CHAPTER 4

INFRASTRUCTURE, PUBLIC FACILITIES, & SERVICES

WHAT'S INCLUDED IN THE CHAPTER

This chapter provides an overview of the existing water and wastewater infrastructure, as well as City facilities, services, activities, and programs. It outlines the current capacity, planned improvements, and Capital Improvement Program (CIP) projects. Additionally, the chapter presents strategies to support the sustainable and resilient growth of infrastructure as the City continues to expand.

WHAT WE HEARD

SATISFACTION WITH MAJOR CITY SERVICES

81%

of respondents report being "very satisfied" or "satisfied" with the quality of public safety services

71%

of respondents report being "very satisfied" or "satisfied" with the quality of overall garbage collections services

67%

of respondents report being "very satisfied" or "satisfied" with the quality of overall quality of parks and recreation programs/facilities

Source: Statistically Valid Survey

CITY SERVICES PRIORITIES

The services respondents most often think should receive the most emphasis over the next five years include

61% traffic and congestion management

46% maintenance of city streets/ facilities

32% quality of public safety services

Source: Statistically Valid Survey

OTHER

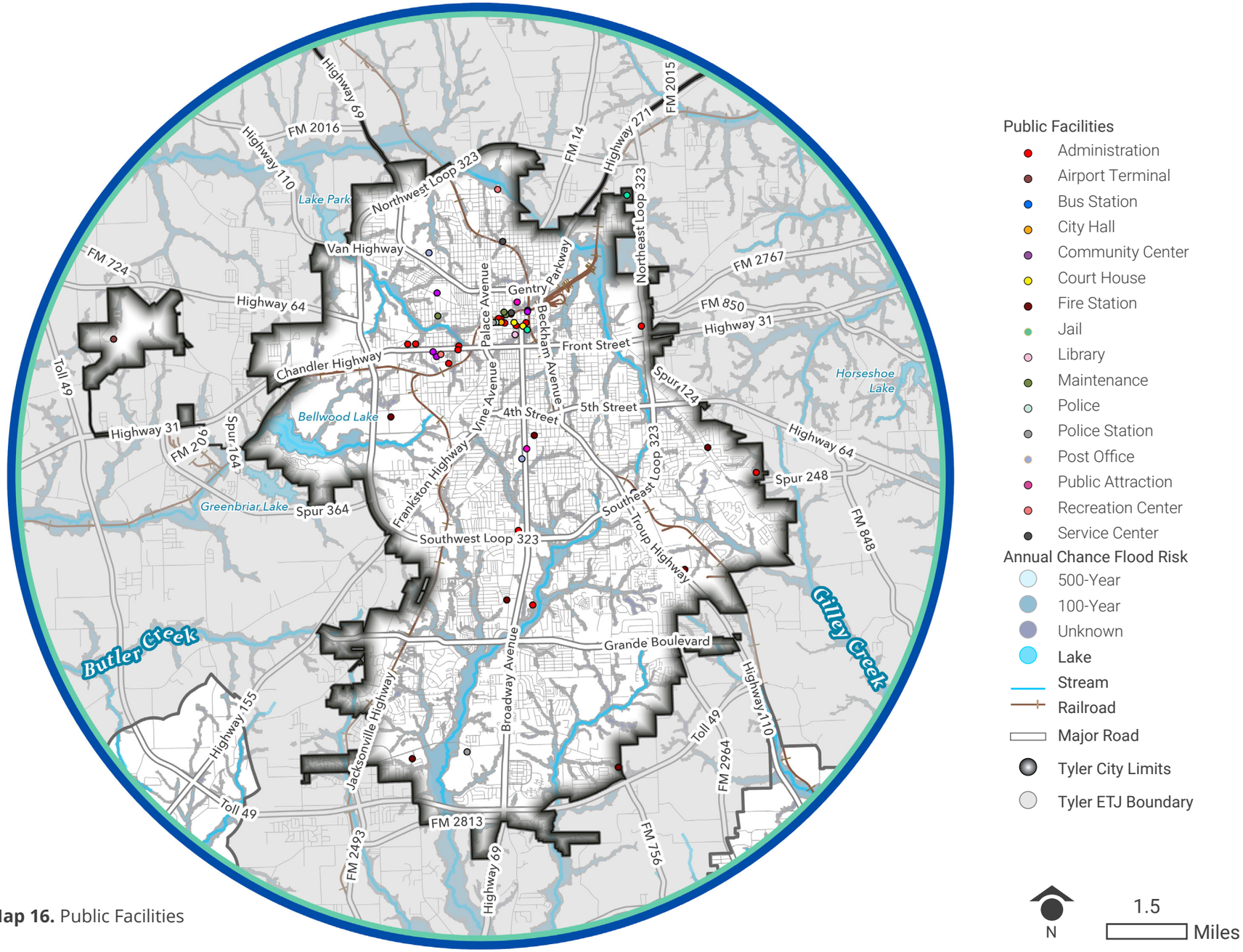
- Need adequate staffing to operate City utilities
- Need to plan for and improve existing evacuation routes
- Need better coordination between infrastructure plans and the Comprehensive Plan
- Need more community spaces around the City
- Need to analyze flood risks and impact of erosion in vulnerable areas
- Provide interconnected walking trails

INFRASTRUCTURE TODAY

The City of Tyler is committed to delivering high-quality public facilities and services that support the well-being and daily needs of its residents. This includes the development, maintenance, and modernization of essential infrastructure such as water and wastewater systems, transportation networks, public safety facilities, parks and recreational spaces, and community centers.

As the City continues to expand, particularly in the southern region, ensuring adequate water capacity has become a pressing concern. This area is experiencing rapid residential and commercial development, which places increased demand on existing water resources and utility systems. Addressing these capacity challenges is essential to maintaining reliable service and supporting future growth. One ongoing challenge is maintaining sufficient staffing levels to operate utilities efficiently year-round. Utility operations require skilled personnel to manage water treatment, distribution, and wastewater systems 24 hours a day, 365 days a year. Staffing shortages can strain the City's ability to deliver consistent service and respond to emergencies.

Additionally, as the City considers expanding its water supply sources, Lake Palestine presents both opportunities and challenges. While it is a resource for meeting future demand, there are seasonally variable taste and odor concerns associated with the lake's water quality. While the taste and odor concerns aren't health related, they can affect the aesthetic quality of the drinking water. These issues would need to be carefully evaluated and mitigated before any expansion plans could proceed. Overall, Tyler's infrastructure strategy must balance growth, operational capacity, and water quality to ensure a resilient and responsive utility system for years to come. Map 16 shows the location of public facilities in the City of Tyler.



Map 16. Public Facilities

PLANNING FOR RESILIENCE

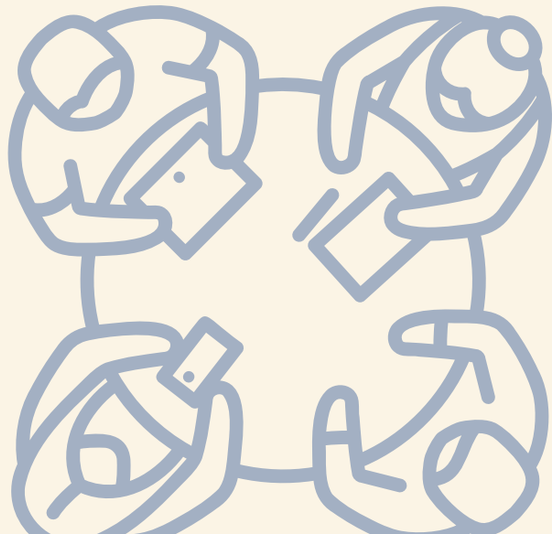
Planning for resilience is a critical component of any long-term strategy—like this Comprehensive Plan—to ensure that its policies and recommendations are thoughtfully crafted to withstand future challenges and adapt to changing conditions. Tyler is vulnerable to several hazards outlined in Chapter 1.

Often, comprehensive planning and the infrastructure implementation process occur independently of each other. Interdepartmental coordination will be crucial in ensuring infrastructure and utility resiliency and that the City continues to grow as per the guidance of the Future Land Use Map (FLUM).

Building a shared roadmap through interdepartmental cooperation

Feedback from stakeholder and technical staff interviews indicates that many departments currently do not incorporate the Comprehensive Plan into their public utilities and infrastructure planning processes. This disconnect must be addressed to ensure cohesive and forward-thinking development. To begin bridging this gap, the project team engaged technical staff from across departments to collaboratively identify long-term infrastructure needs and explore how these align with key components of the Comprehensive Plan—including future land use, housing, economic development, and the implementation of its action items.

The next critical step in realizing a unified vision is the effective and efficient implementation of this Comprehensive Plan. While the Plan itself lays the foundation—outlining goals, strategies, and priorities—its true impact depends on how well it is translated into action. Implementation requires coordinated efforts across departments, clear timelines, dedicated resources, and ongoing accountability. It involves aligning capital improvement programs, policy updates, and departmental work plans with the objectives of the Comprehensive Plan. Success also hinges on robust monitoring systems to track progress, adapt to changing conditions, and ensure transparency. By fostering collaboration, securing funding (funding mechanisms are listed on Page 22), and maintaining a focus on resiliency and equity, cities can move from vision to reality—building a future that is both sustainable and responsive to community needs.



Best Practices for Coordinated and Resilient Infrastructure Planning

- Plan Integration and Interdepartmental Coordination
  - Integrates plans with the Capital Improvement Program (CIP) process
  - Work to integrate climate vulnerability assessments into the CIP process to better understand long-term impacts of frequent and severe flooding on proposed and existing infrastructure
  - Assess infrastructure vulnerability as a starting point for future planning
  - Align planning efforts with federally recognized processes
- Access and Equity
  - Improve access to critical services
  - Ensure equitable access to public facilities
- Green and Resilient Infrastructure
  - Incorporate green infrastructure where feasible
  - Prioritize green infrastructure in planning and development
  - Use preventive measures to reduce risks
- Private Sector Engagement
  - Encourage private sector investment to build resilient infrastructure
  - Develop guidelines and incentives for private developments to include resilient infrastructure

PRINCIPLES OF RESILIENT INFRASTRUCTURE

Socially Engaged

Focuses on empowering communities to understand, prevent, and respond to disruptions. Local governments and private stakeholders play a key role by improving public information, promoting resilience literacy, and fostering community involvement in infrastructure planning and protection.

Environmentally Integrated

Emphasizes the dual role of nature as both a resilience asset and a potential risk to critical services. Key actions can include minimizing environmental harm and integrating green and blue infrastructure with traditional systems.

Shared Responsibility

Emphasizes collective accountability for infrastructure resilience through information sharing and collaboration. It involves engaging stakeholders, promoting transparency, and coordinating on risk and return strategies via effective governance.

Continuously Learning

Addresses the complexity and interconnectedness of infrastructure systems, aiming to strengthen resilience through key actions: monitoring real-time performance and conducting stress tests to uncover and fix vulnerabilities.

Proactively Protected

Focuses on preparing infrastructure for evolving hazards, both known and unforeseen. Key actions include enhancing system safety, safeguarding critical components and interdependencies, embedding robust emergency planning, building resilience across scales, and committing to ongoing maintenance.

Adaptively Transforming

Empowers systems to evolve through planning, design, and delivery of critical services. Key actions include enhancing adaptive capacity, responding to unexpected events, and enabling systems to recover and improve.

Source: UN Office for Disaster Risk Reduction

Funding Resilient Infrastructure

Cities often face challenges in securing sufficient funding to address the infrastructure demands of their communities. Investing in resilient infrastructure—whether through upgrades or new systems—can involve higher upfront costs. However, there are multiple strategies available to help municipalities meet these financial requirements. A selection of these approaches is outlined in Table 1.

In addition, the City can leverage several private sector funding mechanisms. These can include:

Innovative Financing Tools (Green Bonds, Catastrophe Bonds, Resilience Bonds)

- A suite of private sector mechanisms that provides capital for climate-resilient projects. These instruments finance environmentally beneficial initiatives, transfer disaster risk to capital markets, reward preventive resilience measures, and align investor returns with measurable environmental outcomes. Collectively, they enable cities to access sustainable investment streams for renewable energy, flood control, stormwater management, and ecosystem restoration while appealing to investors seeking both financial and social impact.

Grants from Private Companies & Foundations

- Offered through corporate social responsibility (CSR) programs (e.g., Pepsico, Google, and others), these grants can support community resilience, water conservation, and climate innovation projects.

Rain Fund

- Community-based financing tool designed for stormwater management. Helps neighborhoods invest in rain-ready infrastructure.

Table 1. State and Federal Grants and Loans

Name	Sponsor	Grant/Loan	Cost Share	Eligible Funding Activities
Flood Infrastructure Fund	TWDB	Mixed Loan (0% interest) and Grant	Varies	Flood mitigation projects, flood management strategies
Community Development Block Grant - Mitigation	GLO/ HUD	Grant	None (100% Grant), additional scoring points for 1% local share	Activities that increase resilience to disasters and reduce or eliminate the long-term risk of loss of life, injury, damage to and loss of property, and suffering and hardship, by lessening the impact of future disasters.
Clean Water State Revolving Fund **Drinking Water State Revolving Fund (DWSRF)**	TWDB	Loan, Loan Forgiveness	Long-term fixed rate loans at subsidized interest rates (up to 40% reduction from market rates) with a maximum repayment period of 30 years Additional subsidies (grants) available for disadvantaged communities, green projects, and emerging contaminents such as PFAS	Planning, design and construction of wastewater infrastructure, including treatment and reuse facilities Stormwater management and Nonpoint Source (NPS) pollution control
Flood Mitigation Assistance	TWDB/ FEMA	Grant	Varies from 0% to 25% local; remainder federal	Minor, localized flood reduction projects HMAP (flood hazard only) development or update Provides federal funding to help states and communities pay for cost effective ways to reduce or eliminate the long-term risk of flood damage to structures that are insured under the National Flood Insurance Program (NFIP).
Hazard Mitigation Grant Program	TDEM/ FEMA	Grants	25% local, 75% federal	Provides a funding mechanism after a disaster to mitigate against future disasters and help communities become more resilient
Building Resilient Infrastructure and Communities	TDEM/ FEMA	Grants	25% local, 75% federal	Aims to categorically shift the federal focus away from reactive disaster spending and toward research-supported, proactive investment in community resilience

TWDB - Texas Water Development Board, GLO - General Land Office, HUD - Department of Housing and Urban Development, FEMA - Federal Emergency Management Agency, TDEM - Texas Division of Emergency Management, HMAP - Hazard Mitigation Action Plan

CITY SERVICES AND UTILITIES

The City of Tyler is focused on taking a proactive approach to planning for water and wastewater infrastructure. In order to implement current and future plans for city services, additional funds will be required. In addition to current funding mechanisms (annual city budget allocations, sales tax program, bond funds), the City should utilize additional funding options (identified on page 79) to implement the plans.

Water Supply and Distribution

The Tyler Water Utilities (TWU) Department supplies water to residential, commercial, industrial, and institutional establishments in the City's water utility service area. The majority of the utility's finished water distribution system is located within the City limits and is divided into five pressure planes. This distribution system includes two water treatment plants (WTPs), five elevated storage tanks (ESTs), one standpipe (SP), four booster pump stations (BPSs), and 707 miles of water mains.

The City of Tyler adopted the Water Distribution System (WDS) Master Plan in 2023. The WDS Master Plan documents an overview of the existing WDS, development of the Tyler WDS hydraulic model, and provides an inventory and basis for the 25-year WDS Capital Improvement Plan (CIP).

The Plan identifies population growth areas where future water lines may need to be extended. The Plan assumes that the majority of new development will occur in the ETJ while the development within the City limits would mostly consist of infill and redevelopment. These growth areas are

Table 2. Existing and Projected WDS System Demand

Existing Tyler WDS System Demand				
ADD (GPM)	ADD TO MDD FACTOR	MDD (GPM)	PEAK HOUR FACTOR	MD PEAK HOUR DEMAND (GPM)
14,110 gpm [20.3 MGD]	2.50	35,208 gpm [50.7 MGD]	1.73	60,910 gpm [87.7 MGD]
2047 Tyler WDS System Demand				
ADD (GPM)	ADD TO MDD FACTOR	MDD (GPM)	PEAK HOUR FACTOR	MD PEAK HOUR DEMAND (GPM)
22,255 gpm [32.0 MGD]	2.10	46,733 gpm [67.3 MGD]	1.73	80,853 gpm [116.4 MGD]

ADD - Average Day Demand, MDD - Maximum Day Demand, GPM - Gallons Per Capita Per Day
Source: 2023 WDS Master Plan

CITY WORKING WITH EPA

On November 9, 2016, the City of Tyler approved a draft agreement with the U.S. Environmental Protection Agency (EPA) to upgrade the wastewater collection system and enhance the City's existing programs for inspections, maintenance, and cleaning of the wastewater system. The agreement, known as a Consent Decree, became effective as of April 10, 2017, and is planned to be in effect until 2027.

Tyler Water Utilities has developed a Capacity, Management, Operation and Maintenance (CMOM) Program and is on schedule with construction projects, inspections, and studies required by the Consent Decree. This program provides a framework for TWU to perform a comprehensive review of the wastewater collection system and enhance the current operation and maintenance practices so that the City can:

- Better manage, operate, and maintain its wastewater collection system
- Better identify areas in the collection system with potential capacity constraints
- Better respond to unauthorized discharges

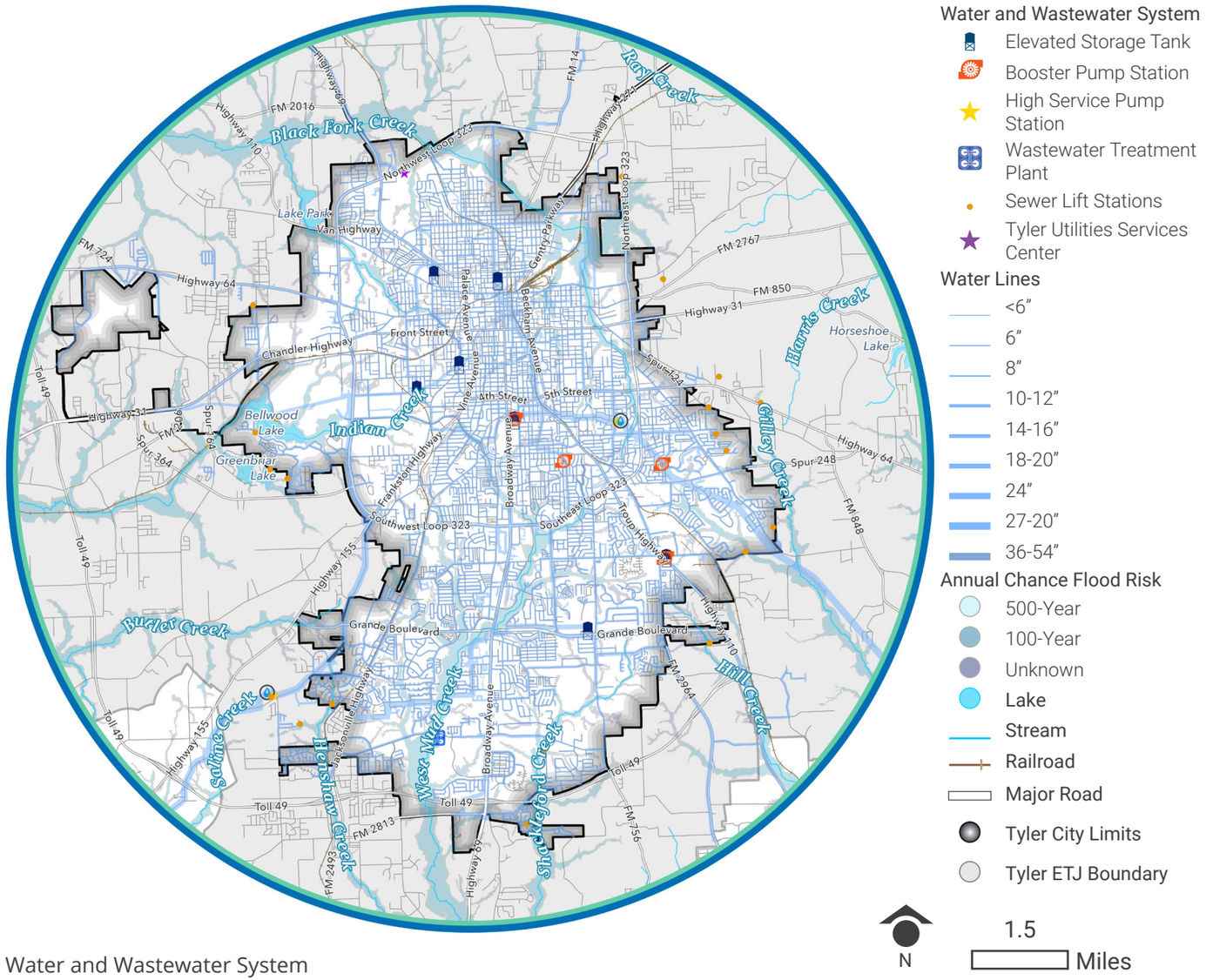
considered while developing the FLUM presented in this Comprehensive Plan. As the City continues to grow and develop, the projected water demand should be updated as per the recommendations of the FLUM.

Wastewater System

The City of Tyler adopted the Wastewater Treatment Plants (WWTP) Master Plan in 2023 to identify the near-term needs of its two WWTPs—Westside and Southside—and to plan for the facilities' requirements over the next 30 years.

The Master Plan recommends increasing the capacity of the WWTPs to accommodate the City's growing population. It also proposes improvements to both facilities.
In addition, the WWTP Master Plan identifies projected growth areas, similar to the Water Distribution System (WDS) Master Plan. However, most of these growth areas are located within the City limits.

The City should plan updates to both the Water and Wastewater Master Plans contingent upon the availability of funding. These updates should incorporate the population projections from the Comprehensive Plan to address future needs as the City develops according to the FLUM.



Map 17. Water and Wastewater System

Stormwater Management

Stormwater management in the City of Tyler presents a growing challenge, particularly in South Tyler, where rapid development has outpaced the capacity of existing drainage infrastructure. As new residential and commercial projects continue to emerge in this part of the City, the strain on stormwater systems has become increasingly evident. The lack of adequate planning and enforcement has exacerbated the issue, leading to frequent flooding and erosion problems that threaten both public safety and property.

One of the most pressing concerns is riverine flooding, which is intensified by undersized culverts and streets constructed within floodplains. These design shortcomings prevent efficient water flow during heavy rain events, causing water to back up and overflow into neighborhoods and roadways. Additionally, stream stability has become a major issue, with erosion degrading the banks of creeks and waterways. This not only damages natural ecosystems but also undermines nearby infrastructure and increases sedimentation downstream.

The City Council has recognized the need for more proactive measures, including the dedication of drainage easements to the City. Such easements would allow for better access and maintenance of stormwater channels, helping to mitigate flooding and erosion risks. However, enforcement of drainage regulations remains inconsistent, and without stronger oversight, new developments may continue to contribute to the problem.

Compounding these challenges is the lack of sidewalks and pedestrian infrastructure in many areas, which limits safe mobility and contributes to poor surface water management. University Avenue, a major corridor in Tyler, is under the jurisdiction of the Texas Department of Transportation (TxDOT), which restricts the City's ability to implement drainage improvements or redesign the roadway to better handle stormwater. As Tyler continues to grow, especially in its southern sector, a comprehensive and enforceable stormwater strategy will be essential to protect residents, preserve natural resources, and ensure sustainable development.

STORMWATER MANAGEMENT PROGRAM

The City of Tyler's Stormwater Management Program (SWMP), revised for the 2025–2029 permit cycle under the Texas Pollutant Discharge Elimination System (TPDES) General Permit, aims to reduce pollutant discharges from its Municipal Separate Storm Sewer System (MS4) to the maximum extent practicable.

The plan addresses impaired water bodies such as Black Fork Creek and West Mud Creek, which are listed for bacterial contamination, by implementing targeted Best Management Practices (BMPs) focused on sanitary sewer maintenance, illicit discharge enforcement, pet waste management, and public education.

The SWMP outlines measurable goals and responsibilities for each BMP across municipal departments, supported by GIS mapping, annual inspections, and public reporting mechanisms. Key initiatives include utility bill messaging, social media outreach, storm drain marking, stream cleanup events, and training programs for City staff and contractors. Construction site runoff control and post-construction management rely on ordinances, plan reviews, and inspections, while municipal operations emphasize good housekeeping practices such as roadway sweeping, vehicle maintenance, and facility-specific SOPs. Industrial stormwater sources and high-priority facilities will undergo annual assessments and BMP implementation. The program also mandates recordkeeping, annual reporting to TCEQ, and public access to SWMP documents, ensuring transparency and compliance with Clean Water Act standards.

PLANNED IMPROVEMENTS

The City of Tyler utilizes its Water Utilities CIP to fund water and wastewater infrastructure. The CIP helps the City to plan for financing major infrastructure projects across multiple fiscal years. Tyler's 2025-2026 budget outlines planned capital improvements for the fiscal year.

The City is dedicated to improving Tyler's water utilities through various CIP projects, totaling more than $14 million in funding. These projects aim to enhance the capacity of existing water and wastewater infrastructure, as well as support facilities at Lake Tyler. Water utility investments are integral to support Tyler's growth by maintaining adequate service levels for current residents while accommodating the needs of new developments. Key projects include the Westside Wastewater Treatment Plant, water service line improvements and replacements, and the Lake Palestine Water Treatment Plant.

Tyler is also spending more than $760,000 to improve the City's stormwater infrastructure. These projects include culvert and erosion repairs, drainage improvements, flooding engineering, and emergency repairs. Investing in the City's stormwater infrastructure is crucial in mitigating flooding and erosion risks and enhancing Tyler's resilience.

The following highlight the key projects of each CIP category:

Water Distribution

- Meter and meter boxes
- Service line improvements and replacements
- Extensions along various roadways

Water Treatment

- Lake Palestine Water Treatment Plant
- On-going improvements at Golden Road WTP

Wastewater Collection

- Extensions along various roadways

Wastewater Treatment

- Southside Wastewater Treatment Plant
- Westside Wastewater Treatment Plant

Lake Tyler

- Initial year of boathouse inspections
- Lake Tyler Raw Water Pump Station Improvements

Stormwater

- Culvert and erosion repair
- Headwall and wingwall repair
- Drainage improvements
- Structure fold engineering
- Emergency repair