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WASTEWATER TREATMENT PLANT PLAN

St. Johns County | February 2024

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ST. JOHNS COUNTY
WASTEWATER TREATMENT PLANT PLAN

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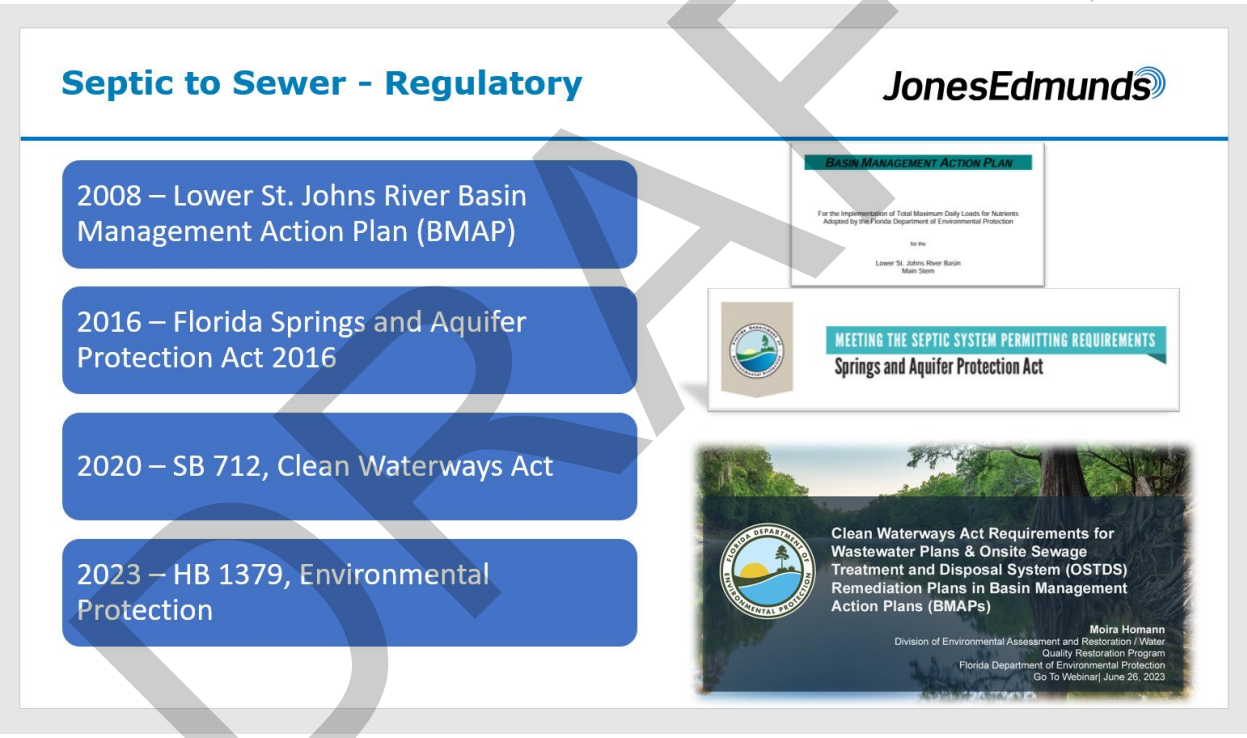
1 INTRODUCTION

Under the 2020 Clean Waterways Act – Senate Bill 712, counties and municipalities within a basin management action plan (BMAP) must develop a wastewater treatment plant plan if the Florida Department of Environmental Protection (FDEP) identifies domestic wastewater treatment facilities as contributors of at least 20 percent of point source or nonpoint source nutrient pollution or if FDEP determines that remediation is necessary to achieve the total maximum daily load (TMDL). The plans must contain specific information related to domestic wastewater treatment facilities (WWTFs) that is defined in the Clean Water Ways Act and described in Section 1.2 of this document.

1.1 SB 712 TIMELINE SUMMARY

The overall regulatory timeline for septic to sewer legislation is presented in Figure 1-1.

Figure 1-1 Septic to Sewer Regulatory Timeline



The Lower St. Johns River BMAP was adopted in December of 2008, and water quality has been improving since. The BMAP is a framework for water quality restoration that contains local and state commitments to reduce pollutant loading through current and future projects and strategies. The first action toward getting this planned developed started in 1999, when a stakeholder's group was formed to discuss technical issues related to the TMDL model development. The scientists at FDEP and the St. Johns River Water Management District (SJRWMD) developing the model and the TMDL reviewed technical details with this group. FDEP and SJRWMD also consulted stakeholders during the preparation of a plan of study for the TMDL (*Development of Total Maximum Daily Loads and Pollution Load Reduction Goals for the Lower St. Johns River Basin: Plan of Study*), which was first drafted in 2000 and published in September 2001. In July 2002, FDEP convened the Lower St. Johns River (LSJR) TMDL Executive Committee to provide input to the development of a TMDL for the

basin and to assist in developing a BMAP to achieve the TMDL. Since the adoption of the plan in 2008, a 90-percent reduction in total phosphorus loadings and an 84-percent reduction in total nitrogen loadings has been achieved in the river's freshwater section.

The Florida Springs and Aquifer Protection Act was first filed in October 2015, and was approved by the governor in January 2016. Months later, the Act was put into effect on the first day of July 2016, where the Florida Legislature identified 30 "Outstanding Florida Springs" that require additional protections to ensure their conservation and restoration for future generations. These protections will be outlined in restoration plans, known as BMAPs. These plans are focused on reducing nitrogen pollution that is impacting the water quality of these springs. The legislation requires each BMAP to identify the sources of nitrogen pollution within the springshed and include projects and strategies that will achieve the reductions needed to improve water quality in the region.

The Clean Waterways Act was first filed in October 2019 and was approved by the governor in late June 2020. The Act was then put into effect exactly 4 years after the Florida Springs and Aquifer Protection Act, on July 1, 2020. This Act addresses a number of environmental issues including several provisions related to water quality improvement. The Act transferred the OSTDS Program from the Florida Department of Health (FDOH) to FDEP starting in 2021. The Act requires local governments to create septic remediation plans for certain BMAPs. The Act also requires FDEP to implement a fast track-approval process for National Sanitation Foundation/American National Standards Institute (NSF/ANSI) 245 nutrient-reducing septic systems and revises provisions related to septic system setback rules.

House Bill 1379, filed in March 2023, was approved in May 2023 and made effective July 1, 2023. This Bill revises, creates, and repeals various provisions relating to procedures and requirements for acquisition, retention, and disposal of state lands and prioritization of projects relating to such lands. The Bill provides the following language relating to wastewater treatment:

- A wastewater treatment plan developed by each local government, in cooperation with FDEP, the water management district, and the public and private domestic wastewater treatment facilities within the jurisdiction of the local government, that addresses domestic wastewater.
- The wastewater treatment plan must include all components listed in Section 1.2.

1.2 Required Plan Components

FDEP has requested the following information for existing or proposed domestic wastewater facilities in the St. Johns County Utility Department (SJCUD) jurisdiction or service area:

1. The facility's permitted capacity in average annual gallons per day.
2. The facility's permitted Total Nitrogen (TN) and Total Phosphorus (TP) effluent limits for the facility.
3. The annual TN and TP loads (showing both flow and concentration) discharged from the facility over the past five years, estimated if necessary.
4. A capacity analysis for the facility, considering future growth over the next 20 years.
5. A list and ranking of facility construction, expansion, or upgrades necessary to meet applicable nutrient water quality requirements (for example, to meet nutrient effluent

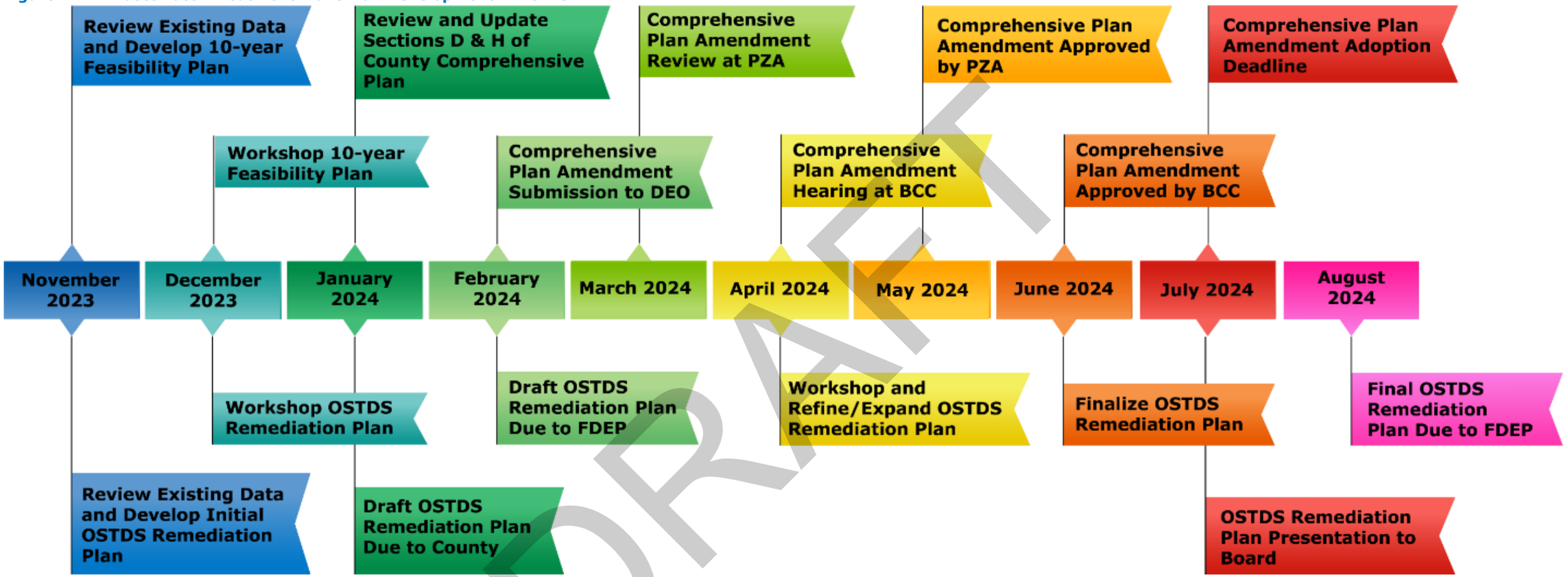
limits in BMAPs and TMDLs; requirements of Section 403.064(17), Florida Statutes; or other statutory or regulatory requirements), and the estimated costs of these facility improvements.

6. A projected timeline of the dates by which the construction of any facility improvements, including new/extended sewer lines, will begin and be completed and the date by which operations of the improved facility will begin.

1.3 Expected Schedule

An initial draft of the Wastewater Treatment Plant Plan is due to FDEP by February 1, 2024. Completed plans will be due to FDEP by August 1, 2024. Figure 1-2 on the next page summarizes the County's projected timeline for Wastewater Treatment Plant Plan development, review, approval, and submission to FDEP. Additionally, the timeline reflects deadlines associated with Comprehensive Plan Amendments required by House Bill 1379 that are not directly tied to the Wastewater Treatment Plant Plan but will also impact potential wastewater treatment facility projects and the future of wastewater regulation in the County.

Figure 1-2 Wastewater Treatment Plant Plan Development Timeline



2 WWTF INVENTORY

2.1 DESCRIPTION OF EXISTING DATABASES

The Lower St. Johns River Basin BMAP spans nine different counties and three of the seven service areas within the County, including St. Johns County, the City of St. Augustine, and Jacksonville Electric Authority (JEA). Figure 2-1 presents the overall BMAP Area. Figure 2-2 presents the St. Johns County geographic area and service areas within the BMAP.

Figure 2-1 BMAP Area Map

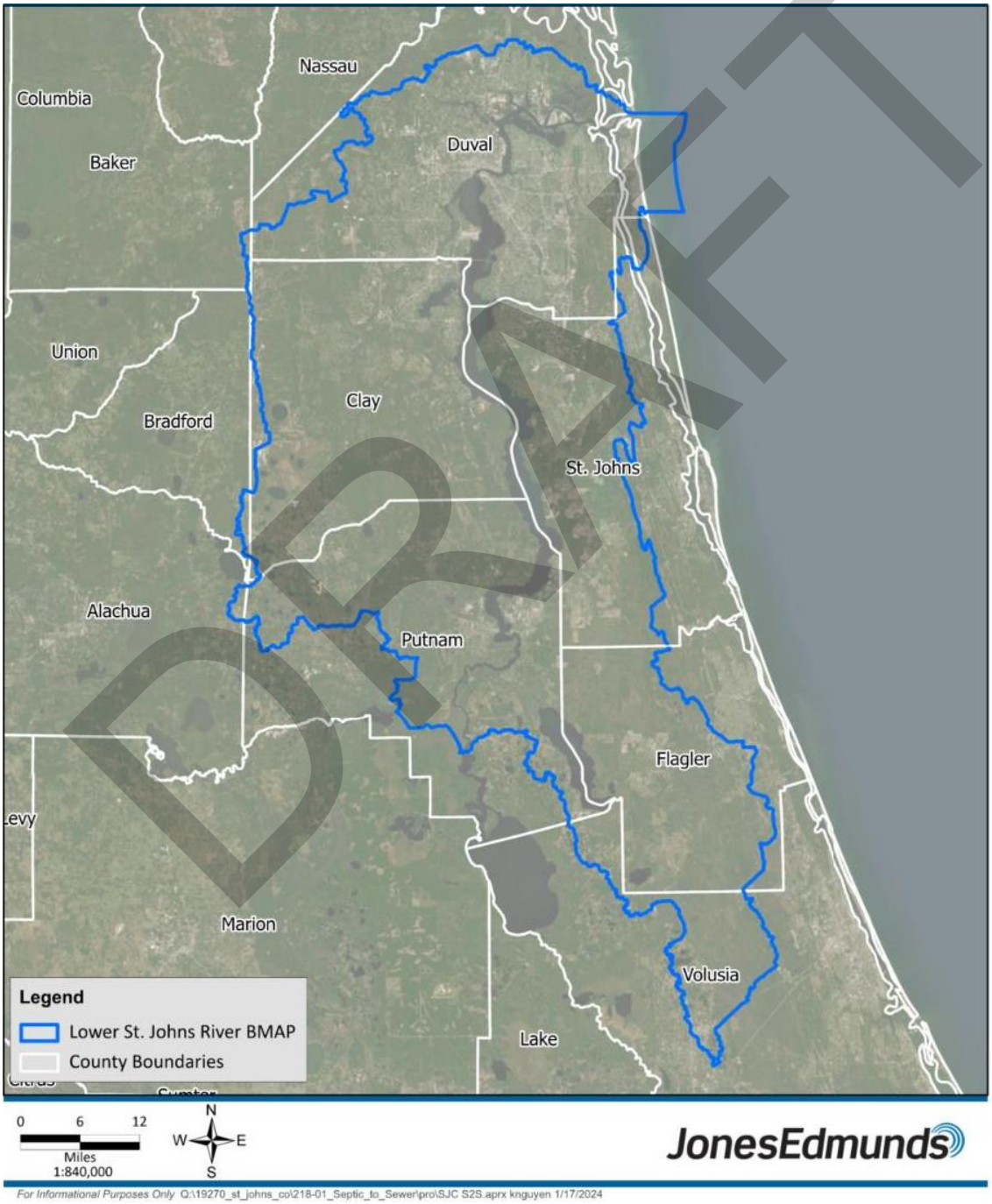
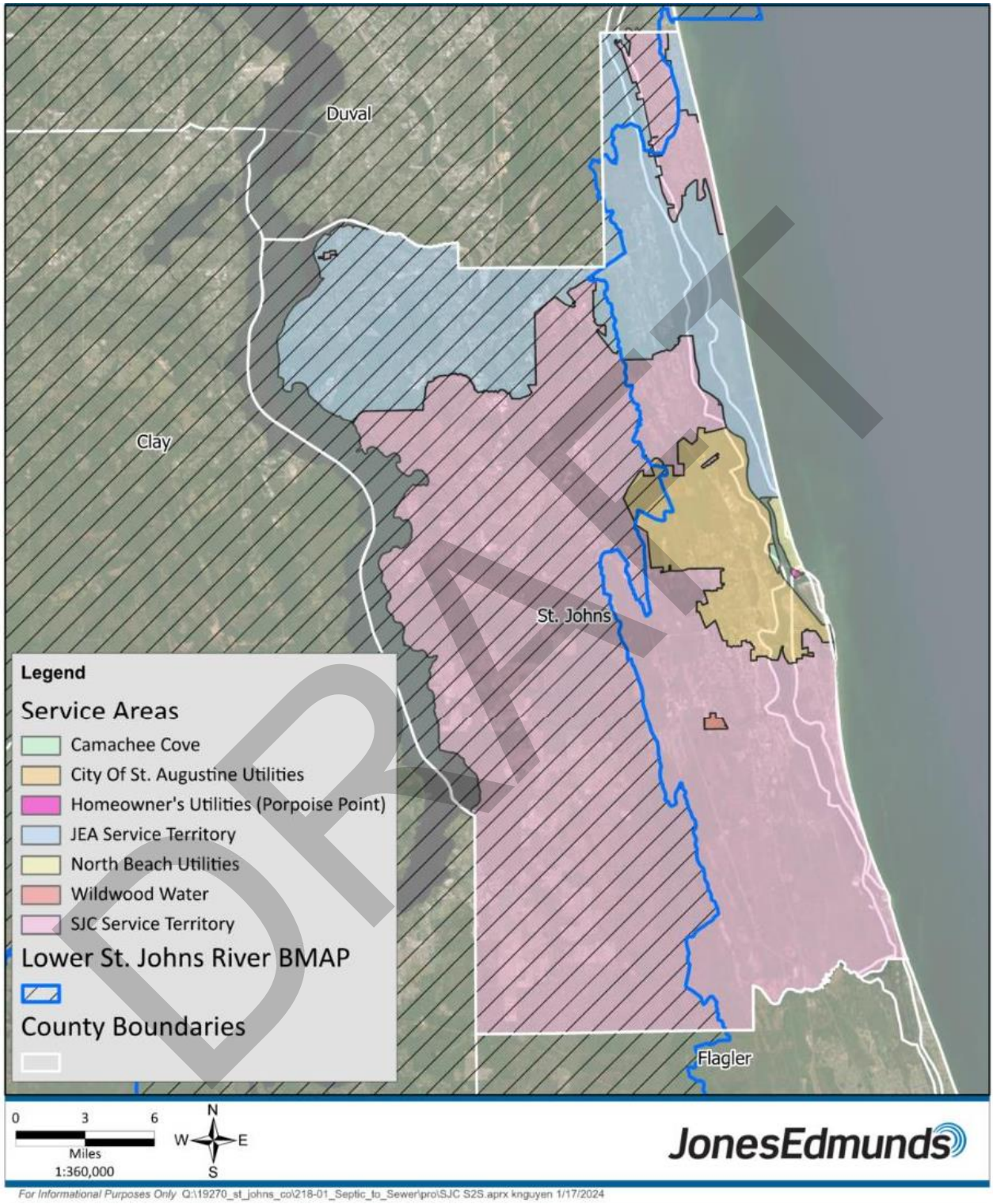


Figure 2-2 St. Johns County Geographic Area Map



The FDEP Wastewater Facility Regulation (WAFR) layer identified all domestic wastewater facilities within the BMAP, the County, and the County's service area. The Lower St. Johns River Basin BMAP boundary was also provided by FDEP. The county boundaries were provided by the State, and SJCUD provided Jones Edmunds with the service area boundaries.

2.2 Summary of Domestic WWTFs and Discharge Facilities

2.2.1 County-Wide

Figure 2-3 displays all WWTFs within St. Johns County. Of those facilities, ten are within the BMAP and seven are outside the BMAP, with three additional outliers. The three additional facilities, shown on the map in yellow, are identified in the WAFR layer as:

- State Road (SR)-16 WWTF
- Wagon Wheel Mobile Home Park WWTF
- JEA Watershed

The SR-16 WWTF is outside the BMAP but distributes reclaimed water to customers within the BMAP. More information on this facility will be included in the final report. The Wagon Wheel Mobile Home Park WWTF has an active domestic wastewater permit issued that does not expire until August 2026, but appears to have been demolished. The JEA Watershed facility is in the St. Johns River and is most likely a river monitoring location and not an actual wastewater treatment or effluent disposal facility. Data for Wagon Wheel Mobile Home Park WWTF and JEA Watershed are not included in this report, but they are listed here to present a comprehensive summary of the information made available by FDEP.

Figure 2-3 Domestic WWTFs Within the BMAP

2.2.2 In the County Service Area in BMAP

Six WWTFs are within the County service area and the BMAP. Table 2-1 presents the permitted capacity and 2023 average daily flows of each facility. Figure 2-4 shows the locations of these facilities.

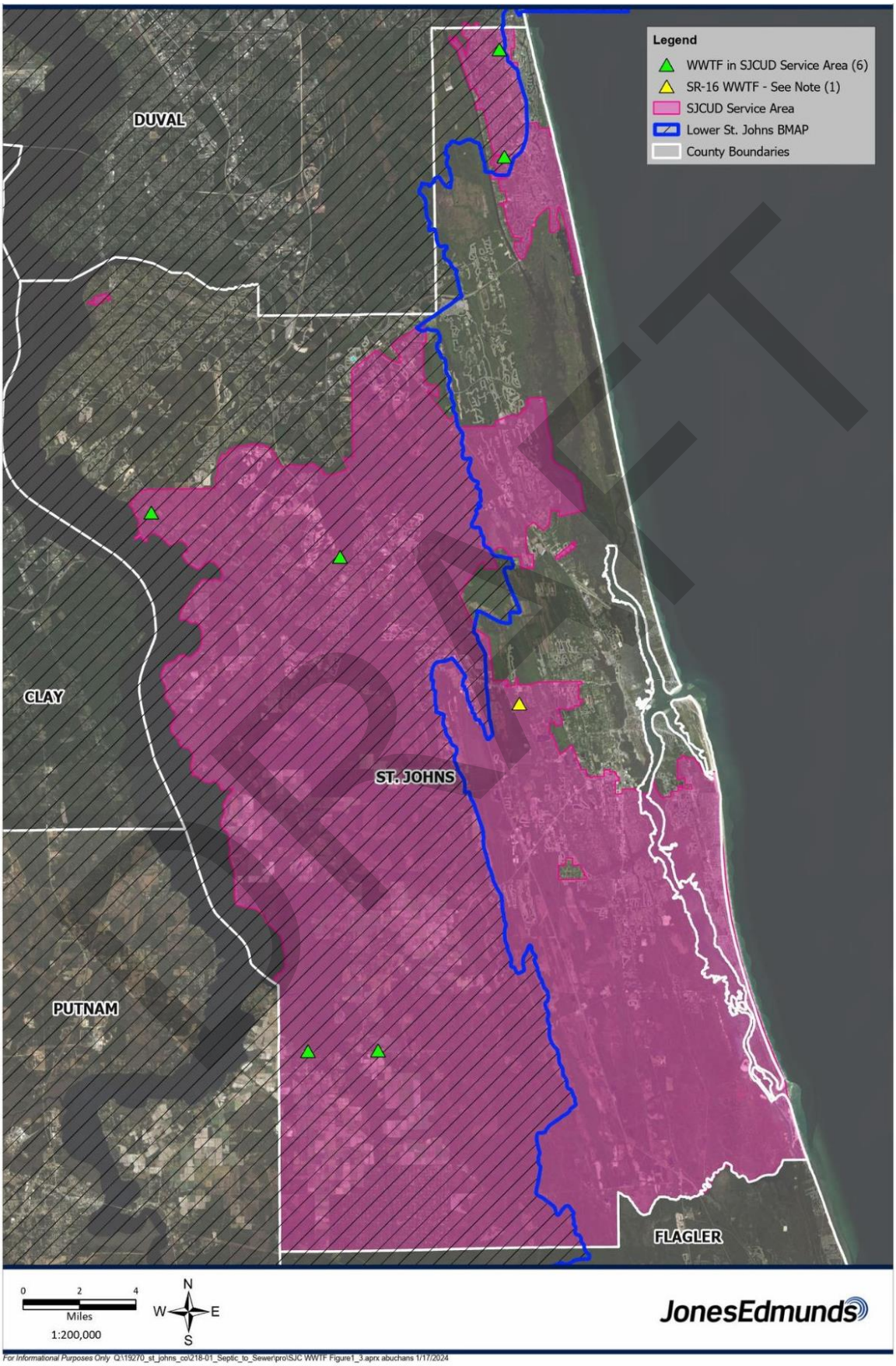
Table 2-1 Permitted Capacity and Average Daily Flows

Facility ID	WWTP Name	Permitted Capacity (MGD)	2023 Average Flow* (MGD)
FL0042315	Hastings	0.120	0.097
FL0044245	Players Club South	2.400	1.522
FL0044253	Marsh Landing	0.800	0.623
FL0670651	Northwest	3.000	2.357
FLA011767	Bartram Oaks	0.020	0.012
FLA395692	Southwood Elementary	0.008	0.002

Notes: MGD = million gallons per day.

* From the Annual Reuse Report or December Discharge Monitoring Report.

Figure 2-4 Domestic WWTFs in the SJCUD Service Area



2.3 FACILITY DATA SUMMARY

Table 2-2 summarizes the permitted capacity, permitted TN and TP limits, annual average flow, annual average TN and TP concentration, and annual TN and TP loads (either provided by FDEP or calculated). All calculated values are show in red.

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Table 2-2 Facility Data Summary

		Permit Limit					Annual Average - FDEP Data					
			Concentration (mg/L)		Load (lb/yr)			Concentration (mg/L)		Load (lb/yr)		Notes
Facility	Year	Flow (MGD)	TN	TP	TN	TP	Flow (MGD)	TN	TP	TN	TP	
Hastings WWTF (FL0042315)	Jan - Dec 2019	0.120	4.5	"Report"	1640.4	527.4	0.087	0.78	1.03	203	135	
	Jan - Dec 2020	0.120	4.5	"Report"	1640.4	527.4	0.096	1.29	0.006	377	255	
	Jan - Dec 2021	0.120	4.5	"Report"	1640.4	527.4	0.102	1.09	2.22	374	151	
	Jan - Dec 2022	0.120	4.5	"Report"	1640.4	527.4	0.088	0.96	0.47	256	322	
	Jan - July 2023	0.120	4.5	"Report"	1640.4	527.4	0.088	0.96	2.08	255	254	
Northwest WWTP D-001 (FL0670651)	Jan - Dec 2019	0.900	3	1	12,943	3,799	0.01	2.70	0.05	82	1.12	1. This surface water discharge location is specified in permit as "Apricot" 2. '20 annual average values based on January '20 annual average
	Jan - Dec 2020	0.900	3	1	12,943	3,799	0.00	2.60	0.03	0.0	0.08	
	Jan - Dec 2021	0.900	3	1	12,943	3,799	0.02	1.61	0.11	98.0	6.1	
	Jan - Dec 2022	0.900	3	1	12,943	3,799	0.01	2.24	0.31	37.1	9.9	
	Jan - July 2023	0.900	3	1	12,943	3,799	0.01	2.29	0.55	64.7	8.9	
Northwest WWTP R-001 (FL0670651)	Jan - Dec 2019	3.000	5[A]	"Report"	-	-	1.17	2.68	-	9,548	-	1. Annual average TN concentrations are based on monthly averages 2. Flow permit limit is total flow through facility
	Jan - Dec 2020	3.000	5[A]	"Report"	-	-	1.27	2.68	-	10,354	-	
	Jan - Dec 2021	3.000	5[A]	"Report"	-	-	1.44	2.56	-	11,211	-	
	Jan - Dec 2022	3.000	5[A]	"Report"	-	-	1.71	2.64	-	13,734	-	
	Jan - July 2023	3.000	5[A]	"Report"	-	-	1.89	2.56	-	14,743	-	
Bartram Oaks WWTF (FLA011767)	Jan - Dec 2019	0.020	12[B]	-	-	-	0.0137	4.34	-	181	-	1. Annual average nitrogen concentrations calculated from monthly, single sample DMR data points
	Jan - Dec 2020	0.020	12[B]	-	-	-	0.0126	2.14	-	82.1	-	
	Jan - Dec 2021	0.020	12[B]	-	-	-	0.0119	1.925	-	69.7	-	
	Jan - Dec 2022	0.020	12[B]	-	-	-	0.0127	3.32	-	128	-	
	Jan - July 2023	0.020	12[B]	-	-	-	0.0116	3.82	-	135	-	
Southwood Elementary WWTF (FLA395692)	Jan - Dec 2019	0.008	12[B]	"Report"	-	-	0.00151	2.74	-	12.6	-	1. Annual average TN concentrations calculated from monthly, single sample DMR data points 2. TP annual average concentration values based on yearly maximums
	Jan - Dec 2020	0.008	12[B]	"Report"	-	-	0.00100	4.75	9.1	14.4	27.7	
	Jan - Dec 2021	0.008	12[B]	"Report"	-	-	0.00135	6.43	2.8	26.4	11.5	
	Jan - Dec 2022	0.008	12[B]	"Report"	-	-	0.00216	5.88	3.8	38.6	25.0	
	Jan - July 2023	0.008	12[B]	"Report"	-	-	0.00176	4.93	3	26.4	16.1	
Players Club WWTF - D-001 (FL0044245)	Jan - Dec 2019	2.40	"Report"	0.65	21,841	5,655	MNR	MNR	MNR	-	-	1. Flow to Players Club Stadium Course, monitoring site: FLW-1 2. Permit limit at discharge location is 1.20 MGD
	Jan - Dec 2020	2.40	"Report"	0.65	21,418	5,655	0.39	3	2.4	3,562	2,849	
	Jan - Dec 2021	2.40	"Report"	0.65	21,418	5,655	0.20	2.5	3.3	1,522	2,009	
	Jan - Dec 2022	2.40	"Report"	0.65	21,418	5,655	0.06	5.5	0.9	1,005	164	
	Jan - July 2023	2.40	"Report"	0.65	21,418	5,655	0.10	5.7	0.5	1,735	152	
Players Club WWTF - D-002 (FL0044245)	Jan - Dec 2019	2.40	3.0	1.00	5,480	1,826	MNR	MNR	MNR	-	-	1. Flow to Players Club Stadium Course, monitoring site: FLW-2 2. Permit limit at
	Jan - Dec 2020	2.40	3.0	1.00	5,480	1,826	MNR	MNR	MNR	-	-	
	Jan - Dec 2021	2.40	3.0	1.00	5,480	1,826	MNR	MNR	MNR	-	-	
	Jan - Dec 2022	2.40	3.0	1.00	5,480	1,826	MNR	MNR	MNR	-	-	

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		Permit Limit					Annual Average - FDEP Data					
			Concentration (mg/L)		Load (lb/yr)			Concentration (mg/L)		Load (lb/yr)		Notes
Facility	Year	Flow (MGD)	TN	TP	TN	TP	Flow (MGD)	TN	TP	TN	TP	
	Jan - July 2023	2.40	3.0	1.00	5,480	1,826	MNR	MNR	MNR	-	-	discharge location is 1.20 MGD
Marsh Landing WWTF D-001 (FL0044253)	Jan - Dec 2019	0.800	"Report"	"Report"	9,010	1,852	0.222	6.71	0.76	4,255	542	1. TN total in permit given as single sample 2. Annual average concentrations are the average of the 12 monthly averages
	Jan - Dec 2020	0.800	"Report"	"Report"	9,010	1,852	0.340	7.66	0.68	8,256	799	
	Jan - Dec 2021	0.800	"Report"	"Report"	9,010	1,852	0.346	7.49	1.09	3,403	431	
	Jan - Dec 2022	0.800	"Report"	"Report"	9,010	1,852	0.285	7.43	1.35	6,184	1,084	
	Jan - July 2023	0.800	"Report"	"Report"	9,010	1,852	0.305	8.33	1.5	8,023	1,269	
Marsh Landing WWTF R-001 (FL0044253)	Jan - Dec 2019	0.800	"Report"	"Report"	9360	2443	0.555	6.71	0.75	4,506	438	1. 3 permit limits to flow: MLCC Site #1: 0.8 MGD, PVGC Pond Site #2: 0.3 MGD, OBGC Pond Site #3: 0.5MGD 2. Annual average values based on total flow
	Jan - Dec 2020	0.800	"Report"	"Report"	9360	2443	0.617	7.66	0.68	4,990	332	
	Jan - Dec 2021	0.800	"Report"	"Report"	9360	2443	0.633	7.49	1.07	441	50.5	
	Jan - Dec 2022	0.800	"Report"	"Report"	9360	2443	0.585	MNR	MNR	MNR	MNR	
	Jan - July 2023	0.800	"Report"	"Report"	9360	2443	0.607	MNR	MNR	MNR	MNR	
SR-16 WWTF to be Included in Final Report												

3 WWTF EVALUATION

3.1 CAPACITY ANALYSIS OVER NEXT 20 YEARS

Capacity Analysis Reports were found for five of the facilities – Northwest, Hastings, Players Club South, Bartram Oaks, and Marsh Landing. A report was not found for Southwood Elementary.

Additional discussion on WWTF capacity analyses will be provided in the final report.

3.2 PROJECT RANKING AND ESTIMATED COSTS

St. Johns County is currently meeting its total nitrogen and total phosphorus allocations in the Lower St. Johns River Main Stem BMAP, including those previously assigned to the Town of Hastings, which has since unincorporated. No wastewater treatment projects are included in this report because the County's BMAP required reductions are being met in both the freshwater and marine sections. Additional wastewater treatment projects may be added in the final report, but none are required given the county's full BMAP compliance.

3.3 PROJECT TIMELINES

No projects are proposed in this draft report. If projects are proposed in the final report, this section will be updated to reflect their estimated schedule of implementation.

Appendix A