

Interim study of incorporation of wastewater planning into the state water planning process

Report to the 89th Texas Legislature



DRAFT

Interim study of incorporation of wastewater planning into the state water planning process

Report to the Texas Legislature, Senate Bill 7, 89th Texas Legislature

L'Oreal Stepney, Chairwoman

Ashley Morgan, Member

Brady Franks, Member

Bryan McMath, Executive Administrator

December 1, 2026



Table of Contents

Executive summary	5
Acronyms and key terms	8
1.0 Introduction, purpose, and background	9
1.1 Introduction	9
1.2 Purpose	11
1.3 Background	11
Texas wastewater planning	16
Financial and technical assistance available for water supply and wastewater infrastructure	20
2.0 The feasibility and practicability of incorporating wastewater infrastructure planning into the 2032 State Water Plan	24
2.1 General differences between water supply planning and wastewater planning	24
Objectives, context, and geographic scope	24
Planning horizons and project timelines	25
Data and technical matters	25
2.2 Potential opportunities and synergies	26
Role of return flows and direct reuse in the Texas state water plan	26
Potential synergies	26
2.3 Structural constraints and capacity limitations	29
Workload and capacity	30
RWPG Membership and planning boundaries	31
Regional water plan complexity, and timing	31
Data support and integration	31
Scope and regulatory complexity of integrated planning	32
Limits to holistic approaches	33
2.4 Planning framework challenges and integration considerations	33
Framework misalignment	34
Evaluation and public process	34
Planning and implementation start-up requirements	34

2.5 Risks of integrating wastewater planning into the state water plan	34
Competing objectives within a single planning process	35
Multiple priorities	35
Schedule risk	35
Technical and regulatory considerations	36
Stakeholder and governance challenges	36
2.6 Why integrating wastewater infrastructure planning into the 2032 State Water Plan is not feasible	36
Timing.....	36
Policy direction.....	37
Resources.....	38
3.0 Statutory changes necessary to facilitate the incorporation of wastewater infrastructure planning into the process used to produce each state water plan.....	38
3.1 Statutory changes required to add wastewater infrastructure to state water plan ...	38
Texas Water Code § 16.051. State Water Plan: Drought, Conservation, Development, and Management; Effect of Plan	39
Texas Water Code § 16.053. Regional Water Plans.	39
3.2 Associated agency and programmatic efforts that would be required.....	40
4.0 Potential alternative approaches for projecting statewide wastewater infrastructure needs.....	42
4.1 Periodic, centralized statewide wastewater infrastructure assessments.....	42
Bottom-up data collection	42
Top-down statewide modeling.....	43
Integrated analysis and outputs.....	43
4.2 Leveraging and strengthening existing regional and local wastewater data and plans	44
4.3 Incremental, pilot-based coordination between water supply and wastewater planning.....	44
4.4 Streamlined hybrid statewide assessments (combination option)	45
5.0 Funding options to expand funding availability for wastewater infrastructure.....	45

5.1 Recommended approach: Utilize existing RWAF/WLAF programs supported by Texas Water Fund transfers	46
5.2 General revenue-funded DFund II–interest rate subsidy for loans.....	47
5.3 New regional and state wastewater plans and accompanying 'SWWIFT' Fund	48
5.4 Integration of wastewater infrastructure into the State Water Plan for SWIFT Eligibility	49
6.0 Key findings.....	49

Executive summary

As directed by the 89th Texas Legislature, the purpose of this report is to conduct a study to determine the feasibility and practicability of incorporating wastewater infrastructure planning into the state water planning process, beginning with the five-year state water planning period ending January 5, 2032, and to determine the necessary statutory changes.

The purpose of the state water plan is to provide 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; further economic development; and protect the agricultural and natural resources of the entire state (Texas Water Code § 16.051)

Based on the timing, available resources, and implementation considerations, it is not feasible to incorporate planning for the development of infrastructure to meet the state's current and future wastewater treatment needs into the process used to produce each state water plan under § 16.051, beginning with the five-year state water planning period ending January 5, 2032.

Incorporating wastewater infrastructure planning into the state water plan process would require major statutory changes to Texas Water Code §§ 16.051 and 16.053.

Potential benefits of incorporating wastewater infrastructure considerations into the state water planning process include

- improved visibility of statewide wastewater infrastructure needs,
- greater coordination between long range water supply and wastewater planning in fast-growing regions,
- enhanced support for water reuse strategies,
- increased attention to regional wastewater solutions, and
- clearer articulation of long-term wastewater infrastructure investment needs to inform future policy and funding decisions.

At the same time, fundamental differences between water supply and wastewater planning—particularly in objectives, planning frameworks, technical approaches, and regulatory drivers—would make combining the two processes challenging.

All potential benefits must be evaluated within the context of the state water plan, which is a water supply plan focused on identifying and recommending new, additional infrastructure capacity needed to increase water supply volumes available to water users during drought-of-record conditions. The state water plan is not a comprehensive water

infrastructure plan and, by design, excludes many costs—such as those associated with replacement of aging infrastructure.

Integrating wastewater planning into the state water planning process would require additional resources and effort, with limited incremental benefit to water supply planning beyond the reuse and return flow considerations that are already incorporated into the existing water planning process.

Other observations and findings:

Incorporating wastewater considerations into the state water planning process would represent a significant expansion of the existing state water plan framework and could affect its core purpose of ensuring reliable water supply under drought-of-record conditions.

Integrating wastewater planning into the existing regional water planning framework would require consideration of the potential implications on planning group operations, governance, workload, and overall effectiveness. Adding wastewater expertise and reconsidering regional boundaries would require adjustments to governance structures and could require substantial changes to regional water planning group membership. Incorporating wastewater planning would also increase planning responsibilities and , which may affect project schedules and coordination efforts. Additionally, the expanded scope and time commitments may influence member participation requirements and considerations related to maintaining and recruiting qualified representatives.

Incorporation of wastewater infrastructure planning into the state water plan process may result in State Water Implementation Fund for Texas (SWIFT) resources being allocated across broader eligible infrastructure, in addition to the SWIFT program’s original focus on water supply infrastructure, which could impact drought resilience goals. Additionally, given the estimated \$174 billion capital cost of the 2027 State Water Plan, the SWIFT fund will require a recapitalization by the legislature to meet the current and future demand for financial assistance. (This is in addition to potential Proposition 4 funding that may result in additional SWIFT program capacity.)

Many of the potential advantages associated with the concept of incorporating wastewater planning into the state water planning process—including generating valuable statewide projections of infrastructure needs—could potentially be achieved more efficiently through different approaches. Alternatives include conducting periodic statewide assessments to estimate long-term infrastructure needs and costs, strengthening and better leveraging existing regional and local wastewater planning and data collection efforts, and undertaking targeted pilot projects to test more coordinated planning methods that

combine water supply and wastewater. With stakeholder engagement at key milestones, these approaches can improve data visibility, enhance coordination, and build long-term readiness for any future expansion of effort, while preserving the focus and effectiveness of the current state water planning framework.

Integrating wastewater planning into the state water plan is not practicable within the existing timeframe, structure, or resources and doing so could impact the core mission of drought-focused water supply planning.

Acronyms and key terms

Direct Potable Reuse (DPR): Direct Potable Reuse is the introduction of advanced-treated reclaimed water directly into the potable water system or into the raw water supply immediately upstream of a drinking water treatment plant.

Reuse: Use of water that has already been beneficially used under a water right or the use of groundwater that has already been used (for example, using municipal reclaimed water to irrigate golf courses).

Regional water planning group: A designated, voluntary group of stakeholders responsible for developing a 50-year regional water plan every five years. There are 16 such groups in Texas, one for each designated regional water planning area, created to use a bottom-up, community-driven approach to meet the state's future water needs.

State Water Implementation Fund for Texas (SWIFT) program: A specialized financial program authorized in 2013 to provide low-interest loans, deferred repayments, and extended terms for projects included in the state water plan. Managed by the Texas Water Development Board, this program funds planning, design, and construction for water supply, conservation, and reuse projects.

Total Maximum Daily Load (TMDL): A threshold for pollutants that determines the greatest amount of a particular substance a water body can receive daily and still maintain its water quality standards for its designated uses.

1.0 Introduction, purpose, and background

1.1 Introduction

During the 89th Legislative Session, the Texas Legislature enacted Senate Bill (SB) 7, which became effective September 1, 2025. The bill required the Texas Water Development Board (TWDB) to conduct an interim study regarding the feasibility and practicality of incorporating the planning of wastewater infrastructure into the existing state water planning process beginning with the five-year state water planning period ending January 5, 2032.

The relevant SB 7 language is as follows:

“Sec. 16.0123. INTERIM STUDY OF INCORPORATION OF WASTEWATER PLANNING INTO STATE WATER PLANNING PROCESS.

(a) Using existing resources, the executive administrator shall conduct a study to determine:

(1) the feasibility and practicability of incorporating planning for the development of infrastructure to meet the state's current and future wastewater treatment needs into the process used to produce each state water plan under Section 16.051, beginning with the five-year state water planning period ending January 5, 2032; and

(2) the statutory changes necessary to facilitate the incorporation of the wastewater treatment planning described by Subdivision (1) into the process used to produce each state water plan under Section 16.051, beginning with the five-year state water planning period ending January 5, 2032.

(b) Not later than December 1, 2026, the executive administrator shall provide a report of the study's findings to:

(1) the governor;

(2) the lieutenant governor;

(3) the speaker of the house of representatives;

(4) each member of the Texas Water Fund Advisory Committee established under Section 15.009; and

(5) each member of the standing committees of the senate and the house of representatives having primary jurisdiction over water resources.

(c) This section expires May 31, 2027.”

Texas faces growing challenges in managing its water resources—from ensuring adequate water supply during droughts to maintaining and upgrading aging wastewater infrastructure. Historically, Texas’ state water planning efforts have focused on water supply: how to provide enough water for homes, farms, industries, and the environment in Texas over a 50-year planning horizon under drought conditions.

Wastewater planning in Texas, which ensures the proper collection, treatment, and disposal of used water, is essential for protecting public health and the environment. Wastewater infrastructure development is regulated through environmental permitting at the Texas Commission on Environmental Quality (TCEQ) and addressed through local and regional infrastructure planning efforts.

Wastewater infrastructure is essential to protecting public health, supporting growth, and maintaining water quality across Texas. As communities expand and infrastructure ages, continued investment in wastewater systems will be important to meet local and regional needs and protect the state’s water resources. These considerations underscore the value of practical approaches that support wastewater infrastructure while preserving the effectiveness of existing state water planning efforts.

Wastewater projects are generally localized with defined service areas and discharge watersheds, whereas water supply projects often span much larger geographic areas and can involve substantial conveyance infrastructure to move water from distant sources to users.

As Texas’ population and water needs continue to grow, there is increasing interest in exploring more integrated approaches to water planning. Against this backdrop, the Texas Legislature directed the TWDB to study the feasibility of incorporating wastewater infrastructure planning into the state water planning process.

One consideration related to this study is that certain current sources of state and federal funding differ between water supply and wastewater infrastructure. Depending on the approach taken, incorporating wastewater into the state water planning process could impact the capacity of the SWIFT program to support implementation of water supply

projects.¹ Additionally, given the estimated \$174 billion capital cost of the 2027 State Water Plan, the SWIFT fund will require a recapitalization by the legislature to meet the current and future demand for financial assistance. (This is in addition to potential Proposition 4 funding that may result in additional SWIFT program capacity.)

SB 7 specified that the study be conducted using existing agency resources; accordingly, this interim study provides general insights into the differences between how water supply and wastewater planning are performed, and generally identifies the potential synergies, obstacles, and risks of incorporating wastewater into an ongoing and successful water supply planning program. It also offers alternative approaches to assessing and financing Texas' future wastewater infrastructure needs.

1.2 Purpose

This study was developed in accordance with SB 7 for the purpose of determining the feasibility and practicality of including wastewater treatment infrastructure needs in the state water planning process, starting with the 2032 State Water Plan, and determining the statutory changes that would be needed to enable this integration, if pursued.

Potential advantages of integration could include a better understanding of the extent and cost of future wastewater infrastructure; improved coordination to develop wastewater infrastructure; and potential additional funding sources for implementation.

1.3 Background

Water supply and wastewater planning in Texas have historically been conducted independently. While wastewater return flows are generally considered in surface water modeling for water supply availability and wastewater reuse projects appear in the state water plan, the two processes remain largely distinct. This separation reflects differences in purpose: water supply planning focuses on ensuring adequate quantity under drought

¹ In 2013, the 83rd Texas Legislature passed House Bill (HB) 4 and Senate Joint Resolution (SJR) 1, providing for the creation of the State Water Implementation Fund for Texas (SWIFT) and the State Water Implementation Revenue Fund for Texas (SWIRFT). In addition, HB 1025 authorized a one-time, \$2 billion supplemental appropriation from the state's Economic Stabilization Fund (also known as the Rainy Day Fund) to SWIFT, contingent on enacting HB 4 and passing and adopting SJR 1 through voter approval. Proposition 6 passed on November 5, 2013, with more than 70 percent of voters in favor. This investment was designed to support \$27 billion in state financial assistance identified in the 2012 State Water Plan for water supply projects to ensure that Texas communities have adequate supplies of water during times of drought over a 50-year planning horizon covered by the state water plan.
(www.twdb.texas.gov/publications/reports/special_legislative_reports/doc/2024_SWIFT.pdf)

The SWIFT program includes two funds, the State Water Implementation Fund for Texas (SWIFT) and the State Water Implementation Revenue Fund for Texas (SWIRFT). Revenue bonds for the program are issued through SWIRFT.

conditions, while wastewater planning is primarily driven by water quality concerns and regulatory compliance.

Texas has developed statewide water supply plans since 1961, but no equivalent planning framework has been utilized for wastewater. Since 1997, with the passage of Senate Bill 1 of the 75th Texas Legislature, the state water plan has been built upon plans developed by 16 regional water planning groups and informed by local planning efforts. In contrast, wastewater planning has been decentralized, occurring mainly at local and regional levels without a unified statewide planning process.

Several state financial assistance programs provide funding for water supply and wastewater projects, but funding priorities differ. Most notably, the SWIFT program delivers financial assistance for water supply projects, but eligibility is limited to recommended strategies in the state water plan. Other programs provide broader support for infrastructure needs, including wastewater systems, but lack the same type of direct linkage to a comprehensive statewide planning process.

The 83rd Texas Legislature passed House Bill (HB) 4, which created the SWIFT and SWIRFT for the purpose of implementing the state water plan, so the statutory purpose was focused on implementing water supply projects. HB 4 noted the *“importance of providing for this state’s future water supply needs”* and stated that the purpose of the bill was to *“provide an adequate water supply for the future of this state.”* Acts 2013, 83rd Leg., R.S., Ch. 207 (HB 4), Sec. 2.01.

Statutory purpose of the state water plan

In accordance with Texas Water Code § 16.051, the state water plan must provide for the *“orderly development, management, and conservation of water resources and preparation for and response to drought conditions”* to ensure that enough water is available at a reasonable cost to protect public health, safety, and welfare; support economic development; and protect agricultural and natural resources. In essence, the state water plan’s mission is to ensure Texas has adequate water quantity during a repeat of the most severe historic drought (known as the “drought of record”). The state water plan also serves as a guide to state water policy and informs certain state permitting and funding decisions. For example, water supply projects must be consistent with the regional and state water plans to be eligible for TWDB financial assistance or for the TCEQ to grant new surface water rights.

The regional and state water planning process

In 1997, following a brief but intense drought and growing recognition of population pressures on water supplies, the 75th Texas Legislature established a new, stakeholder-

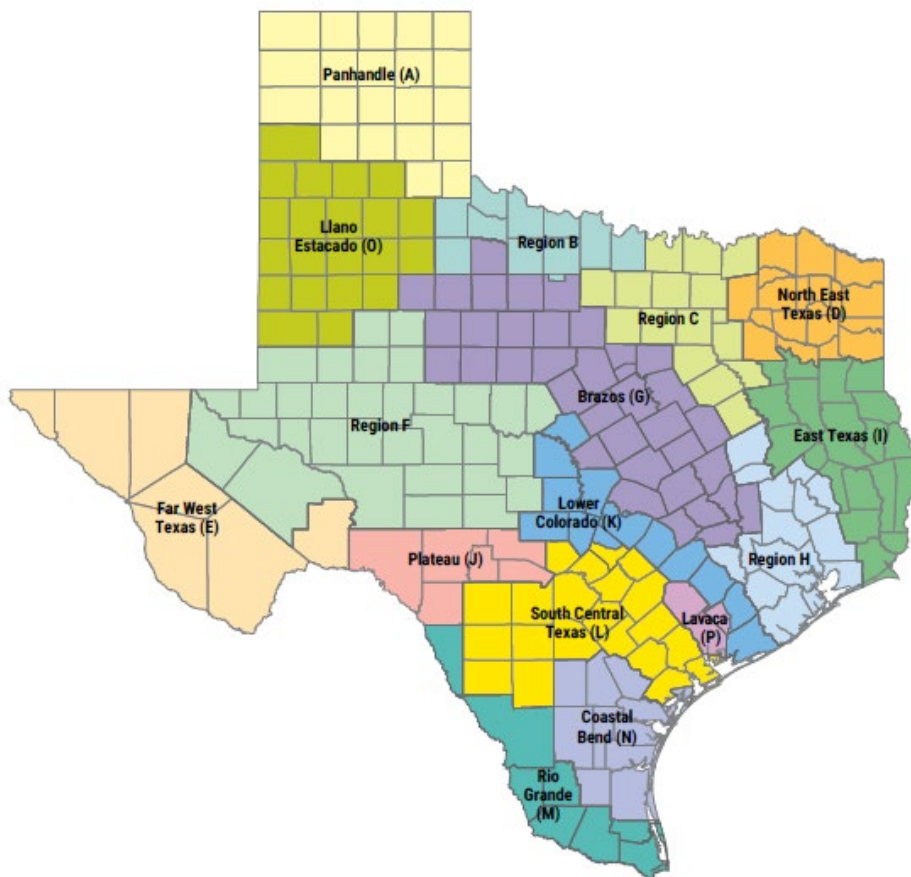
driven regional water planning process and created 16 regional water planning areas (Figure 1). In this process, local stakeholders representing interest groups with water supply interests—cities, farmers, ranchers, industries, river authorities, environmental interests, and others—work together to develop long-range plans to ensure that Texas has reliable water supplies during times of drought.²

The regional and state water plans include the anticipated water supply projects that local and regional water providers are planning to develop and, importantly, are also responsible for funding and implementing those projects to ensure sufficient supplies for their customers.

² Each planning group is required to maintain at least one representative of each of the following 12 interests:

1. The general public
2. Counties
3. Municipalities
4. Industry
5. Agriculture
6. Environment
7. Small business
8. Electric-generating utilities (also called steam-electric)
9. River authorities
10. Water districts
11. Water utilities
12. Groundwater management areas that fall within the planning area (where applicable)

Figure 1. Regional water planning areas



Each five-year planning cycle, 16 planning groups are tasked with producing long-range regional water plans that ensure water needs will be met during times of drought for the next 50 years. These plans generally follow a standard format across the regions based upon statute, administrative rules, and an established scope of work for each planning cycle.

The regional plans are funded through biennial legislative appropriations that the TWDB then administers as grants to political subdivision “sponsors” in each planning area. Those sponsors host the planning groups and subcontract with technical consultants selected by the planning groups.

Regional water planning is based on several fundamental parameters that guide the process, the most important of which is anticipating a repeat of drought-of-record conditions when, generally, water supplies are lowest and water demands are highest. Planning groups conduct evaluations of future water demands, existing supplies, potential water shortages, and feasible water management strategies for wholesale water providers and approximately 3,000 water user groups in six categories (municipal, manufacturing,

steam-electric power generation, mining, irrigation, and livestock). They then recommend water management strategies—projects and conservation measures to meet those needs—and include capital cost estimates.

Planning groups report the associated data by decade over a 50-year planning period (in the last cycle from 2020 to 2070) by water user group, county, river basin, and regional water planning area. The regional plans also include drought response information, policy recommendations, information on project implementation, and a comparison to previous plans.

The enduring success of Texas’ regional water planning process rests largely with the service of planning group members who dedicate many hours to ensuring the long-term viability of Texas’ water supplies. Strong leadership from planning group chairs and other long-time members, as well as the ability to attract new members, ensure the dynamic continuity of the planning process.

Infrastructure included and not included in the state water plan

It is important to note that the state water plan only includes recommended water supply infrastructure and strategies to develop, deliver, and treat *additional volumes of water supply*, such as new reservoirs, well fields, transmission pipelines, new or increased water treatment plant capacity for additional water supply volumes, desalination facilities, and water reuse projects that treat and repurpose wastewater effluent for supply. By design, the state water plan excludes internal retail water supply distribution infrastructure or other types of infrastructure that are not directly tied to developing or conserving additional water supplies for future needs.

The state water plan explicitly excludes water supply-related infrastructure and costs that are for maintaining or replacing existing, aging infrastructure, or compliance upgrades. In general, if an infrastructure component is not required to increase the treated water supply volume delivered to the intake of a water user group (e.g., city or water provider) as new supply or through demand reduction, then the component and its costs may not be included in the plan.³

³ Examples of prohibited costs in the state water plan include, but are not limited to, new facilities or delivery pipelines associated with the internal retail distribution network within a water user group’s system; water system improvements to address compliance issues related to water quality or water distribution pressure; maintenance such as new wells that are required to replace aging wells to regain or maintain supply; maintenance of, or upgrades to, existing equipment or facilities that do not directly increase volumetric water supply; and preventative measures to protect or maintain existing infrastructure against future water loss or degradation.

In short, Texas' state water plan is focused on increasing supply volumes available to water users in drought, not a comprehensive water infrastructure plan.

Texas wastewater planning

Current planning approach, roles, and regionalization

Domestic wastewater planning in Texas follows a different framework than water supply planning and is shaped largely by federal Clean Water Act requirements. Planning for wastewater infrastructure (treatment plants and collection systems) is often more decentralized and carried out more at the localized or sub-regional scale than water supply that may involve large regional projects. In contrast, while drinking water infrastructure also includes many local systems, water supply planning in Texas often aggregates needs and strategies across much broader geographic areas and may involve large, multi-jurisdictional projects such as reservoirs, transmission systems, and inter-basin transfers.

There is no single statewide “wastewater plan” equivalent to the state water plan. Like local and regional entities that must plan for water supply, municipalities, special purpose districts, river authorities, and other entities that provide wastewater services must design development plans or master plans for their own wastewater systems. While this approach parallels how individual entities plan for water supply projects, wastewater planning generally occurs on a finer geographic scale and is more directly driven by regulatory compliance, system capacity constraints, and local growth patterns than by long-term, statewide resource planning.

The TCEQ issues wastewater discharge permits for domestic wastewater treatment facilities under the Texas Pollutant Discharge Elimination System (TPDES) Program or Texas Land Application Permit (TLAP) Program. The U.S. Environmental Protection Agency has delegated authority to the TCEQ to issue TPDES permits that are developed to comply with state and federal regulations and standards to ensure that the quality of the water in the receiving stream is maintained and the current and future uses of receiving waterbodies are protected. Examples include drinking water supply, fishing, and swimming.

Regulatory drivers play a significant role in planning and implementing expansions of wastewater infrastructure. State law and rules (30 TAC § 305) require utilities to start planning expansions when a plant reaches 75 percent of permitted capacity and to initiate construction by 90 percent capacity to avoid overloads. As a result, wastewater planning in Texas is often closely tied to growth and regulatory thresholds. Drinking water systems are also regulated but planning and expansion are governed through a different framework that

emphasizes water availability, adequacy of supply and drinking water quality, and authorizations associated with service extensions, rather than fixed capacity utilization triggers.

On a regional scale, Texas formally implements the areawide wastewater treatment planning envisioned by the federal Clean Water Act (CWA) § 208. The TCEQ has designated certain regional entities—often councils of governments (COGs) or river authorities—as § 208 water quality planning agencies. For example, the North Central Texas Council of Governments (NCTCOG) is the designated water quality planning agency for the Dallas-Fort Worth metroplex; it compiles a regional water quality management plan each year that summarizes wastewater facility needs and plans.⁴ These regional plans help coordinate wastewater service among neighboring cities and ensure consistency with water quality goals. However, they are primarily advisory documents and do not cover the entire state under one plan—each COG or area may have its own plan if funded. Texas is not covered entirely by designated § 208 entities. Governance of wastewater is thus more diffuse: each city or utility is responsible for the planning and financing of its wastewater system, with the TCEQ overseeing discharge permits and limited coordination.

Wastewater service in Texas is often regionalized to achieve economies of scale and water quality benefits. Several river authorities and regional agencies operate major wastewater treatment plants on behalf of multiple cities—for example, the Trinity River Authority (TRA) serves numerous Dallas–Fort Worth area communities with regional plants, and the San Antonio River Authority–City of San Antonio and the cities of Round Rock–Cedar Park–Austin play similar roles elsewhere. These regional systems are planned via interlocal agreements and regional wastewater planning. Where regional partnerships exist, planning may cover a broader geographic area (e.g., wastewater planning in Travis and Williamson counties by local municipalities). However, many smaller communities operate independently, and unincorporated areas may rely upon onsite sewage facilities (septic systems).

⁴ www.nctcog.org/envir/natural-resources/water-resources

Requirements related to regionalization

The Texas Water Code defines regionalization as the development of water or wastewater systems that serve multiple service areas or political subdivisions, such as cities or counties. Under Texas Water Code § 26.081, the TCEQ is directed to promote regional and area-wide waste collection, treatment, and disposal systems to protect water quality and prevent pollution. The TCEQ is authorized under § 26.0282 to consider the availability of existing regional systems when reviewing wastewater discharge permit applications and may modify or deny permits accordingly.

To support regionalization, the TCEQ requires applicants for new or major amended domestic wastewater TPDES permits to evaluate nearby infrastructure within a three-mile radius. Applicants must contact existing facilities to assess capacity and willingness to accept additional wastewater and submit a cost comparison between connecting to an existing system and building a new one. While the TCEQ encourages consolidation for efficiency and environmental benefits, it does not mandate connection to nearby systems, and permits may still be approved if regionalization is not feasible based on financial, technical, or managerial factors.

Role of state water quality management plan

Because wastewater infrastructure has direct implications for environmental water quality, wastewater planning is closely connected with water quality regulation. The Texas Water Quality Management Plan (WQMP) is a continually updated “waste treatment plan” required by state law (Texas Water Code Chapter 26) and the federal Clean Water Act (CWA). The WQMP identifies current and future needs to meet water quality standards. It includes elements, such as effluent limits for each permitted wastewater facility, total maximum daily loads (TMDLs) for impaired water bodies, and identification of management agencies.

The TCEQ Water Quality Division updates the WQMP quarterly with projections of future effluent limits and service area populations for municipal wastewater plants. Importantly, any application for a new or amended wastewater discharge permit must conform to the WQMP recommendations.⁵ In practice, this means the TCEQ ensures proposed plant expansions are consistent with water quality goals (for example, a plant discharging into a small creek may have stricter treatment requirements to protect that creek). The WQMP update process involves public comment and ultimate approval by EPA Region 6, which provides federal oversight. Thus, while Texas does not have a statewide wastewater infrastructure plan focused on capacity expansion, it maintains a statewide plan for water

⁵ www.tceq.texas.gov/permitting/wqmp

quality that indirectly influences wastewater planning by setting the environmental standards for infrastructure.

Source water protection and assessment

Source water refers to sources (such as rivers, streams, lakes, reservoirs, springs, and aquifers) that provide water to public drinking water supplies and private wells. Source water protection is relevant because wastewater infrastructure helps protect the quality of drinking water sources. Nonpoint source pollution is water pollution that results when rainfall or irrigation runoff carries pollutants into streams, lakes, aquifers, and bays. The types of pollutants include fertilizers, herbicides, insecticides, oil, grease, sediments, documented failing onsite sewage facilities, and animal waste.

Protecting source water from contamination helps reduce treatment costs and may avoid or defer the need for complex treatment. The TCEQ manages a voluntary program for public water systems, Source Water Protection, that helps protect drinking water sources. Source water protection programs are locally controlled, designed, and implemented to protect drinking water sources from potential contamination. The TCEQ is required by the 1996 Safe Drinking Water Act (SDWA) Amendments to assess every public drinking water source for susceptibility to certain chemical constituents. The resulting source water susceptibility assessment reports provided to public water systems are then used to implement local source water protection projects. The assessment results also contribute to information contained in the Consumer Confidence Reports. There are several CWA provisions designed for protecting water from contamination. However, there is no federal mandate requiring comprehensive source water protection.

Estimate of future wastewater infrastructure costs

As directed by the U.S. Congress, the Clean Watersheds Needs Survey (CWNS) provides an assessment of the capital investments necessary for states to meet CWA water quality goals over the subsequent 20 years. These needs include projects and related infrastructure costs for wastewater—including publicly owned treatment works, stormwater, nonpoint source control, and decentralized wastewater treatment. State participation is instrumental in these periodic surveys because the EPA relies on state programs to collect and submit data.⁶

The CWNS provides something of a census of wastewater facilities along with an estimation of costs to meet CWA goals. There are more than 2,900 existing or potentially needed facilities in Texas. The TWDB submitted information from its financial program Intended Use Plans, eligible projects from its state water plan (related to reuse), and other

⁶ www.epa.gov/system/files/documents/2024-05/2022-cwns-report-to-congress.pdf

available data sources. The 2022 Final Report to Congress indicates that Texas needs a minimum of approximately \$18.9 billion to meet CWA goals, an increase from the \$11.8 billion reported in 2012.⁷

Financial and technical assistance available for water supply and wastewater infrastructure

Financial assistance

The TWDB administers multiple financial assistance programs to support implementation of water supply and wastewater infrastructure projects, including funding the maintenance and repair of existing water infrastructure (www.twdb.texas.gov/financial). More recently, voters approved the Texas Water Fund and the New Water Supply for Texas Fund in 2023 that expand the resources available for water supply, including reuse projects.

The Clean Water State Revolving Fund (CWSRF), authorized by the Clean Water Act, provides financial assistance for planning, acquisition, design, and construction of wastewater and reuse. The CWSRF also provides financial assistance for nonpoint source pollution abatement, estuary management projects, and stormwater projects. Nonpoint source projects eligible for funding must be an identified practice within a water quality management plan or watershed protection plan or a best management practice listed in the Texas Nonpoint Source Management Program, available online at tceq.texas.gov/waterquality/nonpoint-source/mgmt-plan. Land acquisition for the purpose of source water protection can be an eligible CWSRF project.

The Economically Distressed Areas Program (EDAP) provides state-funded assistance for projects serving economically distressed residential areas where water or sewer services do not exist or existing systems do not meet minimum state standards. The program is specifically for first-time service where wells or onsite sewage systems are failing, or for existing water or wastewater systems that do not meet minimum state standards. Only residential projects are eligible. EDAP assistance may be utilized for planning, land acquisition, design, and construction of first-time service or improvements to water supply and wastewater collection and treatment works. Constitutional bonding authority is the primary mechanism for EDAP funding.

The Water Development Fund (DFund) is a state-funded financial assistance program that can provide support for a wide range of water, wastewater, and flood mitigation projects. The DFund enables the TWDB to fund multiple eligible components in one financial

⁷ www.twdb.texas.gov/financial/programs/srf-needs-surveys.asp

package to borrowers. For example, an application for funding of water and wastewater components can be processed in a single loan.

The Rural Water Assistance Fund (RWAF) is a state-funded program designed to assist small rural utilities to obtain low-cost financing for water and wastewater projects. With the one-time supplemental appropriation of general revenue to the Texas Water Fund in 2023, funds were made available for water conservation and water loss projects through RWAF.

The Water Loan Assistance Fund (WLAF) is a financial assistance program that provides grants and low-interest loans for water conservation and water-loss reduction projects, primarily for medium-sized communities. The WLAF is currently being used as one of the primary mechanisms to deploy Texas Water Fund dollars approved by voters in 2023.

The State Participation Program enables the TWDB to provide funding and assume temporary ownership interest in a regional water, wastewater, or flood control project when the local sponsors are unable to assume debt for an optimally sized facility. The program is intended to encourage the optimum regional development of projects by funding excess capacity for future use where the benefits can be documented, and where such development is unaffordable without state participation. The goal is to allow for the "right sizing" of projects in consideration of future needs. State Participation funds are limited to the total amount approved by the Texas Legislature each biennium and to participation in individual projects. Currently, the State Participation program has no available funding until appropriations are received from the legislature.

The Infrastructure Investment and Jobs Act appropriated additional funds through the Drinking Water State Revolving Fund (DWSRF) and Clean Water State Revolving Fund (CWSRF) for projects that reduce exposure to perfluoroalkyl and polyfluoroalkyl substances (PFAS) and other emerging contaminants through drinking water and help address discharges through wastewater and, potentially, nonpoint sources. Funding is currently available through the DWSRF and CWSRF Emerging Contaminants programs.

Table 2. Summary of existing TWDB financial assistance programs for water supply and/or wastewater infrastructure

Program	Description	Eligibility	
		Water Supply	Wastewater
State Water Implementation Fund for Texas (SWIFT)	Funds state water plan projects like reservoirs, pipelines, desalination.	X	
Texas Water Development Fund (DFund)	State loan program for water, wastewater, and flood control projects.	X	X
State Participation Program	TWDB temporarily owns excess capacity in regional projects.	X	X
Rural Water Assistance Fund (RWAF)	Low-cost financing for small rural utilities.	X	X
Drinking Water State Revolving Fund (DWSRF)	Financing for drinking water infrastructure and compliance.	X	
DWSRF – Emerging Contaminants	Funds PFAS removal	X	
DWSRF – Lead SLR	Funds lead service line replacement.	X	
Clean Water State Revolving Fund (CWSRF)	Financing for wastewater, reuse, stormwater, and pollution control.		X
CWSRF – Emerging Contaminants Program	Funds PFAS and other contaminant removal in wastewater/stormwater.		X
Economically Distressed Areas Program (EDAP)	Grants/loans for first-time service in underserved areas.	X	X
Agricultural Water Conservation Program	Supports irrigation efficiency and conservation in agriculture.	X	
Water Loan Assistance Fund (WLAF)	Supports water conservation and water-loss reduction projects.	X	

Technical assistance

The TWDB has made it a priority to offer technical assistance programs for several reasons, primarily because many systems have shown the need for this assistance due to limited resources and high staff turnover. The TWDB administers multiple technical assistance programs to support and assist water and wastewater systems to help build their managerial and technical capabilities related to applying for financial assistance from the TWDB.

The Water Utilities Technical Assistance Program provides eligible water and wastewater utilities with financial, managerial, and technical capabilities necessary to apply for financial assistance from the TWDB. Technical assistance is provided through contracts between the provider and the TWDB, experts in the field that have been pre-qualified.

The Asset Management Program for Small Systems is offered by the TWDB to assist small water and wastewater systems create a comprehensive plan for managing their systems in

a financially and technically sustainable manner. Systems participating in the program can select a pre-qualified contractor to develop an asset management plan and other related tools to serve as a planning basis for the short-, medium-, and long-term needs of the system.

2.0 The feasibility and practicality of incorporating wastewater infrastructure planning into the 2032 State Water Plan

Evaluating the feasibility and practicality of incorporating planning for the development of infrastructure to meet the state's current and future wastewater treatment needs into the process used to produce each state water plan beginning with the five-year state water planning period ending January 5, 2032, requires understanding the fundamental differences between the two infrastructure domains and raises three key questions:

- 1) Can it be done?
- 2) Should it be done?
- 3) How quickly could it realistically be implemented?

2.1 General differences between water supply planning and wastewater planning

While both are essential to sustainable growth, water supply and wastewater planning differ significantly in objectives, planning horizons, technical approaches, and geographic scope. Both domains are partially driven by public health concerns but from very different perspectives.

Objectives, context, and geographic scope

Water supply planning is primarily concerned with ensuring long-term water availability, particularly under drought-of-record conditions. It focuses on identifying and developing new water sources to meet projected shortages over a 50-year horizon. Wastewater planning, by contrast, centers on maintaining adequate treatment and disposal capacity to protect public health and water quality, emphasizing compliance with effluent limits and water quality standards and the prevention of overflows or system failures. Wastewater expansions are largely driven by regulatory capacity triggers aimed at avoiding overloads.

Water supply planning often spans regions or river basins, extending well beyond retail water supply service areas and across watersheds to include groundwater, surface water, and even seawater sources. Wastewater planning, on the other hand, is more localized and watershed-based, and generally focuses on internal collection systems, treatment facilities, and discharge points. It is also driven by nutrient limits and receiving water quality standards.

Those entities providing retail water services do not necessarily coincide with those entities providing retail wastewater services. There are approximately 3,100 active water utilities in Texas, while there is a total of 890 active sewer utilities. The number of entities that provide both retail water and retail sewer service is approximately 760.⁸

Planning horizons and project timelines

Water supply projects—such as reservoirs, desalination plants, or major transmission pipelines—can require decades to plan, permit, and construct. Wastewater projects, including treatment plants and sewer extensions, generally require less lead time, often allowing for more incremental and responsive planning. Wastewater projects are generally localized, serving defined service areas and discharge watersheds, whereas water supply projects frequently span much larger geographic areas and can involve substantial conveyance infrastructure to move water from distant sources to users. These basic differences influence their respective planning horizons.

Data and technical matters

Water supply planning is generally focused on conditions of severe drought when water demands are at their greatest and water supplies are generally at their lowest. In contrast, municipal wastewater discharges typically decrease during droughts, due to reduced water use and lower inflow/infiltration.

Water supply planning involves hydrologic modeling, water availability assessments⁹, and evaluation of diverse water development strategy portfolios—with widely varying technical requirements and types of infrastructure—that may shift due to political, environmental, or financial factors. Wastewater planning is more focused on service area, involving detailed assessments of sewer capacity, treatment loads, and pollutant discharge limits within defined service boundaries and wastewater sheds.

The state water planning process in Texas is externally focused—outside of retail service areas—on connecting water resources (including groundwater and seawater) to entities with anticipated shortages. Water supply projects often involve source development (e.g. diversion, storage, wells) and long-distance transmission to deliver water to the “front door” of retail water providers’ systems. In contrast, wastewater planning is much more inwardly focused on the internal, upstream retail wastewater collection systems, per capita sewage generation rates, and engineering assessments of treatment plant loads and sewer capacities. Wastewater projects revolve around treatment plants, sewer networks, and discharge/outfall locations, which are inherently local/watershed based.

⁸ www.puc.texas.gov/watersearch

⁹ Wastewater effluent (discharge) is one of the many considerations in surface water availability modeling.

2.2 Potential opportunities and synergies

Wastewater flows already play a key role in the development of Texas' state water plans. While challenges remain, there may be additional opportunities to enhance efficiency and resilience in water resource management through better coordination. Such collaboration could foster additional innovative solutions, complementing such existing strategies as direct potable reuse already anticipated in the state water plan. However, there are limits to the potential, additional water supply gains from reuse, as these are already extensively considered in current plans.

Role of return flows and direct reuse in Texas' state water plan

Return flows (in the form of wastewater discharges) and water reuse—particularly direct reuse—represent the most significant intersection between water supply planning and wastewater infrastructure planning. These strategies have long been integral to Texas' state water plans.

Regional water planning groups and their technical consultants already incorporate wastewater return flows into planning models. The expectation of future wastewater discharges is an important factor taken into consideration when evaluating future water needs of downstream water users. Doing so helps to ensure that the current regional water plans don't recommend overinvestment in new water supply projects.

Treated wastewater effluent can be reused for potable (drinking) or non-potable purposes, effectively creating a new water supply source. Direct reuse has appeared in every state water plan since regional planning began in 1997. It typically involves applying advanced treatment to effluent to meet industrial or potable standards without requiring new source development or major conveyance infrastructure. According to the 2027 State Water Plan, direct reuse is projected to provide more than 350,000 acre-feet per year by 2080, accounting for roughly 5 percent of additional supplies developed statewide.

A key advantage of direct reuse is that the source water—treated effluent—is locally available, which reduces the need for long-distance transmission and makes it a site-specific, potentially efficient solution for meeting future water demands.

Potential synergies

Despite the challenges, there could be some limited near-term and long-term benefits and opportunities if a new statewide wastewater planning effort were integrated with the regional and state water supply planning process.

Leveraging population and water demand projections

The most immediate crossover benefit would be the ability to use a combination of the state water plan 50-year population projections—updated by the TWDB every five years—and the volumes of projected municipal water demands as a foundation for projecting long-term municipal wastewater effluent volumes.¹⁰ The population and water demand projections in combination could provide a robust starting point for developing estimates of future municipal effluent volumes and associated pollutant loads. And, by extension, those projections could provide a starting point for high-level, reasonable estimates of the cost of future additional statewide municipal wastewater treatment infrastructure.¹¹

Greater regional consolidation of wastewater systems

Regardless of whether wastewater planning is integrated into the state water planning process, performing any type of statewide wastewater infrastructure planning may encourage greater regional consolidation of wastewater systems. For example, addressing chronic wastewater issues in rural communities—such as failing septic systems impacting groundwater—could lead to regional solutions that improve public health and system reliability. Whether such a solution would provide meaningful ancillary water supply benefit (via reuse) would depend on many factors, including existing and alternative water supply options.

Advancing holistic approaches

One synergy could be the advancement of a more holistic framework that views all forms of water—drinking water, wastewater, stormwater—as a unified resource. While these water resources have traditionally been managed mostly separately due to differing regulatory, technical, and operational considerations, there are efforts to encourage more integrated planning and management to, in concept, maximize efficiency, sustainability, and resilience. Conservation offers a good example of this interconnection; reducing water use not only extends supply but also decreases wastewater generation, which can influence the feasibility and scale of reuse projects.

Depending on the approach taken, integrating water supply and wastewater planning could potentially lead to additional innovative solutions. However, addressing water scarcity, including reuse of wastewater, is already anticipated in the state water plan

¹⁰ This would require modifying estimates of the drought-based return flows (derived as a percentage share of municipal water demands) to better reflect wastewater volumes under normal and wet conditions.

¹¹ See the “Alternative approaches” section for how existing state water plan population projections could be used outside the water supply planning process to quickly estimate future municipal wastewater treatment capacity and related infrastructure costs.

through significant recommended indirect and direct reuse projects—including direct potable reuse.

Greater potential for reuse

One commonly perceived synergy is that direct potable reuse (DPR) of treated wastewater effluent will provide a reliable water supply that makes water systems more sustainable and drought resilient, while simultaneously addressing multiple issues. While DPR can contribute to both goals under the right conditions, its relative effectiveness depends on local wastewater availability, treatment capacity, system design, and alternatives. There are inherent limitations to reuse, especially as it approaches a closed system due to diminishing returns or water quality degradation because of the accumulation of salts, nutrients, and trace contaminants, which may limit reuse cycles or require blending with additional freshwater sources.¹²

DPR is a valuable strategy for managing water that, where applied, can simultaneously solve both water supply and wastewater challenges.¹³ While DPR can help address water shortages by reclaiming treated wastewater, its success depends on the consistent availability of that wastewater, which in turn relies on stable water use patterns and additional, upstream non-wastewater sources. In this way, DPR attempts to solve two

¹² www.epa.gov/sites/production/files/2018-04/documents/mainstreaming_potable_water_reuse_april_2018_final_for_web.pdf

¹³ Key considerations for direct potable reuse:

Upstream source dependency - A commonly overlooked aspect of DPR, which is the need for front-end water sources outside the reuse loop to offset the gap between water delivered and wastewater returned. If these sources decline during drought, DPR's volumetric foundation erodes quickly. In municipal systems, only about 60–80 percent of delivered water typically returns to the wastewater stream, depending on indoor versus outdoor use and system-specific factors. This introduces a built-in volumetric decay in DPR systems shaped by utility characteristics and ambient conditions like drought, which must be considered in planning and operations.

Operational flexibility - DPR systems can reduce flexibility under stress—like demand hardening from conservation—if tightly coupled to wastewater flows without sufficient buffering or alternative sources. As upstream water sources become constrained (especially during drought) a system heavily reliant on DPR may lack the operational margin needed to scale or adjust supply. This close dependency on consistent wastewater flows, combined with limited alternative sources, can increase vulnerability to variability and stress.

Technical and social challenges - TWDB research

(www.twdb.texas.gov/innovativewater/reuse/projects/directpotable) emphasizes that DPR is not a one-size-fits-all solution. Contrary to some perceptions, DPR is not automatically feasible or advisable simply as the result of integrating water supply and wastewater planning. It requires advanced treatment technologies, robust monitoring, and careful planning to ensure safety and reliability—making it costly and technically demanding. Public skepticism also remains high, requiring transparent communication, community engagement, and education campaigns to build trust.

interlinked problems—water scarcity and wastewater management—but each solution is contingent on the other.

While DPR can provide a reliable, locally controlled source of water under certain conditions, its relative effectiveness in “drought-proofing” a water system depends heavily on such factors as the consistency of wastewater flows, available treatment capacity, and the presence of alternative water sources. Systems that prioritize DPR as a primary supply strategy without complementary sources or contingency planning may face increased vulnerability during droughts when compared to more diversified approaches, due to their reliance on stable wastewater flows and upstream inputs.

Other potential benefits

Integrated planning could also result in the following:

- **Consider new non-potable reuse opportunities beyond municipal systems** – Industrial and agricultural sectors may offer additional, currently under-explored non-potable reuse options, which could save additional water and reduce environmental discharge loads, even though some of this reuse is already reflected in state water plans.
- **Streamline infrastructure investments** – Communities with unified water and wastewater capital improvement plans may benefit from bundled funding efforts.
- **Advance the water-energy nexus** – Coordinating certain infrastructure investments and operations could, to some extent, yield reductions in energy consumption associated with treatment, conveyance, and reuse—especially for energy-intensive processes like advanced purification for DPR.
- **Elevate wastewater infrastructure** – Including wastewater in state-level planning could raise its profile, raise policy issues to state leadership, and potentially secure dedicated funding—like how water supply projects currently benefit from the SWIFT program.
- **Provide a holistic view** – An integrated plan would give policymakers a more complete picture of Texas’ water infrastructure needs—both supply and sanitation—informing more comprehensive solutions and resource allocations.

2.3 Structural constraints and capacity limitations

Integrating wastewater infrastructure planning into the existing state water supply planning framework would present structural and capacity challenges extending beyond policy alignment and impact governance, technical requirements, regulatory drivers, and institutional roles that underpin the current regional water planning process.

Differences in planning frameworks and regulatory objectives—combined with increases in scope and workload—would require additional capacity and expertise of regional water planning groups and the TWDB. Collectively, these limitations raise questions about whether wastewater planning can be fully integrated into the state water plan without impacting the effectiveness, timing, and quality of the existing water supply planning process, underscoring the need for careful evaluation before pursuing full integration.

Workload and capacity

A key limitation is the greatly expanded scope and commensurate increase in workload for the existing regional water planning groups. These volunteer representatives, sponsors, and their consultants occasionally struggle to complete the already extensive scope of work required to develop their regional water supply plans within tight planning cycle windows.

Integration of wastewater infrastructure into the process could potentially impact the schedule and quality of planning efforts. Regional water planning groups would likely need to recruit additional members with wastewater expertise, potentially expanding group size beyond an effective level for decision-making. The combined planning would require more public meetings of the planning groups within the same timeframe, which could lead to member fatigue and difficulty in recruiting and maintaining a larger membership.

Regional water planning groups would be tasked with inventorying wastewater facilities, projecting sewer loads, engaging numerous wastewater providers, identifying and recommending projects, and making administrative and policy recommendations—potentially with simultaneous water supply considerations. This could more than double the scope of work in each planning cycle. The added complexity raises questions: Do RWPG members have the expertise to address wastewater issues intertwined with water quality concerns? Could the existing five-year timeline accommodate this expanded workload?

Combining these two planning processes would create complexities and workloads beyond simply merging their separate components—particularly if the expectation is to integrate water supply and wastewater solutions in a way that makes each contingent on the other.

In addition, the TWDB would need staff resources with and develop the skills and supporting information required to support the RWPGs in planning for wastewater infrastructure. This staffing and work should occur well ahead of the initial planning cycle.

Including wastewater infrastructure in the state water plan would require the agency to produce a greatly expanded state water plan within the state water plan development

timeline that is required to support new SWIFT program commitments during each five-year cycle.

Regional water planning group membership and planning boundaries

At a minimum, additional voting representation for wastewater providers would need to be added to RWPGs. Adding more voting members could introduce concerns about planning group size. Some RWPGs currently exceed 30 members, and further membership expansion could complicate meeting management and decision-making. Larger groups can have more difficulty maintaining member engagement during meetings and building consensus.

The current regional planning area boundaries are another important consideration—statewide wastewater planning may be more appropriately aligned with metropolitan areas and/or river basins, which do not align with the current regional water planning group areas. This raises the question of whether the existing regional water planning boundaries and membership would need to be redrawn to better address the incorporation of wastewater infrastructure.

The original, consensus-derived administrative rules for the water supply planning program require consideration of many factors that may not align with or could be contradictory to effective wastewater planning boundaries. A reworking of the regional planning area boundaries and reconstitution of the planning group memberships would preclude Texas from initiating a combined water supply and wastewater planning effort for the 2032 State Water Plan.

Regional water plan complexity and timing

Regional plans would become significantly longer and more complex, requiring more effort for the public and decision-makers to engage with during each five-year cycle. Achieving expectations for simultaneous consideration of water supply and wastewater projects could add much greater technical complexity, requiring new training for planning group members, significant guidance, and extra planning process steps. A single planning process would, in effect, be expected to produce two integrated plans at once. The integration of wastewater responsibilities would increase the planning responsibilities of regional water planning groups, which could impact their ability to meet statutory deadlines and/or potentially reduce the quality of the plans.

Data support and integration

Data integration is a practical consideration. Whereas the TWDB collects water supply and use data (e.g., via community public water systems through the annual Water Use Survey) and provides extensive water supply data support to the regional water planning groups,

the TWDB currently has little data regarding wastewater use or infrastructure and does not forecast wastewater discharges—this type of data resides with TCEQ and local utilities. The utilities that report water use to the TWDB and that are planned for in the State’s water supply planning process are not necessarily the same entities responsible for wastewater management and planning. Compiling an initial, comprehensive database of wastewater needs for planning would need to occur prior to the start of a planning cycle.

The state water planning database application, which was designed to collect and present water supply planning information as the primary foundation of the state water plan, would require significant expansion or reconfiguration. Adding and integrating wastewater data into the planning processes would be a major undertaking requiring significant resources and time. For example, aligning planned water supply and wastewater volumes would add further complexity.

Scope and regulatory complexity of integrated planning

Regulatory factors would need to be considered in developing a combined plan. Wastewater projects cannot be evaluated solely based on capital needs; their viability depends on discharge/land application permits, environmental impact assessments, and compliance with water quality standards and other permitting requirements. While certain permitting and environmental considerations also apply to water supply projects, wastewater-related requirements would introduce a new dimension to an already involved planning process—one with which few current regional water planning group members have experience. Addressing these issues would require education and guidance for regional water planning groups and greater coordination with the TCEQ, which is not a statutorily identified non-voting member in the water supply planning process.

Water supply planning focuses on meeting the needs of regional, wholesale, and retail water providers, as well as such diverse user types as power generation and agriculture. A single large water supply project, such as a reservoir, can serve numerous users across multiple watersheds. In contrast, wastewater planning is oriented toward guiding service providers within their respective “waste watersheds” and is largely driven by regulatory objectives, particularly those outlined in the State Water Quality Management Plan. These fundamental differences would impact integration of water supply and wastewater planning.

Limits to holistic approaches

Combining water supply and wastewater planning faces real-world engineering and resource constraints.¹⁴ As previously discussed, direct potable reuse—where treated wastewater is recycled into drinking water—requires advanced treatment technologies and rigorous public health safeguards, which can be costly and technically demanding. Additionally, stormwater capture for potable use is often impractical due to the unpredictable timing, volume, and quality of runoff, as well as the lack of infrastructure to store and treat it at scale. In closed-loop reuse systems, water quality can degrade over time due to the accumulation of salts and trace contaminants, requiring additional treatment or blending with additional fresh supplies. These types of challenges underscore the need for maintaining realistic expectations and finding tailored solutions when applying certain principles.

2.4 Planning framework challenges and integration considerations

Integrating wastewater infrastructure planning into the state water plan could present complications related to purpose, scope, and institutional alignment. The state water planning process was initially established to address a specific mandate—ensuring adequate future water supplies under drought-of-record conditions—and its structure, methodologies, and governance have evolved around that objective. Introducing wastewater planning would require expanding the process into areas traditionally managed through separate regulatory and local decision-making frameworks.

Such an expansion would require an alteration to the focus of state water planning, shifting it from a supply-reliability framework to include issues closely tied to wastewater regulation and water quality compliance. This shift could create challenges for regional water planning groups, affect prioritization and evaluation of projects, and could raise concerns about roles and scope clarity.

¹⁴ Integrated management of drinking water, wastewater, and stormwater is bounded by engineering, operational, and resource constraints. Direct potable reuse (DPR) depends on reliable influent volumes and advanced multi-barrier treatment to meet health-protective standards—requirements that increase capital and operations and maintenance costs and demand specialized staffing. Stormwater capture for potable use is further complicated by the episodic nature of runoff, rapid fluctuations in flow and quality, and the need for large-scale storage and treatment capacity to manage intra- and inter-seasonal variability. In high-recycle or “closed-loop” configurations, progressive concentration of salts, nutrients, and trace organic constituents can occur, often necessitating blending with lower-TDS source water, targeted treatment (e.g., ion exchange or reverse osmosis), or managed aquifer recharge to maintain finished-water quality. These realities argue for context-specific applications, realistic performance and cost expectations, and planning that prioritizes diversified portfolios over single-strategy solutions.

Framework misalignment

Water supply planning is based on meeting needs under drought-of-record conditions, whereas wastewater planning focuses on pollutant loads and water quality standards—fundamentally different factors that could influence integrated planning. For example, attempts to compare unit costs of water supply projects versus unit costs to meet water quality standards would be complicated and could affect potential shared funding prioritization.

Evaluation and public process

Evaluating combined sets of alternatives involving water supply and wastewater would likely require more work for technical consultants, regional water planning groups, the TWDB, and the public that may necessitate more frequent public meetings.

Planning and implementation start-up requirements

Incorporating wastewater infrastructure planning into the state water plan would involve:

- **Legislative changes and appropriations** – New statutory authority and dedicated funding would be required.
- **Major rulemaking and stakeholder engagement** – Extensive regulatory updates and broad consultation with utilities, local governments, and industry stakeholders.
- **Reworking of planning structures** – Changes to the planning deliverables, planning documents, planning data, planning group membership, and regional planning boundaries would be needed.
- **Modifications to regional water planning group membership** – Preparing the groups for new technical responsibilities.
- **Re-procurement of technical consultants by regional water planning group sponsors to ensure adequate wastewater expertise.**
- **Extensive agency staffing and program development** – Hiring additional personnel, creating program guidance, and building technical capacity.
- **Significant investment in data and system infrastructure** – Developing new databases, analytical tools, and reporting frameworks.

2.5 Risks of integrating wastewater planning into the state water plan

Integrating wastewater planning into the state water plan may require a range of programming, governance, and statutory modifications. These include adjustments to the

focus of regional water planning groups, increased operational and technical needs, additional challenges in meeting statutory deadlines, funding considerations, and potential unintended consequences affecting both water supply and wastewater planning efforts. Collectively, these issues would need to be addressed to maintain the effectiveness, consistency, and timeliness of regional and statewide water planning under an integrated framework.

Competing objectives within a single planning process

- Combining two complex planning processes into a single framework could impact the effectiveness and quality of both, compared to maintaining focused, purpose-built planning efforts for each.
- The state water plan's core purpose under Texas Water Code § 16.051—ensuring water supply under drought-of-record conditions—may receive reduced emphasis if newly instituted wastewater-related priorities are incorporated.
- Creating a single planning process could affect long-term, ongoing efforts already working to address wastewater issues in Texas.

Multiple priorities

- Water supply planning prioritizes projects that deliver the most reliable water at the lowest net cost, while wastewater planning tends to focus on pollution reduction. These goals are not directly comparable and may not align.
- Consideration of overlapping water supply and wastewater management strategies could create a high degree of complexity and workload for regional water planning groups and their technical consultants.
- Increased technical workload, an increase in the required number of public meetings, and more complex decisions could impact the capacity and engagement of voluntary regional water planning group members, as well as the recruitment and retention of members and chairs.

Schedule risk

- Adding wastewater planning to the state water supply planning process could add demands to an already resource-intensive process, making it more difficult for regional water planning groups to complete their regional plans by statutory deadlines.

- Under current statute, failure to adopt a regional water plan on time would render projects ineligible for certain funding for five years—a significant consequence that has occurred only once.¹⁵

Technical and regulatory considerations

- Existing laws and permitting frameworks treat water supply and wastewater systems separately.
- Effective coordination would require resolving misalignments between permitting processes, funding mechanisms, and agency jurisdictions (TWDB vs. TCEQ), which could complicate implementation and accountability.

Stakeholder and governance challenges

- Integration would require collaboration among new jurisdictions and sectors with differing priorities, regulations, and funding mechanisms.
- Much of the “low-hanging fruit” for wastewater reuse is already incorporated into the state water plan; additional benefits may require more numerous and sophisticated analyses, which may be unsuitable for the high-level, long-horizon state water plan.
- Integration would likely require longer planning cycles in order to successfully address the significant scope of work. The increased amount of effort and added complexity that would be involved in combining water supply planning and wastewater infrastructure planning might require 10-year planning cycles (i.e., aligned appropriately with the U.S. Census) to develop meaningful plans without overloading or oversimplifying both domains. This would introduce additional challenges; chief among them difficulty building and maintaining broader institutional knowledge at the RWPG and agency levels over longer planning cycles.

2.6 Why integrating wastewater infrastructure planning into the 2032 State Water Plan is not feasible

Timing

The seventh cycle of regional water planning, which culminates in the 2032 State Water Plan, is already underway. As of the date of this report, the grant contracts and technical subcontracts have already been executed with defined scopes and limited budgets, and the regional water planning groups have already begun meeting.

¹⁵ Region L failed to adopt their 2006 regional water plan by the statutory deadline, which created several problems, including ineligibility for certain funding until addressed through a one-time legislative remedy.

No enabling legislation was passed in 2025 beyond authorizing this study, meaning the earliest legislative action could reasonably occur is 2027. Attempting to incorporate a new wastewater planning effort midway through a planning cycle would jeopardize the water planning schedule, exceed existing staff resources, and diminish the quality of the regional and state water plans. In addition, the technical expertise required to implement a combined planning process would likely require re-procurement by the regional water planning groups and sponsors of their technical consultants to ensure adequate wastewater expertise, which requires significant preparation and time.

A successful integration of wastewater planning into the state water plan would require first embedding wastewater planning into the regional water supply planning process, since each state water plan is built from those regional plans. This would necessitate statutory direction and authority, rulemaking, revised grant contract scopes of work, new guidance and methodologies, additional funding for planning grants, additional staff and training, and new data systems in place before the start of a regional planning cycle. Each five-year regional water planning cycle begins roughly one year before the prior state water plan is delivered to State leadership (see Figure 2).

Figure 2. Regional planning and 2032 State Water Plan timeline:



Consequently, as of December 1, 2026, it is infeasible to incorporate wastewater planning into the seventh regional water planning cycle for inclusion in the 2032 State Water Plan.

Policy direction

The Texas Legislature would need to provide direction on the purpose, scope, roles, and limitations of wastewater planning. Key considerations would include planning group membership, regional boundaries, agency roles, planning goals, and the relationship to

water supply planning—along with other issues likely to arise during stakeholder engagement during implementation.

Resources

Expanding the planning process to include wastewater would require additional appropriations and additional full-time TWDB employees to support such a significant mandate.

3.0 Statutory changes necessary to facilitate the incorporation of wastewater infrastructure planning into the process used to produce each state water plan

Integrating wastewater infrastructure into Texas’ existing water supply planning process would require multiple statutory changes driven by legislative policy decisions. These changes would establish the authority, direction, and resources necessary for the agency to expand the state water planning program.

To provide a more comprehensive picture, this section also summarizes the key agency and programmatic efforts that would likely follow such statutory directives, illustrating the scope of effort that would be required for successful integration.

3.1 Statutory changes required to add wastewater infrastructure to state water plan

To incorporate planning for the development of infrastructure to meet the State’s current and future wastewater treatment needs into the state and regional water planning process, the two main statutory provisions related to that process (Texas Water code § 16.051 and § 16.053) would require amendments. This section describes the changes necessary in each section and subsection of those statutory provisions. The wording changes needed would be highly dependent on policy decisions made by the Texas Legislature in guiding this new process. In addition to the specific changes listed below, the mention of wastewater would need to be added throughout these sections of code. This section is intended to provide examples of statutory changes needed but not an exhaustive list.

Texas Water Code § 16.051. State Water Plan: Drought, Conservation, Development, and Management; Effect of Plan

Section 16.051(a) includes a description of the purpose of the state water plan. That purpose would need amendments to address the goals and purposes of any wastewater components incorporated into that plan.

Section 16.051(a-1) includes a list of required elements for the state water plan related to data on the progress in meeting the needs and recommended strategies identified in plans. This section would either need to be amended to refer to wastewater projects in general or would need to be amended to add any specific data that the legislature would like to collect on any wastewater component included in the state water planning process.

Section 16.051(d) requires the Board to coordinate with the Texas Commission on Environmental Quality, the Department of Agriculture, and the Parks and Wildlife Department on guidance principles for the state water plan. This reference might need some slight wording tweaks because the Department of Agriculture and the Parks and Wildlife Department are not likely to participate in developing guidance principles related to wastewater planning.

Texas Water Code § 16.053. Regional Water Plans

Section 16.053(a) includes a description of the purpose of the regional water plans. That purpose would need amendments to address the goals and purposes of any wastewater components incorporated into that plan.

Any changes in subsection (a) might need conforming changes in (h)(7)(C).

Section 16.053(c) includes a list of the interest categories that must be represented in each regional water planning group. The legislature may want to consider adding any wastewater-specific entities that are not included in this list if wastewater planning is incorporated into the existing regional water planning process.

Section 16.053(e) lists the required elements of a regional water plan. This section would need amendments to include each aspect of wastewater planning that the legislature would like to see in a state water plan. Examples include identifying existing infrastructure, identifying needs for wastewater projects, and identifying recommended future projects. Additionally, references to wastewater could be added throughout this subsection to incorporate required elements.

Section 16.053(h)(8) would need amendments to include any necessary notices to wastewater-specific entities that are not covered by existing language.

Section 16.053(h)(11) details requirements for amendments. If the legislature wishes to delineate which types of amendments would be considered major amendments for wastewater projects, it would need to make those amendments in this subsection.

Section 16.053(j) prohibits the Board from awarding financial assistance for a water supply project under certain programs unless it finds that the project is consistent with the state water plan. If the legislature wishes to include a similar prohibition for financial assistance of wastewater projects unless that project is consistent with a state water plan that incorporates wastewater planning, “water supply project” would need to be amended in this subsection.

Texas Water Code § 15.4061. Funding for Regional Water Plans

Section 15.4061(f) details the criteria for eligibility for funding for regional water planning. If the legislature would wish to include any eligibility criteria related to wastewater planning, they could do so in this section.

3.2 Associated agency and programmatic efforts that would be required

In any scenario, preparing for a combined water supply and wastewater planning process would require substantial effort and resources.

For illustrative purposes, if legislation to incorporate wastewater planning into the state water plan were passed, successful implementation would require clear legislative intent, specific authorities, and additional appropriations from the legislature. Based on those directives, the agency would likely need to undertake several resource-intensive efforts that could take several years to fully implement, including, but not limited to the following:

- **Outreach and gathering preliminary stakeholder input** – Early stakeholder input is a hallmark of the agency’s approach and critical to launching any major initiative. While time- and resource-intensive, this process builds consensus and helps ensure program success.
- **Formal rulemaking and guidance** – It would take time to obtain stakeholder input and to develop new agency rules on which the program changes would be based. Guidance including methods and procedures would follow.
- **Staff resources and training** – Additional staff with knowledge of wastewater infrastructure planning and associated technical skills would have to be hired to develop planning guidance, data tools, contract language, and to provide administrative and technical support to regional water planning groups. Recruitment and training would require lead time.

- **Data systems** – The current state water planning database is not currently designed to accommodate wastewater infrastructure data. Integration would require either major modifications or a new platform—an effort that would demand substantial IT resources, funding, and implementation time.
- **Programmatic preparation** – There would be extensive agency preparation and communications required to educate the regional water planning group members, and a wide variety of guidance materials and processes developed to support an expanded state water planning program.
- **Interagency coordination** – Depending on legislative directives, coordination with other agencies (e.g., TCEQ) would be essential, requiring additional resources and various agreements, and potential additional appropriations to TCEQ to support the effort.
- **Restructuring the planning area boundaries and reconstitution of the associated regional water planning group memberships** – This would entail a lengthy and time-consuming agency effort requiring extensive public engagement processes and likely multiple cycles of stakeholder input.

Depending on the legislative directive, the items above would generally need to be completed and in place by the start of the first integrated planning cycle.

4.0 Potential alternative approaches for projecting statewide wastewater infrastructure needs

Given the challenges and risks associated with fully integrating wastewater planning into the state water planning process, it is prudent to consider alternative approaches that can support statewide assessments of wastewater infrastructure needs. These alternatives range from comprehensive statewide evaluations to more incremental steps that can improve data visibility, coordination, and long-term readiness if future integration is pursued.

Several approaches are available, each suited to different policy goals and resource considerations. These include periodic statewide assessments to estimate long-term needs and costs, enhancements to existing regional and local wastewater planning efforts, and targeted pilot projects that test elements of coordinated water supply-wastewater planning. Stakeholder engagement at key milestones would strengthen each of these approaches and improve the reliability of statewide projections.

4.1 Periodic, centralized statewide wastewater infrastructure assessments

Under this option, the State could procure contracted professionals—on a recurring schedule such as every 5 or 10 years—to conduct comprehensive assessments of near-term and long-term wastewater infrastructure needs statewide. This approach would keep the assessment separate from the state water planning cycle, while still producing reliable statewide estimates of wastewater infrastructure needs and costs. These assessments could use a hybrid technical framework that combines the following:

Bottom-up data collection

Focused on gathering detailed, localized information from utilities, municipalities, and regional entities regarding wastewater infrastructure, including

- current system conditions,
- documented infrastructure needs,
- anticipated investments,
- capital improvement plans,
- permit compliance records, and

- financial assistance applications.

This bottom-up component would help to ensure the assessments accurately reflect on-the-ground realities and incorporate region-specific challenges.

Statewide modeling

Using statewide population and municipal water demand projections from the state water plan and converting them to average year wastewater return flows, the contractor could model and develop estimates of future wastewater flow volumes and treatment requirements. Typical parameters could include

- per capita wastewater generation rates,
- return flow ratios (e.g., 60–80 percent of delivered water),
- projected pollutant loads, and
- high-level estimates of future treatment capacity needs.

The statewide component could enhance consistency and help ensure that wastewater needs for the full projected population are captured through high-level proxy estimates of future wastewater flows. This could provide a uniform, basin-focused statewide framework for evaluating long-term needs.

Integrated Analysis and Outputs

Combining bottom-up and statewide methods would enable the State to

- cross-validate local estimates with statewide projection estimates,
- identify underreported or emerging wastewater infrastructure needs,
- extend infrastructure needs estimates to longer horizons than most local wastewater planning, and
- provide decision-makers with meaningful, comprehensive cost estimates and a better understanding of the long-range funding implications.

This option would maintain the existing state water planning process while generating a separate, robust statewide picture of wastewater infrastructure needs.

4.2 Leveraging and strengthening existing regional and local wastewater data and plans

Under this option, the State could build upon the substantial wastewater planning and data collection efforts already occurring throughout Texas. This option focuses on supporting and enhancing what is already in place, without establishing a new statewide planning function, including, for example,

- making greater use of and/or increasing funding for local and regional wastewater facility planning;
- better leveraging existing capital improvement plans, known permit-driven wastewater infrastructure timelines, and TCEQ Water Quality Management Plan updates and related datasets;
- Providing regional water planning groups with TCEQ-generated lists of wastewater systems nearing the 75 percent capacity planning threshold that could provide improvements towards identifying potential new wastewater reuse opportunities for inclusion in the state water plan; and
- improving data sharing between the TWDB, TCEQ, councils of governments, and regional wastewater authorities.

This approach would retain the decentralized nature of wastewater planning but enhance visibility and coordination across regions and at the state level.

4.3 Incremental, pilot-based coordination between water supply and wastewater planning

This option could involve targeted, small-scale pilot projects to test coordination potential without establishing a statewide structural integration. Pilot projects could be used to test technical, administrative, or data coordination methods in specific basins, metropolitan areas, or rapidly growing regions. Pilot examples could include

- developing joint water supply-wastewater projections for a specific fast-growing region;
- testing data sharing protocols and/or modeling tools across water supply and wastewater domains;

- performing more detailed and/or comprehensive evaluations of return flow-derived reuse opportunities in specific watersheds;
- assessing advantages of combined water/wastewater capital improvement planning approaches; and
- exploring cross-sector coordination in areas with regional wastewater providers.

Pilots could allow the State to explore the potential benefits and challenges of future integrated approaches, gather real-world lessons, and build institutional familiarity without committing to full-scale program integration.

4.4 Streamlined hybrid statewide assessments (combination option)

A variation of the statewide assessment approach could involve simplified, periodic statewide assessments using a combined hybrid method, but with a narrower scope and lower resource requirements. Under this approach, the State could procure qualified contractors to

- compile and analyze TCEQ and local data on existing and expected wastewater infrastructure;
- gather targeted input from regional entities involved in wastewater and water quality planning;
- use state water plan water demand projections as a proxy—modified via use of population equivalents and return rates—to generate statewide estimates of future wastewater volumes and pollutant loads; and
- estimate the general scale and cost of infrastructure required to meet those needs through streamlined modeling approaches.

This streamlined approach could provide statewide insight while minimizing the workload and implications of incorporating wastewater planning into the state water planning framework.

5.0 Funding options to expand funding availability for wastewater infrastructure

The TWDB identified and evaluated several potential approaches to increase the availability of financial assistance for wastewater infrastructure projects. The following

section summarizes each option, including related planning approaches, key advantages, risks, constraints, and implementation considerations.

The option identified as the preferable and most feasible path builds on existing Rural Water Assistance Fund (RWAF) and Water Loan Assistance Fund (WLAF) authorities and funding mechanisms. This approach could make additional funding available for wastewater needs while minimizing required statutory changes, administrative complexity, and implementation time.

5.1 Recommended approach: Utilize existing RWAF/WLAF programs supported by Texas Water Fund transfers

Under this approach, existing RWAF and WLAF programs would be leveraged through transfers from the Texas Water Fund to provide financial assistance for wastewater infrastructure. The approach could be informed by

- existing 20-year regional water and wastewater infrastructure needs surveys, or
- periodic statewide assessments of wastewater infrastructure needs conducted under contract.

Key advantages

- Utilizes existing programs and funds
- More immediately available
- No statutory eligibility changes required
- Focuses on overall scale of infrastructure funding needs versus specific project selection
- Option for grants
- Avoids expanding SWIFT program eligibility pool
- Lower planning burden than other options
- Requires less resources from the agency and the State

Key risks/constraints

- Limited prioritization structure

Implementation considerations

- **Administrative complexity:** Moderate

- **Statutory or constitutional changes required:** Minor
- **New state fund required?:** No
- **Requires projects to be identified in an adopted plan?:** No
- **Allows for replacement/rehabilitation of existing infrastructure?:** Yes
- **Feasibility:** High

5.2 General revenue-funded DFund II—interest rate subsidy for loans

Under this approach, a new subsidized lending program would be created that utilizes remaining constitutional authority for Development Fund II general obligation bond authority to provide SWIFT program-like interest rate subsidies for wastewater projects via biennial legislative appropriations to fund subsidies. The approach could be informed by

- existing 20-year regional water and wastewater infrastructure needs surveys, or
- periodic statewide assessments of wastewater infrastructure needs conducted under contract.

Key advantages

- No statutory eligibility changes required
- Avoids expanding SWIFT program eligibility pool
- Lower planning burden than other options
- Requires less resources from the agency and the State

Key risks/constraints

- Requires new lending program, as DFund II is not currently a subsidized program
- Requires ongoing biennial General Revenue appropriations for debt service and coverage, like the Water Infrastructure Fund (precursor program to SWIFT)
- Limited by \$6 billion general obligation bond authority
- Could produce competition with SWIFT-supported water supply project funding
- Requires start-up time and safeguards to protect DFund cashflows

Implementation considerations

- **Administrative complexity:** Very High

- **Statutory or constitutional changes required:** None
- **New state fund required?:** No
- **Requires projects to be identified in an adopted plan?:** No
- **Allows for replacement/rehabilitation of existing infrastructure?:** Yes
- **Feasibility:** Moderate

5.3 New wastewater plans and accompanying funding

Under this approach, a new dedicated statewide wastewater planning process—equivalent to the state water planning process—and a new SWIFT program-like fund tied to a state wastewater plan would have to be created.

Key advantages

- Fully integrated planning-to-funding structure
- Clear project identification and prioritization
- Avoids expanding SWIFT eligibility pool

Key risks/constraints

- High resource path
- Delays funding until after first plan completed
- May disrupt existing wastewater planning efforts
- Requires significant new funding and full-time employees

Implementation considerations

- **Administrative complexity:** Very High
- **Statutory or constitutional changes required:** Both
- **New state fund required?:** Yes
- **Requires projects to be identified in an adopted plan?:** Yes
- **Allows for replacement/rehabilitation of existing infrastructure?:** No
- **Feasibility:** Low

5.4 Integration of wastewater infrastructure into the state water plan for SWIFT program eligibility

Under this approach, wastewater projects would be made eligible for SWIFT by incorporating them directly into the state water plan.

Key advantages

- Leverages existing planning framework and funding eligibility
- Relies on existing funding mechanism

Key risks/constraints

- Further strains already limited SWIFT program capacity
- Reduces number of water supply projects funded
- High resource path
- Difficult to prioritize across fundamentally different infrastructure types
- Numerous significant policy and implementation challenges, including for regional water planning groups

Implementation considerations

- **Administrative complexity:** Very High
- **Statutory or constitutional changes required:** Both
- **New state fund required?:** No
- **Requires projects to be identified in an adopted plan?:** Yes
- **Allows for replacement/rehabilitation of existing infrastructure?:** No
- **Feasibility:** Low

6.0 Key findings

Water supply and wastewater planning are fundamentally different in purpose, geographic scope, regulatory drivers, planning horizons, and technical methodologies, so there are significant factors to weigh when considering full integration.

Incorporating wastewater infrastructure into Texas' existing water supply planning process would represent a substantial expansion to the scope of TWDB responsibilities and how Texas approaches water planning.

Below are some findings to assist decision-makers in addressing future wastewater infrastructure needs.

- Water supply and wastewater planning processes operate under different objectives, frameworks, and technical methods. Incorporating wastewater infrastructure planning into the state water planning process would be a substantial undertaking that presents some challenges and potential impacts to the effectiveness and focus of Texas' existing regional and state water planning process.
- Due to timing, available resources, and scale of implementation required, it is not feasible to incorporate wastewater planning into the current process used to produce each state water plan under TWC § 16.051, beginning with the five-year state water planning period ending January 5, 2032. Integration is infeasible for the 2032 State Water Plan because these changes have not been implemented prior to the planning cycle beginning:
 - Adjustments to the planning areas or groups
 - Direction and authority from the legislature
 - Additional TWDB staff resources
 - Enhanced data systems
- Incorporating wastewater infrastructure planning into the state water plan process would require multiple statutory changes to Texas Water Code §§ 16.051 and 16.053.
- Incorporating wastewater infrastructure planning into the state water planning process could improve statewide visibility of wastewater infrastructure needs, enhance coordination between water supply and wastewater planning, and support consideration of reuse opportunities.
- Alternative approaches for anticipating future wastewater infrastructure needs are available and could provide informative and more immediate results to guide successful wastewater infrastructure planning and funding.

- The existing Rural Water Assistance Fund and Water Loan Assistance Fund were identified as the preferred and most feasible approaches to increase the availability of financial assistance for wastewater infrastructure projects. Funding availability could be expanded while minimizing statutory changes, administrative complexity, and implementation time.

—