Quick Facts

The capital cost of the 2012 State Water Plan is about 23 percent of the $231 billion in the total costs for water supplies, water treatment and distribution, wastewater treatment and collection, and flood control required for the state of Texas in the next 50 years.

The 80th and 81st Texas Legislatures provided funding to implement recommended water management strategies to meet the needs for additional water supply needs during times of drought, enabling the issuance of over $1.47 billion in bonds to finance state water plan projects at below market rates. This funding is expected to have an economic impact resulting in the generation of $2.6 billion in additional sales revenue and over 19 thousand jobs.

In addition to dedicated appropriations for State Water Plan financial assistance, TWDB has provided over $530 million in additional funding to implement strategies recommended in the 2007 State Water Plan through Economically Distressed Areas Program, Texas Water Development Fund, Water Assistance Fund, Rural Water Assistance Fund, and the Drinking Water State Revolving Fund.

9 Financing Needs

The capital cost to design, construct, or implement the strategies and projects is $53 billion and represents about only about a quarter of the total needs for water supplies, water treatment and distribution, wastewater treatment and collection, and flood control required for the state of Texas in the next 50 years.

During the regional water planning process, planning groups estimated the costs of potentially feasible water management strategies. The total estimated capital cost of the 2012 State Water Plan, representing all of the strategies recommended by the regional water planning groups, is $53 billion. This amount is about 23 percent of the $231 billion in the total costs for water supplies, water treatment and distribution, wastewater treatment and collection, and flood control required for the state of Texas in the next 50 years. Water providers reported an anticipated need of $26.9 billion from state financial assistance programs to help implement recommended strategies for municipal water user groups in the 2012 State Water Plan. A number of state and federal financial assistance programs are available to aid in implementation of water supply projects; however, there is still a need for a long-term, affordable, and sustainable method to provide financial assistance for the implementation of state water plan projects.

9.1 COSTS OF IMPLEMENTING THE STATE WATER PLAN

As part of their evaluations, regional water planning groups estimate the costs of potentially feasible water management strategies that are under consideration during the planning process. These include the costs to develop a new source of water needed during times of drought, the costs of infrastructure needed to convey the water from the source to treatment facilities, and the costs to treat the water for end users. Water management strategies in the regional water plans do not include costs associated with internal system distribution facilities or aging infrastructure needs, unless the strategy increases available supply through water conservation or reduction of water loss in a system.

Water management strategy cost estimates include direct and indirect capital costs, debt service, and annual operating and maintenance expenses each decade over the planning horizon, as follows:

Capital Costs: Capital costs include engineering and feasibility studies, including those for permitting and mitigation, construction, legal assistance, financing, bond counsel, land and easements costs, and purchases of water rights. Construction costs include expenses for infrastructure such as pump stations, pipelines, water intakes, water treatment and storage facilities, well fields, and relocation of existing infrastructure such as roads and utilities. All costs are reported in constant September 2008 U.S. dollars per the Engineering News-Record Construction Cost Index, which is used throughout the U.S. construction industry to calculate building material prices and construction labor costs.

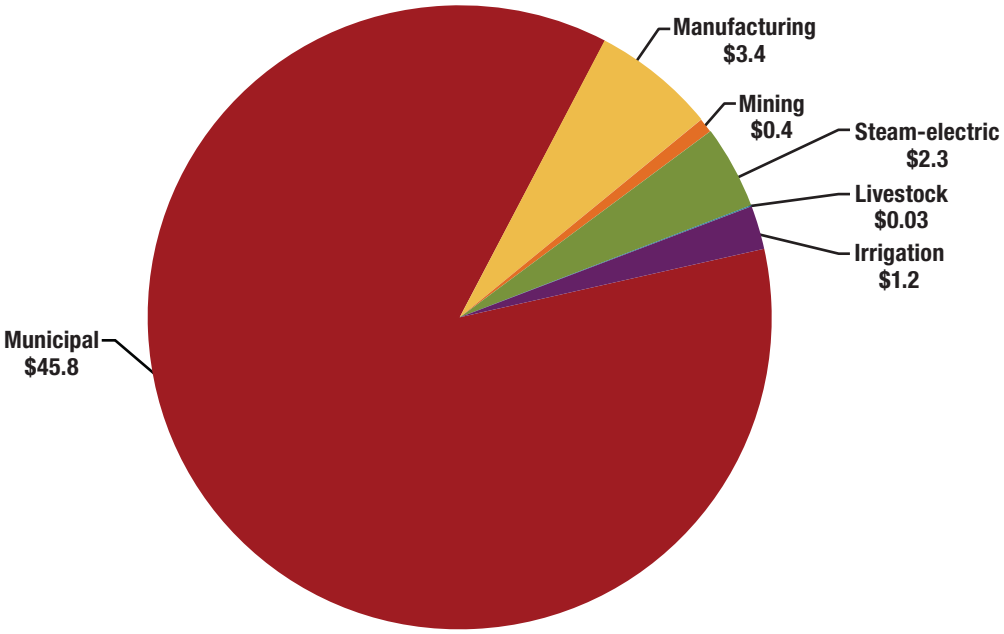
Interest and Debt Service: Interest during construction is based on total project costs drawn down at a constant rate per month during the construction period. Planning groups assume level debt service and an annual interest rate of 6.0 percent for project financing. The length of debt service is based on an estimated 20 years for most water management strategies and 40 years for reservoirs.

Annual Operating and Maintenance Costs: Operations and maintenance costs are based on the quantity of water supplied. Planning groups calculate annual operating and maintenance costs as 1.0 percent of the total estimated construction costs for pipelines, 2.5 percent of the estimated construction costs for pump stations, and 1.5 percent of the estimated construction costs for dams. Costs include labor and materials required to maintain projects such as regular repair and replacement of equipment. Power costs are calculated on an annual basis using calculated horsepower input and a power purchase cost of $0.09 per kilowatt hour.

The majority of the $53 billion costs are for water management strategies recommended for municipal water user groups (Figure 9.1). While the identified water needs of 8.3 million acre-feet per year in 2060 are less than the 8.9 million acre-feet per year identified in the 2007 State Water Plan, the costs of implementing the strategies have increased significantly from the $31.0 billion estimated in the 2007 State Water Plan. The increase was due to several factors:

- an increased volume of strategies in areas of high population growth;
- increased construction costs;
- increased costs of purchasing water rights;
- increased land and mitigation costs;
- the addition of new infrastructure projects to deliver treated water from existing and new water sources;

FIGURE 9.1. TOTAL CAPITAL COSTS OF RECOMMENDED WATER MANAGEMENT STRATEGIES BY WATER USE CATEGORY (BILLIONS OF DOLLARS).



- the addition of new projects to address uncertainty in the ability to implement projects;
- inclusion, at a greater level of detail, of additional infrastructure that will be required to deliver and treat water to water users; and
- the addition of new projects to address the uncertainty that could result from climate change or a drought worse than the drought of record.

The decrease in the amount of needs from the 2007 plan to the 2012 plan is attributed to the successful implementation of previously recommended water management strategies, including those funded by the 80th and 81st Texas Legislatures (see Implementation of State Water Plan Projects, 9.4.1).

Region C ($21.5 billion), Region H ($12.0 billion), and Region L ($7.6 billion) have the highest estimated capital costs for implementation of their 2011 regional water plans. The costs associated with these three planning areas account for approximately 77 percent of the total capital costs in the 2012 State Water Plan. Their combined populations represent over 62 percent of the total projected population for the state by 2060.

The total estimated costs for implementing the 2012 State Water Plan are consistent with a general trend of increasing costs. The total estimated capital cost of the 2007 State Water Plan, $31.0 billion, was substantially higher than the $17.9 billion estimated in the 2002 State Water Plan. The 1997 State Water Plan, developed by TWDB prior to regional water planning, estimated $4.7 billion in costs for recommended major water supply and conveyance systems through 2050. These trends indicate that delays in the implementation of projects will likely result in continued cost increases.

9.2 COSTS OF ALL WATER INFRASTRUCTURE NEEDS

While the capital costs to implement the state water plan may seem staggering, the amount of funding needed to implement all water-related infrastructure in Texas is far greater. The estimated costs to implement water management strategies in the regional water plans do not include costs associated with internal system distribution facilities or aging infrastructure needs, nor do the plans include needs for wastewater infrastructure or flood control projects. Since 1984, TWDB has estimated the costs for implementing various types of water infrastructure—including those that go above and beyond water supply strategies. These estimates demonstrate the need for federal revolving fund financial assistance programs and help put the costs of the state water plan in perspective.

Estimated costs for water supply facilities, major water conveyances, major raw water treatment, wells and facilities, reservoirs, chloride control, and wastewater treatment were first provided in the 1984 State Water Plan. The 1990 State Water Plan expanded these estimates to include flood protection. All subsequent plans have provided cost estimates for all water-related infrastructure in Texas, divided into four categories:

- Water supplies (water management strategies recommended in the regional water plans, including costs of major conveyances to points of distribution)
- Water treatment and distribution not included in the regional water plans and state water plan
- Wastewater treatment and collection
- Flood control

The estimated capital costs included in the 2012 State Water Plan for water supply infrastructure represent the total capital costs of the 16 regional water plans. Estimates of capital costs for other water treatment and distribution and for wastewater facilities were developed using information gathered by TWDB with federal infrastructure needs surveys mandated by the Safe Drinking Water Act and the Clean Water Act. Estimates of the capital costs for current and planned flood control projects were obtained from the "Flood Funding Needs Database Research Project" funded by TWDB (Halff Associates, Inc., 2011).

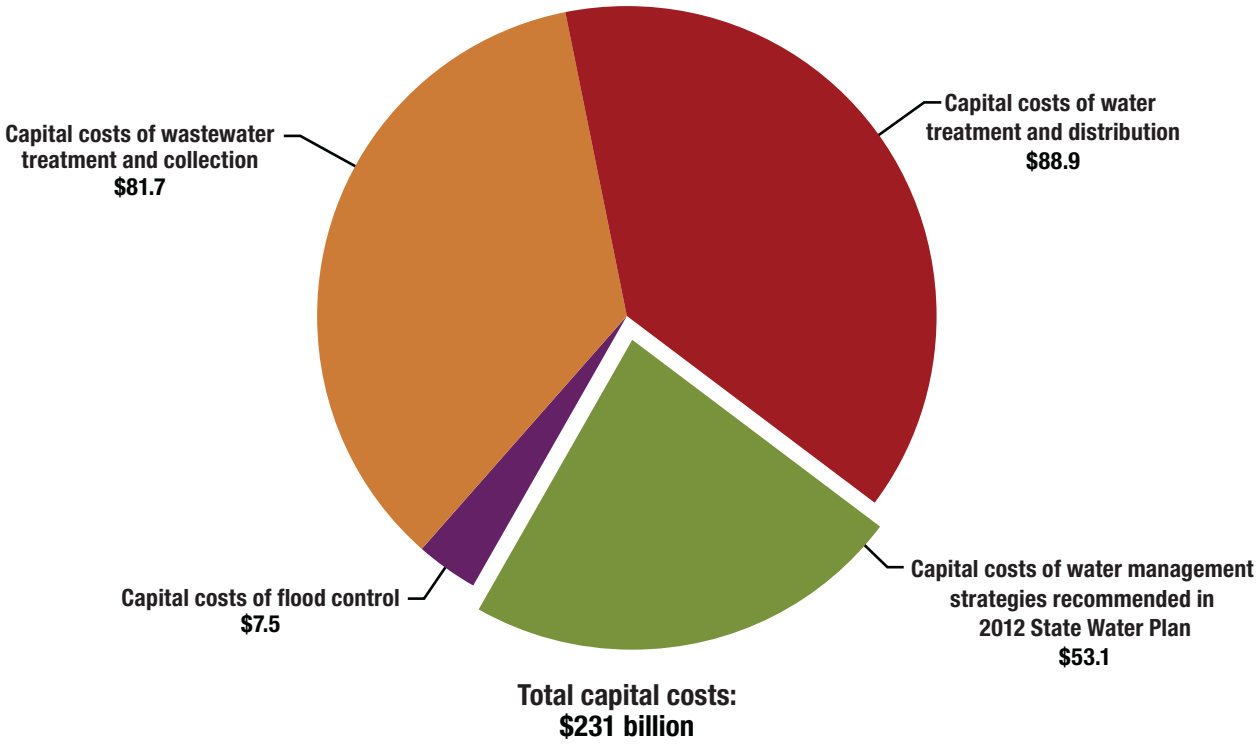
Current TWDB estimates indicate that Texas will need to invest about $231 billion by 2060 to meet the state's needs for water supply, water and wastewater infrastructure, and flood control. The 2012 State Water Plan recommends water management strategies that represent an estimated $53 billion, or 23 percent, of these total needs (Figure 9.2).

9.3 FUNDING NEEDED TO IMPLEMENT THE STATE WATER PLAN

Each planning cycle, regional water planning groups assess the amount of state financial support that local and regional water providers will need to implement municipal water management strategies recommended in their plans for times of drought. During development of the 2011 regional water plans, planning groups surveyed every water provider that had a municipal water management strategy with an associated capital cost to determine if they needed financial assistance from the state.

Of 694 water providers contacted, 269 responded to the survey and reported an anticipated need of $26.9 billion from state financial assistance programs to help implement recommended strategies. This amount represents about 58 percent of the total capital costs for water management strategies recommended for

FIGURE 9.2. TOTAL CAPITAL COSTS FOR WATER SUPPLIES, WATER TREATMENT AND DISTRIBUTION, WASTEWATER TREATMENT AND COLLECTION, AND FLOOD CONTROL (BILLIONS OF DOLLARS).



municipal water user groups in the 2011 regional water plans (Table 9.1). Of the total reported need for state financial assistance, nearly $15.7 billion is expected to occur between the years 2010 and 2020; $4.2 billion will occur between 2020 and 2030; $4.1 billion between 2030 and 2040; and $1.9 billion between 2040 and 2050 (Figure 9.3).

Water providers reported that over $20 billion (75 percent) of the requested funds would target construction activities and land acquisition; $3.3 billion (12 percent) would finance project permitting, planning, and design activities; $3.1 billion would finance excess storage capacity; and approximately $440 million is needed for projects in rural and economically distressed areas of the state.

Not only are the costs to implement strategies significantly higher now than in previous state water plans, the needs for state assistance to help implement projects represent a much larger portion of the plan's total costs. Of the $31.0 billion total presented in the 2007 State Water Plan, only about $2.1 billion or 6.8 percent of the total was needed in the form of state assistance. However, later events indicated that the need for state assistance was underestimated, and a new financing survey was completed in 2008. At the request of the legislative Joint Committee on State Water Funding, TWDB surveyed 570 entities, with 212 water providers (37 percent) reporting an anticipated need for $17.1 billion in funds from TWDB financial assistance programs. The increases in requests for funding can be attributed in part to higher survey

TABLE 9.1. 2060 WATER MANAGEMENT STRATEGY SUPPLIES (ACRE-FEET PER YEAR), CAPITAL COST, AND REPORTED FINANCIAL ASSISTANCE NEEDED

Region	Water Management Strategy Supplies	Water Management Strategy Capital Cost (millions $)	Financial Assistance Needed (millions $)
A	648,221	$739	$624
B	77,003	$499	$384
C	2,360,302	$21,482	$11,743
D	98,466	$39	$5
E	130,526	$842	$500
F	235,198	$915	$593
G	587,084	$3,186	$1,153
H	1,501,180	$12,019	$7,142
I	638,076	$885	$500
J	23,010	$55	$20
K	646,167	$907	$154
L	765,738	$7,623	$3,517
M	673,846	$2,195	$445
N	156,326	$656	$0
O	395,957	$1,108	$78
P	67,739	$0	$0
Total	**9,004,839**	**$53,150**	**$26,857**

response rates and to an increased awareness of the availability of attractive state financial assistance programs targeted at state water plan projects.

9.4 IMPLEMENTATION OF STATE WATER PLAN PROJECTS

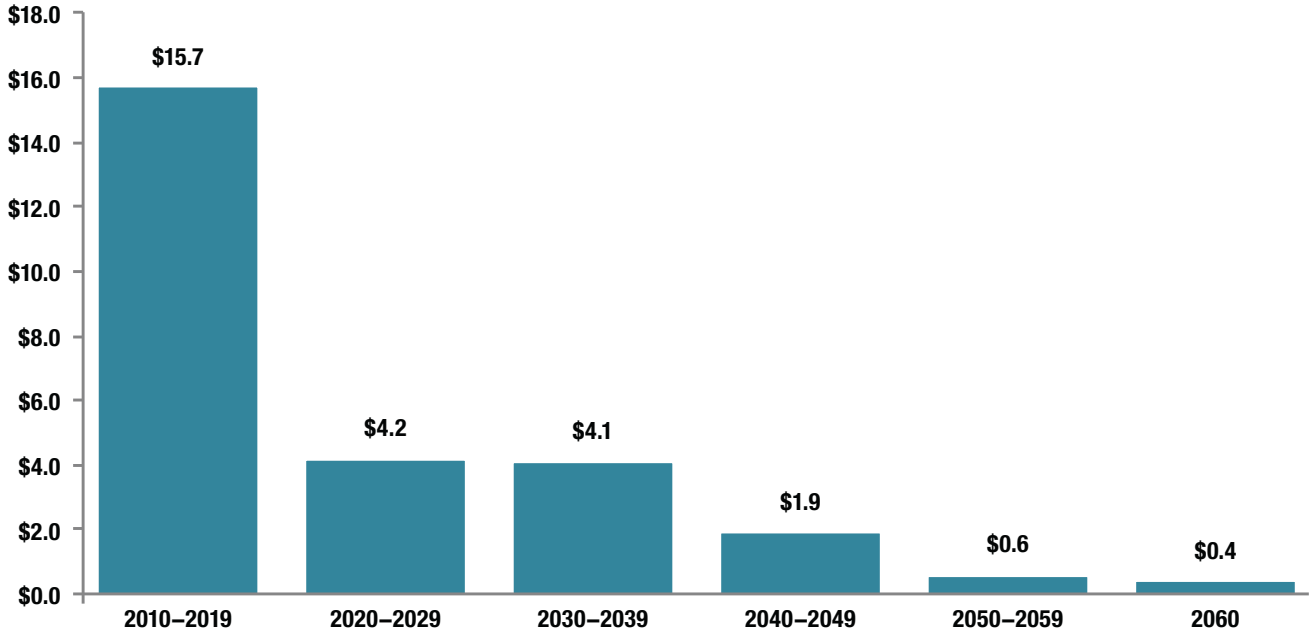
9.4.1 STATE WATER PLAN FUNDING

In response to the 2007 State Water Plan, the 80th and 81st Texas Legislatures provided funding to implement recommended water management strategies to meet the needs for additional water supply during times of drought. In 2007 and 2009, the Texas Legislature appropriated funds that enabled the issuance of over $1.47 billion in bonds to finance state water plan projects at below market rates. These projects were recommended water management strategies in the 2006 regional water plans and the 2007 State Water Plan. Funding was distributed through three TWDB programs: the Water Infrastructure Fund, the State Participation Program, and the Economically Distressed Areas Program.

As a result of these appropriations, TWDB has committed over $1 billion in financial assistance for 46 projects across the state, including projects in 11 of the 16 regional water planning areas (Figure 9.4). A variety of water management strategies have been funded, including groundwater desalination; new groundwater wells; wetlands that treat water for reuse; transmission and treatment facilities; and planning, design, and permitting of new reservoirs. Once implemented, these projects will generate over 1.5 million acre-feet of water that will help meet millions of Texans' needs for water during drought (Table 9.2).

The Water Infrastructure Fund, TWDB's financial assistance program designed specifically for state water plan projects, has been "oversubscribed," meaning that the demands for financial assistance have far exceeded what the program has been able to provide. Over $1.5 billion in requests was submitted for funding through the Water Infrastructure Fund, but

FIGURE 9.3. DEMAND FOR TWDB FINANCIAL ASSISTANCE PROGRAMS BY DECADE OF ANTICIPATED NEED (BILLIONS OF DOLLARS).



there was not sufficient funding available to provide assistance to all projects that were eligible. In 2011, the 82nd Texas Legislature authorized additional funding to finance approximately $100 million in state water plan projects; these funds will be available during state fiscal years 2012 and 2013.

TWDB also funds recommended water management strategies through other loan programs. In addition to dedicated appropriations for state water plan financial assistance, TWDB has provided over $530 million in additional funding to implement strategies recommended in the 2007 State Water Plan through the Economically Distressed Areas Program, the Texas Water Development Fund, the Water Assistance Fund, the Rural Water Assistance Fund, and the Drinking Water State Revolving Fund.

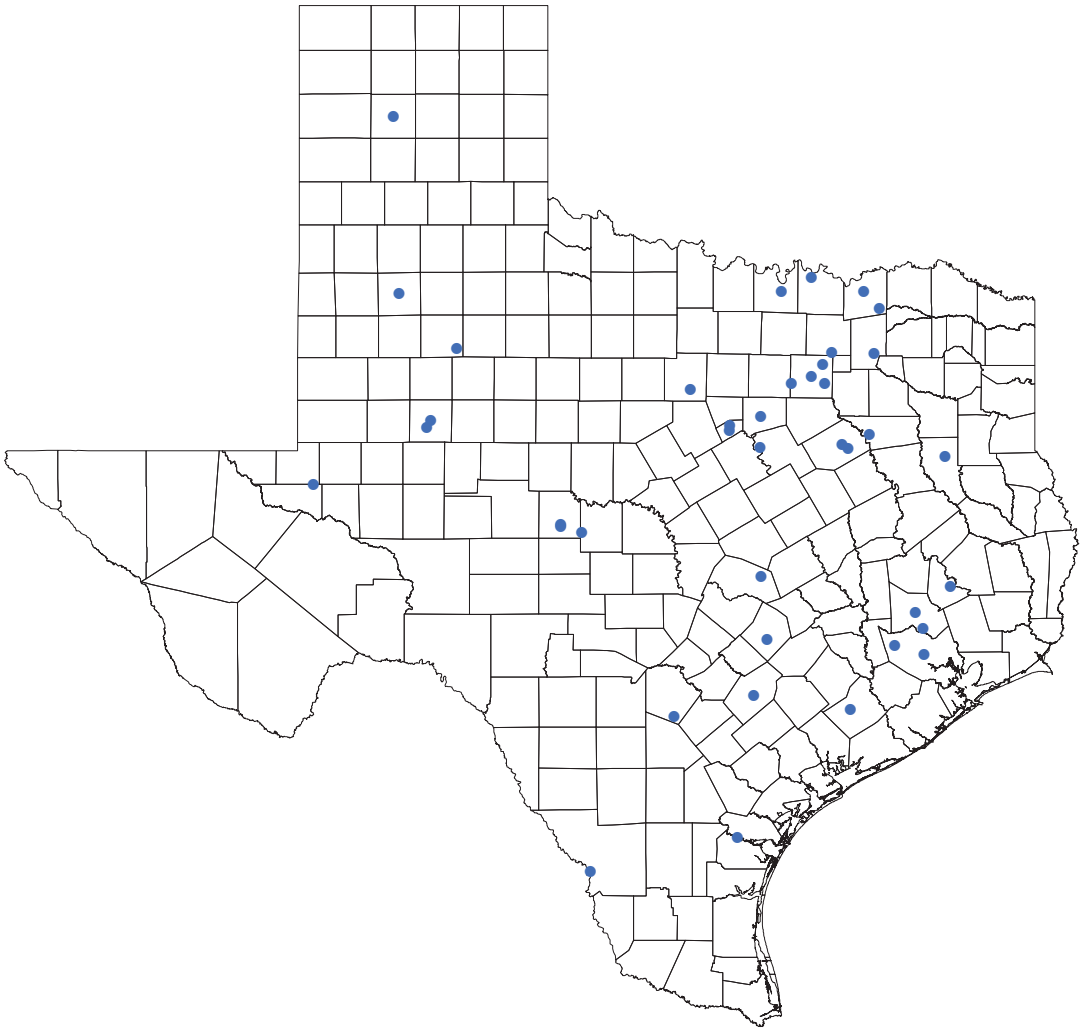
9.4.2 ECONOMIC BENEFITS OF IMPLEMENTATION

The implementation of water management strategies can often have a significant positive economic impact within a particular region and also on the state's economy as a whole. In the short term, construction projects provide a temporary boost to a local economy through employment and earnings. Expenditures on materials and labor as well as planning, design, and construction services result in increased local income. After construction is complete, permanent employment is supported by the operation and maintenance of water supply facilities.

It is estimated that every billion dollars in financial assistance provided for state water plan projects, over the course of project implementation, will

- generate $1.75 billion in sales revenues in the construction, engineering, and materials sectors and supporting businesses;
- create $888.8 million in state gross domestic product;
- add $43.9 million in state and local tax receipts; and
- create or support nearly 13,077 jobs in the state.

FIGURE 9.4. LOCATIONS OF STATE WATER PLAN PROJECTS FUNDED BY TWDB.



9.4.3 IMPLEMENTATION SURVEY

Although TWDB does not have a formal mechanism in place to track implementation of all water management strategies, regardless of funding sources, the agency has undertaken efforts to assess the implementation progress of strategies from the 2007 State Water Plan. In the summer of 2011, TWDB contacted cities and water utilities with recommended water management strategies in the 2007 State Water Plan to evaluate implementation progress. Since water projects, particularly those that involve infrastructure, can require several years or more to put into place, progress was defined as any type of project construction or any form of pre-implementation activity, such as negotiating contracts, applying for and securing financing, state and federal permits, or conducting preliminary engineering studies.

Of the 497 projects for which the sponsoring entities responded, 139 of them (28 percent) reported some form of progress on strategy implementation. Of these, 65 (13 percent) reported that strategies had been

TABLE 9.2. STATE WATER PLAN PROJECTS FUNDED BY TWDB PROGRAMS

Entity	Funding Program						Population Served		Supply Generated	
	Water Infrastructure Fund Deferred	Water Infrastructure Fund Construction	Water Infrastructure Fund Rural	Economically Distressed Areas Program - State Water Plan Rural	Economically Distressed Areas Program - State Water Plan	State Participation	2010	2060	2010	2060
Central Harris Co. Regional Water Authority		$22,050,000					29,950	41,550	2,375	4,806
Coastal Water Authority	$28,000,000						2,240,974	3,626,591	-	394,266
Dallas, City of		$15,100,000					2,050,026	3,208,230	-	20,458
*Dallas, City of	$8,280,000						-	-	-	29,924
Lubbock, City of		$22,615,000					216,974	248,622	21,880	21,880
Tarrant Regional Water District	$3,135,000						2,417,419	4,942,954	-	105,500
*Tarrant Regional Water District	$6,755,000						-	-	-	-
Upper Trinity Regional Water District	$10,400,000						131,129	576,237	-	34,050
*Dallas, City of		$94,723,000					-	-	-	-
Brazos River Authority		$22,000,000					151,729	524,852	26,505	70,246
Corsicana, City of	$1,935,000						29,940	37,894	-	2,268
North Texas Municipal Water District		$26,155,000					1,546,195	3,256,816	50,000	10,000
*North Texas Municipal Water District		$17,825,000					-	-	-	-
San Jacinto River Authority	$21,500,000						-	-	-	52,534
Somervell County Water District		$9,367,000	$9,494,000	$9,494,000	$2,680,000		7,542	9,804	840	840
Amarillo, City of		$38,885,000					223,607	336,060	-	10,831
Cleburne, City of	$1,180,000						30,572	52,812	680	680
*Cleburne, City of	$4,750,000						-	-	2,128	2,128
*North Texas Municipal Water District	$9,930,000						-	-	-	108,487
Palo Pinto County Municipal Water District No. 1	$3,200,000				$4,800,000		37,026	48,513	-	7,600
*Lubbock, City of		$19,945,000					-	-	-	-
Angelina and Neches River Authority						$48,530,000	98,078	142,311	-	75,700
*Coastal Water Authority	$5,115,000						-	-	-	-
San Antonio Water System	$35,000,000						1,354,381	2,116,782	-	26,400
Laredo, City of					$7,500,000		234,423	650,317	1,425	49,863
*Amarillo, City of		$47,400,000					-	-	-	-
Colorado River Municipal Water District		$11,685,000				$45,315,000	121,434	148,673	-	6,000
*Cleburne, City of		$14,500,000					-	-	-	-
Corpus Christi, City of	$8,000,000						-	-	-	35,000
Grand Prairie, City of		$4,995,000					-	-	-	6,726
Greater Texoma Utility Authority		$21,230,000					2,000	18,000	-	113,000
*Lubbock, City of		$41,000,000					-	-	-	-
*Tarrant Regional Water District	$17,835,000	$83,785,000					-	-	-	107,347
*Colorado River Municipal Water District		$11,970,000					-	-	-	1,855
Greater Texoma Utility Authority/ City of Gainesville		$7,235,000					37,326	67,289	-	4,480
*San Antonio Water System		$24,550,000					-	-	-	-
Corpus Christi, City of	$2,395,000						-	-	42,329	32,996
Guadalupe Blanco River Authority	$4,400,000						96,521	287,647	-	25,000
*Guadalupe Blanco River Authority	$2,500,000						-	-	-	49,777
Montgomery County Municipal Utility District Nos. 8 and 9	$1,290,000						6,900	12,445	-	1,120
San Angelo, City of		$120,000,000					94,261	105,445	-	12,000
West Harris County Regional Water Authority	$11,195,000						334,247	484,587	21,678	78,839
West Harris County Regional Water Authority	$2,465,000						-	-	-	-
Eden, City of				$995,000	$1,000,000		2,885	2,988	-	-
Eden, City of					$2,680,000		-	-	-	-
*Somervell County Water District				$700,000	$700,000		-	-	-	960
	$189,260,000	$677,015,000	$9,494,000	$11,189,000	$19,360,000	$93,845,000	11,495,539	20,947,419	169,840	1,503,561

* denotes water user groups with projects that are related and therefore the population and/or strategy supply may only be listed once to prevent double counting as the population and strategy supply are the same for both projects.

fully implemented. Of the 74 projects (15 percent) that reported incomplete progress, 13 (3 percent) reported that project construction had begun.

In comparison to the implementation results reported in the 2007 State Water Plan, a significantly larger number of projects are reported to have been implemented (65 projects, up from 21 in the 2002 State Water Plan). The percentage of projects reporting at least some progress is lower than reported in the 2007 plan, largely because more responses were submitted that reported no progress. It should also be noted that Senate Bill 660, passed by the 82nd Legislature in 2011, included a requirement for the state water plan to include an evaluation of the implementation progress of water management strategies in the previous plan, and allows TWDB to obtain implementation data from the regional planning groups. The 2016 regional water plans will be required to include an implementation progress report, which will be included in the 2017 State Water Plan.

9.5 FINANCING WATER MANAGEMENT STRATEGIES

In Texas, local governments have traditionally provided the majority of the financing for water infrastructure projects. Water and wastewater providers finance projects primarily through municipal debt on the open bond market and less frequently with cash or private equity sources such as banks. The federal government has also historically implemented water projects, and earlier state water plans relied heavily on the federal government for financial assistance. Federal agencies such as the U.S. Natural Resources Conservation Service (formerly the Soil Conservation Service), the U.S. Bureau of Reclamation, and the U.S. Army Corps of Engineers have constructed a number of surface water reservoirs in Texas. These reservoirs were built for the primary purpose of flood control, but also provide a large portion of the state's current water supply. The pace of federal spending on reservoir construction has declined considerably since the 1950s and 1960s, when most of the major federal reservoirs in the state were constructed. Federal policy has recognized a declining federal interest in the long-term management of water supplies and assigns the financial burden of water supply to local users (USACE, 1999).

9.5.1 FINANCIAL ASSISTANCE PROGRAMS

Traditional funding mechanisms will continue to assist with financing water projects, but they are not enough to meet the needs for water that Texans face during drought. Meeting these needs is particularly challenging for rural and disadvantaged communities where citizens cannot afford higher water rates to repay the cost of traditional project financing. Because of the difficulty in financing projects on their own, many water providers seek financial assistance from the state or federal government.

TWDB Financial Assistance

TWDB provides financial assistance to water providers for implementation of projects through several state and federally funded TWDB programs. These programs provide loans and some grants for projects that range from serving the immediate needs of a community to meeting regulatory requirements to providing long-term water supply. While not all programs target state water plan projects, water management strategies recommended in the regional water plans and state water plan have been funded from many of TWDB's major financial assistance programs. In accordance with state statute, TWDB may provide financial assistance for water supply projects only if the needs to be addressed by the project will

be addressed in a manner that is consistent with the regional water plans and the state water plan.

TWDB's state programs are primarily funded by the sale of general obligation bonds that are secured by the "full faith and credit" of the state of Texas. Because of the state's good credit rating, TWDB is able to offer a lower interest rate than many providers can obtain through traditional financing. Under the supervision and approval of the Texas Legislature, TWDB issues bonds and uses the proceeds to make loans to political subdivisions of the state such as cities, counties, and river authorities, as well as non-profit water supply and wastewater service corporations. The recipients make payments of principal and interest to TWDB, which then uses the proceeds to pay debt service on the general obligation bonds. Some programs receive subsidization by the state through reduced interest rates or deferred repayments. Such programs require legislative authorization and appropriations to cover the debt service associated with the authorized subsidy. Through subsidization by the state, some programs are able to offer grants and low-cost loans to communities and provide a significant incentive to implement state water plan projects.

TWDB's authority to issue general obligation bonds to provide financial assistance programs was first approved by the Texas Legislature and the state's electorate in 1957. The 1957 constitutional amendment approved by voters created TWDB and authorized the agency to issue $200 million in general obligation bonds for the construction of dams, reservoirs, and other water storage projects. Further amendments to the Texas Constitution and additional statutory authority expanded the types of facilities eligible for TWDB financial assistance to include

- all components of water supply;
- wastewater collection, treatment, and disposal;
- flood control;
- municipal solid waste management; and
- agricultural water conservation projects.

TWDB's federal programs—the Clean Water and Drinking Water State Revolving Funds—are capitalized by federal grants, with state matching funds provided primarily by the sale of general obligation bonds along with a smaller amount of appropriations by the legislature. The Clean Water State Revolving Fund program is also leveraged with revenue bonds, a type of municipal bond that is secured by revenue from the recipient's loan repayments. These revenue bonds allow TWDB to increase the amount of funding offered through the Clean Water State Revolving Fund without the guarantee of the full faith and credit of the state.

With its original and expanded authority, TWDB has provided financing for over $12.6 billion of water and wastewater projects. TWDB has delivered an average of over $694 million per year in state assistance in the previous five years.

State-Funded Programs

The **Texas Water Development Fund** is the oldest of TWDB's programs. It was originally created in 1957, with the passage of the agency's first constitutional amendment, for the purpose of helping communities develop water supplies and drinking water infrastructure. Over time, further constitutional amendments have provided additional authority to fund wastewater and flood control projects. TWDB issues general obligation bonds to support the program.

The **State Participation Program** was created in 1962 to encourage regional water supply, wastewater, and flood control projects. The program enables TWDB to assume a temporary ownership in a regional project when the local sponsors are unable to assume debt for the optimally sized facility, thus allowing for the "right sizing" of projects to accommodate future growth. To support the program, TWDB issues general obligation bonds. General revenue appropriations pay a portion of the related debt service until the local participants are able to begin purchasing the state's interest.

Created in 2001, the **Rural Water Assistance Fund** provides small, rural water utilities with low-cost financing for water and wastewater planning, design, and construction projects. The fund also can assist small, rural systems with participation in regional projects that benefit from economies of scale; the development of groundwater sources; desalination; and the acquisition of surface water and groundwater rights. The program is funded with general obligation bonds.

The **Agricultural Water Conservation Program** was created in 1989 to provide loans to political subdivisions either to fund conservation programs or projects. TWDB may also provide grants to state agencies and political subdivisions for agricultural water conservation programs, including demonstration projects, technology transfers, and educational programs. The program is funded by assets in the Agricultural Water Conservation Fund as well as general obligation bonds.

The **Economically Distressed Areas Program** provides grants and loans for water and wastewater services in economically distressed areas where services do not exist or existing systems do not meet state standards. Created in 1989, the program is focused on delivering water and wastewater services to meet immediate health and safety concerns, and to stop the proliferation of sub-standard water and wastewater services through the development and enforcement of minimum standards. The program is funded by general obligation bonds. Debt service on the general obligation bonds is paid first by the principal and interest payments received from loans, with general revenue appropriations from the legislature paying the remaining debt service.

The **Water Infrastructure Fund** was created in 2001 to provide financial incentives for the implementation of strategies recommended in the state water plan. The program was first funded in 2008 to offer loans at discounted interest rates for the planning, design, and construction of state water plan projects. Other incentives previously provided were deferral of payments for up to 10 years for projects with significant planning, design, and permitting requirements and zero percent interest loans for rural providers. Applications are prioritized based on the demonstration of significant future or prior water conservation savings and the date of need for the proposed project. The program is funded with general obligation bonds, with debt service paid primarily by principal and interest repayments from borrowers, as well as general revenue appropriations from the legislature.

Federally Funded TWDB Programs

The **Clean Water State Revolving Fund** program was created by the federal Clean Water Act amendments of 1987 to promote water quality and to help communities meet the goals of the Clean Water Act. The fund provides low-cost loans and loan forgiveness for wastewater projects with special assistance for

disadvantaged communities. Currently all 50 states and Puerto Rico operate Clean Water State Revolving Fund programs.

The program is funded by annual "capitalization" grants by the U.S. Congress, through the U.S. Environmental Protection Agency. TWDB provides a 20 percent match from state Development Fund general obligation bonds, which are repaid by interest received on Clean Water State Revolving Fund loans.

The Safe Drinking Water Act, as amended in 1996, established the **Drinking Water State Revolving Fund** to finance infrastructure improvements to the nation's drinking water systems. The fund provides low-cost loans and loan forgiveness for drinking water projects and special assistance for disadvantaged communities.

Like the Clean Water State Revolving Fund, the program is funded by annual capitalization grants by the U.S. Congress, through the U.S. Environmental Protection Agency. The program also has a 20 percent state match requirement, which TWDB provides primarily through Texas Water Development Fund general obligation bonds, with a portion provided by state appropriations to subsidize disadvantaged communities.

The **American Recovery and Reinvestment Act of 2009** provided additional funding for TWDB's Clean Water and Drinking Water State Revolving Fund programs. The state received an additional grant of $326 million from the U.S. Environmental Protection Agency to assist communities in improving their water and wastewater infrastructure through both grants and loans. The program required that at least 50 percent of the funding be for disadvantaged communities and at least 20 percent for "green" projects that demonstrated water or energy efficiency or environmental innovation. The program resulted in the funding of 20 Clean Water State Revolving Fund and 25 Drinking Water State Revolving Fund projects across the state. These projects are completing construction and the program has not been renewed by the U.S. Congress.

Other Federal Funding for Water Projects

Other federal programs administer financial assistance for agricultural and rural and disadvantaged communities through grants and low-interest loans. The North American Development Bank Border Environment Infrastructure Fund administers grants provided by the U.S. Environmental Protection Agency to help finance the construction of water and wastewater projects within 100 kilometers (62 miles) of the U.S.-Mexico border. The U.S. Department of Agriculture Rural Development offers financial assistance to rural areas to support public facilities and services such as water and sewer systems, housing, health clinics, emergency service facilities, and electric and telephone service. While the U.S. Army Corps of Engineers does not provide funding for the construction of single-purpose water supply projects, they still play an important role in meeting the state's water supply needs by contracting with local and regional providers for municipal and industrial water use.

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