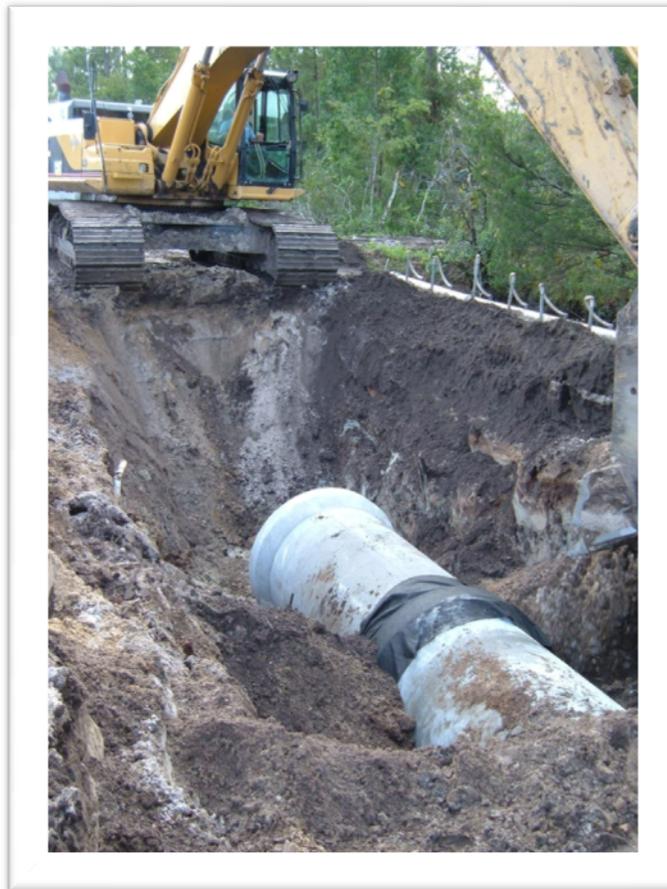




Flagler County Comprehensive Plan 2010-2035  
Flagler County, Florida

Infrastructure Element



Adopted July 6, 2011

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**Infrastructure Element  
Goals, Objectives and Policies**

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## I. Introduction

The Infrastructure Element is one of the mandatory elements identified by Section 163.3177 of Florida Statutes. The Element contains the goals, objectives, and policies to guide the provision of public services and facilities consisting of potable water sanitary sewer, stormwater management, solid waste collection/disposal and aquifer protection. The overall goal is to provide these facilities and services in an efficient and effective manner that supports the County's desired land use pattern. This means that this Element must be consistent and coordinated with the Future Land Use, Conservation, and Capital Improvements Elements in order to be successfully implemented. The specific requirements in Florida Statutes for the Infrastructure Element consist of:

1. Methods to provide for future potable water, drainage, sanitary sewer, solid waste, and aquifer recharge protection requirements for the County.
2. An identification of critical issues and problems facing the County in providing these services and establishing the methods of resolving these issues and problems.
3. The identification of regional recharge areas for the Floridan or Biscayne Aquifer and establishment of objectives and policies to protect the recharge areas.
4. Incorporation of an alternative water supply project or projects selected by the local government from those identified in the regional water supply plan pursuant to s. 373.0361(2)(a) or proposed by the local government under s. 373.0361(8)(b), Florida Statutes.
5. Identification of goals, objectives, and policies for the implementation of water supply plans that emphasize the use of conservation and reuse programs, development of alternative water supplies projects, and the maintenance of traditional water supply projects.
6. Development of a work plan, covering at least a 10 year planning period, for building public, private, and regional water supply facilities, including development of alternative water supplies, which are identified in the Element as necessary to serve existing and new development.

**VII. II. Goals, Objectives and Policies**

**Potable Water and Sanitary Sewer Sub-Element**

**GOAL D.1:** ~~Through the regulatory process,~~ Flagler County shall ensure plan and coordinate with public and private utility providers for the development, operation and maintenance of cost-effective and efficient potable water and wastewater systems that promote timely, orderly and efficient land development patterns, consistent with goals, objectives, and policies established in the Future Land Use Element, while protecting the public health and environment.

**Objective D.1.1:** Coordinate the sizing and location of publicly and privately funded wastewater and water facilities with the adopted Future Land Use Map through Flagler County staff approval during project planning, design, and permitting.

**Policy D.1.1.1:** Centralized water and wastewater programs and facilities will be designed to service the densities and intensities of development projected in the Future Land Use Element.

**Policy D.1.1.2:** ~~Within one year of the adoption of the EAR based Plan Amendment,~~ Flagler County shall require ~~by ordinance~~ through its Land Development Regulations (LDRs) that all central private water and wastewater system owners must prepare, and update every five (5) years, a master plan for system development including a five-year capital improvements program.

**Policy D.1.1.3:** Overriding of water and wastewater lines, when requested by the Flagler County, will be paid for by the County.

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**Policy D.1.1.4:** Flagler County shall continue to review and comment on master plans for public and private sewer facilities in existing and future sewer service areas for consistency with ~~the~~ Flagler County's Comprehensive Plan.

**Policy D.1.1.5:** The following acceptable level of service (LOS) standards for the unincorporated areas based on the average daily flow are hereby established and shall be used as the basis for determining the availability of facility capacity and the demand generated by a development:

A(1) Potable Water Criteria:

125 gallons per capita per day

Equivalent Residential Unit = 300 gallons per day

B(2) Wastewater Criteria:

110 gallons per capita per day

Equivalent Residential Unit = 240 gallons per day

**Policy D.1.1.6:** Flagler County shall continue to implement ~~a procedure to monitor the~~ its concurrency management system to ensure that there is sufficient capacity for the provision of potable water and sanitary sewer systems' capacities based on the above LOS standards; and, to determine ~~of at the time a development order is requested that~~ if adequate facility capacities are available or will be available when needed to serve the development.

**Policy D.1.1.7:** Flagler County's Engineering and Planning Departments shall continue to jointly implement procedures to update facility demand and capacity information as development orders or permits are issued.

**Policy D.1.1.8:** The Flagler County Planning Department shall prepare ~~bi-~~annual summaries of capacity and demand information for each facility and service area.

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**Policy D.1.1.9:** All improvements for replacement, expansion or increase in capacity of facilities shall be compatible with the adopted level of service (LOS) standard for those facilities.

**Policy D.1.1.10:** ~~Consistent with the urban growth policies of the Future Land Use Element of this Plan, provision of centralized sanitary sewer and potable water services shall be limited to the service areas shown for these facilities in the support documents of this Plan.~~ Flagler County shall coordinate with private and public utilities to ensure that the provision of potable water and sanitary sewer is maintained throughout the County in a manner consistent with the adopted Future Land Use Element and the Water Supply Facilities Work Plan. The County shall not issue development orders or development permits without first consulting with other local governments, private utility providers or quasi-governmental entities (e.g., Community Development Districts) to determine whether adequate water supplies to serve the development will be available no later than the anticipated date of issuance by the County of a building permit or its functional equivalent. The County will also ensure that adequate water supplies and facilities are available and in place prior to issuing a building permit or its functional equivalent.

**Policy D.1.1.11:** ~~Beginning in 2000 and every seven (7) years thereafter, the Planning Department shall review the municipal comprehensive plans and development regulations and procedures for compatibility with the County's comprehensive plan and land development regulations.~~ Projects that develop under the Flagler Agricultural Resource Mitigation System (FARMS) program specified in the Future Land Use Element shall be designed such that conservation efforts attempt to realize a fifty percent (50%) reduction of the typical demand for potable water and sanitary sewer services, as based on the level of service (LOS) standards established in this Element.

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**Objective D.1.2:** ~~The Flagler County shall discourage the use utilization of interim on-site systems shall only be permitted where the County desires except when it serves as an incremental method of constructing improvements that are consistent with an approved master plan for centralized wastewater or water service, but is unavailable at the time of development approval to areas that meet the criteria established in the Flagler Agricultural Resource Mitigation System (FARMS) program as established in the Future Land Use Element, or the replacement of existing wells and septic tanks in areas where these are determined to be inappropriate.~~

**Policy D.1.2.1:** Interim water and wastewater facilities, ~~including and~~ package plants may be permitted in the ~~Planned Urban Service Area~~ for projects meeting the requirements of the Flagler Agricultural Resource Mitigation System (FARMS) program, provided the requirements of subsection (a1) through (e3) are met:

- A(1) The proposed location is suitable for operation of a water or wastewater treatment facility in terms of land use compatibility and water resource constraints.
- B(2) The interim water or wastewater facility is sited within the designated area for providing service as identified in the Flagler County's Comprehensive Plan.
- C(3) The interim water or wastewater facility is approved by Flagler County and ~~a plan for short-term~~ is designed for connection ~~assimilation~~ to the nearest area-wide system, including a method for financing tie-in, is submitted to and approved by Flagler County. If a package plant is no longer necessary, the use of the land, exclusive of that required for a lift or pump station, shall be returned to the original or successive landowner.

**Policy D.1.2.2:** ~~Public or approved private central wastewater systems shall not be permitted in Rural Development Areas until the Board of County Commissioners determines that a public health hazard exists requiring a central wastewater system~~ Flagler County shall coordinate with the adjoining cities and private utility providers

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to ensure that provision of potable water and sanitary sewer in the areas west of U.S. Highway 1 do not contribute to the expansion of urban sprawl and shall be planned in a manner that supports agricultural and natural resources in that area.

**Policy D.1.2.3:** Flagler County shall coordinate with adjoining cities/counties, private utility providers, and quasi-governmental organizations (e.g. CDDs) when a request to extend C~~centralized water service may be extended into the area west of US Highway 1~~ these portions of the Rural Development Area which are between the Planned Urban Service Area boundary line and a distance of not more than one-half (1/2) mile beyond an existing or planned water transmission main, with the goal of allowing the extension only under one of the following conditions:

- A(1) To eliminate an existing health or safety hazard;
- B(2) To provide for the consolidation of existing central water systems into more efficient, cost-effective systems which are consistent with the Capital Improvements Program;
- (3) To serve a new development that is consistent with the Flagler Agricultural Resource Mitigation System (FARMS) program; or
- ~~C(4)~~ To provide adequate fire flow to residential subdivisions with lots less than two (2) acres and planned developments which are located within one-half (1/2) mile of an existing water transmission main; or
- (5) Where deemed by the Flagler County Board of County Commissioners to be essential to economic development, consistent with the County's Economic Development Element and Capital Improvements Program.

**Policy D.1.2.4:** ~~The~~ In accordance with Florida Statutes, Flagler County shall require that existing interim ~~or~~ package treatment facilities connect to a public area wide wastewater or water system ~~within five (5) years after either of these systems is made available.~~

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**Policy D.1.2.5:** Flagler County shall utilize all possible grants and low-cost methods of funding extensions of centralized water and sanitary sewer systems to residents of Flagler County who are mandated to discontinue on-site wells or septic tanks due to threats to the public health, safety or welfare resulting from the failure of those on-site facilities.

**Objective D.1.3:** Flagler County shall ensure the provision, operation, and maintenance of a sanitary sewer system that protects the health of the public and the resource values of the natural environment as a high priority.

**Policy D.1.3.1:** The County shall not issue development orders or development permits without first consulting with other local governments, private utility providers or quasi-governmental entities (e.g., Community Development Districts) to determine whether adequate sanitary sewer facilities will be available to serve the new development no later than the anticipated date of issuance by the County of a building permit or its functional equivalent. Development approvals should be granted by the Board of County Commissioners only when the requirements for fire flows meet or exceed the requirements of the Subdivision Regulations or amendments thereto. Minimum fire flows and pressure requirements must be available on the development site prior to issuance of Certificates of Occupancy.

**Policy D.1.3.2:** The Flagler County's Planning Department shall continue to coordinate with the County Health Department to implement a Septic Tank Monitoring Program to ensure the effective operation of septic tanks and to reduce the potential for public health hazards.

**Objective D.1.4:** All present and future wastewater and water treatment facilities shall meet all applicable federal and state regulations.

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**Policy D.1.4.1:** All wastewater treatment and disposal systems shall, at a minimum, be operated consistent with all state and ~~f~~Federal standards and in full compliance with their respective permits as issued by state agencies.

**Objective D.1.65:** Utilization of septic tanks shall be limited to rural areas with suitable soils and distribution at low development densities, unless existing site conditions can be modified so that the tank and drainfield designs and operation comply with State standards.

**Policy D.1.65.1:** ~~The~~ Flagler County shall require all additional governing criteria on the use of septic tanks to be consistent with the adopted comprehensive Land Development Code Regulations (LDRs).

**Policy D.1.65.2:** Flagler County will allow the use of septic tanks for development in areas of suitable soils where no financially feasible option for connection to a centralized sanitary sewer system exists at the time that development occurs. In circumstances of marginal soils, the County may allow for the use of septic tanks based on detailed soils and site analyses and where ground or surface waters will not be polluted. Specific septic tank criteria shall be governed by the Flagler County Subdivision Regulations or supplemental guidelines adopted under the ~~proposed~~ Land Development Code Regulations (LDRs), as well as the requirements established in Rule Chapter 10D-6, Florida Administrative Code (FAC).

**Policy D.1.65.3:** Where it has been determined by the Flagler County Board of County Commissioners that the application of Policy D.1.65.2 will result in substantial environmental impacts to the subject or abutting property, the Board may limit the density of the development. Substantial environmental impacts shall be determined by one or more of the following:

- A(1) Total clearing of on-site vegetation or placement of fill material which results in the substantial destruction of the natural vegetation.

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- ~~B(2)~~ Unacceptable interruption of the natural surface drainage pattern.
- ~~C(3)~~ Contamination of surface water bodies or groundwater.

**Policy ~~D.1.65.4~~:** The Flagler County shall continue to require connections to public centralized wastewater and water systems within one (1) year from the date of notice that these services are available ~~when septic tanks experience documented operational problems.~~

**Objective ~~D.1.76~~:** Flagler County shall provide technical assistance upon request for the purpose of maintaining health and safety standards for the operation and maintenance of non-community and unregulated private wastewater treatment systems.

**Policy ~~D.1.76.1~~:** The Flagler County Engineering Department shall provide information upon request to the County Health Department so that it ~~[sic]~~ may provide inspections and advice as needed on the operation and maintenance of wastewater treatment systems serving less than twenty five (25) residents on a yearly basis or less than twenty five (25) ~~years~~ persons per day for sixty (60) or less days per year.

**Objective ~~1.8~~:** ~~In order to discourage urban sprawl, seventy five percent (75%) of the available capacity of existing facilities shall be allocated to existing developments prior to submission of any permit application to state agencies for additional capacity within the same service area.~~

**Policy ~~1.8.1~~:** ~~The provisions of centralized utility services is intended to serve as a growth management tool in that central utility systems will only be permitted and expanded within the designated Planned Urban Service Area.~~

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**Objective D.1.97:** ~~Beginning in 2000 and every seven (7) years thereafter, the Flagler County shall continue to Administrator's Office through the Capital Improvements Program shall review the current delivery programs for public services to identify and eliminate fragmentation, duplication of efforts, overlapping jurisdictions, and unnecessary costs, as part of its annual capital budgeting process.~~

**Policy D.1.97.1:** Flagler County shall continue to maintain and negotiate as needed interlocal agreements with adjacent municipalities and private utilities regulated by the Public Service Commission to establish and maintain discrete planning and service area boundaries in order to provide the most cost-effective service and to avoid unnecessary duplication.

**Policy D.1.97.2:** Flagler County shall investigate alternative management systems such as consolidation or the creation of an authority for the delivery of wastewater and water services. The County shall document the results of this investigation ~~every seven years~~ as part of its Comprehensive Plan Evaluation and Appraisal Report (EAR).

**Objective D.1.408:** Prevent urban sprawl by utilizing a compact development pattern in the Future Land Use ~~m~~Map that results in the effective provision of wastewater and water services and minimizes the capital and operating costs of providing these utility services.

**Policy D.1.408.1:** Future growth at urban densities or intensities will be encouraged only in areas which have sufficient existing or planned capacity on central water and wastewater systems and are available for connecting. Areas of planned capacity will be interpreted as those areas where improvements are scheduled in the Capital Improvements Program, or within a designated utility service area.

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**Policy ~~D.1.108.2~~:** The Flagler County shall continue to require that new development in the area east of US Highway 1 Planned Urban Service Area be connected to central water and wastewater systems. The waiver of this requirement to permit the use of septic tanks or wells shall only be considered where the density, environmental conditions, and fiscal commitments so justify.

**Objective D.1.149:** Use of public funds or private financing commitments for the extension of water and wastewater services as a ~~vehicle~~ tool to manage growth.

**Policy D.1.149.1:** Water and wastewater systems ~~in~~ owned and operated by Flagler County ~~should~~ shall be self-supporting and ~~should~~ shall not utilize ad valorem taxation, except for special taxing districts or Community Redevelopment Areas.

**Policy D.1.149.2:** Consistent with the “user pays” philosophy, future users of wastewater and water systems shall ~~should~~ be responsible for bearing the expansion or construction costs of water and wastewater treatment and transmission facilities resulting from their impacts.

**Policy D.1.9.3:** Flagler County shall coordinate with adjoining governments, quasi-governmental entities (e.g. Community Development Districts) and private utility providers to ensure an efficient and effective method of providing potable water and sanitary sewer, with the understanding that Flagler County will be the provider of these utilities when the following factors are present:

- (1) The proposed development is consistent with the Flagler County Comprehensive Plan and Land Development Regulations (LDRs).
- (2) The provision of centralized utilities is necessary for public health, safety and welfare.



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**Policy D.1.131.2:** Flagler County shall review and comment on National Pollution Discharge Elimination System (NPDES) permits for consistency with the policies and criteria of this Comprehensive Plan.

**GOAL D.2:** Flagler County shall ensure that wastewater collection, treatment, and disposal facilities meet the identified existing and projected demands.

**Objective D.2.1:** In order to alleviate the potential harmful impacts of septic tank usage to ground water supplies, the Flagler County shall by the year 20015 conduct an engineering study of the Hammock area (beach communities) of Flagler County. The study will investigate the environmental impacts of continued septic tank use, alternatives to septic tank usage, and the feasibility of a public sewage treatment system.

**Policy D.2.1.1:** The capital projects shall be undertaken in accordance with the schedule provided in the Capital Improvements Element of the Flagler County Comprehensive Plan.

**Policy D.2.1.2:** Projects needed to correct existing deficiencies shall be given priority in the formulation and implementation of the annual work program of the Flagler County department responsible for the project.

**Objective D.2.2:** ~~Projected wastewater demands through the year 2005 will be met by undertaking the following public projects:~~ Flagler County will continue to coordinate with providers of sanitary sewer treatment that serve County residents to ensure the adopted levels of service (LOS) for sanitary sewer are maintained.

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- ~~A) The County anticipates Palm Coast expanding its waste water plant capacity to meet demands through the year 2005. However, this would be a private project and not within the funding responsibilities of Flagler County.~~
- ~~B) Investigate the availability of funding for improvements called for by the sewer feasibility engineering study of the Hammock area (beach communities) as specified by Objective 2.1.~~

**Policy D.2.2.1:** The capital projects shall be undertaken in accordance with the schedule provided in the Capital Improvements Element of the Flagler County Comprehensive Plan.

**Policy D.2.2.2:** Projects needed to correct existing deficiencies shall be given priority in the formulation and implementation of the annual work program of the Flagler County department responsible for the project.

**Policy D.2.2.3:** During the preparation of the Flagler County budget, the County Administrator shall review the annual work programs of the County departments to ensure that projects are scheduled to minimize disruption of services, duplication of labor, and to maintain adopted levels of service for all facilities.

**Policy D.2.2.4:** All required Federal and State permits shall be obtained before the County undertakes or authorizes construction or operation of public facilities.

~~**Objective 2.3:** Projected wastewater demands for the period 2000-2010 will be met by undertaking the following public projects:~~

- ~~1. Secure funding and begin construction of wastewater collection and treatment systems for the Hammock area (beach communities) if the proposed engineering study referenced by Objectives 2.1 and 2.2 justifies such a system and if a funding source is available.~~

~~2. The County anticipates Palm Coast expanding its waste water plant capacity to meet demands through the year 2010. However, this would be a private project and not within the funding responsibilities of Flagler County.~~

~~**Policy 2.3.1:** The capital projects shall be undertaken in accordance with the schedule provided in the Capital Improvements Element of the Flagler County Comprehensive Plan.~~

~~**Policy 2.3.2:** Projects needed to correct existing deficiencies shall be given priority in the formulation and implementation of the annual work program of the County department responsible for the project.~~

~~**Policy 2.33:** All required Federal and State permits shall be obtained before the County undertakes or authorizes construction or operation of public facilities.~~

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**Water Supply Sub-Element**

**GOAL D.3:** Flagler County shall coordinate with all local governments, quasi-governmental entities, and private utility providers to ensure that there are sufficient provide potable water supply, treatment, and distribution facilities to meet the identified existing and projected demands, as based on the County's adopted Water Supply Facilities Work Plan.

**Objective D.3.1:** ~~Projected potable water demands for the planning periods of 2005 and 2010 will be met by undertaking the following projects:~~ Flagler County shall continuously work with other local governments, quasi-governmental entities (e.g. Community Development Districts) and private utilities to analyze existing demand and projected future demand to ensure that the residents and businesses of Flagler County receive potable water services consistent with the adopted levels of service for those facilities.

- ~~1. The Flagler County anticipates Palm Coast expanding its potable water plant capacities to meet demands through the year 2005 and 2010. However, these would be private projects and not within the funding responsibilities of Flagler County.~~

**Policy D.3.1.1:** Flagler County does not plan to be a provider of potable water, but will ensure that decisions as to land use and permitting of development are made based on the adopted Comprehensive Plan and Water Supply Facilities Work Plan of those local governments providing that service. If Flagler County decides that it is financially feasible and in the best interest of the public to provide for potable water supply, treatment, and distribution, then Flagler County must amend and update its Water Supply Facilities Work Plan in order to assure that there are adequate supplies of potable water.

**Policy D.3.1.2:** Flagler County hereby adopts and incorporates the findings and recommendations established in the Flagler County Water Supply Facilities Work Plan and shall ensure that the Water Supply Facilities Work Plan and the Infrastructure Element are implemented through interlocal agreements, memorandums of understanding, or similar instruments that:

- (1) Require that coordination of land uses and future land use changes with the availability of water supplies and water supply facilities;
- (2) Establish enforceable potable water LOS standards for residential and nonresidential users;
- (3) Includes provision for the protection of water quality in the traditional and new alternative water supply sources;
- (4) Establish priorities for the replacement of facilities, correction of existing water supply and facility deficiencies, and provision for future water supply and facility needs;
- (5) Establish provisions for conserving potable water resources, including the implementation of reuse programs, encouraging the use of stormwater in lieu of treated water, and potable water conservation strategies and techniques;
- (6) Establish provisions for improved or additional coordination between a water supply provider and the recipient local government concerning the sharing and updating of information to meet ongoing water supply needs;
- (7) Require the coordination between local governments and the water supply provider in the implementation of alternative water supply projects, establishment of level of service (LOS) standards and resource allocations, changes in service areas, and potential for annexation;
- (8) Require the coordination of land uses with available and projected fiscal resources and a financially feasible schedule of capital improvements for water supply and facility projects;

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- (9) Determine the need for additional revenue sources and identify how to fund water supply and facility projects;
- (10) Future wastewater treatment facilities shall have reuse as part of their design; and
- (11) Upon expansion of any wastewater treatment facilities, reuse shall be encouraged.

**Policy D.3.1.3:** Flagler County shall continue to monitor, update, and refine the adopted Water Supply Facilities Plan to ensure coordination with the St. Johns River Water Management District (SJRWMD) Regional Water Supply Plan and the individual plans of the local water suppliers (private and public).

**Policy D.3.1.4:** Flagler County shall continue to monitor and coordinate with adjoining water service providers (private and public) to ensure approved Consumptive Use Permits are consistent with the respective adopted Water Supply Facilities Work Plans.

**Policy D.3.1.5:** Flagler County shall not approve any applications for amendment to the Future Land Use Map or Official Zoning Map unless the applicant demonstrates that the provider of potable water that serves the subject property has the ability to access a safe, sufficient supply of raw water in order to serve the potential development feasible under the proposed land use and/or zoning standard. Flagler County shall use the County's adopted Water Supply Facilities Work Plan and the respective Plan for the provider of potable water, as well as Consumptive Use Permits issued by the St. Johns River Water Management District (SJRWMD) to determine if there is adequate supply. Flagler County shall determine the maximum intensity of a proposed amendment by the application of the zoning standards in the Land Development Regulations (LDRs) if there is not a specific plan, such as a Planned Unit Development (PUD) or Development of Regional Impact (DRI) associated with the amendment request.

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**Objective ~~D.1.53.2~~:** Flagler County shall strive to reduce ~~t~~The per capita consumption of water shall be reduced by ten percent (10%) from ~~1995~~ 2010 levels by the year ~~2005~~ 2020 through the implementation of the following polices. The primary purpose shall be that potable water shall be utilized more efficiently on a per capita basis ~~in~~ as compared to current levels of consumption [~~sic~~].

**Policy ~~D.3.2.14.5.1~~:** Flagler County shall assist the St. Johns River Water Management District (SJRWMD) in its public information programs in an effort to increase public awareness and acceptance of water conservation techniques including wastewater reclamation.

**Policy ~~D.3.2.21.5.2~~:** Flagler County will continue to implement its water conservation related ordinances which include the use of low volume plumbing fixtures and the use of xeriscape and Florida-Friendly landscaping techniques.

**Policy ~~1.5.3~~:** ~~The County shall continue to implement its Water Conservation related ordinances in an effort to reduce per capita consumption of water by 10%. The 10% reduction shall occur by the year 2005 using 1995 as the base year.~~

**Policy ~~D.3.2.3~~:** Flagler County shall amend the Land Development Regulations (LDRs) to incorporate conservation standards, such as WaterStar, so that there are incentives for developers to follow best management practices as cited in *A Guide to Florida-Friendly Landscaping (Florida Yards & Neighborhoods Handbook)* for landscape installation, irrigation, and fertilizer and pesticide application, specifically addressing:

- (1) Landscape design that minimizes the impacts of excessive fertilizer applications;
- (2) Preferred plant materials;
- (3) Appropriate type of fertilizer to avoid the release of excess nutrients;
- (4) Rate and frequency of application;

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- (5) Appropriate watering schedules; and
- (6) Design and maintenance of drainage control systems.

**Objective D.3.3:** Flagler County shall use water conservation efforts to protect valuable water supplies in order to strive to maintain a reliable, sustainable source of potable water through 2035.

**Policy D.3.3.1:** Flagler County shall establish specific standards in the Land Development Regulations (LDRs) to ensure consistency with the water conservation elements of the adopted Water Supply Facilities Work Plan that may include, but are not limited to:

- (1) Implementation of native, xeric landscaping requirements for new development and retrofitting of existing development;
- (2) Installation of reclaimed water with augmentation from stormwater storage facilities in order to reduce the use of potable water for irrigation purposes;
- (3) Development of incentive to use water saving programs, such as Water Star, in new construction or major renovation of existing development;
- (4) Implementation on restrictions/disincentives on irrigation that uses potable water; and
- (5) Adjustment of potable water and sanitary sewer impact fees when meeting specific criteria for conservation purposes.

**Policy D.3.3.2:** Flagler County shall coordinate and cooperate with all adjoining water providers (private and public) that serve residents and businesses residing in the unincorporated areas with the development of alternative water sources.

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**Surface Water Protection/Stormwater Management Sub-Element**

**GOAL D.4:** Flagler County shall ensure the development, operation and maintenance of a cost-effective and efficient surface water management system which minimizes flood damage and losses, prevents water quality degradation of receiving water bodies and promotes groundwater aquifer recharge.

**Objective D.4.1:** Correct existing deficiencies to ensure preservation and improvement of surface water quality, according to priorities established within the Capital Improvements Element.

**Policy D.4.1.1:** ~~By 2005 the~~ Flagler County staff shall work with other local governments and private entities when it is necessary to study the existing primary drainage canal system serving Flagler County and determine those maintenance and required improvements necessary to service the general public interests.

**Objective D.4.2:** Utilization of excess capacity in existing drainage facilities to accommodate the drainage needs of new development shall be permitted in order to discourage urban sprawl.

**Policy D.4.2.1:** ~~The~~ Flagler County shall continue to require development plans to demonstrate that:

- A(1) excess drainage capacity can be utilized to accommodate new development;
- B(2) proper public drainage easements are provided or obtained; and
- C(3) adequate drainage calculations are submitted for County review and approval to document that sufficient excess capacity does exist.

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**Objective D.4.3:** The Flagler County Board of County Commissioners shall continue to require functional hydraulic maintenance schedules for existing publicly and privately owned surface water management facilities located within platted subdivisions, as provided for in Article IV of the ~~Subdivision Regulations~~ Land Development Regulations (LDRs).

**Policy D.4.3.1:** The Flagler County Board of County Commissioners, with advice of County staff, will ensure through the regulatory process that major drainage systems, both publicly and privately owned, are inspected and receive required functional hydraulic (excluding aesthetics) maintenance on at least an annual basis.

**Objective D.4.4:** ~~The Flagler County shall investigate the feasibility of establishing a water control district(s) as set forth in Chapter 298, Florida Statutes, to identify and correct existing deficiencies and to provide for future public surface water management needs. The results of the investigation shall be documented in the County's valuation and Appraisal Report which is due in 2007.~~

~~**Policy 4.4.1:** If recommended by the County's 2005 Five Year Evaluation and Appraisal Report, the County shall establish a water control district(s) for the public surface water management systems for the purpose of providing funding for:~~

- ~~A) acquisition of required drainage easements;~~
- ~~B) bonds for required drainage improvements within each basin; and~~
- ~~C) operation and maintenance costs.~~

**Policy D.4.4.21:** The Flagler County Board of County Commissioners shall continue to enforce County Ordinance 96-04 in order to maintain conditions and standards for acceptance of a private surface water management system by the County. The following criteria are included in this ordinance:

- A(1) An owner-funded, independent engineering study performed by an

engineering firm approved by the County Commission, with the advice of County staff. The study must include an evaluation of the system's design including its existing capacity based upon the predominate types of land uses served within the discreet watersheds, identification of the existing level of service, an analysis of the general performance including an evaluation of the adequacy of the current level of service, the general condition and expected life of the facilities and the impact of the facilities upon the area's surface water quality and adjacent natural resources and that capacity for a 100-year storm event be assured using formulae, impervious percentages, times of concentration, run-off coefficients and other design criteria as established by the County Commission.

- ~~B~~(2) All existing deficiencies determined by the County Commission with advise of County staff, must be corrected or repaired by the Owner of the private system.
- ~~C~~(3) The Owner of the private system must dedicate all lands necessary for the County to own, operate and maintain the system.
- ~~D~~(4) The Owner must provide to the County, capitalization funds to help alleviate the taxes necessary to own, operate and maintain the system.
- ~~E~~(5) Warranties against defects must be provided to the County.

**Policy D.4.4.32:** The criteria, referenced above in Policy D.4.4.21, shall be the minimum utilized by the Flagler County Board of County Commissioners when a private system is offered.

**Objective D.4.5:** Stormwater drainage regulations shall be included in ~~the~~ Flagler County's Land Development Code Regulations (LDRs) and shall protect natural drainage features and ensure that future development utilizes stormwater management systems compatible with existing master surface water management plans.

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**Policy D.4.5.1:** As provided for in ~~Article VI, Natural Resource Protection Standards~~ the Land Development Regulations (LDRs) that were adopted by ~~Ordinance 92-1~~, the Flagler County will continue to enforce the following stormwater drainage provisions:

(1) Water Quantity: ~~[sic]~~

- (a) new developments and re-development activities are required to manage runoff from the 25-year frequency, 24-hour duration design storm event on-site so that post-development runoff rates, volumes and pollutant loads do not exceed pre-development conditions which is the County's minimum level of service (LOS) standard for drainage improvements;
- (b) stormwater engineering design and construction standards for on-site systems are provided;
- (c) erosion and sediment controls are used during development; and
- (d) periodic inspection and maintenance of on-site systems is ensured as a condition of system permit approval.

(2) Water Quality:

- (a) The quality of post-development runoff from the developed site must ensure that receiving water criteria established in ~~Chapter 17-302, section~~ Rule 17-302.500, F.A.C. are maintained.
- (b) Direct discharge of stormwater runoff into Class II water and Outstanding Florida Water (OFW) is prohibited. A workable filter system must be provided prior to any discharge into Class II water consistent with the standards in (2)(a) above.

**Policy D.4.5.2:** The Flagler County shall continue to enforce land development regulations that prohibit new development within the 100-year floodplain unless the structures use elevated first floors and provide compensating storage.

**Policy D.4.5.3:** Stormwater runoff for development within developed areas and subdivisions must meet the following level of service standards:

(a1) Water Quantity:

Post-development runoff shall not exceed pre-development runoff rates for the entire development or subdivision.

(b2) Water Quality:

The treatment of post-development runoff from the site must ensure that receiving water quality criteria established in ~~Chapter 17-302, section~~ Rule 17-302.500, F.A.C. are maintained.

**Objective D.4.6:** ~~The~~ Flagler County's Land Development ~~Code~~ Regulations (LDRs) shall be reviewed annually to ensure that it is consistent with the latest available regulations promulgated by the Federal Emergency Management Agency (FEMA) to reduce property damage and loss of life due to flooding.

**Policy D.4.6.1:** ~~The~~ Flagler County shall continue to minimize flood damage and related losses by prohibiting new development within the 100-year floodplain unless the structures use elevated first floors and provide compensating storage.

**Objective D.4.7:** Maintain the function of natural drainage features by reducing loss of flood storage capacity, protecting the functional value of wetlands, and by reducing the interbasin diversion of waters from the Lower St. Johns River basin into the Upper East Coast basin.

**Policy D.4.7.1:** ~~The~~ Flagler County shall continue to enforce regulations specifying limitations on encroachment, alteration, and compatible uses of design storm event floodplains.

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**Objective D.4.8:** Obtain an equitable return of Flagler eCounty tax contributions to the St. Johns River Water Management District (SJRWMD), as described by the following policies:

**Policy D.4.8.1:** The revenues generated by the unincorporated areas of Flagler County to the St. Johns River Water Management District (SJRWMD) should have a cost-benefit ratio of 1:1 or better.

~~**Policy 4.8.2:** The County Tax Collector should prepare annually a summary of the unincorporated tax revenues provided to the St. Johns River Water Management District for submission to the Planning and Zoning Administrator who will be responsible for evaluating the cost-benefit ratio and apprising the Board of County Commissioners.~~

**Objective D.4.9:** Encourage regulatory agencies to consolidate permitting programs to the maximum extent possible, and to provide uniform data requirements for new stormwater management projects.

**Policy D.4.9.1:** The Flagler County shall, as part of the Evaluation and Appraisal Report (EAR) process, conduct an evaluation of existing related state and regional regulations prior to the adoption of new or revised the Flagler County Land Development Regulations (LDRs) ~~and County development regulations~~ to avoid duplicative or unnecessary government regulation.

**Policy D.4.9.2:** ~~As part of the formulation of the County's Land Development Code, an intergovernmental regulation committee should evaluate the various stormwater management design requirements and criteria to establish uniform standards where possible~~ Flagler County shall continue to work with other local governments and

quasi-governmental agencies (e.g. Community Development Districts) in order for consistency and coordinated review of existing and future stormwater issues.

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**Aquifer Protection and Recharge Sub-Element**

**GOAL D.5:** Flagler County shall ensure that the natural functions of aquifer recharge areas serving the County will be protected and maintained in order to ensure the greatest available quantity and highest quality of groundwater supply.

**Objective D.5.1:** Utilize best management practices for maintenance of aquifer recharge area functions.

~~**Policy 5.1.1:** Flagler County shall review its drainage regulations as part of the Year 2007 Evaluation and Appraisal Report to ensure they are compatible with the rules and regulations of the St. Johns River Water Management District for projects located within prime recharge areas for the Floridan aquifer.~~

**Policy D.5.1.21:** Flagler County shall continue to depend on the St. Johns River Water Management District (SJRWMD) and its regulatory programs to protect recharge areas that are outside of Flagler County. The County shall rely on the SJRWMD's planning and permitting activities in Volusia County to ensure protection of the recharge area in the DeLand Ridge.

**Policy D.5.1.32:** Flagler County shall continue to depend on the St. Johns River Water Management District's (SJRWMD's) regulatory programs including both water use and surface water management to protect groundwater levels and groundwater flow gradients within and surrounding the County.

**Policy D.5.1.43:** Flagler County shall ~~should~~ continue to rely on existing groundwater protection regulations of the Florida Department of Environmental Protection (FDEP) to protect groundwater quality.

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**Policy D.5.1.5-4**: Flagler County shall continue to identify free-flowing wells during its routine field operations and to assist landowners in participating on a voluntary basis with the St. Johns River Water Management District's (SJRWMD's) current program for the plugging of non-valved, abandoned, or improperly-cased wells.

**Objective D.5.2**: Develop information to enable a consensus to be reached on the nature and functioning of aquifer recharge areas and identify the maximum safe withdrawal rate from Flagler County's water resources.

**Policy D.5.2.1**: Flagler County shall continue to rely on the St. Johns River Water Management District (SJRWMD) to conduct water supply studies and evaluations in advance of development pressure necessary to provide for the orderly and environmentally-compatible development of the County's water resources. These studies should include the identification of recharge areas for all aquifers, safe yield determinations, delineation of optimal wellfield production areas, and evaluation of saline water interface monitoring data from existing wellfields.

**Objective D.5.3**: The Flagler County shall continue to maintain communication and staff coordination between St. Johns River Water Management District (SJRWMD), Flagler County, and surrounding counties regarding water supply issues by regularly attending meetings of the Water Management District and by designating a County employee as the staff coordinator.

**Policy D.5.3.1**: Flagler County will [~~sic~~] take an active ~~participatory and leadership~~ role in the resolution of water supply issues that affect the County. This includes continued coordination with many agencies, including, but not limited to St. Johns River Water Management District (SJRWMD), the Northeast Florida Regional

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planning ~~€~~Councils (NEFRC), any future regional water supply agency, adjacent counties, and cities within the ~~€~~County.

**Objective D.5.4:** Flagler County shall continue to encourage and actively participate in the development of innovative water and wastewater programs sponsored by the existing public and private utilities which protect and conserve Flagler County's water resources. In addition, the County shall continue to enforce Land Development Regulation (LDRs) ~~land development regulations~~ that protect ground water supplies, as described by the following policies:

**Policy D.5.4.1:** Flagler County shall continue to implement a financially self-supporting permit process to protect the quality of groundwater recharge. This permit process, as provided for in Article VI. of the Flagler County Land Development Regulations (LDRs) ~~County Ordinance 91-2, Article V~~, provides minimum standards for the use, handling, production and storage of hazardous and toxic materials by non-residential activities. These standards constitute a Wellfield Protection Ordinance regulating potentially adverse activities around wellfields and are most strict within selected travel times or distances that can be reasonably expected to affect groundwater quality.

**Policy D.5.4.2:** Wellfield protection zones as identified in the Wellfield Protection Ordinance shall be included in the Comprehensive Plan and indicated on the Future Land Use Map.

**Policy D.5.4.3:** The Wellfield Protection Ordinance shall be amended to include future planned wellfields as soon as well locations are known.

**Policy D.5.4.4:** ~~As provided for in County Ordinance 91-2, Article V the County's zoning regulations~~ Flagler County shall continue to enforce and maintain the

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standards for wellfield protection contained in the Land Development Regulations (LDRs) in order to ensure that reasonable land use controls ~~around~~ protect public water supply wellfields ~~to~~ by preventing ~~preclude~~ the inappropriate location of incompatible land uses. These incompatible land uses shall include industrial and commercial land uses, landfills, rockpit lakes which penetrate through confining beds and new waste storage, disposal and treatment facilities.

**Policy D.5.4.5:** Flagler County shall require that all unsewered areas within protection zones ~~of a~~ in the Wellfield Protection Ordinance for a wellfield should be placed on central sewer system, when available and connection is financially feasible, in order to protect the quality of water recharging the wellfield.

**Policy D.5.4.6:** Flagler County shall promote water conservation through the continued implementation of its Water Conservation Program which includes the implementation of low water use residential landscapes (~~xeriscapes~~), efficient irrigation technologies for agriculture, the installation of low water use plumbing fixtures, and the use of reclaimed water on golf courses.

**Objective D.5.5:** ~~The Hammock area shall continue to receive a safe, economical and reliable supply of public drinking water~~ Flagler County shall work with the City of Palm Coast, the Town of Marineland, and the Dunes Community Development District (CDD) for the provision of utilities to the unincorporated Hammock area on the barrier island, north of Beverly Beach.

**Policy D.5.5.1:** Pursuant to the existing agreement with the City of Palm Coast ~~development~~ for extension of utilities within the Hammock area, local residents shall continue to receive a safe and reliable supply of potable water.

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**Policy D.5.5.2:** New development within the unincorporated Hammock area on the barrier island north of Beverly Beach shall not be permitted to develop Ddwelling units connected to individual drinking wells and septic tanks for potable water and wastewater disposal services, respectively, ~~shall not be permitted~~ at densities exceeding three (3) dwelling units per acre. New developments shall be encouraged to provide central water and wastewater services.

**Objective D.5.6:** Flagler County shall rely on the continued studies of the St. Johns River Water Management District (SJRWMD), and the County's public and private potable water utilities as the primary means for determining whether the number of ~~R/O treatment~~ water facilities in the eCounty should be increased so as to accommodate future growth and as a means of abating potential shortages of freshwater.

**Policy D.5.6.1:** Flagler County shall review and comment on studies and reports developed by other state agencies, the St. Johns River Water Management District (SJRWMD), and public and private utilities that investigate the feasibility and cost-effectiveness of using ~~R/O~~ treatment to produce potable water from saline aquifers in the County.

**Policy D.5.6.2:** As part of the development review process, where appropriate, and cost-effective, and consistent with the County's Water Supply Facilities Work Plan, Flagler County shall recommend the development of ~~R/O~~ water treatment systems in new developments in order to provide for a safe and reliable source of potable water.

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**Solid Waste Sub-Element**

**GOAL D.6:** Flagler County shall provide efficient solid waste collection and disposal services which promote the general public welfare at the lowest possible cost to accommodate existing and future development and minimizes environmental degradation.

**Objective D.6.1:** Flagler County will review all options and alternatives for regional collection, transfer and treatment/disposal of solid waste over the next 25 years. Flagler County shall emphasize a system that reduces dependence on landfills and encourages maximum reuse and recycling of solid waste. Until a suitable alternative has been approved, Flagler County shall locate new solid waste disposal sites and transfer stations using acceptable planning and operational standards that encourage the most efficient and cost-effective flow of solid waste.

**Policy D.6.1.1:** All future Flagler County solid waste transfer and disposal facilities shall be buffered from residential and bona fide, active agricultural areas by a minimum of one hundred (100) feet.

**Policy D.6.1.2:** When siting future solid waste transfer stations and disposal sites, the Flagler County shall include efficiency and cost effectiveness as part of its site selection criteria.

**Policy D.6.1.3:** Landfill sites shall not be located within residential areas. Areas with a designation of Agriculture or Agriculture and Timberlands on the adopted Future Land Use Map shall not be considered to be “residential” for the purposes of implementing this policy. This means that a landfill site may be located within the areas of Flagler County that have a designation of “Agriculture” or “Agriculture & Timberlands” on the adopted Futures Land Use Map.

**Policy D.6.1.4:** Transfer stations should be located on the periphery where users will not need to drive through residential areas.

**Policy D.6.1.5:** The acceptable level of service (LOS) standard relating to solid waste and used as the basis for determining the availability of facility capacity and the demand generated by a development is hereby established as 9.3 pounds per capita per day.

**Objective D.6.2:** Flagler County shall continue to enforce Chapter 27 of the Flagler County Code of Ordinances ~~County Ordinance 90-6~~ which provides for a mandatory solid waste collection system.

**Policy D.6.2.1:** ~~The~~ Flagler County shall continue to ensure through its mandatory solid waste collection program that full-service pickup is available ~~within the Planned Urban Service Area~~ to all residents and businesses, except as specifically exempted within Chapter 27 of the Flagler County Code of Ordinances.

**Policy D.6.2.2:** ~~The~~ Flagler County shall continue to include in its mandatory collection Code provisions ~~ordinance~~ specific fines and penalties for illegal dumping.

**Objective D.6.3:** ~~By 2005,~~ Flagler County shall strive to increase the number of County road segments that receive volunteer litter pickup by ten percent (10%) ~~over 1998~~ 2010 levels as a means to reduce the litter problem and the indiscriminate disposal of solid waste in the public right-of-way.

**Policy D.6.3.1:** ~~The~~ Flagler County shall continue to support the “Adopt a Highway” program as one approach to keeping County roads free of trash and litter.

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**Objective D.6.4:** Utilize the most energy efficient and practicable solid waste disposal operation, as described by the following policy:

**Policy D.6.4.1:** ~~The Flagler County will continue to support the franchise collector's efforts to conserve energy, e.g., improved routing or modifying franchise areas.~~

**Objective D.6.5:** Establish a rate structure that is fair to both consumers and collectors, ~~and fully covers the costs of operating the solid waste system.~~

**Policy D.6.5.1:** ~~Continue to use the Volusia County landfill as the primary Flagler County solid waste disposal site~~ Flagler County shall evaluate long term alternatives given the potential need for additional disposal areas.

**Policy D.6.5.2:** Flagler County shall continue to monitor the present private franchise system for residential and commercial solid waste collection to ensure that the most efficient and cost-effective service is being provided to the unincorporated area.

**Objective D.6.6:** Minimize land acquisition costs required for solid waste transfer ~~[sic]~~ and disposal sites.

**Policy D.6.6.1:** ~~In the event that the Evaluation and Appraisal Report identifies~~ Flagler County shall continue to monitor options for waste disposal to ensure that if there is a the need to acquire additional land for solid waste facilities, the land should be acquired immediately ~~so as~~ in a timely and efficient manner ~~to minimize costs.~~

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**Policy D.6.6.2:** As part of the process of selecting ~~the~~ the location of future solid waste transfer and disposal sites, Flagler County should evaluate the economics of land acquisition costs and operational costs.

**Objective D.6.7:** The Flagler County may allow private sector participation in any resource recovery systems that may be developed by the County.

**Policy D.6.7.1:** The Flagler County shall provide land use, zoning, and environmental information about the County to persons or entities involved in assessing the feasibility of developing a resource recovery facility in Flagler County.

**Objective D.6.8:** Protect the health, safety, and welfare of the public from the harmful effects of hazardous wastes.

**Policy D.6.8.1:** The Flagler County will continue to recognize state and ~~f~~Federal authorities as the primary agencies responsible for the regulation of hazardous waste disposal.

**Objective D.6.9:** Operate future solid waste disposal sites and transfer stations so that potential degradation of the environment is minimized.

**Policy D.6.9.1:** Flagler County shall build and operate any future transfer stations and disposal facilities according to established state, local, and regional operational and regulatory requirements to prevent adverse impacts to surrounding areas.

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**Objective D.6.10:** Using ~~1990~~ 2010 as the base year, Flagler County shall strive to reduce by thirty percent (30%), the annualized per capita amount of solid waste that would normally be collected and deposited in the Volusia County Landfill.

**Policy D.6.10.1:** Flagler County shall ~~C~~ontinue to implement a recycling program complying with the requirements specified in Subsection 403.706(2), Florida ~~-Statutes~~.

**Policy D.6.10.2:** ~~Within one year of the adoption of the EAR based plan amendment, and each year thereafter, t~~The Flagler County Engineering General Services Department shall ~~prepare a~~ continue to report to the Florida Department of Environmental Protection (FDEP) ~~DER~~ concerning its annual solid waste management program and recycling activities, as mandated by Subsection 403.706(7), Florida ~~-Statutes~~.

**Policy D.6.10.3:** The use of for-profit and non-profit organizations to implement ~~the~~ Flagler County's recycling program will be promoted through public notices and Requests for Proposals published in regional newspapers within the state.

**Policy D.6.10.4:** Flagler County shall continue to maintain interlocal agreements with local municipalities so as to consolidate their recycling efforts.

**Policy D.6.10.5:** Flagler County shall provide periodic written progress reports to municipalities concerning the status of the County's recycling program.

**Policy D.6.10.6:** ~~The~~ Flagler County shall periodically evaluate the economic feasibility of establishing a regional solid waste management or resource recovery program.

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~~**Policy 6.10.7:** All solid waste must be weighed when it is received on a scale conforming to the requirements of Chapter 531, F.S.~~

~~**Policy 6.10.8:** The County shall charge reasonable fees for the handling and disposal of solid waste at their landfill.~~

**GOAL D.7:** Flagler County shall provide solid waste collection, and disposal facilities to meet the identified existing and projected demands.

**Objective D.7.1:** The Flagler County shall continue to manage solid waste by continuing to operate the following projects:

- (1) Continue the program to fragment whole waste tires prior to being deposited into the sanitary landfill.
- (2) Continue to manage monitoring wells at the landfill site to check the potential for aquifer contamination.
- (3) Within one (1) year of the adoption of the Evaluation and Appraisal Report (EAR) based Plan Amendment, and every seven (7) years thereafter, update the County's Hazardous Waste Management Assessment.

**Policy D.7.1.1:** Capital projects shall be completed ~~undertaken~~ in accordance with the schedule provided in the Capital Improvements Element.

**Policy D.7.1.2:** The Flagler County Administrator shall review the annual work program of the Solid Waste Division to ensure that projects are scheduled to maintain the adopted level of service (LOS).

**Objective D.7.2:** Projected demands through the planning time frames of ~~2005~~ 2015 and ~~2040~~ 2020 will be met by undertaking the following projects:

- (1) Continue to use the Volusia County landfill as the sole Flagler County sanitary landfill.
- (2) Continue to operate a site in Flagler County as a transfer/temporary storage facility for hazardous wastes which is sufficient in size to accommodate 75 drums on a monthly storage basis.

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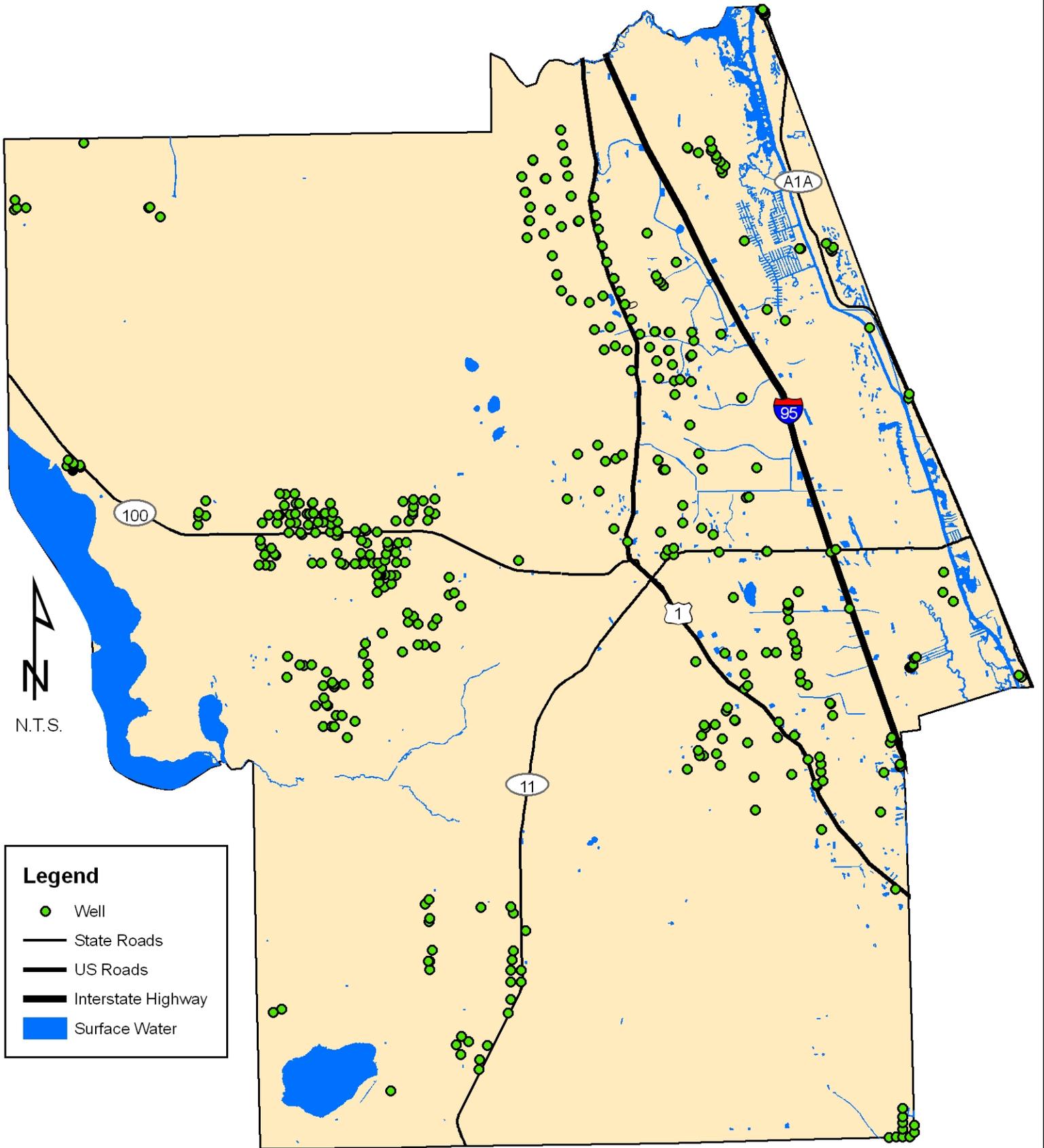
**Flagler County Infrastructure Element Map Series**

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# PUBLIC SUPPLY WELLS 2007

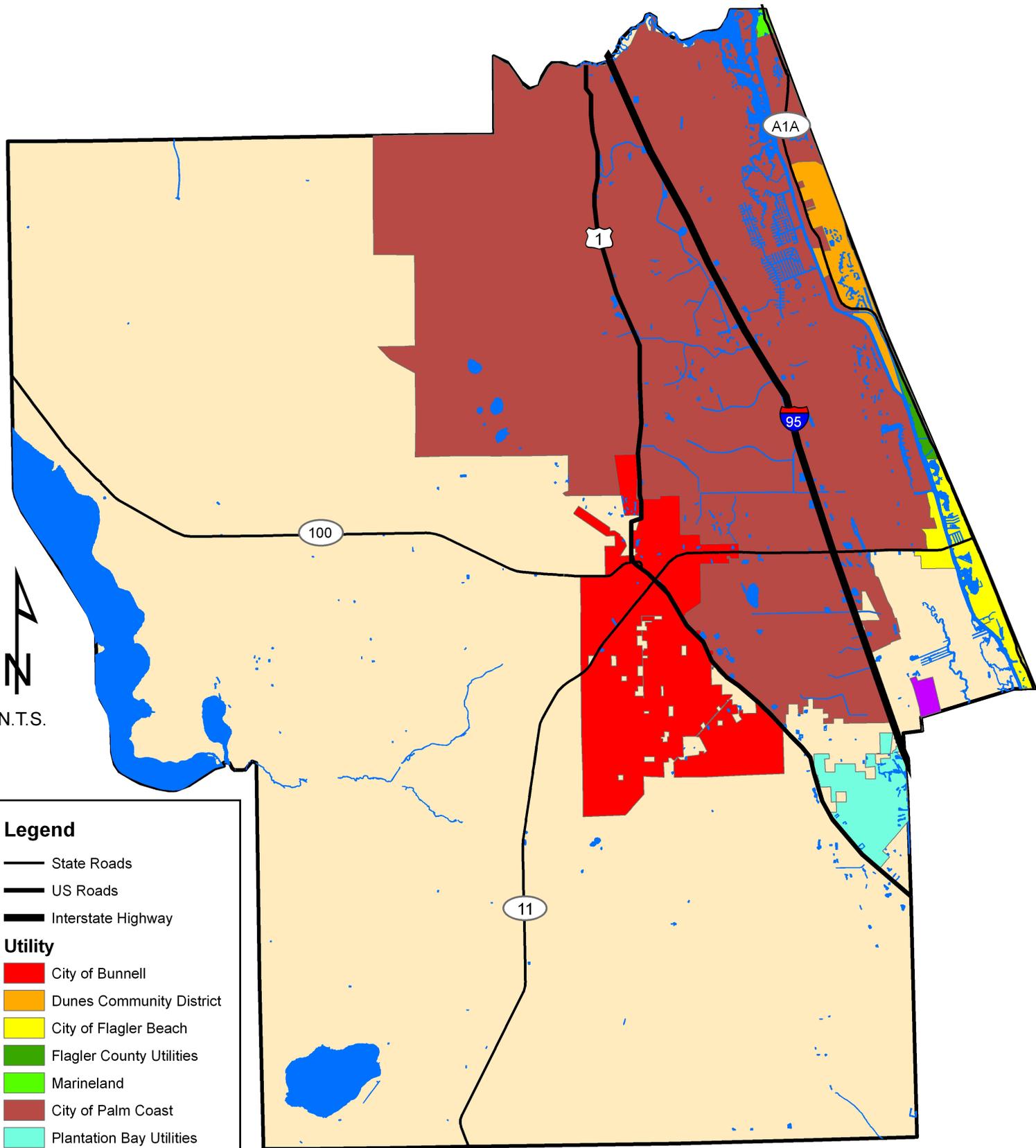


Source: St. Johns River Water Management District  
Created by: Northeast Florida Regional Council

This map is for reference use only. Data provided are derived from multiple sources with varying levels of accuracy. This product is for informational purposes and may not have been prepared for, legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

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# COUNTY WIDE SERVICE AREA BOUNDARIES 2006



## Legend

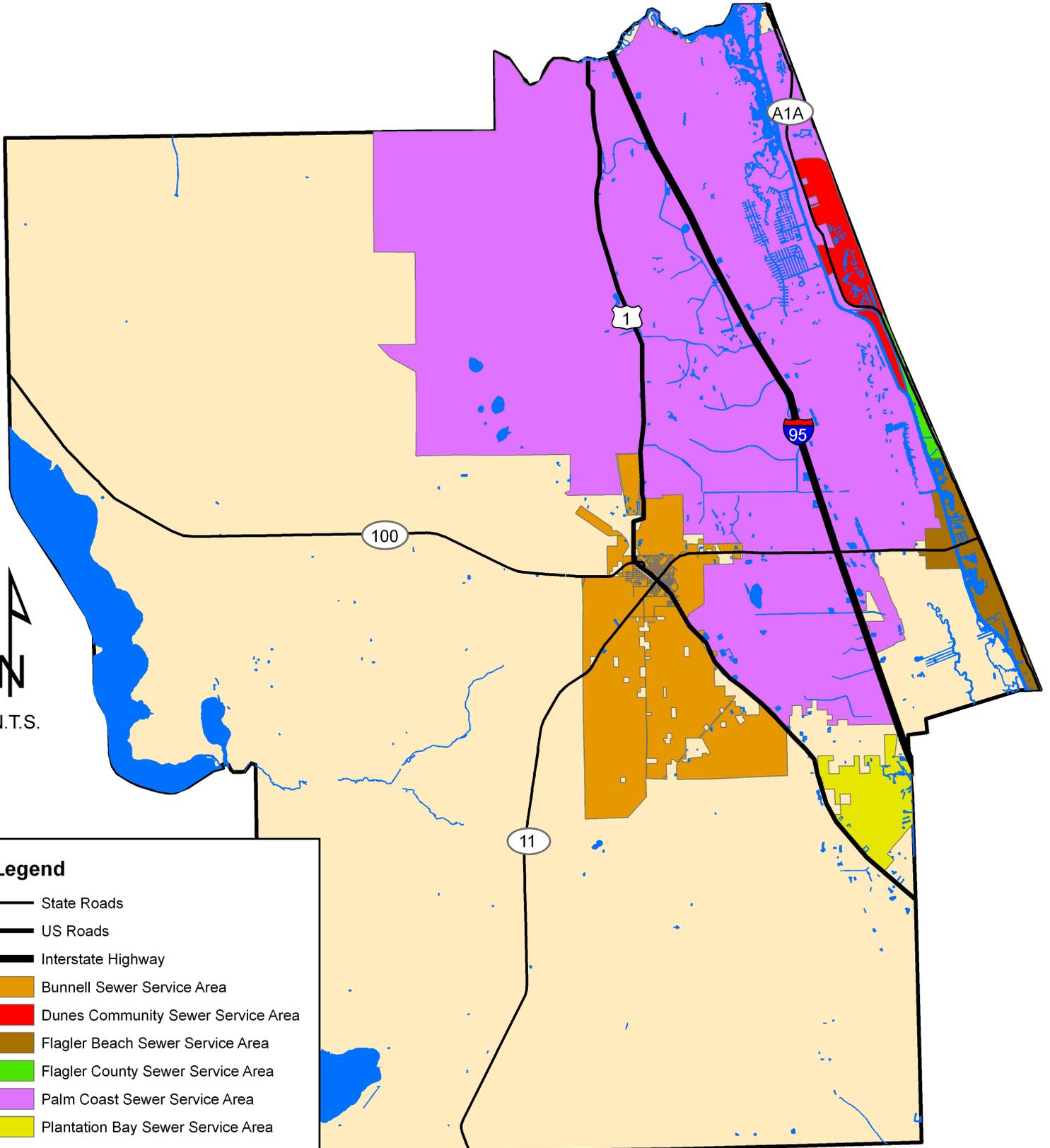
-  State Roads
-  US Roads
-  Interstate Highway

## Utility

-  City of Bunnell
-  Dunes Community District
-  City of Flagler Beach
-  Flagler County Utilities
-  Marineland
-  City of Palm Coast
-  Plantation Bay Utilities
-  Volusia County Utilities

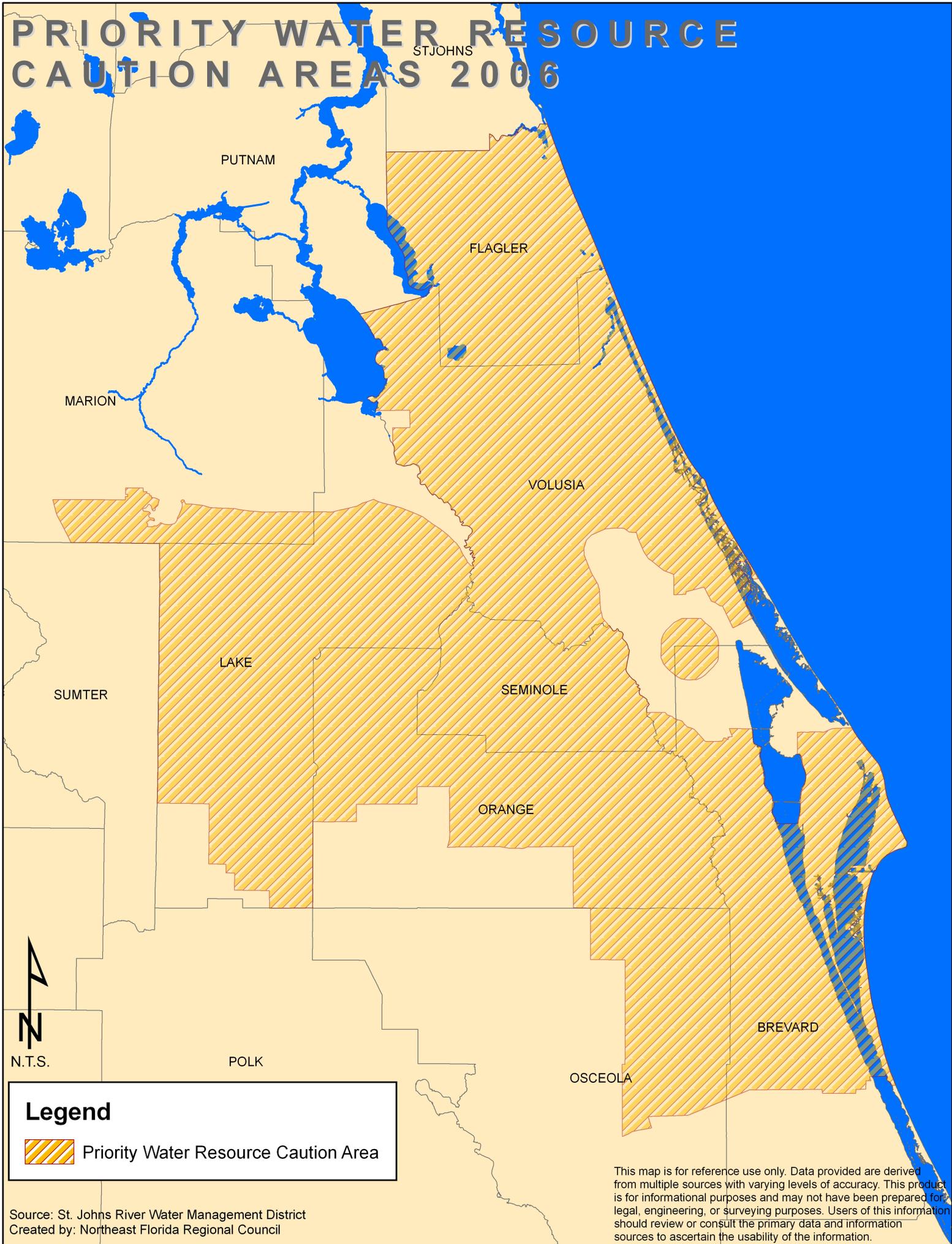
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# AREAS SERVED BY CENTRALIZED SANITARY SEWER SYSTEMS



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# PRIORITY WATER RESOURCE CAUTION AREAS 2006



## Legend

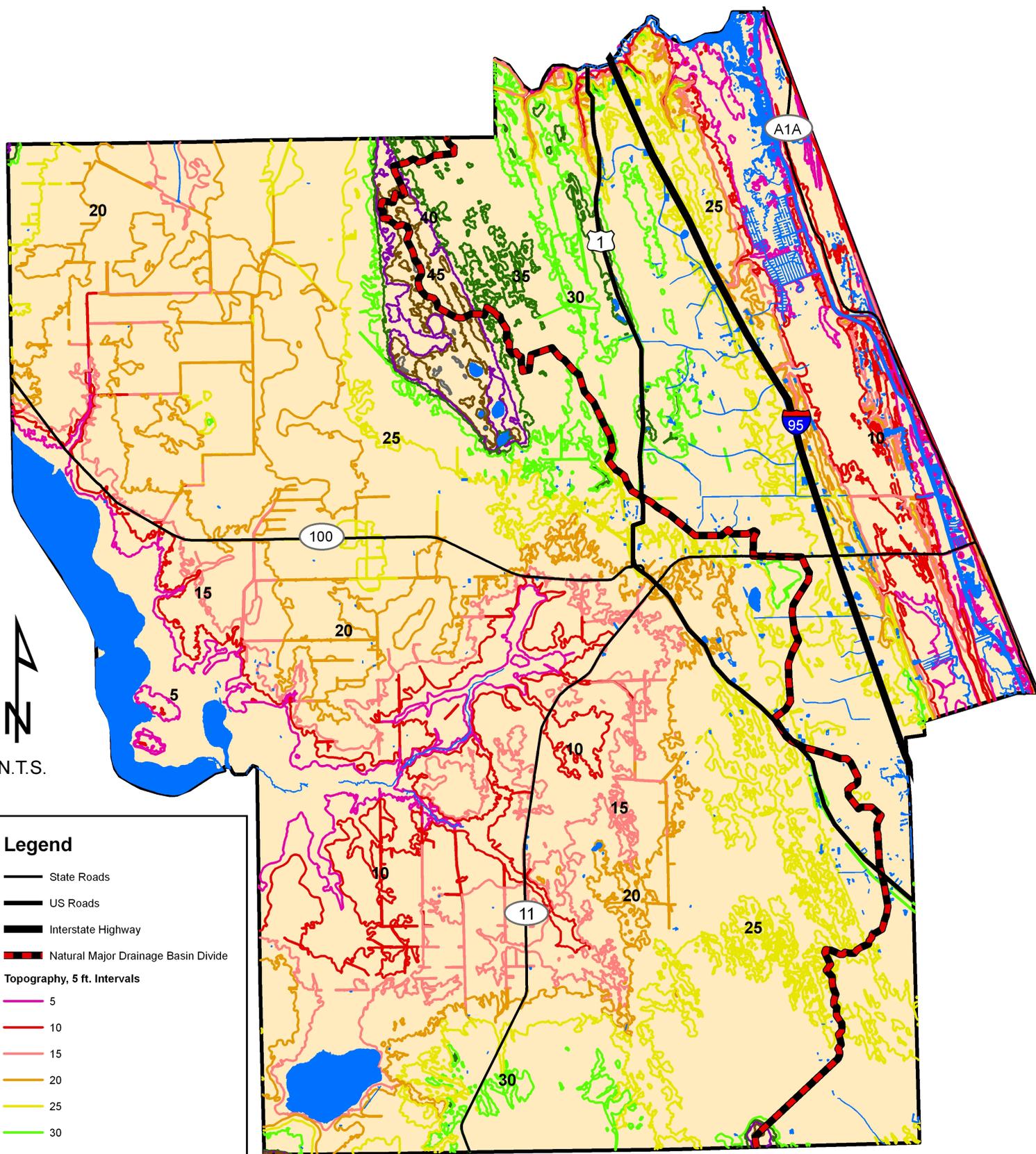
 Priority Water Resource Caution Area

Source: St. Johns River Water Management District  
Created by: Northeast Florida Regional Council

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# TOPOGRAPHY OF FLAGLER COUNTY

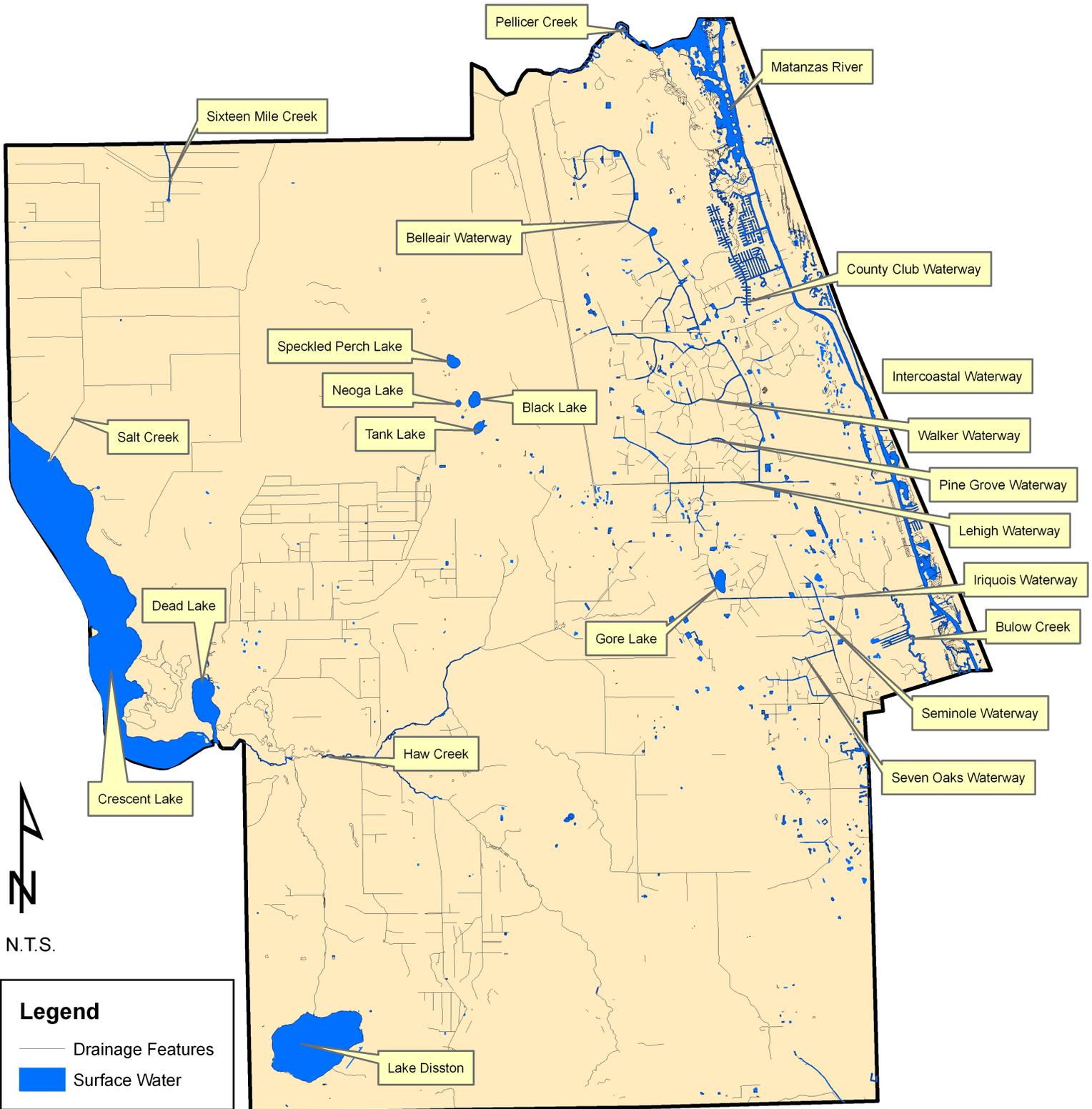


## Legend

-  State Roads
-  US Roads
-  Interstate Highway
-  Natural Major Drainage Basin Divide
- Topography, 5 ft. Intervals**
-  5
-  10
-  15
-  20
-  25
-  30
-  35
-  40
-  45
-  50

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# NATURAL AND MAN-MADE DRAINAGE FEATURES

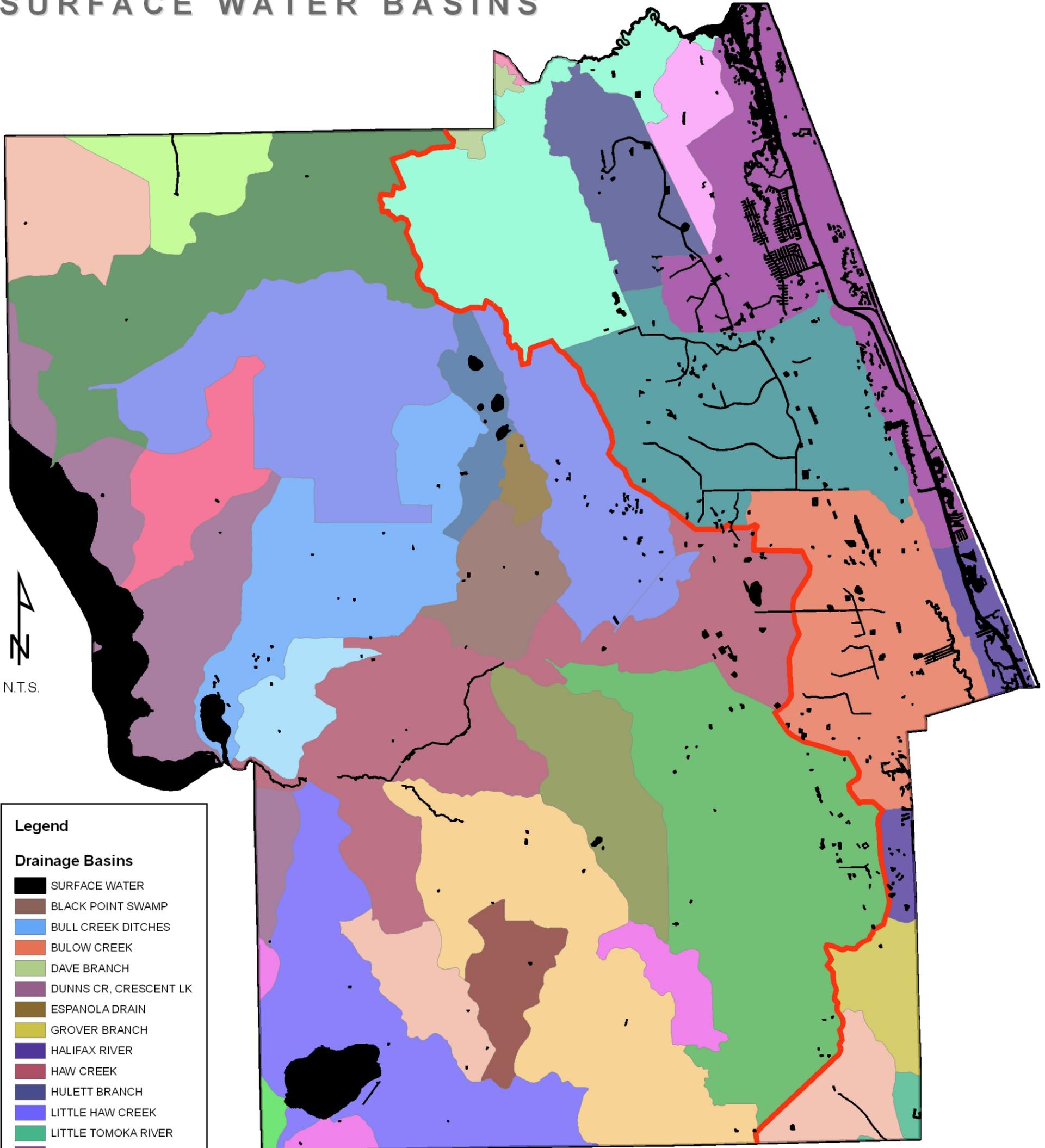


Source: St. Johns River Water Management District  
 Created by: Northeast Florida Regional Council

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# SURFACE WATERS & SURFACE WATER BASINS



## Legend

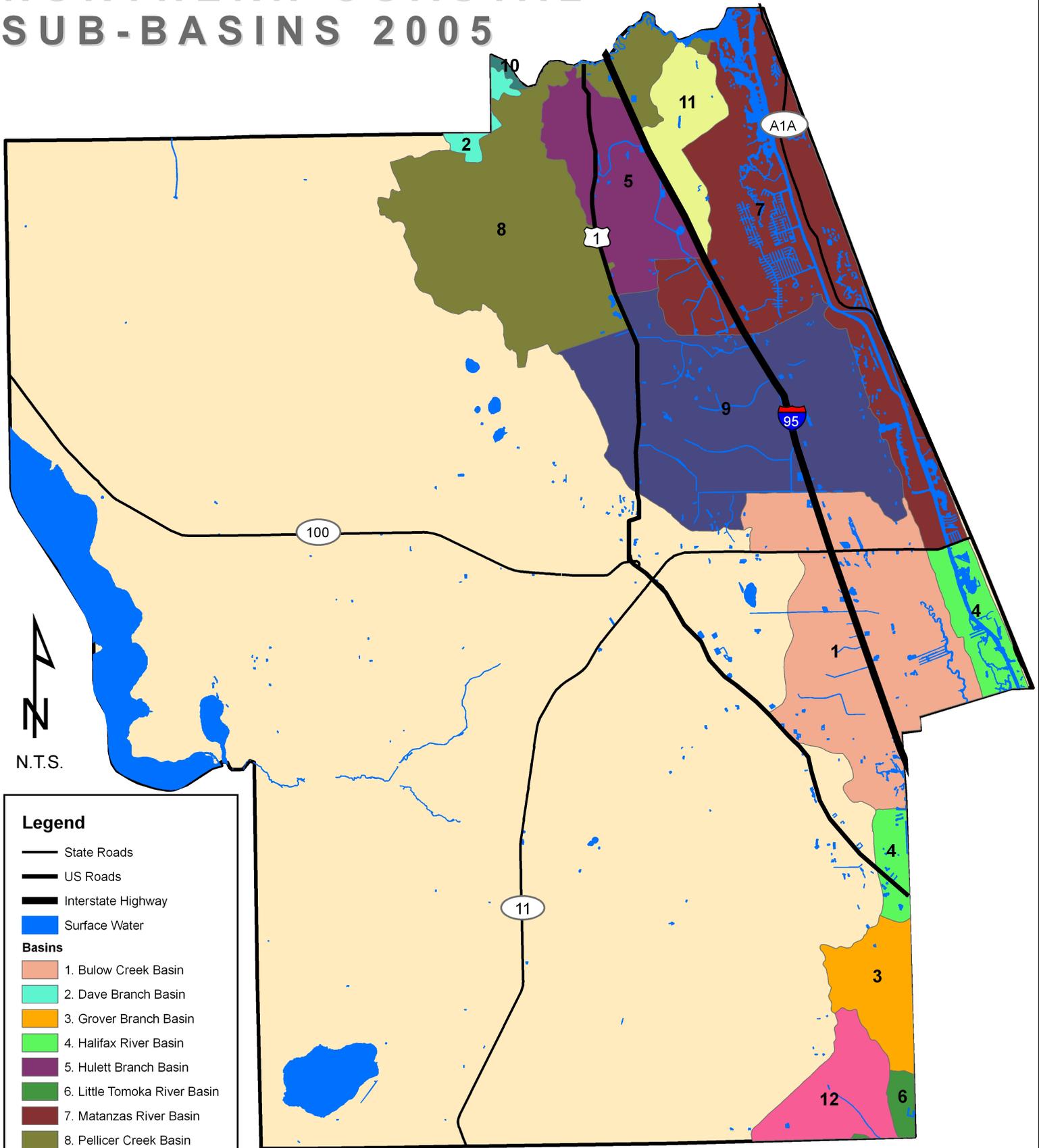
### Drainage Basins

- SURFACE WATER
- BLACK POINT SWAMP
- BULL CREEK DITCHES
- BULOW CREEK
- DAVE BRANCH
- DUNNS CR, CRESCENT LK
- ESPANOLA DRAIN
- GROVER BRANCH
- HALIFAX RIVER
- HAW CREEK
- HULETT BRANCH
- LITTLE HAW CREEK
- LITTLE TOMOKA RIVER
- MATANZAS RIVER
- MIDDLE HAW CREEK
- MUD LAKE OUTLET
- PARKER CANAL
- PELLICER CREEK
- SALT CREEK DITCHES
- SAW GRASS BAY
- SIXTEENMILE CREEK
- ST. JOE CANAL
- STEVENS BRANCH
- STYLES CREEK
- SWEETWATER BRANCH
- TANK LAKE OUTLET
- UNNAMED BRANCH
- UNNAMED CANAL
- UNNAMED DITCHES
- UNNAMED SLOUGH
- WHITE OAK SWAMP

Regions to the West of the red line are in the Lower St. Johns River Basin.  
Regions to the East of the red line are in the North Coastal Basin.

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# NORTHERN COASTAL SUB-BASINS 2005



## Legend

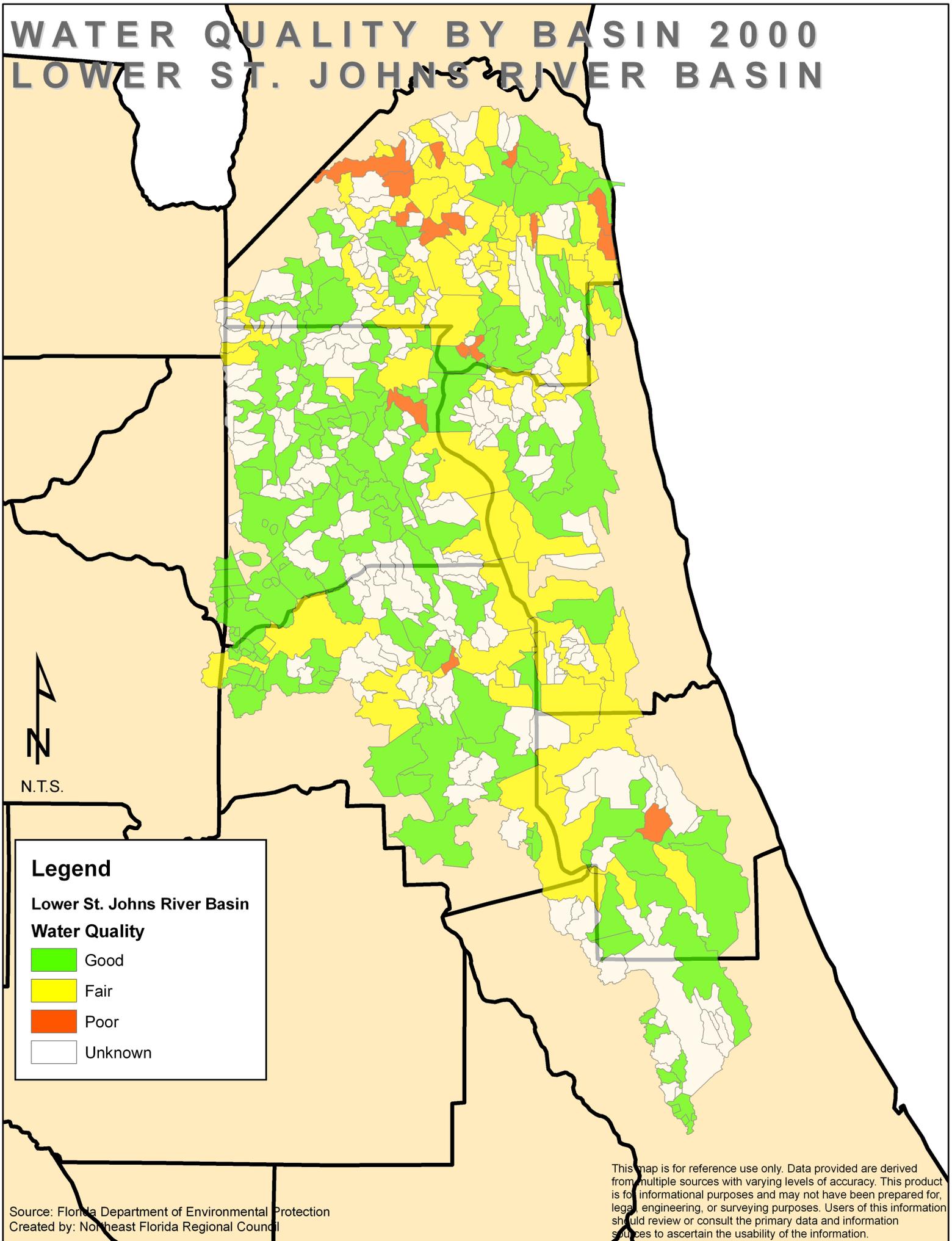
- State Roads
- US Roads
- Interstate Highway
- Surface Water

### Basins

- 1. Bulow Creek Basin
- 2. Dave Branch Basin
- 3. Grover Branch Basin
- 4. Halifax River Basin
- 5. Hulett Branch Basin
- 6. Little Tomoka River Basin
- 7. Matanzas River Basin
- 8. Pellicer Creek Basin
- 9. St. Joe Canal Basin
- 10. Stevens Branch Basin
- 11. Styles Creek Basin
- 12. Unnamed Ditches Basin

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# WATER QUALITY BY BASIN 2000 LOWER ST. JOHNS RIVER BASIN



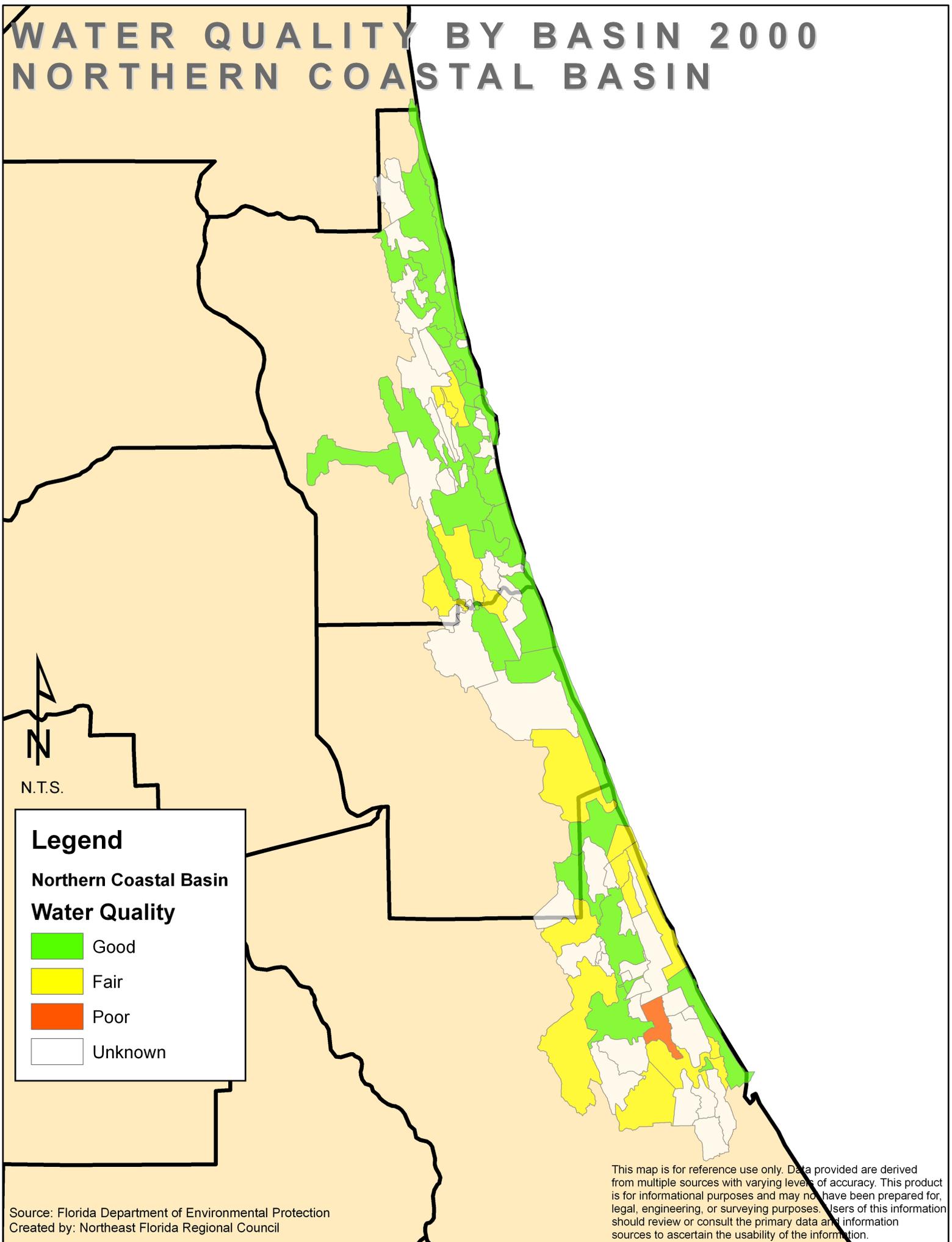
## Legend

Lower St. Johns River Basin  
Water Quality

- Good
- Fair
- Poor
- Unknown

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# WATER QUALITY BY BASIN 2000 NORTHERN COASTAL BASIN



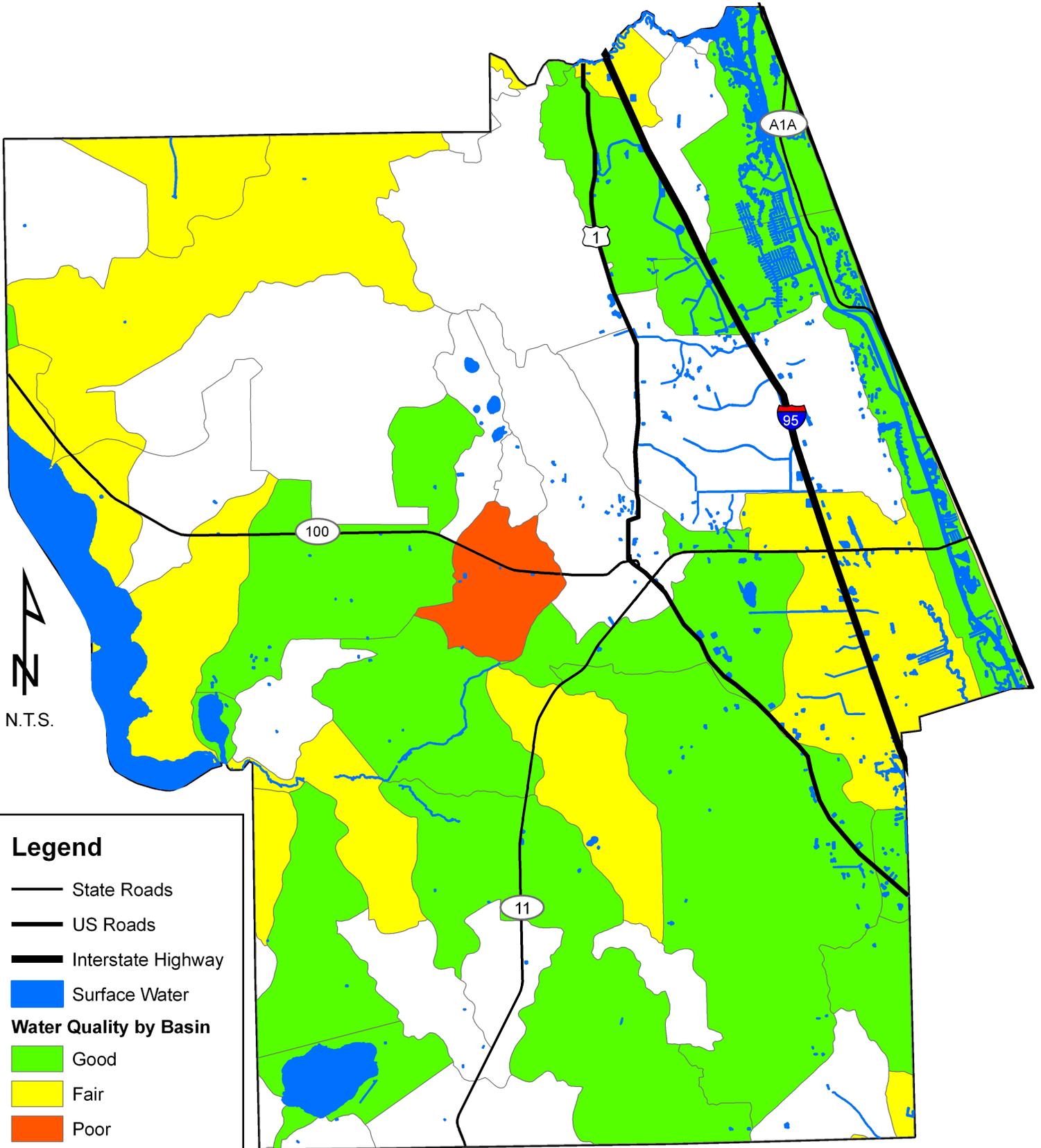
## Legend

### Northern Coastal Basin Water Quality

- Good
- Fair
- Poor
- Unknown

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# WATER QUALITY BY BASIN FLAGLER COUNTY 2000

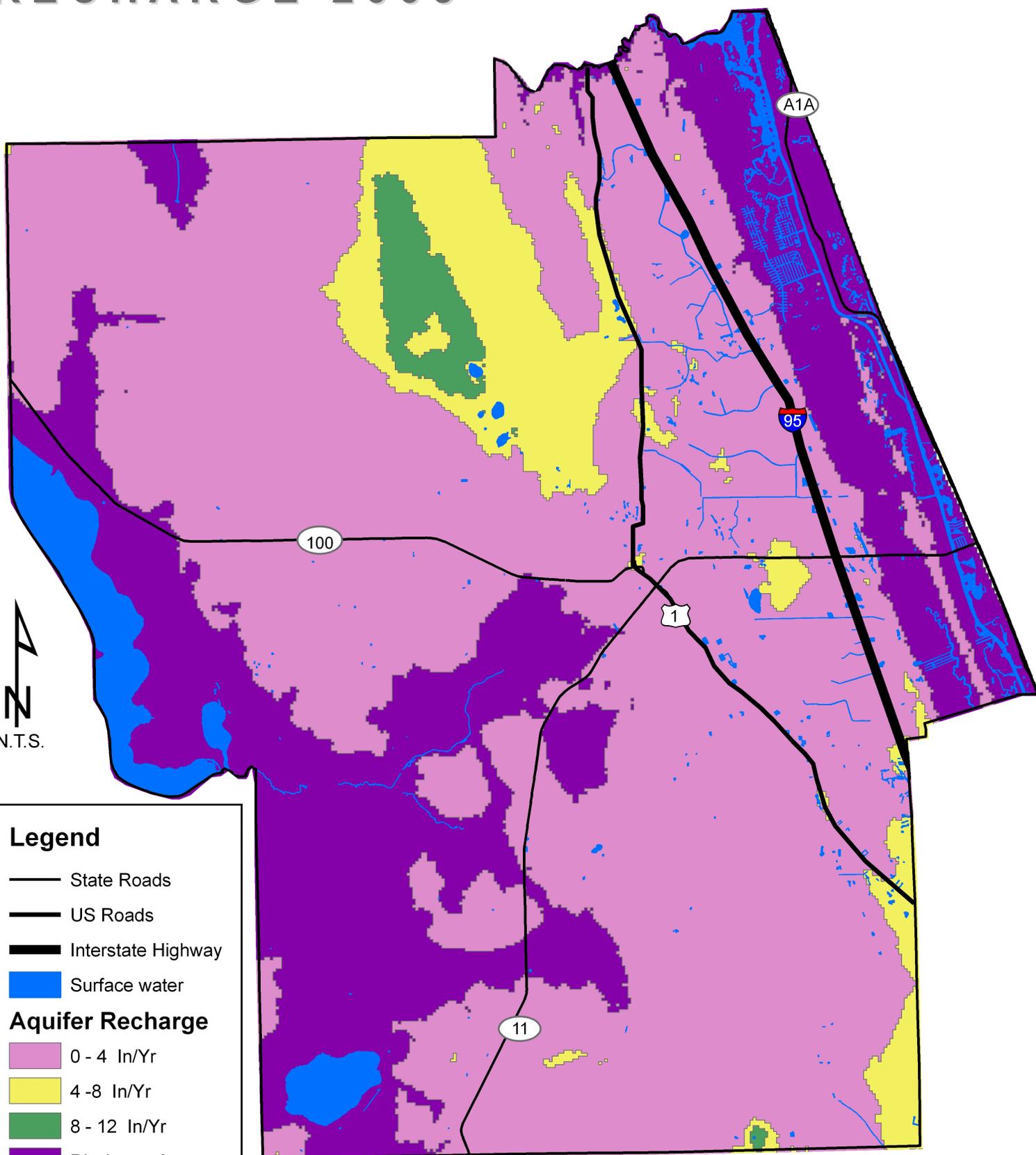


## Legend

-  State Roads
-  US Roads
-  Interstate Highway
-  Surface Water
- Water Quality by Basin**
-  Good
-  Fair
-  Poor
-  Unknown

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# FLORIDAN AQUIFER PRIME RECHARGE 2005



N  
N.T.S.

**Legend**

- State Roads
- US Roads
- Interstate Highway
- Surface water

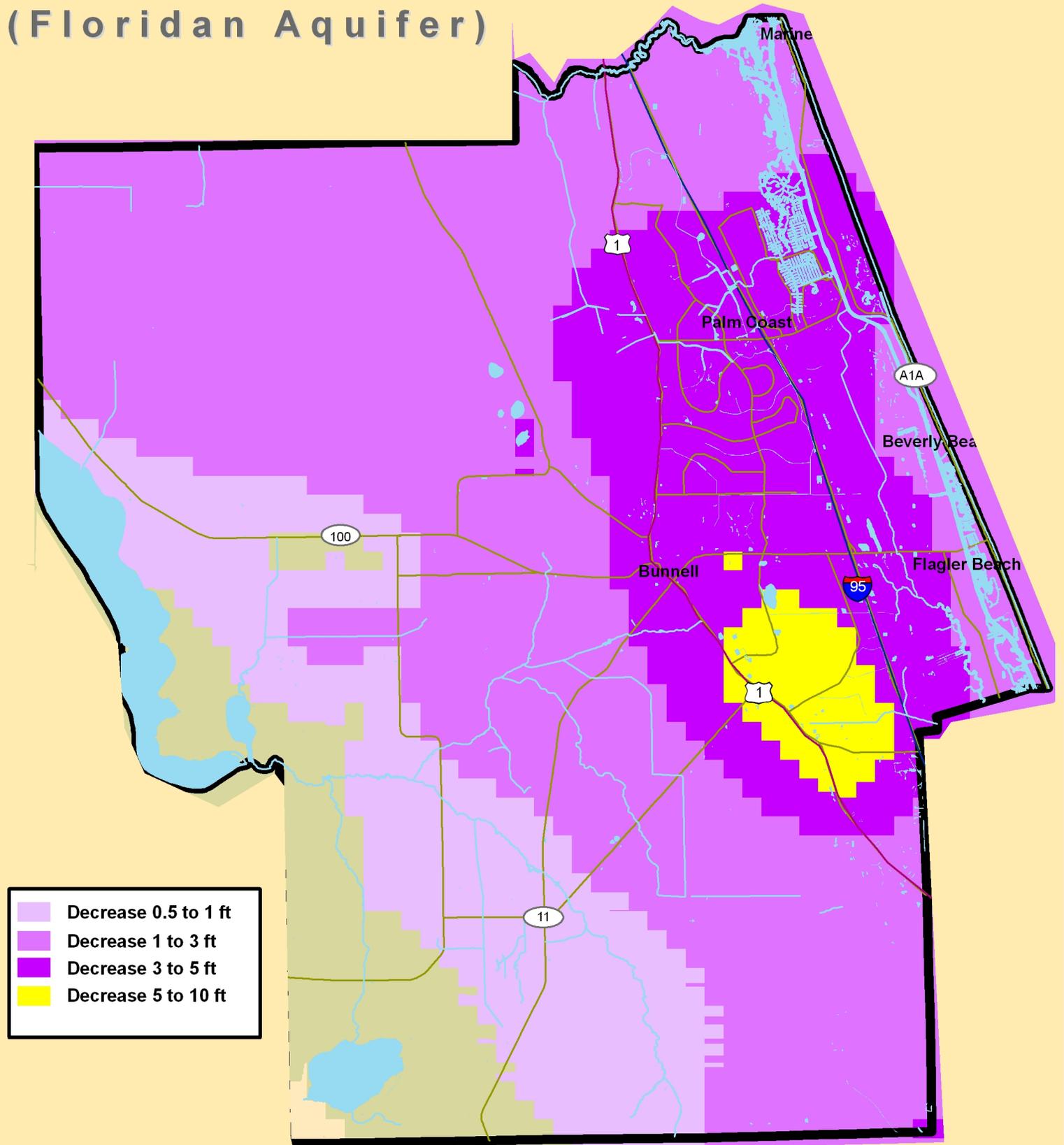
**Aquifer Recharge**

- 0 - 4 In/Yr
- 4 - 8 In/Yr
- 8 - 12 In/Yr
- Discharge Area

All of Flager County is located within a Priority Water Resource Caution Area

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# PROJECTED POTENTIOMETRIC CHANGES IN ELEVATION (Floridan Aquifer)



- Decrease 0.5 to 1 ft
- Decrease 1 to 3 ft
- Decrease 3 to 5 ft
- Decrease 5 to 10 ft

Source: SJRWMD projected increase in groundwater withdrawals, 1995 - 2030  
Created by: Northeast Florida Regional Council

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