# 2018 Water Supply Assessment Update

Northwest Florida Water Management District

WRA 18-01

December 2018



Cash Bayou (Apalachicola River)

τοτλις	0 3/12	6.6%	5 18/	21	12 088
IUIALS	0.342	0.078	J.104	21	12.000

County	Reuse	Future Reuse Estimated Availability						2040 Estimated Availability		
	Flow 2015	2020	2025	2030	2035	2040	mgd	Capacity %		
Calhoun	0.000	0.51	0.52	0.54	0.55	0.55	0.55	36.7%		
Holmes	0.000	0.71	0.71	0.72	0.72	0.73	0.73	48%		
Jackson	0.000	2.63	2.66	2.68	2.69	2.71	2.71	41%		
Liberty	0.000	0.31	0.33	0.34	0.36	0.37	0.37	70%		
Washington	0.342	0.81	0.85	0.87	0.90	0.91	0.57	29.3%		
TOTALS	0.342	4.96	5.07	5.15	5.21	5.27	5.61	46.4%		

Table 22. Region IV	- 2020-2040	<b>Future Potential</b>	Reuse Availa	bility (mgd	)
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## **Region IV: RWSP Evaluation**

Based on the Region IV projected water demands 2020-2040, demands during a 1-in-10 drought year event, and assessment of water sources above, existing sources of water are adequate to supply water for all existing and future reasonable-beneficial uses for the planning period. Therefore, a regional water supply plan for Region IV is not recommended.

However, water withdrawals in Georgia have impacted the ecology of the Apalachicola River and Bay system and a positive resolution of that interstate conflict is necessary to sustain the resources of the watershed and related natural systems and economic resources for current and future generations.

## **REGION V: FRANKLIN AND GULF COUNTIES**

## Overview

Region V Snapshot								
2015 2040 Populatior Water Use (mgd)	n 36,400 38,569 5.48	5.63						
Primary Water Source(s):	Floridan aquifer s Chipol	ystem, a River						
MFL Waterbodies: Water Reservations:	Apalachico Chipola	None ola and rivers						
RWSP Status:	No RWSP Recom	mended						

The Floridan aquifer is the primary water source in Gulf and Franklin counties, Region V. With a total of 1,782 square miles, Region V is the District's third largest water supply planning region (Figure 40). The Apalachicola River and Bay watershed encompasses the majority of these two counties. Region V has several small coastal communities with seasonal populations. Most of Franklin County, and many Region V coastal areas and barrier islands are state forest, parks, or preserves. The District's Apalachicola River Water Management Area (WMA) extends across Gulf and Liberty counties, with 13,134 acres or



### about 36 percent of WMA lands in Gulf County.

Figure 40. Region V - Gulf and Franklin Counties

Region V has several small municipalities and public supply service areas. Except for Port St. Joe, with a 2015 estimated population of about 10,150, the remainder all have service area populations under 4,250. The annual average projected growth rate in Region V is 0.27 percent over the 2020-2040 planning period. According to EDR, Region V had a low unemployment rate of 4.4 percent but one of the highest poverty rates in the District. The per capita personal income and median household income in Region V were below both District and state averages (EDR, 2017).

## Population

The 2015 BEBR population estimate for Region V is 28,186. Region V had high estimated seasonal population rates across all public supply utility service areas and among DSS water users: An average of 22 percent in Gulf County and 39 percent in Franklin County. The highest percentage of seasonal populations were estimated in St. George Island, Alligator Point, and Cape San Blas.

## 2015 Water Use Estimates and 2020-2040 Demand Projections

In 2015, Region V had 2.4 percent of the District population and less than two percent of all water use Districtwide. Close to threefourths of water use is in the public supply sector and over 80 percent of Region IV water use is collectively in public supply and domestic self-supply (Figure 41 and Table 23). There are no thermoelectric power generating facilities in Region V.

About 45 percent of water used came from the coastal Floridan aquifer, with the remainder from the inland Floridan, intermediate system, and surficial aquifer; in addition to surface water sources.



#### Figure 41. Region V - 2015 Water Use

County	Public Supply	DSS	Agriculture	Recreation	ICI	Power	TOTAL	BEBR 2015 Population	Adjusted Populatio n
Franklin	1.949	0.165	0.006	0.214	0.001	-	2.335	11,840	16,458
Gulf	1.966	0.265	0.241	0.093	0.426	-	2.992	16,346	19,942
TOTALS	3.915	0.430	0.247	0.307	0.427	-	5.327	28,186	36,400
% of total*	73.5%	8.1%	4.6%	5.8%	8.0%		100%	2%	2.4%

### Table 23. Region V - 2015 Water Use (mgd) and Population Estimates

\*Percent per water use category in this region, and percent of Districtwide population.

Projected water demands are provided in Table 24. The largest projected increase is in the public supply water use sector and the largest percentage increase is in ICI.

Public Supply: Franklin and Gulf counties are projected to be some of the slower growing counties in the

District in terms of permanent population. Both, however, are significantly affected by seasonal populations. In addition, utility-provided information indicates that the City of Port St. Joe has plans to expand and become a regional supplier. Additional public supply utility data is in Appendix 4.

<u>DSS and Small Public Systems</u>: Known domestic self-supply wells in Gulf County are clustered in and around Wewahitchka. In Franklin County, DSS wells are primarily in coastal areas. Projected declines in DSS water use may be due to the proposed expansion of the City of Port St. Joe public water system.

	Estimates	Future	Demand Pro	litions	2015-2040 Change			
Use Category	2015	2020	2025	2030	2035	2040	mgd	%
Public Supply	4.011	3.949	4.001	4.061	4.120	4.166	0.155	3.9%
DSS	0.485	0.465	0.457	0.445	0.433	0.416	-0.069	-14.1%
Agriculture	0.247	0.247	0.247	0.247	0.247	0.248	0.001	0.3%
Recreational	0.307	0.312	0.316	0.319	0.322	0.323	0.015	5.0%
ICI	0.427	0.435	0.450	0.473	0.474	0.475	0.048	11.3%
Power	-	0.000	0.000	0.000	0.000	0.000	n/a	n/a
TOTALS	5.477	5.409	5.471	5.545	5.596	5.628	0.151	2.8%

Table 24. Region V - 2015 Estimated Water Use and 2020-2040 Demand Projections (mgd) - Average

<u>Agriculture</u>: There are no reported agricultural water uses in Franklin County. Gulf County is expected to maintain small acreage tracts of non-citrus fruit and greenhouse/nursery crops. Little to no changes are anticipated over the planning horizon.

<u>Recreation</u>: Recreational water use in Region V is less than six percent of the total regional water use. Seventy percent of the estimates are based on reported pumpage from golf course and other recreational permittees, and the remainder from residential and other small-scale recreational irrigation wells that have GWUPs with no water use reporting requirements.

<u>ICI</u>: There are several correctional facilities and industrial plants in Region V. Overall, the projected increases in ICI are about the same percentage as public supply but just one-tenth (in mgd) the anticipated public supply water use increases.

	Estimates	Future	Demand Pro	Events	2015-2040 Change			
Use Category	2015	2020	2025	2030	2035	2040	mgd	%
Public Supply	4.001	4.226	4.282	4.345	4.409	4.458	0.465	11.6%
DSS	0.485	0.498	0.488	0.476	0.463	0.445	-0.040	-8.3%
Agriculture	0.247	0.278	0.276	0.277	0.279	0.281	0.034	13.8%
Recreational	0.307	0.419	0.423	0.428	0.431	0.433	0.126	40.8%
ICI	0.427	0.435	0.450	0.473	0.474	0.475	0.048	11.3%
Power	-	0.000	0.000	0.000	0.000	0.000	n/a	n/a
TOTALS	5.477	5.856	5.919	5.999	6.056	6.092	0.633	11.6%

Table 25. Region V – 2015 Estimated Water Use and 2020-2040 Demand Projections (mgd) - Drought

Total Region V water demand is projected to be about 5.6 mgd by 2040 in an average year (Table 24) and 6.1 mgd in a drought year event 2040 (Table 25), an estimated 8.2 percent increase in water demand. Although the projected increase in recreational irrigation during drought is 40 percent, the water use overall increase is minimal (0.126 mgd).

## Assessment of Water Resources

Groundwater continues to be the primary water source in Franklin County. Historically, Gulf County depended upon groundwater for both public and industrial water supplies. Withdrawals began in the 1930s to supply water to the St. Joe Paper Company Mill and associated industries. By the early 1950s, groundwater withdrawals totaled approximately 9 mgd. Most of this water was pumped from the Floridan aquifer system. Recognizing that sufficient groundwater was not available to meet the expanding needs of the paper mill, an 18.5 mile long canal was constructed in 1953 between the City of Port St. Joe and the Chipola River to provide a surface water supply. The surface water pumping capacity was 51.48 mgd before the mill closed in 1998. Prior to the mill closing, surface water provided an average of 28 mgd for industrial use.

Due to historical groundwater withdrawals, the water levels in Floridan aquifer declined to more than 15 feet below sea level near Port St. Joe in the 1990s. Because of the potential for saltwater intrusion into the Floridan aquifer, coastal areas in Region V were identified as Areas of Special Concern in the District's 1998 WSA. A RWSP was developed for Region V in 2007.

In 2001, the District assisted the City of Port St. Joe in the acquisition of the canal as a public water supply source and contributed funding to construct a surface water treatment facility. The city owns the canal and began using this surface water source to meet public supply needs in 2010. The city simultaneously reduced its use of the Floridan aquifer and the RWSP was discontinued through the WSA 2013 process.

#### Groundwater Resources

In order of depth, the major hydrostratigraphic units that comprise the groundwater flow system in Region V are the surficial aquifer, the intermediate system, and the Floridan aquifer system.

The surficial aquifer consists of undifferentiated sands and clays. In Gulf County, the saturated thickness and permeability of the surficial aquifer are sufficient to form a locally important water source. Groundwater from the surficial aquifer tends to be less mineralized than water from the underlying Floridan aquifer. The average well yield is approximately 200 gpm. In Franklin County, the surficial aquifer is generally less than 50 feet thick. On the barrier islands, wells yielding up to 50 gpm are utilized for landscape irrigation and other small-scale domestic uses.

This intermediate system functions largely as a confining unit or semi-confining unit. It consists of soft, fossiliferous limestone overlain by a thin layer of sandy clay and clayey sand. The intermediate system is approximately 400 feet thick near Port St. Joe, thins to 50 to 100 feet in western Franklin County and is less than 50 feet thick in eastern Franklin County. As the intermediate system thins, leakage across it increases. In southern Gulf and Franklin counties, the intermediate system is used as a source of water for some domestic and landscape irrigation wells.

The Floridan aquifer is the main source of groundwater in Region V. The aquifer is a sequence of carbonate sediments ranging in thickness from about 1,000 feet in the northwestern Gulf County to more than 2,000 feet thick in southern Franklin County, although the freshwater portion of the aquifer is less. Region V lies primarily within the Apalachicola Embayment region. As a result, water availability from the Floridan aquifer is constrained by the presence of an effective confining unit, very low aquifer recharge, low aquifer transmissivities, and poor water quality at depth. Testing has yielded transmissivities of 6,000 ft<sup>2</sup>/d in Apalachicola, 2,000 ft<sup>2</sup>/d in coastal Gulf County (Wagner et al., 1980), and 6,500 ft<sup>2</sup>/d 15 miles north of Port St. Joe (Barr and Pratt, 1981).

In eastern Franklin County, the Floridan aquifer transitions from the Apalachicola Embayment region toward the Woodville Karst plain region. Within this transition zone, the intermediate confining unit becomes thinner and leakier and the Floridan aquifer is more transmissive and occurs at a shallower depth. Test wells in Tate's Hell State Forest yielded transmissivities of 20,000 to 40,000 ft<sup>2</sup>/day. In coastal Franklin County, transmissivities and well yields are lower.

In 2015, the potentiometric surface of the Floridan aquifer ranged from about 30 feet above sea level in northern Gulf County to less than 10 feet above sea level at Port St. Joe and along coastal Franklin County (Figure 42). Groundwater flows south and discharges at the coast. Approaching the coastline, the freshwater portion of the aquifer thins considerably, reflecting the loss of fresh water to the Gulf of Mexico discharge boundary.



#### Figure 42. Potentiometric Surface of the Floridan Aquifer System in Region V, September 2015

In the coastal areas of Region V, the potential for lateral intrusion and vertical upconing of saltwater influences groundwater availability and water supply development. Groundwater quality degrades with increasing depth and the freshwater portion of the Floridan aquifer thins towards the coast. The thickness of the freshwater zone where the total dissolved solids (TDS) concentration is less than 10,000 mgd/L, is thickest in Gulf and western Franklin County where aquifer confinement is the greatest and thins toward the east where the aquifer is less confined. The estimated depth to the bottom of the freshwater zone decreases toward the east, from 657 feet below land surface in Apalachicola (Well No. 5) to 535 feet in St. James Bay (NWFID 8304) to less than 250 feet below land surface at Alligator Point.

To assess impacts on groundwater resources, changes in Floridan aquifer levels the associated potentiometric surface, water quality data, and a regional groundwater budget were evaluated. Approximately 3.68 mgd of groundwater was withdrawn to meet water demands in Region V in 2015.

Figure 43 presents examples of hydrographs for Floridan aquifer monitor wells located in Port St. Joe and Carrabelle. The locations of these monitor wells are shown on Figure 42 and are identified on the map by their ID number located in the upper right-hand corner of each graph.



Figure 43. Hydrographs of the A) Port St. Joe and the B) Ice Plant Wells

The Port St. Joe well (Figure 43A) is located about one mile from the historical center of coastal groundwater pumping in Gulf County. Prior to the development of the surface water supply, water levels averaged approximately 15 feet below sea level and reflected an estimated 20 feet of drawdown caused by withdrawals of about 1.5 mgd in this area of low transmissivity. Once Port St. Joe began using the surface water supply, groundwater pumping was reduced, and water levels recovered. Water levels have currently stabilized at approximately five feet above sea level. Water quality data for this well does not show any increasing trends in sodium, chloride or total dissolved solids. The Ice Plant well in Carrabelle (Figure 43B) appears to exhibit a slight increasing water level trend over the 1957 – 2017 period of record. Withdrawals near Carrabelle are relatively small and increased slightly from about 0.2 mgd to 0.5 mgd between 1996 and 2015.

Data show a declining trend in aquifer levels and a slight increasing trend in chloride at the McCulloch Well #1, which is located at the southern tip of the East Point peninsula and has data extending back to about 1980. Chloride levels in this well are less than 100 mg/L, far below the drinking water standard of

250 mg/L. This monitor well is close to the Gulf of Mexico and located south of an area of concentrated groundwater withdrawals. Projected increases in groundwater withdrawals for the two public supply utilities on the Eastpoint peninsula total less than 0.05 mgd and water supplies are anticipated to be adequate through 2040. On the peninsula encompassing Bald Point and Alligator Point, the depth to the non-potable water is shallow and estimated to be between 210 and 230 feet (Alligator Point Well No. 8). Water quality data suggest that the vertical transition zone between potable and saline water approximates a sharp interface. At Well No. 8, chloride concentrations increase from 124 mg/L at a depth of 189 feet to 1,861 mg/L at a depth of 209 feet and 7,267 mg/L at a depth 229 feet.



Figure 44. Region V Floridan Aquifer Steady-State

## Groundwater Budget

## Additional Water Quality Constraints on Availability Groundwater Budget

A regional groundwater budget provides an estimate of the relative magnitude of inflows to and outflows from the Floridan aquifer (Figure 44). The groundwater budget indicates low groundwater availability within the region with inflows totaling 19 mgd. The recharge rate to the Floridan aguifer equates to less than 0.5 inches per year. The 2015 Floridan aquifer use of 3.36 mgd represents 18 percent of estimated Floridan the aguifer groundwater budget. The projected 2040 groundwater demand of 3.82 mgd for a 1in-10 year drought represents 22 percent of the estimated Floridan aquifer groundwater budget.

Coastal Gulf County has naturally-occurring elevated levels of fluoride and iron in the Floridan aquifer. Drinking water standards require a fluoride concentration of less than 4.0 mg/L and an iron concentration of less than 0.3 mg/L. Floridan aquifer water in this area can have fluoride levels as high as 10 mg/L (Ryan et al., 1998) and iron levels between 1.0 and 7.0 mg/L, thus treatment may be required in some areas.

## Surface Water Resources

With the exception of authorized water withdrawals by the City of Port St. Joe, the District's Governing Board has established water reservations for the Chipola and Apalachicola rivers that reserve that magnitude, duration, and frequency of flows for the protection of fish and wildlife (40A-2.223, F.A.C.).

Surface water withdrawals from the freshwater canal totaled 1.44 mgd in 2015. The current permitted average annual daily withdrawal from the canal for public supply use is 1.64 mgd. The projected 2040 demands are approximately 1.61 mgd for average conditions and 1.65 mgd for a 1-in-10 year drought event. The 2040 projected surface water demands for a 1-in-10 year drought event slightly exceed the currently permitted amount but surface water resources are more than adequate to meet future needs.

## Alternative Water Supply and Conservation

Non-traditional sources of water used in Region V in 2015 include reuse of reclaimed water and surface water. District support to water supply development projects have contributed to water conservation, leak detection, water use efficiencies, and expanding reuse potential.

#### Water Conservation

Water conservation potential has not been estimated for Region V. District permit conditions that support water conservation measures include annual water use reporting; evaluation of water use practices to enhance water conservation and efficiency, reduce water demand and water losses; maximum water loss and residential per capita water use goals; and public education campaigns. Water supply development projects that support water use efficiencies include water system improvements in the City of Port St. Joe and with the Eastpoint Water and Sewer District.

#### **Reuse of Reclaimed Water**

In 2015, Region V utilized 0.36 mgd of potable offset reuse or 18 percent of their wastewater treatment facility (WWTF) flows, which totaled about two mgd (Table 26). Information on individual wastewater facilities used in this analysis is included in Appendix 7.

County	Potable Offset Reuse Flow	Percent of Potable Offset Reuse to Total WWTF Flow	Total WWTF Flow	Number of Active Reuse Systems	Total WWTF Capacity	
Franklin	0.359	44%	0.811	6	2.568	
Gulf	0.000	0%	1.148	5	3.803	
TOTALS	0.359	18.3%	1.959	11	6.371	

#### Table 26. Region V - 2015 Reuse and Wastewater Flows (mgd)

Based on population projections, future reuse flows are estimated to be an additional 1.7 mgd by 2040. This additional availability added to existing 2015 reuse flows totals approximately 2.1 mgd, or about 32 percent of the 2015 total facility capacities (Table 27). Future potable offset reuse assumptions are that WWTFs have treatment and disinfection levels suitable for the reuse end uses, and that transmission infrastructure is available to reuse customers.

able 27. Region V - 2020-2040 Future Fotential Reuse Availability (Ingu)										
County	Reuse	e Future Reuse Estimated Availability						2040 Estimated Availability		
	Flow 2015	2020	2025	2030	2035	2040	mgd	Capacity %		
Franklin	0.359	0.46	0.47	0.48	0.48	0.48	0.84	32.7%		
Gulf	0.000	1.17	1.19	1.21	1.22	1.24	1.24	32.6%		
TOTALS	0.359	1.64	1.66	1.68	1.71	1.72	2.08	32.6%		

Table 27. Region V - 2020-2040 Future Potential Reuse Availability (mgd)

## **Region V: RWSP Evaluation**

Based on the Region V projected water demands 2020-2040, demands during a 1-in-10 drought year event, and assessment of water sources above, the District determines that existing sources of water are adequate to supply water for all existing and future reasonable-beneficial uses and to sustain the water resources and related natural systems for the planning period. Therefore, a Region V regional water supply plan is not recommended.

However, water withdrawals in Georgia have impacted the ecology of the Apalachicola River and Bay system and a positive resolution of that interstate conflict is necessary to sustain the resources of the watershed and related natural systems and economic resources for current and future generations.

## **REGION VI: GADSDEN COUNTY**

### Overview

The Floridan aquifer is the primary water source in Gadsden County - Region VI (Figure 45). At about 529 square miles in total area Gadsden County is the District's smallest planning region. Due to limited surface water and groundwater resources, the District has designated the Telogia Creek Water Resource Caution Area and an Area of Resource Concern in Gadsden County.

Most of Gadsden County is in the Ochlockonee River and Bay watershed except for the northwestern area near the City of Chattahoochee that is in the Apalachicola River

Region VI Snapshot								
2015 2040 Population	49,475 53,146							
Water Use (mgd)	11.66	13.18						
Primary Water Source(s):	Floridan aquifer	system						
MFL Waterbodies:		None						
Water Reservations:	Apalachicola River							
RWSP Status:	No RWSP Recomr	nended						

and Bay watershed.



Figure 45. Region VI - Gadsden County

The City of Quincy is the largest incorporated area in the county with an estimated 2015 population of under 9,000. Smaller urban communities include the towns of Havana, Gretna, Greensboro and Midway; and City the of Chattahoochee.

Gadsden County has a low projected annual growth rate of about 0.34% over the planning horizon. In 2015 Gadsden had the highest rates of poverty in the District, and the highest unemployment rate Districtwide in 2016 (EDR, 2017).

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## WATER USE CATEGORIES

Data and methodologies used to estimate base year 2015 water use and to project future water demands 2020-2040 vary according to water use category defined in rule:<sup>5</sup>

- 1. Public Supply,
- 2. Domestic Self Supply,
- 3. Agriculture,
- 4. Recreational Irrigation,
- 5. Industrial/Commercial/Institutional,
- 6. Thermoelectric (power generation).

For each of the six water use categories, data and estimating methodologies are for existing and future projected reasonable-beneficial uses. Methodologies include drought-year projections and sources of uncertainty in demand projections. Data and methodologies are similar to the previous WSA 2013 except where modifications helped refine the data or enhance water use projections.

## METHODOLOGIES AND DROUGHT YEAR EVENTS

Projecting future water demands depends on anticipated future needs and on future potential precipitation. Florida Statutes requires the anticipation of and planning for drought events:

"The level-of-certainty planning goal associated with identifying the water supply needs of existing and future reasonable-beneficial uses must be based upon meeting those needs for a 1-in-10 year drought event." (Section 373.709(2)(a)1., F. S.).

A 1-in-10 year drought event has a 10 percent probability of occurring during any given year. The level of certainty planning goal is to assure that, in any given year, there is a 90 percent probability that all reasonable-beneficial water demand needs will be met.

Annual average streamflow and precipitation data were analyzed over a 30-year period to determine which years had a 1-in-10 drought event and which experienced normal or average rainfall. The year 2011 was selected as a dry year and compared to 2015 as a normal average year to analyze increased water demand in the public supply category. Further information on drought analysis and estimating methods is noted in each water use category methodology.

### POPULATIONS AND WATER USE ESTIMATING

Estimating and projecting populations served are essential data in developing water use estimates and projections. Population estimates and projections used for determining future water supply needs must be based upon best available data.<sup>6</sup> Districts shall consider the University of Florida's Bureau of Economic and Business Research (BEBR) data, which includes annual estimates and projections of permanent residents only at the county level.

<sup>&</sup>lt;sup>5</sup> Chapter 62-40, Water Resource Implementation Rule, section 62-40.531, Regional Water Supply Plans.

<sup>&</sup>lt;sup>6</sup> Section 373.709, F.S., Regional water supply planning, (2)(a)1.a.

Public supply utilities submit pumping reports of all water withdrawals, which are attributable to seasonal, as well as permanent, populations. In addition, many utilities submit population estimates data and number of meter or service connections, differentiating between residential and nonresidential water uses. This WSA recognizes these seasonal populations and seasonal water use in data provided by utilities.

In 2014, the District commissioned a population study to estimate permanent, seasonal, and adjusted total populations for Public Supply (PS), Domestic Self-Supply (DSS), and total county populations. This study used 2012 population data from the United States Census Bureau, American Community Survey (ACS) and parcel data from the Florida Department of Revenue (DOR). Seasonal populations include tourists and migrant workers, as defined by the ACS below (ACS, 2012). Group quarters, i.e. correctional facilities, college housing and university dormitories, were excluded from the 2014 District study.

## SUBJECT DEFINITIONS (SEASONAL POPULATIONS)

**For Seasonal, Recreational, or Occasional Use** – These are vacant units used or intended for use only in certain seasons or for weekends or other occasional use throughout the year. Seasonal units include those used for summer or winter sports or recreation, such as beach cottages and hunting cabins. Seasonal units also may include quarters for such workers as herders and loggers. Interval ownership units, sometimes called shared-ownership or time-sharing condominiums, also are included here.

**For Migrant Workers** – These include vacant units intended for occupancy by migratory workers employed in farm work during the crop season. (Work in a cannery, a freezer

plant, or a food-processing plant is not farm work.)

The population study estimated seasonal populations in all housing units described above and then halved the estimates to approximate the impacts that transient residents have on populations and water use. The rationale for this methodology was to capture both seasonal and migrant workers as well as short-term tourists. For this WSA, this same methodology was applied: half of estimated seasonal populations were added to permanent populations to arrive at adjusted total population estimates.

All District counties have some seasonal populations, in both PS utility service areas and among DSS users. Counties with the greatest estimated percentage of seasonal residents are Walton, Franklin, Gulf, Bay, and Okaloosa; followed by Liberty and Wakulla. The study also produced seasonal population rates for each public supply utility, for the DSS use category in each county, and countywide averages. Seasonal population rates are half of the seasonal population estimate divided by the estimated permanent population.

The resulting seasonal rates were used to adjust BEBR medium county 2015 population estimates and 2020-2040 future population projections. Seasonal population rates were sometimes refined following review of public supply utility outreach results. The selected seasonal population rates and total adjusted 2015 population estimates are in Table A1.1, below.

Jefferson County population estimates in the NWFWMD were coordinated and compared with the Suwannee River Water Management District (SRWMD) estimated share of Jefferson County. The combined total of both WMDs population estimates and projections is within about two percent of BEBR Jefferson County estimates and projections. Ongoing collaboration and data sharing will provide additional future opportunities to refine population and water use estimate and projection data.

			<b>F</b> 11 1 1 1 1	Fatimated		Estimated Populations Served			
Planning	County / Region	BEBR 2015 Population	Estimated Seasonal	Estimated Seasonal	Population	Public Sup	ply	Domestic Self	Supply
Region		Estimates	Rate %	Populations	Estimates	Population	% of	Population	% of
	Escambia	306,944	3.2%	9,822	316,766	304,750	96%	12,017	4%
1	Total/Average	306,944	3.2%	9,822	316,766	304,750	96%	12,017	4%
	Okaloosa	191,898	11.0%	21,109	213,007	189,067	89%	23,940	11%
	Santa Rosa	162,925	2.0%	3,259	166,184	163,293	98%	2,890	2%
	Walton	60,687	49.0%	29,737	90,424	72,808	81%	17,616	19%
	Total/Average	415,510	13.0%	54,104	469,615	425,168	91%	44,446	9%
	Вау	173,310	12.0%	20,797	194,107	176,364	91%	17,743	9%
	Total/Average	173,310	12.0%	20,797	194,107	176,364	91%	17,743	9%
	Calhoun	14,549	3.0%	436	14,985	4,568	30%	10,417	70%
	Holmes	19,902	1.0%	199	20,101	5,547	28%	14,554	72%
	Jackson	50,458	3.0%	1,514	51,972	16,563	32%	35,409	68%
IV	Liberty	8,698	9.0%	783	9,481	4,003	42%	5,478	58%
	Washington	24,975	3.0%	749	25,724	6,910	27%	18,814	73%
	Total/Average	118,582	3.1%	3,681	122,263	37,591	31%	84,672	69%
	Franklin	11,840	39.0%	4,618	16,458	14,637	89%	1,821	11%
v	Gulf	16,346	22.0%	3,596	19,942	16,313	82%	3,629	18%
	Total/Average	28,186	29.1%	8,214	36,400	30,950	85%	5,450	15%
	Gadsden	48,315	2.4%	1,160	49,475	32,390	65%	17,085	35%
VI	Total/Average	48,315	2.4%	1,160	49,475	32,390	65%	17,085	35%
	Jefferson <sup>(1)</sup>	10,246	3.5%	359	10,605	5,445	51%	5,160	49%
	Leon	284,443	0.5%	1,422	285,865	233,981	82%	51,884	18%
VII	Wakulla	31,283	5.0%	1,564	32,847	23,256	71%	9,591	29%
	Total/Average	325,972	1.0%	3,345	329,317	262,682	80%	66,635	20%
ΤΟΤΑ	LS / AVERAGES	1,416,819	7.1%	101,123	1,517,943	1,269,895	84%	248,048	16%

Table A1	.1 BEBR Popula	tion Estima	ites, Seaso	onal Rates, a	and Adjusted	Population	Estimates 2015

(1) NWFWMD portion of Jefferson County only.

Additional information on seasonally-adjusted population estimates is noted in the methodologies and in regional resource assessments that follow. Unless specifically noted otherwise, e.g. BEBR data, all population data and information in this WSA is seasonally adjusted.

#### WATER USE ESTIMATES AND PROJECTIONS

#### 1. Public Supply

Data and methodology for Public Supply water use estimates and projections are similar to those used for the previous WSA (NWFWMD 2013), with the exception of incorporating seasonal populations. In brief, the public supply methodology applied incorporated the following:

- 1) Base year (2015) water use, and per capita rates, estimated from reported data;
- Populations served for base year (2015) and future projections (2020-2040) estimated; 3)
   Future water demand = gross per capita water use rates x population projections; 4) Base year (2015) water production estimates and future projections.

The methodology includes drought year projections and sources of uncertainty in demand projections.

#### 1) Water Use Estimates, Base Year 2015

The District collects, and audits public supply utility water use annually. The majority of compliance submissions are from utility systems that have 0.1 mgd and above annual average daily rate (ADR). Systems below the 0.1 mgd threshold are included if included in regulatory audits, if water use may meet the threshold during the future planning horizon, or if multiple small systems within a county collectively meet the 0.1 mgd threshold. Monthly Operating Reports (MORs) from DEP provide supplemental data.

Water withdrawn is not always equivalent to water distributed or consumed. Water may be imported and/or exported to and from other utilities or service areas. Public supply often includes not only residential uses but also commercial, institutional, industrial, recreation, fire protection and other uses or services. Large industrial or other water users, if separately reported, are removed and added to the appropriate water use category. Following adjustments noted above, total average daily gross water use or average daily rate (ADR) for each utility is determined according to the following formula:

Water leaks and other unaccounted water losses are a part of total water withdrawals. Per capita water use metrics are determined by dividing gross and residential water use estimates by associated populations served. The per capita water use rates formula is:

Gross or Residential per capita water use (gallons per day) = Gross or Residential Water Use

Utility Population Served

Utility populations served include seasonal resident adjustments. The per capita rates are used for planning purposes to project future demand.

#### 2) Population Estimates and Projections

Adjusting BEBR data with seasonal population estimates is previously described above. This section describes the methodology for considering seasonally-adjusted population estimates in conjunction with population data provided by utilities.

#### 2015 Utility Population Served Estimates

District Customer Use Survey (CUS) reports provide estimates of populations served, number of dwelling units, and number of meter or service connections, in addition to residential data disaggregated from commercial and other water uses. Basic Facility Reports (BFRs) submitted to DEP provide similar and supplemental data. Persons per household (PPH) is calculated from BEBR and utility-provided data. Seasonal population estimates are reviewed and considered in conjunction with other data sets. This WSA applied review and consideration of all available PS utility population data. Table A1.2 provides a summary of data along with strengths and weaknesses of each source.

Data reported by utilities was generally the default selection for 2015 estimates of populations served if reported data was within reason considering estimated seasonal populations where applicable, and after checking PPH metrics and other available estimate data. In the absence of clear and definitive population values, estimates used are based on moderate or middle estimated values.

Source of Population Estimate Data	Strengths and Weaknesses
	<ul> <li>Both CUS and BFR data reported by PS utilities but not available from all permittees.</li> </ul>
District Customer Use Survey (CUS) Reports	• CUS and BFR population estimates sometimes based on dated or inappropriate metrics, i.e. 3.5 PPH.
	Data may be different in CUS versus BFR reports.
DEP Basic Facility Reports (BFR)	<ul> <li>Water use data includes seasonal populations, by default, albeit not distinctly identified or disaggregated.</li> </ul>
County average (BEBR) Persons Per Household (PPH) multiplied times:	<ul> <li>County-wide average metric and estimates only - no accounting for local utility or community variations,</li> </ul>
a. Number of dwelling units, and/or;	with or without seasonal adjustments.
b. Number of meter or service connections	<ul> <li>An average 'rule-of-thumb' calculation.</li> </ul>
Social population actimator	<ul> <li>Seasonal populations estimated per utility, DSS, and county averages; and weighted averages.</li> </ul>
Seasonal population estimates	<ul> <li>Not reconciled with BEBR, reliance on available service area maps, and DSS wells not incorporated.</li> </ul>
Misc. other references, e.g., on-line statistics or local comprehensive plans	<ul> <li>May provide additional or supplemental information, but is often out of date.</li> </ul>

#### Table A1.2. Public Supply Utility Population Data

### 2020-2040 Population Projections

Population projections used for determining public water supply needs shall consider the BEBR medium population projections and population projection data and analysis submitted by local governments. The methodology to project future populations is similar to that used in the 2013 WSA, with two exceptions. First, because seasonal adjustments are included in 2015 estimates, future population projections also apply seasonal population adjustments. Secondly, this WSA considered a variety of growth factors and population trends to estimate and select BEBR county growth rates as a proxy for growth of populations served. Population projection methodology in brief: • Review and analyze geospatial information and determine whether:

• PS utility service area more or less coincides with a BEBR incorporated area, • PS utility

service area is rural or otherwise unrelated to BEBR population estimates;

- Review and consider additional available data and information;
- Select set of BEBR growth rates that best represents a proxy for probable growth;
- Multiply 2015 population estimates by selected growth rates.

Projection methodologies are described in more detail below.

<u>Geospatial Analysis</u>: Review of geospatial information to ascertain the correlation between a utility service area and whether the service area has direct or some correlation with a BEBR incorporated area or is located in an unincorporated area or otherwise unrelated to a BEBR-identified city or town.

<u>Service Area in BEBR Incorporated Area</u> - If a service area coincides with or has a significant correlation with a BEBR-identified incorporated area, review of associated population data includes:

- Historical populations and historical change in population trends;
- Historical 5-year growth rates, 1995-2015, and average growth rates;
- Ratio or share of incorporated area vs. total county populations.

<u>Service Area in Unincorporated County</u> - If a service area is in an unincorporated area of a county, aerial photography and land use review to discern any commercial or residential structures. The ratio or share of municipal populations to total county populations, referenced above, was also reviewed for evidence of people relocating between incorporated areas and other areas of a county.

<u>Additional Data</u>: The initial analyses described above were considered together with other available data and information, for example:

- Population projection data and analysis submitted by local entities;
- Historical trends in PS utility population, number of service connections, or water use data;
- Other local area future projected growth and development information.

<u>Select Growth Rates</u>: All of the above was considered to select one set of assumed best-fit growth rates for the 2020-2040 planning horizon for each PS utility. Selected growth rates were low, medium, or high projected rates generated from BEBR data, or interpolated intermediate low-medium or medium-high growth rates. BEBR medium was the default selection unless analyses, and/or utility-provided data, supported an alternative growth rate. If a negative growth rate appeared to be most statistically appropriate, a no growth (0.0%) scenario was used for future growth projections.

<u>Project Future Populations</u>: Future populations were projected from 2015 estimates multiplied by selected BEBR growth rates. As seasonal population adjustments were already factored into the 2015 baseline population estimates, future projections are also assumed to include seasonal populations. Estimates, projections, and supporting data were sent in outreach surveys to utilities for review. Over half of all utilities returned surveys with comments, which contributed to refinement of the data.

#### 3) 2020-2040 Demand Projections

Water demand projections are the product of population projections and gross per capita water use rates estimated in base year 2015. For planning purposes, per capita rates are assumed to remain constant over the 2020-2040 planning horizon.

#### 4) Water Production Estimates and Projections

A water use estimate is the amount <u>of</u> water used or in demand by populations in public supply service areas. Water production is the amount of water withdrawn or pumped from specified locations, sometimes referred to as wholesale raw water withdrawals.

In some counties demand and production estimates and projections are identical. Counties that have different demand and production data are: Okaloosa, Santa Rosa and Walton counties (Region II), Bay County (Region III), Washington and Holmes counties in Region IV, Franklin County in Region V, and Leon and Wakulla counties in Region VII.

Base year 2015 water production estimates for each utility were estimated from reported pumpage compliance submissions and regulatory audits. Utility production future projections were estimated from base year 2015 reported pumpage and relevant population growth rates. For wholesale production wellfields and for utilities engaged in water transfers (imports and/or exports), growth rates were approximated across multiple service areas, which at times cross county borders. Also, some utilities have planned changes in water withdrawals, for example, periodic reductions in coastal withdrawals and corresponding increases in inland wellfield pumpage over time. As required, production projections were refined according to varying growth rates, water transfers, and changing permit conditions.

Water use estimates and future demand projections were also forwarded to public supply utilities and to other affected and interested parties for review and comment. Responses were received from over half of all parties contacted and, following review and analysis, estimates and projections were modified according to outreach responses where appropriate.

#### Drought Year Projections

The 1-in-10 year drought projections indicate the estimated increase in water used during a drought year primarily due to short-term increases in irrigation in public supply service areas. Public supply pumpage data from 2011, a dry year, was compared to the average year 2015. An increase in water usage during 2011 generated the drought event multiplier of 1.07, or a seven percent increase over a normal year.

#### **Sources of Uncertainty in Demand Projections**

Population estimates and projections used in public supply water use estimates and demand projections are based on best available data, including best estimates of seasonal population adjustments. Future population estimates may differ numerically or spatially from what is projected.

#### 2. Domestic Self Supply

Data and methodology for Domestic Self Supply (DSS) are similar to those used for the 2013 WSA, with the exception of incorporating seasonal populations. In brief:

1) Base year 2015 populations and future population projections are derived by subtracting Public Supply utility populations from county totals;

2) Identify average per capita DSS water use rate from latest available USGS report; 3) Per capita water use rate x populations = 2015 estimates and water demand (2020-2040).

Methodology includes drought year projections and sources of uncertainty in demand projections.

#### 1) Population Estimates and Projections

Domestic self-supply is the population not served by public supply, which includes DSS and small public water systems. DSS populations in each county were estimated by subtracting public supply populations served from the total estimated county population for 2015 estimates and for the 2020-2040 planning horizon. Since DSS is calculated from county and public supply utility population data, all DSS population estimates include the same seasonal population adjustments previously noted.

#### 2) Per Capita Water Use Rate

County-wide average domestic per capita use rates are estimated by USGS, which exclude commercial and industrial usage to derive residential usage. The districtwide average DSS per capita rate in 2010 was about 89 gpd (USGS, 2014). For planning purposes, it was assumed that per capita use rates will remain constant over the future 2020-2040 planning horizon.

#### 3) Water Use Estimates and Projections

Water use estimates and projections are calculated by multiplying the DSS population estimates aggregated at the county level by the average per capita water use rate.

#### Drought Year Projections

The same factors that increase public supply demand in a 1-in-10 year drought event are presumed to also affect domestic self-supply. Therefore, the drought year projections for DSS use the same 1.07 multiplier as that used in public supply drought year projections.

#### Sources of Uncertainty in Demand Projections

DSS estimates and projections are dependent on the accuracy of aggregate public supply utility and total county population estimates. As noted in previous sections, all population estimates include seasonal population adjustments. Future population estimate methodologies, including seasonal residents, may be further refined. Population estimates may also differ spatially.

Public supply service areas often contain pockets of domestic self-supply wells, which may lend uncertainty to both DSS and public supply service area population estimates. Public supply utilities may expand service areas over time, for example into franchise areas, and provide public water connections that make DSS wells suitable for abandonment.

#### 3. Agriculture

Per Florida Statutes<sup>7</sup>, agricultural demand projections used for determining the needs of agricultural selfsuppliers must be based upon the best available data. Districts shall consider the future water supply

<sup>&</sup>lt;sup>7</sup> Section 373.709(2)(a)1.b., F.S., Regional water supply planning.

demands provided by the Florida Department of Agriculture and Consumer Services (DACS), and data and analysis submitted by local governments.

The DACS Florida Statewide Agricultural Irrigation Demand (FSAID) initiative began in 2013-2014 to assist in meeting the agricultural water demand objectives set forth in Florida Statutes. The FSAID data, methodologies, water use estimates and water demand projections have been updated and refined each year. This WSA incorporates the fourth iteration of FSAID (DACS 2017) for the 2015 estimates and demand projections 2020-2040. Data and methodologies in brief are noted below:

- 1) Geospatial datasets developed for:
  - Total Agricultural Lands Geodatabase (ALG),
  - Irrigated Lands Geodatabase (ILG);
- 2) Share of irrigated versus total permitted agricultural land calculated.
- 3) ILG climate conditions (rainfall, evapotranspiration, soil assignments) incorporated.
- 4) Review and analysis of district water use metered data and permit information (crop type, irrigation system, acreage).
- 5) Irrigation application rates estimated for different crop types.
- 6) With the above inputs, econometric model used to estimate:
  - 2015 crop irrigation water use,

• Future water demand projections (2020-2040); 7) Additional estimate and projection factors incorporated: • Non-crop water use (livestock, aquaculture), • Frost-freeze protection.

The econometric model incorporates agronomic variables (crop choice, soil type, location, climate), engineering or physical factors (irrigation equipment, plot size), economic or behavioral factors (crop prices, share of irrigated land), and actual metered data or reported pumpage. Projected water use is estimated by simulating future conditions including price forecasts and future land area estimates.

#### Drought Year Projections

Dry year estimates were calculated for each district with 1-in-10 ratios by crop. The dry to average year ratio in northwest Florida ranges from a low of 1.17 for greenhouse/nursery crops to a high of 1.72 for hay. The overall statewide average dry to average year ratio is 1.34.

#### Sources of Uncertainty in Demand Projections

The fourth edition of FSAID represents the best available data for this WSA. FSAID IV is available at:

https://www.freshfromflorida.com/Business-Services/Water/Agricultural-Water-Supply-Planning

Conservation potential has been estimated in the FSAID project, but demand projections have not been modified based upon this analysis.

#### 4. Recreational Irrigation

The three primary types of reported recreational water use in the District are golf course irrigation, nonresidential landscape irrigation, and water-based recreation. Additional recreational water uses

includes aesthetic (both ponds and irrigation), residential irrigation, and miscellaneous outdoor uses. Data and methodology for Recreational Irrigation are similar to the previous WSA 2013, noted below.

- 1) Base year 2015 water use estimated from reported and audited pumpage, and additional base year estimates added from:
  - Individual water use permits (IWUPs) that have no water use reporting requirements,
  - Water users with a well construction permit and a general water use permit (GWUP) issued by rule;
- 2) Future water demand = base year water use x BEBR Medium population growth rates.

The District's Water Resource Caution Areas, Areas of Resource Concern, and more recent CUPcon revisions have resulted in recreational IWUPs with smaller permitting thresholds. In 2015 about 65 percent of all recreational IWUPs had a permitted allocation of less than 0.1 mgd. For IWUP permittees with reporting requirements, about 30 percent had a permitted allocation of less than 0.1 mgd. In addition to CUPcon changes, some differences in methodology from the 2013 WSA are:

<u>IWUPs with No Reporting Requirements</u>: This WSA analyzed historic data of IWUPs with reporting requirements to determine that water use averaged a 60 percent share of permitted allocation. This allocation was assumed for IWUPs with no reporting requirements. The previous WSA assumed 100 percent of permitted water allocation was used.

<u>GWUPs with Well Construction Permit</u>: This WSA simplified the methodology into golf courses and nongolf, i.e. residential and other small-scale recreational water uses. The previous WSA had five separate methods for five different sub-categories.

Methodology includes drought year projections and sources of uncertainty in demand projections.

#### 1) Water Use Estimates, Base Year 2015

Base year 2015 water use estimates from reported pumpage are added to additional estimating methods, further described below.

#### IWUPs with No Reporting Requirements

Historic data 2010-2015 of reported IWUP water use as a share of permitted allocation was reviewed and analyzed. Permittees without enough historic data and other outliers were removed. An overall District-wide average share of recreational water use to permitted allocations of 60 percent was used as a proxy to estimate water use. This water use was estimated in aggregate at the county level.

#### GWUPs with Well Construction Permit

Nearly all District GWUPs with well construction permits are small wells (primarily 2" to 4", but up to 6" diameter) for residential outdoor irrigation. Non-residential GWUP wells include a small number used for golf course, aesthetic, or water-based recreation purposes. Common examples include wells used for supplementation of rural ponds or landscape fountains. All wells have a GWUP issued by rule and are exempt from consumptive water use permitting. This GWUP water use was also estimated in aggregate at the county level. Estimating methods are further noted below.

<u>Golf Course Irrigation</u>. In 2015 there were about twenty golf courses in the District without an IWUP. Some known to use reclaimed water were omitted from estimating analyses. The number of golf course holes multiplied by a golf course industry standard of 5.6 average irrigated acres per hole determined an estimated irrigated acreage, which was then multiplied by the Agricultural Field Scale Irrigation Requirement Simulation (AFSIRS) average districtwide irrigation rate for turf grass of 25 inches per year:

Estimated Total Irrigation = Irrigated Acreage x 25 in/year

Estimated total irrigation was then converted to an average annual daily rate (ADR) of water use.

<u>Residential and Other Small-Scale Recreational Water Use</u>. Of the more than fifty thousand non-golf GWUP wells in the District in 2015, 70 percent were in Region II (Okaloosa, Santa Rosa, and Walton counties), and about 97 percent in Regions I, II, and III. Work completed on the North Florida Southeast Georgia (NFSEG) groundwater model identified a districtwide weighted average outdoor water use for residential parcels of 76 gallons per day (gpd), which was then multiplied by the number of wells:

Estimated Water Use (ADR) = No. of Wells x 76 gpd

General water use permits categorized as both non-golf and non-residential are few in number and primarily with small well sizes. Geo-spatial review identified these wells as residential in nature or with similar small-scale water use operations. These wells were incorporated into the well count noted above.

#### 2) 2020-2040 Demand Projections

Baseline (2015) water use was multiplied by the BEBR medium population projection growth rate to generate future water demand by county and by water supply planning region.

#### **Drought Year Projections**

A dry to average year multiplier for sod or perennial grass of 1.34 was used as to approximate 1-in-10 year drought conditions. This multiplier was developed through AFSIRS simulations in the FSAID project.

#### Sources of Uncertainty in Demand Projections

<u>Estimates</u>. Demand projections are dependent upon baseline water use estimates. There are over fiftythousand GWUP recreational water users districtwide that have unknown water consumption, where specific locations of many are not known, and that have other data and estimating method uncertainties. In addition, actual water use may vary from an assumed percent share of permitted allocation. Further, recreational water use is in many cases a complex synthesis of groundwater and surface water co-mingled with stormwater run-off and sometimes also merged with reuse.

<u>Projections</u>. Reductions in water demand may be realized over time due to increasing use of improved technology, rainwater harvesting, best management practices (BMPs), and reuse of reclaimed water. In addition, some data indicates that recreational water use may not grow at the same pace as general population growth rates. At the same time, higher golf course water demand may result from the construction of newer courses with increasing complexity.

#### 5. Industrial/Commercial/Institutional

Data and methodology for Industrial/Commercial/Institutional (ICI) self-supply are similar to those used in the 2013 WSA, which in brief are:

- 1) Base year (2015) water use reported and estimated;
- 2) Water demand projections requested from permittees, and from review of water use data.

Methodology includes sources of uncertainty in demand projections.

#### 1) Water Use Estimates, Base Year 2015

ICI self-supplied water users include manufacturing plants, chemical processing plants, water bottling plants, office buildings, hospitals and health care facilities, correctional facilities, military bases, schools and universities, and other miscellaneous ICI uses. The mgd thresholds for ICI water users vary among regions and counties and range from a permitted annual Average Daily Rate (ADR) of less than 0.001 mgd ADR to more than 38 mgd. All reporting permittees are included in this WSA.

In some situations, ICI water withdrawn for heating and cooling systems is returned to the source. This recirculated water is not, for planning purposes, considered consumptive use. Also, ICI can include multiple mixed water uses: for example, public supply at a military base, agricultural irrigation at a correctional facility, landscape irrigation at a manufacturing facility, or irrigation of a corporate headquarters or military installation golf course. Generally, these incidental water uses stay in the ICI water use category. Occasionally, a significant secondary use may be moved to another water use category if clearly identified in the available data.

#### 2) 2020-2040 Demand Projections

Demand projections for the 2020-2040 planning horizon were requested directly from permittees. Over 40 percent of ICI permittees responded to an outreach survey request. Projections provided were generally incorporated unless a projection exceeded the permitted allocation or if there were other anomalies in water use data provided. Historical water use, water use trends, and share of water use to the permitted allocation were also reviewed and considered to determine future demands.

#### **Drought Year Projections**

Drought-year water demand projections for ICI water users are not anticipated to differ from water demands during an average rainfall year.

#### Sources of Uncertainty in Demand Projections

Demand projections were primarily provided by permittees. Industrial and commercial enterprises are subject to market and economic variables while fluctuations in populations or governing policies may affect institutional facilities. Market forces can affect day-to-day industrial production and commercial operations or lead to facility expansions or closures.

#### 6. Thermoelectric Power Generation

Data and methodology for thermoelectric power generation self-supply are similar to those used in the 2013 WSA, which in brief are:

- 1) Base year (2015) net water use reported and estimated;
- 2) Water demand projections requested from permittees and from review of Ten-Year Site Plans.

Methodology includes sources of uncertainty in demand projections.

#### 1) Water Use Estimates, Base Year 2015

Thermoelectric power generating facilities in the District by owner are:

<u>Gulf Power</u>: Lansing Smith Plant, Bay County; Crist Plant, Escambia County; and Scholz Plant, Jackson County.

<u>City of Tallahassee</u>: Arvah B. Hopkins Plant, Leon County; Sam O. Purdom Plant, Wakulla County.

<u>Others</u>: Bay County Board of County Commissioners Waste to Energy Facility, Bay County; and Telogia Power, Liberty County.

Water use for thermoelectric power generation reflects the net amount of water used annually. Water withdrawn from fresh surface water or brackish water sources is typically used for recirculation and cooling, and then returned to its source, and is not, for planning purposes, considered consumptive use. Net water use for thermoelectric power generation does or may include water lost to evaporation, blowdown, drift, and leakages.<sup>8</sup> Other water use is potable or other on-site uses.

#### 2) 2020-2040 Demand Projections

Demand projections for the 2020-2040 planning horizon were requested directly from permittees and nearly all responded to an outreach survey request. Some additional information was available in electric utility Ten-Year Site Plans submitted to the Florida Public Service Commission and from historical water use. Demand projections in five-year increments 2020-2040 are estimated net amount of water demand, not including recirculated water returned to the source.

#### **Drought Year Projections**

Drought-year water demand projections for power water users are not anticipated to differ from water demands during an average rainfall year.

#### Sources of Uncertainty in Demand Projections

Demand projections were primarily provided by permittees. In making demand projections, electric utilities may consider national and local economic outlooks, projected economic growth, interest rates and inflation, population and labor force projections, weather and demographics, fuel sources and pricing, and energy and seasonal peak demand forecasts.

<sup>&</sup>lt;sup>8</sup> USGS Thermoelectric Power Water Use, http://water.usgs.gov/watuse/wupt.html.

### ALTERNATIVE WATER SUPPLY AND CONSERVATION

#### INTRODUCTION

If an area requires a regional water supply plan, alternative sources of water and conservation shall be fully evaluated as part of water resource and water supply development plans to meet regional demands (per section 62-40.531, F.A.C.), as noted below.

#### 62-40.531 Regional Water Supply Plans.

(2) Each plan shall fully evaluate water resource and water supply development options, including the potential for water conservation, and alternative sources such as desalination, aquifer storage and recovery, use of surface water reservoirs, and reuse of reclaimed water, to meet the regional demands.

(3)

Conservation and reuse shall be evaluated to the same degree as other options.

Water conservation, also known as demand management, promotes water use efficiencies, which increases the available supply of water from existing sources. Water conservation is immediate, low cost, and more energy efficient than developing new sources of water. While not an alternative water source per se, effective water conservation makes more efficient use of existing water supplies and can offset or delay the need to develop new water supply resources.

Reclaimed water is defined in Chapter 373, F.S., as "... water that has received at least secondary treatment and basic disinfection and is reused after flowing out of a domestic wastewater treatment facility." Reuse of reclaimed water can be generally divided into that which replaces potable quality water and other beneficial direct or indirect reuse water flows. For the purposes of alternative water supply planning, reclaimed water that offsets or replaces water demands that would otherwise be needed from potable supplies is of greatest interest. Public access reclaimed water may be used in golf course or residential irrigation, public access areas (e.g. parks and schools), irrigation of some edible and other crops, and industrial uses such as toilet flushing or fire protection. Other reuse flows include ground water recharge through rapid infiltration basins (RIBs), absorption fields, surface water augmentation, wetland recharge, and underground injection wells.

Desalination and demineralization of brackish water are not common in northwest Florida. The District's major surface water source is Deer Point Lake Reservoir in Bay County. The District has one aquifer storage and recovery (ASR) source in Okaloosa County.

#### **REGULATORY FRAMEWORK**

In addition to incorporating alternative water in water supply planning, alternative water sources and conservation are further defined and governed throughout statute and rule. As noted in Chapter 6240.412, F.A.C., *"The overall water conservation goal of the state shall be to prevent and reduce wasteful, uneconomical, impractical, or unreasonable use of water resources. Conservation of water shall be required unless not economically, environmentally, or technically feasible."* 

The District includes alternative water, water conservation and efficiency program conditions in many consumptive water use permits. Conditions for General Water Use Permits (GWUPs) are in the Water Use

Permit Applicant's Handbook. This Handbook also assists IWUP applicants in the permitting process by establishing a framework for meeting the conditions for permit issuance in section 40A-2.301, F.A.C.

#### **CONSERVATION POTENTIAL**

Water conservation can be achieved through regulatory, economic, and incentive-based programs; and through public outreach, education, and technical assistance. Specific permit conditions that address water conservation are in many IWUPs in the public supply, agriculture, recreation, ICI, and thermoelectric power water use categories. These include conservation of groundwater withdrawals and surface water intakes in applicable water use permits, and in diversion and impoundment permits that may have, for example, recreation or agriculture as a secondary water use. Specific conditions vary but generally request permittees to, "… encourage and provide for the efficient and non-wasteful use of water, and shall implement water conservation measures, including a proactive leak detection program, designed to enhance water use efficiency and reduce water demand and water losses."

The quantification of potential future water savings from conservation initiatives is uncertain due to unknown future participation in incentive and voluntary programs. Conservation estimates and ongoing initiatives are further noted below.

<u>Public Supply and DSS</u>: Permit conditions for a 'Water Conservation and Efficiency Program' typically include requirements for public education and information campaigns, indoor and outdoor water use conservation programs, water loss reduction, and incentivizing or inclining block rate structures. Conservation goals include water system losses less than 10 percent, and maintaining an average residential per capita daily water use of 110 gallons or less.

An evaluation study of water conservation potential was completed with the University of Florida Conserve Florida Water Clearinghouse EZ Guide Water Conservation Tool for regions II and III. This EZ Guide Tool is a web-based model designed to evaluate public supply water demand and estimate conservation potential for public supply utilities. This study evaluated water conservation potential at 5, 10, and 15 percent water saving targets within and outside of Water Resource Caution Areas (WRCAs), and the cost effectiveness of various conservation measures. Conservation potential would be realized by retrofitting to more efficient water plumbing fixtures and through more efficient use of outdoor irrigation and water flow processes in large industrial facilities. For planning purposes, water conservation potential was presumed to hold constant from 2035-2040.

For Region I and regions IV-VII, an analysis was conducted comparing the ratio of gross to residential per capita water use rates, particularly for those exceeding the conservation goals noted above. Conservation potential for these regions was not estimated due to lack of data that would provide enough detail on use types while also accounting for individual utility differences (e.g. seasonal residents, very small systems, etc.). Conservation potential from DSS and small public water systems was not estimated.

<u>Agriculture and Recreation</u>: Conservation potential was not estimated. Agricultural water conservation is possible through irrigation efficiency improvements and through changes in agricultural practices. An example is the District's Jackson Blue Spring Agricultural Best Management Practice (BMP) Cost-Share Program, which contributes funding for producers to retrofit irrigation equipment with water-saving and nutrient reducing technologies that can reduce energy and water overuse while also reducing nutrient application. Recreational conservation potential would be similar to conservation potential in an

agricultural sod crop or may include using industry-specific best management practices such as mowing heights, aeration, or plant types.

<u>ICI and Power</u>: Conservation potential was not estimated. Many power generation and large industrial facilities are advancing water conservation and efficiency programs. Savings from conservation programs projected by permittees have been incorporated into future demand projections.

#### **REUSE POTENTIAL**

For this WSA, reclaimed water estimates and projections are based on potable offset reuse flows, which include public access irrigation, irrigation of edible crops, toilet flushing, fire protection, and industrial uses. Not included in potable offset flows are agriculture irrigation of other crops (sprayfields), absorption fields, rapid infiltration basins (RIBs), wetlands, and industrial reuse at the treatment plant.

Potable quality water offset is defined in section 62-610.200, F.A.C. as, "... the amount of potable quality water (Class F-I, G-I, or G-II groundwater or water meeting drinking water standards) saved through the use of reclaimed water expressed as a percentage of the total reclaimed water used. The potable quality water offset is calculated by dividing the amount of potable water saved by the amount of reclaimed water used and multiplying the quotient by 100."

#### 1) Water Use Estimates, Base Year 2015

The estimated amount of reclaimed water used in 2015 is primarily from FDEP's 2015 Reuse Inventory (FDEP 2016). Operators of domestic wastewater facilities with a permitted capacity of 0.1 mgd or greater that produce reclaimed water are required to submit an annual report to FDEP. Smaller facilities were included in estimates where data and information were available. Some wastewater treatment facilities were inactive in 2015, and in these cases redirected flows were included in the new facility locations for both estimates and projections, for example:

- Shores Wastewater Treatment Facility (WWTF) has closed, with wastewater going to Panama City Beach WWTF; and
- Eglin Air Force Base (AFB) Auxiliary Field #3, Auxiliary Field #6, Main Base, and Plew Heights WWTF's have closed with flows now going to Okaloosa County's Arbennie Pritchett Water Reclamation Facility.

#### 2) Future Demand Projections, 2020-2040

Future wastewater flows were estimated by multiplying 2015 wastewater flows by the BEBR medium growth rates to represent growing populations and increasing public supply water use. The 2015 potable offset reuse flow was subtracted from future wastewater flows to determine future estimated availability.

Future potable offset reuse flows presented assume that WWTFs have treatment and disinfection levels suitable for the reuse end uses and that transmission infrastructure is available to reuse customers. Many other factors such as storage capacity, water quality treatment standards, distribution systems, demand locations, and costs were not considered as part of this WSA.

#### **REGIONAL RESOURCE ASSESSMENTS**

The approach and methods to evaluate and assess the adequacy of existing and reasonably anticipated sources of water to meet future needs varies by region and type of water resources.

<u>Groundwater</u>: For groundwater resources, the assessment criteria generally included the evaluation of long-term changes to the potentiometric surface and impacts to groundwater quality. Where appropriate, the potential for groundwater pumpage to reduce groundwater discharge to surface water features (springs, rivers, bays) was evaluated qualitatively by comparing the relative magnitudes of withdrawals to surface water flows. To further assess the magnitude of groundwater withdrawals, regional scale groundwater budgets were re-evaluated. The water budgets were based on output from calibrated steady-state groundwater flow models and provide an approximation of average groundwater conditions. Although steady-state models do not account for seasonal or annual variation in flow, they do provide a means to estimate the relative magnitude of the various inflows to, and outflows from, an aquifer.

<u>Surface Water</u>: For surface water resources, the assessment criteria involved evaluating the sustainability of surface water resources and associated natural systems. The assessments were typically made by comparing the relative magnitudes of withdrawals and surface water flows.

<u>Sources of Uncertainty</u>: Resources assessments are based on best available data and results are subject to the uncertainty associated with those data. Data are collected by the District but are also obtained from other sources, such as other governmental agencies, water use permittees, or published literature. The uncertainty associated with these data varies depending on the qualifications and training of the source, the collection methods, and management of the data. There is also uncertainty associated with modeling results used for water budget evaluations and the order-of-magnitude comparison with estimated water use. Regional groundwater models are being developed as part of MFLs technical assessments, which should improve predictions of future water use impacts on natural systems.

## DETERMINING THE NEED FOR A REGIONAL WATER SUPPLY PLAN

Water demand projections and water resource evaluations are compared to determine the adequacy of water resources and conservation efforts to meet existing and projected reasonable-beneficial uses and to sustain water resources and related natural systems over the twenty-year planning horizon. Initiating or updating a regional water supply plan is recommended to the District's governing board if one or both of the following conditions occur:

- If projected future water demands exceed or approach the capacity of available water resources, and/or;
- If projected future water withdrawals would significantly harm the water resources, related natural systems, or ecology of the area.

The methodologies used to determine the need for regional water supply plans, and for recovery and prevention strategies or regulatory reservations, vary according to regional characteristics and type of water resource. Specific methods and criteria are in each regional resource assessment section but may include evaluation of: spring and surface water flows and water levels, changes or drawdown of an aquifer's potentiometric surface, or saltwater intrusion.

## **APPENDIX 2. DISTRICTWIDE SUMMARY ESTIMATES AND FUTURE DEMAND PROJECTIONS**

Appendix 2 summarizes the Northwest Florida Water Management District (NWFWMD or District) population estimates and future projections, estimated water use, water use estimates and projections by source, future demand projections, and alternative reuse and conservation potential.



**POPULATION:** estimated In 2015, the seasonallyadjusted District total population was 1,517,943, about seven percent higher than the BEBR 2015 population estimate. District counties with the highest seasonal rates are estimated to be in regions II, III and V. About 84 percent of the District population is estimated to be served by public sector utilities. Thirty-one percent of all District population in 2015 is estimated to have resided in Region II (Figure A2.1). In addition, close to half (48%) of all districtwide population increases over the planning period are projected to be in Region II. Additional population data is at Figure

**A2.1. Population 2015 by Region** the end of Appendix 2 in Table A2.2.

In 2015, approximately 65 percent of District populations were in regions I, II and III; 22 percent in Region VII; and the remaining 13 percent in regions IV, V and VI. This spatial distribution of populations is projected to be consistent over time and similar in 2040.

**ESTIMATED 2015 WATER USE**: Estimated NWFWMD 2015 water use totaled close to 324 mgd. Public supply is close to half, and collectively public supply and domestic self-supply (DSS) comprise 55 percent of all District water use, followed by industrial/commercial/institutional (ICI) at 18 percent (Figure A2.2).



Figure A2.2. 2015 Water Use by Category



Jackson County and Region IV continue to be the dominant agricultural water user, while small-scale recreational landscape irrigation uses are focused in Region II (Table A2.3). The majority of power

generation and ICI self-supply water use is in Escambia County (Region I) and Bay County (Region III). Escambia County is estimated to have used one-fourth of all water in 2015 (Figure A2.3).

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WSA Appendix 2. Districtwide Summary Estimates and Projections

**ESTIMATED WATER USE BY SOURCE**: Nearly three-fourths of all District water is provided by groundwater aquifer systems (Figure A2.4). Major aquifer systems are the Floridan and the sand-and-gravel. Ninety percent of sand-and-gravel water use is in Escambia and northwestern parts of Santa Rosa counties. Miscellaneous aquifers supplying just one percent of all water are the intermediate, Claiborne, and surficial aquifers. Three-fourths of all surface water use districtwide is in Bay County, primarily supplied by the Deer Point Lake Reservoir. See Appendix 3 for



more information on estimates and projections by source.



**FUTURE DEMAND PROJECTIONS 2020-2040**: The two fastest growing counties in the District - Walton and Santa Rosa - are in Region II where there is a projected increase of about 25 mgd or 36 percent in water use by year 2040. Steady increases in water demand are also estimated in regions I, IV and VII. Franklin and Gulf counties in Region V have seasonal populations but overall water use estimates are not expected to change significantly over the planning horizon (Table A2.4). Drought event future demand projections reach about 450 mgd districtwide by year 2040. Region IV has the highest estimated percentage increase in drought conditions due to significance of the agricultural sector (Table A2.5).

**ALTERNATIVE WATER SUPPLY AND CONSERVATION**: Conservation potential in the public supply sector is up to 14 mgd in Region II and 6 mgd in Region III or a total of up to 20 mgd by 2035-2040 if all cost-effective conservation measures are implemented. The 2015 reuse flow totaled about 24 mgd and the future reuse flows is estimated to be close to 93 mgd districtwide by year 2040, as noted in Table A2.1, below. There are several ongoing projects to expand potable offset reuse in various stages of planning and implementation. Across the District, there are significant opportunities to increase production of potable offset reuse through the planning horizon.

REGION	ION Potable Future Beneficial Reuse Estimated Availability 2 Reuse 2020 2025 2030 2035 2040								
Region I	10.62	11.46	11.95	12.35	12.61	12.83	23.45	69.3%	
Region II	9.57	21.43	23.50	25.27	26.94	28.24	37.82	71%	

Table A2.1. Reuse Flow 2015 and Future Potential Reuse Availability 2020-2040 (mgd)

Region III	2.58	13.72	14.50	15.17	15.78	16.40	18.98	54%
Region IV	0.34	4.96	5.07	5.15	5.21	5.27	5.61	46.4%
Region V	0.36	1.64	1.66	1.68	1.71	1.72	2.08	32.6%
Region VI	0.00	2.05	2.08	2.11	2.14	2.16	2.16	50%
Region VII	0.68	22.41	23.52	24.43	25.23	26.00	26.68	88.7%
TOTALS	24.15	77.67	82.28	86.16	89.62	92.62	116.78	53%

Tables A2.2 through A2.5 are attached.

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Planning	Country	BEBR 2015 Population	TOTAL 2015 Population <sup>(1)</sup>		Future Po	opulation Proj	jections <sup>(1)</sup>		2015- 2040	Change
Region	County	Estimates	Estimates	2020	2025	2030	2035	2040	Population <sup>(1)</sup>	%
	Escambia	306,944	316,766	324,254	331,375	337,258	341,076	344,275	27,509	8.7%
	Region I Total	306,944	316,766	324,254	331,375	337,258	341,076	344,275	27,509	8.7%
	Okaloosa	191,898	213,007	223,332	231,657	237,873	243,312	248,085	35,078	16.5%
	Santa Rosa	162,925	166,184	182,274	196,758	209,202	220,422	231,132	64,948	39.1%
	Walton	60,687	90,424	103,257	115,028	125,756	135,739	144,083	53,659	59.3%
	Region II Total	415,510	469,615	508,863	543,443	572,831	599,473	623,300	153,685	32.7%
	Вау	173,310	194,107	205,072	214,928	223,328	230,944	238,784	44,677	23.0%
	Region III Total	173,310	194,107	205,072	214,928	223,328	230,944	238,784	44,677	23.0%
	Calhoun	14,549	14,985	15,450	15,759	16,068	16,377	16,583	1,598	10.7%
	Holmes	19,902	20,101	20,503	20,705	20,907	21,008	21,109	1,008	5.0%
	Jackson	50,458	51,972	52,633	53,251	53,663	53,869	54,281	2,309	4.4%
IV	Liberty	8,698	9,481	10,028	10,573	11,118	11,554	11,990	2,509	26.5%
	Washington	24,975	25,724	26,677	27,604	28,222	28,737	29,149	3,425	13.3%
	<b>Region IV Total</b>	118,582	122,263	125,291	127,892	129,978	131,545	133,112	10,849	8.9%
	Franklin	11,840	16,458	16,680	16,819	16,958	17,097	17,097	639	3.9%
v	Gulf	16,346	19,942	20,374	20,740	20,984	21,228	21,472	1,530	7.7%
	Region V Total	28,186	36,400	37,054	37,559	37,942	38,325	38,569	2,169	6.0%
	Gadsden	48,315	49,475	50,381	51,200	51,917	52,634	53,146	3,671	7.4%
VI	Region VI Total	48,315	49,475	50,381	51,200	51,917	52,634	53,146	3,671	7.4%
	Jefferson(NWF Only)	10,246	10,605	10,810	11,029	11,102	11,248	11,321	716	6.8%
VII	Leon	284,443	285,865	303,008	318,083 27 280	330,545 20.270	341,399 41.055	351,951 42 725	66,086	23.1%
		31,283	32,847	55,175	37,300	39,270	41,000	42,733	9,000	30.1%

## Table A2.2 NWFWMD Population 2015 Estimates and Future Population Projections 2020-2040

NWFWMD Water Supply Assessment 2018 Appendix 2. Page 3

Wakulla									
Region VII Total	325,972	329,317	348,993	366,492	380,917	393,702	406,007	76,690	23.3%
TOTALS	1,416,819	1,517,943	1,599,908	1,672,889	1,734,170	1,787,698	1,837,193	319,250	21.0%

(1) Total estimated populations by county and region, including seasonal adjustments.

# Table A2.3 NWFWMD 2015 Estimated Water Use By Category (mgd)

Planning Region	County / Region	1. Public Supply	2. Domestic Self-Supply	3. Agriculture (FSAID)	4. Recreation	5. ICI	6. Power Generation	TOTAL 2015 WATER USE (mgd)
	Escambia	37.516	1.069	3.348	2.230	25.493	10.590	80.246
I	Region I Total	37.516	1.069	3.348	2.230	25.493	10.590	80.246
	Okaloosa	21.810	2.131	0.393	4.366	1.985	-	30.685
	Santa Rosa	14.957	0.257	1.801	1.988	2.690	-	21.693
11	Walton	10.712	1.568	0.604	4.439	0.033	-	17.356
	Region II Total	47.480	3.956	2.798	10.793	4.708	-	69.734
	Вау	26.600	1.579	0.880	2.361	23.547	9.472	64.439
	Region III Total	26.600	1.579	0.880	2.361	23.547	9.472	64.439
	Calhoun	0.404	0.927	3.008	0.005	0.175	-	4.519
	Holmes	1.007	1.295	1.159	0.219	0.006	-	3.686
	Jackson	2.142	3.151	24.227	0.386	1.430	1.834	33.170
IV	Liberty	0.456	0.488	0.072	0.002	0.377	0.487	1.883
	Washington	0.926	1.674	0.717	0.302	0.456	-	4.076
-	Region IV Total	4.936	7.536	29.183	0.914	2.443	2.322	47.333
	Franklin	1.949	0.165	0.006	0.214	0.001	-	2.335
v	Gulf	1.966	0.265	0.241	0.093	0.426	-	2.991

	Region V Total	3.915	0.430	0.247	0.307	0.427	-	5.326
M	Gadsden	4.069	1.521	5.370	0.141	0.560	-	11.661
VI	<b>Region VI Total</b>	4.069	1.521	5.370	0.141	0.560	-	11.661
		0.626	0.459	0.774	0.553	-	-	2.411
	Leon	28.725	4.618	0.446	2.091	0.096	1.950	37.925
VII	Wakulla	2.306	0.854	0.194	0.205	1.105	0.002	4.666
	Region VII Total	31.657	5.931	1.413	2.848	1.201	1.952	45.002
	TOTALS	156.173	22.022	43.240	19.595	58.379	24.335	323.742
Р	ercent of water use:	48.2%	6.8%	13.4%	6.1%	18.0%	7.5%	100.0%

## Table A2.4 NWFWMD Projected Water Demand 2020-2040 (mgd) - Average/Normal Years

Planning	County	TOTAL 2015 WATER USE	Future [	Demand Proje	ears	2015-204 mgd	Change ∞		
Region		(mgd)	2020	2025	2030	2035	2040		70
	Escambia	80.246	93.542	98.568	100.547	101.892	103.077	22.831	28.5%
I	Region I Total	80.246	93.542	98.568	100.547	101.892	103.077	22.831	28.5%
	Okaloosa	30.685	32.090	33.378	34.392	35.141	35.763	5.077	16.5%
	Santa Rosa	21.693	24.947	26.764	28.411	29.839	31.229	9.536	44.0%
11	Walton	17.356	19.842	22.110	24.221	26.206	27.887	10.531	60.7%
	Region II Total	69.734	76.879	82.251	87.025	91.185	94.879	25.144	36.1%
Ш	Вау	64.439	62.636	65.901	69.231	71.052	72.934	8.495	13.2%
	Region III Total	64.439	62.636	65.901	69.231	71.052	72.934	8.495	13.2%

	TOTALS	323.742	350.091	369.363	383.419	395.769	406.369	82.627	25.5%
	Wakulla Region VII Total	4.000	4.905 50 579	52 460	54 501	56 402	58 210	13 216	31.1%
VII	Leon	4 666	49.200	5 257	5 626	5 8/1	6 117	1 452	31.1/0 21.10/
	Jefferson(NWF District Only)	37 925	43 236	44 860	46 611	48 186	49 734	11 809	21.070
	_	2 411	2 377	2 344	2 354	2 375	2 367	-0 044	-1.8%
VI	Region VI Total	11.661	11.789	12.180	12.534	12.907	13.182	1.521	13.0%
	Gadsden	11.661	11.789	12.180	12.534	12.907	13.182	1.521	13.0%
	Region V Total	5.326	5.477	5.561	5.544	5.688	5.721	0.395	7.4%
v	Gulf	2.991	3.110	3.165	3.121	3.244	3.275	0.133	4.4%
	Franklin	2.335	2.367	2.396	2.423	2.444	2.446	0.111	4.7%
	Region IV Total	47.333	49.190	51.984	53.948	56.221	58.357	11.025	23.3%
	Washington	4.076	4.296	4.614	4.838	5.074	5.293	1.218	29.9%
IV	Liberty	1.883	2.028	2.179	2.278	2.361	2.450	0.567	30.1%
	Jackson	33.170	34.282	36.150	37.305	38.546	39.964	6.794	20.5%
	Holmes	3.686	3.792	3.903	4.003	4.105	4.216	0.530	14.4%
	Calhoun	4.519	4.792	5.137	5.524	6.134	6.434	1.915	42.4%

# Table A2.5 NWFWMD Future Projected Water Demand 2020-2040 (mgd) - Dry Years

Planning	County / Region	TOTAL 2015 WATER USE	F	uture Deman		2015- 2040 mg	Change %		
NC51011		(mgd)	2020	2025	2030	2035	2040		/0
	Escambia	80.247	98.163	103.555	105.899	107.554	109.045	28.798	35.9%
•	Region I Total	80.247	98.163	103.555	105.899	107.554	109.045	28.798	35.9%
	Okaloosa	30.685	35.511	36.925	38.027	38.844	39.512	8.827	28.8%
н	Santa Rosa	21.693	27.272	29.361	31.267	32.933	34.559	12.865	59.3%
	Walton	17.356	22.641	25.230	27.644	29.911	31.821	14.465	83.3%

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	Region II Total	69.734	85.423	91.516	96.938	101.688	105.892	36.157	51.8%
	Вау	64.439	65.870	69.286	72.748	74.695	76.704	12.265	19.0%
	Region III Total	64.439	65.870	69.286	72.748	74.695	76.704	12.265	19.0%
	Calhoun	4.519	5.972	6.456	7.007	7.818	8.240	3.721	82.3%
	Holmes	3.686	4.284	4.440	4.569	4.714	4.867	1.181	32.0%
	Jackson	33.170	44.138	46.735	48.374	50.147	52.099	18.930	57.1%
IV	Liberty	1.883	2.125	2.291	2.398	2.491	2.595	0.712	37.8%
	Washington	4.075	4.867	5.289	5.569	5.860	6.163	2.087	51.2%
	Region IV Total	47.332	61.385	65.210	67.917	71.031	73.964	26.631	56.3%
	Franklin	2.335	2.613	2.622	2.651	2.675	2.677	0.342	14.7%
v	Gulf	2.991	3.243	3.297	3.348	3.381	3.415	0.424	14.2%
	Region V Total	5.326	5.856	5.919	5.999	6.056	6.092	0.766	14.4%
Na	Gadsden	11.661	13.803	14.284	14.719	15.182	15.539	3.879	33.3%
VI	Region VI Total	11.661	13.803	14.284	14.719	15.182	15.539	3.879	33.3%
	Lefferson(NWE District Only)	2.411	2.845	2.808	2.820	2.845	2.837	0.426	17.7%
		37.926	46.612	48.400	50.322	52.030	53.729	15.803	41.7%
VII	Wakulla	4.666	5.342	5.667	6.076	6.320	6.634	1.969	42.2%
	Region VII Total	45.002	54.799	56.875	59.218	61.195	63.200	18.198	40.4%
	TOTALS	323.742	385.299	406.646	423.439	437.402	450.436	126.694	39.1%

Dianning			Gr	oundwater A		τοται	TOTAL Surface	TOTAL ESTIMATED		
Region	County / Region	a. Coastal Floridan	b. Inland Floridan	c. Intermediate	d. Claiborne	e. Sand and Gravel	f. Surficial	Groundwater	Water	WATER USE (mgd)
	Escambia	-	-	-	-	70.692	-	70.692	9.554	80.246
I	<b>Region Totals</b>	-	-	-	-	70.692	-	70.692	9.554	80.246
	Okaloosa	13.006	11.203	-	-	2.690	-	26.899	1.336	28.235
	Santa Rosa	1.398	0.461	-	-	19.706	-	21.565	0.128	21.693
"	Walton	1.572	13.758	0.182	-	1.502	0.453	17.467	2.339	19.806
	Region Totals	15.976	25.422	0.182	-	23.898	0.453	65.931	3.803	69.734
	Вау	0.544	5.179	0.268	-	0.015	1.539	7.546	56.892	64.439
	<b>Region Totals</b>	0.544	5.179	0.268	-	0.015	1.539	7.546	56.892	64.439
	Calhoun	-	4.072	0.371	-	-	-	4.443	0.076	4.519
	Holmes	-	3.339	-	0.320	-	-	3.659	-	3.659
	Jackson	-	31.315	-	0.250	-	-	31.565	1.605	33.170
IV	Liberty	-	1.605	0.195	-	-	0.056	1.857	0.026	1.882
	Washington	-	4.102	-	-	-	-	4.102	-	4.102
	Region Totals	-	44.434	0.566	0.570	-	0.056	45.625	1.707	47.333
	Franklin	1.950	0.089	0.083	-	-	-	2.121	0.214	2.335
v	Gulf	0.398	0.928	0.183	-	-	0.047	1.555	1.436	2.991
	Region Totals	2.348	1.016	0.265	-	-	0.047	3.676	1.650	5.326
	Gadsden	-	8.999	-	-	-	-	8.999	2.662	11.661
VI	<b>Region Totals</b>	-	8.999	-	-	-	-	8.999	2.662	11.661
	lefferson(NWE Only)	-	2.412	-	-	-	-	2.412	-	2.412
ין אווע <sup>ו</sup> ע	Leon	-	38.395	-	-	-	-	38.395	-	38.395
	Wakulla	-	4.193	-	-	-	-	4.193	0.002	4.195
	Region Totals	-	45.000	-	-	-	-	45.000	0.002	45.002

# Appendix 3, Table 3.1. NWFWMD 2015 Water Withdrawals by Source (mgd)

DISTRICT TOTALS	18.868	130.050	1.282	0.570	94.606	2.095	247.470	76.271	323.742
Percentage of Water Source:								23.6%	100.0%

NWFWMD Water Supply Assessment 2018

Appendix 3. Page 1

## Appendix 3, Table 3.2. NWFWMD 2015 Water Withdrawals and 2040 Production Projections by Source (mgd)

		2015	imated Wate	)	Average	e / Normal Y	'ear 2040	Dry / Drought Year 2040 Projected			
Planning	County / Region	Ground	d	TOTAL	Projecte	d Water Use	e <sup>(1)</sup> (mgd)	Water Use <sup>(1)</sup> (mgd)			
Region		Water	Surface Water	WITHDRAWALS	GW	SW	Totals	GW	SW	Totals	
	Escambia	70.692	9.554	80.246	89.165	13.912	103.077	94.438	14.607	109.045	
	Region Totals	70.692	9.554	80.246	89.165	13.912	103.077	94.438	14.607	109.045	
	Okaloosa	26.899	1.336	28.235	30.579	1.454	32.033	32.212	1.744	33.956	
	Santa Rosa	21.565	0.128	21.693	31.034	0.196	31.230	34.327	0.232	34.559	
- 11	Walton	17.467	2.339	19.806	26.862	3.477	30.338	30.026	4.418	34.444	
	Region Totals	65.931	3.803	69.734	65.931	3.803	93.602	65.931	3.803	102.959	
-	Вау	7.546	56.892	64.439	8.243	64.691	72.934	8.611	68.093	76.704	
	Region Totals	7.546	56.892	64.439	8.243	64.691	72.934	8.611	68.093	76.704	
	Calhoun	4.443	0.076	4.519	6.322	0.112	6.434	8.095	0.145	8.240	
	Holmes	3.659	-	3.659	4.189	-	4.189	4.838	-	4.838	
N7	Jackson	31.565	1.605	33.170	38.015	1.949	39.964	49.531	2.568	52.099	
IV	Liberty	1.857	0.026	1.882	2.415	0.035	2.450	2.558	0.037	2.595	
	Washington	4.102	-	4.102	5.320	-	5.320	6.192	-	6.192	
	Region Totals	45.625	1.707	47.333	56.262	2.096	58.358	71.214	2.750	73.964	
	Franklin	2.121	0.214	2.335	2.231	0.215	2.446	2.415	0.262	2.677	
v	Gulf	1.555	1.436	2.991	1.667	1.607	3.275	1.768	1.647	3.415	
	Region Totals	3.676	1.650	5.326	3.899	1.822	5.721	4.183	1.909	6.092	
1/1	Gadsden	8.999	2.662	11.661	10.180	3.001	13.182	11.825	3.714	15.539	
VI	Region Totals	8.999	2.662	11.661	10.180	3.001	13.182	11.825	3.714	15.539	

	lefferson(NWE Only)	2.412	-	2.412	2.367	-	2.367	2.837	-	2.837
VII		38.395	-	38.395	50.342	-	50.342	54.379	-	54.379
	Wakulla	4.193	0.002	4.195	5.506	0.003	5.509	5.980	0.003	5.983
	Region Totals	45.000	0.002	45.002	58.215	0.003	58.218	63.196	0.003	63.199
	DISTRICT TOTALS	247.470	76.271	323.742	291.895	89.328	405.091	319.398	94.879	447.502

(1) Production projections vary marginally (<1%) from demand projections.

 Percentage of Water Source:
 72.1%
 22.1%
 71.4%
 21.2%

NWFWMD Water Supply Assessment 2018 Appendix 3. Page 2

WSA Appendix 4. Public Supply Utility Data

## APPENDIX 4. PUBLIC SUPPLY UTILITY DATA

## Contents

4A. 2015 PUBLIC SUPPLY WATER DEMAND, POPULATIONS SERVED, AND PER CAPITA WATER USE

4B. 2015 PUBLIC SUPPLY UTILITY DEMAND AND PRODUCTION PROJECTIONS

4C. PUBLIC SUPPLY UTILITY ESTIMATED GROWTH RATES

4D. UF BUREAU OF BUSINESS AND ECONOMIC RESEARCH (BEBR) COUNTY GROWTH RATES

NWFWMD 2017 Water Supply Assessment Appendix 4 - Contents

#### **Public Supply Total** Average GROSS Average Planning Reported Water Per Capita **RESIDENTIAL Per** Adjusted<sup>(1)</sup> 2015 County / Region Imports Exports Region Pumpage Demand Water Use Capita Water Use **Population Served** Escambia 304,750 37.516 \_ 37.516 123.11 76.47 -I. 304,750 76.47 **Totals/Average Per Capita** 37.516 0.000 0.000 37.516 123.11 4.204 189,067 Okaloosa 19.360 1.754 21.810 115.36 89.23 163.293 91.60 Santa Rosa 14.957 3.853 3.853 14.957 64.97 Ш 147.13 72,808 Walton 13.162 2.968 5.418 10.712 96.30 **Totals/Average Per Capita** 47.480 11.025 11.025 47.480 425,168 111.67 83.00 26.600 23.099 23.099 26.600 176,364 150.82 76.33 Bay ш **Totals/Average Per Capita** 26.600 23.099 23.099 26.600 176,364 150.82 76.33 Calhoun 0.404 0.404 4,568 88.40 -\_ 55.21 Holmes 0.981 0.027 1.007 5.547 181.56 59.57 \_ 16,563 51.98 Jackson 2.142 2.142 129.32 \_ IV Liberty 0.456 0.456 4,003 113.95 \_ 114.79 Washington 0.953 0.027 0.926 6,910 134.07 68.91 -37,591 131.29 68.96 4.935 0.027 4.935 **Totals/Average Per Capita** 0.027 Franklin 1.949 0.077 0.077 1.949 14,637 133.18 100.37 1.966 1.966 53.96 Gulf 120.52 16,313 v 30,950 126.51 83.15 **Totals/Average Per Capita** 3.915 0.077 0.077 3.915 Gadsden 125.63 4.069 --4.069 32,390 68.71 VI 32.390 125.63 68.71 **Totals/Average Per Capita** 4.069 0.000 0.000 4.069 0.626 0.626 5,445 114.98 78.88 \_ Jefferson(NWF District Only) 233,981 28.725 122.77 29.196 0.472 65.26 -Leon VII 23,256 1.835 0.472 2.306 99.17 75.65 Wakulla 262,682 120.51 **Totals/Average Per Capita** 31.657 0.472 0.472 31.657 66.62

## Appendix 4a. 2015 Public Supply Water Demand, Populations Served, and Per Capita Water Use

Reported Water Demand (mgd)

Populations and Per Capita Water Use (gpd)

DISTRICT TOTALS/AVERAG	E 156.172	34.700	34.700	156.172	1,269,895	122.98	73.41
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(1) Populations served include seasonal resident adjustments.

(2) Million gallons per day (mgd) or gallons per day (gpd).

NWFWMD 2018 Water Supply Assessment Appendix

#### **REGION I**

ESCAMBIA COUNTY	2015 B	aseline Esti	imates	DEMAN	D and PROD	UCTION Pro	jections (AD	R, gpd)		
Public Supply Utility or Service Area	Gross Water	Populations	Gross Per	2020	2025	2030	2035	2040		
	Use (ADR, gpd)	Served	Capita (gpcd)							
Bratt-Davisville Water System, Inc.	182,074	1,970	92	182,908	184,282	185,518	185,607	185,607		
Central Water Works, Inc.	264,360	2,448	108	265,571	267,565	269,361	269,490	269,490		
Century, Town of	557,713	3,056	182	557,713	557,713	557,713	557,713	557,713		
Cottage Hill Water Works, Inc.	427,232	3,020	141	429,189	432,412	435,314	435,523	435,523		
Emerald Coast Utilities Authority (ECUA)	31,965,781	249,872	128	32,721,436	33,440,016	34,033,626	34,418,951	34,741,792		
Farm Hill Utilties, Inc.	556,310	4,174	133	580,245	599,694	617,599	632,313	645,759		
Gonzalez Utilities Association, Inc.	490,758	4,543	108	502,359	513,391	522,505	528,421	533,377		
Molino Utilities, Inc	681,329	6,285	108	697,435	712,751	725,404	733,617	740,498		
People's Water Service Company	2,199,044	27,737	79	2,293,656	2,370,538	2,441,312	2,499,476	2,552,630		
Walnut Hill Water Works	191,740	1,645	117	192,618	194,065	195,367	195,461	195,461		
REGION I TOTALS (gpd)	37,516,341	304,750		38,423,130	39,272,427	39,983,719	40,456,571	40,857,849		
REGION I mgd 37.516				38.423	39.272	39.984	40.457	40.858		

#### **REGION II**

OKALOOSA COUNTY	2015 B	aseline Est	imates	Gross Water DEMAND Projections (ADR, gpd)				
Dublic Councils Heiling on Councils Anno	Gross Water	Populations	Gross Per	2020	2025	2020	2025	2040
Public Supply Utility or Service Area	Use (ADR, gpd)	Served	Capita (gpcd)	2020	2025	2030	2035	2040
Auburn Water System	1,695,214	15,411	110	1,817,582				
Baker Water System	203,877	2,293	89	213,760	1,911,093	1,990,885	2,065,772	2,136,187
Blackman Community Water System	29,641	557	53	29,937	221,728	227,677	232,883	237,452
Crestview, City of	2,414,112	23,488	103	2,588,373	30,237	30,539	30,845	31,153
Destin Water Users Fort	3,941,006	22,527	175	4,030,383	2,721,540	2,835,170	2,941,815	3,042,090
Walton Beach, City of	2,486,537	21,008	118	2,607,069	4,109,716	4,163,781	4,200,518	4,222,986
Holt Water Works, Inc.	144,918	2,077	70	151,943				
Laurel Hill, City of	112,051	1,397	80	112,051	2,704,251	2,776,813	2,840,305	2,896,023
Mary Esther, Town of	430,581	3,950	109	430,581	157,607	161,836	165,536	168,783
Milligan Water System	146,370	1,600	91	146,370	112,051	112,051	112,051	112,051
Niceville, City of	2,318,542	19,344	120	2,469,803	430,581	430,581	430,581	430,581
Okaloosa Co. Water & Sewer, Bluewater	1,148,151	11,613	99	1,203,806	146,676	146,676	146,676	146,676
Okaloosa Co. Water & Sewer, Main (Garniers)	4,360,246	41,903	104	4,459,131	2,628,017	2,786,230	2,944,443	3,102,656
Okaloosa Co. Water & Sewer, Mid-County	1,474,566	13,892	106	1,546,044	1,248,680	1,282,185	1,311,502	1,337,230
So. Walton Utility Co. (Okaloosa portion)	457,477	3,567	128	479,653	4,546,903	4,606,720	4,647,365	4,672,223
Valparaiso, City of	447,001	4,441	101	457,138				
					1,603,674	1,669,236	1,741,202	1,813,062
					497,532	510,882	522,564	532,815
					466,137	472,269	476,436	478,984
Okaloosa County TOTALS (gpd)	21,810,290	189,067		22,743,622	23,536,421	24,203,532	24,810,495	25,360,951
Okaloosa County PRODUCTION	Estimates			Water PRODUCTION Pumpage (ADR, g				
	Production							
Public Supply Utility or Service Area	(ADR, gpd)			2020	2025	2030	2035	2040
Auburn Water System	1,695,214			1,817,582				
Baker Water System	203,877			213,760	1,911,093	1,990,885	2,065,772	2,136,187

	,	•					
Blackman Community Water System	29,641		29,937	221,728	227,677	232,883	237,452
Crestview, City of	2,414,112		2,588,373	30,237	30,539	30,845	31,153
Destin Water Users Fort	1,941,773		1,770,000	2,721,540	2,835,170	2,941,815	3,042,090
Walton Beach, City of	2,486,537		2,607,069	1,770,000	1,770,000	1,770,000	1,770,000
Holt Water Works, Inc.	144,918		151,943				
Laurel Hill, City of	112,051		112,051	2,704,251	2,776,813	2,840,305	2,896,023
Mary Esther, Town of	430,581		430,581	157,607	161,836	165,536	168,783
Milligan Water System	146,370		146,370	112,051	112,051	112,051	112,051
Niceville, City of	2,318,542		2,469,803	430,581	430,581	430,581	430,581
Okaloosa Co. Water & Sewer, Bluewater	1,148,151		1,203,806				
Okaloosa Co. Water & Sewer, Main (Garniers)	3,749,718		3,834,757	146,676	146,676	146,676	146,676
Okaloosa Co. Water & Sewer, Mid-County	2,091,885		2,193,286	2,628,017	2,786,230	2,944,443	3,102,656
So. Walton Utility Co. (Okaloosa portion)	-		-	1,248,680	1,282,185	1,311,502	1,337,230
Valparaiso, City of	447,001		457,138	3,910,239	3,961,680	3,996,634	4,018,011
				2,275,044	2,336,090	2,389,505	2,436,379
				-	-	-	-
				466,137	472,269	476,436	478,984
Okaloosa County TOTALS (gpd)	19,360,371		20,026,456	20,733,879	21,320,682	21,854,984	22,344,256
			1				

SANTA ROSA COUNTY	2015 B	aseline Esti	imates	Gross Water DEMAND Projections (ADR, gp				
Public Supply Utility or Service Area	Gross Water	Populations	Gross Per	2020	2025	2030	2035	2040
	Use (ADR, gpd)	Served	Capita (gpcd)					
Bagdad-Garcon Point Water System	492,923	5,756	86	523,556	552,958	577,800	598,340	616,520
Berrydale Water System <sup>†</sup>	256,742	2,276	113	263,794	272,461	279,710	284,595	288,062
Chumuckla Water System	324,696	3,842	85	365,202	399,839	432,043	462,787	493,437
East Milton Water System	1,486,145	10,654	139	1,671,543	1,830,077	1,977,478	2,118,193	2,258,477
Fairpoint Regional Utility System (FRUS)	-	5,771	126			-	-	-
Gulf Breeze Water Department Holley-	725,694	36,309	71	732,951	740,280	801,017	817,365	833,712
Navarre Water System, Inc.	2,574,002	1,355	94	2,895,110	3,169,692	3,424,990	3,668,708	3,911,681
Jay, City of	127,145	15,818	86	130,637	134,929	138,519	140,938	142,655
Midway Water System	1,360,173	17,104	100	1,397,532	1,443,449	1,481,852	1,507,732	1,526,099
Milton, City of	1,710,236	3,081	84	1,816,519		2,004,723	2,075,988	2,139,067
Moore Creek-Mt. Carmel Utilities, Inc.	259,838	36,474	105	266,975	1,918,533	283,083	288,027	291,535
Pace Water System, Inc.	3,829,685	9,105	88	4,307,441	275,746	5,095,813	5,458,424	5,819,928
Point Baker Water System	804,197	3,982	73	904,521	4,715,972			
Santa Rosa BOCC. Navarre Beach	291.831	11.768	61	299.847	990.309	1.070.072	1.146.217	1.222.129
South Santa Rosa Utilities	713.567	,		733.166	309.698	415.540	477.908	540.202
	-,			,	757.255	777.402	790.979	800.614
Santa Rosa County TOTALS (gpd)	14,956,874	163,293		16,308,793	17,511,199	18,760,042	19,836,201	20,884,118
Santa Rosa County PRODUCTION	Estimatos		l	W/at		TION Project	tions (ADR	(bor
Santa Kosa county i Kobochow	Lotimates			vva		nontrojec		5pu)
Public Supply Utility or Service Area	Production			2020	2025	2030	2035	2040
Fublic Supply Office of Service Area	(ADR, gpd)			2020	2025	2030	2035	2040
Bagdad-Garcon Point Water System	492,923			523,556	552,958	577,800	598,340	616,520
Berrydale Water System <sup>+</sup>	256,742			263,794	272,461	279,710	284,595	288,062
Chumuckla Water System	324,696			365,202				
East Milton Water System	1,486,145			1,671,543	399,839	432,043	462,787	493,437
Fairpoint Regional Utility System (FRUS)	3,823,304			4,095,240	1,830,077	1,977,478	2,118,193	2,258,477
Gulf Breeze Water Department					4,397,391	4,859,648	5,209,293	5,550,218
Holley-Navarre Water System, Inc.	1,122,123			1,262,109				
Jay, City of	127,145			130,637	1,300,000	1,300,000	1,300,000	1,300,000
Midway Water System	643,580			661,257	134,929	138,519	140,938	142,655
Milton, City of	1,710,236			1,816,519				
Moore Creek-Mt. Carmel Utilities, Inc.	259,838			266,975	682,983	701,154	713,399	722,089
Pace Water System, Inc.	3,829,685			4,307,441	1,918,533	2,004,723	2,075,988	2,139,067
Point Baker Water System	804,197			904,521	275,746	283,083	288,027	291,535
Santa Rosa BOCC, Navarre Beach	76,260			40,000	4,715,972	5,095,813	5,458,424	5,819,928
South Santa Rosa Utilities	-			-	990,309			
					40,000	1,070,072	1,146,217	1,222,129
					· -	40,000	40,000	40,000
							-	-
Santa Rosa County TOTALS (gpd)	14,956,874			16,308,793	17,511,199	18,760,042	19,836,201	20,884,118
WALTON COUNTY	2015 B	aseline Ecti	imates	Groe	s Water DFI	MAND Proje	ctions (ADP	and)

Public Supply Utility or Service Area	Gross Water	Populations	Gross Per	2020	2025	2030	2035	2040
,	Use (ADR)	Served	Capita (gpcd)					
Argyle Water System	64,452	774	83	65,419				
DeFuniak Springs, City of	1,365,957	9,525	143	1,440,527	66,400	67,396	68,407	69,433
FCSC of Walton Co. / Regional Utilities	4,006,249	32,628	123	4,703,565	1,521,556	1,595,834	1,652,104	1,681,365
Freeport, City of	1,519,201	7,604	200	1,734,776	5,318,646	5,921,242	6,510,795	7,046,831
Freeport, North Bay Water System	131,213	2,130	62	138,376		2,112,846	2,280,606	2,420,863
Inlet Beach	127,950	1,603	80	150,221	1,932,540	153,295	158,700	161,511
Mossy Head Water Works	261,496	3,162	83	275,771	146,160	189,110	207,939	225,059
Paxton, City of	194,468	1,457	134	194,468	169,865	305,503	316,275	321,877
So. Walton Utility Co., Rockhill Well Field	(3,115)	-	-	-	291,284	194,468	194,468	194,468
SWUC, Coastal Well Field (Walton portion)	3,044,512	13,926	219	3,574,431	194,468	-	-	-
					-	4,499,793	4,947,819	5,355,174
					4,041,856			
Walton County TOTALS (gpd)	10,712,383	72,808		12,277,553	13,682,774	15,039,487	16,337,114	17,476,580
REGION II TOTALS (gpd)	47,479,547	425,168		51,329,968	54,730,395	58,003,060	60,983,809	63,721,650
REGION II mgd	47.480			51.330	54.730	58.003	60.984	63.722

Walton County PRODUCTION	Estimate	v	Vater PRODU	CTION Projec	tions (ADR, g	pd)
Public Supply Utility or Service Area	Production (ADR, gpd)	2020	2025	2030	2035	2040
Argyle Water System		65,419	66,400	67,396	68,407	69,433
DeFuniak Springs, City of	64,452	1,440,527	1,521,556	1,595,834	1,652,104	1,681,365
FCSC of Walton Co. / Regional Utilities		4,703,565	5,318,646	5,921,242	6,510,795	7,046,831
Freeport, City of	1,365,957	1,734,776	1,932,540	2,112,846	2,280,606	2,420,863
Freeport, North Bay Water System	3,240,429	138,376	146,160	153,295	158,700	161,511
Inlet Beach		150,221	169,865	189,110	207,939	225,059
Mossy Head Water Works, Inc. <sup>+</sup>	2,306,961	275,771	291,284	305,503	316,275	321,877
Paxton, City of	131,213	194,468	194,468	194,468	194,468	194,468
So. Walton Utility Co., Rockhill Well Field		5,184,466	5,749,103	6,274,457	6,770,901	7,210,974
SWUC, Coastal Well Field (Walton portion)	114,449	1,130,000	1,130,000	1,130,000	1,130,000	1,130,000
	261,496					
	194,468					
	4,156,118					
	1,326,759					
Walton County TOTALS (gpd)		15,017,588	16,520,022	17,944,150	19,290,196	20,462,381
	13,162,302					
REGION II TOTALS (gpd)	47,479,547	51,352,837	54,765,100	58,024,875	60,981,381	63,690,755
REGION II mgd	47.480	51.353	54.765	58.025	60.981	63.691

#### **REGION III**

BAY COUNTY	2015 B	aseline Est	imates	Gross Water DEMAND Projections (ADR, gpd)						
Public Supply Utility or Service Area	Gross Water	Populations	Gross Per	2020	2025	2030	2035	2040		
	Use (ADR)	Served	Capita (gpcd)							
Bay County BOCC (includes Sandy Creek)	2,876,661	12,225	235	3,039,159	3,185,224	3,309,712	3,422,581	3,538,769		
BOCC Cedar Grove	435,980	2,946	148	446,898	458,416	467,904	475,207	482,310		
BOCC GCEC (North Bay, Lake	623,430	8,500	73	676,633	719,523	759,491	797,950	838,115		
Merial) Callaway		14,800	98	1,485,818	1,524,111	1,555,659	1,579,939	1,603,554		
Lynn Haven, City of	1,449,519	20,740	102	2,291,251	2,436,490	2,571,830	2,702,063	2,838,072		
Mexico Beach		2,488	142	374,034	392,010	407,331	421,222	435,522		
Panama City	2,111,094	37,640	141	5,435,502	5,575,589	5,690,998	5,779,821	5,866,213		
Panama City Beach		63,693	192	13,248,691	14,088,505	14,871,082	15,624,127	16,410,570		
Parker	354,035	4,317	84	372,363	373,626	374,047	374,467	374,467		
Springfield		9,015	95	856,387	859,371	861,360	861,360	861,360		
	5,302,712									
	12,206,968									

	363,291 856,387						
Region III TOTALS (gpd)	26,580,077	176,364	28,226,735	29,612,866	30,869,413	32,038,738	33,248,953
REGION III mgd	26.580	)	28.227	29.613	30.869	32.039	33.249
Bay County PRODUCTION	Estimates		W	ater PRODUC	TION Project	ions (ADR, gp	od)
Moore Creek-Mt. Carmel Utilities, Inc.	Production (ADR, gpd)		2020	2025	2030	2035	2040
Bay County BOCC (includes Sandy Creek) BOCC Cedar Grove BOCC GCEC (North Bay, Lake Merial) Callaway Lynn Haven, City of Mexico Beach Panama City Panama City Beach Parker Springfield	<b>24,966,658</b> 1,613,419		26,468,965 - - 1,757,770 - -	<b>27,745,189</b> 1,867,677	28,870,710 - 1,998,703 - -	<b>29,957,968</b> - 2,080,770 - -	31,077,670 - 2,171,283 - -
Region III TOTALS (gpd)	26,580,077	-	28,226,735	29,612,866	30,869,413	32,038,738	33,248,953
REGION III mgd	26.580		28.227	29.613	30.869	32.039	33.249

#### **REGION IV**

CALHOUN COUNTY	2015 B	aseline Esti	mates	DEMAND and PRODUCTION Projections (ADR, gpd)				
Public Supply Utility or Service Area	Gross Water Use (ADR, gpd)	Populations Served	Gross Per Capita (gpcd)	2020	2025	2030	2035	2040
Altha Blountstown	78,578	668 3,900	118 83	78,583 325,263	78,812 326,209	79,018 327,060	79,018 327,060	79,018 327,060
Calhoun County TOTALS (gpd)	403,819	4,568		403,847	405,021	406,078	406,078	406,078
HOLMES COUNTY	2015 Baseline Estimates			DEMAND and PRODUCTION Projections (ADR, gpd)				
Public Supply Utility or Service Area	Gross Water Use (ADR)	Populations Served	Gross Per Capita (gpcd)	2020	2025	2030	2035	2040
Bonifay, City of		3,673	204	748,700	748,700	748,700	748,700	748,700
Caryville, Town of (Holmes portion)	748,700	147	181	26,577	26,577	26,577	26,577	26,577
Esto Water Works	26,577	360	106	38,087	38,849	38,849	38,849	
Joyce E. Snare Waterworks		319	73	23,323	23,323	23,323	23,323	38,849
Noma, Town of	38,087	216	269	58,067	58,067	58,067	58,067	
Ponce de Leon, Town of		534	137	72,956	72,956	72,956	72,956	23,323
Westville, Town of	23,323	298	132	39,401	39,401	39,401	39,401	
	58,067 72,956							58,067 72,956
								39,401

	39,401							
Holmes County TOTALS (gpd)	1,007,111	5,547		1,007,111	1,007,873	1,007,873	1,007,873	1,007,873
JACKSON COUNTY	2015 B	aseline Esti	mates	DEMAN	D and PROD	OUCTION Pro	jections (AI	OR, gpd)
	Gross Water	Populations	Gross Per					
Public Supply Utility or Service Area	Use (ADR, gpd)	Served	Capita (gpcd)	2020	2025	2030	2035	2040
Alford, Town of		500	102	50,771	50,771	50,771	50,771	
Campbellton, Town of	50,771	267	96	25,683	25,683	25,683	25,683	50,771
Cottondale	25 682	1,223	119	147,225	148,697	150,184	151,686	25,683
Grand Ridge	145 767	892	102	90 705	90 705	90 705	90 705	649 850
Greenwood	649.850	693	88	61.293	61.293	61.293	61.293	90.705
Jackson County Utilities, Plant 1	90,705	475	459	220,971	223,566	225,295	226,160	61,293
Jacob, City of	61,293	202	102	20,688	20,688	20,688	20,688	227,890
Malone		875	65	57,597	58,273	58,724	58,949	20,688
Marianna	218,195	6,500	138	927,868	952,358	972,256	990,130	59,400
Sneads	20,688	2,106	119	253,067	256,039	258,020	259,010	1,010,529
	56,873							260,991
	894,334							
	249,888							
Jackson County TOTALS (gpd)		16,563		2,505,718	2,537,922	2,563,469	2,584,925	2,611,003
	2,464,047							
LIBERTY COUNTY	2015 B	aseline Esti	mates	DEMAN	D and PROD	UCTION Pro	ojections (AI	DR, gpd)
	Gross Water	Populations	Gross Per					
Public Supply Utility or Service Area	Use (ADR. gpd)	Served	Capita (gpcd)	2020	2025	2030	2035	2040
Bristol, City of		1,724	117	207,055	212,682	218,163	222,441	225,345
Liberty Co. BOCC, Estiffanulga Water System	202,356	281	89	25,725	26,424	27,105	27,636	27,997
Liberty Co. BOCC, Hosford-Telogia		1,290	91	117,767	117,767	117,767	117,767	117,767
Liberty Co. BOCC, Lake Mystic Water System	25,141	314	117	40,004	42,928	45,840	48,517	51,179
Sumatra Water System	117 767	163	85	13 829	13 829	13 829	13 829	57 895
Talguin Electric Coop, Sweetwater System	36.627	65	130	8.642	8.877	9.106	9.284	57,055
· · · · · · · · · · · · · · · · · · ·	,			-,	-,	-,	-,	13,829
	51,989							9,406
	12 200							
	8 4 4 6							
Liberty County TOTALS (gpd)	8,446 <b>456.155</b>	4.003		466.219	477.149	487.860	496.624	503.418
Liberty County TOTALS (gpd)	8,446 <b>456,155</b>	4,003		466,219	477,149	487,860	496,624	503,418
Liberty County TOTALS (gpd)	8,446 456,155 2015 B	4,003 aseline Esti	mates	466,219 DEMAN	477,149 D and PROE	487,860 DUCTION Pro	496,624 Djections (AI	503,418 DR, gpd)
Liberty County TOTALS (gpd) WASHINGTON COUNTY Public Water Supply Utility or Service Area	8,446 456,155 2015 B Gross Water	4,003 aseline Esti Populations	mates Gross Per	466,219 DEMAN 2020	477,149 D and PROE 2025	487,860 DUCTION Pro 2030	496,624 Djections (AI 2035	503,418 DR, gpd) 2040
Liberty County TOTALS (gpd) WASHINGTON COUNTY Public Water Supply Utility or Service Area	8,446 456,155 <b>2015 B</b> Gross Water Use (ADR)	4,003 aseline Esti Populations Served	mates Gross Per Capita (gpcd)	466,219 DEMAN 2020	477,149 D and PROE 2025	487,860 DUCTION Pro 2030	496,624 Djections (AL 2035	503,418 DR, gpd) 2040
Liberty County TOTALS (gpd) WASHINGTON COUNTY Public Water Supply Utility or Service Area Sunny Hills Utilities (formerly Aqua Utilities)	8,446 456,155 <b>2015 B</b> Gross Water Use (ADR)	4,003 aseline Esti Populations Served 1,403	mates Gross Per Capita (gpcd) 122	466,219 DEMAN 2020 172,458	477,149 D and PROE 2025 174,748	487,860 DUCTION Pro 2030 175,982	496,624 Djections (AL 2035 176,121	503,418 DR, gpd) 2040 176,121
Liberty County TOTALS (gpd) WASHINGTON COUNTY Public Water Supply Utility or Service Area Sunny Hills Utilities (formerly Aqua Utilities) Caryville, Town of (Washington portion)	8,446 456,155 <b>2015 B</b> Gross Water Use (ADR)	4,003 aseline Esti Populations Served 1,403 378	mates Gross Per Capita (gpcd) 122 181	466,219 DEMAN 2020 172,458 68,820	477,149 D and PROE 2025 174,748 69,733 500 405	487,860 DUCTION Pro 2030 175,982 70,226 70,226	496,624 Djections (AI 2035 176,121 70,281	503,418 DR, gpd) 2040 176,121 70,281
Liberty County TOTALS (gpd) WASHINGTON COUNTY Public Water Supply Utility or Service Area Sunny Hills Utilities (formerly Aqua Utilities) Caryville, Town of (Washington portion) Chipley, City of	8,446 456,155 2015 B Gross Water Use (ADR) 171,258 68,341	4,003 aseline Esti Populations Served 1,403 378 3,829 250	mates Gross Per Capita (gpcd) 122 181 151	466,219 DEMAN 2020 172,458 68,820 581,416 50 050	477,149 D and PROE 2025 174,748 69,733 589,135 50.020	487,860 DUCTION Pro 2030 175,982 70,226 593,295 50 00	496,624 Djections (AI 2035 176,121 70,281 593,764	<b>503,418</b> <b>DR, gpd)</b> <b>2040</b> 176,121 70,281 593,764
Liberty County TOTALS (gpd) WASHINGTON COUNTY Public Water Supply Utility or Service Area Sunny Hills Utilities (formerly Aqua Utilities) Caryville, Town of (Washington portion) Chipley, City of Vernon, City of Vernon, City of	8,446 456,155 2015 B Gross Water Use (ADR) 171,258 68,341	4,003 aseline Esti Populations Served 1,403 378 3,829 750 550	mates Gross Per Capita (gpcd) 122 181 151 93 22	466,219 DEMAN 2020 172,458 68,820 581,416 69,868 20 800	477,149 D and PROE 2025 174,748 69,733 589,135 69,868 40,412	487,860 DUCTION Pro 2030 175,982 70,226 593,295 69,868 40,607	496,624 Djections (AI 2035 176,121 70,281 593,764 69,868 40,720	<b>503,418</b> <b>DR, gpd)</b> <b>2040</b> 176,121 70,281 593,764 69,868
Liberty County TOTALS (gpd) WASHINGTON COUNTY Public Water Supply Utility or Service Area Sunny Hills Utilities (formerly Aqua Utilities) Caryville, Town of (Washington portion) Chipley, City of Vernon, City of Wausau, Town of	8,446 456,155 2015 B Gross Water Use (ADR) 171,258 68,341 577,370 69 868	4,003 aseline Esti Populations Served 1,403 <i>378</i> 3,829 750 550	mates Gross Per Capita (gpcd) 122 181 151 93 72	466,219 DEMAN 2020 172,458 68,820 581,416 69,868 39,883	477,149 D and PROE 2025 174,748 69,733 589,135 69,868 40,412	487,860 DUCTION Pro 2030 175,982 70,226 593,295 69,868 40,697	<b>496,624</b> <b>Djections (AE</b> <b>2035</b> 176,121 70,281 593,764 69,868 40,730	<b>503,418</b> <b>DR, gpd)</b> <b>2040</b> 176,121 70,281 593,764 69,868 40,730
Liberty County TOTALS (gpd) WASHINGTON COUNTY Public Water Supply Utility or Service Area Sunny Hills Utilities (formerly Aqua Utilities) Caryville, Town of (Washington portion) Chipley, City of Vernon, City of Wausau, Town of	8,446 456,155 2015 B Gross Water Use (ADR) 171,258 68,341 577,370 69,868	4,003 aseline Esti Populations Served 1,403 <i>378</i> 3,829 750 550	mates Gross Per Capita (gpcd) 122 181 151 93 72	466,219 DEMAN 2020 172,458 68,820 581,416 69,868 39,883	477,149 D and PROE 2025 174,748 69,733 589,135 69,868 40,412	487,860 DUCTION Pro 2030 175,982 70,226 593,295 69,868 40,697	<b>496,624</b> <b>Djections (AE</b> <b>2035</b> 176,121 70,281 593,764 69,868 40,730	<b>503,418</b> <b>DR, gpd)</b> <b>2040</b> 176,121 70,281 593,764 69,868 40,730
Liberty County TOTALS (gpd) WASHINGTON COUNTY Public Water Supply Utility or Service Area Sunny Hills Utilities (formerly Aqua Utilities) Caryville, Town of (Washington portion) Chipley, City of Vernon, City of Wausau, Town of	8,446 456,155 2015 B Gross Water Use (ADR) 171,258 68,341 577,370 69,868 39,605	4,003 aseline Esti Populations Served 1,403 378 3,829 750 550	<b>mates</b> Gross Per Capita (gpcd) 122 181 151 93 72	466,219 DEMAN 2020 172,458 68,820 581,416 69,868 39,883	477,149 D and PROE 2025 174,748 69,733 589,135 69,868 40,412	487,860 DUCTION Pro 2030 175,982 70,226 593,295 69,868 40,697	<b>496,624</b> <b>Djections (AI</b> <b>2035</b> 176,121 70,281 593,764 69,868 40,730	<b>503,418</b> <b>DR, gpd)</b> <b>2040</b> 176,121 70,281 593,764 69,868 40,730
Liberty County TOTALS (gpd) WASHINGTON COUNTY Public Water Supply Utility or Service Area Sunny Hills Utilities (formerly Aqua Utilities) Caryville, Town of (Washington portion) Chipley, City of Vernon, City of Wausau, Town of Washington County TOTALS (gpd)	8,446 456,155 2015 B Gross Water Use (ADR) 171,258 68,341 577,370 69,868 39,605 926,442	4,003 aseline Esti Populations Served 1,403 378 3,829 750 550 6,910	mates Gross Per Capita (gpcd) 122 181 151 93 72	466,219 DEMAN 2020 172,458 68,820 581,416 69,868 39,883 39,883	477,149 D and PROE 2025 174,748 69,733 589,135 69,868 40,412 943,896	487,860 DUCTION Pro 2030 175,982 70,226 593,295 69,868 40,697 950,068	496,624 Djections (Al 2035 176,121 70,281 593,764 69,868 40,730	<b>503,418</b> <b>DR, gpd)</b> <b>2040</b> 176,121 70,281 593,764 69,868 40,730 <b>950,764</b>
Liberty County TOTALS (gpd) WASHINGTON COUNTY Public Water Supply Utility or Service Area Sunny Hills Utilities (formerly Aqua Utilities) Caryville, Town of (Washington portion) Chipley, City of Vernon, City of Wausau, Town of Washington County TOTALS (gpd)	8,446 456,155 2015 B Gross Water Use (ADR) 171,258 68,341 577,370 69,868 39,605 926,442	4,003 aseline Esti Populations Served 1,403 378 3,829 750 550 6,910	mates Gross Per Capita (gpcd) 122 181 151 93 72	466,219 DEMAN 2020 172,458 68,820 581,416 69,868 39,883 39,883	477,149 D and PROE 2025 174,748 69,733 589,135 69,868 40,412 943,896	487,860 PUCTION Pro 2030 175,982 70,226 593,295 69,868 40,697 950,068	496,624 Djections (Al 2035 176,121 70,281 593,764 69,868 40,730 950,764	<b>503,418</b> <b>DR, gpd)</b> <b>2040</b> 176,121 70,281 593,764 69,868 40,730 <b>950,764</b>
Liberty County TOTALS (gpd) WASHINGTON COUNTY Public Water Supply Utility or Service Area Sunny Hills Utilities (formerly Aqua Utilities) Caryville, Town of (Washington portion) Chipley, City of Vernon, City of Wausau, Town of Washington County TOTALS (gpd) REGION IV TOTALS (gpd)	8,446 456,155 2015 B Gross Water Use (ADR) 171,258 68,341 577,370 69,868 39,605 926,442 5,257,574	4,003 aseline Esti Populations Served 1,403 378 3,829 750 550 6,910 37,591	mates Gross Per Capita (gpcd) 122 181 151 93 72	466,219 DEMAN 2020 172,458 68,820 581,416 69,868 39,883 39,883 932,444 5,315,339	477,149 D and PROE 2025 174,748 69,733 589,135 69,868 40,412 943,896 5,371,861	487,860 PUCTION Pro 2030 175,982 70,226 593,295 69,868 40,697 950,068 5,415,348	496,624 Djections (AI 2035 176,121 70,281 593,764 69,868 40,730 950,764 5,446,265	<b>503,418</b> <b>2040</b> 176,121 70,281 593,764 69,868 40,730 <b>950,764</b> <b>5,479,136</b>

REGION IV mgd	5.258	5.258			5.372	5.415	5.446	5.479
REGION V								
							/	- "
FRANKLIN COUNTY	2015 B	aseline Est	mates	DEIVIAND and PRODUCTION Projections (ADR, gpd)				DR, gpd)
Public Supply Utility or Service Area	Gross Water Use (ADR)	Populations Served	Gross Per Capita (gpcd)	2020	2025	2030	2035	2040
Alligator Point Water Resources District		1,423	60	86,759	87,482	88,205	88,928	
Apalachicola, City of	85,602	3,828	141	545,673	550,203	554,769	559,318	88,928
Carrabelle, City of	538,405	2,500	157	397,863	401,178	404,494	407,809	559,318
Carrabelle, City of (Lanark Village)	392,558	1,625	48	78,330	78,983	79,636	80,289	407,809
Eastpoint Water and Sewer District		2,452	133	330,923	333,681	336,439	339,196	80,289
St. James Island Utility Company	77,286	25	463	12,084	12,420	12,705	12,987	339,196
Water Management Services, Inc.		2,754	188	524,367	528,736	533,106	537,476	13,214
	326,511							537,476
	11,585							
	517,375							
Franklin County TOTALS (gpd)	1,949,322	14,607		1,975,999	1,992,683	2,009,353	2,026,003	2,026,230
GULF COUNTY	2015 B	aseline Esti	mates	DEMAN	ID and PROD	OUCTION Pro	jections (AI	DR, gpd)
	Gross Water	Populations	Gross Per				•	
Public Supply Utility or Service Area	Use (ADR, gpd)	Served	Capita (gpcd)	2020	2025	2030	2035	2040
Lighthouse Utilities Company, Inc.		4.210	92	408.432				
Port St. Joe	388,170	10.801	134	1.478.742	422,483	434.059	445.518	457,992
Wewahitchka	1 447 396	1 949	67	133 247	1 505 306	1 523 015	1 540 725	1 558 434
	130 422	2,5 15		100)217	135 640	137 236	138 832	140 427
Gulf County TOTALS (and)	1 065 099	16 060		2 020 421	2 062 420	2 004 210	2 125 074	2 156 954
REGION V TOTALS (gpd)	3 915 310	31 567		3 996 420	2,003,429	2,094,510	4 151 077	4 183 084
BEGION V mgd	3 915	01,007		3 996	4 056	4 104	4 151	4 183
	5.515			5.550	41050	41204	-1151	41100
REGION VI								
GADSDEN COUNTY	2015 B	aseline Esti	mates	DEMAND and PRODUCTION Projections (ADR, gpd)				
	Gross Water	Populations	Gross Per					
Public Supply Utility or Service Area	Use (ADR, gpd)	Served	Capita (gpcd)	2020	2025	2030	2035	2040
Chattahoochee		3,885	103	401,202	403,208	405,224	407,250	409,286
Greensboro	399,206	618	87	53,863	54,132	54,403	54,675	54,948
Gretna		1,566	292	475,820	490,314	504,682	518,494	530,765
Havana	53,595	3,977	109	437,869				
Quincy, City of	456,589	8,834	137	1,230,824	442,248	451,093	455,604	460,160
Rosedale Water Association	433,534	426			1,297,961	1,335,997	1,372,558	1,405,043
Talquin Electric Coop, Gadsden Co. Regional		12,875	116	1,519,337				
Talquin Electric Coop, Hammock Creek	1,208,684	40	148	6,039	1,602,210	1,649,163	1,694,294	1,734,393
Talquin Electric Coop, Jamieson		71	168	12,112	6,137	6,223	6,309	6,370
Talquin Electric Coop, St. James	1,492,007	98	80	7,988	12,309	12,481	12,653	12,777
					8,118	8,231	8,345	8,426
	5,930							
	11.894							
	7,844							
Gadsden County and Region VI TOTALS (gpd)	4,069,283	32,390		4,145,053	4,316,636	4,427,497	4,530,181	4,622,168

**REGION VII** 

JEFFERSON COUNTY	2015 Baseline Estimates			DEMAND and PRODUCTION Projections (ADR, gpd)				
Public Supply Utility or Service Area	Gross Water Use (ADR)	Populations Served	Gross Per Capita (gpcd)	2020	2025	2030	2035	2040

4.145

4.317

4.427

4.530

4.622

mgd

4.069

Jefferson Communities Water System Monticello, City of	254,225	1,521 3,924	167 95	259,145 379,010	264,398 386,693	266,149 389,254	269,651 394,375	271,402 396,936
	371,814							
Jefferson County TOTALS (gpd)	626,039	5,445		638,155	651,091	655,403	664,026	668,338
LEON COUNTY	2015 B	aseline Esti	mates	Gros	s Water DEN	AND Proje	ctions (ADR,	gpd)
Public Supply Utility or Service Area	Gross Water Use (ADR)	Populations Served	Gross Per Capita (gpcd)	2020	2025	2030	2035	2040
Seminole Waterworks (all service areas) <b>Tallahassee, City of (Leon portion)</b> Talquin Electric Coop (all service areas) Small Public Systems (all service areas)	125,964 <b>25,159,153</b> 3,226,942 212,650	1,721 <b>200,726</b> 30,157 1,377	73 <b>125</b> 107 154	126,831 <b>27,256,051</b> 3,604,885 223,379 22	128,248 <b>27,567,677 2</b> 3,752,993 3,8 25,175	129,399 9,047,792 30,4 83,588 4,011,2	129,753 <b>123,922 31,80</b> 58 216,334 21	129,798 <b>9,817</b> 3,429,375 9,247 220,956
Leon County TOTALS (gpd)	28,724,709	233,981		31,028,591	31,520,057	33,151,140	34,660,643	36,167,047
Leon County PRODUCTION	Estimates		1	Wa	ater PRODU	CTION Pump	age (ADR, g	pd)
Public Supply Utility or Service Area	Production (ADR, gpd)			2020	2025	2030	2035	2040
Seminole Waterworks (all service areas) <i>Tallahassee, City of (Leon portion)</i> Talquin Electric Coop (all service areas) Small Public Systems (all service areas)	125,964 <b>25,630,710</b> 3,226,942 212,650			126,831 <b>27,765,915</b> 3,604,885 223,379 2:	128,248 <b>28,088,473 2</b> 9 3,752,993 3,8 25,175	129,399 <b>9,597,530 31,0</b> 83,588 4,011,2	129,753 0 <b>02,991 32,40</b> 4 58 216,334 21	129,798 <b>3,455</b> 3,429,375 9,247 220,956
Leon County TOTALS (gpd)	29,196,266			31,538,455	32,040,853	33,700,878	35,239,711	36,774,685
WAKULLA COUNTY	2015 B	aseline Esti	imates	Gros	s Water DEN	MAND Proje	ctions (ADR	gpd)
Public Supply Utility or Service Area	Gross Water Use (ADR)	Populations Served	Gross Per Capita (gpcd)	2020	2025	2030	2035	2040
Panacea Area Water System, Inc. Sopchoppy, Town of St. Marks, City of, Water Sys. <i>Tallahassee, City of (Wakulla portion)</i> Talquin Electric Coop/Wakulla Regional Wakulla County, River Sink Subdivision	199,737 847,502 87,096 <i>384,461</i> 757,483 30,019	2,470 9,125 643 <i>3,057</i> 7,615 346	81 93 135 126 99 87	207,507 907,564 87,096 422,768 832,958 30,019	215,658 964,456 87,096 433,700 898,000 30,019	222,458 1,013,220 87,096 462,642 957,925 30,019	228,544 1,059,276 87,096 491,972 1,018,654 30,019	233,919 1,102,622 87,096 520,541 1,077,809 30,019
Wakulla County TOTALS (gpd)	2.306.298	23,256		2,487,912	2,628,929	2,773,359	2,915,561	3,052,006
Wakulla County PRODUCTION	Estimates			Wa	ater PRODU	CTION Pump	age (ADR, g	pd)
Public Supply Utility or Service Area	Production (ADR, gpd)			2020	2025	2030	2035	2040
Panacea Area Water System, Inc. Sopchoppy, Town of St. Marks, City of, Water Sys. <i>Tallahassee, City of (Wakulla portion)</i> Talquin Electric Coop/Wakulla Regional Wakulla County, River Sink Subdivision	199,737 847,502 - - 757,483 30,019			207,507 907,564 - 832,958 30,019	215,658 964,456 898,000 30,019	222,458 1,013,220 957,925 30,019	228,544 1,059,276 1,018,654 30,019	233,919 1,102,622 1,077,809 30,019

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Wakulla County TOTALS (gpd)			1,978,048	2,108,133	2,223,622	2,336,493	2,444,368
	1,834,741						
REGION VII TOTALS (gpd)	31,657,046	262,682	34,154,658	34,800,077	36,579,902	38,240,230	39,887,391
REVION VII mgd	31.657		34.155	34.800	36.580	38.240	39.887

REGION and County	<b>BEBR Growth</b>	Growth Characteristics of Population, Water Use, Meter Connection (MC), City/County Share
Public Water Supply Utility or Water System	Projection Rate	
REGION I: ESCAMBIA COUNTY		
ESCAMBIA grew rapidly 1950-2005 but 2005-10 s much faster. Leon is expected to surpass Escamb	saw a decline and rea ia to be the largest o	ent growth was just over 3% 2010-15; with Walton, Santa Rosa and many others expected to grow ounty around 2030. Escambia had the highest population density in the District and was ranked 15th in
the state in 2015. Escambia is estimated to have	a seasonal population	n rate of 3.2%.
Bratt-Davisville Water System	Low-Medium	Utility water use and number of MCs has been in general decline since 2000-05.
Central Water Works	Low-Medium	Utility water use in decline since high in 2010.
Century, Town of	Low	Town population and MCs in decline.
Cottage Hill Water Works	Low-Medium	Utility water use in decline since 2005 while MCs increased from 2010-2015.
Emerald Coast Utilities Authority	Medium	Utility in general concurrence with medium projections. Seasonal populations on Pensacola Beach and Perdido Key barrier islands.
Farm Hill Utilties	Medium-High	Rapid growth until 2010 then remained constant; number of MCs up 6.6% from 2010-15.
Gonzalez Utilities Association	Medium	Utility water use declined since 2010 while number of MCs increased 2.2% from 2010-15.
Molino Utilities	Medium	Utility water use declined since 2010 while number of MCs increased 2.7% from 2010-15.
People's Water Service Company of Florida Walnut Hill Water Works	Medium-High	Utility water use declined since 2005 while number of MCs increased 5.8% from 2010-15.
REGION II: SANTA ROSA, OKALOOKA	AND WALTON C	DUNTIES
SANTA ROSA has been on a steady growth trajec	tory, grew by 7.63%	2010-15, and growth is projected to continue through 2045 at an average growth rate of over 6% -
second in the District only to Walton County. In 2	2015 three-fourths o	f Santa Rosa's growth was attributed to net migration versus natural occurances, and population
density was about one-third of Escambia's. Santa	a Rosa is estimated t	o have a seasonal population rate of 2%.
Bagdad-Garcon Point Water System	Low-Medium	Utility water use increased 1990-2005 and then steady. No change in MCs 2010-15.
Berrydale Water System	Low	Utility water use increasing trend 1990-2015, and increase of 0.2% in MCs from 2010-15.
Chumuckla Water System	Medium-High	Utility water use declined since 2010 while number of MCs increased 13% from 2010-15.
East Milton Water System	Medium-High	Utility water use tripled from 1990-2005, tapered off, but rose again 2010-15.
Fairpoint Regional Utility System (FRUS)	NA	WHOLESALE PRODUCTION - Gulf Breeze, So. Santa Rosa, Holley-Navarre, Midway, Navarre Beach.
Gulf Breeze Water Department	Very Low (1%)	Utility water use increased 6% but number of MCs declined -2.6% from 2010 to 2015.
Holley-Navarre Water System	Medium-High	Utility water use has steadily increased since 1990 and increased to almost triple the 1990 rate in 2015; number of MCs increased 12.3% from 2010-15.
Jay, Town of	Low	Utility water use in decline through 2015. Number of meter connections up 1.9% 2010-15.
Midway Water System	Low	Utility water use has been declining since 2000. No change in number of MCs from 2010-15.
Milton, City of	Low-Medium	Milton in double-digit growth overall 2000-15, slowing to 6.8% in the 2010-15 period. City-county ratio
		and utility water use in decline. Number of MCs declined -21% from 2010-15.
Moore Creek-Mt. Carmel Utilities	Low	Utility water use has been in decline since 2005, with 2015 water use less than 1990.
Pace Water System	Medium-High	Utility water use grew 81% from 1990-2005, tapered off, then rose again in 2015 to 2005 level.
Point Baker Water System	Medium-High	Utility overall water use increasing 22% since 1995. Number of MCs up 8.4% from 2010-15.
Navarre Beach Water System, SRBOCC	Low	Utility water use in 2015 nearly identical to 1990, with much lower water use inbetween.
South Santa Rosa Utilities	Low	Number of MCs up 1% from 2010-15.
OKALOOSA grew rapidly from 1950-2005, experi Population density of Okaloosa was greater than	enced a dip, and sind Santa Rosa but less	te then has continued to grow albeit at a slower rate which was just over 6% from 2010-15. Than half that of Escambia in 2015. The City of Crestview has been one of the most rapidly growing
urban areas in the District. Okaloosa is estimated	d to have a seasonal	population rate of 11%.
Auburn Water System	Medium-High	Increasing trends in utility water use and number of MCs.
Baker Water System	Medium	Utility water use on steady growth trajectory 1990-2010 then declined 18.5% from 2010-15.
Blackman Community Water System	Very Low (1%)	Utility water use increasing 2012-14 then dropped in 2015 to near 2012 levels.
Crestview, City of	Medium-High	Utility water use increased 1990-2010 and number of MCs increased 24.5% from 2010-15. City has had double-digit growth and increasing city-county share since 1990.
Destin Water Users	Medium-High	Utility water use increased 1990-2015, with 2015 water use almost 40% higher than 1995. Destin growing 2.7% from 2005-15 with city-county share increasing 1990-2000.
Fort Walton Beach, City of	Medium	Number of MCs increased 4.6% from 2010-15. City population increased 7% 2010-15 and city-county shrare increased 2010-15.
Holt Water Works	Medium	Utility water use grew steadily 1995-2010 but since tapered off from 2010-15
Laurel Hill, City of	Low (zero-no	Utility water use decreased -29% in 2015. Number of MCs dropped -2% from 2010-15.
Mary Esthor Town of	growth	Utility water use and town county charge in decline since 1995
Mary Esther, Town of	LOW(1)	Utility water use and town-county share in decline since 1995.
Milligan Water System	Low(1)	Utility water use more or less steady 1995-2015, with number of MCs up +/-0.5% from 2010-15.
Niceville, City of	Medium-High	Growth rate of 8% 2010-15. City-county share increasing since 2000. Number of MCs up 8% from 201015.
Okaloosa Co. Water & Sewer, Bluewater	Medium	Utility water use rose 1995-2010 then declined 18.5% from 2010-15. Number of MCs appears to have increased over 5% from 2010-14.
Okaloosa Co. Water & Sewer, Main (Garniers)	Low-Medium	Utility water use increased 1990-2000, then declined, MCs increased over 18% from 2010-15.
Okaloosa Co. Water & Sewer, Mid-County	Medium	Utility water use on rapid growth trajectory, more than doubling from 1995-2005, almost tripling 19952010. Number of MCs increased 12.1% from 2010-15.
): Negative rates adjusted to zero.	N	VFWMD 2018 Water Supply Assessment MC = Meter Connection Apendix 4c. Page 1

SWUC (Okaloosa County portion)	Medium	Number of MCs fluctuated from 2012-14, then declined -32% from 2014-15.
Valparaiso, City of	Low-Medium	Utility water use steadily declining since 2000, while number of MCs up 1.3% from 2010-15. City-county share has steadily declined 1995-2015.

REGION and County	BEBR Growth	Growth Characteristics of Population, Water Lice, Mater Connection (MC), City/County Share
Public Water Supply Utility or Water System	Projection Rate	Growth characteristics of Population, water ose, weter connection (wc), city/county share

WALTON is expected to be the fastest growing county in the District through 2045. The growth rate 2010-15 was 10.25% and projected 5-year rates 2010-2045 are an average of 9.26%. In 2015 population density was about one-fourth that of Okaloosa and one-eighth Escambia's, and only about 12% of population increases were due to natural occurrences. Walton is estimated to have a seasonal population rate of 49%.

Argyle Water System	Very Low (1.5%)	Utility water use in steady decline 2000-15.
DeFuniak Springs, City of	Low-Medium	Utility water use has held more or less steady 2000-15.
FCSC of Walton Co. / Regional Utilities	Medium-High	Utility water use nearly doubled 1995-2000, more than tripled 1995-2005, and in 2015 was 5.5 times higher than 1995. Number of MCs apparently increased 113.6% from 2010-15.
Freeport, City of	Medium	Production projections "Low" and demand projections "Medium-High" averaged to "Medium." City population and city-county share increased 2005-15. Assumed cessation of water sales.
Freeport, North Bay Water System	Medium	Utility water use increased nearly 5% and number of MCs increased 23.3% from 2010-15.
Inlet Beach	Medium-High	Utility water use increased 62% and number of MCs increased 58% from 2010-15.
Mossy Head Water Works	Low	Utility water use declined -5.5% with slight increase in MCs since 2010.
Paxton, City of	Zero-no growth	Utility water use of 2015 nearly identical to 1990. City-county share in decline 1990-2015.
SWUC, Rockhill Inland Well Field	NA	Regional wholesale inland well field serving coastal communities.
South Walton Utility Company (SWUC), Coastal Well Field (Walton County portion)	Medium-High	Utility water use increased 13% and number of MCs up 35% from 2010-15.

#### **REGION III: BAY COUNTY**

<u>BAY</u>. With multiple urbanized areas, Bay County has grown at an overall steady rate since 1950. The increase in population 2010-15 was 2.64% but higher rates are expected from 2015-25. In 2015 61% of population increases were from natural occurrences. Also in 2015 Bay had the third highest population density, but still less than half that of Escambia. Bay is estimated to have a seasonal population rate of 12%.

Bay County Board of County Commissioners	Medium	Service area water use increased 5.5% from 2010-15. No change in MCs 2010-15.
Cedar Grove	Low-Medium	Service area water use declined 10% from 2010-15.
GCEC (North Bay, Lake Merial)	Medium-High	Service area water use increased 17% from 2010-15.
Callaway	Low-Medium	Water use declined 10% while number of MCs increased 25.1% from 2010-15; likely due to addition of Sandy Creek Utility service area in 2012. City-county share declining since 1995.
Lynn Haven, City of	Medium-High	Utility water use increased 75% from 1990-2010; number of MCs up 36% from 2010-15. City population and city-county share increased 1990-2015.
Mexico Beach	Medium	Service area water use increased 33% but no change in number of MCs from 2010-15.
Panama City	Low-Medium	Water use declined 18%, and no change in number of MCs from 2010-15.
Panama City Beach	Medium-High	Utility water use increased 1990-2005. Service area water use declined -3.5% and number of MCs down - 2.3% from 2010-15. High city growth and increase in city-county share.
Parker	Zero-no growth	Service area water use declined 24% and number of MCs declined 18.6% from 2010-15.
Springfield	Low(1)	Service area water use declined 15% and no change in number of MCs from 2010-15.

#### **REGION IV: WASHINGTON, HOLMES, JACKSON, CALHOUN AND LIBERTY COUNTIES**

WASHINGTON. The population of Washington increased by only 0.32% from 2010-15 but higher rates are expected over the planning horizon. All of the population change from 2010-15 is attributed to net migration. All municipal city-county shares have been in decline from 1990-2015. Washington is estimated to have a seasonal population rate of 3%.

Sunny Hills Utilities	Low-Medium <sup>(1)</sup>	Utility water use 2015 declined to near 2000-05 levels.
Caryville, Town of (Washington portion)	Low-Medium <sup>(1)</sup>	Utility water use generally declined 1990-2010, then increased 28% from 2010-15.
Chipley, City of	Low-Medium <sup>(1)</sup>	City-county share has been in steady decline 1990-2015.
Vernon, City of	Zero-no growth	Town-county share fell from 4.6% in 1990 to 2.76% in 2015. MCs down 11.1% from 2010-15.
Wausau, Town of	Low-Medium <sup>(1)</sup>	Utility water use declined 24% from 2010-15.

HOLMES. In 2015 80% of the Holmes County population resided in unincorporated areas. Holmes lost population 2010-15 and has the lowest projected growth rates Districtwide through 2045. Holmes Low and Low-Medium growth rate scenarios are all negative. Holmes is estimated to have a seasonal population rate of 1%.

Bonifay, City of	Zero-no growth	Utility water use declined since 2000. City-county share in steady decline 1995-2015.
Caryville, Town of (Holmes County portion)	Zero-no growth	Utility water use generally declined 1990-2010, then increased 28% from 2010-15.
Esto Water Works	Medium	Water use reached a peak in 2000, declined 46% by 2010, and increased to near 2005 levels in 2015, and number of MCs increased 7.3% from 2010-15.
Joyce E. Snare Waterworks	Zero-no growth	Utility water use high in 2000 and declined through 2015. No change in number of MCs from 2010-15.
Noma, Town of	Zero-no growth	Utility water use has fluctuated and reached a high in 2010, and declined 15% 2010-15.
Ponce de Leon, Town of	Zero-no growth	Utility water use reached a high in 2010 then declined 26% in 2015.

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JACKSON grew by 1.43% from 2010-15 and projected growth rates 2015-45 are more modest. At 55 people per square mile in 2015, population density was in line with Walton's (58) and Wakulla's (52), but less than one-fourth that of Bay County. Jackson is estimated to have a seasonal population rate of 3%.

Alford, Town of	Zero-no growth	No change in number of MCs 2010-15. Small town averaging 490 residents from 1990-2015.
Campbellton, Town of	Zero-no growth	No change in number of MCs from 2010-15. Very small town averaging 222 residents from 1990-2015.
Cottondale	Very Low (1%)	Utility water use fairly constant 1990-2015. Number of MCs up slightly 0.6% from 2010-15.
Graceville	Zero-no growth	Number of MCs down -3.4% from 2010-15. Population and city-county share in decline.
Grand Ridge	Zero-no growth	Utility water use increased 1990-2000, then declined. Number of MCs down 0.7% 2010-15.
Greenwood	Zero-no growth	Town population declined in 2015 and town-county share in decline since 2000.
Jackson County Utilities, Plant 1	Medium	Allocations increased from 200,000 ADR in 2005 to 303,000 ADR in 2015.
Jacob, City of	Zero-no growth	Very small town saw peak population of 308 in 1995, in steady decline since.
Malone	Medium	Town growth 1990-95 and then fluctuating. Share analysis about 4.5% of county since 1995.
Marianna	Medium-High	City population increased 27% from 2010-15. No change in number of MCs from 2010-15.
Sneads	Medium	Utility water use has been fairly constant 1990-2015.

REGION and County	BEBR Growth	Growth Characteristics of Population, Water Use, Meter Connection (MC), City/County Share
Public Water Supply Utility or Water System	Projection Rate	Growth characteristics of Population, water ose, meter connection (MC), city/county sha

CALHOUN lost population in the 2010-15 period and has a modest 5-year average growth rate of 1.57% through 2045. At 26 people per square mile, the population density is low and Calhoun was ranked 60th in the state in 2015. Calhoun is estimated to have a seasonal population rate of 3%.

Altha	Low-Medium <sup>(1)</sup>	Utility water use in peak in 2000 and since declined. Town-county share same 2000 and 2015.
Blountstown	Low-Medium <sup>(1)</sup>	Utility water declined since 2000 but number of MCs up 2.5% from 2010-15.

LIBERTY. In 2015 89% of the Liberty County population resided in unincorporated areas, and Liberty also in 2015 had, at 10 persons per square mile, the lowest population density in not only the District but also the entire State of Florida. A large part of the county is in the Apalachicola National Forest. Liberty grew at nearly 4% from 2010-15 and 5-year growth rates are expected to average 4.52% from 2010-45. Liberty is estimated to have a seasonal population rate of 9%.

Bristol, City of	Low-Medium	Utility water use fluctuating 2005-2015. City-county share decreasing since 1995.
Liberty Co. BOCC, Hosford-Telogia	Low-Medium	Utility water use increasing 1990 - and leveled off in 2015. Number of MCs dropped 2010-15.
Liberty Co. BOCC, Lake Mystic	Zero-no growth	Utility water use declined -18% and number of MCs dropped -64% from 2010-15.
Liberty Co. BOCC, Rock Bluff	Medium-High	Water use has grown over 5.5 times from 2005-2015.
Liberty Co. BOCC, Estiffanulga	Low-Medium	Utility water use decline -5% from 2010-15. No change in number of MCs from 2010-15.
Sumatra Water System	Zero-no growth	Utility water use declined 20% from 2010-15. Number of MCs apparently dropped -40% from 2010-15.
Talquin (TEC), Sweetwater	Low-Medium	Utility water use declined -13% from 2010-15. No change in number of MCs from 2010-15.

#### **REGION V: GULF AND FRANKLIN COUNTIES**

GULF. In 2015 65% of the Gulf County population resided in unincorporated areas. The county grew 3.04% from 2010-15. The population density has increased from 26 persons per square mile in 2000, to 28 in 2010, and 29 in 2015. Gulf Low and Low-Medium growth rate projections are all negative. Gulf is estimated to have a seasonal population rate of 22%.

Lighthouse Utilities Company	Medium-High	Utility water use has steadily increased 1990-2015, with 2015 water use almost twice 2000 and five
		times amount used in 1990. Number of MCs up 24% from 2010-15.
Port St. Joe	Medium	Utility water use rose significantly in 2005, dropped by almost half in 2010, and rose again in 2015 to approximately same as 2005. Number of MCs up by 6%.
Wewahitchka	Zero-no growth	Utility water use peaked in 2000 and has since declined.

FRANKLIN County grew by 2.52% from 2010-15. Population is concentrated in coastal communities. All of the population change from 2010-15 is attributed to net migration. Franklin is estimated to have a seasonal population rate of 39%.

Alligator Point Water Resources District	Medium	Utility water use grew steadily 1990-2000, then declined, and has held steady from 2010-15. Number of MCs up 2.7% from 2010-15.
Apalachicola, City of	Zero-no growth	Utility water use reached a peak in 2005, declined -29% in 2010, and then increased 5% in 2015. No change in number of MCs from 2010-15.
Carrabelle, City of	Medium	Utility water use increased 1995-2010, then declined. No change in number of MCs 2010-15.
Carrabelle, City of (Lanark Village)	Medium	Utility water dropped to 2000 levels in 2015. No change in number of MCs 2010-15.
Eastpoint Water and Sewer District	Medium-High	Utility water use has been increasing since 1990, with a 26% increase from 2010-15. Number of MCs up 8.1% from 2010-15.
St. James Island Utility Company	Medium	Water use down 2010-15. Number of MCs up 33.3% from 2010-15.
Water Management Services	Medium	The period 1990-2005 increased in reported water use, declined -20% in 2010, increased again in 2015. Number of MCs up by 3.9% from 2010-15.

#### **REGION VI: GADSDEN COUNTY**

GADSDEN grew by over 4% from 2010-15 but projected future 5-year growth rates are more modest, averaging 1.71% from 2015-45. At 94 people per square mile in 2015, Gadsden was ranked No. 39 in the state for population density, but was still less than half the density of Santa Rosa and one-fifth that of Escambia. Gadsden is estimated to have a seasonal population rate of 2.4%.

Chattahoochee	Less than medium (0.5%)	Utility water use increased about 5% from 2010-15. Number of MCs up 1.7% from 2010-15. City-county share and city population have been steadily declining since 1990.
Greensboro	Less than medium (0.5%)	Water use in 2015 -35% lower than peak in 1995. Number of MCs down -7.7% 2010-15.
Gretna	Medium High	Utility water use consistent 1990-2005 then jumped about 59% 2005-10, and increased again 13% from 2010-15. Number of MCs up 5.3%.
Havana	No growth scenario	Utility water use low in 2005, increased in 2010 and declined to lower than 2005 levels in 2015. Number of MCs down -4.5% from 2010-15.
Quincy, City of	Medium	Utility water use peak in 2000 but since then decline. Number of MCs up 11.3% 2010-15.
Rosedale Water Association	Zero-no growth	No change in number of MCs from 2010-15.
Talquin (TEC), Gadsden County Regional	Medium	No change in number of MCs from 2010-15.
Talquin (TEC) Hammock Creek, Jamieson, and St.	Medium	Similar to TEC County Regional.

#### **REGION VII: LEON, WAKULLA AND JEFFERSON COUNTIES**

LEON has grown rapidly since 1950, experienced a slowing trend 2005-10, and grew at 3.25% from 2010-15. Leon is expected to surpass Escambia and become the most populous county in the District around 2030. In 2015 Leon had the second-highest (after Escambia) population density and was ranked No. 17 in the state. About threefourths of the population increases in 2015 were by natural occurrences. Leon is estimated to have a seasonal population rate of 0.5%.

Seminole Waterworks., Brewster Estates	Low	Utility water use fluctuated 1990-2005, then in decline. No change in number of MCs 2010-15.
Seminole Waterworks, Bucklake Estates	Low	Utility water use peak in 2000, then decline. No change in number of MCs 2010-15.
Seminole Waterworks, Meadow Hills	Low	Peak utility water use in 1995, declined to low in 2010, and had a slight increase of 5.9% from 20102015. Number of MCs declined -1.8% from 2010-15.
Seminole Waterworks, North Lake Meadows	Low	Utility water use peak in 2000, then decline. No change in number of MCs 2010-15.
Seminole Waterworks, Plantation Estates	Low	Utility water use rose rapidly from 1990 to a peak in 2005, then steadily declined with 2015 reported use less than 1990. Apparently no change in number of MCs from 2010-15.
Seminole Waterworks, Sedgefield	Low	Utility water use peak in 2000, then decline. No change in number of MCs 2010-15.

REGION and County Public Water Supply Utility or Water System	BEBR Growth Projection Rate	Growth Characteristics of Population, Water Use, Meter Connection (MC), City/County Share
Tallahassee, City of (Leon County portion)	Medium-High	Utility water use reached a high in 2000. Number of MCs up 9% from 2010-15. Poplation and citycounty share steadily increasing.
Talquin (TEC), Annawood	Low	2015 water use 10% lower than 2010. No change in number of MCs from 2010-15.
Talquin (TEC), Bradfordville Regional	Medium	Utility water use grew from 1990-2005 and since in decline. Number of MCs up 2010-15.
Talquin (TEC), Lake Jackson Regional	Medium	Utility water use declined 1990-2000, then steady through 2015. MCs up 5.9% from 2012-15.
Talquin (TEC), Leon County East Regional	Medium-High	Utility water use has been on increasing trajectory since 1990, with 2015 reported use higher than the previous peak in 2000. Number of MCs up 9.7% from 2012-15.
Talquin (TEC), Leon County South Regional	Low-Medium	Utility water use high in 2005 and then decline. Number of MCs up 2.8% 2012-15.
Talquin (TEC), Leon County West Regional	Medium-High	Utility water use increased 19% from 2010-15. Number of MCs up 11.6% from 2012-15.
Talquin (TEC), Meadows at Woodrun	Medium	Utility water use increased over 53% from 2005-15. Number of MCs up 1.4% from 2012-15.
Talquin (TEC), Meridian Hills	Low	Water use declined 2010-15. No change in number of MCs from 2010-15.
Talquin (TEC), Stonegate	Low	2015 water use -12% lower than 2010. No change in number of MCs from 2010-15.

WAKULLA is projected to be the District's third fastest growing county over the planning horizon after Walton and Santa Rosa counties. Wakulla experienced more rapid population growth from 1995-2010, which then slowed from 2010-2015. The five-year growth from 2015-2020 is expected to be over 7 percent. A large part of the county is in the Apalachicola National Forest. Wakulla is estimated to have a seasonal population rate of 5%.

Panacea Area Water System	Utility water use peaked in 2005 then declined -28% from 2005-15.	
Sopchoppy, Town of	Medium	Utility water use increased steadily from 1990-2010. Number of MCs up 8% from 2010-15.
St. Marks, City of, Water System	Zero-no growth	Utility water use declined -14% from 2010-15.
Tallahassee, City of (Wakulla County portion)	Medium-High	Highest water use in 2011, and since fluctuating. Number of MCs up 17.9% from 2010-15.
Talquin (TEC), Wakulla Regional	Medium-High	Utility water use more than tripled from 1990-2000, and quadrupled from 1990-2010; then declined 12% from 2010-15. Number of MCs up from 2012-15.
Wakulla County, River Sink Subdivision	Zero-no growth	Utility water use declined -41% and number of MCs declined -4.2% from 2010-15.

JEFFERSON lost population from 2010-15, and after Holmes, is projected to be the second-slowest growing county in the District from 2015-40. Jefferson Low and LowMedium growth rate scenarios are all negative. Jefferson is estimated to have a seasonal population rate of 3.5%.

Jefferson Communities Water System	Medium	Utility water use nearly tripled from 2005-15. Number of MCs dropped -38% from 2010-2014 but the		
		rose 23% from 2014-15.		
Monticello, City of	Medium	Utility water use in decline. Number of MCs up 11.5% from 2010-15.		

	2015-20	2020-25	2025-30	2030-35	2035-40	
ВАҮ						
Low	-0.64%	0.35%	0.23%	-0,29%	-0.41%	
Low-Medium	2.50%	2.58%	2.07%	1.56%	1.49%	
Medium	5.65%	4.81%	3.91%	3.41%	3.39%	
Medium-High	8.53%	6.34%	5.55%	5.06%	5.03%	
High	11.42%	7.87%	7.20%	6.72%	6.67%	
CALHOUN						
Low	-3.09%	-1.42%	-1.44%	-2.19%	-2.24%	
Low-Medium	0.01%	0.29%	0.26%	-0.13%	-0.49%	
Medium	3.10%	2.00%	1.96%	1.92%	1.26%	
Medium-High	5.85%	3.85%	3.68%	3.52%	2.79%	
High	8.60%	5.70%	5.39%	5.11%	4.32%	
ESCAMBIA						
Low	-1.45%	-0.69%	-0.43%	-1.04%	-1.32%	
Low-Medium	0.46%	0.75%	0.67%	0.05%	-0.19%	
Medium	2.36%	2.20%	1.78%	1.13%	0.94%	
Medium-High	4.30%	3.35%	2.99%	2.38%	2.13%	
High	6.24%	4.51%	4.20% 3.63%		3.32%	
FRANKLIN						
Low	-4.56%	-2.65%	-2.73%	-2.80%	-2.88%	
Low-Medium	-1.60%	-0.91%	-0.95% -0.99%		-1.44%	
Medium	1.35%	0.83%	0.83% 0.82%		0.00%	
Medium-High	4.31%	2.78%	2.29%	2.22%	1.75%	
High	7.26%	4.72%	3.76%	3.62%	3.50%	
GADSDEN						
Low	-2.93%	-1.71%	-1.52%	-1.32%	-2.01%	
Low-Medium	-0.55%	-0.04%	-0.06%	0.03%	-0.52%	
Medium	1.83%	1.63%	1.40%	1.38%	0.97%	
Medium-High	4.21%	3.05%	2.93%	2.74%	2.37%	
High	6.59%	4.47%	4.46%	4.09%	3.76%	
GULF						
Low	-3.34%	-2.53%	-1.95%	-2.65%	-2.72%	
Low-Medium	-0.59%	-0.37%	-0.39%	-0.74%	-0.79%	
Medium	2.17%	1.80%	1.18%	1.16%	1.15%	
Medium-High	5.22%	3.44%	2.74%	2.64%	2.80%	
High	8.28%	5.08%	4.30%	4.12%	4.46%	
HOLMES						
Low	-4.03%	-2.62%	-2.69%	-2.76%	-3.41%	
Low-Medium	-1.01%	-0.82%	-0.86%	-1.14%	-1.46%	
Medium	2.00%	0.99%	0.98%	0.48%	0.48%	
Medium-High	4.76%	2.83%	2.50%	2.17%	1.89%	
High	7.53%	4.67%	4.02%	3.86%	3.31%	
JACKSON						

## Appendix 4d. Projected Five-Year Growth Rates by County

Low	-3.29%	-2.25%	-2.10%	-2.36%	-2.41%
Low-Medium	-1.01%	-0.54%	-0.66%	-0.99%	-0.82%
Medium	1.27%	1.17%	0.77%	0.38%	0.76%
Medium-High	3.75%	2.64%	2.09%	1.84%	2.06%
High	6.23%	4.10%	3.41%	3.29%	3.36%
<u> </u>					

Source: Projections of Florida Population by County, 2020-2045, with Estimates for 2015

BEBR Florida Population Studies, Volume 49, Bulletin 174, January 2016

<u>Notes</u>: Negative growth rates (shown in gray) were not used; for utilities with declining or no growth, 2015 values were held constant through the planning period. Projected growth rates "Low-Medium" and "Medium-High" interpolated by District staff.

#### NWFWMD 2018 Water Supply Assessment

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WSA Appendix 4d. Projected Five-Year Growth Rates by County

	2015-20	2020-25	2025-30	2030-35	2035-40
JEFFERSON (NOTE: gr	rowth rates based on	total county popu	lation, not disaggr	egated by WMD)	
Low	-3.57%	-2.14%	-2.19%	-2.99%	-3.08%
Low-Medium	-0.82%	-0.06%	-0.76%	-0.83%	-1.21%
Medium	1.94%	2.03%	0.66%	1.32%	0.65%
Medium-High	5.03%	3.56%	2.45%	2.69%	2.28%
High	8.13%	5.10%	4.24%	4.07%	3.91%
LEON					
Low	0.69%	1.12%	0.90%	0.27%	0.03%
Low-Medium	3.34%	3.05%	2.41%	1.78%	1.56%
Medium	6.00%	4.98%	3.92%	3.28%	3.09%
Medium-High	8.33%	6.28%	5.37%	4.74%	4.53%
High	10.67%	7.59%	6.82%	6.19%	5.96%
LIBERTY					
Low	-1.13%	0.00%	0.00%	0.00%	-1.16%
Low-Medium	2.32%	2.72%	2.58%	1.96%	1.31%
Medium	5.77%	5.43%	5.15%	3.92%	3.77%
Medium-High	9.22%	7.31%	6.78%	5.84%	5.49%
High	12.67%	9.18%	8.41%	7.76%	7.20%
OKALOOSA					
Low	-0.31%	0.21%	-0.05%	-0.52%	-0.89%
Low-Medium	2.27%	1.97%	1.32%	0.88%	0.53%
Medium	4.85%	3.73%	2.68%	2.29%	1.96%
Medium-High	7.22%	5.14%	4.18%	3.76%	3.41%
High	9.59%	6.56%	5.67%	5.24%	4.86%
SANTA ROSA					
Low	2.75%	3.29%	2.66%	1.75%	1.22%
Low-Medium	6.21%	5.62%	4.49%	3.55%	3.04%
Medium	9.68%	7.95%	6.32%	5.36%	4.86%
Medium-High	12.48%	9.48%	8.05%	7.12%	6.62%
High	15.27%	11.02%	9.78%	8.87%	8.39%
WAKULLA					
Low	0.69%	1.59%	1.25%	0.93%	0.61%
Low-Medium	3.89%	3.93%	3.15%	2.74%	2.35%

Medium	7.09%	6.27%	5.06%	4.55%	4.09%			
Medium-High	9.96%	7.81%	6.67%	6.34%	5.81%			
High	12.84%	9.35%	8.29%	8.13%	7.52%			
WALTON								
Low	5.46%	5.63%	4.88%	3.53%	1.77%			
Low-Medium	9.83%	8.51%	7.10%	5.73%	3.96%			
Medium	14.19%	11.40%	9.33%	7.94%	6.15%			
Medium-High	17.41%	13.08%	13.08% 11.33%		8.23%			
High	20.62%	14.75%	13.33%	11.97%	10.32%			
WASHINGTON								
Low	-2.30%	-0.82%	-0.83%	-1.67%	-2.12%			
Low-Medium	0.70%	1.33%	0.71%	0.08%	-0.34%			
Medium	3.70%	3.47%	2.24%	1.82%	1.43%			
Medium-High	6.71%	5.02%	4.03%	3.34%	3.03%			
High	9.71%	6.57%	5.82%	4.85%	4.63%			
Sources Projections of Florida Denulation by County 2020 2045 with Estimates for 2015								

Source: Projections of Florida Population by County, 2020-2045, with Estimates for 2015

BEBR Florida Population Studies, Volume 49, Bulletin 174, January 2016

<u>Notes</u>: Negative growth rates (shown in gray) were not used; for utilities with declining or no growth, 2015 values were held constant through the planning period. Projected growth rates "Low-Medium" and "Medium-High" interpolated by District staff.

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## Appendix 5. Thermoelectric Power Generation Facilities - Estimates and Projections

Projected Future Water Demand (mgd)

Planning Region	County, Facility and Region	Total 2015 Groundwater	Total 2015 Surface Water	TOTAL 2015 WATER USE ESTIMATE	2020	2025	2030	2035	2040
	Escambia - Gulf Power, Crist Generating Plant	2.017	8.573	10.590	10.590	10.590	10.590	10.590	10.590
I.	Escambia - (Potential New Northern Facility)	NA	NA	NA	1.500	1.500	1.500	1.500	1.500
	Region I Total	2.017	8.573	10.590	12.090	12.090	12.090	12.090	12.090
	Okaloosa - NA	-	-	-	-	-	-	-	-
	Santa Rosa - NA	-	-	-	-	-	-	-	-
	Walton - NA	-	-	-	-	-	-	-	-
	Region II Total	-	-	0.000	0.000	0.000	0.000	0.000	0.000
	Bay County BOCC Waste to Energy Facility	0.066	-	0.066	0.100	0.100	0.125	0.125	0.150
	Bay - Gulf Power, Lansing Smith Plant	0.898	8.508	9.406	5.715	6.888	8.265	8.265	8.265
	Region III Total	0.964	8.508	9.472	5.815	6.988	8.390	8.390	8.415
	Calhoun - NA Holmes - NA	-	-	-	-	-	-	-	-
	Jackson - Gulf Power, Scholz Plant	0.229	1.605	1.834	1.834	1.834	1.834	1.834	1.834
IV	Liberty - Telogia Power	0.487	-	0.487	0.486	0.486	0.486	0.486	0.486
	Washington - NA	-	-	_	_	_	-	-	-
	Region IV Total	0.717	1.605	2.322	2.320	2.320	2.320	2.320	2.320
	Franklin - NA	-	-	-	-	-	-	-	-
v	Gulf - NA	-	-	-	-	-	-	-	-
	Region V Total	-	-	0.000	0.000	0.000	0.000	0.000	0.000
M	Gadsden - NA	-	-	-					
VI	Region VI Total	-	-	0.000	0.000	0.000	0.000	0.000	0.000
	Jefferson(NWF District only) - NA	-	-	-	-	-	-	-	-
VII	Leon - Arvah B. Hopkins Generating Station	1.950	-	1.950	4.930	4.930	4.930	4.930	4.930
	Wakulla - Sam O. Purdom Plant	-	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	Region VII Total	1.950	0.002	1.952	4.932	4.932	4.932	4.932	4.932
	TOTALS	5.648	18.688	24.335	25.157	26.330	27.732	27.732	27.757