspeth County Other (Dell City)	Brackish groundwater desal facility	E-51		111	111	111	111	111	\$1,636,000
	*Hudspeth County Other (City of Sierra Blanca - Hudspeth Co. WCID #1)	Public conservation education	E-52	1	2	2	2	2	2	\$0
		Replace water-supply line from Van Horn	E-53		39	39	39	28	0	\$18,432,000
		Local groundwater well	E-54	16	16	16	16	16	16	\$940,000
		Groundwater well NE of Van Horn	E-55	39	39	39	39	39	0	\$2,132,000
		Groundwater well West of Van Horn	E-56	39	39	39	39	39	39	\$636,000
	*Hudspeth County Mining	Additional groundwater well	E-58	219	219	219	219	219	219	\$306,000

Table 11-710. (continued) Summary of 2021 Plan Recommended and Alternate Water Management Strategies
(Acre-Feet per Year)

County	Water User Group	Strategy	Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost (Table 5-3)
				2020	2030	2040	2050	2060	2070	
Jeff Davis	Fort Davis WSC	Additional groundwater well	E-59	274	274	274	274	274	274	\$584,000
		Transmission line to connect Fort Davis WSC to Fort Davis Estates	E-60		114	114	114	114	114	\$1,671,000
	Jeff Davis County Other (Town of Valentine)	Additional groundwater well	E-61	129	129	129	129	129	129	\$783,000
Presidio	City of Presidio	Water loss audit and main-line repair	E-62	35	37	38	41	43	45	\$509,000
		Additional groundwater well	E-63	120	120	120	120	120	120	\$5,509,000
Terrell	*Terrell County Mining ALTERNATE STRATEGY	Additional groundwater wells	E-65	470	470	470	470	470	470	\$921,000

Table 11-811. Summary of 2016 Plan Recommended and Alternate Water Management Projects (Acre-Feet per Year)

County	Water User Group	Strategy	2016 Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost (Table 5-3)
				2020	2030	2040	2050	2060	2070	
Brewster	Brewster County Other (Marathon WSSService)	Water loss audit and main-line repair	E-1	65	65	65	65	65	65	\$426,000
	Brewster County Other (Rio Grande Village BBNP)	Water loss audit and main-line repair	E-2	6	6	6	6	6	6	\$607,000
	Brewster County Other (Panther Junction BBNP Plt)	Water loss audit and main-line repair	E-3	2	2	2	2	2	2	\$759,000
Culberson	City of Van Horn	Water loss audit and main-line repair	E-4	30	30	30	30	30	30	\$1,197,000
	*Culberson County Mining	Additional groundwater wells	E-5	590	590	590	590	590	590	\$608,000
		Additional groundwater well	E-6	590	590	590	590	590	590	\$675,000
El Paso	*Town of Anthony	Water loss audit and main-line repair	E-7	7	7	7	7	7	7	\$759,000
		Arsenic treatment facility	E-8	2,800	2,800	2,800	2,800	2,800	2,800	\$9,952,000
		Additional groundwater well	E-9	960	960	960	960	960	960	\$1,244,471
	*City of El Paso (EPWU)	Advanced purified water at the Haskell and NW WWTPs	E-11			3,000	7,500	12,000	16,500	\$291,800,000
		Advanced purified water at the Bustamante WWTP	E-12	8,000	9,000	10,000	10,000	10,000	10,000	\$94,096,000
		Recharge of Hueco Aquifer groundwater with treated surface water from Jonathan Rogers Plant	E-13	5,000	5,000	5,000	5,000	5,000	5,000	\$2,495,000
		Treatment & reuse of agricultural drain water	E-14		2,700	2,700	2,700	2,700	2,700	\$41,679,000
		Expansion of local well fields	E-15	3,880	7,760	11,640	15,520	19,400	23,280	\$32,712,000
Brackish Groundwater at the Jonathan Rogers WTP	E-16			11,000	11,000	11,000	11,000	\$65,865,000		
Expansion of the Kay Bailey Hutchison Desal Plant	E-17	1,260	2,520	2,520	2,520	2,520	2,520	\$37,200,000		

Table 11-811. (continued) Summary of 2016 Plan Recommended and Alternate Water Management Projects (Acre-Feet per Year)

County	Water User Group	Strategy	2016 Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost (Table 5-3)
				2020	2030	2040	2050	2060	2070	
El Paso	*City of El Paso (EPWU)	Groundwater from Hueco Ranch	E-18			5,000	5,000	5,000	5,000	\$155,858,000
		Groundwater from Southern Hudspeth County	E-19	10,000	10,000	10,000	10,000	10,000	10,000	\$98,980,000
		Expansion of the Jonathan Rogers WTP	E-20	6,500	6,500	6,500	6,500	6,500	6,500	\$95,186,653
		Riverside Regulating Reservoir	E-21	6,500	6,500	6,500	6,500	6,500	6,500	\$20,754,157
		Groundwater from Diablo Farms	E-22				10,000	10,000	10,000	\$273,507,000
		Groundwater from Dell City area	E-23					10,000	20,000	\$303,185,000
	*Lower Valley Water District	Surface water treatment plant & transmission line	E-26	6,700	6,700	6,700	6,700	6,700	6,700	\$34,080,000
		Groundwater from proposed Well field	E-27	6,800	6,800	6,800	6,800	6,800	6,800	\$37,490,000
		Groundwater from proposed Well field	E-28	6,800	6,800	6,800	6,800	6,800	6,800	\$41,070,000
		Wastewater treatment facility and ASR	E-29	3,808	3,808	3,808	3,808	3,808	3,808	\$18,108,000
	*Horizon Regional MUD	Additional wells & expansion of desal plant	E-35	2,585	5,785	8,792	11,784	14,625	17,304	\$56,443,000
	El Paso County Tornillo WID	Additional groundwater well & transmission line	E-38	333	333	333	333	333	333	\$1,726,000
		Arsenic treatment facility	E-39	276	276	276	276	276	276	\$3,114,000
	City of Vinton	High capacity water lines for improved distribution of water from EPWU	E-40	400	400	400	400	400	400	\$4,192,000
Improvements to water district delivery system		E-45	25,000	25,000	25,000	25,000	25,000	25,000	\$157,777,783	
*El Paso County Mining	Additional groundwater wells	E-47				242	987	1,833	\$969,000	
Hudspeth	Hudspeth County Other (Dell City)	Water loss audit and main-line repair	E-49	1	1	1	1	1	1	\$1,614,000
		Brackish groundwater desal facility	E-50	111	111	111	111	111	111	\$1,299,000

**Table 11-811. (continued) Summary of 2016 Plan Recommended and Alternate Water Management Projects
(Acre-Feet per Year)**

County	Water User Group	Strategy	2016 Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost (Table 5-3)
				2020	2030	2040	2050	2060	2070	
Hudspeth	Hudspeth County Other (Fort Hancock WCID)	Water loss audit and main-line repair	E-51	3	3	3	3	3	3	\$292,000
		Additional well & RO treatment facility	E-52	565	565	565	565	565	565	\$6,109,000
	Hudspeth County Other (City of Sierra Blanca - Hudspeth Co. WCID #1)	Additional transmission line to supply connections outside of the District	E-53	351	351	351	351	351	351	\$1,429,000
	*Hudspeth Irrigation (HCCRD #1)	Additional groundwater wells	E-54	230	230	230	230	230	230	\$173,000
	*Hudspeth County Mining	Additional groundwater well	E-57	30	30	30	30	30	30	\$449,000
Jeff Davis	Fort Davis WSC	Additional groundwater well	E-58	274	274	274	274	274	274	\$507,000
		Additional transmission line to connect Fort Davis WSC to Fort Davis Estates	E-59	114	114	114	114	114	114	\$1,068,000
	Jeff Davis County Other (Town of Valentine)	Additional groundwater well	E-60	65	65	65	65	65	65	\$402,808
Presidio	City of Marfa	Additional groundwater well	E-61	785	785	785	785	785	785	\$1,143,000
	City of Presidio	Water loss audit and main-line repair	E-62	9	9	9	9	9	9	\$2,172,000
		Additional groundwater well	E-63	120	120	120	120	120	120	\$1,861,000
Terrell	*Terrell County Mining	Additional groundwater wells	E-64	0	0	0	0	0	0	\$738,000

Table 11-9192. Summary of 2021 Plan Recommended and Alternate Water Management Projects (Acre-Feet per Year)

County	Water User Group	Strategy	Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost (Table 5-3)
				2020	2030	2040	2050	2060	2070	
Brewster	City of Alpine	Modification to wastewater treatment facility & irrigation system	E-1		25	25	25	25	25	\$2,318,000
		Irrigation and recharge application of captured rainwater runoff	E-2		70	70	70	70	70	\$1,296,000
	Marathon WSService	Water loss audit and main-line repair	E-3	12	12	12	12	12	12	\$255,000
	Lajitas Municipal Services	Water loss audit and main-line repair	E-4	51	51	51	51	51	51	\$2,545,000
	Brewster County Other (Study Butte Terlingua WS)	Water loss audit and main-line repair	E-5	25	25	25	25	25	25	\$3,054,000
Culberson	*Culberson County Irrigation	Additional groundwater wells	E-7	333	333	333	333	333	333	\$510,000
El Paso	Town of Anthony	Arsenic treatment facility	E-8	2,800	2,800	2,800	2,800	2,800	2,800	\$10,334,000
		Additional groundwater well	E-9	960	960	960	960	960	960	\$1,913,000
	*El Paso Water	Municipal conservation programs	E-10	4,950	5,530	5,080	9,940	13,140	17,820	\$1,070,000
		Advanced water purification at the Bustamante WWTP	E-11	8,500	9,200	9,900	10,600	10,600	10,600	\$100,361,400
		Hueco Bolson artificial recharge	E-14		5,000	5,000	5,000	5,000	5,000	\$38,003,000
	Groundwater from Dell City Area (Phase 1)	E-16			4,475	4,475	4,475	4,475	\$569,357,000	

Table 11-912. (continued) Summary of 2021 Plan Recommended and Alternate Water Management Projects
(Acre-Feet per Year)

County	Water User Group	Strategy	Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost (Table 5-3)
				2020	2030	2040	2050	2060	2070	
El Paso	*El Paso Water	Groundwater from Dell City Area (Phase 2)	E-17				10,000	10,000	10,000	\$320,226,000
	*El Paso Water ALTERNATE STRATEGIES	Treatment and reuse of agricultural drain water	E-18			2,700	2,700	2,700	2,700	\$21,466,000
		Expansion of the Kay Bailey Hutchison Desal Plant	E-13					5,000	5,000	\$26,490,000
		Expansion of Canutillo Mesilla Bolson Well Field	E-19		7,760	11,640	15,520	19,400	23,280	\$6,444,000
		Riverside Regulating Reservoir	E-15			3,250	3,250	3,250	3,250	\$6,754,036
		Lower Valley well head RO	E-20			5,000	5,000	5,000	5,000	\$52,681,000
		Expansion of Jonathan Rogers WTP	E-21			6,500	6,500	6,500	6,500	\$88,679,000
		Conjunctive treatment of groundwater and surface water at the Upper Valley WWTP	E-22		10,000	10,000	10,000	10,000	10,000	\$72,873,000
		Advanced water purification at the Haskell Street RWP	E-12						10,000	\$189,356,000
		Advanced water purification at the Fred Hervey WWTP	E-23			10,000	10,000	10,000	10,000	\$140,394,000
		*Lower Valley Water District	Surface water treatment plant & transmission line	E-27		5,000	5,000	5,000	5,000	5,000
	Groundwater from proposed Well field		E-28		6,800	6,800	6,800	6,800	6,800	\$39,236,000
	Groundwater from proposed Well field		E-29		6,800	6,800	6,800	6,800	6,800	\$36,110,000

Table 11-912. (continued) Summary of 2021 Plan Recommended and Alternate Water Management Projects
(Acre-Feet per Year)

County	Water User Group	Strategy	Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost (Table 5-3)
				2020	2030	2040	2050	2060	2070	
El Paso	*Lower Valley Water District	Wastewater treatment facility and ASR	E-30		5,589	5,589	5,589	5,589	5,589	\$23,509,000
	*Horizon Regional MUD	Water loss audit and main-line repair	E-31	197	274	346	418	487	551	\$255,000
		Additional wells & expansion of desalination plant	E-33	16,786	16,786	16,786	16,786	16,786	16,786	\$71,809,000
	Haciendas Del Norte WID	Water loss audit and main-line repair	E-34	12	13	15	16	17	19	\$764,000
	East Montana WS	Water loss audit and main-line repair	E-35	41	46	50	54	59	63	\$1,018,000
	El Paso County Tornillo WID	Additional groundwater well & transmission line	E-36	333	333	333	333	333	333	\$2,060,000
	*El Paso County Irrigation (EPCWID #1)	Irrigation scheduling	E-40	1,740	1,740	1,740	1,740	1,740	1,740	\$102,595
		Tailwater reuse	E-41	1,723	1,723	1,723	1,723	1,723	1,723	\$973,368
		Improvements to water district delivery system	E-42	25,000	25,000	25,000	25,000	25,000	25,000	\$157,777,783
		Riverside Regulating Reservoir	E-43		3,250	3,250	3,250	3,250	3,250	\$6,754,036
New Wasteway 32 River Diversion Pumping Point		E-44	5,000	5,000	5,000	5,000	5,000	5,000	\$4,055,887	
*El Paso County Mining	Additional groundwater wells	E-48	4,251	4,251	4,251	4,251	4,251	4,251	\$1,208,000	
Hudspeth	Hudspeth County Other (Dell City)	Brackish groundwater desal facility	E-51		111	111	111	111	111	\$1,636,000

Table 11-942. (continued) Summary of 2021 Plan Recommended and Alternate Water Management Projects
(Acre-Feet per Year)

County	Water User Group	Strategy	Strategy ID	Strategy Supply (Acre-Feet/Year)						Total Capital Cost (Table 5-3)
				2020	2030	2040	2050	2060	2070	
Hudspeth	*Hudspeth County Other (City of Sierra Blanca Hudspeth Co. WCID #1)	Replace water-supply line from Van Horn	E-53		39	39	39	28	0	\$18,432,000
		Local groundwater well	E-54	16	16	16	16	16	16	\$940,000
		Groundwater well NE of Van Horn	E-55	39	39	39	39	39	0	\$2,132,000
		Groundwater well West of Van Horn	E-56	39	39	39	39	39	39	\$636,000
	*Hudspeth County Mining	Additional groundwater well	E-58	219	219	219	219	219	219	\$306,000
Jeff Davis	Fort Davis WSC	Additional groundwater well	E-59	274	274	274	274	274	274	\$584,000
		Transmission line to connect Fort Davis WSC to Fort Davis Estates	E-60		114	114	114	114	114	\$1,671,000
	Jeff Davis County Other (Town of Valentine)	Additional groundwater well	E-61	129	129	129	129	129	129	\$783,000
Presidio	City of Presidio	Water loss audit and main-line repair	E-62	35	37	38	41	43	45	\$509,000
		Additional groundwater well	E-63	120	120	120	120	120	120	\$5,509,000
Terrell	*Terrell County Mining ALTERNATE STRATEGY	Additional groundwater wells	E-65	470	470	470	470	470	470	\$921,000

11.3 PROGRESS OF REGIONALIZATION

Six of the seven counties that comprise Far West Texas are highly rural with each county containing only one or two communities of significant size. Generally, these rural communities are totally self-supportive without need or justification for regional / shared water supply projects. The one variable in this scenario is the shared supply between the communities of Van Horn and Sierra Blanca.

Sierra Blanca (Hudspeth County WCID #1) 40 miles to the west of Van Horn has yet to locate and develop a local water supply and has historically relied on groundwater from the Wild Horse Flat (West Texas Bolsons) aquifer in the same well-field region as Van Horn's well-field. Van Horn has assisted Sierra Blanca by transporting water from this shared well-field to a pipeline that moves the water to Sierra Blanca. While this arrangement has worked adequately in the past, the community of Sierra Blanca is motivated to become less reliant on the existing groundwater supply from the Wild Horse Flat aquifer by attempting to locate and develop a supply source closer to town. This *2021 Far West Texas Water Plan* provides strategy recommendations for both enhancing the existing water-supply source and repairing the transmission pipeline, as well as addressing the search for a water source that is less dependent on Van Horn.

The greatest population density in the Region occurs in El Paso County (97 percent of total regional population) along the Rio Grande corridor, with El Paso Water (EPW) providing 77 percent of the water to this area of rapid population expansion. Thus, regionalization has been and will continue to be an important aspect of water-management planning. EPW provides water to the City of El Paso and to six other communities including Fort Bliss military reservation and to the Lower Valley Water District (LVWD). EPW also provides water to manufacturing, steam-electric, mining, and numerous colonias in the County. To meet the growing water-supply needs for EPW's service area, the utility plans to maximize local sources and eventually import additional supplies from the Dell City area.

Regionalization begins with the cooperative agreements between EPW and the El Paso County Water Improvement District #1 (EPCWID#1) that controls almost all the Rio Grande water rights in the County primarily for irrigation use. Shared projects and agreements allow a portion of Rio Grande supply to be used for municipal supply, while the irrigation district makes use of return flows. The LVWD currently receives all its treated water supply from EPW and in turn redirects this water to its own customers.

Another regional cooperative project occurs with the Kay Bailey Hutchison Desalination Facility between EPW and Fort Bliss. Project facilities, including brackish groundwater source wells, treatment plant, and disposal wells, are located on Fort Bliss property, while EPW owns and maintains the facility. Fort Bliss receives a large portion of their supply needs from this project, while EPW is provided with a drought-proof resource to blend in with their other supply sources.

Regionalization thus plays a key role in moving both surface water and groundwater supplies to the numerous end-users in the County. This *2021 Far West Texas Water Plan* continues to support regionalization by recognizing that future water supplies can best be shared in this desert community through cooperative management.

The FWTWPG would like to offer another perspective on regionalization. Participants in the FWTWPG continue to maintain a robust regional relationship by helping affected water systems become sustainable and resilient. However, funding policies may impede this effort by suggesting regionalization through consolidation of water districts. The FWTWPG finds that entities in unserved or underserved areas should

still be eligible for financial assistance. The grant or loan eligibility and need to the unserved or underserved service area should be treated independently from the provider of some services through the interlocal agreements. This perspective is further discussed in Recommendation Chapter 8, Section 8.1, Number 5.

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