

TO: Board Members

THROUGH: Kevin Patteson, Executive Administrator
Les Trobman, General Counsel
Jeff Walker, Deputy Executive Administrator, Water Supply & Infrastructure

FROM: Sarah Backhouse, Planner, Regional Water Planning

DATE: December 4, 2015

SUBJECT: Approval of the 2016 Region O Regional Water Plan

ACTION REQUESTED

Approve the 2016 Regional Water Plan for the Llano Estacado (Region O) Regional Water Planning Area.

BACKGROUND

In accordance with §16.051 of the Texas Water Code (TWC), the Texas Water Development Board (TWDB) is required to develop and adopt a comprehensive state water plan every five years that incorporates the regional water plans developed and approved in accordance with TWC §16.053. Pursuant to 31 TAC §357.50, regional water planning groups are required to submit their adopted regional water plans to the Board for approval every five years.

In accordance with 31 TAC §357.50, the Board is required to consider approval of submitted regional water plans and may approve a regional water plan (RWP) only after it has determined that the RWP complies with statute and rules including TWC §16.053, 31 TAC Chapters 355, 357, and 358.

In accordance with TWC §16.053, the Board may approve a regional water plan only after it has determined that:

- all interregional conflicts involving the regional water planning area, if any, have been resolved;
- the plan includes water conservation practices and drought management measures; and
- the plan is consistent with long-term protection of the state's water resources, agricultural resources, and natural resources.

Our Mission : **Board Members**

To provide leadership, information, education, and support for planning, financial assistance, and outreach for the conservation and responsible development of water for Texas :
: Bech Bruun, Chairman | Kathleen Jackson, Member
:
: Kevin Patteson, Executive Administrator

The Executive Administrator (EA) has conducted a review of the final adopted Region O Regional Water Plan related to all applicable legal and contractual requirements including related to the following key issues:

1. Determinations of whether the plans were developed according to the general provisions for planning included in statute, rule, and guidance.
2. Determination that there are no interregional conflicts associated with the plan.
3. Determination that environmental planning criteria, including consideration of environmental flow standards adopted by the Texas Commission on Environmental Quality, related to instream and bay and estuary inflows were followed appropriately in evaluations of water management strategies utilizing surface water.
4. Determination that existing and recommended water supplies would be available under a repeat of the historic drought of record.
5. Determination that impacts to agricultural resources were quantified.
6. Determination that cost estimates developed in the plan were prepared in general accordance with the provisions of the contract.
7. Determination that water conservation and drought management was considered as a means to meet all identified water needs.
8. Determination that all comments received by the regional water planning groups on the initially prepared plans from the TWDB have been satisfactorily addressed.
9. Determination that, in aggregate, the plan was found to meet the requirements related to:
 - consideration of a balance of economic, social, and ecological viability as well as consideration of the interests of the state and entities providing water.
 - providing for the orderly development, management, and conservation of water resources and preparation for and response to drought conditions in order that sufficient water will be available at a reasonable cost to ensure public health, safety, and welfare, and further economic development.
10. Determination that the plan is consistent with long-term protection of:
 - state and regional water resources
 - state and regional agricultural resources
 - state and regional natural resources

Summary data of the projected population, existing supplies, demands, needs, and strategy supplies for water user groups in the Region O Regional Water Planning Area are included as Attachment 1. The water management strategy projects recommended in the 2016 Region O Regional Water Plan are included as Attachment 2.

KEY ISSUES

The recommended strategies in the 2016 Region O Regional Water Plan meet all identified needs in the plan except for approximately 1.6 million acre-feet per year primarily associated with irrigation but also livestock, electric power generation, mining, and manufacturing uses in 2020, increasing to approximately 2.1 million acre-feet per year in 2070. These needs were left unmet by the planning group due to limited, feasible water supply options. An unmet need in a regional plan does not prevent an associated entity from pursuing development of additional water supplies. In some instances, the underlying future increase in demand associated with an unmet need may actually shift to a less water-scarce location.

The total cost of the recommended projects in the 2016 Region O Regional Water Plan is \$814.3 million.

The EA has verified that the plan was formally adopted on November 12, 2015.

The EA has reviewed the adopted 2016 Region O Regional Water Plan and determined that the plan complies with statute and rules.

The EA has reviewed the Region O Regional Water Plan for interregional conflicts and has found none.

RECOMMENDATION

The Executive Administrator recommends approval of the 2016 Region O Regional Water Plan.

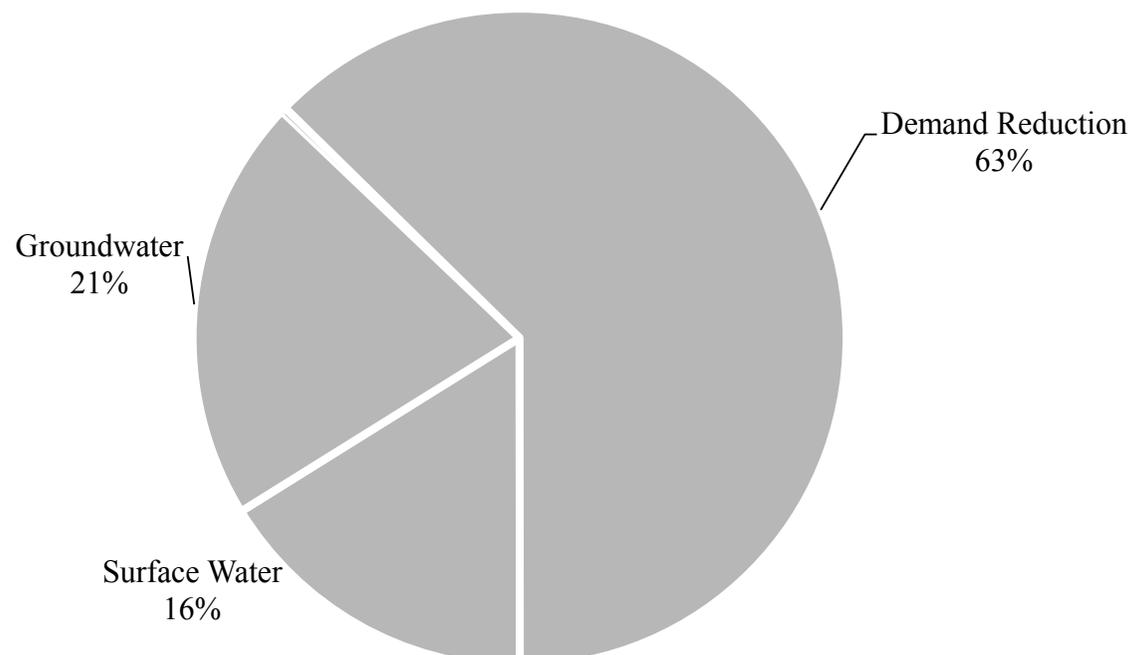
Attachment 1 – Summary of the Water User Groups in the 2016 Region O Regional Water Plan

Attachment 2 – Recommended water management strategy projects

Summary of Water User Groups in the 2016 Region O Regional Water Plan

Year	2020	2030	2040	2050	2060	2070
Population Projections	540,000	594,000	646,000	698,000	751,000	802,000
Existing Water Supply	2,001,000	1,769,000	1,503,000	1,329,000	1,192,000	977,000
Municipal	81,000	87,000	92,000	99,000	106,000	113,000
County-Other	14,000	15,000	16,000	17,000	18,000	20,000
Manufacturing	17,000	17,000	18,000	19,000	20,000	21,000
Mining	16,000	17,000	16,000	13,000	11,000	9,000
Irrigation	3,518,000	3,396,000	3,272,000	3,153,000	3,039,000	2,938,000
Steam Electric Power	26,000	30,000	36,000	42,000	50,000	59,000
Livestock	39,000	45,000	46,000	48,000	49,000	51,000
Total Water Demands	3,711,000	3,607,000	3,496,000	3,391,000	3,293,000	3,211,000
Municipal	13,000	24,000	30,000	37,000	46,000	54,000
County-Other	300	600	1,000	2,000	2,000	2,000
Manufacturing	5,000	5,000	4,000	5,000	7,000	7,000
Mining	10,000	12,000	11,000	10,000	9,000	7,000
Irrigation	1,684,000	1,796,000	1,948,000	2,004,000	2,025,000	2,140,000
Steam Electric Power	8,000	7,000	3,000	4,000	5,000	12,000
Livestock	12,000	15,000	13,000	16,000	19,000	18,000
Total Water Needs	1,732,300	1,859,600	2,010,000	2,078,000	2,113,000	2,240,000
Municipal	46,000	84,000	89,000	93,000	95,000	98,000
County-Other	1,000	1,000	2,000	2,000	3,000	3,000
Irrigation	92,000	92,000	133,000	133,000	153,000	153,000
Total Strategy Supplies	139,000	177,000	224,000	228,000	251,000	254,000

Recommended water management strategies by water resource (2070)



Sponsor Region	Sponsor	Recommended Water Management Strategy Project	Capital Cost	Online Decade
O	ABERNATHY	HALE COUNTY - ABERNATHY GROUNDWATER DESALINATION	\$10,100,000	2020
O	AMHERST	LAMB COUNTY - AMHERST LOCAL GROUNDWATER DEVELOPMENT	\$487,000	2020
O	BOVINA	PARMER COUNTY - BOVINA LOCAL GROUNDWATER DEVELOPMENT	\$775,000	2040
O	COUNTY-OTHER, BAILEY	BAILEY COUNTY-OTHER LOCAL GROUNDWATER DEVELOPMENT	\$771,000	2040
O	COUNTY-OTHER, DAWSON	DAWSON COUNTY-OTHER LOCAL GROUNDWATER DEVELOPMENT	\$802,000	2040
O	COUNTY-OTHER, GAINES	GAINES COUNTY-OTHER LOCAL GROUNDWATER DEVELOPMENT PHASE 1	\$2,128,000	2020
O	COUNTY-OTHER, GAINES	GAINES COUNTY-OTHER LOCAL GROUNDWATER DEVELOPMENT PHASE 2	\$2,995,000	2040
O	COUNTY-OTHER, GAINES	GAINES COUNTY-OTHER LOCAL GROUNDWATER DEVELOPMENT PHASE 3	\$2,128,000	2060
O	COUNTY-OTHER, GARZA	GARZA COUNTY - INFRASTRUCTURE TO SERVE AREAS SURROUNDING LAKE ALAN HENRY	\$7,672,000	2020
O	COUNTY-OTHER, HOCKLEY	HOCKLEY COUNTY-OTHER LOCAL GROUNDWATER DEVELOPMENT	\$643,000	2020
O	COUNTY-OTHER, LYNN	LYNN COUNTY-OTHER LOCAL GROUNDWATER DEVELOPMENT	\$598,000	2020
O	COUNTY-OTHER, PARMER	PARMER COUNTY-OTHER LOCAL GROUNDWATER DEVELOPMENT	\$621,000	2060
O	DENVER CITY	YOAKUM COUNTY - DENVER CITY LOCAL GROUNDWATER DEVELOPMENT	\$2,995,000	2020
O	DIMMITT	CASTRO COUNTY - DIMMITT LOCAL GROUNDWATER DEVELOPMENT	\$1,297,000	2040
O	FARWELL	PARMER COUNTY - FARWELL DIRECT POTABLE REUSE	\$5,196,000	2020
O	FARWELL	PARMER COUNTY - FARWELL LOCAL GROUNDWATER DEVELOPMENT	\$815,000	2050
O	FRIONA	PARMER COUNTY - FRIONA LOCAL GROUNDWATER DEVELOPMENT	\$555,000	2050
O	HART	CASTRO COUNTY - HART LOCAL GROUNDWATER DEVELOPMENT	\$855,000	2040
O	IDALOU	LUBBOCK COUNTY - IDALOU LOCAL GROUNDWATER DEVELOPMENT	\$2,534,000	2030
O	IRRIGATION, BAILEY	BAILEY COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$923,150	2020
O	IRRIGATION, BAILEY	BAILEY COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$1,326,000	2040
O	IRRIGATION, BAILEY	BAILEY COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$1,376,175	2060
O	IRRIGATION, BRISCOE	BRISCOE COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$833,375	2020
O	IRRIGATION, BRISCOE	BRISCOE COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$949,650	2040
O	IRRIGATION, BRISCOE	BRISCOE COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$1,236,975	2060
O	IRRIGATION, CASTRO	CASTRO COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$3,126,300	2020
O	IRRIGATION, CASTRO	CASTRO COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$4,175,200	2040
O	IRRIGATION, CASTRO	CASTRO COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$4,239,150	2060
O	IRRIGATION, COCHRAN	COCHRAN COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$884,150	2020
O	IRRIGATION, COCHRAN	COCHRAN COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$1,488,350	2040
O	IRRIGATION, COCHRAN	COCHRAN COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$1,821,225	2060
O	IRRIGATION, CROSBY	CROSBY COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$2,757,000	2020
O	IRRIGATION, CROSBY	CROSBY COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$5,089,750	2040
O	IRRIGATION, CROSBY	CROSBY COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$6,997,500	2060
O	IRRIGATION, DAWSON	DAWSON COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$2,705,075	2020
O	IRRIGATION, DAWSON	DAWSON COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$4,805,150	2040
O	IRRIGATION, DAWSON	DAWSON COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$6,446,475	2060
O	IRRIGATION, DEAF SMITH	DEAF SMITH COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$2,731,900	2020
O	IRRIGATION, DEAF SMITH	DEAF SMITH COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$4,103,250	2040
O	IRRIGATION, DEAF SMITH	DEAF SMITH COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$4,009,275	2060
O	IRRIGATION, DICKENS	DICKENS COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$240,200	2020
O	IRRIGATION, DICKENS	DICKENS COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$467,900	2040
O	IRRIGATION, DICKENS	DICKENS COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$692,475	2060
O	IRRIGATION, FLOYD	FLOYD COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$3,060,700	2020
O	IRRIGATION, FLOYD	FLOYD COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$5,513,250	2040
O	IRRIGATION, FLOYD	FLOYD COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$7,416,375	2060
O	IRRIGATION, GAINES	GAINES COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$5,781,375	2020
O	IRRIGATION, GAINES	GAINES COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$6,153,000	2040
O	IRRIGATION, GAINES	GAINES COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$4,822,200	2060
O	IRRIGATION, GARZA	GARZA COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$291,875	2020
O	IRRIGATION, GARZA	GARZA COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$516,250	2040
O	IRRIGATION, GARZA	GARZA COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$695,625	2060
O	IRRIGATION, HALE	HALE COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$3,283,025	2020
O	IRRIGATION, HALE	HALE COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$6,166,050	2040
O	IRRIGATION, HALE	HALE COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$8,266,275	2060
O	IRRIGATION, HOCKLEY	HOCKLEY COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$2,089,125	2020
O	IRRIGATION, HOCKLEY	HOCKLEY COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$3,043,100	2040
O	IRRIGATION, HOCKLEY	HOCKLEY COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$4,158,300	2060
O	IRRIGATION, LAMB	LAMB COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$3,152,600	2020
O	IRRIGATION, LAMB	LAMB COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$4,215,200	2040
O	IRRIGATION, LAMB	LAMB COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$3,583,500	2060
O	IRRIGATION, LUBBOCK	LUBBOCK COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$2,855,550	2020
O	IRRIGATION, LUBBOCK	LUBBOCK COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$4,055,500	2040
O	IRRIGATION, LUBBOCK	LUBBOCK COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$5,469,900	2060
O	IRRIGATION, LYNN	LYNN COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$2,114,800	2020
O	IRRIGATION, LYNN	LYNN COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$3,788,350	2040
O	IRRIGATION, LYNN	LYNN COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$5,086,275	2060
O	IRRIGATION, MOTLEY	MOTLEY COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$242,525	2020
O	IRRIGATION, MOTLEY	MOTLEY COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$485,300	2040
O	IRRIGATION, MOTLEY	MOTLEY COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$727,950	2060
O	IRRIGATION, PARMER	PARMER COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$1,427,150	2020
O	IRRIGATION, PARMER	PARMER COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$1,279,600	2040
O	IRRIGATION, PARMER	PARMER COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$1,731,375	2060
O	IRRIGATION, SWISHER	SWISHER COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$2,486,550	2020
O	IRRIGATION, SWISHER	SWISHER COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$3,127,250	2040
O	IRRIGATION, SWISHER	SWISHER COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$3,961,050	2060
O	IRRIGATION, TERRY	TERRY COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$3,600,550	2020
O	IRRIGATION, TERRY	TERRY COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$4,129,250	2040
O	IRRIGATION, TERRY	TERRY COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$2,457,825	2060
O	IRRIGATION, YOAKUM	YOAKUM COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 1	\$1,385,675	2020
O	IRRIGATION, YOAKUM	YOAKUM COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 2	\$1,524,050	2040
O	IRRIGATION, YOAKUM	YOAKUM COUNTY IRRIGATION - AGRICULTURAL WATER CONSERVATION PHASE 3	\$1,248,525	2060
O	LOCKNEY	FLOYD COUNTY - LOCKNEY LOCAL GROUNDWATER DEVELOPMENT	\$2,719,000	2020
O	LORENZO	CROSBY COUNTY - LORENZO WATER LOSS REDUCTION PHASE 1	\$2,714,472	2020
O	LORENZO	CROSBY COUNTY - LORENZO WATER LOSS REDUCTION PHASE 2	\$2,714,472	2040
O	LUBBOCK	LUBBOCK COUNTY - LUBBOCK SOUTH LUBBOCK WELL FIELD	\$53,856,000	2030
O	LUBBOCK	LUBBOCK COUNTY - LUBBOCK BRACKISH WELL FIELD AT THE SOUTH WATER TREATMENT PLANT	\$34,531,740	2020

Sponsor Region	Sponsor	Recommended Water Management Strategy Project	Capital Cost	Online Decade
O	LUBBOCK	LUBBOCK COUNTY - LUBBOCK BAILEY COUNTY WELL FIELD FUTURE CAPACITY MAINTENANCE	\$5,898,000	2030
O	LUBBOCK	LUBBOCK COUNTY - LUBBOCK BAILEY COUNTY WELL FIELD INITIAL CAPACITY MAINTENANCE	\$19,620,000	2020
O	LUBBOCK	LUBBOCK COUNTY - LUBBOCK CRMWA AQUIFER STORAGE AND RECOVERY	\$62,345,000	2030
O	LUBBOCK	LUBBOCK COUNTY - LUBBOCK NORTH FORK SCALPING OPERATION	\$119,825,000	2020
O	LUBBOCK	LUBBOCK COUNTY - LUBBOCK JIM BERTRAM LAKE 7	\$82,066,000	2020
O	LUBBOCK	LUBBOCK COUNTY - LUBBOCK LAKE ALAN HENRY PHASE 2	\$57,799,000	2020
O	MORTON	COCHRAN COUNTY - MORTON WATER LOSS REDUCTION PHASE 1	\$5,880,017	2020
O	MORTON	COCHRAN COUNTY - MORTON WATER LOSS REDUCTION PHASE 2	\$5,880,017	2040
O	MULESHOE	BAILEY COUNTY - MULESHOE LOCAL GROUNDWATER DEVELOPMENT PHASE 1	\$1,217,000	2030
O	MULESHOE	BAILEY COUNTY - MULESHOE LOCAL GROUNDWATER DEVELOPMENT PHASE 2	\$1,217,000	2060
O	PLAINS	YOAKUM COUNTY - PLAINS LOCAL GROUNDWATER DEVELOPMENT	\$4,923,000	2020
O	SEAGRAVES	GAINES COUNTY - SEAGRAVES LOCAL GROUNDWATER DEVELOPMENT	\$617,000	2050
O	SEMINOLE	GAINES COUNTY - SEMINOLE GROUNDWATER DESALINATION	\$31,572,000	2020
O	SEMINOLE	GAINES COUNTY - SEMINOLE LOCAL GROUNDWATER DEVELOPMENT	\$32,754,000	2030
O	SHALLOWATER	LUBBOCK COUNTY - SHALLOWATER LOCAL GROUNDWATER DEVELOPMENT	\$3,583,000	2030
O	SHALLOWATER	LUBBOCK COUNTY - SHALLOWATER WATER LOSS REDUCTION PHASE 1	\$2,660,008	2020
O	SHALLOWATER	LUBBOCK COUNTY - SHALLOWATER WATER LOSS REDUCTION PHASE 2	\$2,660,008	2040
O	SILVERTON	BRISCOE COUNTY - SILVERTON LOCAL GROUNDWATER DEVELOPMENT	\$5,872,000	2020
O	SUNDOWN	HOCKLEY COUNTY - SUNDOWN LOCAL GROUNDWATER DEVELOPMENT	\$690,000	2070
O	SUNDOWN	HOCKLEY COUNTY - SUNDOWN WATER LOSS REDUCTION PHASE 1	\$1,719,166	2020
O	SUNDOWN	HOCKLEY COUNTY - SUNDOWN WATER LOSS REDUCTION PHASE 2	\$1,719,166	2040
O	TULIA	SWISHER COUNTY - TULIA LOCAL GROUNDWATER DEVELOPMENT	\$1,733,000	2020
O	WHITE RIVER MWD	CROSBY COUNTY - WHITE RIVER MWD LOCAL GROUNDWATER DEVELOPMENT	\$2,513,000	2020
O	WOLFFORTH	LUBBOCK COUNTY - WOLFFORTH POTABLE REUSE	\$21,822,000	2030
O	WOLFFORTH	LUBBOCK COUNTY - WOLFFORTH LOCAL GROUNDWATER DEVELOPMENT	\$8,383,000	2030
Total			\$814,288,541	