

**Staff Report on**  
**Proposed 2019B Series Text Amendment**  
**to the Capital Improvements Element, Conservation and**  
**Coastal Management Element, Future Land Use Element,**  
**Infrastructure Element, and Intergovernmental**  
**Coordination Element of the 2030 Comprehensive Plan**

**ORDINANCE 2019-310**

Ordinance 2019-XXX adopts a text amendment to amend various goals, objectives, and policies of the Capital Improvements Element (CIE), Conservation and Coastal Management Element (CCME), Future Land Use Element (FLUE), Infrastructure Element (IE), and Intergovernmental Coordination Element (ICE) of the Comprehensive Plan.

The text amendment is in response to the state requirement to adopt a state-mandated 10-year water supply facilities work plan into the Comprehensive Plan following the approval of an updated regional water supply plan.

Section 163.3177(6)(c)(3), Florida Statutes

*Within 18 months after the governing board approves an updated regional water supply plan, the element must incorporate the alternative water supply project or projects selected by the local government from those identified in the regional water supply plan pursuant to s. 373.709(2)(a) or proposed by the local government under s. 373.709(8)(b). If a local government is located within two water management districts, the local government shall adopt its comprehensive plan amendment within 18 months after the later updated regional water supply plan. The element must identify such alternative water supply projects and traditional water supply projects and conservation and reuse necessary to meet the water needs identified in s. 373.709(2)(a) within the local government's jurisdiction and include 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. The work plan shall be updated, at a minimum, every 5 years within 18 months after the governing board of a water management district approves an updated regional water supply plan. Local governments, public and private utilities, regional water supply authorities, special districts, and water management districts are encouraged to cooperatively plan for the*

*development of multijurisdictional water supply facilities that are sufficient to meet projected demands for established planning periods, including the development of alternative water sources to supplement traditional sources of groundwater and surface water supplies.*

To this end, the amendment to the IE, Potable Water Sub-element Policy 1.1.15 adopts the City of Jacksonville 2018-2028 Water Supply Facilities Work Plan (WSFWP) by reference into the Comprehensive Plan. Additional policy revisions associated with this amendment have been done in order to enable and implement the WSFWP consistent with Section 163.3177(6)(c)(3), Florida Statutes.

The Planning and Development Department coordinated with the JEA and the St. Johns River Water Management District to create a WSFWP and the associated text amendments in compliance with Florida Statutes.

The Planning and Development Department recommends **APPROVAL** of the text amendment in the attached **EXHIBIT 1** and submitted as **Ordinance 2019-310**.

1 Introduced by the Land Use and Zoning Committee:  
2  
3

4 **ORDINANCE 2019-310**

5 AN ORDINANCE ADOPTING THE 2019B SERIES TEXT  
6 AMENDMENT TO THE CAPITAL IMPROVEMENTS ELEMENT,  
7 CONSERVATION AND COASTAL MANAGEMENT ELEMENT,  
8 FUTURE LAND USE ELEMENT, INFRASTRUCTURE ELEMENT  
9 AND INTERGOVERNMENTAL COORDINATION ELEMENT OF THE  
10 2030 COMPREHENSIVE PLAN OF THE CITY OF  
11 JACKSONVILLE TO ADOPT BY REFERENCE THE STATE  
12 MANDATED TEN (10) YEAR WATER SUPPLY FACILITIES  
13 WORK PLAN; PROVIDING AN EFFECTIVE DATE.  
14

15 **WHEREAS**, the Planning and Development Department has initiated  
16 certain revisions and modifications to the text of the *2030*  
17 *Comprehensive Plan* in accordance with the procedures and requirements  
18 set forth in Chapter 650, Part 4, *Ordinance Code*, to facilitate the  
19 appropriate and timely implementation of the plan, and has provided the  
20 necessary supporting data and analysis to support and justify the  
21 amendments determined to be required, and accordingly, has proposed  
22 certain revisions and modifications, which are more particularly set  
23 forth in **Exhibit 1, attached hereto**, dated April 29, 2019, and **Exhibit**  
24 **2, attached hereto**, dated April 29, 2019, and incorporated herein by  
25 reference; and

26 **WHEREAS**, the City, by the adoption of Ordinance 2019-36-E,  
27 approved this amendment to the *2030 Comprehensive Plan* for transmittal  
28 to the Florida Department of Economic Opportunity (DEO), as the State  
29 Land Planning Agency, and other required state agencies, for review and  
30 comment; and

31 **WHEREAS**, by various letters and e-mails, the DEO and other state

1 reviewing agencies transmitted their comments, if any, regarding this  
2 proposed amendment to the *2030 Comprehensive Plan*; and

3 **WHEREAS**, the Planning and Development Department reviewed the  
4 proposed revisions, considered all comments received, prepared a  
5 written report and rendered an advisory recommendation to the Council  
6 with respect to this proposed amendment to the *2030 Comprehensive Plan*;  
7 and

8 **WHEREAS**, the Planning Commission, as the Local Planning Agency,  
9 held a public hearing on this proposed amendment to the *2030*  
10 *Comprehensive Plan*, with due public notice having been provided, and  
11 reviewed and considered all comments received during the public  
12 hearing, and made a recommendation to the City Council; and

13 **WHEREAS**, pursuant to Section 650.408 *Ordinance Code*, the Land Use  
14 and Zoning Committee held a public hearing in accordance with the  
15 requirements of Chapter 650, Part 4, *Ordinance Code*, on this proposed  
16 amendment to the *2030 Comprehensive Plan*, and has made its  
17 recommendation to the City Council; and

18 **WHEREAS**, pursuant to Section 163.3184(3), *Florida Statutes*, and  
19 Chapter 650, Part 4, *Ordinance Code*, the City Council held a public  
20 hearing, with public notice having been provided, on this proposed  
21 amendment to the *2030 Comprehensive Plan*; and

22 **WHEREAS**, the City Council further considered all oral and written  
23 comments received during the public hearings, including the data  
24 collection and analysis portions of this proposed amendment to the *2030*  
25 *Comprehensive Plan*, the recommendations of the Planning and Development  
26 Department and the Planning Commission, the final recommendations of  
27 the Land Use and Zoning Committee, and the comments, if any, of the DEO  
28 and the other state agencies; and

29 **WHEREAS**, in the exercise of its authority, the City Council has  
30 determined it necessary and desirable to adopt this proposed amendment  
31 to the *2030 Comprehensive Plan* to preserve and enhance present

1 advantages, encourage the most appropriate use of land, water and  
2 resources, consistent with public interest, overcome present  
3 deficiencies, and deal effectively with future problems that may result  
4 from the use and development of land within the City of Jacksonville;  
5 now, therefore

6 **BE IT ORDAINED** by the Council of the City of Jacksonville:

7 **Section 1. Purpose and Intent.** This Ordinance is adopted to  
8 carry out the purpose and intent of, and exercise the authority set out  
9 in, the Local Government Comprehensive Planning and Land Development  
10 Regulation Act, Sections 163.3161 through 163.3248, *Florida Statutes*,  
11 and Chapter 166, *Florida Statutes*, as amended. The amendment modifies  
12 the Capital Improvements Element, Conservation and Coastal Management  
13 Element, Future Land Use Element, Infrastructure Element and  
14 Intergovernmental Coordination Element to adopt by reference the state  
15 mandated ten (10) year Water Supply Facilities Work Plan.

16 **Section 2. Amendment to Comprehensive Plan.** The *2030*  
17 *Comprehensive Plan* is hereby amended to include this revision to the  
18 text of the Capital Improvements Element, Conservation and Coastal  
19 Management Element, Future Land Use Element, Infrastructure Element and  
20 Intergovernmental Coordination Element from the 2019B Series, which has  
21 been initiated by the Planning and Development Department, as more  
22 particularly set forth in **Exhibit 1, attached hereto**, dated April 29,  
23 2019, and **Exhibit 2, attached hereto**, dated April 29, 2019, and  
24 incorporated herein by reference.

25 **Section 3. Effective Date.** This Ordinance shall become  
26 effective upon the signature by the Mayor or upon becoming effective  
27 without the Mayor's signature.

1 Form Approved:

2

3           /s/ Shannon K. Eller          

4 Office of General Counsel

5 Legislation Prepared By: Susan Kelly

6 GC-#1279342-v1-LS\_TX\_AD\_ADP\_#1\_CIE\_CCME\_FLUE\_IE\_ICE\_

**Ordinance 2019-310**

**2019B Series Text Amendment**  
**City of Jacksonville 2030 Comprehensive Plan**  
**Capital Improvements Element, Conservation and Coastal Management**  
**Element, Future Land Use Element, Infrastructure Element, and**  
**Intergovernmental Coordination Element**

**CAPITAL IMPROVEMENTS ELEMENT**

**1.1.3**

The City shall maintain and annually update a listing of necessary capital improvements ranked in order of priority. This capital facilities list will be based on evaluative criteria and will be adopted as a component of the City's Five-Year Capital Improvements Schedule. The following criteria will be utilized to prioritize the City's schedule of capital improvements:

- a. Enhancement, expansion, or new construction which eliminates existing public health hazards or existing capacity deficits and does not exacerbate existing nor create new deficiencies;
- b. Repair, enhancement, or replacement of deficient or irreparable public facilities to achieve compliance with adopted Level of Service standards;
- c. Financial feasibility, including impact on the City's capital and operating budgets;
- d. New construction or redevelopment consistent with the City's Future Land Use Element and projected growth patterns, provided that the facilities meet adopted Level of Service standards for all other required elements and do not conflict with plans of State agencies, and the St. Johns River Water Management District or their regional agency functional plans, and the JEA or their functional plans;
- e. New construction or redevelopment consistent with the City's Future Land Use Element and projected growth patterns which may initially exceed current Level of Service standards, but are phased concurrent with the created impacts of construction;
- f. Once established, Level of Service standards for any area will not be diminished due to the loss of population in that area.

\* \* \*

**CONSERVATION AND COASTAL MANAGEMENT ELEMENT**

**6.8.1**

The City, acting as Duval County, shall continue to seek endorsement from the SJRWMD and the Florida Water Protection and Sustainability Program (WPSP) in order to fund county-level water protection and water supply planning efforts.

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**6.8.2**

Duval County's water resources and projected needs through 2025 come from both groundwater and surface water sources. Detailed data regarding water use, projections and sources are included in the background data for this element. ~~The City JEA~~ shall continue to identify and promote water conservation, alternative water supply sources and other water management strategies, consistent with the St. Johns River Water Management District's (SJRWMD) District Regional Water Supply Plan and the provisions of the Potable Water and Natural Groundwater Aquifer Recharge Sub-Elements, in order to meet the City's growing water supply needs.

**6.8.3**

The City of Jacksonville shall continue to participate in the development of updates to the St. Johns River Water Management District's (SJRWMD) ~~Water Supply Assessment and District~~ Regional Water Supply Plan, as well as other applicable water supply development-related initiatives facilitated by SJRWMD.

\* \* \*

**CONSERVATION AND COASTAL MANAGEMENT ELEMENT - DEFINITIONS**

*District Regional Water Supply Plan 2005 (DWSP-2005)* - Addresses current and future water use and traditional and alternative water sources and water conservation required to meet 2025 future water supply needs while sustaining water quality and protecting wetland and aquatic systems. ~~DWSP-2005~~ This Plan is designed to meet the requirements of the water supply planning provisions of ~~Section~~ Chapter 373, Florida Statutes (F.S.), ~~and is based on a planning horizon extending through 2025.~~

\* \* \*

**FUTURE LAND USE ELEMENT**

**1.2.11**

~~Continue to deny d~~Development orders and permits ~~until~~ shall only be issued when the applicant has demonstrated compliance with applicable federal, state and local



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requirements for wastewater collection and disposal, and potable water, supply, treatment and distribution, availability per the local water utility.

\* \* \*

**INFRASTRUCTURE ELEMENT – NATURAL GROUNDWATER AQUIFER RECHARGE  
SUB-ELEMENT**

**1.2.5**

In accordance with the ~~District~~ Regional Water Supply Plan and related policies under CCME Goal 6, EQD and JEA should select and implement ~~water resources projects to protect resources and meet future needs~~ water resource project options from the Regional Water Supply Plan.

**1.2.6**

JEA shall continue to study existing sources of wastewater discharge suitable for reuse, sources of potable water, conservation, and other integrated water management strategies to meet future demand, conserve water, and ~~remove~~ reduce nitrogen loading to the Lower St. Johns River.

\* \* \*

**1.3.7**

The City of Jacksonville, ~~JEA,~~ EQD and the JEA shall continue to work with the SJRWMD, Northeast Florida Regional Council (RC), and JPDD (including PUD and DRI processes) to ensure that water for nonpotable uses be obtained from the lowest quality water source, in proximity to the demand, consistent with the intended use in compliance with the State Water Policy, ~~Chapter 17-40, F.A.C.~~ Chapter 373, F.S. and Chapter ~~62-40,~~ F.A.C.

\* \* \*

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**INFRASTRUCTURE ELEMENT – POTABLE WATER SUB-ELEMENT**

**1.1.9**

JEA shall prepare an annual report which summarizes existing capacity and demand information for the water system and incorporates and identifies the alternative water supply projects selected or proposed.

\* \* \*

**1.1.15**

The City shall continue to amend the 2030 Comprehensive Plan as needed to continue implementation of the City's Water Supply Facilities Work Plan 2018-2028 (Jacksonville Planning and Development Department, February 2019), adopted by reference. Supporting data and analysis may be attached as appendices to the Water Supply Facilities Work Plan, and updated from time to time, without the necessity of an amendment to the Comprehensive Plan. The City and JEA shall continue to identify and implement traditional and alternative water supply projects and programs, including conservation and water reuse, that are consistent with the SJRWMD's District Regional Water Supply Plan to meet the ~~that~~ City's water supply needs.

**Objective 1.2** JEA shall develop and maintain a comprehensive water resources management plan for the City's present and future service areas, with the primary objective being the provision of an adequate supply of high-quality water, carefully planned and properly managed with due regard for the environment.

\* \* \*

**1.2.5**

JEA shall identify, evaluate, and select the most cost-effective means of ensuring an adequate water supply including groundwater supply, reuse of treated wastewater, surface water supply, demand reduction, conservation, and peak ~~saving~~ shaving through system integration. This evaluation shall be conducted as a part of their Water System Master Plan Update water supply plan, and ~~in conjunction with the SJRWMD.~~

\* \* \*

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**Capital Improvements Element, Conservation and Coastal Management**

**Element, Future Land Use Element, Infrastructure Element, and**

**Intergovernmental Coordination Element**

**1.2.9**

JEA may enter into agreements with public and private water resource and/or reclaimed water providers as needed to ensure an adequate, high-quality water supply. Agreements shall be identified in the City's Water Supply Facilities Work Plan.

**Objective 1.3** JEA shall provide adequate water facility capacity at water treatment plants to meet future needs.

\* \* \*

**1.3.2**

No development order authorizing new development or a significant expansion of an existing user shall be issued for any area of the City served by a water facility which does not meet the regulatory standards in Chapter 9J-5.0055 (3)(a) 1, 2., F.A.C. Specifically, the necessary facilities, including adequate water supplies, will be in place and available to serve the new development when the development impacts occur, or the necessary facilities are guaranteed by an enforceable development agreement, issued pursuant to Chapter 163.3220, F.S.; or Chapter 380, F.S. Prior to approval of a building permit or its functional equivalent, the City shall consult with the applicable water supplier to determine whether adequate water supplies to serve the new development will be available no later than the anticipated date of issuance of a certificate of occupancy or its functional equivalent.

\* \* \*

**Objective 1.4** JEA shall plan and provide regional facilities to accommodate the ultimate needs of the community through implementation of JEA related ~~the~~ projects listed in the Capital Improvements Element.

\* \* \*

**INFRASTRUCTURE ELEMENT – SANITARY SEWER SUB-ELEMENT**

**Objective 1.4** JEA and the City shall coordinate, plan and provide for regional facilities to accommodate the ultimate needs of the community through creation of a water supply plan covering at least a 10-year planning period for building water supply

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facilities necessary to serve existing and new development and through implementation of JEA related projects listed in the Capital Improvements Element.

\* \* \*

**INTERGOVERNMENTAL COORDINATION ELEMENT**

**1.3.9**

The City of Jacksonville shall continue to participate in the development of updates to the St. Johns River Water Management District's (SJRWMD) ~~Water Supply Assessment and District~~ Regional Water Supply Plan, as well as other applicable water supply development-related initiatives facilitated by SJRWMD and/or the local water utility.



# **Water Supply Facilities Work Plan 2018-2028**

**City of Jacksonville  
Planning and Development Department  
Community Planning Division  
February 2019**

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## 1.0 INTRODUCTION

According to the Community Planning Act Water Resources Act, Sections 373.709 and 163.3177(6)(c)3, Florida Statutes (F.S.), each local government is required to amend its local government comprehensive plan to update and/or include a 10-year water supply facilities work plan following the approval of an updated regional water supply plan (*North Florida Regional Water Supply Plan*, January 2017). The mandated 10-year water supply facilities work plan is specifically developed to address the following:

- Projects for water supply;
- Projects for water supply treatment, storage, and distribution facilities; and
- Water conservation and reuse.

The Water Supply Facilities Work Plan and related Comprehensive Plan amendments are reviewed and approved by the Florida Department of Economic Opportunity (DEO) and the St. Johns River Water Management District (SJRWMD). This Work Plan includes an evaluation of the present and projected growth and water demand as well as an analysis of the existing production/treatment facilities and their capacities to meet the City's existing and projected water demands for a 10-year planning period, 2018-2028.

## 2.0 BACKGROUND

### 2.1 Location

The City of Jacksonville, Duval County, Florida is located along the Atlantic Ocean in the northeastern part of Florida. It is bordered on the north by the Nassau River, Nassau County; on the south by Clay County and St. Johns County; on the east by the Atlantic Ocean; and on the west by Baker County.

Duval County has a total area of approximately 850 square miles. The entire county, with the exception of four incorporated areas, form the Consolidated City of Jacksonville. Three (3) of the incorporated areas; i.e. Jacksonville Beach, Neptune Beach, and Atlantic Beach are located between the Intracoastal Waterway and the Atlantic Ocean. The fourth incorporated area, the Town of Baldwin, is located at the intersection of U.S. 301 and U.S. 90 in the western section of the City.

### 2.2 Service Area

JEA serves as the City's primary water utility. The service territory includes virtually all of Duval County; approximately 143 square miles in St. Johns County; approximately 620 square miles in Nassau County; and a small number of customers in Clay County. Within Duval County, eight (8) private utilities also supply potable water; these utilities are listed below and also shown on Figure 1.

- City of Baldwin
- Normandy Villages Utility Company
- Neighborhood Utilities, Inc.
- Commercial Utilities, Grace and Company
- Regency Utilities, Inc.
- City of Atlantic Beach
- City of Neptune Beach
- Jacksonville Beach Utility

In FY 2016 JEA's Water System consisted of 19 major and 18 small water treatment plants (WTPs) and two repump facilities and is divided into two major distribution grids: the North Grid and the South Grid (one on each side of the St. Johns River). The system includes four minor distribution grids: Ponte Vedra, Ponce de Leon, Mayport and Nassau County. The major distribution grids are fully interconnected, which provides the Water System with a high degree of redundancy.

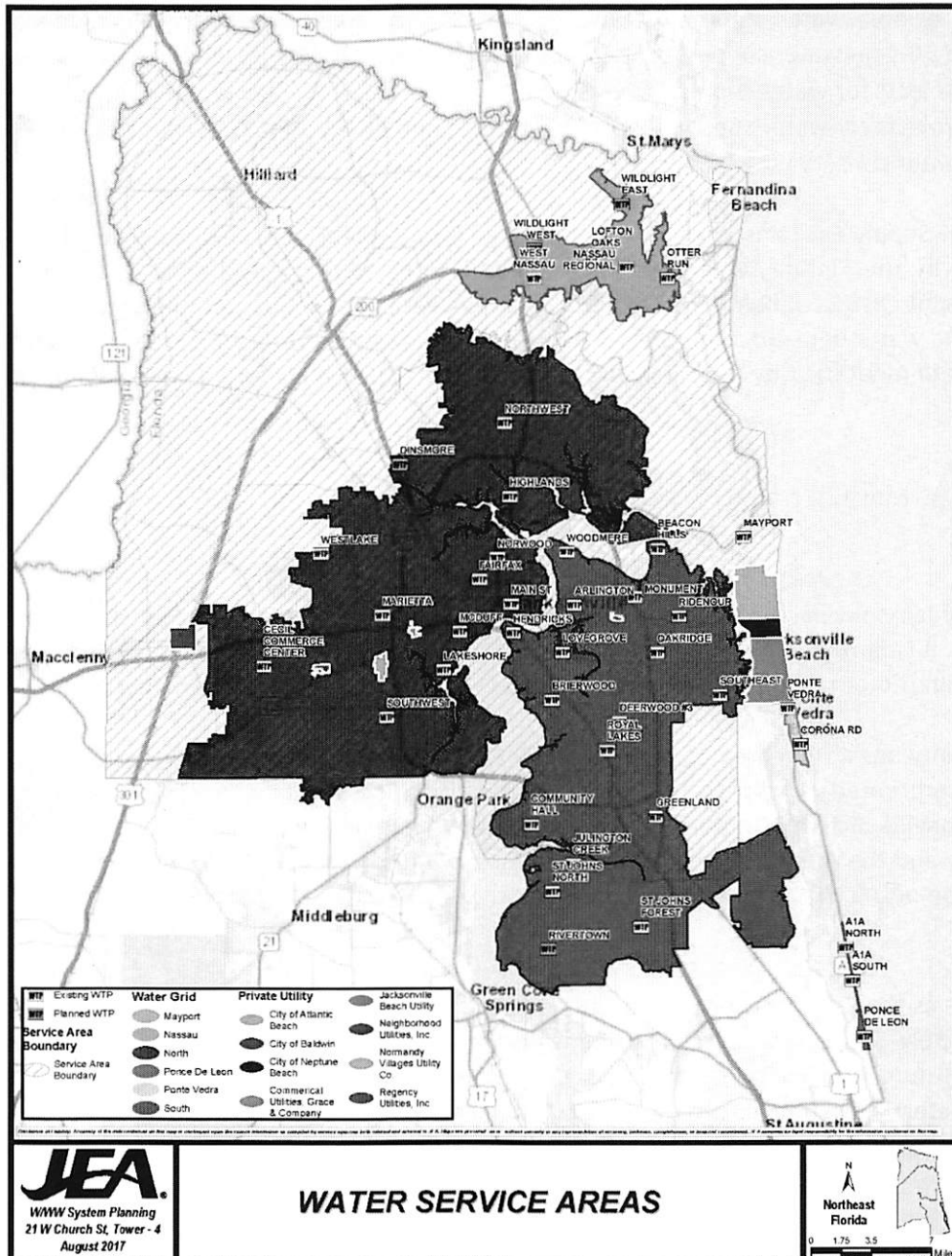


Figure 1: JEA Service Area  
Source: JEA

2.3 Water Supply Related Agreements  
JEA was established in 1968 to own and manage the electric utility, which had been owned by the City since 1895. The City's Charter was amended in 1997 to authorize JEA to own and operate other utility

systems, including the Water and Sewer System. The Charter authorizes JEA to construct, acquire, establish, improve, extend, enlarge, maintain, repair, finance, manage, operate and promote its utilities systems, and to furnish electricity, water, sanitary sewer service, natural gas and other utility services as authorized therein within and outside of the City and for said purposes to construct and maintain electric lines, pipelines, water and sewer mains, natural gas lines and related facilities along all public highways and streets within and outside of the City. Should any additional water and sewer utility system be undertaken by JEA in the future, such utility system may, at the option of JEA, constitute an additional utility function or with approval by the Jacksonville City Council be added to, and may become a part of, the Water and Sewer System or the District Energy System. The Charter also confers upon JEA the power to sue, to enter into contracts, agreements and leases, and to sell revenue bonds to finance capital improvements and to refund previously issued evidences of indebtedness of JEA.

Pursuant to a 30-year interlocal agreement with St. Johns County, JEA made an up-front payment in December 2001 which JEA expected to realize in providing retail sales of water and wastewater services (excluding reclaimed water) for the next 10 years in St. Johns County. Under the terms of the interlocal agreement, subsequent utilities were purchased and the county granted JEA the right to: 1) provide water and wastewater service to those customers in an acquired franchise area within St. Johns County, 2) provide water and wastewater service to additional areas in the county not currently served by either the St. Johns County Water and Sewer Department or other water and wastewater utilities and 3) acquire, at JEA's sole discretion, other private utilities in northern St. Johns County.

Pursuant to a 30-year interlocal agreement with Nassau County, JEA made an up-front payment in December 2001 to the county which JEA expected to realize in providing the sale of water and wastewater services (excluding reclaimed water) for the next 10 years. Under the terms of the interlocal agreement, Nassau County granted JEA the right to: 1) provide water and wastewater service to those customers in an acquired franchise area within Nassau County and 2) provide water and wastewater service to additional areas in the county not currently served by either Nassau County or other water and wastewater utilities.

	<b>DESCRIPTION</b>	<b>PROVISIONS</b>	<b>STATUS</b>
City of Atlantic Beach	Sewer Agreement – provides for sewage treatment and disposal for the Village of Mayport	JEA constructed the collection and delivery facilities for discharge to the City's treatment facility and pays monthly based on the flow	No revisions currently proposed
Nassau County	Water, Sewer, and Reuse Interlocal Agreement – provides water and wastewater (including reuse) services within Nassau County	JEA acquired service territory in Nassau County	No revisions currently proposed
St. Johns County	Water MOU – various agreements including a wholesale water and wastewater agreement; service area boundary adjustments	Wholesale water service commitment to the County of 2,250,000 gpd; allow JEA to construct and operate up to 3 wells in the River Town DRI with an average daily flow withdrawal of 0.75 MGD by year 2012 and 1.5 MGD by year 2022	No revisions currently proposed

**Table 1: Water Agreement Description, Provisions, and Status**

Source: JEA

JEA does not have any potable water agreements with Clay County, the Town of Baldwin, Naval Air Station Jacksonville (NAS JAX), or Naval Station Mayport (NS Mayport). JEA has a wastewater agreement with the City of Atlantic Beach but does not have a potable water agreement with them.

### 3.0 DATA AND ANALYSIS

Water use is defined as current or historic levels of water withdrawn from fresh (ground and surface) water sources and is expressed in average million gallons per day (mgd) unless otherwise noted. Water demand projections are estimates of the amount of water that will be needed in the future (withdrawn from fresh, ground and surface, water sources) to meet the needs of increasing population and to meet the needs of the aforementioned water use categories and is expressed in average mgd unless otherwise noted. Reclaimed water is treated wastewater that has received at least secondary treatment and basic disinfection and is expressed in average mgd unless otherwise noted.

#### 3.1 Water Sources

Groundwater is currently the City of Jacksonville's primary water source. Water supply is from the Floridan Aquifer, one of the most productive aquifers in the world, with high quality water. The Floridan Aquifer covers most of Florida and parts of Georgia and South Carolina. Groundwater wells are used to extract water from the Floridan Aquifer to supply potable water to JEA customers. In FY 2016 the Water System had 134 wells supplying the various water plants. Each plant consists of wells, aerators, ground storage tanks, water quality treatment and pH control and chlorination facilities. The rated maximum daily treatment capacity of the Water System was approximately 292 mgd for the north and south grids together and 304 mgd for the total Water System, taking into consideration maintenance factors.

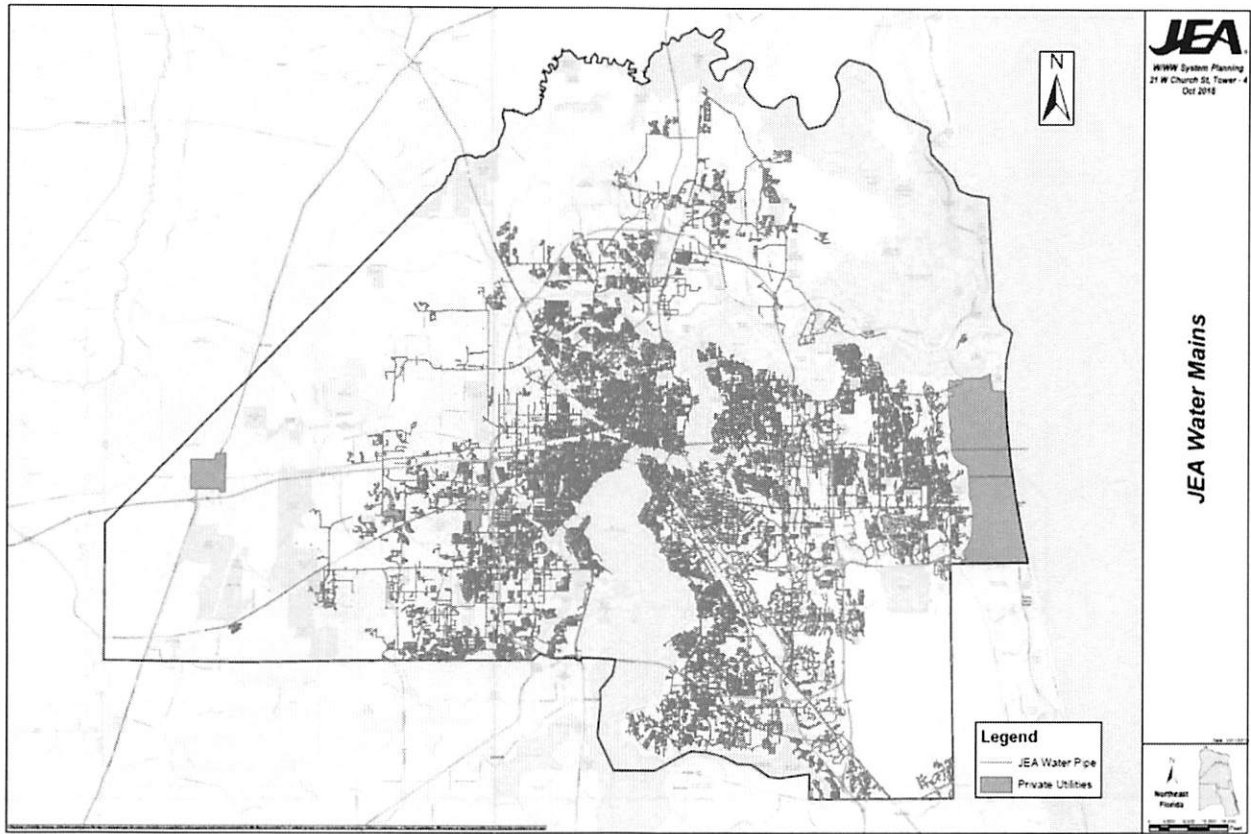
The Floridan Aquifer should be capable of meeting JEA's needs well into the future; provided that JEA continues its three-part program and ground water quality program. The three-part program is the basis of JEA's water capital improvement plan and includes: (i) continued expansion of the reuse system, (ii) measured conservation program and (iii) water transfers from areas with a higher supply on JEA's north grid to areas with a lower supply on JEA's south grid via river crossing pipelines. JEA has also implemented a groundwater quality management program to mitigate the effects of (non-lateral) saltwater intrusion into specific wells on the systems south grid that includes routine well monitoring, backplugging of specific wells, and reducing or replacing wells that show continued increases in chlorides.

Total finished water storage capacity of the Water System is 74 million gallons (FY 2016). All water storage facilities are located at the various water treatment plants, including two repump facilities. The Water System does not utilize elevated storage tanks.

JEA also uses reclaimed water for irrigation where feasible. Ten of the 11 Wastewater Treatment Facilities (WWTFs) that JEA operates and maintains produce reclaimed water within the wastewater service area covering four (4) counties – Nassau, Duval, St. Johns, and Clay.

##### 3.1.1 Self-Supply

Portions of Duval County, while within the overall JEA service area boundary, are currently served by individual water wells and septic systems. Within Duval County, the extent of JEA water mains is shown in Figure 2. Areas outside of the service extent of these mains are served by private wells.



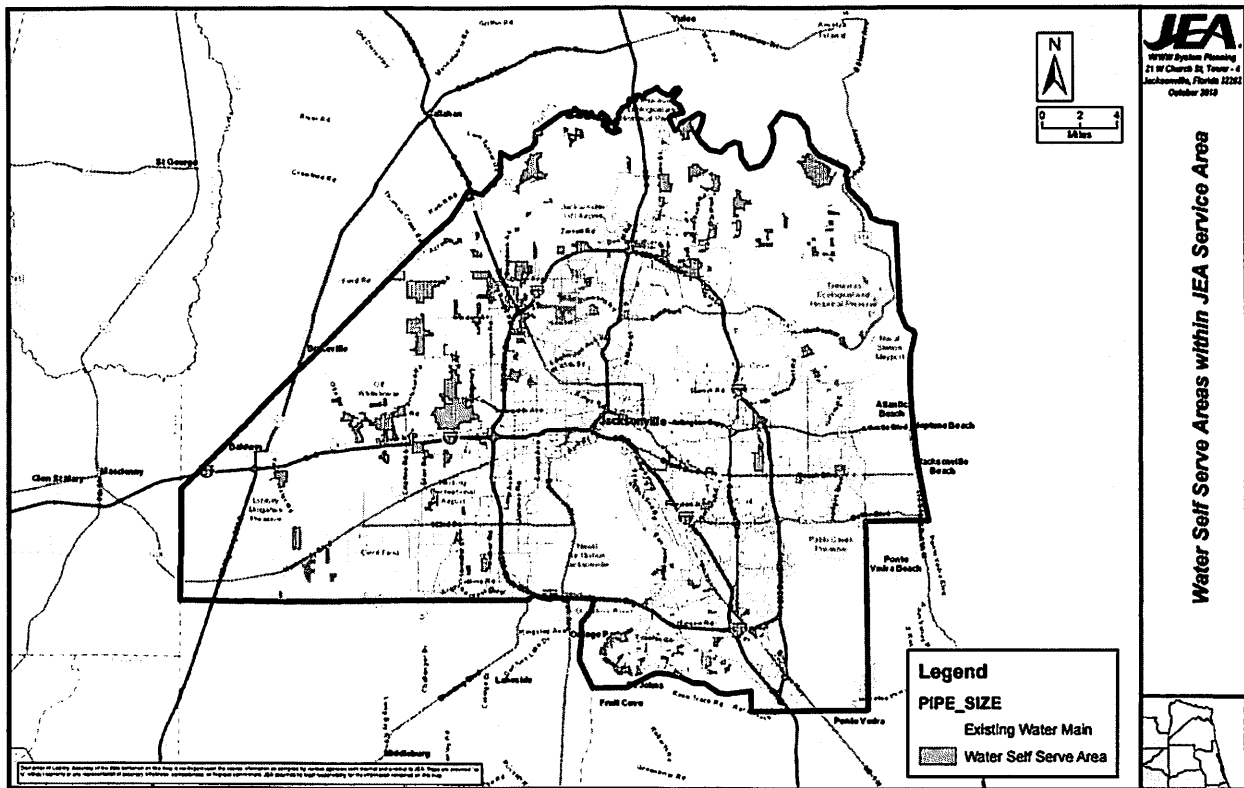
**Figure 2: JEA Water Mains**  
 Source: JEA (October 2018)

There are an estimated 30,000 private wells within Duval County; locations identified as having individual water wells are shown in Figure 3. These areas are expected to remain as self-supply areas, with the following population projections for those areas.

	2020	2025	2030	2035	2040	2045
<b>Projected Population</b>	76,408	87,419	100,519	110,853	120,121	128,271

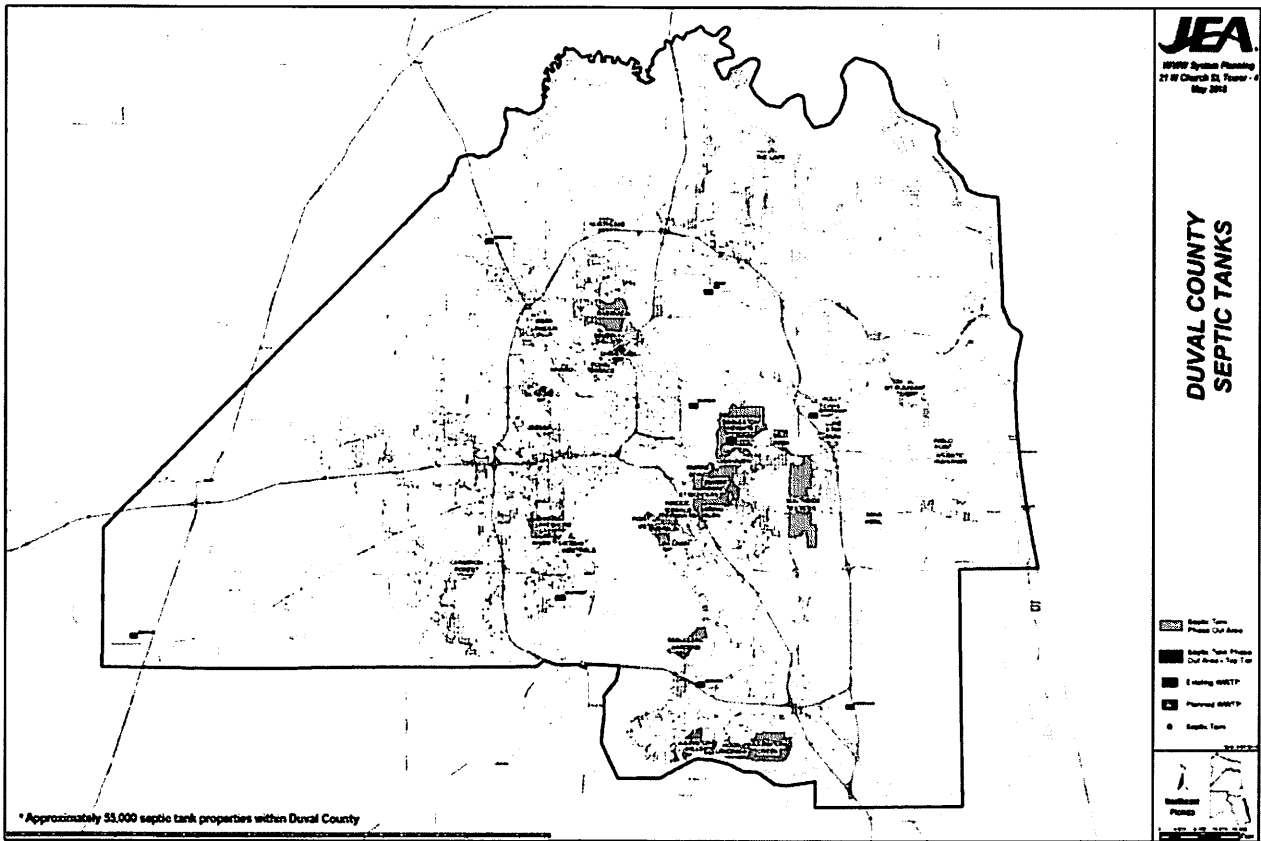
**Table 2: Projected Population for Water Self-Service Areas, shown in Figure 3**  
 Source: JEA

As shown in Figure 3, the private individual wells are most likely to be located in areas that are more rural. There are no current countywide plans by JEA to remove private wells and connect those areas to the centralized water system.



**Figure 3: Water Self-serve Areas**  
 Source: JEA (October 2018)

There are an estimated 55,000 septic tanks within Duval County. The Florida Department of Health for Duval County (DOH) has identified 35 areas predominately served by septic tanks with a high number of repair permits. These areas are called Septic Tank Failure Areas. The City's Environmental Quality Division ranked these areas based on a number of factors including the potential for water quality benefit, age of the development area, median home value, presence of an existing water distribution system, and the percentage of undeveloped lots. The rankings were prioritized to develop a list for a Septic Tank Phase Out (STPO) program. Figure 4 shows the general location of septic tanks within Duval County as well as the Septic Tank Phase Out (STPO) area; prioritized areas are shown in Figure 5. Properties within the STPO areas that are currently served by a private well system will be connected to the centralized water system when the area is addressed. Funding for the STPO areas is limited with current funding levels not sufficient to address all of the areas that have been ranked. The total number of septic tanks within the STPO areas is estimated at 22,300. Of these properties, an estimated 3,500 are served by private wells. There are no current plans by JEA to connect the septic tank properties, outside of the prioritized areas, to a centralized sewer system.



**Figure 4: Septic Tanks and Septic Tank Phase Out Areas, Duval County**  
 Source: JEA (May 2018)

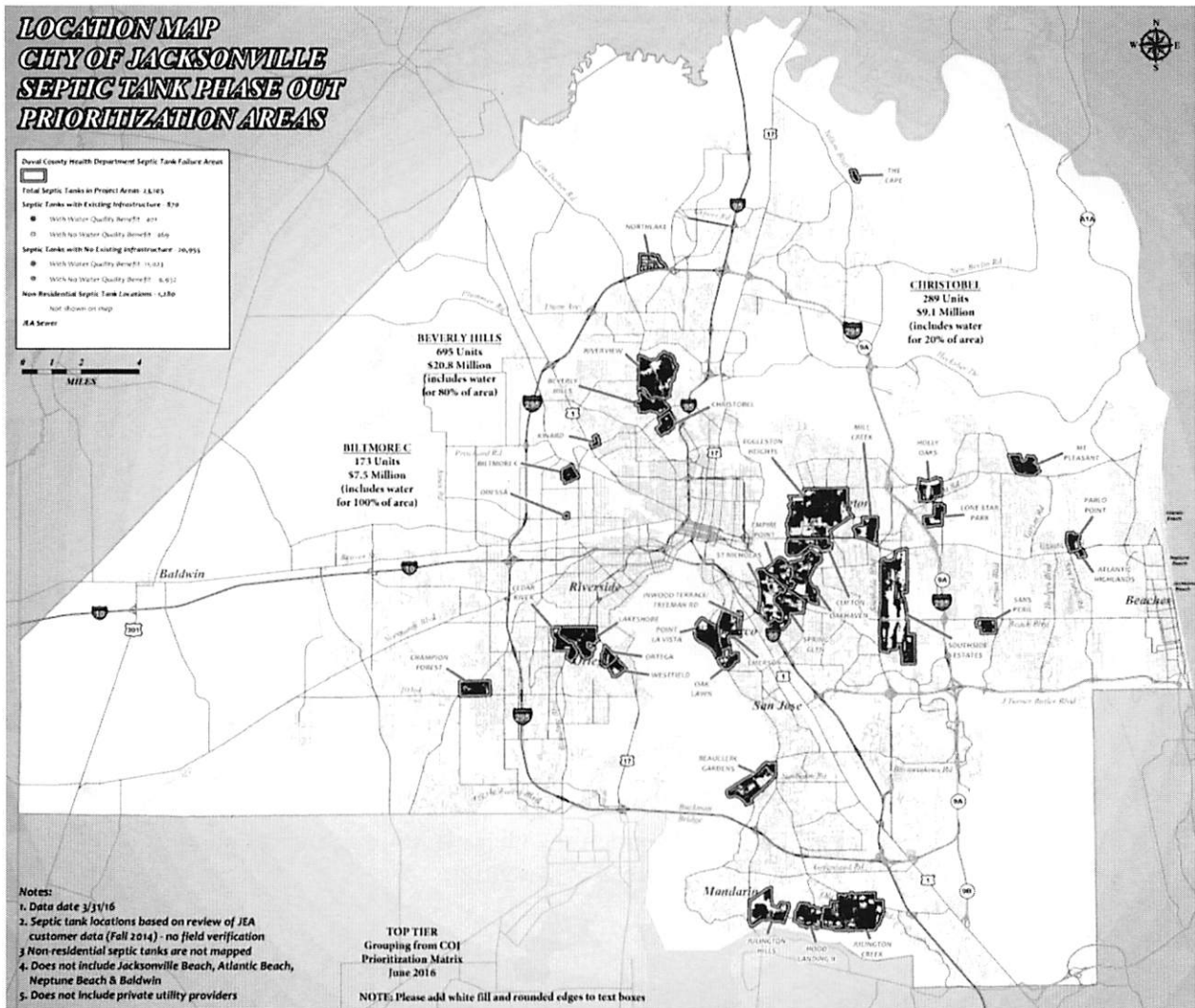


Figure 5: Septic Tank Phase Out Prioritization Areas, Duval County  
 Source: JEA

### 3.2 Consumptive Use Permit

JEA and the City are committed to proper management of water resources and to providing residents with a sustainable water supply. JEA currently operates under one Consumptive Use of Water Permit (CUP). JEA renewed its Consumptive Use Permit (CUP 88271-11) with the SJRWMD in May 2011. The CUP was renewed for a 20-year period and will expire in 2031. The CUP allocates to JEA a maximum groundwater withdrawal of 56,575 million gallons per year (mgy) from the Floridan Aquifer for the public supply system until such time as the permit needs to be renewed. This amount may contingently increase in the last 10 years of the permit up to 59,359 mgy through the permittee's providing additional reclaimed water to replace permitted Floridan Aquifer uses, if it becomes feasible. The amount permitted is to serve a projected population of 1,026,161 people in 2031 with water for household, commercial/industrial, water utility, and essential (fire protection) uses and unaccounted-for water losses.

Reclaimed water is an integral part of JEA's CUP. According to condition number 12 of the CUP, JEA can increase its annual allocation of groundwater up to 163 mgd (from the Floridan Aquifer) if all reclaimed



water production goals are met.

### 3.3 Potable Water Production and Treatment Facilities

The Water System, which served an average of 333,139 customer accounts and 7,498 reuse water customers, respectively, in the FY2016, was composed of 37 water treatment plants and two repump facilities, 134 active water supply wells, approximately 4,449 miles of water distribution mains and water storage capacity of 74 million gallons (including the repump facilities). The overall peak capacity of the Water System was approximately 304 mgd, and the Water System experienced an average daily flow of approximately 111 mgd and a maximum daily flow of approximately 154 mgd during the FY2016.

As previously mentioned, JEA's water distribution system is divided into six distinct service grids serving most of Duval County and parts of St. Johns, Clay and Nassau Counties. The North and South Grid are currently interconnected via 30 inch and 36 inch transmission mains that cross the St. Johns River in downtown Jacksonville, commonly referred to as the Total Water Management Plan (TWMP) Mains. The purpose of the TWMP Mains is to transfer water from the North to the South grid. Each service grid contains an interconnected network of WTPs and transmission and distribution mains. JEA's water distribution grids have grown through the acquisition of several privately owned utilities over the past 15 years; United Water and Florida Water being the largest of these acquisitions. There are 37 active WTPs in JEA's fleet; 10 in the North Grid, 17 in the South Grid, four in the Nassau (Lofton Oaks) Grid, two in the Ponte Vedra Grid, three in the Ponce de Leon Grid and one in the Mayport Grid in FY 2016. There are two additional WTPs planned for construction within the next 10 years: River Town (St. Johns County) in the South Grid and Dinsmore in the North Grid; see JEA service area map, Figure 1.

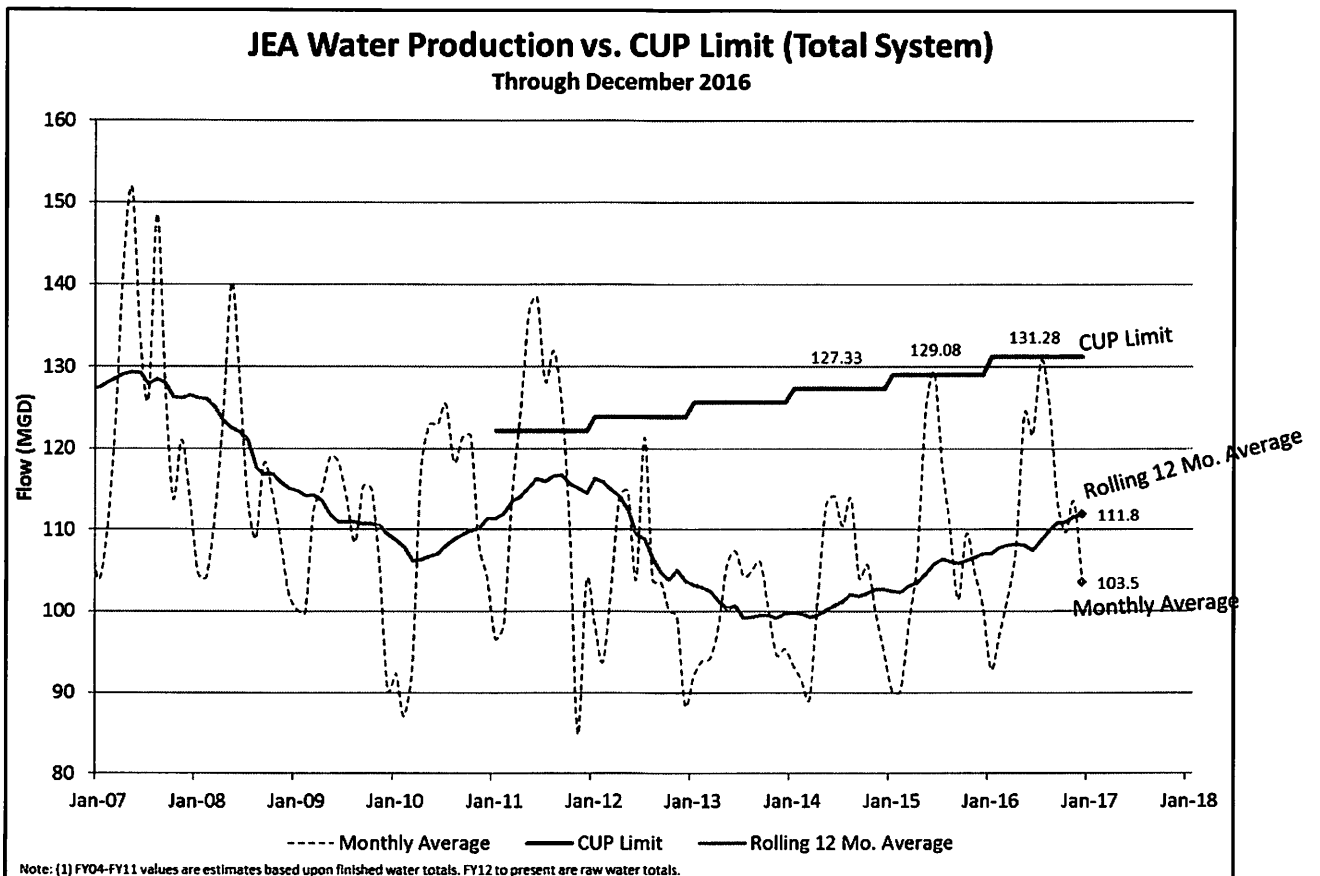


Figure 6: JEA Water Production vs. CUP Limit

Source: JEA's 2017 Annual Water Resource Master Plan

Figure 6 shows the historic monthly and annual average daily production for the overall JEA Water System of raw water as compared to the annual CUP limit for the total system. The CY2016 annual average potable water produced from the groundwater was 111.8 mgd. It is important to note that JEA customers average a demand of 5.1 mgd of reclaimed water, which directly offsets potable groundwater use. In CY2016 the water system had a total water demand of 117 mgd (111.8 groundwater + 5.1 reclaimed water).

### 3.4 Reclaimed Water System

JEA has significantly expanded its reclaimed water system (Figure 7), and potable water offsets through the use of reclaimed water, over a relatively short period of time. JEA acquired the Julington Creek Plantation (JCP) WWTF in 1999, which operated at nearly 100 percent reuse of its effluent with a capacity of 1.0 mgd. JCP WWTF was JEA's initial reclaimed water program until the construction of 2.0 mgd for public access at the Arlington East WWTF in 1999. Reclaimed water demands on the system in 1999 were less than 0.5 mgd and were primarily located in the region surrounding JCP WWTF.

The major backbone of the reclaimed water system was constructed between 2002 and 2008, a 26-mile transmission main between Arlington East and Mandarin WWTFs. Retail customer reclaimed water demand has rapidly increased since the completion of the reclaimed transmission main in 2008. The first homes within the Nocatee development, which occupies land in both northeast St. Johns County and southeast Duval County, were connected in 2007; this was the start of potable offset reclaimed water demands on the reclaimed water system. Potable offset/retail reclaimed water customers have grown by an average of 1,500 customers per year over the last three years.

As of FY 2016, JEA operates and maintains 11 WWTFs, 10 of which produce reclaimed water, within a wastewater service area that covers four counties (Nassau, Duval, St Johns and Clay). Six of JEAs WWTFs produce public access reclaimed water and four produce non-public access reclaimed water used strictly at the WWTF and/or within a restricted area. The overall reclaimed water production capacity is 33 mgd. The southeast region of JEA's wastewater service area, served by Arlington East, Monterey, Mandarin, Blacks Ford, JCP, Ponte Vedra and Ponce de Leon WWTFs, currently has the greatest offset potable water demand with reclaimed water as opposed to the other regions north and west of the St. Johns River.

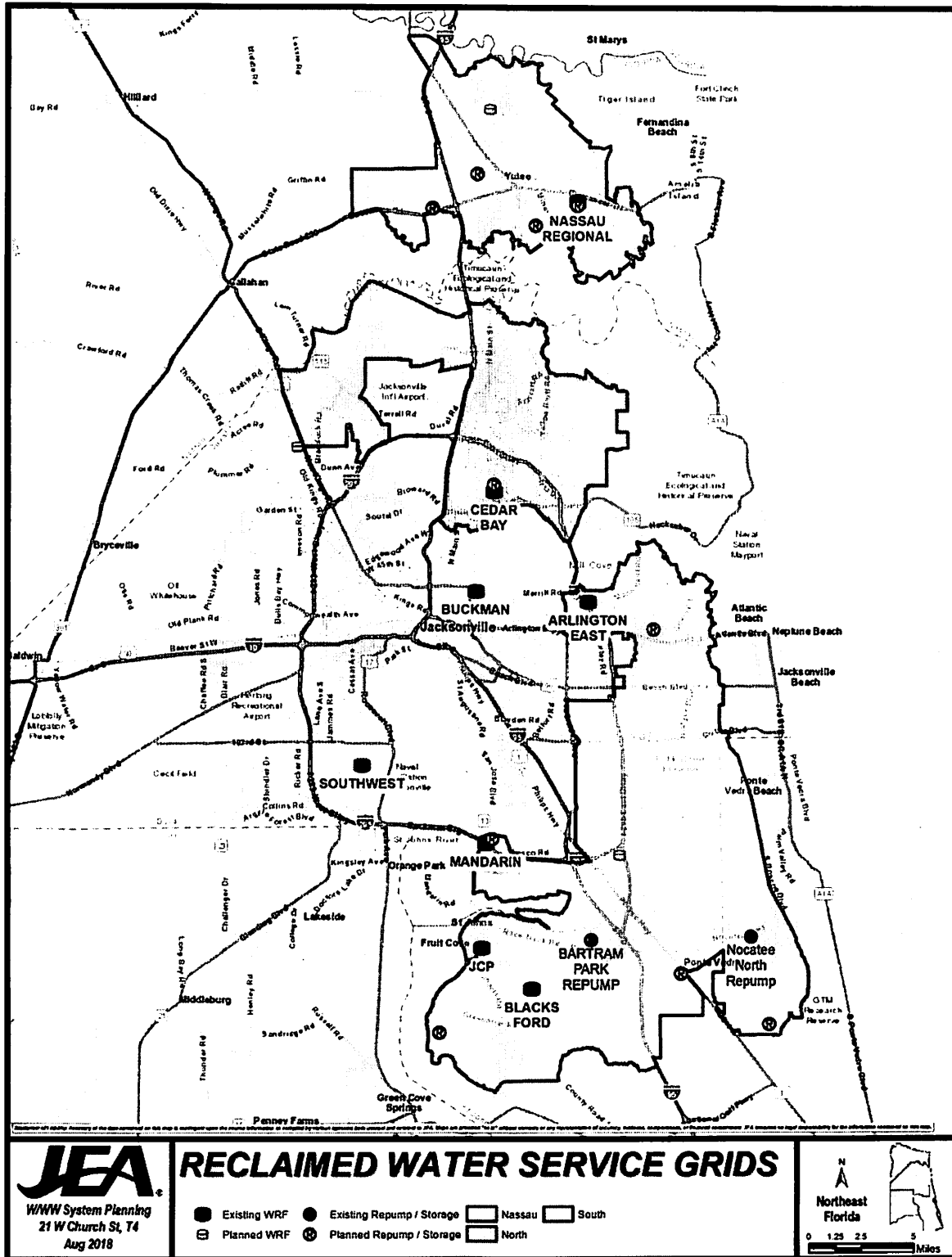


Figure 7: Reclaimed Water Service Grids

Source: JEA

Total reclaimed water demands have increased to an annual average of 15 mgd (FY2016). Based on currently identified retail and bulk reclaimed water demands alone, projected total reclaimed water is

estimated to reach 26 mgd by 2031. Additionally, alternative water projects utilizing reclaimed water are currently under investigation and could increase the projected reclaimed water use even higher than 26 mgd.

The primary factors that have driven JEA's implementation of reclaimed water are:

- The need to reduce nutrient discharges into the St. Johns River (TMDL, Total Maximum Daily Load)
- The desire to reduce groundwater withdrawals for irrigation
- JEA and City policies to promote the efficient use of water and protect the water resources of the region

Reclaimed water that JEA's WWTFs produce is specific to the needs of the area served. The South Grid reclaimed water service area (Arlington East, Mandarin, Blacks Ford and JCP WWTFs) has been a focal point of the JEA reclaimed water investment and expansion as a result of the Lower St. Johns River TMDL (circa 2004), the River Accord (circa 2006) and the Total Water Management Plan (TWMP, circa 2007), in addition to residential growth. Arlington East, Mandarin, Blacks Ford and JCP WWTFs were gridded together with a major north/south transmission main to provide reclaimed water to future development in the southern extent of the JEA service area. Regions to the West and North of the St. Johns River historically have not seen residential growth at the rate seen in the South Grid reclaimed water service area.

JEA has been successful in all of these goals, and through further system expansion and implementation of new reclaimed water projects, expects to achieve feasible reuse, aquifer recharge, and enhancement through its reclaimed water program for the duration of its CUP and beyond. The City's Comprehensive Plan and local ordinance code provide enabling policies and companion requirements to further the maintenance and expansion of the water reclamation system; these policies are discussed later in this Work Plan.

JEA may need to expand its facilities to adequately meet the future demands of the system. Proposed facility expansions and new facilities are planned in order to more evenly distribute the production and pumping capabilities of the gridded system while increasing the overall system reliability and quality.

#### 3.4.1 Reclaimed Water Agreement(s)

In 2001, JEA executed an interlocal agreement with Nassau County (see Table 1 and Section 2.3). This agreement includes provisions allowing JEA to provide reclaimed water. At this time no revisions to this agreement are proposed.

In 2006, a reclaimed water connection ordinance was adopted by the City of Jacksonville. Agreements were established with major developments in St. Johns County (i.e. Nocatee, RiverTown, Aberdeen, and Durbin Crossing DRIs) to provide retail reclaimed water service; this continued to other new developments as they were established.

In February 2015, JEA updated the JEA Rules and Regulations for Water, Sewer & Reclaimed Services to include reclaimed water service as a required connection within the JEA reclaimed water service area. The required connection for new developments is subject to the conditions described in the new Rules and Regulations. These Rules and Regulations are a major step forward in promoting an alternative water supply and continued improvement of the JEA reclaimed water program. In the future more reclaimed water service areas are planned in regions like Southwest (west of Naval Air Station Jacksonville), Buckman

(east of Martin Luther King Jr Parkway in Jacksonville’s urban core), and Cedar Bay (west of the Broward River on the north side of Jacksonville) as the reclaimed water system is expanded.

As of September 2016, JEA has constructed over 200 miles of pipeline to serve over 7,000 customers, with a reclaimed water delivery capacity of 33 mgd. Retail customers have grown significantly over the last ten years as a result of the reclaimed water infrastructure installed throughout the South Grid. A majority of reclaimed water customers are located in southern Duval and northern St. Johns Counties; however, the reclaimed customer base is expanding throughout the JEA service area.

As of 2017, Clay County Utility Authority (CCUA) has expressed interest in receiving reclaimed water from the JEA Southwest WWTF; a concept project that could deliver 5 to 10 MGD of reclaimed water is being discussed. JEA continues to explore opportunities to enter into interlocal agreements to provide reclaimed water to neighboring utilities for use in their reclaimed water systems.

#### 4.0 Population and Water Demand Projections

Abundant, clean drinking water is one of Jacksonville’s most valuable resources. Potable water must be adequate to meet the future demands of the City while sustaining water resources and related natural systems.

##### 4.1 Population Projections

The University of Florida’s Bureau of Economic and Business Research (BEBR) produces Florida’s official city, county and state population estimates each year. The population projections developed by BEBR are generally accepted as the standard throughout Florida. Table 3 provides the BEBR population projections for Duval County. JEA and the SJRWMD use BEBR population projections as the base number for estimating future population. JEA and the SJRWMD also use acceptable industry standards to project the need for water supply utilities.

##### Duval County Population Projections 2020-2045

<b>April 1, 2016 Estimate: 923,647</b>						
	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>	<b>2045</b>
Low	927,000	946,900	967,000	982,200	900,100	994,900
Medium	975,000	1,035,100	1,089,300	1,138,500	1,179,900	1,218,700
High	1,019,200	1,107,600	1,197,400	1,287,900	1,375,200	1,464,700

**Table 3: Population Projections for Duval County**

Source: University of Florida’s Bureau of Economic and Business Research

The City of Jacksonville Planning and Development Department uses the cohort-component method to project population and compares it to projections prepared by BEBR in order to ensure consistency and accuracy. All three entities’ population projections are within 10 percent of each other. Projections used by the City of Jacksonville Planning and Development Department assist in the on-going assessment of Jacksonville’s *2030 Comprehensive Plan*. The population projections in Table 4 are from Table L-3 of the Future Land Use Element’s Background Report and were used to update the Comprehensive Plan from a horizon year of 2010 to 2030; the *2030 Comprehensive Plan* is based on the projections in Table 4.

**Population Growth Projections 2010-2030**

YEAR	2010	2015	2020	2025	2030
<b>County Totals</b>	914,696	971,516	1,026,687	1,077,165	1,122,732

**Table 4: Population Projections, City of Jacksonville**

Source: Future Land Use Element Background Report, Table L-3

JEA's population and demand forecasts were prepared using 23-year time horizons consistent with the SJRWMD's 2003 & 2008 Water Supply Assessment; BEBR 2002-2007 Population Projections by County; and the City of Jacksonville Planning and Development Department's *2030 Comprehensive Plan*.

In order for JEA to accurately calculate the water supply needed, JEA used the Geographic Information System (GIS) analysis developed by the SJRWMD to correlate all JEA customer premises and number of units with applicable water service grid and 2010 U. S. Census block group for population per housing unit. This information is used with billing data to estimate the customer population billed or population served for each of the past five calendar years. Further, growth projections utilized for water demand are based on the latest current and future service area delineations. Growth increments are updated to reflect the changes in BEBR county population projections and are then applied to the population served for each grid. Table 5 provides the population projections for JEA's service area. The JEA service area includes areas outside the City of Jacksonville.

<b>Population Projections</b>						
Grid	North	South	Nassau	Ponte Vedra	Ponce De Leon	Mayport
2017	347,465	496,952	15,792	4,992	1,330	185
2018	354,567	506,093	16,332	5,014	1,349	187
2019	361,669	515,234	16,872	5,036	1,368	189
2020	368,771	524,375	17,412	5,058	1,387	191
2025	405,381	566,668	21,025	5,158	1,502	206
2030	445,251	605,023	24,860	5,208	1,592	226
2035	479,341	637,023	28,685	5,218	1,597	246
2040	508,721	664,598	32,380	5,218	1,597	271
2045	540,151	692,398	35,680	5,218	1,597	281

**Table 5: Population Projections, JEA Service Area**

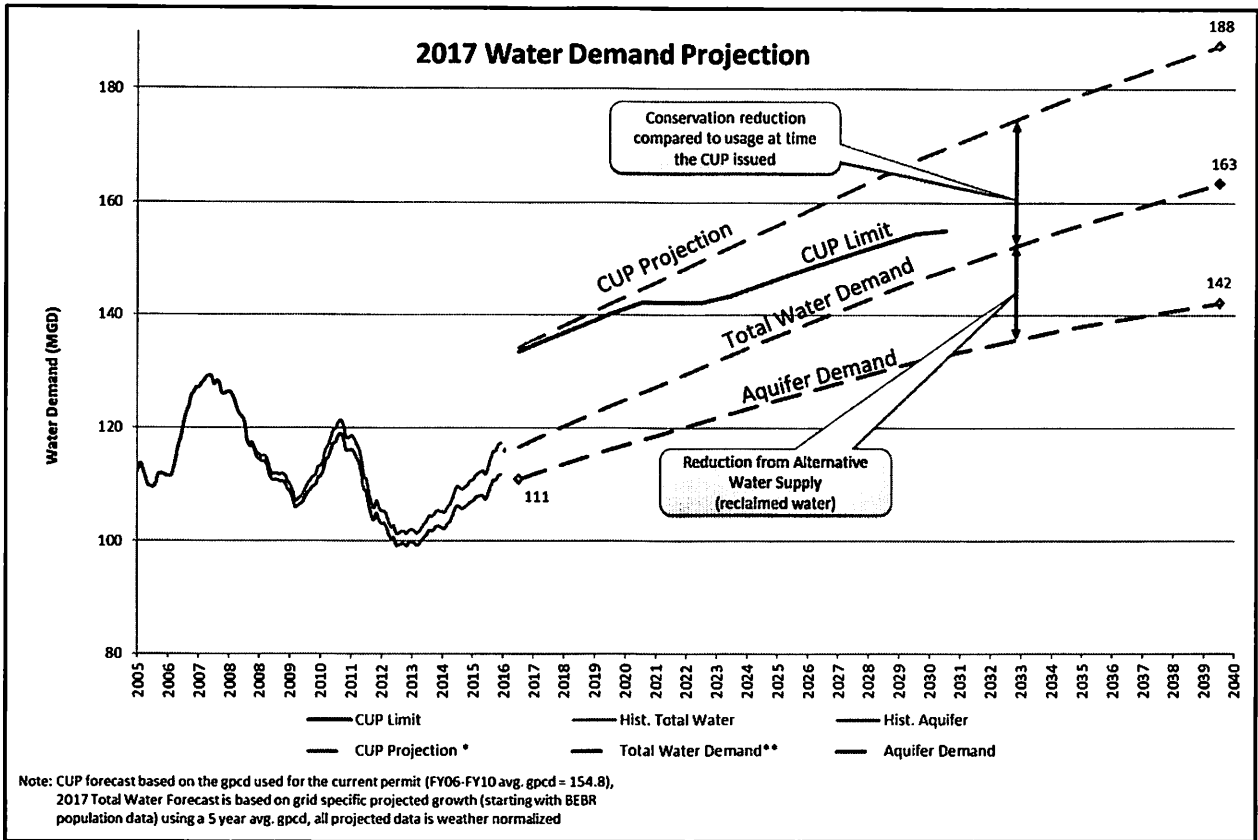
Source: JEA's 2017 Annual Water Resource Master Plan

The SJRWMD uses BEBR population projections as well as a standard percent share method where the population projections are calculated as the difference between the BEBR medium population projections for each county and both the public supply and small public supply systems population projections. SJRWMD staff and consultants developed a GIS based population growth and distribution model for all 18 counties within the District. This GIS model was utilized to geographically distribute population growth within the counties and utility service areas.

**4.2 Projected Water Demands**

JEA renewed its CUP with the SJRWMD in May 2011 for a 20-year period. Figure 8 shows the projected total water demand and the expected water demand from the Floridan Aquifer. The difference between

the dashed green line and the dashed purple line represents the conservation achieved since the issuance of the CUP permit. The difference from the purple dashed line and blue dashed line is the projected volume of potable offset reclaimed water demand.



**Figure 8: Water Demand Projections**  
Source: JEA's 2017 Annual Water Resource Master Plan

Using the population served and the estimated grid demand, the water demand per capita was calculated for each grid for each of the past five calendar years. The past five calendar years were then averaged for each of the grids to provide a basis for future water demand forecast by grid. The result of the final forecast of water demand per grid is shown in Table 6.

Individual Grid Demand in MGD								
Year	North Grid	South Grid	South Grid with SJCUD	Nassau Grid	Ponte Vedra Grid	Ponce de Leon Grid	Mayport	Total Water Demand with SJCUD
2012	39.62	63.64	64.35	2.23	1.10	0.35	0.06	107.71
2013	40.13	62.15	62.84	2.11	1.08	0.35	0.07	106.58
2014	39.74	64.02	64.77	2.25	1.03	0.35	0.06	108.20
2015	40.27	65.54	66.41	2.26	1.03	0.35	0.06	110.37
2016	41.25	69.34	70.43	2.63	1.08	0.37	0.07	115.82
2017	42.28	68.76	70.13	2.80	1.08	0.37	0.06	116.72
2018	43.14	70.02	71.61	2.90	1.09	0.37	0.06	119.17
2019	44.01	71.29	73.03	2.99	1.09	0.38	0.06	121.57
2020	44.87	72.55	74.42	3.09	1.10	0.38	0.06	123.92
2025	49.33	78.40	80.65	3.73	1.12	0.41	0.07	135.31
2030	54.18	83.71	85.96	4.41	1.13	0.44	0.07	146.19
2035	58.33	88.14	90.39	5.09	1.13	0.44	0.07	155.45
2040	61.90	91.95	94.20	5.74	1.13	0.44	0.07	163.48
2045	65.73	95.80	98.05	6.33	1.13	0.44	0.07	171.75

Table 6: Water Demand by Grid  
Source: JEA's 2017 Annual Water Resource Master Plan

#### 4.3 Projected Reclaimed Water Demand

Reclaimed water is an integral part of JEA's CUP. By implementing proposed capital projects, JEA has projected reclaimed water to total 32.44 mgd by 2040. JEA will continue its commitment to develop and invest in the expansion of reclaimed water treatment and distribution in order to support the needs of their customers and maximize the use of reclaimed water to the extent it is economically, environmentally and technologically feasible.

#### 5.0 CAPITAL IMPROVEMENT PROJECTS

JEA's Annual Water Resource Master Plan identifies water treatment, wastewater pump stations and reclaimed water projects in the capital budget. Water treatment and wastewater Capital Improvement Projects (CIP) that are currently planned to begin in the next ten years are identified and are included in Appendix 1. As planning needs dictate, the timing of specific projects may change or projects substituted to meet the needs of JEA customers. Project specific information and descriptions are not included in this report but are available via JEA's Capital Budget. Existing projects already underway are included in the CIP. Current planned grid projects with overall project budgets totaling approximately \$282,000,000 are scheduled to start in the next five years.

JEA has \$152 million in reclaimed water projects already planned to serve the needs of the reclaimed water system over the next ten years. These projects are focused on meeting the projected demands, offsetting potable water use and minimizing the environmental impacts to the St. Johns River and Floridan Aquifer. Most projects are focused on providing the projected capacity to support increasing demands from new growth; some projects are currently conceptual and require further evaluation to determine viability. Appendix 2 is a list of the reclaimed water Capital Improvement Projects identified in JEA's 2017 Annual Water Resource Plan.



In addition, JEA is evaluating a number of other significant reclaimed water project options, which have the potential to expand reclaimed water use even further. One project in particular, the alternative water pilot project at Southwest and Buckman WWTFs, is investigating treating secondary wastewater effluent in a water purification facility for aquifer recharge, indirect or direct applications. A future Phase 3 facility could produce up to 10 mgd of water, offsetting an equal amount of potable water demand. The Phase 3 facility is not anticipated to be in service prior to 2031.

The City of Jacksonville updates its 5-Year Capital Improvements Project budget (CIP) annually. Projects identified in JEA's Water Resource Master Plan will be included in the updated CIP, which is scheduled to be adopted in September 2018. Appendices 1 and 2 of this Work Plan contain the project options selected by JEA from the North Florida Regional Water Supply Plan (NFRWSP). The City and JEA will continue to evaluate water and reclaimed water projects identified in this Work Plan as well as other projects that may be necessary to meet projected water demands and will update the CIP accordingly.

## 6.0 FUTURE WATER SUPPLY PLANNING AND COORDINATION

In order to promote the efficient use of water and offset groundwater withdrawals, the City of Jacksonville and JEA have committed to various alternative water supply strategies.

For the 10-year period of this Work Plan, the City and JEA will continue to focus on the water supply planning strategies listed below. These strategies are implemented through a variety of programs, policies, and projects as mentioned in this section and all include active participation with the SJRWMD and other stakeholders in the Regional Water Supply Planning process.

- Conservation;
- Provision of Water Supplies to Development;
- Protection of Water Sources; and
- Alternative Water Sources

### 6.1 Water Conservation

The City and JEA have pursued conservation efforts to protect and conserve the Floridan Aquifer. In addition to practicing conservation measures, the City and JEA have also established educational campaigns, enabling policies, and specific projects with the goal of conserving water resources. The City and JEA plan to maintain these conservation programs and improve upon them where possible.

Aside from practicing conservation within their organizations, the City and JEA also focus on developing and disseminating educational campaigns, enabling low-impact development (LID), and requiring responsible landscaping applications such as Florida-friendly landscaping and similar measures.

The City and JEA coordinate and plan using the programs, policies, and projects listed in the table below.

		2030 Comprehensive Plan	Local Ordinance	JEA	Additional
<b>Water Conservation</b>	<b>Low Impact Development (LID)</b>	FLUE 1.5.13; CCME 6.7.3			Duval County Low-Impact Development Manual, July 2013
	<b>Florida-friendly Landscaping &amp; landscaping-related efforts</b>	IE NGAR 2.2.4; IE PW 1.8.3; CCME 2.3.7	Chapter 656.1211; Irrigation Ordinances 2008-030 and 2009-360	JEA Irrigation Tips for Conservation flyers	SJWMD Model Water Conservation Ordinance for landscape irrigation Rule 40C-2.042(2) F.A.C.; Section 373.62 F.S.
	<b>Education</b>	IE NGAR 1.3.8; IE NGAR Obj. 2.2; IE NGAR 2.2.1; IE NGAR 2.2.6; IE PW 1.6.7; IE PW Obj. 1.8; IE PW 1.8.1; IE PW 1.8.5	EQD Education Flyers Irrigation, Fertilizer, Figuring Out Fertilizer for the Home Lawn, and Frequently Asked Questions	JEA Teacher Resources--free educational materials	DEP/UF resource document "Florida-Friendly Landscape Guidance Models for Ordinances, Covenants, and Restriction," January 2009

FLUE- Future Land Use Element

IE NGAR- Infrastructure Element Natural Groundwater Aquifer Recharge Sub-element

IE PW- Infrastructure Element Potable Water Sub-element

CCME- Conservation/Coastal Management Element

**Table 7: Water Conservation Coordination**

## 6.2 Provision of Water Supplies

Concerning future planning and coordination for water provision, the City and JEA recognize the need for developments to be supplied with water resources concurrently as well as for services to be provided to areas in anticipation of future growth and development. To this end, several policies underscore this effort, and these enabling policies and ordinances are listed in the table below.

		2030 Comprehensive Plan	Local Ordinance
<b>Provision of Water to Development</b>	<b>Providing Supplies Concurrently</b>	FLUE Obj. 1.2; IE PW 1.1.1; IE PW 1.1.2; IE PW 1.3.2; CIE 1.4.4	
	<b>Future Provision</b>	FLUE 1.1.26; FLUE 1.2.8; FLUE 1.2.9; IE NGAR 1.1.3; IE NGAR 1.2.6; IE NGAR 1.2.7; IE PW Obj. 1.3	Chapter 654.132

**Table 8: Concurrent and Future Water Provision**

### 6.3 Water Source Protection

For the 10-year period of this Work Plan, the City and JEA will continue to focus on water source protection practices, enabled and administered through the following ordinances, policies, programs, and partnerships:

		2030 Comprehensive Plan	Local Ordinance	JEA	Additional
<b>Water Source Protection</b>	<b>Protect Water Quality</b>	FLUE 1.5.3; FLUE 1.5.10; FLUE 7.1.1; IE NGAR Obj. 1.3; IE NGAR 1.3.4; IE NGAR 1.3.6; IE NGAR 1.3.14; IE PW 1.2.3; CCME 2.1.5; CCME 2.1.9	Chapter 366.102; Environmental Protection Board (EPB) Rule 8; Chapter 654.119 Design standards and wetlands and lands adjacent to water bodies; Chapter 366.607 Low Maintenance Zones	St. Johns River Accord (partnership)	Groundwater Resource Management Program; Groundwater Recharge Area Protection Program; DEP Source Water Assessment and Protection Program

**Table 9: Water Source Protection Coordination**

In 2006, JEA entered into the River Accord with the SJRWMD, COJ, and Florida Department of Environmental Protection (FDEP). The River Accord is an agreement among the parties to reduce nitrogen discharge to the river through increased usage of reclaimed water, upgrades to wastewater treatment plants, septic tank phase-outs, and storm water treatment. Through the River Accord, JEA entered into a cost sharing agreement with the SJRWMD in July 2007. This provided for a \$250 million ten-year commitment to construct reclaimed water projects and upgrade wastewater treatment plants.

### 6.4 Alternative Water Sources

For the 10-year period of this Work Plan, the City and JEA will continue to focus on researching and providing alternative water sources. The primary strategy in this area is expansion of the water reclamation system.

Over the past seven years JEA has invested in a reclaimed water system in several service areas to help reduce the demand on the potable water system. During 2015, JEA established a reclaimed water system service area and enhanced its rules and regulations to promote the use of reclaimed water throughout its system. In the next decade additional sources of supply will be needed to help reduce the demand on the groundwater supply.

With JEA's support, the City passed a reclaimed water ordinance in 2006. This ordinance requires the construction of reclaimed water distribution systems in developments that JEA is prepared to serve. Over the past 10 years JEA has been committed to providing reclaimed water for beneficial use. In excess of \$85 million has been spent on transmission, treatment and pumping facilities to date.

As previously mentioned, in February 2015 JEA updated the JEA Rules and Regulations for Water, Sewer and Reclaimed Services to include reclaimed water service as a required connection within the JEA reclaimed water service area. Developments planned to be constructed within the reclaimed water service area at a distance greater than the minimum required from existing reclaimed water piping will be required to install reclaimed water piping until the service comes available in the future. Connection requirements are based on Equivalent Residential Connections (ERC) determined for each specific development. The required connection for new developments is subject to the conditions described in the Rules and Regulations. In the future more reclaimed water service areas are planned in regions like Southwest (west of Naval Air Station Jacksonville), Buckman (east of Martin Luther King Jr Parkway in Jacksonville's urban core), and Cedar Bay (west of the Broward River on the north side of Jacksonville) as the reclaimed water system is expanded.

Over the next 10 years, JEA has budget plans to spend an additional \$152 million to expand the use of reclaimed water throughout its service area. In addition, JEA is and will be evaluating a number of other significant reclaimed water project options that have the potential to expand reclaimed water use even further. The table below lists the programs and policies that support water reuse.

		2030 Comprehensive Plan	Local Ordinance	JEA	Additional
Alternative Water Sources	Water Reuse/ Reclaimed	FLUE 1.2.12; IE NGAR 1.2.6; IE NGAR 1.2.7; IE NGAR 1.2.9; IE NGAR Obj. 2.1; IE PW Obj. 1.7; IE PW 1.7.2; IE PW 1.8.6; CCME 2.2.5	Chapter 752 (Jacksonville Reuse of Reclaimed Water Program)	JEA Rules and Regulations for Water, Sewer & Reclaimed Services	DEP Comprehensive Reuse Program Chap. 62-610 F.A.C.

**Table 10: Alternative Water Source Coordination**

Other sources such as desalination of brackish, ocean or river water, indirect potable reclaimed water could be developed in the future to provide alternative potable water to JEA's customers. These options are much costlier to construct and operate than JEA's current water treatment facilities. These alternative water supply options would influence the current cost of service. The rates may need to be increased in order to cover the higher costs. JEA continues to work with the SJRWMD and the FDEP to find the most environmentally responsible and financially equitable solution for the community.

In FY2017 JEA began a research and development pilot study to determine the most effective treatment technology for indirect potable reclaimed water. The study duration will be two years in which time different technologies will be evaluated and tested.

**APPENDIX 1**

**Capital Improvement Projects, South Grid (in \$1,000s)**

Index No	Project Description	Current Estimate	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28
096-04	Oakridge WTP - HSP Expansion	\$1,850	\$0	\$0	\$0	\$0	\$50	\$300	\$1,500	\$0	\$0	\$0	\$0
101-25	Southeast WTP - HSP and Pump Building - Upgrades	\$3,689	\$71	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
101-26	Main St WTP - Ozone Generator - Addition - ENV	\$3,000	\$48	\$312	\$1,640	\$1,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
101-33	TWMP - Bartram - US1 - Old St Augustine Rd to US 1 - W	\$8,682	\$10	\$1,055	\$1,624	\$2,500	\$2,500	\$993	\$0	\$0	\$0	\$0	\$0
102-11	TWMP - Phillips Hwy - River Oaks Repump to University Bv - Trans - New - W - ENV	\$12,761	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,742	\$7,019	\$0
102-12	TWMP - Phillips Hwy - University Bv to Baymeadows Rd - Trans - New - W - ENV	\$12,342	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$3,830	\$8,512	\$0
102-26	US1 South Water Repump Facility	\$10,036	\$927	\$8,077	\$715	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
102-27	Nocatee South Water Repump	\$5,000	\$0	\$0	\$0	\$200	\$800	\$3,000	\$1,000	\$0	\$0	\$0	\$0
102-33	TWMP - US1 BPS - Old St Augustine Rd to US1 BPS - New - W	\$10,100	\$0	\$0	\$0	\$675	\$1,588	\$5,486	\$2,351	\$0	\$0	\$0	\$0
102-34	TWMP - Deerwood - Southside Blvd	\$28,400	\$50	\$1,000	\$4,000	\$8,000	\$8,000	\$7,350	\$0	\$0	\$0	\$0	\$0

	Intertie to Deerwood III WTP - New												
102-35	TWMP - Oakridge - Saints Rd - St Johns Bluff to Oakridge WTP -	\$1,870	\$0	\$0	\$0	\$0	\$140	\$538	\$1,192	\$0	\$0	\$0	\$0
102-36	TWMP - Ridenour - Cortez to Ridenour WTP - New - W	\$8,750	\$0	\$0	\$0	\$200	\$800	\$3,000	\$4,750	\$0	\$0	\$0	\$0
102-37	TWMP - Greenland - Southside Blvd - Deerwood 3 to Greenland - W	\$22,250	\$0	\$0	\$50	\$3,350	\$7,540	\$7,450	\$3,860	\$0	\$0	\$0	\$0
102-38	TWMP - Southeast - T-Line to Southeast WTP - W - ENV	\$8,500	\$0	\$0	\$0	\$0	\$50	\$1,290	\$3,000	\$4,160	\$0	\$0	\$0
107-06	Main St WTP - Well No 15 - New Lower Fl Aquifer Well	\$1,856	\$1,199	\$261	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
107-08	TWMP - Main St WTP - Well 13 - W - ENV	\$1,623	\$19	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
107-09	Main St WTP - WTP High Service Pump Routing - ENV	\$199	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
107-10	E 1st St Main St to E 4th St - Raw Water - New - W	\$3,826	\$91	\$1,153	\$1,690	\$850	\$0	\$0	\$0	\$0	\$0	\$0	\$0
108-02	Arlington WTP - HSP Replacement	\$1,331	\$1,185	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
150-10	Southeast WTP - Ground Storage Tank	\$2,550	\$0	\$0	\$50	\$2,000	\$500	\$0	\$0	\$0	\$0	\$0	\$0
268-W4	Greenland WTP - Expansion from 6.0 to 9.0 MGD	\$5,049	\$212	\$2,610	\$2,225	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
268-W7	Greenland WTP - Sulfide Removal - New	\$6,977	\$410	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

417-79	Bartram Repump Station Potable Water Storage Tank	\$2,666	\$1,735	\$887	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
425-07	Brierwood WTP - Well 4 and 5 Backplugging	\$588	\$85	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
425-10	South Grid Water Quality - Well Improvement - ENV	\$3,250	\$700	\$827	\$92	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
425-13	Brierwood WTP HSP Expansion	\$1,850	\$0	\$0	\$0	\$0	\$50	\$300	\$1,500	\$0	\$0	\$0	\$0
438-07	Beacon Hills GST	\$800	\$0	\$0	\$50	\$750	\$0	\$0	\$0	\$0	\$0	\$0	\$0
731-07	Julington Creek WTP - Storage Tank Rehabilitation	\$400	\$0	\$400	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
732-02	Woodmere WTP - Well No 3 and Storage Tank Replacement	\$4,255	\$1,819	\$2,033	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
734-02	St Johns Forest Wells	\$1,550	\$0	\$50	\$1,000	\$500	\$0	\$0	\$0	\$0	\$0	\$0	\$0
740-01	Lovegrove HSP and Building Replacement - Expansion	\$3,450	\$0	\$0	\$0	\$0	\$50	\$40	\$2,500	\$500	\$0	\$0	\$0
825-03	RiverTown WTP - New 6.0 MGD WTP	\$16,023	\$23	\$942	\$4,489	\$8,759	\$276	\$0	\$1,500	\$0	\$0	\$0	\$0.00
831-03	Royal Lakes WTP HSP Expansion	\$1,850	\$0	\$0	\$0	\$0	\$50	\$300	\$1,500	\$0	\$0	\$0	\$0.00
<b>Totals</b>		<b>\$197,323</b>	<b>\$8,584</b>	<b>\$19,607</b>	<b>\$17,625</b>	<b>\$28,784</b>	<b>\$22,394</b>	<b>\$30,047</b>	<b>\$24,653</b>	<b>\$4,660</b>	<b>\$9,573</b>	<b>\$15,531</b>	<b>\$0</b>

**Capital Improvement Projects, North Grid (in \$1,000s)**

Index No	Project Description	Current Estimate	FY 18	FY 19	FY 20	FY 21	FY 22	FY 23	FY 24	FY 25	FY 26	FY 27	FY 28
101-24	Marietta WTP - HSP - Upgrade	\$2,578,000	\$1,695,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

102-21	TWMP - Main St WTP - 1st St to Franklin St - Trans - New - W - ENV	\$8,401,000	\$264,000	\$1,953,000	\$3,569,000	\$2,576,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
123-03	Highlands WTP - Alternative Treatment - ENV	\$4,409,000	\$0	\$323,000	\$2,623,000	\$1,463,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
124-01	Northwest Regional WTP - New 6.0 MGD WTP	\$9,666,000	\$2,274,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
127-03	Westlake WTP - Expansion from 3.0 to 7.0 MGD	\$6,500,000	\$0	\$0	\$0	\$0	\$0	\$0	\$50,000	\$150,000	\$500,000	\$5,800,000	\$0
127-04	Westlake WTP - Well No 4 and RW Main	\$3,060,000	\$0	\$100,000	\$0	\$0	\$0	\$0	\$276,000	\$2,003,000	\$681,000	\$0	\$0
407-08	Cecil TP Ground Storage Tank and HSP	\$4,495,000	\$344,000	\$2,460,000	\$1,682,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
425-05	Well Rehabilitation & Maintenance - Fairfax Wells	\$4,537,000	\$1,190,000	\$1,187,670	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
425-06	Well Rehabilitation & Maintenance - McDuff Wells - ENV	\$5,521,000	\$2,290,000	\$1,396,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
642-03	McDuff WTP - HSP Replacement - ENV	\$2,363,000	\$178,000	\$1,007,000	\$1,167,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
737-01	Norwood WTP Reservoir Rehab - ENV	\$2,900,000	\$1,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
737-02	Norwood WTP - HSP Replacement and Expansion	\$1,750,000	\$118,000	\$897,000	\$735,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
825-12	Lakeshore WTP - Reservoir Rehabilitation	\$4,029,000	\$1,062,000	\$2,560,000	\$401,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0



**APPENDIX 2**

**Reclaimed Water Proposed Capital Improvement Projects FY2017-2027**

Project Description	Current Estimate	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
Mandarin WRF - EQ Storage Tank and Transfer PS - New	\$2,141	\$1,604	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Nocatee North - RW Storage Tank - New	\$1,986	\$1,396	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Bartram Park WTP - RW - Storage Expansion	\$1,634	\$890	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
CR210 - Old Dixie Hwy to Twin Creeks - Trans - RW	\$1,500	\$750	\$750	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Nocatee - Crosswater Pkwy - Coastal Oaks to South Village - R	\$716	\$716	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Water Purification Treatment Eval and Testing (Phase 1)	\$2,367	\$657	\$1,710	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Nocatee Augmentation Well - R	\$663	\$621	\$42	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
William Burgess Rd - SR200 to Harts Rd - Trans - New - R	\$2,411	\$455	\$1,759	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Nocatee - Crosswater to Pod Entrance - R	\$403	\$403	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
JP - SJC - Race Track Rd - RM Relocation	\$403	\$365	\$38	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Grid - Cost Participation - New - RW	\$250	\$250	\$250	\$250	\$250	\$500	\$500	\$500	\$500	\$500	\$500	\$500
Gate Pkwy - Shiloh Mill Blvd to Town Ctr Pkwy - RW	\$524	\$208	\$316	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Nassau RW Main - Radio Av to Harts Rd - Trans - R	\$2,267	\$200	\$1,967	\$100	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<sup>1</sup> District II WWTP Onsite RW Storage & Offsite RW Booster Station	\$3,738	\$200	\$300	\$1,000	\$2,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Monument Rd - Cancun Dr to Hidden Hills Ln - Trans - New - R	\$635	\$160	\$475	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Rivertown - 2A - Orange Branch Rd - R	\$280	\$140	\$100	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Nocatee - Twenty Mile Village Ph 4A - 4B - R	\$321	\$135	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Tredinick Pkwy - Millcoe Rd to Mill Creek Rd - Trans - RW	\$1,302	\$133	\$612	\$557	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Nocatee Booster Station	\$862	\$129	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
St Johns Pkwy - Racetrack Rd to Espada Ln - Trans - New - R	\$406	\$101	\$305	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Arlington East Onsite Reuse Pump Upgrade	\$829	\$90	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
JP - JTA - Alta Drive Roadway Improvements - R	\$435	\$75	\$255	\$105	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
CR210 - South Hampton to Ashford Mills - Trans - R	\$707	\$75	\$106	\$526	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
PSI - SE Regional RW Management Strategy	\$268	\$64	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
OM - Reuse Delivery R&R	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50	\$50
DD - RiverTown - Reclaimed	\$50	\$50	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Gate Pkwy - Glen Kernan to T-Line - Trans - New - RW	\$6,697	\$30	\$942	\$5,353	\$372	\$0	\$0	\$0	\$0	\$0	\$0	\$0
JP - FDOT - SR 9A (I-295) - Managed Lanes - JTB - 9B Extension - R	\$312	\$23	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
JP - FDOT - SR 9B - Duval - St Johns County Line to CR2209 - R	\$440	\$15	\$13	\$8	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
District II - Broward River Crossing Replacement	\$4,690	\$11	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
JP - FDOT - SR 200 (A1A) I-95 to Still Quarters Rd - Sect 1 - R	\$107	\$10	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Twin Creeks RW Storage Tank and Booster PS - R	\$3,300	\$0	\$300	\$2,280	\$720	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Nocatee South RW Storage Tank and Booster PS - R	\$5,100	\$0	\$300	\$2,030	\$2,770	\$0	\$0	\$0	\$0	\$0	\$0	\$0
RG Skinner - North Rd - Trans - RW	\$3,000	\$0	\$300	\$1,080	\$1,620	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Project Description	Current Estimate	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27
RG Skinner - 9B to Parcels 10A - 11 - R	\$1,114	\$0	\$200	\$914	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
RG Skinner - 9B to T-Line - R	\$1,026	\$0	\$200	\$826	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Baymeadows Rd - Point Meadows Rd to Old Still PUD - Trans - RW	\$760	\$0	\$200	\$320	\$240	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Rivertown - Main Stream Crossing - R	\$200	\$0	\$200	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Development Driven Projects - Reclaim	\$0	\$0	\$100	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$400	\$400
Nocatee - Landing Trail - R	\$122	\$0	\$122	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
T-Line - Amelia Concourse to Amelia National - Trans - RW	\$800	\$0	\$12	\$132	\$510	\$146	\$0	\$0	\$0	\$0	\$0	\$0
<sup>1</sup> Water Purification Treatment Facility (Phase 2)	\$20,000	\$0	\$0	\$500	\$1,500	\$3,000	\$9,000	\$6,000	\$0	\$0	\$0	\$0
US 1 - Greenland WRF to CR 210 - Trans - New - RW	\$7,800	\$0	\$0	\$300	\$2,600	\$3,500	\$1,400	\$0	\$0	\$0	\$0	\$0
T-Line - Greenland Substation to GEC - Trans - R	\$3,100	\$0	\$0	\$300	\$1,120	\$1,680	\$0	\$0	\$0	\$0	\$0	\$0
CR210 - Twin Creeks to Russell Sampson Rd - Trans - RW	\$3,000	\$0	\$0	\$300	\$1,080	\$1,620	\$0	\$0	\$0	\$0	\$0	\$0
RiverTown WTP - RW - New Storage and Pumping System	\$3,950	\$0	\$0	\$200	\$1,620	\$2,130	\$0	\$0	\$0	\$0	\$0	\$0
Greenbriar Rd - Longleaf Pine Pkwy to Spring Haven Dr - Trans - R	\$3,500	\$0	\$0	\$200	\$1,320	\$1,980	\$0	\$0	\$0	\$0	\$0	\$0
Russell Sampson Rd - St. Johns Pkwy to CR210 - Trans - RW	\$2,500	\$0	\$0	\$200	\$920	\$1,380	\$0	\$0	\$0	\$0	\$0	\$0

<sup>1</sup> District 2 WWTF RIB - Transmission and Pumping - R	\$8,900	\$0	\$0	\$0	\$0	\$300	\$3,000	\$4,000	\$1,600	\$0	\$0	\$0
Veterans Pkwy - Longleaf Pine Pkwy to CR210 - Trans - RW	\$8,800	\$0	\$0	\$0	\$0	\$300	\$3,000	\$4,000	\$1,500	\$0	\$0	\$0
CR210 - Longleaf Pine Pkwy to Ashford Mills Rd - Trans - RW	\$5,000	\$0	\$0	\$0	\$0	\$250	\$2,050	\$2,700	\$0	\$0	\$0	\$0
<sup>1</sup> CR210 - St Johns Pkwy to Leo Maguire Pkwy - Trans - New - R	\$1,123	\$0	\$0	\$0	\$0	\$0	\$100	\$409	\$614	\$0	\$0	\$0
<sup>1</sup> Station Creek Rd - Beach Bv to Hunt Club Rd N - Trans - New - R	\$275	\$0	\$0	\$0	\$0	\$0	\$50	\$225	\$0	\$0	\$0	\$0
<sup>1</sup> Bartram Trail HS - Longleaf Pine Pkwy - Trans - New - R	\$243	\$0	\$0	\$0	\$0	\$0	\$50	\$193	\$0	\$0	\$0	\$0
<sup>1</sup> CCUA RW Transmission Main - Southwest WWTF to CCUA - Trans - R	\$15,000	\$0	\$0	\$0	\$0	\$0	\$0	\$300	\$1,400	\$6,500	\$6,800	\$0
Monument Rd - AE WRF to St Johns Bluff Rd - Trans - New - RW	\$3,300	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$300	\$1,200	\$1,800
Arlington East WRF RW Filter - Increase Capacity from 8.0 - 10.0 MGD	\$2,800	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$300	\$1,000	\$1,500
<sup>1</sup> Davis - Gate Pkwy to RG Skinner - Trans - RW	\$5,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$250	\$2,050	\$2,700
Ridenour WTP - RW - Storage and Repump	\$3,700	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$200	\$1,460	\$2,040
<sup>1</sup> Glen Kernan Pkwy - Kernan Bv to Royal Troon La - Trans - New - R	\$262	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$50	\$212	\$0
<sup>1</sup> Water Purification Treatment Facility (Phase 3)	\$150,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

	<b>Total</b>	<b>\$10,006</b>	<b>\$11,924</b>	<b>\$17,931</b>	<b>\$19,092</b>	<b>\$17,236</b>	<b>\$19,600</b>	<b>\$18,777</b>	<b>\$6,064</b>	<b>\$8,550</b>	<b>\$13,672</b>	<b>\$8,990</b>	<b>\$151,842</b>
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<sup>1</sup>Conceptual project - funding and timing is estimated and subject to change

<sup>2</sup>Dollars in \$1,000s

## Capital Improvements Element (CIE)

### **Policy 1.1.3**

The City shall maintain and annually update a listing of necessary capital improvements ranked in order of priority. This capital facilities list will be based on evaluative criteria and will be adopted as a component of the City's Five-Year Capital Improvements Schedule. The following criteria will be utilized to prioritize the City's schedule of capital improvements:

- a. Enhancement, expansion, or new construction which eliminates existing public health hazards or existing capacity deficits and does not exacerbate existing nor create new deficiencies;
- b. Repair, enhancement, or replacement of deficient or irreparable public facilities to achieve compliance with adopted Level of Service standards;
- c. Financial feasibility, including impact on the City's capital and operating budgets;
- d. New construction or redevelopment consistent with the City's Future Land Use Element and projected growth patterns, provided that the facilities meet adopted Level of Service standards for all other required elements and do not conflict with plans of State agencies, and the St. Johns River Water Management District or their regional agency functional plans, and the JEA or their functional plans;
- e. New construction or redevelopment consistent with the City's Future Land Use Element and projected growth patterns which may initially exceed current Level of Service standards, but are phased concurrent with the created impacts of construction;
- f. Once established, Level of Service standards for any area will not be diminished due to the loss of population in that area.

### **Policy 1.4.4**

The City shall continue to promote financial support for research and planning to ensure water quality health for the St. Johns River and its tributaries, as well as to meet the City's water supply needs.

### **Policy 1.5.1**

Prior to the issuance of a Certificate of Occupancy, the City through the implementation and enforcement of its Concurrency Management System, shall ensure that all public facilities, including adequate water supplies but excluding transportation, needed to serve development for which development orders were previously issued are provided concurrent with the impacts of said development. Additionally, prior to approval of a building permit or its functional equivalent, the City shall consult with the applicable water supplier to determine whether adequate water supplies to serve the new development will be available no later than the anticipated date of issuance of a certificate of occupancy or its functional equivalent.

## Conservation and Coastal Management Element (CCME)

### **Policy 2.1.5**

The City shall maintain a Groundwater Recharge Area Protection Program to achieve protection of the City's groundwater aquifer recharge areas as identified in the program.

### **Policy 2.1.9**

The City will prohibit, in areas determined to be prime Floridan Aquifer recharge lands, industrial activities,

septic tank use in subdivisions, and commercial activities utilizing or producing hazardous materials as identified by the Florida Department of Environmental Protection.

**Policy 2.2.5**

All uses of reclaimed water shall be in accordance with applicable rules of the Florida Department of Environmental Protection and other regulatory agencies having jurisdiction. The City shall comply with all reuse requirements as outlined in Chapter 752 of the Ordinance Code (Jacksonville Reuse of Reclaimed Water Program), the supporting policies in the Infrastructure Element Natural Groundwater Aquifer Recharge and Potable Water Sub-Elements, and in compliance with the City's consumptive use permit issued by SJRWMD.

**Policy 2.3.7**

The City will require the use of "River Friendly" BMPs, as published in the *Florida Green Industries: Best Management Practices for Protection of Water Resources in Florida* and outlined in Chapter 366, Ordinance Code. This will include the establishment of new, "Florida Friendly" turf and landscapes and the care of existing turf and landscapes, including construction activities, irrigation, nutrient management, and pest management.

**Policy 6.7.3**

The City, in conjunction with the Low Impact Development (LID) subcommittee of the Subdivision Standards Policy Advisory Committee (SSPAC) and the St. John's River Water Management District, shall construct an LID manual by September 2012. The LID Manual shall include meaningful and predictable guidelines and standards that the City shall use to encourage LID in order to reduce the impact of new and existing development and manage stormwater at its source. Encouragement strategies may include: offering credits to off-set the Stormwater Utility Fee and allowing alternative designs to be permitted without deviations or variances from the Land Development Regulations.

**Objective 6.8**

The City shall continue to promote financial support for research and planning to ensure water quality health for the St. Johns River and its tributaries, as well as to meet the City's water supply needs.

**Policy 6.8.1**

The City, acting as Duval County, shall continue to seek endorsement from the SJRWMD ~~and the Florida Water Protection and Sustainability Program (WPSP)~~ in order to fund county-level water protection and water supply planning efforts.

**Policy 6.8.2**

Duval County's water resources and projected needs through 2025 come from both groundwater and surface water sources. Detailed data regarding water use, projections and sources are included in the background data for this element. ~~The City JEA~~ shall continue to identify and promote water conservation, alternative water supply sources and other water management strategies, consistent with the St. Johns River Water Management District's (SJRWMD) District Regional Water Supply Plan and the provisions of the Potable Water and Natural Groundwater Aquifer Recharge Sub-Elements, in order to meet the City's growing water supply needs.



### **Policy 6.8.3**

The City of Jacksonville shall continue to participate in the development of updates to the St. Johns River Water Management District's (SJRWMD) ~~Water Supply Assessment and District~~ Regional Water Supply Plan, as well as other applicable water supply development-related initiatives facilitated by SJRWMD.

### CCME - Definitions

~~District Regional Water Supply Plan 2005 (DWSP-2005)~~ - Addresses current and future water use and traditional and alternative water sources and water conservation required to meet ~~2025~~ future water supply needs while sustaining water quality and protecting wetland and aquatic systems. ~~DWSP-2005~~ This Plan is designed to meet the requirements of the water supply planning provisions of Section 373, *Florida Statutes* (F.S.), ~~and is based on a planning horizon extending through 2025.~~

### Future Land Use Element (FLUE)

#### **Policy 1.1.26**

The Planning and Development Department and JEA will coordinate the location of future water and sewer lines with land use designations in the City's comprehensive Plan in order to influence both the timing and location of future growth.

#### **Objective 1.2**

Manage the use of land in the City by approving new development and redevelopment only if necessary public facilities are provided concurrent with the impacts of development. Ensure the availability of adequate land suitable for utility facilities necessary to support proposed development. Verify prior to development order issuance that all new development and redevelopment will be served with potable water, wastewater, solid waste disposal, stormwater management facilities, and parks that meet or exceed the adopted Levels of Service established in the Capital Improvements Element.

#### **Policy 1.2.8**

Ensure that projected growth in the Central Business District, Urban Priority Area, Urban Area, and Suburban Area will be provided with sufficient system capacity to obtain centralized wastewater and potable water, through implementation of the Capital Improvements Element, which shall be updated annually and shall be coordinated with the growth projections for the City.

#### **Policy 1.2.9**

Require new development and redevelopment in the Central Business District, Urban Priority Area, Urban Area, and Suburban Area to be served by centralized wastewater collection and potable water distribution systems when centralized service is available to the site. New septic tanks in this area maybe permitted only as interim facilities pursuant to the requirements of the Sanitary Sewer Sub-Element.

#### **Policy 1.2.11**

~~Continue to deny d~~ Development orders and permits until shall only be issued when the applicant has demonstrated compliance with applicable federal, state and local requirements for wastewater collection and disposal, and potable water, supply, treatment and distribution, availability per the local water utility.



**Policy 1.2.12**

As outlined in Chapter 752 of the Ordinance Code (Jacksonville Reuse of Reclaimed Water Program), the City will observe water conservation requirements when evaluating future land use patterns and shall require the proper disposal and reuse of wastewater for all non-sanitary purposes where connections are available.

**Policy 1.5.3**

Protect potable water well fields, areas of moderate to high aquifer recharge, known habitat areas of rare, endangered, or threatened species, and other significant natural resources through Land Development Regulations enacted which limit activities having the potential to contaminate soil, ground or surface waters, or otherwise destroy these sensitive areas, consistent with the provisions of the Conservation/Coastal Management Element.

**Policy 1.5.10**

Protect moderate and high aquifer recharge areas and areas with high groundwater contamination potential, as identified in the Groundwater Aquifer Recharge Sub-Element, from adverse development impacts through a system of performance standards implemented jointly through the Planning and Development Department, JEA and Health, Welfare, and EQD.

**Policy 7.1.1**

The Planning and Development Department shall consider the land use impact on the St. Johns River and its tributaries by reviewing the future land use designation and land development regulations of those properties that are contiguous with and immediately adjacent to a water body. The following concerns will be considered for those properties:

- Wetlands
- Impervious surface potential
- Coastal High Hazard Area (CHHA)
- Septic Tank Failure Areas
- Environmentally Sensitive Areas
- Flood zones
- Aquifer recharge zones
- Wellhead protection areas

Infrastructure Element – Natural Groundwater Aquifer Recharge Sub-element (IE NGAR)

**Policy 1.1.3**

JEA shall utilize the projected land uses, population, and other industry forecasts as applied to accepted unit water consumption rates to identify by area the projected demand within the City and to quantify potential future water requirements.

**Objective 1.2**

The City will rely on the St. Johns River Water Management District’s (SJRWMD) most current water supply management and GIS coverages for hydrologic and geologic data.

**Policy 1.2.5**

In accordance with the ~~District~~ Regional Water Supply Plan and related policies under CCME Goal 6, EQD and JEA should select and implement ~~water resources projects to protect resources and meet future needs~~ water resource project options from the Regional Water Supply Plan.

**Policy 1.2.6**

JEA shall continue to study existing sources of wastewater discharge suitable for reuse, sources of potable water, conservation, and other integrated water management strategies to meet future demand, conserve water, and ~~remove~~ reduce nitrogen loading to the Lower St. Johns River.

**Policy 1.2.7**

JEA shall continue to determine potential quantities of water available for consumptive use by the City to assure that adequate resources are developed. The City shall utilize water conservation and water reuse practices to supplement and increase the effective life of its groundwater resources.

**Policy 1.2.9**

The City, in coordination with JEA, shall support the development of reuse water and other alternative supplies. Pursuant to requirements imposed by JEA's water supply consumptive use permits, the City shall require the use of reclaimed water where economically feasible pursuant to the City of Jacksonville's Chapter 752. In addition, the City shall require the following reuse practices, where economically feasible:

- A. Installation of reuse supply lines;
- B. Connection of new development or substantial redevelopment to a reuse system to supply uses that do not require potable water, unless the use of a lower quality source is otherwise authorized by SJRWMD;
- C. Installation of dual water distribution lines that will initially use the existing water source or stormwater until the reclaimed water source is available;
- D. Installation of meters for individual connections to the reclaimed water system; or
- E. Reuse water to be used for irrigation and other non-potable needs in public areas owned by the City.

**Objective 1.3**

Maintain a City well head protection and regulation program.

**Policy 1.3.4**

The EQD shall develop and maintain a groundwater resource management program which is designed to protect the Floridian Aquifer such that the fresh water quality is not degraded beyond acceptable raw water characteristics for associated treatment facilities required to meet Chapter 366 City of Jacksonville Municipal Code, Chapter 17-550, F.A.C. as amended, Chapter 62, F.A.C. as amended, and/or the Federal Safe Drinking Water Act requirements.

**Policy 1.3.6**

The EQD and the JEA shall jointly protect the areas within the existing public supply wellhead protection areas pursuant to Chapter 366 City of Jacksonville Municipal Code and EPB Rule-8 by implementing:

- a) a program to inventory contaminated sites;
- b) best management practices for contamination control; and best management practices to

remove or limit existing pollution sources in the areas delineated.

**Policy 1.3.7**

The City of Jacksonville, JEA, EQD and the JEA shall continue to work with the SJRWMD, Northeast Florida Regional Council (RC), and JPDD (including PUD and DRI processes) to ensure that water for nonpotable uses be obtained from the lowest quality water source, in proximity to the demand, consistent with the intended use in compliance with the State Water Policy, ~~Chapter 17-40, F.A.C.~~ Chapter 373, F.S. and Chapter 62-40, F.A.C.

**Policy 1.3.8**

The City shall incorporate freshwater demand reduction practices as appropriate within the City Building Code. New freshwater conservation methods or technologies shall be distributed to City water users through the water conservation education program of JEA.

**Policy 1.3.14**

The Planning and Development Department in conjunction with the EQD and the JEA, and the Public Works Department, shall develop land use, drainage, development criteria and other revisions to the Land Development Regulations in compliance with Section 163.3202(1), F.S., to protect the prime aquifer recharge areas and to a lesser extent the areas of critical concern which buffer the prime aquifer recharge areas within one (1) year of such designation.

**Objective 2.1**

JEA shall, implement the water reuse ordinance (Chapter 752 733, City of Jacksonville Ordinance Code) in compliance with the City's consumptive use permit requirements issued by the SJRWMD.

**Objective 2.2**

JEA shall continue and expand the City's water conservation and demand reduction program in order to reduce per capita consumption of potable water by up to 10% by 2013.

**Policy 2.2.1**

JEA shall continue to utilize potable water conservation strategies and techniques in the operation of the City's water facilities.

**Policy 2.2.4**

The City's landscape and tree protection regulations require low water use features and vegetation and water conserving irrigation practices.

**Policy 2.2.6**

JEA in cooperation with other departments shall implement a water conservation public education program.

Infrastructure Element – Potable Water Sub-element (IE PW)

**Objective 1.1**

In order to discourage urban sprawl, to maximize the use of existing facilities, and to coordinate the increase in the capacity of facilities to meet future needs of the City, the JEA shall provide regional water

facilities in concert and conformance with the Development Areas Map (Map CI-1) as adopted in the Capital Improvements Element.

**Policy 1.1.1**

JEA shall provide for regional water facilities associated with development within the Urban Area as defined in the Capital Improvements Element, excluding improvements within the service area of an investor-owned public utility.

**Policy 1.1.2**

JEA shall provide for regional water facilities associated with development within the Suburban Area, as defined in the Capital Improvements Element, excluding improvements within the service area of an investor-owned public utility. The Suburban Areas should be reviewed in the development of the 2030 Comprehensive Plan.

**Policy 1.1.3**

When requested by the Duval County Health Department and where the public water system is available to provide service, the JEA shall inter-tie with private water systems whose water treatment facilities are not in compliance with federal, State, or local regulations.

**Policy 1.1.6**

JEA shall continue to acquire community and/or investor-owned public utility companies and integrate the systems into the regional network, where analysis of the acquisition indicates that the costs of acquiring, interconnecting and upgrading the facilities to current standards will be offset by the existing and projected rate base of the utility.

**Policy 1.1.9**

JEA shall prepare an annual report which summarizes existing capacity and demand information for the water system and incorporates and identifies the alternative water supply projects selected or proposed.

**Policy 1.1.12**

JEA shall provide for regional water facilities associated with development within the Suburban Area, as defined in the Capital Improvements Element, excluding improvements within the service area of an investor-owned public utility. The Suburban Areas should be reviewed in the development of the 2030 Comprehensive Plan.

**Policy 1.1.14**

New non-regional water facilities may be allowed as appropriate interim facilities provided the following requirements are satisfied:

1. The facility meets all federal, State, regional and city environmental regulations;
2. The developer provides for all operation and maintenance costs;
3. The developer provides for phase out costs where appropriate;
4. The developer enters into an agreement with JEA specifying the date and manner of phase out;
5. The facility operator will reimburse JEA for costs of enforcement of violations of water quality standards; and
6. Minimum fire protection levels of service as specified in Policy 1.3.1 are provided for.

**Policy 1.1.15**

The City shall continue to amend the 2030 Comprehensive Plan as needed to continue implementation of the City's Water Supply Facilities Work Plan 2018-2028 (Jacksonville Planning and Development Department, February 2019), adopted by reference. Supporting data and analysis may be attached as appendices to the Water Supply Facilities Work Plan, and updated from time to time, without the necessity of an amendment to the Comprehensive Plan. The City and JEA shall continue to identify and implement traditional and alternative water supply projects and programs, including conservation and water reuse, that are consistent with the SJRWMD's District Regional Water Supply Plan to meet the ~~that~~ City's water ~~supply~~ needs.

**Objective 1.2**

JEA shall develop and maintain a ~~comprehensive~~ water resources ~~management~~ plan for the City's present and future service areas, with the primary objective being the provision of an adequate supply of high-quality water, carefully planned and properly managed with due regard for the environment.

**Policy 1.2.3**

The City shall implement the Wellhead Protection Ordinance to protect its potable water supply source. Improperly constructed or maintained Hawthorne Group and Floridan Aquifer private wells in proximity to a Public Potable Water well within Duval County are potentially harmful to the drinking water supply of the City of Jacksonville. A Pathway Focused Approach to prevent migration of contamination from the shallow aquifer into the Floridan aquifer is reasonable and prudent to protect public water supplies. The intent of this policy is to protect and safeguard the health, safety and welfare of the residents of Duval County by establishing a Pathway Focused Approach to wellhead protection that safeguards the Floridan aquifer from intrusion of any contaminants that may jeopardize present and future public water supply wells.

Within Wellhead Protection Areas, the following shall apply:

1. Within a 500-foot radius around an existing Public Potable Water well, those actions and uses established by the Florida Department of Environmental Protection in Rule 62-521.400, Fla. Admin. Code shall be prohibited.
2. Pursuant to Chapter 366 City of Jacksonville Municipal Code, no existing private wells shall be deepened and no new wells shall be constructed within designated Wellhead Protection Areas that penetrate a portion of the Hawthorne Group or the Floridan Aquifer without first obtaining a well construction permit from the City of Jacksonville Environmental Quality Division (EQD) as provided in Environmental Protection Board Rule 8 and including a review of areas of known contamination at or near the proposed or existing well location. All new wells within such areas must be fully grouted.
3. Pursuant to Chapter 366 City of Jacksonville Municipal Code, abandonment of existing wells shall be in accordance with applicable SJRWMD requirements and a copy of the plugging and abandonment report shall be submitted to the EQD.

**Policy 1.2.5**

JEA shall identify, evaluate, and select the most cost-effective means of ensuring an adequate water supply including groundwater supply, reuse of treated wastewater, surface water supply, demand reduction, conservation, and peak ~~saving~~ shaving through system integration. This evaluation shall be

conducted as a part of their Water System Master Plan Update water supply plan, and in conjunction with the SJRWMD.

**Policy 1.2.9**

JEA may enter into agreements with public and private water resource and/or reclaimed water providers as needed to ensure an adequate, high-quality water supply. Agreements shall be identified in the City's Water Supply Facilities Work Plan.

**Objective 1.3**

JEA shall provide adequate ~~water facility~~ capacity at water treatment plants to meet future needs.

**Policy 1.3.2**

No development order authorizing new development or a significant expansion of an existing user shall be issued for any area of the City served by a water facility which does not meet ~~the~~ regulatory standards in ~~Chapter 9J 5.0055 (3)(a) 1, 2, F.A.C.~~ Specifically, the necessary facilities, including adequate water supplies, will be in place and available to serve the new development when the development impacts occur, or the necessary facilities are guaranteed by an enforceable development agreement, issued pursuant to Chapter 163.3220, F.S.; or Chapter 380, F.S. Prior to approval of a building permit or its functional equivalent, the City shall consult with the applicable water supplier to determine whether adequate water supplies to serve the new development will be available no later than the anticipated date of issuance of a certificate of occupancy or its functional equivalent.

**Objective 1.4**

JEA shall plan and provide regional facilities to accommodate the ultimate needs of the community through implementation of JEA related ~~the~~ projects listed in the Capital Improvements Element.

**Policy 1.6.7**

JEA shall continue and expand existing beneficial water system programs which may include but are not limited to:

1. Backflow prevention program
2. Leak detection program
3. Valve and hydrant operation, marking and testing program
4. Meter testing program
5. Instrumentation and control systems replacement program
6. Operator training program
7. Water conservation program

**Objective 1.7**

JEA and the City shall continue to enforce the City's reuse ordinance in compliance with the City's consumptive use permit requirements as issued by the SJRWMD.

**Policy 1.7.2**

The City shall request that SJRWMD amend all non-potable consumptive use permits in Jacksonville issued by the SJRWMD to require that the permit holder accept and utilize reuse water when made available by the City.

**Objective 1.8**

JEA shall continue and expand the Citywide water conservation and demand reduction programs in order

to reduce per capita consumption of potable water by up to ten percent (10%) by 2013, through implementation of effective water conservation measures and demand reduction program as reflected in Aquifer Recharge Sub-Element - Objective 2.1 and 2.2

**Policy 1.8.1**

JEA shall continue to establish and utilize potable water conservation strategies and techniques in the operation of City potable water facilities.

**Policy 1.8.3**

The City shall continue to implement requirements for low water use features and vegetation and water conserving irrigation practices in its landscape and tree protection regulations.

**Policy 1.8.5**

JEA in cooperation with other departments shall establish and maintain a water conservation public education program.

**Policy 1.8.6**

The City shall request that SJRWMD amend all non-potable consumptive use permits in Jacksonville issued by the SJRWMD to require that the permit holder accept and utilize reuse water when made available by the City.

Infrastructure Element – Sanitary Sewer Sub-element (IE SS)

**Objective 1.4**

JEA and the City shall coordinate, plan and provide for regional facilities to accommodate the ultimate needs of the community through creation of a water supply plan covering at least a 10-year planning period for building water supply facilities necessary to serve existing and new development and through implementation of JEA related projects listed in the Capital Improvements Element.

Intergovernmental Coordination Element (ICE)

**Goal 1**

Coordinate the planning and policy making of the City with that of the surrounding municipalities, county, regional, State, federal and special authority governments to ensure consistency in development and in the provision of services and to implement the goals, objectives and policies of the 2030 Comprehensive Plan.

**Objective 1.1**

Coordinate with relevant state or regional agencies, local governments, or other entities with operational and maintenance responsibility for such facilities in establishing levels of service standards and guidelines.

**Policy 1.1.1**

Use the intergovernmental review and comment provisions of the Local Government Comprehensive Planning and Land Development Regulation Act, as well as other existing mechanisms to coordinate Levels of Service (LOS) between Jacksonville and the adjacent local governments. These entities include:

1. St. Johns River Water Management District (SJRWMD) - drainage; potable water supply, regional water supply plan.
2. Northeast Florida Regional Council (NEFRC) - regional policies.
3. Jacksonville Beach, Neptune Beach, the Town of Baldwin and Atlantic Beach - water; sewer; drainage; solid waste; parks.
4. Duval County Public Schools (DCPS) – public school facilities.
5. North Florida Transportation Planning Organization (TPO) – long range transportation planning.
6. Adjacent counties and municipalities.
7. JEA – regional water supply, potable water supply, reuse water service delivery.
8. SJRWMD, Duval County Health Department, City of Jacksonville Environmental Quality Division (EQD), and City of Jacksonville Planning and Development Department - self-supplied domestic uses and small public water supply systems.

**Policy 1.3.9**

The City of Jacksonville shall continue to participate in the development of updates to the St. Johns River Water Management District's (SJRWMD) ~~Water Supply Assessment and District~~ Regional Water Supply Plan, as well as other applicable water supply development-related initiatives facilitated by SJRWMD and/or the local water utility.