

# **Infrastructure Element Goals, Objectives & Policies**

# **Infrastructure Element: Sanitary Sewer, Solid Waste, Potable Water, Stormwater Management, & Natural Groundwater Aquifer Recharge Element Goals, Objectives and Policies**

163.3177(6)(c)  
9J-5.011(2)

## **INFRA Goal 1 Sanitary Sewer**

9J-5.011(2)(a)

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 Bunnell utility service area while protecting the environment and public health.

## **Maintain Level of Service**

### **INFRA Objective 1.1**

9J-5.011(2)(b)(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 as well as areas where septic systems are failing.

#### **INFRA Policy 1.1.1**

9J-5.011(2)(c)(2)

The City's adopted level of service for sanitary sewer capacity shall be 102.3 gallons per capita per day.

#### **INFRA Policy 1.1.2**

9J-5.011(2)(c)(2)(a)

When evaluating collection force main and lift station capacity, the City may use the following peak factors (*Note: mgd=million gallons per day*):

- <0.1 mgd - 4.0 times the average daily flows (adf)
- 0.1 to 0.25 mgd – 3.5 times the adf
- 0.25 to 1.0 mgd – 3.0 times the adf
- >1.0 mgd – 2.5 times the adf

**INFRA Policy 1.1.3**  
**9J-5.011(2)(c)(2)(a)**

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

**INFRA Policy 1.1.4**  
**9J-5.011(2)(c)(2)(a)**

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

**INFRA Policy 1.1.5**  
**9J-5.011(2)(c)(1)**

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 1.1.6**  
**9J-5.011(2)(c)(1)**

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 1.1.7**

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

**INFRA Policy 1.1.8**  
**9J-5.011(2)(c)(1)**

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**

#### **9J-5.011(2)(b)(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 Flagler 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**

The City will notify the county of any requested service within unincorporated Flagler County.

#### **INFRA Policy 1.2.3**

##### **9J-5.011(2)(c)(1)**

Following a determination of concurrency for sanitary sewer, and to ensure reserved capacity and adequate sanitary sewer facilities are in place prior to the impact of development, the City shall require payment of applicable sewer impact fees upon development order approval and prior to application for building permits.

#### **INFRA Policy 1.2.4**

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

#### **INFRA Policy 1.2.5**

##### **9J-5.011(2)(c)(1)**

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 1.2.6:**

##### **9J-5.011(2)(c)(1)**

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 1.2.7**  
**9J-5.011(2)(c)(2)(a)**

The City shall utilize its concurrency management system to monitor available capacities and determine compliance with minimum sanitary sewer level of service standards.

**INFRA Policy 1.2.8**  
**9J-5.011(2)(c)(1)**

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

**INFRA Policy 1.2.9**  
**9J-5.011(2)(c)(3)**

The City shall develop an economically feasible water reuse plan and shall coordinate with the applicable regulatory agencies and developers regarding the installation and usage of reclaimed water (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 1.2.10**  
**9J-5.011(2)(c)(3)**  
**CON Policy 1.4.5.2**

The City shall continue to explore opportunities to expand the reuse water system in conjunction with wastewater improvements and/or expansions (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 1.2.11**  
**9J-5.011(2)(c)(1)**

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.

**INFRA Policy 1.2.12**

The City may require annexation for developments outside the City limits that are receiving or requesting utility services.

## **Maximize Existing Facilities**

### **INFRA Objective 1.3**

#### **9J-5.011(2)(b)(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:**

##### **9J-5.011(2)(c)(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:**

##### **9J-5.011(2)(c)(1)**

The City's land development regulations shall incorporate means and methods 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**

##### **9J-5.011(2)(c)(1)**

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, ~~when feasible~~ the new development to extend the central sewer system at the developer's expense or to construct private wastewater treatment plants when feasible to serve the subject property.

#### **INFRA Policy 1.3.4**

##### **9J-5.011(2)(c)(1)**

The City shall maintain adequate sanitary sewer impact fees and user rates 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.

#### **INFRA Policy 1.4.1**

##### **9J-5.011(2)(c)(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 Flagler County Health Department and the Flagler County Building Department regarding failing septic tanks within the City.

#### **INFRA Policy 1.4.3**

##### **9J-5.011(2)(c)(1)**

The City shall monitor and keep a database of building permits requested for repair or replacement of existing septic tank and drain field systems within the City.

## **INFRA Goal 2 Solid Waste**

### **9J-5.011(2)(a)**

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 Bunnell while protecting the environment and public health.

## **Solid Waste Disposal**

### **INFRA Objective 2.1**

The City shall coordinate with Flagler and Volusia Counties and the Tomoka Farms Road Landfill in its 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**  
**9J-5.011(2)(c)(2)(b)**

The City's minimum level of service for municipal solid waste shall be 9.3 pounds per capita per day, which will be utilized to plan for future demand.

**INFRA Policy 2.1.2**  
**9J-5.011(2)(c)(2)(b)**

The City shall continue to utilize Volusia County's Tomoka Farms Road Landfill and/or the waste-to-energy incinerator 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**  
**9J-5.011(2)(c)(2)(b)**

The City shall continue to coordinate solid waste disposal efforts with Flagler and Volusia Counties to ensure:

- The City of Bunnell is allocated a proportional share of capacity in the Tomoka Farms Road Landfill-operated disposal facilities;
- Reduction of solid waste disposal levels will continue to occur through cooperative recycling programs administered by Flagler and Volusia Counties;
- 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 Objective 2.2**

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

**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 period, 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 or its provider shall continue to have a collection process in place for curbside pickup of newspapers, glass, plastics, tin and aluminum.

#### **INFRA Policy 2.3.2**

The City or its provider 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 of Bunnell will help promote the efforts of Flagler and Volusia Counties toward the reduction of the solid waste stream.

#### **INFRA Policy 2.3.5**

The City shall coordinate with Flagler and Volusia Counties with respect to solid waste management and waste recycling programs.

## **Hazardous Waste**

### **INFRA Objective 2.4**

The City shall coordinate with Flagler 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 all 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 Stormwater Management**

### **9J-5.011(2)(a)**

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 (TDML) mandates to ensure environmental quality; and provide the adopted level of service concurrent with development.

## **Correct Existing Deficiencies**

### **INFRA Objective 3.1**

#### **9J-5.011(2)(b)(1)**

#### **9J-5.011(2)(b)(2)**

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

#### **INFRA Policy 3.1.1**

#### **9J-5.011(2)(c)(1)**

Within the planning timeframe, the City shall prepare a 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 3.1.2**  
**9J-5.011(2)(c)(1)**

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

**INFRA Policy 3.1.3**  
**9J-5.011(2)(c)(1)**

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 3.2**  
**9J-5.011(2)(b)(3)**

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 3.2.1**  
**9J-5.011(2)(c)(1)**

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

**INFRA Policy 3.2.2**  
**9J-5.011(2)(c)(1)**

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

**INFRA Policy 3.2.3**  
**9J-5.011(2)(c)(1)**

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

**INFRA Policy 3.2.4**  
**9J-5.011(2)(c)(1)**

At a minimum, the existing stormwater management systems and current levels of service shall be maintained. The City shall achieve and maintain the following adopted stormwater management level of service standards for new development and redevelopment:

- Retain and detain water generated by 24-hour/25 year frequency storm.

**Development Impacts**

**INFRA Objective 3.3**  
**9J-5.011(2)(b)(5)**

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 3.3.1**  
**9J-5.011(2)(c)(5)(a)**

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

**INFRA Policy 3.3.2**  
**9J-5.011(2)(c)(4)**

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 3.3.3**  
**9J-5.011(2)(c)(2)(c)**

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 3.3.4**  
**9J-5.011(2)(c)(5)(a)**

New development and redevelopment shall be required to accommodate upland flow that presently discharges through the site.

**INFRA Policy 3.3.5**  
**9J-5.011(2)(c)(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 3.3.6:**  
**9J-5.011(2)(c)(2)(c)**

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 Bunnell and the SJRWMD.

**INFRA Policy 3.3.7**  
**9J-5.011(2)(c)(4)**

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 3.3.8**

Pollutant retardant structures that separate oils and greases from runoff shall be designed for all new commercial and industrial projects.

**INFRA Policy 3.3.9**  
**9J-5.011(2)(c)(4)**

The City shall prohibit development within the 100-year floodplain or limit development to those uses that will not adversely affect the capacity of the floodplain to store water.

**INFRA Policy 3.3.10**  
**9J-5.011(2)(c)(4)**

The floodplain shall be reserved for conservation, open space and passive recreational uses to preserve the natural flow of runoff, unless such reservation denies all reasonable use of the property.

**INFRA Policy 3.3.11**  
**9J-5.011(2)(c)(4)**

To improve the aesthetics of detention and retention facilities, 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.

## **Intergovernmental Coordination**

### **INFRA Objective 3.4**

#### **9J-5.011(2)(b)(2)**

The City of Bunnell 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 3.4.1**

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

#### **INFRA Policy 3.4.2**

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

#### **INFRA Policy 3.4.3**

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

#### **INFRA Policy 3.4.4**

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

#### **INFRA Policy 3.4.5**

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

## **Sustainable Stormwater Management Strategies**

### **INFRA Objective 3.5**

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 3.5.1**

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 3.5.2** **9J-5.011(2)(c)(5)(a)**

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 3.5.3** **9J-5.011(2)(c)(5)(a)**

The City shall consider 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 4 Potable Water** **9J-5.011(2)(a)**

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 Bunnell and within the City's utility service area throughout the planning timeframe.

## **Maintain Level of Service**

### **INFRA Objective 4.1**

#### **9J-5.011(2)(b)(1)**

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

#### **INFRA Policy 4.1.1**

The City's level of service (LOS) standard for potable water supply shall be 120 gallons per capita per day (gpcd).

#### **INFRA Policy 4.1.2**

##### **9J-5.011(2)(c)(2)(d)**

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

#### **INFRA Policy 4.1.3**

##### **9J-5.011(2)(c)(2)(d)**

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

#### **INFRA Policy 4.1.4**

##### **9J-5.011(2)(c)(3)**

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 4.1.5**

##### **9J-5.011(2)(c)(3)**

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 (Ordinance 2007-57, adopted December 2, 2008).

#### **INFRA Policy 4.1.6**

##### **9J-5.011(2)(c)(3)**

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 2030 planning timeframe.
- Continue to expand the City's reuse system to reduce potable water demand consistent with policies in the Sanitary Sewer Section of the element.

**INFRA Policy 4.1.7**

**9J-5.011(2)(c)(3)**

All proposed 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.

**INFRA Policy 4.1.8**

**9J-5.011(2)(c)(3)**

The Water Supply Work Plan is adopted and included as Appendix A of this element of the City's Comprehensive Plan. The City shall make appropriate changes to the Comprehensive Plan, LDC, and other policies and regulations in order to implement the Work Plan (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 4.1.9**

**9J-5.011(2)(c)(3)**

**FLU Policy 2.1.10**

The City will maintain a Water Supply Facilities Work Plan that is consistent with the SJRWMD's Water Supply Plan by updating the City's Work Plan within 18 months of an update to the District's Water Supply Plan (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 4.1.10**

**9J-5.011(2)(c)(3)**

To implement the water supply plan the City will pursue the selected alternative water supply (AWS) project options (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 4.1.11**

**9J-5.011(2)(c)(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 (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 4.1.12**  
**9J-5.011(2)(c)(3)**

As part of the ranking of capital improvements projects the City of Bunnell will evaluate projects related to the City Water Supply Work Plan (Ordinance 2007-57, adopted December 2, 2008).

**Future Potable Water Needs**

**INFRA Objective 4.2**  
**9J-5.011(2)(b)(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 water supply plan as updated.

**INFRA Policy 4.2.1**  
**9J-5.011(2)(c)(3)**

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

**INFRA Policy 4.2.2**  
**9J-5.011(2)(c)(3)**

The City's Utilities Department 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.

**INFRA Policy 4.2.3**  
**9J-5.011(2)(c)(3)**  
**CON Policy 1.4.7.1**

The City shall continue to explore the development of available water supplies including alternative water supplies to meet future water needs (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 4.2.4**

**9J-5.011(2)(c)(3)**

**CON Policy 1.4.7.1.1**

When improving or expanding the City's water systems the City shall evaluate feasible water supplies, including alternative water supply sources (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 4.2.5**

**9J-5.011(2)(c)(3)**

**FLU Policy 1.2.5**

**CON Policy 1.4.7.1.2**

The City shall continue to cooperate and participate with the DCA, SJRWMD, or any other regional entity, including the Flagler County Water Supply Plan Cooperators group in order to plan and develop available water supplies including alternative water supplies to meet future water needs (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 4.2.6**

**9J-5.011(2)(c)(3)**

The City shall coordinate with the SJRWMD in an effort to protect and conserve future potable water supplies. The City and the SJRWMD shall mutually agree upon policies which ensure that water quality and supplies meet existing and projected future demands (Ordinance 2007-57, adopted December 2, 2008).

## **Service Area Development**

### **INFRA Objective 4.3**

**9J-5.011(2)(b)(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 4.3.1**

**9J-5.011(2)(c)(3)**

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 4.3.2**  
**9J-5.011(2)(c)(3)**

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 4.3.3**  
**9J-5.011(2)(c)(3)**

Before supplying potable water to developments located in the utility service area, the City may require that the development be annexed into the City.

**INFRA Policy 4.3.4**  
**9J-5.011(2)(c)(3)**

The City may provide wholesale potable water service to other cities and the county by written agreement.

**INFRA Policy 4.3.5**  
**9J-5.011(2)(c)(3)**

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

**INFRA Policy 4.3.6**  
**9J-5.011(2)(c)(3)**

The City shall require all new development to demonstrate concurrency with the adopted LOS standard.

**INFRA Policy 4.3.7**  
**9J-5.011(2)(c)(3)**  
**FLU Policy 2.1.2**

As part of the City's concurrency management system review process a written evaluation regarding the availability of water to serve the proposed development shall be submitted; including information about current demand, capacity approved for projects not yet built, the amount of water needed for the growth projections for that year, the amount of water withdrawals allowed and remaining through the consumptive use permit, the capacity of available facilities, and any scheduled capital improvements projects (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 4.3.8**  
**9J-5.011(2)(c)(3)**  
**CON Policy 1.4.11.6**

The City shall require any potable water/wastewater utility provider to include reuse lines in utility construction (Ordinance 2007-57, adopted December 2, 2008).

## **Potable Water Conservation**

**INFRA Objective 4.4**  
**9J-5.011(2)(b)(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. 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 4.4.1**  
**9J-5.011(2)(c)(3)**

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

**INFRA Policy 4.4.2**  
**9J-5.011(2)(c)(3)**

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 4.4.3**  
**9J-5.011(2)(c)(3)**

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

**INFRA Policy 4.4.4**  
**9J-5.011(2)(c)(3)**

The City shall implement an employee and customer water-conservation education program.

**INFRA Policy 4.4.5**

**9J-5.011(2)(c)(3)**

**CON Policy 1.4.8**

The City shall continue to expand and explore water conservation efforts in conjunction with the DCA, SJRWMD, and any other regional or local entities to continue to maintain a low per capita consumption of potable water (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 4.4.6**

**9J-5.011(2)(c)(3)**

**CON Policy 1.4.5.3**

The City shall require connection to the reuse water system if central service is available. If service is not available, the City shall require connection within one year from the date that central service becomes available (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 4.4.7**

**9J-5.011(2)(c)(3)**

**FLU Policy 2.1.7.1**

**CON Policy 1.4.5.4**

Within one year of the adoption of the City's Water Supply Plan the City shall require developers to provide reclaim system installation with the provision or extension of sanitary sewer, potable water and storm drainage systems to serve their development (Ordinance 2007-57, adopted December 2, 2008).

## **Landscape Irrigation and Florida-Friendly Design Standards**

### **INFRA Objective 4.5**

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 4.5.1**

**9J-5.011(2)(c)(4)**

**CON Policy 1.4.11.1**

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 clustered development, 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) within significant recharge areas;
- water reuse for irrigation purposes;
- use of water saving devices and plumbing fixtures that 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 reclaimed water stormwater, and reuse water; and
- maintain a base rate for water usage, as well as, a conservation billing rate structure (Ordinance 2007-57, adopted December 2, 2008).

#### **INFRA Policy 4.5.2**

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.

#### **INFRA Policy 4.5.3**

The City shall encourage the reuse of wastewater effluent for irrigation (Ordinance 2007-57, adopted December 2, 2008).

#### **INFRA Policy 4.5.4**

The City, in cooperation with the Flagler County Cooperative Extension Services, the Florida Department of Agriculture and Consumer Affairs, Division of Forestry, the Natural Resource

Conservation Services and the SJRWMD, shall provide technical assistance to agriculture operations and other irrigation water users in the design of low-volume irrigation systems.

**INFRA Policy 4.5.5**  
**CON Policy 1.4.11.4**

The City shall require all large volume irrigation users, such as golf course developments (excluding agricultural uses), to reuse wastewater effluent for spray irrigation, if reuse is unavailable at the time of development the development shall participate within one-year of the infrastructure becoming available (Ordinance 2007-57, adopted December 2, 2008).

## **Fire Protection Capabilities**

### **INFRA Objective 4.6**

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

#### **INFRA Policy 4.6.1**

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 4.6.2**

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

#### **INFRA Policy 4.6.3**

The City shall work towards establishing and maintaining a hydraulic model of the City's water distribution network so that the water distribution system can be routinely analyzed with respect to fire flow capabilities.

#### **INFRA Policy 4.6.4**

The City shall extend water distribution mains to areas within the City's service area and provide adequate fire protection service to residents and non-residential establishments located within the service area, provided that residents/developers participate in the costs.



## **Protection of Groundwater from Contamination**

### **INFRA Objective 4.7**

#### **9J-5.011(2)(b)(5)**

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

#### **INFRA Policy 4.7.1**

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

#### **INFRA Policy 4.7.2**

#### **CON Policy 1.5.1**

The City shall establish 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 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 4.7.3**

Until wellfield protection areas are established for each public water supply well, the following standards shall apply in the areas surrounding such wells:

- A. Each public water supply well shall be protected by a 200 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 4.8**

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 4.8.1**

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

**INFRA Policy 4.8.2**

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 4.9**

**9J-5.011(2)(b)(3)**

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

**INFRA Policy 4.9.1**

**9J-5.011(2)(c)(2)(d)**

The City's Utilities Department shall identify, develop and implement a sustainable potable water production, treatment and distribution system by using the highest and best-proven technology possible.

**INFRA Policy 4.9.2**

**9J-5.011(2)(c)(3)**

The City shall create 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 4.9.3**

**9J-5.011(2)(c)(3)**

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

## **INFRA Goal 5 Natural Groundwater Aquifer Recharge**

### **9J-5.011(2)(a)**

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 5.1**

#### **9J-5.011(2)(b)(5)**

The City of Bunnell shall coordinate with other agencies and continue to enforce measures in the Code of Ordinances that will ensure preservation of natural recharge to the City's groundwater resource and conservation of its potable water sources.

#### **INFRA Policy 5.1.1**

##### **9J-5.011(2)(c)(4)**

The City shall coordinate with Flagler 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 5.1.2**

##### **9J-5.011(2)(c)(4)**

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

#### **INFRA Policy 5.1.3**

##### **9J-5.011(2)(c)(4)**

Through appropriate regulation by and coordinated with the SJRWMD, the Department of Environmental Protection (DEP), outlined in the City of Bunnell Water Supply 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 (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.4**  
**9J-5.011(2)(c)(4)**

The City shall continue to map both the public and private wells in the City utilizing DEP's, SJRWMD's and the Health Departments data files (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.5**  
**9J-5.011(2)(c)(4)**

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 (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.6**  
**9J-5.011(2)(c)(4)**

The City shall, through stormwater permitting procedures, ensure that stormwater management structures are designed to function as aquifer recharge areas in appropriate locations (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.7**  
**9J-5.011(2)(c)(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 (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.8**  
**9J-5.011(2)(c)(4)**

The City shall develop and implement land development regulations which incorporate stormwater recharge standards for all new development within aquifer recharge areas (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.9**  
**9J-5.011(2)(c)(4)**

The City shall require all wet detention/retention ponds with a surface area greater than one (1) acre be designed to utilize stormwater runoff for irrigation (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.10**  
**9J-5.011(2)(c)(4)**

The City shall protect and preserve open space which has been identified as a natural groundwater recharge area (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.11**  
**9J-5.011(2)(c)(4)**

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

- The City will coordinate with the Flagler 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 Flagler County Health Department in an effort to continue the SJRWMD's free-flowing well abandonment program (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.12**  
**9J-5.011(2)(c)(4)**  
**CON Policy 1.4.11**

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 (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.13**  
**9J-5.011(2)(c)(4)**  
**CON Policy 1.4.11.2**

The City shall develop a billing rate structure which benefits users whose demand on the groundwater resources is below the per capita average (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.14**

**9J-5.011(2)(c)(4)**

**CON Policy 1.4.11.3**

The City shall encourage low water use landscape for both residential and commercial development (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.15**

**9J-5.011(2)(c)(4)**

Within one year of the adoption of the City's Water Supply Plan the City shall require developers to provide reclaim system installation with the provision or extension of sanitary sewer, potable water and storm drainage systems to serve their developments (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.16**

**9J-5.011(2)(c)(4)**

The City shall coordinate with the DCA, SJRWMD, and any other regional or local entities to identify long-term water supplies and supply strategies consistent with the City's Comprehensive Plan, consumptive use permit, the latest SJRWMD Water Supply Plan, and applicable law (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.17**

**9J-5.011(2)(c)(4)**

The City shall coordinate with the DCA, 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 (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.18**

**9J-5.011(2)(c)(4)**

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 to educate the public on major groundwater issues of concern in the City (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.19**  
**9J-5.011(2)(c)(4)**

The City shall require monitoring of saltwater intrusion, chloride levels and water quality parameters as withdrawals and discharges are monitored (Ordinance 2007-57, adopted December 2, 2008).

**INFRA Policy 5.1.20**  
**9J-5.011(2)(c)(4)**

The City shall enforce regulations within the LDC to protect environmentally sensitive waterways and wetlands through the establishment of policies limiting development and encouraging enhancement of these areas (Ordinance 2007-57, adopted December 2, 2008).

# **Appendix A**



The City of Bunnell Water Supply Plan (Appendix A) was adopted via Ordinance 2007-57  
December 2, 2008.