

Future Urban Infrastructure



SECTION 19 – FUTURE URBAN INFRASTRUCTURE

Introduction

The future infrastructure section of the Comprehensive Plan addresses short-term and long-term improvements to the water, wastewater, storm water, natural gas, electrical, and cable utilities to provide improved services where needed and to extend services to the growing community. The identification of future infrastructure needs are stated in the goals and objectives. Proposed future infrastructure needs are shown on the Maps 19.1 and 19.2. Infrastructure recommendations are given to assist city employees and engineering consultants on the future development of the City. These recommendations may require the construction of new water, wastewater, and storm water lines as well as the addition of water well locations, etc. The major goals of the infrastructure section of the Comprehensive Plan are to ensure the health, safety and welfare for the citizens of Navasota.

Goals and Objectives

Goal #1: Develop and maintain an adequate water supply, treatment, and distribution system which meets the existing and projected needs of the service area in an efficient, economical, and environmentally sensitive manner.

- Objective 1: Navasota should inventory all existing water lines and maintain an accurate digital and hard copy map of existing and proposed water lines.
- Objective 2: Water lines that are currently not up to design code or pose leakage problems should be upgraded.
- Objective 3: The City should assure adequate water supply and distribution flow for both fire fighting and consumer needs.
- Objective 4: Extensions of water mains and distribution lines should be provided to new developments in the City.

- Objective 5: Navasota should encourage infilling to fully utilize existing water mains and distribution lines in the city limits.
- Objective 6: The City should concentrate the extension of water mains and distribution lines in those areas identified as areas of greatest growth.
- Objective 7: Users outside the city limits should be required to pay appropriate fees for water use.

Goal #2: Protect water supply quality.

- Objective 1: Navasota should coordinate the location and expansion of the number of wells with local land use plans and necessary government organizations.
- Objective 2: The City should encourage the use of water reclamation and water reuse.
- Objective 3: Wastewater should be sampled and tested annually in the vicinity of potential industrial contamination to detect pollution.

Goal #3: Develop and maintain an adequate wastewater collection and treatment system, which meets existing and projected needs.

- Objective 1: Navasota should monitor and record daily average sanitary sewer wastewater flowage levels of service.
- Objective 2: The City should project future wastewater needs and provide necessary infrastructure based on population growth and industry demand.
- Objective 3: Compliance should be assured with the Texas Commission on Environmental Quality standards.
- Objective 4: All industrial users should be strongly encouraged to project annual demand for services based on their respective future land use plans and projects requiring additional use.
- Objective 5: New developments within the city limits should be required to tie onto existing sanitary sewer lines.

- Objective 6: The City should encourage development in areas of existing sanitary sewer lines.
- Objective 7: Navasota should encourage the use of alternative wastewater treatment in areas outside of the city limits.
- Objective 8: Accurate hard and digital copies of maps with both the existing and proposed sanitary sewer systems should be updated and maintained.
- Objective 9: The sanitary sewer system should be extended to all areas within the city limits.
- Objective 10: The City should require all areas on septic systems within the city limits to convert to the sanitary sewer system.
- Objective 11: Navasota should evaluate the need for additional wastewater facilities on an annual basis.
- Objective 12: All existing sanitary sewer lines should be maintained and monitored.

Goal #4: Ensure all areas of the City are reasonably protected from flooding.

- Objective 1: Navasota should update and maintain an accurate digital and hard copy map of the existing storm water sewers.
- Objective 2: A storm water management plan should be devised and implemented.
- Objective 3: Storm water sewer lines should be installed within the city limits along with appropriate curb and gutter improvements where currently none exist.
- Objective 4: The City should replace inadequate storm water sewer lines along with construction of curb and gutter improvements.
- Objective 5: All new roadway and building construction should be required to incorporate storm water management.
- Objective 6: Navasota should discourage development within the 100-year flood plain.

Goal #5: Continue to provide for a high quality of solid waste removal services for City residents and businesses.

- Objective 1: Navasota should maintain a relationship with outside entities to secure solid waste removal from the City.
- Objective 2: The City should initiate recycling through distribution of recycling bins to residences and businesses in addition to the promotion of a recycling program.
- Objective 3: A recycling pick up should be added to existing solid waste collection.
- Objective 4: Illegal disposal of garbage should be prevented through violation citations.

Goal #6: Continue maintaining the coordination between gas and electricity providers to meet existing and projected needs of Navasota citizens.

- Objective 1: Navasota should project future gas and electricity needs and provide necessary infrastructure based on population increase, industry demand, and impacts of growth.
- Objective 2: The City should update and maintain accurate hard and digital copies of maps with existing and proposed gas and electricity lines.
- Objective 3: Gas lines should be upgraded that are currently not code compliant or that pose leakage problems.
- Objective 4: A relationship should be maintained with outside providers to secure better service to the citizens.

Future Infrastructure Recommendations

The plan for the future growth of the City of Navasota is shown on the Navasota Future Land Use Map (Section 17, Map 17.1). Recommendations for infrastructure in Navasota are closely associated with the proposed future land use. As development occurs, additional infrastructure will be needed to serve commercial, residential, and/or industrial uses.

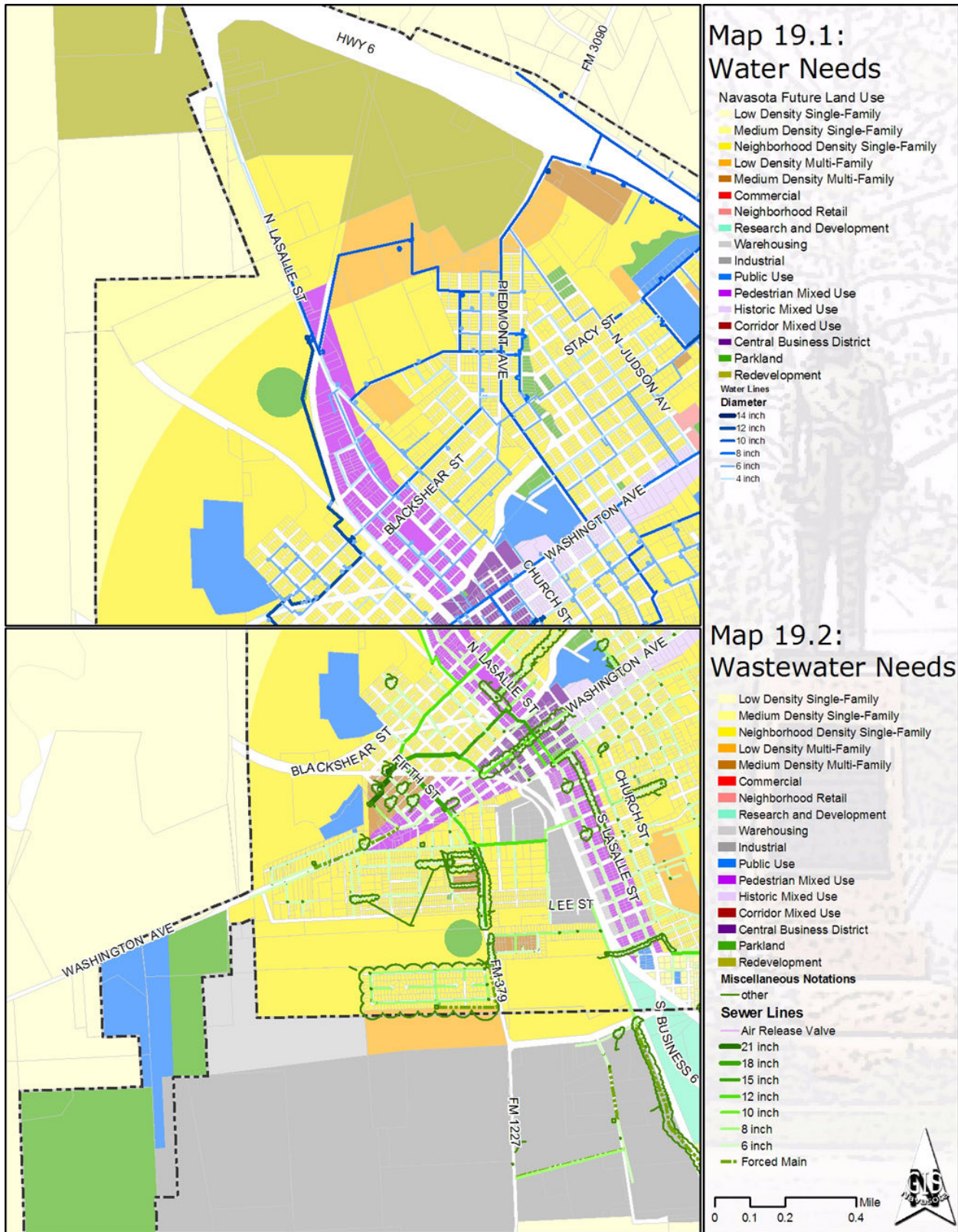
Water Services

As shown by the growth on the Future Land Use Map, additional water mains, lines, hydrants, manholes, and other associated features will be required in growth areas. It is of utmost importance to ensure that all commercial, residential, and industrial customers within the city limits receive services. The Future Land Use Map indicates residential and public use growth in the northern portion of the city near the intersection of Highway 6 and LaSalle Street, near the southern portion of the City along the proposed Southern Loop, along all major corridors, and in the eastern portion of the city limits, just west of Highway 6. Extending water lines to these areas of the City is a priority, with residential and commercial areas being most important (Map 19.1).

Evaluation of well sites, storage facilities and the water treatment plant should be an ongoing priority for the City, as well as their compliance with TCEQ and EPA water standards. Additional evaluations should be conducted on the efficiency of the water system with regard to leaks, pressure, and usage.

Wastewater System and Treatment

The wastewater lines and wastewater treatment plant in the City of Navasota currently meet the needs of the community. Extension of wastewater lines is needed within the city limits, particularly to those areas with projected growth (Map 19.2). Similarly to the water service area, the priority for wastewater services should first be given to those areas within the city limits currently without service and secondly to the projected areas of growth. Areas within the city limits without service include the airport and the associated residential homes nearby. This area is adjacent to proposed residential and mixed-use development, which contributes to the need for sanitary sewer lines in the southwestern part of the City. One major problem in connecting sanitary sewer lines to this area is the fact that this is a low-lying section of the City. More than likely a lift station will be needed to carry wastewater from this area to the wastewater treatment plant.



Industrial land use is proposed near the Southern Loop, adjacent to the current Industrial Park. One major concern with extending sanitary sewer to industrial customers, in the southern portion of the city, is the type and quality of effluent from these businesses. In order to ensure the safety of Navasota residents, it is recommended that businesses within the industrial areas treat wastewater effluent at the primary level before discharging into the City’s wastewater treatment system. Outside of the city limits, no additional wastewater lines are recommended. The proposed land use outside of the city limits is agriculture residential and planned unit development, which allow for onsite wastewater treatment.

With regard to wastewater treatment, currently the wastewater treatment plant is not operating at full capacity. Any additional wastewater demands should be reasonably serviced by the existing infrastructure. Considering areas outside of the city limits will use onsite wastewater treatment, the existing wastewater treatment plant will service the increased demand.

Storm Water System

It is recommended that storm water lines be built to service all existing land uses. This recommendation should be considered a top priority for the City. Additionally, all new developments indicated on the Future Land Use Map, within the city limits, should receive storm water sewers to prevent flooding and assist in storm water management. All new developments outside of the city limits, should take necessary precautions to limit storm water runoff through the use of ditches, channels, and culverts.

Natural Gas

It is recommended that coordination between Cleco and the City of Navasota occur to install natural gas lines for those areas of growth as indicated on the Future Land Use Map. As most areas in the City currently receive natural gas service, priority should be given to areas of growth.

Electrical & Cable

Navasota does not provide electrical and cable services but it is recommended that the City maintains a relationship with the utility providers.

The following 8 year action agenda is suggested for implementation of this section of the Comprehensive Plan.

Action Agenda

Year 1:

- Begin monitoring and recording daily average sanitary sewer wastewater flowage levels of service.
- Inventory all existing water lines and maintain an accurate digital and hard copy map of existing and proposed water lines.
- Coordinate the current location and proposed expansion of water wells with local land use plans and necessary government organizations.
- Update and maintain an accurate digital and hard copy map of existing sanitary sewers.
- Create, update and maintain an accurate digital and hard copy map of existing storm water sewers.
- Initiate recycling through the distribution of recycling bins to residential units and businesses in addition to the promotion of a recycling program.

Year 2:

- Project future wastewater needs and provide the necessary infrastructure based on population increases and industry demand.
- Encourage development in areas served by existing sanitary sewer lines.
- Encourage all industrial users to project their annual demand for infrastructure services based on their respective future land use plans and projects requiring additional use.
- Annually sample and test the wastewater in the industrial areas to detect contamination.
- Prepare a citywide storm water management plan.
- Discourage development within the 100-year flood plain.
- Deter illegal disposal of garbage through vigorous enforcement of violation citations.
- Update hard and digital copies of maps with existing and proposed natural gas and electricity lines.

Year 3:

- Begin analyzing potential areas of growth within the City and extraterritorial jurisdiction.
- Assure compliance with Texas Commission on Environmental Quality standards while installing new infrastructure services.
- Begin replacing existing storm water sewers.
- Encourage alternative utility providers to invest in the City of Navasota.

Year 4:

- Search for appropriate funds for installation and upgrading of infrastructure services for the City of Navasota.
- Encourage the use of alternative wastewater treatment in areas outside of the city's limits but within its extraterritorial jurisdiction.
- Begin upgrading water lines that are currently not code compliant or that pose leakage problems.
- Encourage the use of existing water mains and distribution lines in the city limits.
- Construct storm water sewer lines within the developed areas of the city limits of Navasota where they are currently nonexistent.
- Require all new construction to incorporate storm water management systems.
- Upgrade gas lines that are currently not code compliant or that pose leakage problems.

Year 5:

- Evaluate the need for additional wastewater facilities.
- Encourage the use of water reclamation and water reuse.
- Conduct a five-year review and revise the City's infrastructure systems as necessary.

Year 6:

- Extend sanitary sewer system to all appropriate areas within the city limits.
- Provide extensions of potable water mains and distribution lines to new development in the City.

Year 7:

- Maintain and monitor all existing sanitary sewer lines.
- Require all appropriate areas within the city limits served by septic systems to convert to sanitary sewer.
- Concentrate the extension of water mains and distribution lines in those areas identified by the City as areas of growth.
- Implement the City's storm water management plan.

Year 8 onwards:

- Continue monitoring and recording daily average sanitary sewer wastewater service levels.
- Continue evaluating the need for additional wastewater facilities.
- Require new developments to tie onto existing sanitary sewer lines.
- Maintain and monitor all existing sanitary sewer lines.
- Provide extensions of potable water mains and distribution lines to new development in the City.

- Maintain and monitor all existing water distribution lines.
- Continue updating and maintaining an accurate digital and hard copy map of existing storm water sewers.
- Maintain a good working relationship with outside entities to secure solid waste removal from the City.
- Continue updating and maintaining an accurate digital and hard copy map of existing gas and electricity lines.