



Chapter 8

Tall City Tomorrow Infrastructure



CONTENTS

- » Issues & Opportunities
- » Infrastructure Plan
- » Infrastructure Goals
- » Storm Water
- » Water and Sewer
- » Solid Waste
- » Fire, Police, and Emergency Medical Services
- » Other Municipal Facilities



Tall City Tomorrow Infrastructure

INTRODUCTION

Any city's first priority is to provide basic services to its 'customers' – the residents and taxpayers of the community. This responsibility begins with the services that are essential to public health, safety, and commerce, such as police, fire, emergency services, water, waste disposal, storm drainage, and transportation. Other services like libraries and parks, while not essential to people's safety, are vital investments in residents' wellbeing. Still others, like education, are provided by other agencies, but require partnerships with city government. This section of the Tall City Tomorrow Plan addresses all of those essential services, outside of transportation, and the facilities needed to manage and maintain those services.

ISSUES & OPPORTUNITIES

A Growing System

Accommodating growth has been discussed in many other sections of Tall City Tomorrow. Expansion of infrastructure systems is strongly related to such policy issues as community growth directions, circulation, land use policy, and neighborhood character. For example, connected street patterns that offer multiple ways into and out of neighborhoods can save lives during emergencies. Dispersed land use patterns raise the cost of public services and increase the amount of sewer and water lines and streets needed to serve neighborhoods. The use of septic systems on the edge of city development can raise the cost to expand the city's system and the cost for adjacent homeowners. As Midland grows, maintaining a level of service that meets citizens' needs and expectations will continue to be a challenge.

Multi-Purposing

More communities are capitalizing on the opportunities created by new thinking in stormwater management. Past approaches often channelized draws or tubed it underground. This, along with increased amounts of impervious coverage, intensified both the volume and velocity of stormwater runoff. Newer approaches find ways for nature to absorb stormwater, slowing down the runoff and helping lessen the effects of localized flooding. This also creates a great opportunity to use these revitalized "greenways" for trails and open spaces. By multi-purposing streets, draws, and detention basins the city can add community amenities, beautify corridors and parks, and reduce the risk of flooding.



Stewards of Our Water

The droughts of the last decade have left a lasting impression on many residents, seeing the effects in their personal lawns and in the city's tree canopy. As what can frequently be a limited resource, the use and reuse of water will be important to the character of Midland's future environment. Finding ways to capture rainwater and reuse wastewater will ensure a more consistent irrigation pattern for the city's plant materials. Using this water to sustain the city's tree canopy also helps provide shade in the hot summer months and wind breaks year around. In the coming years the challenge will be to educate new residents on the proper use of this resource and to hold to water policies during the wetter cycles.

TALL CITY TOMORROW INFRASTRUCTURE PLAN

As any city grows and evolves so must its infrastructure systems. These systems are in need of constant repair, replacement, occasional expansion, and evaluation of the level of need. Midland will continue to be a growing city, at times quickly, but historic trends show that growth is a given. Every city must constantly monitor the need to improve or expand services with a vision toward long term cost efficiencies. Growth in services and maintenance of existing services must be done with an eye toward the long term cost. Delaying maintenance and expansion or supporting growth that does not use services efficiently can only cost a community more in the long run.

“The use of water for public use is important to development recreation and defines sense of place in Midland. Our current and future parks must use our water resources responsibly and provide greenspaces for public use. Model a project similar to the Lubbock Lakes Projects.”

— Public Meeting Comment



INFRASTRUCTURE GOALS

1. Provide public services in a manner that balances cost efficiency and level of service.

Midland will need to continue to provide high levels of equitable, effective, and responsive public services. This will have to be done in a way that controls costs for both the short and long term. The systems and infrastructure that foster this high-quality service should be continually maintained and expanded as necessary to support reasonable, contiguous urban growth. Projects can often be delayed because they are not visible to the public but are essential to long term fiscal responsibility and customer (resident) satisfaction.

2. Guide the extension of water and sewer services in a way that supports efficient patterns of community development.

Over the decades Midland has grown in a continuous pattern, extending growth from the existing city edge. Maintaining this pattern, and avoiding developments that skip over large undeveloped parcels, ensures that water and sewer extensions are done in the most efficient manner possible. This will be especially challenging for Midland as it deals with growth around pump-jacks. These areas will require a group effort by the city, developers, and oil companies to ensure that growth in these areas is done in the best interest of the entire community.

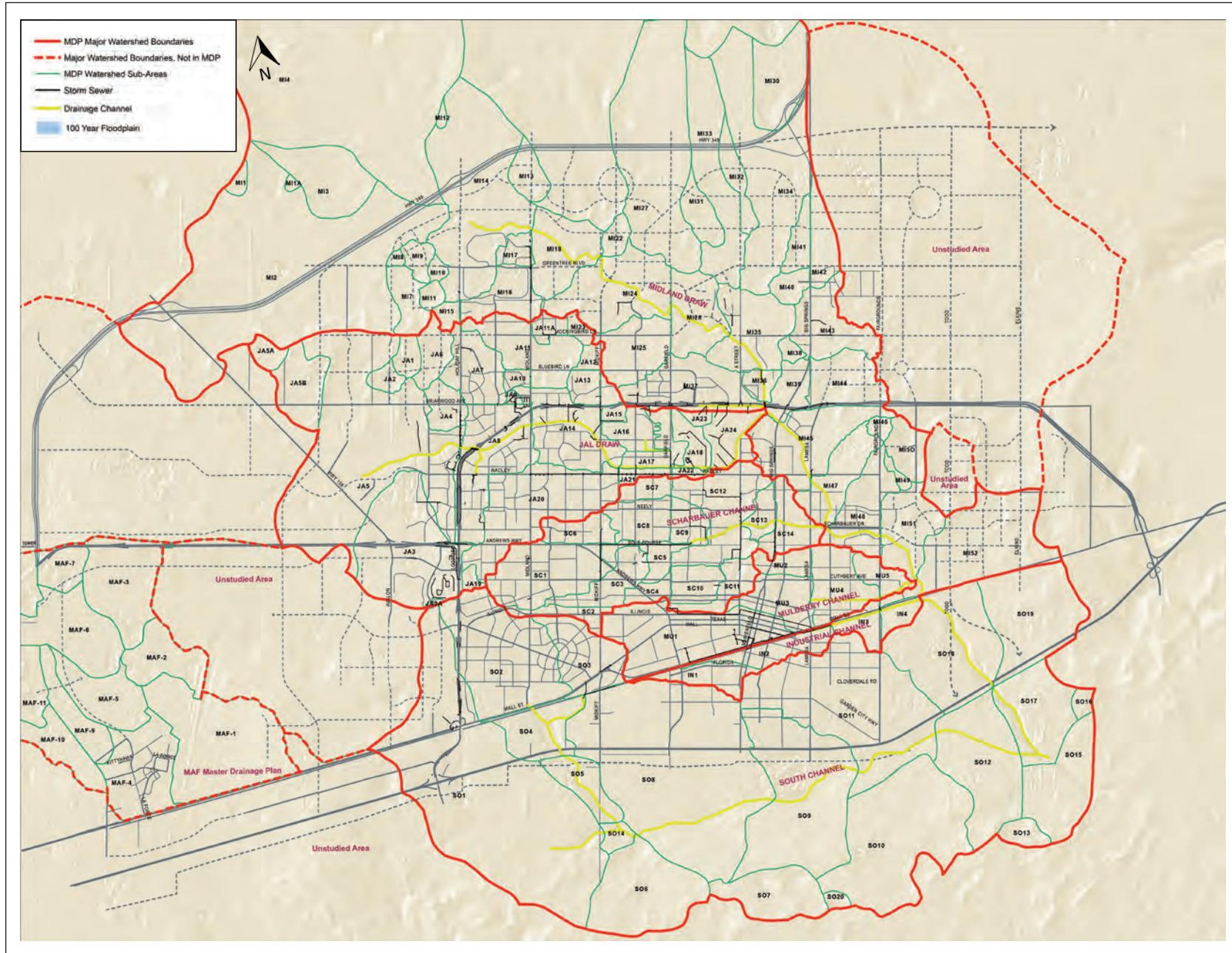
3. Ensure land use and transportation patterns that support the efficient and cost-effective delivery of emergency services.

Midland's development and design patterns should support community character goals and market demands while ensuring that emergency services can effectively serve residents. Subdivisions with single entry points and vegetation that is not well managed can create safety risks and increase costs to service providers. The city's policies and ordinances should create neighborhoods that are well connected and easily served by emergency services while not over-building infrastructure.

4. Expand emergency services to maintain a high level of service to current and future residents.

As Midland grows so will the need to expand police and fire services. This may mean the need for additional personnel or additional stations in growth areas. The level of services provided by current locations and staffing should be closely monitored to ensure that future residents feel the same, if not better, levels of safety and security.

Map 8.1: Storm Water





“Draws: leave them natural (unpaved) and lay concrete or even pea gravel paths for bikes, walking, even equestrian. They can still carry water in a flood .”

– Comment submitted via Tall City Tomorrow website

“Use the draws for badly needed bike paths for easy access to exercise and transportation for all.”

AN INFRASTRUCTURE PLAN

Storm Water

1. Implement existing studies/improvements

Action item: *Use the Master Drainage Plan to categorize, prioritize, and maintain a drainage Capital Improvement Plan.*

Midland has had the basic framework plan for needed stormwater improvements since the mid-1990s. However, a lack of funding has discouraged an organized effort to tackle the long list of needed projects. The City of Midland should prioritize the potential projects based on public safety, best value, and market demands, and update a CIP annually.

Action item: *Adopt a stormwater fee to provide funding resources for capital improvements and management practices.*

Funding for drainage projects has consistently been the primary problem with completing any extensive improvements. Midland has investigated the potential for a stormwater utility fee on multiple occasions. While other cities in West Texas have implemented this fee and increased it several times to help pay for compliance with regulations as well as capital projects, Midland has not been able to muster enough general funds to do either.

2. Coordinate existing ordinances and documents with the Land Use Plan and current regulations

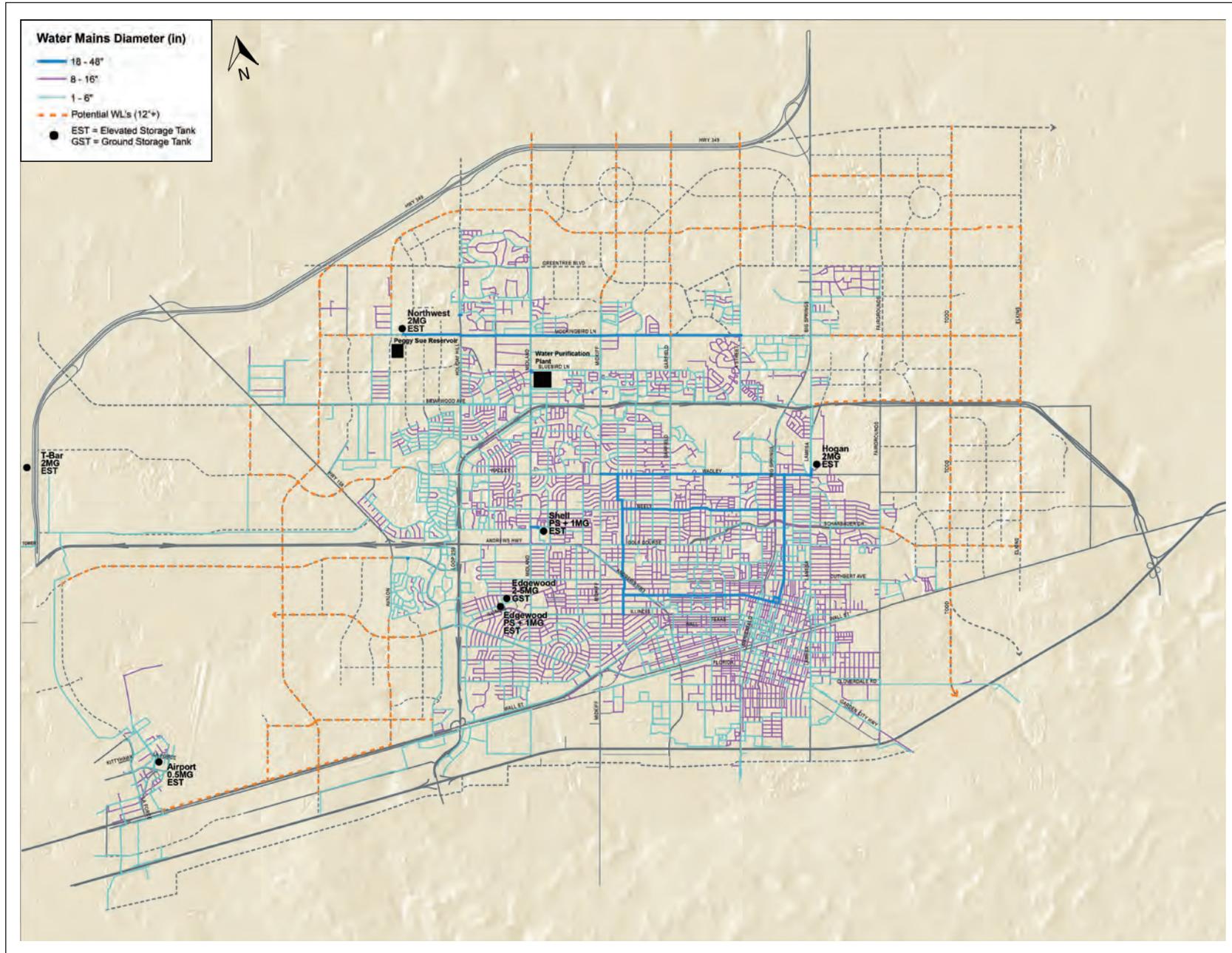
Action item: *Expand or update the Master Drainage Plan to incorporate areas within the Land Use Plan.*

The original Master Drainage Plan was adopted in 1996. A recent study updated two of the draws, however, many areas within the Land Use Plan are not part of the studied watersheds. An update of the entire document would ultimately provide guidance to the city for development of those areas.

Action item: *Expand the Storm Drainage Design Manual to include appropriate storm water management practices and opportunities for unique solutions.*

The Storm Drainage Design Manual was issued in 1992. Since then, many new regulations have impacted the design of stormwater management facilities, including water quality rules and additional software and methodologies for hydrology and hydraulics. An update of this document would assist the city in addressing these new elements in drainage.

Map 8.2: Water





3. Improve the draw system

Action Item: Use the draw system within the city to better manage storm water and to incorporate the city's trail system. (See also Quality of Life Initiative 4)

The condition of the draw system can be sporadic, resulting in some sections that perform poorly during peak rain falls. Improvements should enhance stormwater management and provide a quality greenway that is accessible to residents. Draws should offer non-motor vehicle access around the city and connect destinations such as parks, schools, churches, and commercial centers across the city.

Water and Sewer

1. Conduct master planning efforts for water and sewer

Action item: Create a new sewer collection master plan based on the Land Use Plan intensities.

The most recent sewer collection master plan for Midland was conducted in 1982. Very few areas identified in that document remain undeveloped. The proposed Land Use Plan expands the area for service well beyond what that plan foresaw. A new master plan would provide the city with better guidance for trunk line extensions and oversizing requests.

Action item: Create a new water distribution master plan based on the Land Use Plan intensities.

The City of Midland has continued to maintain a distribution system model that describes the existing facilities, updating every so often to accommodate the newest locations. Some area-specific modeling has studied needed improvements, but a full master plan based on the proposed Land Use Plan would provide a better long-range outlook for needed improvements, system inadequacies, and performance enhancements.

Action item: Consider water and sewer treatment capacities and alternative solutions for expansions of the treatment plants.

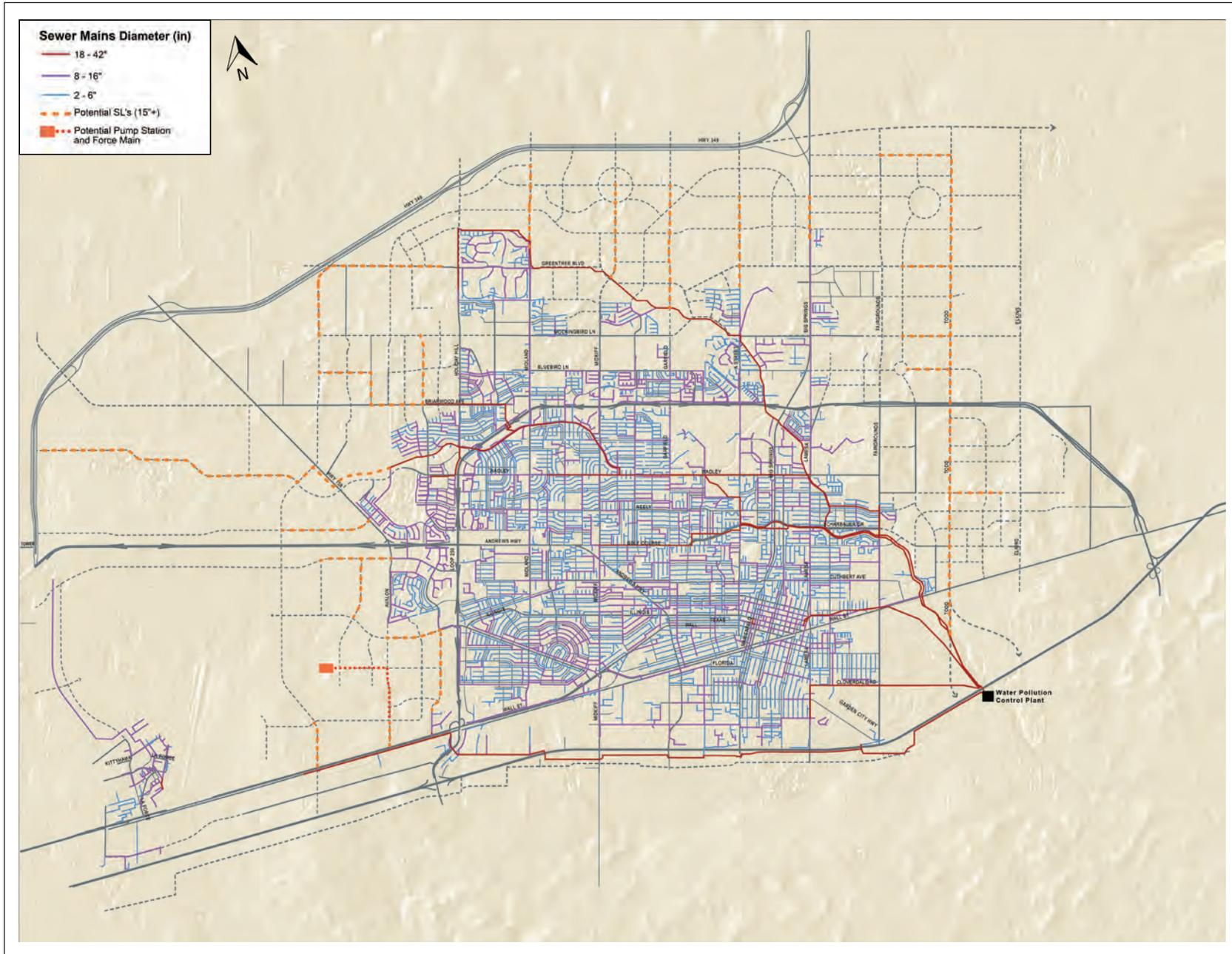
In addition to the collection and distribution systems of the city, the treatment plant capacities will need to be continually analyzed for potential expansion. Alternative solutions to the expensive prospect of expanding the plants should always be considered, including additional re-use, blending of sources, and public-private partnerships.

2. Balance aesthetics and economic development with water consumption

Action item: Plan for water needs and the future of the region, considering potential drought scenarios.

Recent drought conditions across all of Texas have made people more acutely aware of the importance of long-term water supplies. The City of Midland has stayed completely engaged and should continue to do so in the planning of water supplies in the entire West Texas region.

Map 8.3: Sewer





“Conserve water: mandate rainwater catchment (gutters to barrels or tanks) in commercial development, to water those trees in item #2. (Even Seattle conserves and harvests rainwater!)”

– Public Meeting Comment

Action item: Educate the public on the pros and cons of xeriscaping, low water use, and native plant materials.

As restrictions were made in the last several year in Midland, the public responded with decreasing water usage in drastic amounts. Many citizens started looking for alternatives to the traditional landscaping options in Midland. The city has an opportunity to educate the public on all of the benefits and challenges to using these desert-friendly materials. Using city test cases in parks and municipal facilities is a great way to lead by example.

3. Fund water and sewer infrastructure to leverage development and redevelopment

Action item: Build and finance water and sewer infrastructure in coordination with the Land Use Plan and market demands.

As Midland grows in infrastructure development through roadways, drainage, and water/sewer improvements, the impact to city development will be felt in the influence of the Land Use Plan combined with market demands for expansion. The City of Midland can use the master planning efforts to determine logical places to instigate construction or participate with developers in oversized trunk lines.

Action item: Study the suitability of impact fees to fund water and sewer infrastructure extensions.

Similar to the storm water utility fee, the City of Midland long ago rejected the concept of impact fees as a funding source for needed infrastructure. However, as the city continues to grow, and the pressure to develop large water, sewer, and roadway projects in advance of final development increases, the city should once again consider this funding tool. This conversation should also include the need for additional capacity at the treatment facilities to support continued growth.

Solid Waste

1. Improve efficiencies in solid waste collection and disposal

Action item: Plan for long-term regional solid waste needs through the expansion of the landfill.

The city-owned solid waste facilities, specifically the landfill, provides for invaluable services to not only the municipality, but the entire region. Long-term planning for the protection and expansion of this resource is critical.

Action item: Encourage diversion of waste away from landfills through recycling, mulching, and reduction of garbage.

A primary way to extend the life of the landfill, and potentially save expenditures on large expansion, is to encourage diversion of waste streams away from the landfill. Education of the public to reduce the amount of garbage they produce, mulching of natural materials, and recycling of ordinary items can make a substantial difference over a number of years.

Action item: Consider the feasibility of a transfer station and/or recycling center in growth areas.

With the anticipated growth of services and geographical reach, the operations of solid waste could be well-served by the addition of a municipally operated recycling center or a transfer station in the northwest region of the city, reducing the distance traveled by solid waste collection vehicles.



Fire, Police, and Emergency Medical Services

1. Provide exceptional facilities and services

Action item: Use the Land Use Plan to study long-range services areas.

The land use plan provides guidance on long range growth directions but ultimately this will be driven by market demands. The police and fire departments should work closely with MISD, as they are often faced with the same challenges in predicting growth directions. It should also be noted that the decision by a school district or fire department to build a new facility can often be a driving force for development in growth areas, as these are highly attractive neighborhood facilities.

Action item: Balance the intensity of development and response times to locate facilities, including fire stations, and branch police stations.

For many cities, the intensity of call volume may be within a small geographic area. Every department must balance the demand for service in those areas with providing balanced service across the city. Higher density areas, because of their greater populations, can also have higher call rates but can also be easier to serve with faster response times. All of these demands must be balanced with the land use plan and the desire to see reinvestment in the city's older neighborhoods.

2. Encourage site and development design that creates safer environments

Action item: Clearly define public and private spaces.

Undefined spaces can often leave visitors feeling unwelcome and unsafe. Well-defined public spaces are places where people can literally see and be seen. These spaces increase the level of positive interaction that is the essence of a quality neighborhood. Hidden or neglected public spaces have the opposite effect, attracting nuisances and sometimes crime, and being scary or off-putting places that people avoid.

Action item: Design spaces with natural surveillance.

Areas with natural surveillance are designed to have physical features that can include walkways, gathering areas, roadways, and structures that eliminate hiding places and increase human presence and supervision.

Action item: Maintain public spaces and enforce existing codes to create environments that feel well-kept and safe.

Property maintenance can have significant impact of a visitor's comfort level. Areas filled with litter and overgrown landscaping can feel unwelcoming and unsafe. Studies have also shown that the best way to combat property damage and illegal activity is to create a strong sense of ownership. If a public space feels "owned" by the community, and any damage is quickly cleaned up or removed, criminal activity often decreases.

“Greatly reduce crime and traffic. Hire more police at a much higher rate and pay our existing police at the higher rate also (\$80-100k/yr) so they do not quit for the ‘oil field’”

3. Maximize fire safety through site design

Action item: Prohibit developments with one access point.

Large developments with one access point can leave homes and business isolated during emergencies. The more access points or street connections that a development has, the easier it is for emergency personnel to reach areas in need of their services.

Action item: Enforce vegetation maintenance to protect against fire hazards, especially during droughts.

Good management of vegetation, especially during drier months, is especially important on the city’s urban edge. The most danger can often occur where urban and rural areas meet. Enforcement of vegetation controls in these areas can protect life and property on the city’s growing edges.

Other Municipal Facilities

1. Build and renovate public facilities so the citizenry can be proud of their community buildings

Action item: Accommodate growth and modernize services by creating high quality community facilities that match the pride of our citizenry for Midland.

Midland residents have a significant amount of pride in their community, as they should. Historically, the founders of American cities built public facilities - city halls, county courthouses, and libraries - which expressed the pride they have in their communities. Too often today the emphasis is placed on budget constraints rather than on quality design within a budget. Public funds should be used prudently with an eye to quality design that speaks to the pride residents have in their community.

Action item: Evaluate the need, location, and functional suitability for public buildings.

City Hall – A recent study concluded that the City Hall offices have inadequate and inefficient space for the current and future uses of the city staff. Many options exist for solving this problem and should be taken into account as the city accommodates growth and modernizes its services.

Midland Center – The need for additional convention space is documented in many other reports with no clear resolution. As redevelopment occurs around the facility, the city will need to make hard decisions about the size and location of the Center. These decisions should also be made in light of existing facilities like the Horseshoe. This should be done with the desire to create a vibrant and active downtown district.

Animal Services – The city’s animal services facility has undergone a very recent renovation and should meet the city’s needs for many years. As growth and other changes occur, this facility can be monitored for any future needs.

Municipal Court – The city is currently constructing a new municipal court building to serve its current and future needs in this area.

Aquatic Centers – The city has recently completed the upgrade to one of their two aquatic facilities and have added a splash pad at the Scharbauer Sports Complex. As a vital asset to the quality of life in Midland, aquatic centers should be maintained and expanded as practical.

Community/Recreation Centers – Currently the MLK Community Center is the only recreational center for the City of Midland, and did undergo a renovation within the past few years. The City’s Parks Master Plan indicates a severe inadequacy of these community or recreation centers. With potential growth of the citizenry, these facilities will need to be added in appropriate locations and scheduled with recreational activities to engage the population.

Senior Centers – In addition to recreation centers, the city will need to evaluate the potential need to provide additional centers or otherwise expand the senior facilities in Midland. Residents at public meetings voiced concern about the need for activities and facilities that meet the needs of Midland’s senior residents. The need to provide services and activities oriented toward seniors should be balanced against the interest of aging Baby Boomers. This population will not only be larger than previous generations but will have different interests that may not be met by traditional senior centers.

Other Buildings and Facilities – Police and Communication Center, fire stations, Citizen’s Collection Station, health & senior services, and the various treatment plants are the remaining city facilities, but have been discussed previously within this section of the Tall City Tomorrow plan.