City of St. Augustine Comprehensive Plan 2040

Infrastructure Element Goals, Objectives and Policies

Note: Unless indicated proposed Goals, Objectives and Policies replace previously adopted.

July 2020

Infrastructure Element
Goals, Objectives and Policies
Chapter 163.3177(6)(c) F.S.

Infrastructure Summary

The Infrastructure Element is a required comprehensive plan element under Florida's Local Government Community Planning Act (Chapter 163, Florida Statutes). The Infrastructure Element must evaluate the current status and the future ability of the city to provide essential facilities for the population of the city and those living in the city's service area. The essential services include sanitary sewer, solid waste collection, potable water, and stormwater management. Additionally, the element must look at the issues of water supply planning, perils of flood and sustainability, and aquifer recharge. To this end, the Infrastructure Element contains the water supply plan, perils of flood and sea level rise planning, and land use planning related to the provision of services and a set of Goals, Objectives and Policies.

The Infrastructure Element serves as a guide for the provision of essential services. This includes encouraging an efficient pattern and location of future land uses through the relationship between land use and the provision of facilities and services. This relationship should encourage compact, efficient, infill and redevelopment within the urban area.

Order of Issues and Page References

Infrastructure Element: Sanitary Sewer, Solid Waste, Potable Water, Water Supply Planning, Stormwater Management, Perils of Flood and Sustainability, and Natural Groundwater Aquifer Recharge Element

Goals, Objectives and Policies

Chapter 163.3177(6)(c) F.S.

INFRA Goal 1 Sanitary Sewer

To provide an effective system of wastewater collection, transmission, treatment and disposal to meet the needs of all City residents and non-residential establishments within the City of St. Augustine and its utility service area while protecting the environment and public health.

Maintain Level of Service

INFRA Objective 1.1

Based upon adopted level of service standards, the City shall annually adopt programs and activities to facilitate implementation of a wastewater utility to serve existing and new development.

INFRA Policy 1.1.1

The City's adopted level of service for sanitary sewer capacity shall be 220 gallons per day per dwelling unit.

INFRA Policy 1.1.2

All improvements and/or additions to sanitary sewer facilities shall be compatible and adequate to meet the adopted level of service standard.

INFRA Policy 1.1.3

All proposed large scale land use plan amendments shall require an analysis of the impacts to the adopted level of service standard and existing sanitary sewer facilities.

INFRA Policy 1.1.4

All expansions and other improvements of commercial and industrial uses that increase the demand on public infrastructure and require permitting shall comply with the adopted levels of service standard.

INFRA Policy 1.1.5

The City shall comply with bond covenants, if any, to ensure the maintenance and operations of facilities and to provide recommendations for system maintenance and improvements.

INFRA Policy 1.1.6

The City shall encourage continuing education of operating staff to optimize sanitary sewer maintenance and operation processes.

INFRA Policy 1.1.7

Sanitary sewer facilities shall be replaced, and existing deficiencies shall be corrected based upon the following priorities:

- Any project correcting an immediate threat to the health, safety or welfare of the City's residents will receive priority over the expansion of a facility or the correction or replacement of a non-threatening facility.
- Any project that will correct an existing deficiency will receive priority over a project to expand the system.

Future Sanitary Sewer System

INFRA Objective 1.2

The City shall ensure that the City's sanitary sewer collection, transmission, treatment and disposal system is adequate to service the future land uses within the City's utility service area.

INFRA Policy 1.2.1

The City will inform St. Johns County of all changes in its utility service area for utilities and will request that the county inform the City of all proposed development within the utility service area.

INFRA Policy 1.2.2

New residences, residential subdivisions and commercial developments shall be required to connect to the City's central sewer system, where available.

INFRA Policy 1.2.3

The City shall implement the Five-Year Schedule of Capital Improvements to address existing deficiencies and prepare for future development and shall update the schedule annually during the City's annual budget process.

INFRA Policy 1.2.4

The City shall coordinate utility and transportation planning efforts to take advantage of the most economical construction and maintenance costs possible when installing, repairing and/or replacing sewer facilities and roads.

INFRA Policy 1.2.5

The City shall continue to track available capacities and determine compliance with minimum sanitary sewer level of service standards.

INFRA Policy 1.2.6

The City shall review and update the system data with each new development to indicate the most current capacity conditions.

INFRA Policy 1.2.7

The City shall not extend sanitary sewer facilities beyond its utility service area unless:

- It is determined that there is adequate capacity for servicing the areas of projected growth within the City's utility service area while still maintaining adequate excess capacity; and
- The developer or the residents requesting service pay for all utility extensions.

Maximize Existing Facilities

INFRA Objective 1.3

The City shall maximize the use of existing sanitary sewer facilities within its utility service area and shall promote compact, efficient growth patterns.

INFRA Policy 1.3.1

The City shall seek to maximize the use of existing sanitary sewer infrastructure to minimize urban sprawl and shall require new development to pay for the placement of infrastructure necessary to service the development, thus making infill development more cost effective.

INFRA Policy 1.3.2

The City's land development regulations shall incorporate regulations to require connection to the City's sanitary sewer system, once it becomes available, for existing development within the utility service area currently using septic systems.

INFRA Policy 1.3.3

When existing central sanitary sewer service is determined to be unavailable to new development within the City's utility service area, the City shall require, if feasible the new development to extend the central sewer system at the developer's expense, coordinate with St. Johns County or to construct private wastewater treatment plants when feasible to serve the subject property.

INFRA Policy 1.3.4

The City shall maintain adequate sanitary sewer user rates and fees to ensure funding is available for expansion, repair and/or replacement of collection and transmission systems.

INFRA Policy 1.3.5

The City shall review sewer user rates to ensure that the fees charged cover the cost of supplying the service.

INFRA Policy 1.3.6

The City shall encourage continuing education of its utilities operating staff to optimize the sanitary sewer utility's maintenance and operation processes.

Septic Tanks

INFRA Objective 1.4

The City shall require that existing residences and non-residential establishments served by septic systems connect to the central sewer system at such time that repair or replacement of an existing septic tank and drain field system is needed, or at such time that the City determines a concentration of septic systems is causing a negative impact to natural environmental systems where service is available.

INFRA Policy 1.4.1

Within the planning timeframe, the City shall identify and map those areas within the

City's utility service area served by septic systems, and it shall prioritize areas that may require central sewer service based on soil unsuitability, density and environmental concerns.

INFRA Policy 1.4.2

The City will routinely coordinate information between the City, the St. Johns County Health Department and the St. Johns County Building Department regarding failing septic tanks within the City.

INFRA Goal 2 Solid Waste

To provide efficient and safe solid waste disposal facilities and collection services on a regular basis for all City residents, commercial and industrial establishments within the City of St. Augustine while protecting the environment and public health.

Solid Waste Disposal

INFRA Objective 2.1

The City shall coordinate with St. Johns County and other resources to ensure implementation of an integrated solid waste management system that focuses on the proper management of solid waste, conservation of resources and responsible management of landfill capacity.

INFRA Policy 2.1.1

The City's minimum level of service for municipal solid waste shall be 6.75 pounds per person per day, which will be utilized to plan for future demand.

INFRA Policy 2.1.2

The City shall continue to utilize the transfer station in St. Johns County for final disposal of solid waste items not recycled or composted through the City system, unless other acceptable alternatives are mandated or necessitated.

INFRA Policy 2.1.3

The City shall continue to coordinate solid waste disposal efforts with St. Johns County to ensure:

- The City of St. Augustine is allocated a proportional share of capacity in the landfill-operated disposal facilities;
- Reduction of solid waste disposal levels will continue to occur through cooperative recycling programs;
- Assistance is continued in the management of hazardous waste according to mandated state regulations;
- Compliance with the Florida Solid Waste Management Act of 1988 will continue to be accomplished.

Collection

INFRA Objective2.2

The City shall continue to provide for solid waste collection services to City residents, commercial and industrial establishments throughout the planning timeframe.

INFRA Policy 2.2.1

Solid waste collection shall be mandatory for all residential and non-residential land uses within the City.

INFRA Policy 2.2.2

The City shall continue to evaluate cost-saving measures in providing solid waste collection services throughout the planning timeframe.

INFRA Policy 2.2.3

Throughout the planning timeframe, the City shall continue to monitor complaints regarding residential and non-residential solid waste collection to ensure that the most efficient, orderly, sanitary and environmentally sound service is being provided.

Recycling

INFRA Objective 2.3

The City shall require a reduction in municipal solid waste final disposal in landfill facilities by maintaining and promoting a recycling program.

INFRA Policy 2.3.1

The City shall continue to have a collection process in place for curbside pickup of acceptable recyclables.

INFRA Policy 2.3.2

The City shall continue to have a collection process in place for curbside pickup of yard waste.

INFRA Policy 2.3.3

The City shall continue to develop educational programs for the general public and solid waste professionals to encourage waste reduction.

INFRA Policy 2.3.4

The City shall coordinate with St. Johns County with respect to solid waste management and waste recycling programs.

Hazardous Waste

INFRA Objective 2.4

The City shall coordinate with St. Johns County and the Northeast Florida Regional Council to monitor and control the disposal of hazardous wastes in accordance with state law.

INFRA Policy 2.4.1

The City shall require that any hazardous waste generators within the City properly manage their hazardous wastes in conformance with mandates of the Federal Resource Conservation and Recovery Act and other applicable laws.

INFRA Policy 2.4.2

The City shall provide applicable employee training for inspection, identification and disposal of hazardous waste materials.

INFRA Goal 3 Potable Water

To plan for and assure an adequate supply of excellent quality potable water to meet the needs of all residents and non-residential establishments within the City of St. Augustine and within the City's utility service area throughout the planning timeframe.

Maintain Level of Service

INFRA Objective 3.1

Based upon the adopted level of service standard, the City shall adopt programs and work plans in an effort to maintain levels of service.

INFRA Policy 3.1.1

The City's level of service (LOS) standard for potable water supply shall be 156.9 gallons per day per dwelling unit at a minimum pressure of 20 psi.

INFRA Policy 3.1.2

The City shall repair potable water supply facilities as required to maintain the adopted LOS standard.

INFRA Policy 3.1.3

The City shall review water fee methodology and user rates to ensure adequate funding for treatment, storage and distribution facilities.

INFRA Policy 3.1.4

All improvements and/or additions to potable water facilities to correct deficiencies shall comply, at a minimum, with standards recognized and approved by the Florida Department of Environmental Protection (FDEP) and shall be adequate to meet the adopted LOS standard.

INFRA Policy 3.1.5

All proposed large scale land use amendments shall require an analysis of the impacts to the adopted LOS standard and the analysis of adequate planned water supply sources and facilities.

Future Potable Water Needs

INFRA Objective 3.2

Based on population projections and analysis in the City's Water Supply Facilities Work Plan, the City shall ensure the supply and treatment of safe potable water through the planning timeframe to meet the adopted LOS standard as well as the requirements of the Water Supply Facilities Work Plan and the SJRWMD Regional Water Supply Plan as updated.

INFRA Policy 3.2.1

Based on the adopted LOS standard, the City will develop capacity to meet future demands concurrent with new development.

INFRA Policy 3.2.2

The City's Public Works and/or Utilities Department(s) shall continue to pursue alternative funding sources and participate with adjacent jurisdictions to plan and construct efficient potable water systems. Specifically, the City shall pursue funding from the St. Johns River Water Management District (SJRWMD) water protection and sustainability program and the FDEP clean water state revolving fund.

Service Area Development

INFRA Objective 3.3

The City shall prioritize the extension of existing potable water facilities and the construction of new facilities within its utility service area in a manner that discourages leapfrog development and urban sprawl.

INFRA Policy 3.3.1

The City shall encourage and require, as needed, the interconnection and looping of existing and proposed segments of the potable water distribution system.

INFRA Policy 3.3.2

The City shall rehabilitate and reuse existing public water facilities as an alternative to new construction when rehabilitation and reuse is cost-effective.

INFRA Policy 3.3.3

The City shall continue to maximize the use of the existing public water treatment facilities connected to the central water system.

Potable Water Conservation

INFRA Objective 3.4

The City shall ensure that its potable water system conserves water and reduces the per capita demand to the minimum possible rate through the planning timeframe consistent with the Water Supply Facilities Work Plan. This shall be accomplished through the implementation of water conservation techniques and programs and through the establishment and use of non-potable water supplies for uses other than drinking water.

INFRA Policy 3.4.1

The City shall encourage continuing education of its utilities operating staff to optimize the potable water utility's maintenance and operation processes.

INFRA Policy 3.4.2

The City shall require the use of water-conserving plumbing fixtures in all new development and shall consider the use of incentive programs to encourage retrofits for existing buildings.

INFRA Policy 3.4.3

The City shall comply with conservation efforts outlined in the most recently issued consumptive use permit from the SJRWMD.

INFRA Policy 3.4.4

Within the planning timeframe the City shall implement an employee and customer water-conservation education program.

Landscape Irrigation and Florida-Friendly Design Standards

INFRA Objective 3.5

The City shall encourage or require, depending on standards established in the Land Development Code, low-impact landscape and irrigation system design to conserve the City's potable water resources.

INFRA Policy 3.5.1

Irrigation systems shall be designed in a manner that considers soil, slope and other site characteristics in order to minimize water waste, including overspray, the watering of impervious surfaces and other non-vegetated areas, and off-site runoff, and they shall be designed to provide the following where feasible:

- Use of the lowest water quality feasible;
- Matching precipitation rates for sprinklers and all other emitters in the same water-use zone, except that the design may specify micro-irrigation emitters to meet the requirements of individual plants;
- Controller systems shall be required, when feasible, to provide the following minimum capabilities;
    - o Ability to be programmed in minutes, by day of the week, season and time of day;
    - o Ability to accommodate multiple start-times and programs;
    - o Automatic shut-off after adequate rainfall;
    - o Ability to maintain operations during power outages for a minimum of three days;
    - o Operational flexibility to meet year-round water conservation requirements and temporary water shortages; and
    - o Ability to minimize free-flow conditions in case of damage or other mechanical failure.

Fire Protection Capabilities

INFRA Objective 3.6

The City shall provide adequate delivery and distribution of potable water to meet fire protection demand within the utility service area.

INFRA Policy 3.6.1

The City shall continue to monitor, evaluate, repair and replace the existing water delivery and distribution system to ensure the system can deliver needed gallon per minute flows to meet fire protection demands.

INFRA Policy 3.6.2

The City shall maintain an active water system and fire hydrant mapping and numbering program.

Protection of Groundwater from Contamination

INFRA Objective 3.7

The City shall perform specific actions during the planning timeframe to protect water quality by preserving groundwater from contamination.

INFRA Policy 3.7.1

The City shall meet or exceed all federal and state water facility regulations that provide for the protection of the environment.

INFRA Policy 3.7.2

The City shall coordinate with St. Johns County to maintain a comprehensive wellhead protection program to protect current and future public water supply needs from potential adverse effects from incompatible land uses and activities:

A. Wellfield protection areas shall be identified surrounding each public potable water supply well or wellfield in/for the City.
B. For each wellfield protection area, the land development regulations shall specify the size, location, and applicable restrictions of protection zones, including restrictions on activities associated with hazardous materials, septic tanks, and well construction, modification and closure.

INFRA Policy 3.7.3

Wellfield protection areas have been established, however, at a minimum, the following standards shall apply in the areas surrounding such wells:

A. Each public water supply well shall be protected by a 1000 foot zone of exclusion within which no new development approvals will be granted.
B. The following new uses or expansions of existing uses shall be prohibited in the vicinity of each public water supply well:
    1. Hazardous materials manufacturing, use or storage; and
    2. Septic systems.

Intergovernmental Coordination

INFRA Objective 3.8

The City shall coordinate with adjacent jurisdictions and applicable state and federal agencies to protect the quality and quantity of its water sources.

INFRA Policy 3.8.1

The City shall meet with adjacent governments, private utilities, and state and federal agencies to coordinate the provision of potable water services and service area boundaries.

INFRA Policy 3.8.2

The City shall coordinate with adjacent jurisdictions and applicable regional, state and federal agencies to educate the community about conservation, sustainable use and protection of the quality and quantity of its water sources.

Maximizing the Use of Existing Public Facilities

INFRA Objective 3.9

The City shall efficiently maximize the use of existing potable water facilities.

INFRA Policy 3.9.1

The City's Public Works and/or Utilities Department(s) shall identify, develop and implement a sustainable potable water production, treatment and distribution system by using best practices related to water quality standards.

INFRA Policy 3.9.2

The City shall maintain and update a GIS map of the entire potable water system to maintain the potable water system and to anticipate and facilitate system repair.

INFRA Policy 3.9.3

The City's Public Works and/or Utilities Department(s) shall maintain accurate records of well-water production flows, maintenance, chemical usage and other items related to efficient ongoing water service operation.

INFRA Goal 4 Water Supply Planning

To recognize that the water supply is a limited resource and protect the water supply to ensure that it is sustainable for all users in a manner that maintains sufficient quality and quantity for current and future demands.

INFRA Objective 4.1

The City shall cooperate and participate with the FDEO, SJRWMD, or any other local or regional entity in order to plan and develop available water supplies including alternative water supplies to meet future water needs.

INFRA Policy 4.1.1

The Water Supply Facilities Work Plan is adopted and included as Appendix A in this element of the City's Comprehensive Plan. The City shall make appropriate changes to the Comprehensive Plan, Land Development Code, and other policies and regulations in order to implement the Work Plan.

INFRA Policy 4.1.2

The City shall pursue the following water supply strategies consistent with its Water Supply Facilities Work Plan and with the goals, objectives and policies in this element and other elements of the comprehensive plan:

- Continue to safely maximize groundwater supplies consistent with the most recently approved SJRWMD consumptive use permit constraints.
- Explore the use of alternative water supply sources.
- Continue to implement the water conservation strategies in this element to reduce system- wide potable water demand through the 2040 planning timeframe.

INFRA Policy 4.1.3

The City will maintain a Water Supply Facilities Work Plan that is consistent with the SJRWMD Regional Water Supply Plan by updating the City's Work Plan within 18 months of an update to the District's Regional Water Supply Plan.

INFRA Policy 4.1.4

The City shall continue to explore the development of available water supplies including alternative water supplies to meet future water needs.

INFRA Policy 4.1.5

The City's land development regulations shall encourage all new development to be designed in accordance with the limitations of the natural environment and the conservation of water resources including the use of infill and redevelopment, attached dwelling units and other innovative land development techniques to decrease water use.

These techniques shall include, but not be limited to the following:

- preservation of native vegetation on site;
- use of xeriscaping and/or drought resistant plant materials (including preservation of existing native vegetation) for new development and redevelopment;
- limitation of the amount of impervious surface (such as parking areas);
- water reuse for irrigation purposes;
- use of water saving devices and plumbing fixtures and encourage retrofitting of water saving devices and ultra-low flow fixtures;
- implementation of water loss prevention programs;
- encourage the use of lower quality sources of water first including stormwater, and other reuse options; and
- maintain a base rate for water usage, as well as, a conservation billing rate structure.

INFRA Policy 4.1.6

The City shall develop and adopt a water conservation program consistent with any Consumptive Use Permit (CUP) stipulations and requirements to decrease demand placed on groundwater resources within the city limits.

INFRA Policy 4.1.7

The City shall encourage low water use landscape for both residential and commercial development.

INFRA Policy 4.1.8

The City shall enforce regulations within the Land Development Code to protect environmentally sensitive waterways and wetlands through the establishment of policies limiting development and encouraging enhancement of these areas.

INFRA Policy 4.1.9

The City shall coordinate with the FDEO, SJRWMD, and any other regional or local entities to evaluate additional water supply sources or alternative water recovery techniques when determining new or expanded facility needs within the City's potable water service area. These additional sources may include, but shall not be limited to: reuse, surface water, stormwater recovery, reverse osmosis, membrane softening, and desalinization.

INFRA Objective 4.2

Through appropriate regulation by and coordinated with the SJRWMD, the Department of Environmental Protection (FDEP), outlined in the City of St. Augustine Water Supply Facilities Work Plan, and land development regulations the City shall protect the function of natural groundwater including the Floridan and Surficial Aquifer Recharge Areas, to prevent the contamination of groundwater, and to extend the life span of the City's aquifers through water conservation.

INFRA Policy 4.2.1

The City shall continue to expand and explore water conservation efforts in conjunction with the FDEO, SJRWMD, and any other regional or local entities to continue to maintain a low per capita consumption of potable water.

INFRA Policy 4.2.2

The City shall evaluate the feasibility and/or opportunities to increase treatment for better quality effluent that may be reused.

INFRA Policy 4.2.4

The City shall coordinate with the SJRWMD to ensure that any aquifer recharge areas are protected and managed to preserve the quantity and quality of groundwater. Such groundwater sources shall be managed to the extent possible to support the present and future City population and proposed economic development opportunities while protecting the City's natural systems.

INFRA Policy 4.2.5

The City shall require monitoring of saltwater intrusion, chloride levels and water quality parameters as withdrawals and discharges are monitored.

INFRA Policy 4.2.5

The City shall map both the public and private wells in the City utilizing FDEP's, SJRWMD's and the Health Departments data files.

INFRA Policy 4.2.6

The City shall work with the SJRWMD to develop a Wellfield Protection Area (WPA) map. This map shall include, but shall not be limited to, the following:

- The location of existing public wells;
- The proposed location of future public wells; and
- Potential conflicts between existing and future land uses and public wellfield protection areas.

INFRA Policy 4.2.7

Free-flowing wells in the City shall be identified and plugged by the following measures:

- The City will coordinate with the St. Johns County Health Department in an effort to work with the SJRWMD to identify free-flowing wells and to recommend measures to plug the wells.
- Through land development regulations, the City shall require new developments to repair or plug all free-flowing wells located within the boundaries of a proposed development as a condition to the development approval.
- The City will coordinate with the St. Johns County Health Department in an effort to continue the SJRWMD's free flowing well abandonment program.

INFRA Policy 4.2.8

The City shall establish a mechanism to preserve and protect the SJRWMD's designated Surficial and Floridan Aquifer Recharge Areas. Such mechanisms shall, include, but not be limited to, identifying appropriate measures and land uses which protect the function of the City's recharge areas and limit the amount of impervious surface area. The City will work with the SJRWMD and St. Johns County to educate the public on major groundwater issues of concern in the City.

INFRA Objective 4.3

As part of the annual update of the Capital Improvements Element the projects and associated funding sources and estimated costs related to the Work Plan will be further evaluated and considered during the budget/capital planning process and development of the Five-year Capital Improvements Plan.

INFRA Policy 4.3.1

As part of the fee structure review process the City should consider the necessary conservation efforts related to water supply in revising any water and sewer rates, impact fees and other charges.

INFRA Policy 4.3.2

The City shall develop a billing rate structure which benefits users whose demand on the groundwater resources is below the per capita average.

INFRA Goal 5 Stormwater Management

Assure the provision of stormwater management facilities that maximize capacity and use of existing facilities: protect public health and safety; promote aquifer recharge; fulfill requirements of the National Pollutant Discharge Elimination System (NPDES) and Total Maximum Daily Loads (TMDL) mandates to ensure environmental quality; and provide the adopted level of service.

Correct Existing Deficiencies

INFRA Objective 5.1

Within the planning timeframe, the City shall work towards correcting any facility deficiencies to meet future facility needs.

INFRA Policy 5.1.1

Within two (2) years of the adoption of the updated Comprehensive Plan, the City shall update the stormwater master plan that includes an inventory of existing facilities and establishes priorities for stormwater system replacements, ensuring correction of existing drainage facility deficiencies and providing for future facility needs.

INFRA Policy 5.1.2

The City shall utilize the stormwater master plan in the preparation of the annual budget to correct existing deficiencies.

INFRA Policy 5.1.3

The City shall implement improvements adopted in the Five-Year Schedule of Capital Improvements to correct existing stormwater management facilities deficiencies.

Stormwater Facilities Capacity

INFRA Objective 5.2

The City shall maximize the use of existing stormwater management facilities and require new development to construct facilities to achieve and maintain adopted stormwater management level of service standards that fulfill NPDES and TMDL mandates for stormwater quality and quantity.

INFRA Policy 5.2.1

The City shall require new development to provide adequate legal mechanisms for stormwater system maintenance and conveyance.

INFRA Policy 5.2.2

Based on the 2013 Master Stormwater Plan, the Stormwater LOS includes:

- Local roads shall be passable for the 5-year/24-hour design storm (6.3 inches). This means that proposed future projects should aim to have at most 0.5 feet of flooding for this scenario. This depth is considered a safe depth for travel by small size cars.
- Arterial and collector roads shall be passable for the 50-year/24-hour design storm (11 inches). This is particularly relevant to emergency vehicles that need to be able to reach residents in the event of a major flood or evacuation scenario. The maximum depth of flooding for safe transit of vehicles is 0.5 feet also, as stated for local roads.
- Structures shall not flood up to the 100-year/24-hour design storm (12.8 inches).
- Design tidal condition set at 2.2 feet NAVD, which is equivalent to the 1-year Stillwater condition.

This may be revised based on the next update of the Stormwater Master Plan.

INFRA Policy 5.2.3

New developments shall design stormwater management systems to meet the rules and criteria established by the City of St. Augustine, the St. Johns River Water Management District (SJRWMD), the Florida Department of Transportation (FDOT) and St. Johns County, as applicable.

INFRA Policy 5.2.4

The City shall coordinate with St. Johns County and SJRWMD to encourage maintenance of conveyance and treatment features.

INFRA Policy 5.2.5

At a minimum, the existing stormwater management systems and current levels of service shall be maintained. The City shall achieve and maintain adopted stormwater management level of service as identified in the Stormwater Master Plan, as amended.

Development Impacts

INFRA Objective 5.3

The City shall maintain high water quality by protecting the functions of aquifer recharge and natural drainage features from impacts of new development and redevelopment activities.

INFRA Policy 5.3.1

All new development and redevelopment shall provide stormwater retention, infiltration and/or wet or dry detention systems.

INFRA Policy 5.3.2

To the maximum extent feasible, development and redevelopment in the City shall reduce adverse impacts of stormwater on natural drainage features by mimicking the natural hydrology of the project site and its surroundings. The land development code shall require that, to the largest extent possible, natural systems are utilized in lieu of structural alternatives.

INFRA Policy 5.3.3

The City shall review detailed calculations for new projects prepared by a registered professional engineer which show that retention and detention will be accomplished to meet the adopted level of service, that drainage from new development will not adversely affect the City's natural drainage features, and that there will be no negative impacts to downstream water quality or quantity.

INFRA Policy 5.3.4

The City's land development regulations shall require that proposed stormwater systems have a negligible impact on adjacent native vegetation and/or wetlands and require mitigation where applicable.

INFRA Policy 5.3.5

Stormwater treatment shall be required to serve the development through a system that is site-specific. Regardless of the area served, the stormwater treatment system must provide a level of treatment that meets the requirements of the state, the City of St. Augustine and the SJRWMD.

INFRA Policy 5.3.6

The City shall require erosion and sediment control practices that protect water bodies, wetlands and watercourses from siltation during stormwater facilities construction activities.

INFRA Policy 5.3.7

To improve the aesthetics of detention and retention facilities, where possible, the City shall discourage designs that require fencing while encouraging the following:

- Use of littoral zones within wet ponds to improve the aesthetics of the pond.
- Use of curvilinear ponds in lieu of rectilinear ponds.
- Use of water-tolerant plant species within dry ponds.
- Any SJRWMD or other applicable requirements will be taken into consideration.

Intergovernmental Coordination

INFRA Objective 5.4

The City of St. Augustine shall educate citizens and coordinate with all applicable jurisdictions to address stormwater issues of mutual concern and to provide adequate levels of service.

INFRA Policy 5.4.1

The stormwater master plan process will include review of the plan by affected citizens and City advisory committees.

INFRA Policy 5.4.2

The City shall maintain a complaint monitoring system to log complaints and initiate work orders for corrective actions.

INFRA Policy 5.4.3

The City will support the SJRWMD's programs and stormwater regulations.

INFRA Policy 5.4.4

The City shall coordinate with St. Johns County and SJRWMD to encourage maintenance of conveyance and treatment features.

INFRA Policy 5.4.5

The City shall educate and inform citizens of their responsibility regarding maintenance and protection of stormwater collection systems.

INFRA Goal 6 Perils of Flood and Sustainability

Recognize the potential impacts of sea level rise and associated environmental changes that have the potential to affect the quality of life, sense of place, and ability to sustain an expectation of a lifestyle familiar to the citizens of St. Augustine, visitors, and future development within the coastal region.

INFRA Objective 6.1

The city must coordinate with local, state, and federal agencies related to addressing the potential impacts of sea level rise.

INFRA Policy 6.1.1

It is recommended that the city continue to pursue funding support from the United States Army Corps of Engineers (USACOE) for the Back Bay Feasibility Study.

INFRA Policy 6.1.2

It is recommended that the City continue to pursue cost-share funding to protect the Wastewater Treatment Plant during tropical events in excess of the 1% or 100-year annual chance event.

INFRA Objective 6.2

The city must establish feasible parameters that address the impacts of sea level rise.

INFRA Policy 6.2.1

It is recommended that protection for nuisance flooding be for current conditions plus 1.5 feet of sea level rise.

INFRA Policy 6.2.2

It is recommended that the tide check valve capital improvement programs continue to be funded at least at the current level.

INFRA Policy 6.2.3

It is recommended that protection for the 1% or 100-year annual flood be a two-step process, with the first step being protection to an elevation of 7.0 feet, with adaptable designs capable of raising the structures for higher levels of protection when complete protection at the 7.0 feet elevation is achieved.

INFRA Policy 6.2.4

It is recommended that the City continue to fund Stormwater, Utility and Paving capital improvement programs.

Sustainable Stormwater Management Strategies

INFRA Objective 6.3

The City shall encourage the use of sustainable, low impact development (LID) strategies to address stormwater management for developments ranging from individual building sites, to subdivisions to large planned developments.

INFRA Policy 6.3.1

The City shall coordinate with local, regional, state and federal agencies to provide educational materials and forums to the public and the development community on the value and benefits of sustainable stormwater management facilities design.

INFRA Policy 6.3.2

For new construction or redevelopment of City buildings and facilities, the City shall utilize LID principles to the extent practicable to address stormwater management needs and to model innovative techniques:

- Manage stormwater as close to its origin as possible by using many small-scale LID techniques.
- Create a site design that slows surface flows and increases the amount of time stormwater flows over the site.
- Increase the reliability of the stormwater system by using multiple, redundant stormwater controls.
- Integrate stormwater controls into the design of the site and use the controls as site amenities.
- Reduce the reliance on traditional collection and conveyance stormwater practices.

INFRA Policy 6.3.3

The City shall incorporate strategies, site development techniques, engineering solutions, and best practices when updating land development regulations to permit innovative LID techniques in the design of stormwater management facilities for development and redevelopment sites including, but not limited to the following:

- Bioretention cells or swales (also known as rain gardens);
- Cisterns and rooftop rainwater harvesting;
- Permeable concrete pavers or pavement.

INFRA Goal 7 Natural Groundwater Aquifer Recharge

To provide, maintain and protect the Floridan Aquifer to ensure that recharge of the natural groundwater aquifer occurs in a manner that maintains sufficient quality and quantity of the public water supply to meet current and future demands.

Natural Recharge Protection and Conservation

INFRA Objective 7.1

The City of St. Augustine shall coordinate with other agencies and continue to encourage the preservation of natural recharge to the City's groundwater resource and conservation of its potable water sources.

INFRA Policy 7.1.1

The City shall coordinate with St. Johns County, the SJRWMD and other state and federal agencies in the education of residents and business owners on water conservation and the protection of groundwater.

INFRA Policy 7.1.2

At a minimum, the City shall adhere to regulations, and encourage other jurisdictions to adhere to the adopted regulations by the SJRWMD and the state to protect areas of high aquifer recharge.

Appendix A

City of St. Augustine statutory Water Supply Facilities Work Plan adopted as part of the July 2020 update of the City's Comprehensive Plan.

Infrastructure Element

Appendix A

City of St. Augustine
Water Supply Facilities Work Plan
(2020-2030)

Prepared By:

City of St. Augustine
Planning and Building Department

July2020

Note: Unless indicated proposed Goals, Objectives and Policies replace previously adopted.

Introduction

The purpose of the City of St. Augustine Water Supply Facilities Work Plan (Work Plan) is to identify and plan for the water supply sources and facilities needed to serve existing and new development within the City's jurisdiction and water service area. The Work Plan planning period of 2020-2030 was determined after a review of the following factors: (a) the existing consumptive use permit will expire in 2028; and (b) the comprehensive plan's planning period goes until 2040. At a minimum, it will be necessary to update this document prior to the end of the planning period, and/or within 18 months after the St. Johns River Water Management District (SJRWMD) Regional Plan is updated.

In addition, in accordance with Section 163.3177(6)(c), and Section 163.3177(4)(a), F.S., the City must ensure coordination of its comprehensive plan with the plans of SJRWMD and St. Johns County. Therefore, if SJRWMD updates the North Florida Regional Water Supply Plan (NFRWSP) and actually impacts the City, it will be necessary to update the City's Work Plan. The City's Infrastructure Element (INFRA Policy 4.1.3) contains enabling language to ensure coordination with SJRWMD's plans.

Potable Water Supplier(s) and Service Agreements

Potable and Non-potable Water Supplier(s) Information

The City of St. Augustine is the only entity that provides potable water service within the City limits. In addition, the City does provide potable water service to a portion of unincorporated St. Johns County adjacent to the city limits. The City is financially responsible for capital improvements related to the provision of services within its service area.

There are no non-potable water service providers within City limits. The City does not currently provide non-potable water service. The City researched the feasibility of providing reclaim water, but the City determined that it is not feasible at this time.

The attached figure, Figure 1, contains a map illustrating the City limits and the potable water service area.

Domestic Self-Supply (DSS)

Because of the urban and fairly, compact development pattern of the City of St. Augustine there are very few properties not on the city sewer utility. Most all of the residential and commercial properties are on city water and sewer service.

Only a small portion of the City is not serviced by sanitary sewer. This relatively small area, much like the entire City of St. Augustine, is fairly built-out. According to the St. Johns County Health Department, no new septic tank permits have been issued in almost three (3) years in St. Augustine. According to the City's Planning and Building Department, no building permits have

been issued in almost three (3) years for properties that cannot be serviced by sanitary sewer. Additionally, the small portion of the City not serviced by sanitary sewer is within the Astatula soil classification, which is relatively suitable for septic systems.

The City would like to reduce the number of properties on septic systems over the course of the planning timeframe. It is anticipated that as environmental circumstances change, and systems begin to fail properties will have to "hook-up" to the sanitary sewer system. But for planning purposes for this Water Supply Plan it is assumed that no notable changes to the number of properties on septic systems will occur. It is assumed that the same trend will continue over the planning period. No new development has required a septic system, any recent development has included city sanitary sewer service.

Water Supply Agreements

Pursuant to a longstanding interlocal agreement, the City is authorized to provide potable water and sanitary sewer to a portion of unincorporated St. Johns County, and within the City's service area. Based on the agreement(s), the City has the right to provide potable water and sanitary sewer to those properties where the utilities are available, and levels of service are sustainable.

ICE Policy 1.1 provides enabling language relative to the interlocal agreement and the provision of potable water, sanitary sewer, and other services to certain unincorporated areas of St. Johns County.

Because the City provides water services to some of the unincorporated areas of St. Johns County, it is important for the City to monitor and participate, as necessary, in the County's planning and development processes to ensure that the City can account for the water needs of the respective unincorporated area. ICE Policy 1.1 contains enabling language for this coordination.

Potable Water Sources, Demand, Supply, and Facilities

Water Sources

The City currently operates two (2) water treatment plants (WTP) that have a combined capacity of 6.5 mgd. The City's current Consumptive Use Permit (CUP #50299) expires in 2028. The CUP authorizes the use of 5.681 million gallons per day (mgd) average of groundwater from the upper Floridan aquifer for public supply and 0.882 mgd (maximum) of groundwater from the upper Floridan aquifer for reverse osmosis treatment process purposes, and 10.8 mgd of groundwater from the upper Floridan for essential use (fire protection).

The City's water treatment facilities are composed of the Low Pressure Reverse Osmosis (LPRO) Water Treatment Plant (WTP) and the Lime Softening WTP which together have a 6.5 mgd capacity, the wellfield, and the North and South Tank Facilities. The LPRO WTP was constructed in 2008 and has 2.0 mgd capacity. The permeate from the LRPO plant is blended with pretreated raw water from the wellfield. The Lime Softening WTP was placed in service in

the 1920s; modifications were made in 1987, but according to an evaluation by the Public Works and Utilities Department(s), it has essentially reached the end of its useful life and only certain components are used. The wellfield is composed of eight (8) wells, seven (7) deep and one (1) surficial (shallow). They are located nearly 10 miles from the plant. Although the Lime Softening WTP is scheduled for demolition, upgrades to the LPRO WTP will allow capacity to remain near 3.0 mgd. Based on a reevaluation of development projections, current LPRO WTP capacity is estimated to be sufficient through the 2025/2026 timeframe.

Potable Water Demand, Supply and Facility Capacity

The following Table contains projected population and water demand for the City's potable water service area from the NFRWSP. In addition, the table shows the City's CUP allocation and WTP facility data.

Table 1. City of St. Augustine Service Area Projections

	NFRWSP Population for COSA service area	**NFRWSP projected water demand (mgd)**	**CUP Allocation (mgd)**	**WTPs Combined Capacity (mgd)**
2020	37,506	4.22	6.028	6.5
2025	43,191	4.84	6.286	6.5
2030	48,379	5.42	6.564*	6.5

*The City of St. Augustine's CUP expires in 2028. WSFWP assumes 2028 allocation, at a minimum, to be extended to 2030.

Table 1 demonstrates that the City has adequate potable water supply and facility capacity to accommodate the existing population and projected growth within the City's service area up to the WSFWP's planning period.

Non-potable Water Suppliers, Sources, Services, and Facilities

The City's WWTP has a permitted capacity of 4.95 MGD and utilizes a complete mix activated sludge treatment process with a headworks system for removal of grit and debris, biological treatment units (BTUs) which provide aeration, clarifiers, disinfection chambers and post aeration. The annual average daily flow of the WWTP over the past year is 3.78 MGD (reported in 2018). The recently completed Capacity Analysis Report projects that available capacity is sufficient to address development in the service area through 2028 so long as the inflow and infiltration reduction program continues. It is important to note that there is a large difference in population served within the service area versus the population and projected population just within the city limits. Also, the city uses the SJRWMD suggested 2.43 persons per household to

calculate projected water needs, but for general population projections and household sizes in the Future Land Use and Housing Elements the city uses 2.30 persons per household based on the U.S. Census estimates. That is a 5% difference in population projections, which would reduce the projected population for 2030 by 2,419 people. By using the 2.43 persons per household this potential cushion for the projections is maintained.

A water reuse feasibility study was completed in 2002. Because of the Wastewater Treatment Plant (WWTP) location, and the built-out/historic attributes of the City of St. Augustine, the feasibility of supplying reclaimed water is very limited. There are no realistic opportunities for reuse in the historic center of the City.

The City has evaluated the feasibility of implementing a reclaim water system. It has been determined that it is not feasible at this time.

Residential developments on the mainland west of the San Sebastian River also have primarily small lots and a highwater table. The City completed a feasibility analysis to assess the feasibility of taking reclaimed water to golf courses on the outskirts of the City. The cost of upgrading the WWTP and installing a transmission system to deliver reclaimed water to the north portion of the City's service area where it could be utilized are estimated at $14,000,000.00 (Source: SJRWMD).

Water Supply and Facility Concurrency

Potable Water Level of Service

The City is responsible for authorizing development within its City limits. However, the City provides services to a portion of unincorporated St. Johns County. Therefore, it is important for the City's and County's water supply and facility concurrency system to be coordinated and consistent.

Infrastructure Element Policy 3.1.1 and Capital Improvements Element Policy 5.3 contains enabling language that establishes the City's potable water level of service.

Water Supply and Facility Concurrency

The current legislative requirements for concurrency [i.e., Section 163.3180(2)(a), F.S.] require that the City's comprehensive plan and land development regulations ensure that adequate water supplies and facilities are available to serve new development no later than the date on which the City anticipates issuing a certificate of occupancy. In addition, the City must, prior to the approval of a building permit, determine whether adequate water supplies will be available to serve the development by the anticipated issuance date of the certificate of occupancy. CI Policy 3.3 provides enabling language for water supply and facility concurrency, and addresses the requirements of Section 163.3180(2), F.S.

Project Options Identified in the NFRWSP

The NFRWSP identified the following Project Options for the City of St. Augustine:

- St. Augustine Water Supply / LPRO Phase 2
- Conservation Rate Implementation

The LPRO Phase 2 project included an increase LPRO production from 2 mgd to 4 mgd. This project was completed in 2016.

For the Conservation Rate Implementation project, the City conducted a comprehensive conservation program that included a rate study, education program, block rate implementation, AMR pilot installation and results analysis. The NFRWSP indicated an estimated water supply benefit for the project of 0.58 mgd. This project was also completed in 2016.

Water Conservation Practices

The City has adopted a water conservation plan as part of the Consumptive Use Permit (CUP). Including the requiring of low flow plumbing fixtures, which have been incorporated into the City's Building Code. Utility meter readers notify customers immediately if a meter indicates a 10% or greater increase in water use from the previous meter reading. This notification system allows customers to quickly identify leaks or problems so they can be addressed immediately.

A citizen awareness and education program that emphasizes the importance and value of water resources is also in place. This program includes water conservation public service announcements and provides a water conservation exhibit in the utility customer service building. *Insight*, the utility newsletter, is mailed to customers, and displays of water conservation posters and literature is distributed at City Hall.

The City currently implements water conservation practices, including some that are enabled by comprehensive plan policies. In addition, because the City provides potable water service to a portion of unincorporated St. Johns County, it is important for the City to coordinate with the County on its water conservation practices:

- Encouraging continuing education for utilities staff to optimize processes (INFRA 3.4.1)
- Require use of water conserving plumbing fixtures (INFRA 3.4.2)
- Comply with conservation elements in City CUP (INFRA 3.4.3 and 4.1.6)
- Implement water conservation education program (INFRA 3.4.4)
- Encourage low impact landscape and irrigation system design (INFRA 3.5)
- Require certain standards for irrigation systems (INFRA 3.5.1)
- Implementation of certain land development techniques to conserve water (INFRA 4.1.5)
- Encourage low water use landscapes (INFRA 4.1.7)
- Plugging free flowing wells (INFRA 4.2.7)

Water Source Protection Practices

Water conservation is important to reduce potable water demand. The City's water conservation practices include the following:

- Maintain wellhead protection program (INFRA 3.7.3)
- Implement certain wellhead protection standards ((INFRA 3.7.3)
- Coordinate with regional, state and federal agencies on protection of water resources (INFRA 3.8.2)
- Monitoring for saltwater intrusion (INFRA 4.2.5)
- Maintain a wellfield protection map (INFRA 4.2.6)

Conclusion

Based on the Goals, Objectives and Policies in the City's Comprehensive Plan 2040, and this Work Plan the City is well aware of the need to project, monitor, and reduce the volumes of water supply from the source. The City will continue to update the Work Plan as needed, and coordinate with St. Johns County and the SJRWMD.

Figure 1. Public Utility Infrastructure Area