

## **INFRASTRUCTURE DATA AND ANALYSIS**

### **POTABLE WATER AND SANITARY SEWER**

#### **WATER SUPPLY FACILITIES WORK PLAN**

##### **INTRODUCTION**

This is the Data and Analysis necessary to support the adopted Charlotte 2050 Plan goals, objectives, and policies. It also constitutes the County's Water Supply Facilities Work Plan.

The purpose of the Potable Water and Sanitary Sewer subelement is to ensure that potable water supplies and sanitary sewer disposal service are available to support development through the planning horizons established within the Comprehensive Plan. The provision of potable water and sanitary sewer is mandated by Florida growth management legislation under Chapter 163 of Florida Statutes (F.S.), which requires that sewer and water services be provided in accordance with future land use projections and which also identifies a basic framework for developing a series of goals, objectives, and policies formulated to accomplish the desired purpose based on an analysis of available data.

Adequate potable water and sufficient sanitary sewage disposal is a necessity for any development. Without such facilities, whether provided through the public sector or through private means, people cannot adequately live and operate, regardless of the availability of developable land. The availability of potable water supply and sanitary sewage disposal will influence the timing, location, and intensity of development. Planning for these facilities and the expansion of any public provision of them should therefore be considered an integral part of the County's development strategy as identified in the Future Land Use element.

Potable water in the County is supplied by 14 individual utilities. The three largest providers, Charlotte County, the City of Punta Gorda, and the Englewood Water District, are publicly owned while the remaining providers are privately owned. Public providers have established service areas, while private providers have certificated areas of operation which grant the authorized right to be the sole provider of a stipulated service within a described area, in order to ensure that service areas do not overlap. Any area not included in another utility's service area falls under the service of the County.

Sanitary sewer service in the County is provided by ten individual utilities. As with potable water service, the largest providers are Charlotte County, the City of Punta Gorda, and the Englewood Water District. The public providers have established service areas, while the remaining seven private providers have certificated service areas, with any land not specifically included in another utility's service area included within the County's.

Several community systems, for both potable water and sanitary sewer, have been approved by the Florida Department of Environmental Protection (FDEP). These systems are usually established in manufactured home parks, recreational vehicle parks, and similar small developments, where centralized public utility systems are not available. These systems generally do not serve more than a few hundred people each, and are usually required to be abandoned when public utilities become available. According to FDEP, there are six community water systems in the County and 13 community sewer systems.

Many areas of the County do not have access to centralized potable water or sanitary sewer systems. Residents of these areas are served by private wells, private on-site sewage disposal systems, or both. There are an estimated 5,300 private wells and over 10,600 known private on-site sewage disposal systems in the County.

In order to ensure that there is adequate potable water supply and sanitary sewage disposal for all residents, the County has adopted level of service (LOS) standards for these facilities: 225 gallons of potable water supply per day per Equivalent Residential Connection (ERC) and 190 gallons of sanitary sewage disposal per day per ERC. These standards apply to the unincorporated portions of the County. The City of Punta Gorda has established its own LOS standards for its incorporated area. Currently, all but one of the County's potable water utilities are projected to meet current demand using the adopted LOS standard. The one utility that is not projected to meet current demand has a certificated area much larger than its actual service area, and therefore likely meets the adopted standards for its current customers.

Two sanitary sewer utilities, including Charlotte County in its Burnt Store and Mid-County service areas, do not meet current demand using the adopted LOS standards. The other utility is the same as the deficient potable water utility. In all of these cases, the boundaries of the service areas contain many residences that are not connected to the existing systems, making it likely that the systems meet the adopted standards for their current customers.

This comprehensive plan incorporates certain principles that identify locations towards which the County will seek to direct the majority of capital improvement funding for infrastructure and services. As a component of that infrastructure, potable water and sanitary sewerage services are already provided, or will need to be provided, to certain of those areas. The County is currently exploring ways to reduce the cost of the expansion to those affected property owners.

**RELATIONSHIP TO THE 2050 PLAN**

The provision of potable water supply and sanitary sewer disposal services is a major component of the comprehensive planning process. In order to ensure that public facilities are provided in an efficient and cost-effective manner, the County uses the availability of centralized infrastructure as one of the tools for determining when and where growth will occur. The goals, objectives, and

policies of this subelement must therefore be consistent with those established for other elements to promote a well-coordinated growth management strategy for the County.

The Future Land Use element must overcome the problems created by the large number of lots that have already been platted. The ability to extend centralized sewer and water over a period of time is severely limited, and appropriate methods must be used when deciding which areas will receive infrastructure funding, and the timing of the installation of centralized facilities. As the largest provider of both centralized water and sewer services, the County has developed these methods and methodologies for its service area. Other public and private utilities in the County must also address these issues.

Infrastructure expansion by all utilities is identified in the Capital Improvements element (CIE). This schedule of capital projects establishes and prioritizes future expenditures of public funds on infrastructure projects including roads, parks, public facilities, and centralized water and sewer systems. The CIE also includes the Charlotte County Public Schools 5-Year District Facilities Work Program and the Charlotte County-Punta Gorda Metropolitan Planning Organization Transportation Improvement Program, but not any capital projects by the City of Punta Gorda. Due to requirements for concurrency and for potable water supply planning, however, all centralized water and sewer system projects are included, regardless of whether the County will complete them or whether the utility completing the project is publicly or privately owned.

Other key factors relating to the County's ability to provide water and sewer service are contingent upon interlocal agreements with various governmental entities. The majority of the potable water for the County's Mid- and West-County service areas is currently supplied by the Peace River/Manasota Regional Water Supply Authority (PR/MRWSA). This regional water supply authority includes DeSoto, Manatee, and Sarasota counties, and that portion of Charlotte County located within the boundaries of the Southwest Florida Water Management District (SWFWMD). Currently, three utility providers in Charlotte County also serve portions of Lee County, one utility provider serves customers in both Charlotte and Sarasota counties, one utility provider in Lee County has a certificated area that extends into Charlotte County, one utility provider in DeSoto County serves customers in Charlotte County, and one utility provider in Charlotte County has a certificated area that extends into DeSoto County. Many of these utilities have interconnection agreements with each other to provide backup service in emergencies. Interlocal utility agreements between the County and other utilities or neighboring jurisdictions are reflected in the Intergovernmental Coordination element.

The Intergovernmental Coordination element also identifies the various relationships between the County and agencies that affect potable water and sanitary sewer. At the State level, these agencies include FDEP and the Department of Health (DOH). Regional agencies include the Southwest Florida Regional Planning Council (SWFRPC), SWFWMD, and the South Florida Water Management District (SFWM). The two Water Management Districts regulate water usage and evaluate water resource management issues. These issues are an important part of

the Natural Resources and Coastal Planning elements.

## LEGISLATION

### FEDERAL

All utility providers in the County must construct and operate potable water and sanitary sewer facilities in accordance with all applicable Federal, State, and local regulations. Most of the existing regulations pertaining to water quality and sewage treatment are based on Federal guidelines mandated by the United States Environmental Protection Agency (EPA). Minimum drinking water standards are defined under Public Law 104-182, the “Safe Drinking Water Act Amendments of 1996.” This law establishes Federal water-quality standards for the protection of water for public uses, including operational standards and quality controls for public water systems.

Federal regulations governing wastewater treatment are set forth under Public Law 92-500, the “Water Pollution Control Act Amendments of 1972.” This law requires that wastewater treatment programs be established to regulate water-quality limits for effluent disposal and to control “point source” pollution.

### STATE

In order to comply with the Federal regulations for water quality, the State of Florida has adopted legislation pursuant to Chapter 403.850, F.S., the “Florida Safe Drinking Water Act.” This law sets forth the same primary and secondary water quality standards required for public health and recommended for aesthetic quality as the Federal legislation. The State of Florida has also implemented specific laws for classifying and regulating public drinking water systems under Chapters 62-550, 62-555, 62-699, and 64E-8 of the Florida Administrative Code (F.A.C.).

In a similar fashion, the State has implemented Federal wastewater regulations through Chapter 403.086, F.S., and Chapter 62-600, F.A.C. Separate standards for on-site sewage treatment and disposal systems are established in Chapter 64E-6, F.A.C.

State requirements pertaining to the management of water resources and the regulation of consumptive water use have been adopted by regional Water Management Districts pursuant to Chapter 40D-2, F.A.C. The purpose of Chapter 40D-2 is to implement the provisions of Part II of Chapter 373, F.S., and the State of Florida Water Policy set forth in Chapter 62-40 F.A.C. Additional rules relating to water use are found in Chapter 40D-3, “Regulation of Wells”, Chapter 40D-8, “Water Levels and Rates of Flow”, and, Chapter 40D-21, “Water Shortage”. The State Public Service Commission (PSC) is responsible for regulation of the private, for-profit utilities within the County.

**LOCAL**

The only utility that the County has jurisdictional authority over is its own Utilities Department, known as Charlotte County Utilities (CCU). Other municipal or non-profit utilities are regulated by their own governing bodies. Private, for-profit utilities are regulated by the PSC. The County's established Level of Service standards apply to all utilities operating within the unincorporated area of the County.

**EXISTING CONDITIONS**

**BASIS OF DEMAND – POTABLE WATER AND SANITARY SEWER**

In order to properly plan for the expansion of centralized potable water supply and sanitary sewer collection systems, demand for these services must be projected. By projecting the timing and location of future population growth, utilities may better position themselves to provide service where and when it may be required and prevent the unnecessary expansion of such systems into areas where they will not be needed. The County has prepared population projections through the year 2040 for use in this subelement.

For purposes of potable water and sanitary sewer service demand projections, the total peak seasonal population was converted to a functional population using a methodology developed for that purpose by SWFWMD. This methodology reduces the peak seasonal population to a lower percentage, accounting for the fact that seasonal residents, by definition, do not place demands upon the potable water and sanitary sewer infrastructure throughout the entire year. The use of functional population in demand projection guards against overestimating future demand through the use of peak seasonal totals, and against over-expanding infrastructure systems based on demand that will not occur. Table WSW-1 shows the projected total functional population through the 2040.

Table WSW-1: Functional Population Projections, 2020-2040					
Year	Permanent Population	Seasonal Population	Functional Seasonal Population	Hotel/Motel Population	Total Functional Population
2020	178,696	36,486	23,235	1,304	203,235
2025	189,365	38,580	24,682	1,548	215,595
2030	204,194	41,471	26,756	1,793	232,743
2035	233,478	45,285	29,139	2,037	264,654
2040	247,931	50,236	32,221	2,281	282,433

Source: Charlotte County Community Development Department, 2019

The County’s population projections also project the location of future permanent population growth. This has been accomplished by using the existing Future Land Use Map designations of the land, the available vacant land, and the Urban Service Area. The projections were then collected by U.S. Census block. These geographical projections are integral in estimating population growth and demand in the service areas of the various utilities. Seasonal population percentages were determined at the Census tract level and applied to every block within that tract.

Population projections have also been completed for those areas served by community systems, small centralized systems that serve only a limited number of customers, usually located in a manufactured home park or recreational vehicle park. These projections are based upon the total number of units within the development and the County’s annual growth rate of 1.46 percent, as

established by the general projections. This growth rate was applied to the existing population of the development and assigned to the unoccupied units. When the maximum population is reached, population growth stops for that development. Table WSW-2 shows the projected population growth for all community systems.

<b>Table WSW-2: Community System Population Projections, 2020-2040</b>							
<b>System</b>	<b>Total Units</b>	<b>Max Pop</b>	<b>2020</b>	<b>2025</b>	<b>2030</b>	<b>2035</b>	<b>2040</b>
Bay Palms MHP	48	102	102	102	102	102	102
Charlotte Correctional Institute			1,278	1,371	1,471	1,578	1,693
Gasparilla Mobile Estates	174	372	372	372	372	372	372
Harbor View Trailer Park	149	318	270	289	310	318	318
Hideaway Bay Beach Club Condominium	202	432	360	386	414	432	432
Lazy Lagoon MHP	164	350	349	350	350	350	350
Palm & Pines	120	256	256	256	256	256	256
Paradise Park Condominium Association	314	671	671	671	671	671	671
Pelican Harbor MHP	159	340	323	340	340	340	340
Pelican Perch RV Park	30	64	41	43	46	49	52
River Forest Village	206	440	435	440	440	440	440
Shell Creek Park MHP	214	457	457	457	457	457	457
Sun N Shade Campground	196	419	378	405	419	419	419
Tropical Palms MHP	300	642	609	642	642	642	642
Villas Del Sol	92	196	162	173	185	196	196

Source: Charlotte County Community Development, 2019

The County’s projections have also been compared to the Regional Water Supply Plans prepared by SWFWMD and SFWMD. This comparison is shown in Table WSW-3, included in WSW Appendix A, and graphically in Chart WSW-1 and Chart WSW-2.



Chart WSW-1: Population Projection Comparison, 2010-2040

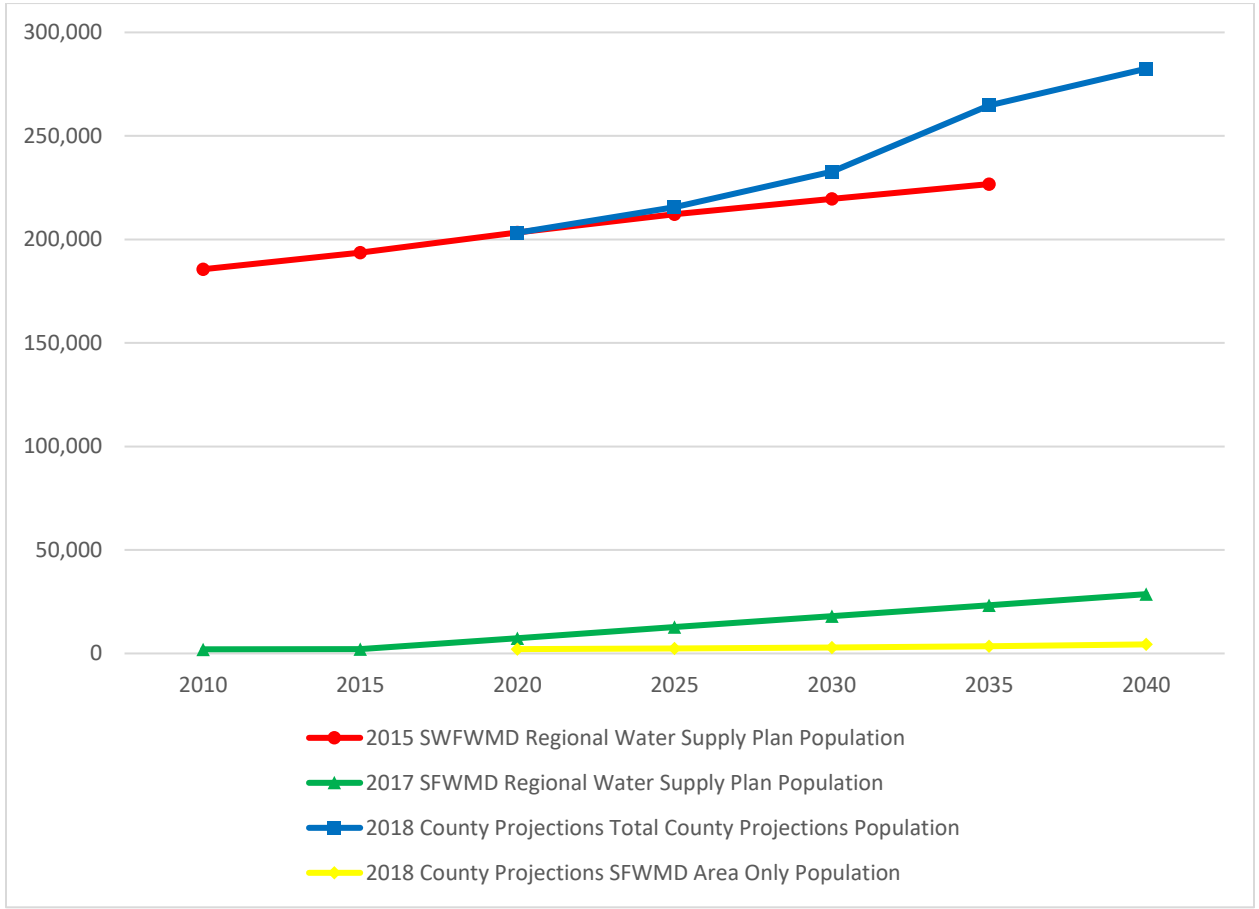
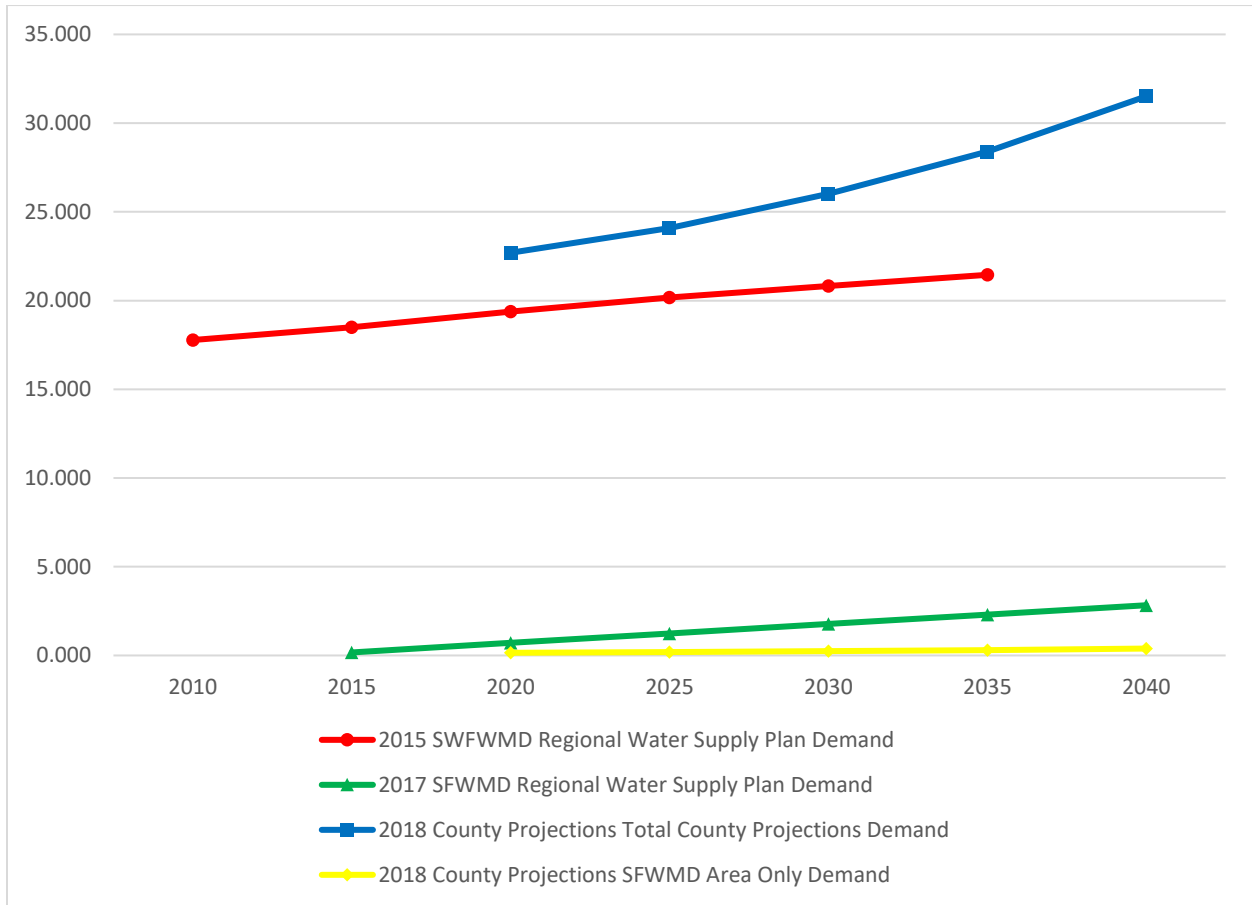


Chart WSW-2: Demand Projection Comparison, 2010-2040



This comparison shows that between 2020 and 2035 the County’s population projections range between 0.05 percent less than and 15.4 percent greater than SWFWMD’s projections. Between 2020 and 2040 for the area of the County within SFWMD’s jurisdiction, the County’s projections range between 28.5 percent and 15.2 percent of the SFWMD projections.

When demand projections are compared, the County’s projections result in potable water demand that is between 12.5 percent and 27.4 percent greater than the SWFWMD projections. They are between 21.1 percent and 13.7 of the SFWMD projections.

---

## LEVEL OF SERVICE – POTABLE WATER

The establishment of appropriate LOS standards for potable water supplies is necessary to plan for and meet projected demand. A potable water system must have adequate capacity to meet the average daily demand while also being able to accommodate periods of peak demand. A review of historical data indicates that a capacity of 225 gallons per day (gpd) per ERC is needed to meet peak demands and fire flows in the County's unincorporated areas, although actual average day demands may be significantly lower. As reported in its 2014 SWFWMD Public Supply Annual Report, the CCU per capita usage was 81 gpd. Using the 2010 U.S. Census calculation of 2.14 persons per household, actual average daily demand was 173.34 gpd/ERC. Planning to meet LOS demands is necessary to ensure adequate infrastructure capacity is available to satisfy short-term and instantaneous water supply demands without negatively impacting system performance (e.g., reduction in system pressure). Effectively planning for LOS demands also results in more efficient operation of the systems, and customers use a more consistent amount of water because they understand potable water will be available to them when needed.

This LOS standard is established for the unincorporated areas of the County, and all potable water providers are required to meet it. The City of Punta Gorda has established its own LOS standards for the incorporated area of the City, but for the unincorporated areas that receive service from the City, the County's LOS standards apply.

## INVENTORY – POTABLE WATER SERVICE PROVIDERS

Potable water in Charlotte County is supplied by 14 public or certificated utilities. The three largest suppliers are all public: Charlotte County, the City of Punta Gorda, and the Englewood Water District. The remaining providers are privately owned. All of these potable water service providers have a customer base and an established area of operation throughout which they provide service. Public utilities have an established service area, while private utilities have a certificated area granted by the Florida Public Service Commission. These service areas grant the authorized right to be the sole provider of a stipulated service within a described area to ensure that service areas do not overlap. Any area not depicted as a certificated area falls within the County's service area. The 14 potable water utility service areas are depicted on SPAM Series Map #83. This map also shows the location of community water systems for small developments such as mobile home parks and recreational vehicle parks. SPAM Series Map #84 shows the location of all major water supply facilities such as water tanks, water treatment plants, wellfields, and reservoirs.

A detailed analysis of all public and private facilities was conducted pursuant to the criteria established by Statute. The potable water providers were inventoried by geographic location to identify plant design capacities, current demand, and existing levels of service for each certificated area. The existing and future water needs for the County were then identified based on the data obtained from the inventory. Future water demands were generated by applying population

projections to the 225 gpd/ERC LOS standard and equated to per capita water usage by dividing the 225 gpd/ERC standard by 2.14 persons per household. For the City of Punta Gorda incorporated area, the adopted LOS for potable water is 287 gpd/ERC and the City has 2.035 persons per household. The Lee County portion of Gasparilla Island, served by the Gasparilla Island Water Association, has an adopted LOS of 250 gpd/ERC and 2.54 persons per household. After the future water demands were identified, the performance of existing facilities and adequacy of present levels of service was evaluated over time and the need for facility replacement and expansion was determined.

### **Existing Potable Water Providers**

***Peace River/Manasota Regional Water Supply Authority:*** The Peace River/Manasota Water Supply Authority is an independent special district of the State of Florida that supplies potable water to local government customers. These include Charlotte, DeSoto, Manatee, and Sarasota counties and the City of North Port, and have a total population of over 950,000. PR/MWSA provides treated water to its customers through a system of large-diameter regional transmission pipelines, who then actually distribute that water to their own customers. PR/MRWSA also maintains agreements with Sarasota County, the City of Punta Gorda, and Englewood Water District for emergency situations, allowing PR/MRWSA to draw from these resources to supplement available water supplies if needed.

The Peace River Water Treatment Facility (PRF) is a 51 million gallon per day (MGD) surface water treatment plant (WTP) located along the Peace River in southwest DeSoto County, approximately 19 miles above the river's mouth at Charlotte Harbor. The PRF includes a 120 MGD intake on the river, a diversion structure, a 6.5 billion gallon (BG) off-stream raw water reservoir, and 21 aquifer storage and recovery (ASR) wells with a 6.3 BG capacity. In 2017 the PR/MRWSA supplied an average of 28 MGD to its customers and is contracted to provide an annual average up to 34.7 MGD. Charlotte County receives an annual average daily allocation of 16.1 MGD, about 46 percent of the total allocated regional quantity.

In accordance with the 2005 Master Water Supply Contract, PR/MRWSA customers, including Charlotte County, may request the PR/MRWSA develop and supply additional quantities to meet future needs. Such a request must be made seven years prior to the delivery of new water in order to support the time frame for designing, permitting, and construction of new water supplies.

***Charlotte County:*** Charlotte County's Utilities Department is the largest utility in the County. Its service area includes all areas of the County not included in any other utility's service area, and totals approximately 617.79 square miles. Its actual service area is much smaller, being limited to portions of the Port Charlotte area in the Mid-County region, portions of West County including Gulf Cove, Englewood East, Rotonda West, and South Gulf Cove, and the Burnt Store area of South County, south of Punta Gorda. In total, the County supplies potable water to approximately 60,126 service connections, which in 2018 created an average daily demand of 11.304 MGD. Of this total, 10.478 MGD was supplied by the PR/MRWSA and 0.826 MGD was supplied by the

Burnt Store reverse osmosis (RO) WTP. The County has an annual daily average allocation from PR/MRWSA of 16.102 MGD, which amounts to 46 percent of all the water produced by the PRF.

The County currently operates one WTP. The Burnt Store RO facility has a current capacity of 3.172 MGD and currently provides service to 2,514 service connections within its service area, including two areas in Lee County.

The County has a secondary public water supply permit that allows the annual withdrawal of 372 MG of raw water from the Upper Floridan aquifer, from wells located within the Babcock Ranch Preserve.

The County is a provider of bulk water to four private utilities. The Riverwood Community Development District, El Jobean Water Association, NHC Utilities (Encore Super Park), and Little Gasparilla Water Utility, Inc. all purchase bulk treated water from the County and resell it to their customers. Since three of these private utilities are located in the Mid-County region and the fourth is located in the West County region, the water they purchase was originally purchased by the County from PR/MRWSA. In 2017, the County entered into an agreement with the City of Cape Coral, in Lee County, for an interconnect to directly provide bulk potable water, wastewater, and reclaimed water services along the Burnt Store Corridor within the City's incorporated area.

The County maintains emergency interconnections with the Englewood Water District, the City of North Port, Gasparilla Island Water Association, and Charlotte Harbor Water Association. These interconnections are intended to be used only for the provision of additional water in the case of emergencies, not under the same terms as the bulk sale agreements that the County maintains with its bulk purchase customers. Use of the Englewood and North Port interconnections is conditioned upon prior approval by PR/MRWSA.

The County will begin development of a Master Potable Water Plan to address its entire service area, including future expansion of the potable water system. This plan is anticipated to be completed by the end of Fiscal Year 2020.

**City of Punta Gorda:** The City of Punta Gorda's service area covers approximately 37.32 square miles and is located south of the Peace River, including most of the incorporated area of the City itself and nearby areas of unincorporated Charlotte County, including the communities of Cleveland and Solana and the Charlotte County Airport. The service area includes approximately 17.28 square miles outside the City limits. The City operates a water treatment plant that draws surface water from Shell Creek, a tributary of the Peace River, located east of Interstate 75 on Washington Loop Road. The plant has a rated treatment capacity of 10 MGD and supplies water to 22,522 ERCs. The City's Water Use Permit allows annual average day withdrawals of 8.01 MGD and peak monthly withdrawals of 11.73 MGD. The utility is also responsible for the operation and maintenance of the Burnt Store Isles Elevated Tank and the Punta Gorda Isles Ground Storage Tank and Booster Pump Station.

In 2015, the City prepared a Water Supply Study that identified two projects to improve water quality and reliability. The first is the construction of a 4 MGD RO WTP at the Shell Creek Facility. The second is the construction of an interconnect pipeline between the Shell Creek Facility and the PR/MRWSA system. Both projects are currently under construction, the first by the City and the second by the PR/MRWSA, and are expected to be completed by May 2020. Upon completion, the RO facility will be used in combination with the existing 10 MGD surface water WTP.

**Englewood Water District:** The Englewood Water District encompasses approximately 45 square miles in southern Sarasota County and western Charlotte County, with approximately 12.12 square miles of the District in Charlotte County. The District's service area includes the Englewood area of Charlotte County as defined in the Englewood Water District's Enabling Act, generally that portion of the County west of Winchester Boulevard and north of Buck Creek, including Manasota Key, but not the bridgeless barrier island Knight Island.

The District uses four fresh water and two brackish water wellfields to provide source water. The four freshwater wellfields are capable of producing 3 MGD, but the Water Use Permit issued by SWFWMD restricts withdrawals to a maximum of 1.25 MGD. The two brackish wellfields are capable of producing over 4.25 MGD to the RO plant. All six wellfields are located in Sarasota County.

Raw water from these sources is treated at the RO WTP and a lime softening WTP which have a combined permitted capacity of 5.36 MGD. Finished waters from both plants are blended and sent into the distribution system. The District serves approximately 22,000 ERCs in both Sarasota and Charlotte Counties, approximately 38 percent of which are located in Charlotte County.

The District is a bulk provider to Bocilla Utilities and Knight Island Utilities, both located on bridgeless barrier islands.

The District maintains emergency interconnects with both Charlotte County and Sarasota County utility systems, with use of the Charlotte County interconnect conditioned upon prior approval by PR/MRWSA.

**Charlotte Harbor Water Association:** The Charlotte Harbor Water Association certificated area covers approximately 6.20 square miles located along the north shore of the Peace River, from Charlotte Harbor to Harbour Heights. The Association operates a RO WTP located east of Interstate 75 that treats brackish water drawn from the Floridan and Hawthorn aquifers via four active wells, with one standby well, and provides service to over 1,800 ERCs. Most of the service connections represent residential users. The facility has a permitted capacity of 0.750 MGD.

The Association maintains an emergency interconnect with Charlotte County, use of which is conditioned upon prior approval by PR/MRWSA.

**Riverwood Community Development District:** The Riverwood Community Development District certificated area covers approximately 2.19 square miles located east of the Myakka River and southwest of Port Charlotte, along S.R. 776. The CDD supplies potable water to approximately 1,400 ERCs in the Riverwood development. The CDD does not own or operate either a water supply or WTP of its own, purchasing bulk treated water from the County, instead.

**Gasparilla Island Water Association:** The Gasparilla Island Water Association certificated area covers approximately 3.05 square miles in Charlotte and Lee Counties, mostly on Gasparilla Island, a barrier island in southwestern Charlotte County. Approximately 1.22 square miles of the certificated area is located in Charlotte County. The Association operates a RO WTP, wellfield, and color removal plant, located southeast of Rotonda in Charlotte County, with a combined permitted capacity of 1.843 MGD providing service to nearly 2,200 ERCs in both Lee and Charlotte Counties, approximately 33 percent of which are located in Charlotte County. The utility maintains an interconnect with Charlotte County and purchased 0.501 million gallons in the twelve months representing the last half of 2017 and the first half of 2018.

**El Jobean Water Association:** The El Jobean Water Association certificated area covers approximately 0.64 square miles located east of the Myakka River along S.R. 776, southwest of Port Charlotte. The Association supplies potable water to approximately 775 ERCs. The Association does not own or operate either a water supply or WTP of its own, purchasing bulk treated water from the County.

**NHC Utilities:** The NHC Utilities certificated area covers approximately 0.13 square miles located west of S.R. 776, southwest of Port Charlotte. NHC presently serves nearly 600 ERCs within the Encore Super Park manufactured home park with a permitted capacity of 0.09 MGD. The utility does not own or operate either a water supply or WTP of its own, purchasing bulk treated water from the County.

**North Charlotte Waterworks:** The North Charlotte Waterworks certificated area covers approximately 17.96 square miles located along US 17, consisting of the Rivers Edge mobile home development and adjoining properties in Charlotte and DeSoto Counties. NCWW serves approximately 80 ERCs. Raw water is treated at a RO WTP with a plant capacity of 0.04 MGD.

The utility has entered into an interlocal agreement with DeSoto County Utilities to purchase bulk water following the construction of a connection with DCU.

**Knight Island Utilities:** The Knight Island Utilities certificated area covers approximately 0.92 square miles located on the bridgeless barrier islands of Knight Island and Thornton Key, serving over 260 ERCs. The utility does not own or operate either a water supply or WTP of its own,

purchasing bulk treated water from Englewood Water District, which is delivered through an interconnect with Bocilla Utilities.

***Little Gasparilla Island Utilities:*** The Little Gasparilla Island Utilities certificated area covers approximately 1.06 square miles located on Little Gasparilla Island, a bridgeless barrier island. The utility does not own or operate either a water supply or WTP of its own, purchasing bulk treated water from the County.

***Bocilla Utilities:*** The Bocilla Utilities certificated area covers approximately 0.91 square miles located on Don Pedro Island, a bridgeless barrier island, serving over 375 ERCs. The utility does not own or operate either a water supply or WTP of its own, purchasing bulk treated water from the Englewood Water District. It has an interconnect with Knight Island Utilities through which it delivers water purchased from Englewood Water District.

***Florida Governmental Utility Authority:*** The Florida Governmental Utility Authority certificated area covers approximately 2.47 square miles located immediately north of the Lee County line, between US 41 and I-75, an extension of its certificated area in Lee County to the south. FGUA does not currently have any residential or commercial service connections in Charlotte County, but serves nearly 1,900 residential customers in Lee County.

FGUA purchases bulk water from Lee County Utilities to service a portion of its Lee County customer base and the remainder is served by a WTP fed by two raw water supply wells.

***Town & Country Utilities:*** The Town & Country Utilities certificated area covers approximately 27.79 square miles located north of Lee County Road 78, east of S.R. 31, and south of Charlotte County Road 74 in Charlotte and Lee Counties, with approximately 21.30 square miles located in Charlotte County. The utility operates a nano-filtration WTP and wellfield in southeastern Charlotte County, with a current permitted capacity of 0.250 MGD that provides service to over 1,500 ERCs.

The utility has been certified to serve the Babcock Ranch development, and its potable water capacity will expand as the community develops. The utility has received a Water Use Permit for an annual allocation of 282.84 MG, and expects to expand its WTP to a capacity of 6.00 MGD by 2031.

***DeSoto County Utilities:*** DeSoto County Utilities does not have a certificated area in Charlotte County, but serves an area of approximately 0.04 square miles located in north-central Charlotte County, west of Kings Highway, along the DeSoto County line. The bulk of this utility's service area is located in DeSoto County. The utility serves approximately 42 residential service connections in Charlotte County and does not own or operate either a water supply or WTP of its own, purchasing bulk treated water from PR/MRWSA.



**Community Systems:** Several community systems serve areas of Charlotte County where centralized potable water systems do not exist but population densities do not allow potable water to be supplied by individual on-site wells. FDEP records indicate that there are six such community systems in Charlotte County that serve residential or residential-type development. These include manufactured home parks, recreational vehicle parks, and the Charlotte Correctional Institution. These facilities have capacities ranging from 0.004 MGD (4,000 gallons per day) to 0.3 MGD (300,000 gallons per day), and serve a total of approximately 3,800 people. The locations of these community systems are shown on SPAM Series Map #83.

**On-site Wells:** For those structures not connected to a centralized utility or a community system, their potable water is most likely obtained through on-site wells. Technically, a site without connection to a centralized or community water system could provide potable water through bottled water or similar sources, but the number of these sites compared to the total number of on-site systems should be negligible. There are an estimated 5,351 sites in Charlotte County that rely on on-site wells to provide potable water, and these are shown on SPAM Series Map #85.

### **Potable Water Quality**

The principal law governing drinking water safety in the United States is the Safe Drinking Water Act. Primary drinking water standards are health-related criteria enforced by FDEP, which require water utilities to meet specified water quality standards. Secondary drinking water standards include criteria intended to control aesthetic factors and are established as guidelines that are strongly recommended, but not enforceable.

As required by Federal and State regulation of all utilities, an annual water quality report is distributed to all water customers. The report tabulates the results of water quality testing to identify the level of pollutants that may be in drinking water. The results as reported in the latest reports indicate that the levels of water contaminants for all water utilities within Charlotte County are safely below the maximum contaminant levels allowed.

### **Significant Non-Potable Water Users**

The local Water Management Districts authorize significant water use as Individual Water Use Permits (WUPs). Less significant withdrawals, those less than 100,000 gpd are authorized under General WUPs. All Individual WUPs within Charlotte County are inventoried and are summarized in Table WSW-4, and allocate water for landscape irrigation, recreational or aesthetic use, industrial use, mining/dewatering, and agricultural irrigation. On an annual average daily basis, SWFWMD permits 31.652 MGD of withdrawals in Charlotte County, and SFWMD permits 113.774 MGD.

Table WSW-4: Significant Non-Potable Water Users				
WMD	Permit ID	Permittee	Water Use	Average Daily Usage (MGD)
SWFWMD	00608	SO Sweet Groves	Agricultural	0.135
	01019	Ryals Citrus and Cattle LLC	Agricultural	0.385
	01117	Neal Road Groves	Agricultural	2.316
	01759	Three Suns Ranch	Agricultural	2.461
	02588	Kelly Farms	Agricultural, Landscaping	1.043
	02593	Charlotte 650 LLC	Agricultural	0.524
	02689	East Charlotte Drainage District	Agricultural	2.763
	03243	Bermont Groves, LLC	Agricultural	0.367
	03275	AR Chapman 31 Ranch	Agricultural	1.101
	03523	Twin Isles Country Club, Inc.	Landscaping	0.256
	03656	Maple Leaf Estates	Landscaping	0.368
	04217	Wright Cattle Co.	Agricultural	0.198
	04589	Hudson Land & Cattle LLC	Agricultural	0.648
	04606	Emerald Island	Agricultural	3.402
	05936	Schwartz Charlotte Grove	Agricultural	1.001
	06426	Lemon Bay Golf Club	Landscaping	0.204
	06569	Farabee Grade Property	Agricultural	0.135
	07602	St. Andrews South Golf Club, Inc.	Landscaping	0.143
	07783	County Line Grove	Agricultural	0.456
	07815	Deep Creek Golf Course	Landscaping	0.194
	08224	Prairie Creek Ranch	Agricultural	2.533
	08388	Silkworth Grove	Agricultural	0.169
	09052	Ben Hill Griffin, Inc., C&S Grove	Agricultural	1.522
	09223	Kings Gate Homes and Victoria Estates	Landscaping	0.145
	09335	Rotonda Palms Golf & Country Club	Landscaping	0.189
	09372	Garrett Ranch	Agricultural	0.147
	09398	Charlotte Grove	Agricultural	1.257
	09417	Kyle & Deborah Bishop	Agricultural	0.171
	09476	Citrus Creek Grove	Agricultural	0.679
	09648	Lady Moon Farms, Inc.	Agricultural, Industrial	1.491
09687	Williams Farm Partnership	Agricultural, Dewatering	1.858	
09727	Shell Creek Groves	Agricultural	0.491	
09926	R and D Cattle Ranch	Agricultural, Dewatering	0.664	
10006	Seminole Lakes Inc.	Landscaping	0.141	
10169	Riverwood Golf Course	Landscaping	0.247	
10726	JDI Farm	Agricultural	0.402	

Table WSW-4: Significant Non-Potable Water Users				
WMD	Permit ID	Permittee	Water Use	Average Daily Usage (MGD)
	10874	Seminole Citrus Grove	Agricultural	0.221
	10932	Rotonda Hills Golf Course	Landscaping	0.236
	10959	Hall Ranch Watermelon Fields	Agricultural, Landscaping	0.203
	11688	White Marsh Golf Course	Landscaping	0.209
	11715	Coral Creek, LLC	Agricultural	0.240
	11982	Bethel Farms	Agricultural	0.715
	11997	Coral Creek Club	Landscaping	0.184
	12335	Pinemoor West Golf Course	Landscaping	0.228
	12541	Battista Farms	Agricultural	0.432
	12586	Tern Bay	Landscaping	0.444
	12907	River Club of Port Charlotte HOA	Landscaping	0.114
	12969	Pine Valley Golf Course	Landscaping	0.118
	13027	Williams Family Fun Park	Landscaping	0.110
	13096	TJ and Mary Chastain	Agricultural	0.493
	13349	Ryals Citrus and Cattle LLC	Agricultural	0.499
	20053	Hudson Hammocks	Agricultural	0.363
	20204	Bronco Farm	Agricultural	0.260
	20791	Tucker's Point	Landscaping	0.260
SFWMD	08-00001-W	Packers Gulf Citrus – Chiquita Pride Groves	Agricultural	3.838
	08-00002-W	Babcock Ranch Preserve	Agricultural, Livestock	31.556
	08-00005-W	Regina Grove	Agricultural	0.630
	08-00006-W	James Bickett	Agricultural	2.561
	08-00008-W	Coral Rock	Industrial, Public	9.358
	08-00011-W	Jay Rock Mine	Industrial	3.241
	08-00014-W	Earthsource	Dewatering	19.008
	08-00040-W	Bryant Farms	Livestock	1.150
	08-00047-W	Charlotte Correctional Institute	Agricultural, Public	0.124
	08-00069-W	Emerald Isles	Agricultural	6.468
	08-00074-W	Williams Farms	Agricultural	4.684
	08-00076-W	Edenbelle Grove	Agricultural	3.553
	08-00078-W	Evans Properties – Payson Tract	Agricultural	7.715
	08-00079-W	TJ and Mary Chastain	Agricultural	0.246
	08-00108-W	McNew Ranch	Agricultural	0.671
	08-00125-W	Williams Farms	Agricultural	2.786
	08-00163-W	Babcock Ranch Community	Landscaping	0.776
28-00218-W	Amelia Groves	Agricultural	15.409	

Table WSW-4: Significant Non-Potable Water Users				
WMD	Permit ID	Permittee	Water Use	Average Daily Usage (MGD)

Source: South Florida Water Management District & Southwest Florida Water Management District, 2019

**Existing and Projected Water Facility Needs**

The existing potable water suppliers in Charlotte County are permitted to provide 43.455 MGD gallons of water, as shown in Table WSW-5.

Table WSW-5: Existing Potable Water Service Providers							
DEP ID	Supplier	Population	Permitted Capacity (GPD)	Service Connections	Population per Service Connection	WTPs	Water Sources
6084079	Bocilla Utilities	410	120,000	204	2.01	1	2
5084082	Charlotte Correctional Institute	1,594	300,000	30	53.13	1	1
5084100	Charlotte County Utilities	128,967	16,102,000	57,833	2.23	5	N/A
6080318	Charlotte County Utilities – Burnt Store	6,300	3,172,000	2,210	2.76	1	1
6080044	Charlotte Harbor Water Association	4,500	750,000	1,675	2.69	1	4
6080054	City of Punta Gorda	29,561	10,000,000	11,722	2.52	1	2
6080081	El Jobean Water Association	1,338	N/A	600	2.23	1	1
6580531	Englewood Water District	48,970	6,000,000	16,478	2.97	2	5
6080104	Gasparilla Island Water Association	4,735	1,846,000	1,673	2.83	2	2
6084075	Knight Island Utilities	570	90,000	201	2.84	1	1
6144856	Lake Suzy Utilities	1,500	N/A	569	2.64	1	N/A
5364048	Lee County Utilities	229,788	4,740,000	82,067	2.80	6	2
5084110	NHC Utilities	401	90,000	200	2.01	1	1
6084007	Paradise Park Condominium Association	785	60,000	314	2.50	1	1
5084111	Riverwood Community Development District	2,133	N/A	853	2.50	1	1
6080256	Shell Creek Park	465	50,000	290	1.60	1	1

Table WSW-5: Existing Potable Water Service Providers							
DEP ID	Supplier	Population	Permitted Capacity (GPD)	Service Connections	Population per Service Connection	WTPs	Water Sources
6080272	Sun N Shade Campground	200	15,000	80	2.50	1	1
6084074	North Charlotte Waterworks	90	40,000	40	2.25	1	1
6080324	Tropical Palms MHP	350	80,000	360	0.97	1	1

Source: Florida Department of Environmental Protection, 2014

This plan incorporates the established potable water LOS standard of 225 gallons per day per Equivalent Residential Connection (ERC). The ERC data can be converted to gallons per capita per day (gpcd) by using the following formula:

$$1 \text{ ERC} = 225 \text{ gpd} / 2.14 \text{ persons per household} = 105.140 \text{ gpcd}$$

This standard was used in conjunction with the County’s population projections to determine the future water needs for Charlotte County. Estimates of future population were developed based on U.S. Census blocks, which were the basic unit of the geographical distribution of the projections. These blocks were then each assigned to one of the 14 service areas, and population estimates for each service area were developed from 2020 to 2040.

Since the boundaries of the certificated service areas do not always follow the boundaries of the Census blocks, in some cases the area used for population projection may be larger or smaller than the actual boundaries of the service area, increasing or decreasing the estimated population. Every effort was made to minimize these effects, and usually involved large, sparsely-settled Census blocks. In general, these effects are expected to balance out County-wide in the long run.

Table WSW-6, included in WSW Appendix A, depicts the projected potable water demands from 2020 to 2040 based on estimated functional population. Projected demands are calculated by multiplying the projected population by the per capita equivalent minimum LOS standard of 105.140 gallons per day, and are indicated in millions of gallons per day (MGD). The incorporated area of the City of Punta Gorda is calculated using the City’s adopted LOS. The Lee County portion of the Gasparilla Island Water Association’s service area is calculated using Lee County’s adopted LOS. The functional population totals in this table are greater than those shown in Table WSW-1 because they include four additional users of potable water. Two are located in Lee County and serviced by the CCU Burnt Store facility. Because they are not physically located in Charlotte County, these two areas are not included in the general County totals shown in Table WSW-1. A third is also located in Lee County, the southern portion of Gasparilla Island, served by the Gasparilla Island Water Association. Just as with the two Lee County developments served by CCU, this area was not included in the general County population total. The fourth user is the

Charlotte Correctional Institution, a prison operated by the Florida Department of Corrections and served by its own potable water facility. The inmate population of this facility was also not included in the general County totals shown in Table WSW-1.

Table WSW-6 also compares the supply capacity for each of the potable water suppliers within Charlotte County presented as permitted capacities based on any approved Water Use Permits and peak capacities of the treatment facilities. Permitted capacities are presented in terms of Annual Average Daily Flow (AADF), or the average flow per day when the entire year is considered. Peak capacities are based upon the design capacity of each facility. Where a potable water supplier serves Charlotte County residents with a source located outside the boundaries of the County, only the Charlotte County population is shown. Peak capacities are included because the LOS standards are based on a peak usage, but permitted capacities are based on AADF. Since demand is presented as a peak, supply should also be presented as a peak in order to make an appropriate comparison.

Capacities are based on Water Use Permits (WUPs) issued by the appropriate Water Management District, and reflect the amount of water the utility is permitted to withdraw from groundwater sources such as wells, or surface water sources such as rivers or lakes.

Table WSW-6 also separates projected demand into areas within the Urban Service Area and within the Rural Service Area. Since it is the intent of Charlotte 2050 to limit expansion of potable water and sanitary sewer utility service into the Rural Service Area, those areas are assumed to have no supply capacity and rely completely upon on-site wells and septic systems for potable water and sanitary sewer service. Exceptions to this are the certificated utilities located on the bridgeless barrier islands, which are wholly located within the Rural Service Area, and any community systems serving small developments within the Rural Service Area. However, since all three utilities located on the bridgeless barrier islands (Little Gasparilla Utilities, Bocilla Utilities, and Knight Island Utilities) are now bulk customers of utilities within the Urban Service Area, those utilities are also included in the Urban Service Area totals.

The analysis presented in Table WSW-6 shows that, based on peak demand and supply, among centralized public utilities only North Charlotte Waterworks shows an immediate supply deficit, and this deficit continues through the projection horizon. Permit and usage data for NCWW indicate that the actual usage rate is much lower than the projected level. Table WSW-7 shows the reported AADF through the NCWW WTP for the first six months of 2019, which were submitted to the County. The table shows that the highest flow was 0.006 MGD and generally is recorded in the 0.003-0.005 MGD range. NCWW reported 40 single-family connections in June of 2019, which equates to 85 people using the 2010 U.S. Census estimate of 2.14 persons per household, compared to a functional population of 3,516 as estimated by the County's projections. In 2009, NCWW, as Sun River Utilities, received approval from the Florida Public Service Commission (PSC) to extend its potable water and wastewater service area in Charlotte County. The PSC concluded that Sun River Utilities had both the financial and technical ability to provide service to

their expanded service area. Further, the PSC concluded that Sun River Utilities had sufficient capacity to serve the expanded service area or the ability to increase capacity when needed. This expansion increased the certificated service area of North Charlotte Waterworks tremendously, but the supply facilities have not yet been increased to serve the entire area. This adds to the projected shortage in potable water supply. NCWW and DeSoto County Utilities have entered into an interlocal agreement in which NCWW would purchase bulk treated water from DCU. Although the final amounts of water to be purchased have not been established, this agreement would eliminate the projected water shortage within NCWW’s service area.

<b>Table WSW-7: Reported Monthly Potable Water Flow for North Charlotte Waterworks, 2019</b>	
<b>Month</b>	<b>AADF</b>
January	0.004
February	0.006
March	0.005
April	0.005
May	0.003
June	0.002

Source: Charlotte County Community Development Department, 2019

Two centralized utilities show projected deficits by the projection horizon of 2040, including Charlotte County Utilities Mid- and West County service area and the Charlotte Harbor Water Association. Similar to North Charlotte Waterworks, both of these utilities have large areas that are not served by the transmission and distribution systems, and residents in those areas are dependent upon on-site wells for potable water. Compare these service areas shown on SPAM Series Map #83 with the locations of potable water wells shown on SPAM Series Map #85

Charlotte County is developing a secondary water source, and the Peace River/Manasota Regional Water Supply Authority is developing a regional loop connection that should work to alleviate the projected shortfall. Both of these projects are discussed under Future Water Supply Projects, below. Charlotte Harbor Water Association’s projected shortfall is low, compared to their existing capacity, and should be able to be addressed without trouble before it occurs.

Two community systems also show immediate shortages and an additional community system shows a projected shortfall by 2025. These community systems serve RV parks in rural areas of the County and a small manufactured home park. Unlike certificated utility areas, Charlotte County does not require community systems to report their monthly usage, so a comparison cannot be made between these systems’ projected demand and their actual demand. Traditionally, however, these developments have a much higher percentage of seasonal residents

than standard residential development, and therefore have a lower demand than may be projected by equating a manufactured home or RV pad occupied only part of the year with a permanently-occupied site-built residence. An examination of DEP permit applications revealed some reported data, which showed that Paradise Park Condominium Association reported usage of 0.043 MGD, or 72 percent of the permitted capacity of 0.060 MGD. An operational analysis of this community system shows that, given current reported usage rates and projected growth rates, it will remain within capacity through the projection horizon. If all of the community systems have usage patterns similar to Paradise Park Condominiums then the deficits for them projected in Table WSW-6 do not exist.

**SUMMARY OF FUTURE WATER SUPPLIES**

Charlotte County’s approach to meeting future unmet water demands will follow guidance from SWFWMD and SFWMD and provide potable water supplies that are reasonable and beneficial, will not interfere with any existing legal uses of water, and are consistent with the public interest pursuant to Chapter 373.223 of Florida Statutes.

Demand projections provided for all utility providers are based on the County’s population projections and established levels of service. Table WSW-6 provides the projected demand estimates for each of the utility service areas.

Table WSW-8 presents a closer comparison of demand for the Water Use Permits issued by the Water Management Districts, and population and demand estimates used in the Water Use Permit applications to the Water Management Districts were likely prepared using a methodology different from that used to prepare the County’s population projections. As shown through comparison with Table WSW-6, these alternative methods can result in demand projections that differ from the County’s. It is important to note these differences may conflict with the County’s desire to provide conservative estimates for potable water demands. However, the County has accepted the incorporation of alternative demand estimation methods in regional water supply planning documents. Demand projections based on alternative methodologies indicate the need for water supply expansion.

Table WSW-8: Demand Estimates and Water Use Permit Allocations					
Potable Water Supplier	Permit ID	Year Expires	WUP Average Daily Use (MGD)	2035 Population Projections	2035 Demand Projection (MGD)
<i>SWFWMD</i>					
Charlotte County Utilities – PR/MRWSA	007104	2037	16.102 <sup>(1)</sup>	144,243	10.929
Charlotte County Utilities – Burnt Store	003522	2033	3.172	9,520	0.597
City of Punta Gorda <sup>(2)</sup>	000871	2027	8.008	38,611	4.461
Englewood Water	004866	2019	5.360	38,358	2.357



Table WSW-8: Demand Estimates and Water Use Permit Allocations					
Potable Water Supplier	Permit ID	Year Expires	WUP Average Daily Use (MGD)	2035 Population Projections	2035 Demand Projection (MGD)
District <sup>(3)</sup>					
Charlotte Harbor Water Association	001512	2031	0.712	6,260	0.480
Gasparilla Island Water Association <sup>(4)</sup>	000718	2021	1.537	6,617	1.198
Island Harbor Beach Club /Knight Island Utilities <sup>(5)</sup>	007768	2022	0.103	883	0.097
El Jobean Water Association <sup>(6)</sup>	99913	N/A	N/A	1,481	0.154
Riverwood CDD <sup>(7)</sup>	99916	N/A	N/A	2,731	0.284
<b>SFWMD</b>					
Town and Country Utilities	08-00122-W	2020	0.433 <sup>(8)</sup>	21,214	2.550

Source: Southwest Florida Water Management District, South Florida Water Management District, 2019

- (1) This is an allocation from the PR/MRWSA
- (2) The City of Punta Gorda serves both County and municipal customers. Approximately 37% of the service population lies in unincorporated Charlotte County.
- (3) Englewood Water District serves customers in both Charlotte and Sarasota Counties. Approximately 38% of the service population lies in unincorporated Charlotte County.
- (4) Gasparilla Island Water Association serves customers in both Charlotte and Lee Counties. Approximately 33% of the service population lies in unincorporated Charlotte County.
- (5) As of 2014, Knight Island Utilities is a bulk purchaser of potable water from Englewood Water District.
- (6) El Jobean Water Association is a bulk purchaser of potable water from Charlotte County Utilities. No active WMD permits exist for this utility, but the population and demand projections are calculated for the service area for future planning purposes.
- (7) Riverwood CDD is a bulk purchaser of potable water from Charlotte County Utilities. No active WMD permits exist for this utility, but the population and demand projections are calculated for the service area for future planning purposes.
- (8) This is an interim permit.

The potential future water supplies for Charlotte County are summarized below. Currently, 95 percent of the County utility’s water supply is provided by PR/MRWSA. The County is the largest customer of PR/MRWSA and purchases more water than any other of its customers. Stabilized population growth in the County and the other customers supplied by PR/MRWSA have resulted in water supplies sufficient to handle projected demands over the next 20 years. Charlotte County currently accounts for 49 percent of PR/MRWSA’s total contractual water demand and is thus liable for a large portion of its budgeted operational and capital improvement expenditures. At this time, the County is progressing toward a self-reliant two-pronged approach for meeting future water supply demands beyond the 20-year horizon.

PR/MRWSA is working to improve the integration, diversification, and interconnection of water resources for optimal use within its four-county service area in order to meet current and future

demands. Through cooperation and collaboration of the owners working collectively, they have a facility that can treat up to 51 MGD and store nearly 13 BG of raw water. With average daily demands of 26.49 MGD being supplied to members and customers in 2014, there is considerable remaining capacity for the near future.

PR/MRWSA is preparing a preliminary investigation of brackish groundwater development opportunities in the event that an alternative water treatment process becomes necessary to adequately maintain secondary water standards for Total Dissolved Solids (TDS) due to the encroachment of salt water into the Peace River. This is a long-term investigation that may take years to complete and develop.

While the County will participate in water supply development programs initiated by PR/MRWSA, the long-term interests of the County are best served pursuing the development of water supply sources separate from those of the PR/MRWSA.

Diversity of supply through the use of groundwater to provide improved reliability and sustainability of the potable water supplies within the County is a priority and a key objective to meeting future demands. As provided in the schedule of Capital Improvements contained within the CIE Data and Analysis Appendix A, the County has devoted funds towards developing future water supply alternatives, including a Preliminary Engineering Report for siting a RO WTP and brackish groundwater well field in the eastern portion of the County. This treatment plant will receive water from an on-site well field at Babcock Ranch.

Since the County purchases more than 95 percent of its water supply from PR/MRWSA it is particularly vulnerable to fluctuations in the level of the Peace River, the source for the purchased water. To attempt to alleviate potential shortages due to low river levels, and to decrease the amount of total dissolved solids within the finished water sold to Charlotte County and others, PR/MRWSA has constructed two reservoirs and ASR storage at their Peace River Facility. Preliminary analysis of historical Peace River flows and available diversion volumes has indicated, however, that there would still be periods where these storage facilities would be completely depleted, and there would be periods prior to the depletion of the reservoir supply where the water quality would be significantly degraded.

### **Impact of Future Land Use**

Planning for adequate potable water supplies should also take into account pending future land use map and rezoning amendments that might have a significant impact on the demand for potable water services. Such pending amendments represent a real short-term change to established demand, and may have a more immediate effect upon potable water supplies than general projected growth. Currently, there are no pending future land use map or rezoning amendments that would have such an effect upon existing potable water supplies. When such amendments are proposed, the County shall ensure that adequate potable water supplies are available to service them.

There are, however, a number of approved developments that remain unbuilt, and which may have a significant effect upon demand. These are all located within the County’s Burnt Store service area, and are shown in Table WSW-9. There are 19 approved developments, with a total of 8,746 planned dwelling units.

<b>Table WSW-9: Approved Developments Within the CCU Burnt Store Service Area</b>			
<b>Owner</b>	<b>Total Planned Units</b>	<b>Confirmed Build-out</b>	<b>Final Build-out Year</b>
Tern Bay – 8810 Development LLC	1,810	1,810	2033
Bryan Paul, Inc.	663	not given	not given
Bonita Bay Group, et. al.	2,052	2,052	2033
Burnt Store Road LLC	999	999	2023
Charlotte Orange Grove LLC	498	498	2023
Coral Creek Burnt Store LLC	440	not given	not given
Eagle Gregory Trust – Pinnacle Oaks	296	not given	not given
Hawks Landing of Punta Gorda LLC	506	not given	not given
Mark L. Lindner, Trustee	180	not given	not given
NYHUS Peter Trust LLC	unknown	not given	not given
Newfoundland Six	600	600	2033
Prince Ranch LLC	175	not given	not given
Punta Gorda Reserve LLC	395	not given	not given
Realmark Tuckers Grade LLC	unknown	not given	not given
SLD Landfill, Inc.	unknown	not given	not given
Southwest Land Developers	unknown	not given	not given
Sun and Shade LLC	unknown	not given	not given
Tuckers Grade & US 41 LLC	unknown	not given	not given
<b>TOTAL</b>	<b>8,746</b>	<b>6,091</b>	

Source: Charlotte County Community Development, 2014

Of the 8,746 planned dwelling units within the approved petitions, 6,091 are projected to be constructed by 2033, or roughly within the 2030 planning horizon and, using the 2.14 persons per household estimated by the 2010 U.S. Census, would result in 13,034 additional residents within the Burnt Store service area. If all of the planned dwellings were constructed within the projection horizon, that would result in 18,716 additional residents. When combined with the projected population for the Burnt Store service area included in Table WSW-6, which does not explicitly account for these approved petitions, the 2040 population of the Burnt Store service area could range between 34,104 and 39,786 residents, including the two developments served by the Burnt Store system in Lee County.

These larger population totals obviously place a greater demand upon the potable water supply. Using the adopted LOS of 105.140 gpcd, demand in the Burnt Store service area in 2030 could range between 3.585 MGD and 4.183 MGD. Both of these totals would exceed the current

permitted capacity of the Burnt Store system, and the plant would need to be expanded, or additional water sources developed, to meet this additional demand.

### **Performance of Existing Facilities**

The existing potable water facilities providing service in the County are generally well maintained and in good condition. Treatment plants and storage systems are regularly inspected, and each utility system has established maintenance programs for pipe, meter replacement, valve inspection and operation, and flow testing of fire hydrants. Most of the older systems are continually being upgraded to improve reliability and increase the expected life of the facilities. These facilities are regulated by numerous agencies, including FDEP and the Water Management Districts.

The current permitted capacity of the combined water treatment plants is adequate to meet current demands, and all of the regulated potable water suppliers provide levels of service that are consistent with those adopted in this element. The analysis indicates that demand currently exceeds capacity in the North Charlotte Waterworks certificated area but, as shown by Table WSW-7, reported usage is well below projected usage and there is no reason to expect that an actual service deficit exists.

---

## **FUTURE CONDITIONS – POTABLE WATER**

### **PROBLEMS AND OPPORTUNITIES FOR FACILITY REPLACEMENT, EXPANSION, AND NEW FACILITY SITING**

The performance of existing potable water facilities must be constantly monitored to determine the adequacy of the committed treatment capacity and evaluate the ability of the distribution system to meet the future demands of a growing population. Each utility provider must, therefore, plan ahead to ensure that sufficient capacity will always remain available to accommodate anticipated growth within their respective service areas. Any new or expanded facilities that are needed must comply with applicable Federal, State, and local regulations. These regulations require that all potable water facilities be constructed, operated, and maintained in accordance with the guidelines established by the FDEP.

In addition to these requirements, all potable water providers must obtain water use permits from the appropriate Water Management District before any new treatment facilities can be constructed or existing treatment facilities can be expanded. The Southern Water Use Caution Area (SWUCA) rules in place within Charlotte County, established by SWFWMD, limit groundwater pumping in order to stop saltwater intrusion into subsurface aquifers and to prevent depletion of groundwater levels. The Caution Area designation limits possibilities for expansion of potable water supply sources and requires potable water providers to consider alternatives to groundwater when making water supply planning decisions.

The opportunities for facility expansion are also limited by funding constraints. In order to alleviate this problem, potable water providers must work to maximize the use of existing infrastructure. This can be accomplished by directing growth to areas already served by existing facilities which will reduce the cost required for new facility construction.

When the construction of new potable water facilities is warranted, all necessary improvements will be built in an environmentally sound manner, while being economically feasible. New facilities will be located within previously developed or developing urban areas to discourage urban sprawl, and construction costs will, in general, be allocated to those members of the general public receiving the benefits. Funding sources for new facilities should be derived from a number of sources including, but not limited to, impact and user fees.

Utilities should evaluate and, where feasible, install interconnects for potable water lines. Interconnects would provide an emergency supply among utility providers and may result in more efficient usage of existing treatment facilities.

The Water Planning Alliance includes representatives of 13 local governments within the Peace River Basin and surrounding area charged with working together toward meeting future water needs for the area. This organization has adopted a “Regional Integrated Loop System” to

facilitate resource capacity, improved reliability, and the matching of area supply with demand.

## **FUTURE WATER SUPPLY PROJECTS**

Demand projection for potable water use in the County indicates that the existing supplies will be adequate to meet the future population at least through 2035, and likely through the projection horizon of 2040. But to ensure that projected deficits do not occur, certain projects are being pursued to expand and diversify the County's potable water supplies. These projects expand existing primary water sources, establish new primary and secondary water sources, and establish emergency interconnections between existing systems. Taken together, they expand available sources, reduce demand on any individual water supply, and extend the length of service for all of them. Significant projects are briefly outlined below.

### **SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT**

The SWFWMD 2015 Regional Water Supply Plan (RSWP) for the Southern Planning Region includes the western two-thirds of Charlotte County. The RSWP is an assessment of projected water demands and potential sources to meet those demands through 2035. Several of the potential projects identified by the RSWP would increase water supplies in and for Charlotte County. These projects are detailed below.

#### **System Interconnect/Improvement Project #4, Regional Loop System Phase 1 Design Update**

This project will provide approximately six miles of 24-inch transmission pipeline from the Project Prairie booster station in southern DeSoto County to the City of Punta Gorda's Shell Creek WTP. This pipeline will extend from the booster station southward along US 17, cross under Shell Creek, and connect to the Shell Creek WTP. The original design of the project, developed in 2007, was to send treated surface water from the Shell Creek WTP to DeSoto County. The updated design will improve capacity of regional imports to Punta Gorda by establishing a true loop system and may provide regional supply to the City during seasonal periods of poor source water quality in Shell Creek. Future expansion and brackish groundwater development at the Shell Creek WTP will be regionally available through this project and may also provide regional supply for future development in the North Charlotte Waterworks service area.

Cost estimates for this project are \$0.5 million for ongoing design and permitting, with SWFWMD contributing 50 percent, and between \$11 million and \$14 million for construction, depending upon final design choices.

#### **Reclaimed Water Projects**

The RSWP also includes several options for reclaimed water projects that would aid in supplementing, or the conservation of water supplies in Charlotte County. These are detailed in Table WSW-10, contained in WSW Appendix A.

### **PEACE RIVER/MANASOTA REGIONAL WATER SUPPLY AUTHORITY**

The PR/MRWSA Integrated Regional Water Supply Plan 2015 identified two projects in Charlotte County to increase potable water supplies for the region. These include development of additional surface water resources on Shell and Prairie Creeks and partnering with the City of Punta Gorda

on their development of a brackish groundwater RO supply. The 2015 plan also identified three regional pipeline projects and a new regional pumping station in Charlotte County that will expand the regional system to support local and regional reliability and the sharing of drinking water resources. These projects are summarized below.

**Surface Water Option – Shell/Prairie Creek Public Supply**

This option, also included in SWFWMD’s adopted 2015 Southern Planning Region Regional Water Supply Plan, involves the construction of a new intake structure, a new raw water pumping station, and a 6.5 BG reservoir for the storage of raw water in the lower portion of the Shell/Prairie Creek watershed. It also involves construction of five miles of 36-inch pipeline to deliver water from the reservoir to a 20 MGD RO facility located near the Shell Creek WTP.

Table WSW-11: Shell/Prairie Creek Cost Estimate Summary					
Quantity Available (MGD)	Capital Cost	Cost per 1,000,000 Gallons	Capital Debt Service Cost per 1,000 Gallons	Annual O&M per 1,000 Gallons	Total Cost per 1,000 Gallons
20.0	\$399M	\$19.97M	\$3.53	\$1.37	\$4.90

Source: PR/MRWSA, 2018

**Brackish Groundwater Option – PR/MRWSA Purchase of Excess Capacity from Punta Gorda Brackish RO**

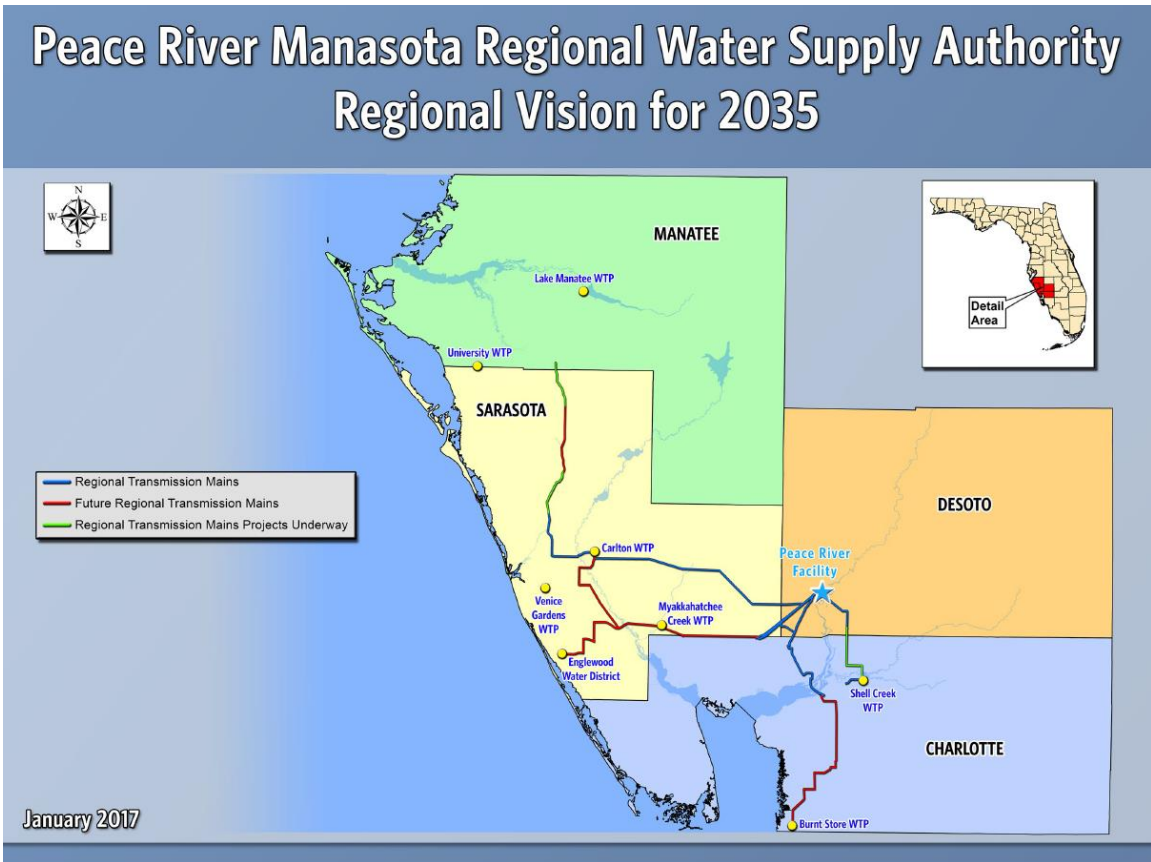
This option involves a partnership between the PR/MRWSA and the City of Punta Gorda enabling the region to purchase excess quantities that may be available in the City of Punta Gorda Brackish RO facilities at the Shell Creek WTP currently under design. A future scenario envisions that the PR/MRWSA and the City could form a partnership for expansion of these facilities. Costs shown in Table WSW-12 are based on 2014 estimates from the City’s consultant for the initial 4.0 MGD brackish RO supply.

Table WSW-12: Punta Gorda Brackish RO Cost Estimate Summary					
Quantity Available (MGD)	Capital Cost	Cost per 1,000,000 Gallons	Capital Debt Service Cost per 1,000 Gallons	Annual O&M per 1,000 Gallons	Total Cost per 1,000 Gallons
4.0	\$34.3M	\$8.10M	\$1.43	\$1.12	\$2.55

Source: PR/MRWSA, 2018

**System Interconnect/Improvement Options**

System interconnections involve the construction of pipelines and booster pumping stations to interconnect sources with demand areas, increasing system reliability and providing for sharing of resources throughout the region. The PR/MRWSA Board of Directors has adopted a 20-Year Vision for the regional interconnection of supplies and demand areas, providing a resilient water system to meet current and future needs. This regional vision is shown in Figure WSW-1.



Source: PR/MRWSA, 2018

Three Regional pipeline projects and a Regional pumping and storage facility are planned for construction in Charlotte County. The locations of these facilities is shown in Figure WSW-1 and the projects are detailed in Table WSW-13.

Table WSW-13: Regional Interconnections and Pumping Facility Cost Estimate Summary		
Project	Description	Estimated Capital Cost
Phase 1 Regional Interconnect	Six miles of 24-inch regional pipeline connecting the regional transmission system in DeSoto County to the City of Punta Gorda Shell Creek WTP	\$12.0M
Phase 2b Regional Interconnect	9.3 miles of 36- and 42-inch regional pipeline extending the regional transmission system west along Hillsborough Avenue to the City of North Port Myakkahatchee Creek WTP	\$30.4M
Phase 4 Regional Interconnect	15 miles of 24-inch regional pipeline connecting the transmission system on US 17 with the Charlotte County Burnt Store WTP	\$27.5M
Bachman Regional Pumping and Storage Facility	10 MGD booster pumping and finished water storage facility installed on the Bachman Tract near the intersection of Harbor Boulevard and Veterans Boulevard	\$12.0M

Source: PR/MRWSA, 2018



**CHARLOTTE COUNTY**

A separate source owned and operated by the County, even if only as a secondary source, would add to the diversity of the County’s overall water supply. This secondary supply could be used as a backup for not only the County’s system, but also other suppliers within the County such as the City of Punta Gorda or the Charlotte Harbor Water Association. Furthermore, this secondary supply could reduce the County’s future reliance upon the regional water supply system, thus increasing available supply for other members and customers. As water demands increase, the County would look to convert the secondary source to an additional primary source.

Pursuant to the 2005 Interlocal Planning Agreement between MSKP III, Inc, the Florida Department of Community Affairs, Lee County, and Charlotte County, the Development Agreement Between Board of County Commissioners of Charlotte County, Florida and MSKP III, Inc., and Paragraph 33 entitled “Water Resources of the State Contract,” Charlotte County was authorized to apply for a Water Use Permit from the State Lands of Babcock Ranch provided that the withdrawal of water by Charlotte County is solely for public water supply purposes and not for wholesale or retail sale outside Charlotte County. Under these authorizations, the County applied for a 20-year secondary public water supply permit, which was granted in 2011. This permit allows the annual withdrawal of 372MG of raw water until 2031.

Because the water supply from Babcock Ranch is a groundwater supply, it provides the desired water supply diversity, consistent with State of Florida Conjunctive Use objectives. As a secondary supply for the County this source would eliminate the need to purchase water from other PR/MRWSA members at higher rates and would relieve stress placed upon the natural systems during the minimum flow levels in the Peace River. Additionally, there are no anticipated environmental impacts associated with this use as the water is proposed to be withdrawn from the highly-confined Floridan aquifer. Order-of-magnitude cost estimates for development of the Babcock supply are provided in Table WSW-14. Capital costs include construction of the Floridan wells, treatment and storage facilities, delivery system, and concentrate disposal. Annual operations and maintenance (O&M) costs include labor, chemicals, power, membrane replacement, maintenance materials and spare parts, and sampling and monitoring.

<b>Table WSW-14: Babcock Ranch Supply Cost Estimate Summary</b>					
<b>Raw Yield (MGD)</b>	<b>Finished Yield (MGD)</b>	<b>Capital Cost</b>	<b>Cost/Finished 1,000 Gallons</b>	<b>Annual O&amp;M in 2009 Dollars/1,000 Gallons</b>	<b>Capital &amp; O&amp;M Cost/1,000 Gallons<sup>(1)</sup></b>
12.5	10.0	\$193M	\$4.51	\$1.31	\$5.82
5.0	4.0	\$85M	\$4.99	\$1.31	\$6.30
3.0	2.4	\$69M	\$6.71	\$1.31	\$8.02

Source: Charlotte County Utilities, 2018

Table WSW-14: Babcock Ranch Supply Cost Estimate Summary					
Raw Yield (MGD)	Finished Yield (MGD)	Capital Cost	Cost/Finished 1,000 Gallons	Annual O&M in 2009 Dollars/1,000 Gallons	Capital & O&M Cost/1,000 Gallons <sup>(1)</sup>

(1) Includes annualized capital costs at 5.7% interest and 20 years plus annual O&M divided by an assumed average daily flow of 10 MGD, 4 MGD, or 2.4 MGD respectively.

**CITY OF PUNTA GORDA**

The City of Punta Gorda currently operates the Shell Creek WTP, a conventional surface water treatment plant with 10 MGD capacity, an in-stream reservoir on Shell Creek, and an Aquifer Storage and Recovery (ASR) storage system. The City is actively pursuing the development of a brackish wellfield and a 4 MGD RO system to be co-located at the Shell Creek WTP. The RO system would provide a blending source to improve the facility’s finished water quality and would allow reduced surface water withdrawals from Shell Creek, if limited by a future recovery strategy. An injection well would be used for concentrate disposal. The option may also provide a backup regional supply to DeSoto County with the development of the PR/MRWSA Regional Loop System Phase 1 project. The conceptual costs shown in Table WSW-15 were prepared by the City’s consultant in 2010 and are adjusted to 2014 dollars. The City initiated a brackish wellfield investigation in 2015 to determine the feasibility of the groundwater source. The capital costs shown in Table WSW-15 include elements of the wellfield investigation.

Table WSW-15: Shell Creek WTP Brackish Wellfield Cost Estimate Summary				
Quantity Produced (MGD)	Capital Cost	Cost/MGD	Cost 1,000 Gallons	O&M Cost/1,000 Gallons
4.0	\$32.4M	\$8.1M	\$2.55	\$1.12

Source: Southwest Florida Regional Water Management District, 2018

**SOUTH FLORIDA WATER MANAGEMENT DISTRICT**

The SFWMD 2017 Lower West Coast Water Supply Plan Update includes the eastern third of Charlotte County. The Water Supply Plan Update works to identify sufficient water supply sources and future projects to meet existing and future uses while sustaining water resources and related natural systems. Several of the potential projects identified in the Water Supply Plan Update would increase the water supplies in and for Charlotte County. These projects are detailed below.

**TOWN AND COUNTRY UTILITIES**

Town and Country Utilities, established to serve the Babcock Ranch development, is located in the rural eastern portion of the County. To serve the projected population of the development – projected to reach a maximum of more than 35,000 people –Town and Country has developed a five-phase plan for construction of the system, which is scheduled to be implemented between 2016 and 2031. This plan is shown in Table WSW-16.

Table WSW-16: Town and Country Cost Estimate Summary				
Project	Description	Capacity	Total	Estimated

		(MGD)	Capital	Completion
1.00 MGD WTP Expansion	Expansion of IAS wells and WTP from 0.25 MGD to 1.25 MGD	1.00	\$7.00M	2018
1.25 MGD WTP Expansion	Expansion of IAS wells and WTP from 1.25 MGD to 2.50 MGD	1.25	\$1.25M	2021
1.50 MGD WTP Expansion	Expansion of IAS wells and WTP from 2.50 MGD to 4.00 MGD	1.50	\$1.10M	2026
0.08 MGD WWTF Expansion	Expansion of WWTF from 0.20 MGD to 1.00 MGD	1.50	\$12.00M	2021
1.00 MGD WWTF Expansion	Expansion of WWTF from 1.00 MGD to 2.00 MGD	0.80	\$6.00M	2026
1.50 MGD WWTF Expansion	Expansion of WWTF from 2.00 MGD to 3.50 MGD	1.00	\$8.00	2029

Source: South Florida Water Management District, 2019

### CAPITAL IMPROVEMENTS

Many of the County’s potable water providers have plans to improve and expand existing facilities to ensure adequate levels of service will continue to be maintained in the future. These plans fall into three broad categories: supply increase, demand reduction, and system improvement.

The most obvious solution to ensuring adequate potable water supplies is to increase the amount of water available for distribution. Based on the water supply inventory and data analysis, the County, the City of Punta Gorda, PR/MRWSA, and other regional utilities have identified the need to explore potable water supply development, regional pipeline interconnects, and best management practices for use of supplies. By connecting utility systems that previously were unconnected, or perhaps had only a single connection point, emergency water supplies may become available if and when needed, and regional supply may be better balanced with regional demand.

While increasing the overall volume of potable water will produce more water for distribution, reducing demand will relieve strain upon the existing potable water sources, ensuring that their life-spans are extended. Through the use of reclaimed water for non-potable uses such as irrigation and certain industrial uses, and the conservation of potable water through more efficient fixtures, overall demand for potable water may be reduced. This reduction in demand would have the effect of increasing the available supply. Capital projects involving the reduction of demand for potable water in the County include expanding reclaimed water systems and the replacement of outdated home fixtures with more modern, water-efficient ones.

General system upgrades may also have an effect on potable water supplies by replacing transmission lines to create a more efficient distribution system or to prevent loss due to leakage from older lines, by replacing pumping stations with more efficient machinery and equipment, or by expanding existing service areas to reduce the direct impact on groundwater supplies which

may decrease the number of subsurface potable water wells. Capital projects of this nature have been scheduled by many local utilities, involving projects such as water main replacement and relocation, water pumping station improvements, major transmission line extensions, and general service area extensions.

Capital projects scheduled by Charlotte County local utilities, including project costs allocated by fiscal year and sources of funding are detailed in Appendix II of the Capital Improvements element.

## **WATER CONSERVATION**

In 2013, SWFWMD reinstated year-round water conservation measures superseding the Phase I Water Shortage Restrictions for the Charlotte County portion of the WMD, originally implemented in 2010. Lawn and landscape irrigation is limited to twice per week. New lawns or plantings may be watered daily for the first 30 days with restrictions.

Several utility providers in Charlotte County have implemented water conservation programs in order to reduce the dependence upon potable water supplies. The County previously prepared written water conservation plans for its service areas. These plans will be revised and updated by the end of 2020. The per capita consumption rate by customers of the County's utility was 74 gpcd for the Mid- and West County service area and 61 gpcd for the Burnt Store service area, as published in the 2018 SWFWMD Public Supply Annual Report, exceeding the goals outlined by SWFWMD to reduce per capita water consumption. In comparison, the District has established a standard of 81 gpcd.

Conservation measures that were analyzed in the written plans include general conservation measures such as alternative source programs and public education, and indoor conservation measures such as showerhead retrofits and toilet rebates. These plans emphasize maintaining that low consumption rate by continuing to implement existing conservation practices, continued distribution of plumbing retrofit kits, and expanding the distribution of reclaimed water.

Tentatively, the County anticipates continuing to implement existing conservation elements including reclaimed projects and a low-flow showerhead exchange. The toilet rebate program was discontinued in 2010. Charlotte County was one of the first utilities within the 16-county boundary of SWFWMD to implement year-round conservation rates in order to promote responsible water usage. In times of severe water shortages, the County adopts even stricter emergency rate structures to emphasize to its customers the value of water, including the adoption of water consumption rate structures that are designed to discourage the consumption of more than 5,999 gallons. The County has awarded an RFQ for a new Water Master Plan, including updating the conservation plans. This update is expected to be completed by the end of 2020.

Other water service providers within the County also participate in water conservation programs. The WUP issued to PR/MRWSA to supplement current water requires that a regional water conservation plan be approved and implemented with subsequent annual reports to demonstrate progress. As part of its Water Use Permit conditions the Charlotte Harbor Water Association must implement general water conservation practices and the governing board reserves the right to institute more specific conservation requirements during the duration of the permit.

---

## EXISTING CONDITIONS – RECLAIMED WATER

The Englewood Water District and the County have implemented water reclamation programs. Many of these programs involve the delivery of treated wastewater effluent to surrounding golf course facilities for use in irrigation. The location of reclaimed water facilities in the County is shown on SPAM Series Map #90.

The County's utility makes reclaimed water available for irrigation purposes and other authorized non-potable uses in those areas of the County included within its service areas, and where the Board of County Commissioners determines that the construction of a reclaimed water distribution system is desired or requested by customers, and is practical and economical. The reclaimed water distribution system is being constructed in phases to provide service to designated areas as determined by the Board of County Commissioners. The County aims to maximize the reuse of treated wastewater and minimize new project impacts on potable water resources. Therefore, it is the responsibility of the project developer to provide for the use of reclaimed water as a condition precedent to wastewater treatment capacity availability if that service is available.

## INVENTORY – RECLAIMED WATER PROVIDERS

**Charlotte County:** The County is committed to reusing 100 percent of all wastewater effluent produced through the treatment of sanitary sewage. Capital improvement projects that have been completed as of 2018 to further this goal include transmission lines interconnecting the Eastport Water Reclamation Facility (WRF) with its Westport and Rotonda WRFs, a Water Reclamation Pump Station, Westport pond expansion, two 0.500 MG storage tanks, and an expansion of the distribution system along Placida Road in West County. The tanks and ponds provide an additional supply of reclaimed water that allows the system to maintain a constant pressure for several hours during the day and improve reclaimed service to its customers. The County currently produces 5.9 MGD of reclaimed water and delivers approximately 3.0 MGD to its 49 reclaimed water customers. The County anticipates connecting nine new contracted customers in 2019 as new distribution lines become active, which will also allow other new customers to connect.

While the County now has a fully integrated reclaimed water transmission and distribution system in the Mid- and West County regions, it compiles statistics on the reclaimed system at each water reclamation facility, including those related to reclaimed water use. Table WSW-17 presents a summary of the most recent collection of data.

Table WSW-17: Charlotte County Utilities Annual Reclaimed Water Data, 2018				
Wastewater Facility	Permitted Capacity (MGD)	Total Water Available for Reuse or Disposal (MGD)	Connections	Effluent Disposal Methods
East Port WRF	6.000	4.1	30 connections, with 2 pending	Deep well disposal On-site irrigation
Rotonda WRF	2.000	0.9	9 connections, with 5 pending	Reject Pond; transmissions to Westport WRF for disposal
West Port WRF	1.200	0.6	6 connections	Deep well disposal On-site irrigation
Burnt Store WRF	0.500	0.3	4 connections, with 2 pending	Deep well disposal; rapid infiltration basins, including perc ponds
<b>Total</b>	<b>8.325</b>	<b>5.9</b>		

Source: Charlotte County Utilities Department, 2018

**Englewood Water District:** The Englewood Water District is committed to reusing 100 percent of its wastewater effluent water. The reuse pumping facility includes a 1 MG storage tank and ASR well, both located at the District’s WRF in Charlotte County. The reuse storage tank and well provide a constant supply of reclaimed water to the service pumps, which allows the system to maintain a constant pressure for several hours during the day and improve reclaimed water service to customers. The District offers reclaimed water to residential customers and Wal-Mart. Additionally, Eagle Preserve, Myakka Pines Golf Club, Boca Royale Golf Club, Oyster Creek Golf Course, Lemon Bay High School athletic fields, Oyster Creek Regional Park, the Englewood Sports Complex, Taylor Ranch, the Lake Emily development, and the Villages of Manasota Beach either are or will be using reclaimed water for irrigation.

**RECLAIMED WATER EXPANSION**

The County’s current reclaimed water program consists of a regional system that provides reclaimed water to local golf courses and approximately 1,875 private residential customers. The County encourages connections to this system to offset the use of potable water for activities that do not require it, and is actively pursuing new customers as the system expands.

As part of its phased reclaimed water expansion initiative, the County has expanded the transmission and distribution capacity of its reclaimed water transmission and collection system. As of 2014, transmission mains were extended to provide reclaimed water from its East port,

Westport, and Rotonda WRFs to the Mid- and West County service areas and to interconnect all three facilities.

Future phases of the County's expansion initiative include projects to extend reclaimed water transmission and distribution facilities further into the West County service area in order to service additional golf courses and residential developments in the Rotonda and Placida areas. The County is currently in the funding and planning/design stages of Phase III of this portion of the reclaimed water expansion program. Other reclaimed water expansion projects are currently under way in the Burnt Store service area.

The County is developing a long-term comprehensive reclaimed water plan with the intent of eventually connecting all large-scale users of non-potable water within its service area to its system. This plan will include time frames, estimated costs, funding proposals, operational guidelines, reclaimed water use priorities, and rate analysis for expansion, and will not require the connection of individual single-family, duplex, or triplex buildings.



---

## EXISTING CONDITIONS – SANITARY SEWER

### LEVEL OF SERVICE – SANITARY SEWAGE DISPOSAL

The establishment of appropriate LOS standards for sanitary sewage disposal is necessary to plan for and meet projected demand. A sanitary sewer system must have an adequate capacity to meet the average daily demand, while being able to accommodate periods of peak demand. A review of historical data indicates that a capacity of 190 gallons per day per ERC is needed to meet peak demands in the unincorporated areas of Charlotte County. Actual average day demands may be significantly lower (approximately 85% of the average daily water use). Planning to meet LOS demands is necessary to ensure that adequate infrastructure capacity is available to satisfy short-term and instantaneous sanitary sewage disposal demands without negatively impacting system performance (e.g., reduction in system pressure). Effectively planning for LOS demands also results in more efficient operation of the systems in Charlotte County.

### INVENTORY – SANITARY SEWER PROVIDERS

Sanitary sewage disposal in the County is provided by nine centralized utilities. The three largest suppliers are all public: Charlotte County, the City of Punta Gorda, and the Englewood Water District. The remaining providers are privately owned. All of these sanitary sewage disposal service providers have a customer base and an established area of operation throughout which they provide service. Public utilities have an established service area, while private utilities have a certificated area granted by the Florida Public Service Commission. These service areas grant the authorized right to be the sole provider of a stipulated service within a described area to ensure that service areas do not overlap. Further, any area not depicted as a service area of another utility falls under the service of Charlotte County. The nine centralized sanitary sewage disposal service areas are depicted on SPAM Series Map #86. This map also shows the location of community sewer systems for small developments such as manufactured home parks and recreational vehicle parks. SPAM Series Map #87 shows the location of all wastewater treatment plants.

A detailed analysis of all public and private facilities was conducted pursuant to the criteria established by Statute. The sanitary sewer providers were inventoried by geographic location to identify plant design capacities, current demand, and existing levels of service for each service area. The existing and future sewer needs for the County were then identified based on the data obtained from the inventory. Future sanitary sewer demands were generated by applying seasonal population projections to the 190 gallons per day per ERC LOS standard established in this element. Demands were equated to per capita sewer usage by dividing the 190 gpd ERC standard by 2.14 persons per household, the 2010 U.S. Census estimate for the County. After the future sewer demands were identified, the performance of existing facilities and adequacy of

present levels of service was evaluated over time and the need for facility replacement and expansion was determined.

**Existing Sanitary Sewer Providers**

**Charlotte County Utilities:** Charlotte County’s Utilities Department is the largest utility in the County. It’s service area includes all areas of the County not included in any other certificated service area, and totals approximately 622.39 square miles. Its actual service area is much smaller, being limited to portions of the Port Charlotte area in the Mid-County region and portions of West County including Gulf Cove, Englewood East, South Gulf Cove, Rotonda, and the Burnt Store area of South County, south of Punta Gorda. The County currently provides service to 38,709 connections.

The County currently operates four wastewater treatment facilities. The Eastport WRF is located in eastern Port Charlotte and has a permitted capacity of 6.000 MGD, serving the Mid-County service area. This facility uses spray irrigation, deep injection wells, and reclaimed water distribution for effluent disposal. Sale of reclaimed water to customers for irrigation purposes is the first choice of disposal. Expansion of this plant to 9.000 MGD is planned to be completed by 2023. However, the construction of this plant expansion will proceed on a schedule determined by actual flow increases to the plant in accordance with FDEP regulations.

The Westport WRF is located just west of the Myakka River, and has a permitted capacity of 1.200 MGD, serving the West County service area. This facility uses spray irrigation, deep well injection, and reclaimed water distribution for effluent disposal.

The Rotonda WRF is located west of the Rotonda area, and has a permitted capacity of 2.000 MGD, serving the West County service area. This facility uses reclaimed water distribution and on-site storage tanks for effluent disposal, transferring effluent to the West Port WRF for final disposal. The Rotonda and Westport WRFs have a reclaimed water interconnect to better serve their reclaimed water customers.

The Burnt Store WRF is located in the Burnt Store area of southern Charlotte County, and has a permitted capacity of 0.500 MGD, serving the Burnt Store service area in Charlotte and Lee counties. This facility uses on-site percolation ponds, deep well injection, and reclaimed water distribution for effluent disposal. Expansion of this plant to 2.500 MGD is planned to be completed by 2024. However, the construction of this plant expansion will proceed on a schedule determined by actual flow increases to the plant in accordance with FDEP regulations.

**City of Punta Gorda:** The City of Punta Gorda’s service area covers approximately 37.32 square miles and is located south of the Peace River, including most of the incorporated area of the City itself as well as nearby areas of unincorporated Charlotte County, including the communities of Cleveland and Solana and the Charlotte County Airport. The service area includes approximately

17.28 square miles outside the City limits. The City operates a WRF with a permitted capacity of 4.000 MGD. This facility uses deep well injection for effluent disposal.

**Englewood Water District:** The Englewood Water District encompasses approximately 45 square miles in southern Sarasota County and western Charlotte County, with approximately 12.12 square miles of the District in Charlotte County. The certificated service area includes the Englewood area of Charlotte County as defined in the Englewood Water District's Enabling Act. The District operates a wastewater treatment plant (WWTP) located in the Englewood area of Charlotte County, and has a permitted capacity of 3.000 MGD which will be expanded to 3.400 MGD at the completion of an upgrade to the ASR well. The WWTP primarily uses deep well injection and reclaimed water distribution for effluent disposal.

The District recently completed a Utility Master Plan and permit renewal, including a capacity analysis report. This report showed that, based upon population projections and U.S. Census data, the WWTP will need to be expanded by 2026.

The District accepts all sanitary sewer flows from the Utilities of Sandalhaven certificated area and from a portion of Charlotte County's West County service area.

**Riverwood Community Development District:** The Riverwood Community Development District certificated area covers approximately 2.19 square miles located east of the Myakka River and southwest of Port Charlotte, along S.R. 776. The CDD operates a WWTP with a permitted capacity of 0.499 MGD. This facility uses spray irrigation and reclaimed water distribution for effluent disposal. The CDD supplies sanitary sewer disposal service to more than 850 single family and multi-family service connections in the Riverwood development.

**Gasparilla Island Water Association:** The Gasparilla Island Water Association certificated area covers approximately 3.05 square miles in Charlotte and Lee Counties, mostly on Gasparilla Island, a barrier island located in southwestern Charlotte County. Approximately 1.22 square miles of the certificated area is located in Charlotte County. The Association operates a WWTP on the island, with a permitted capacity of 0.705 MGD.

**North Charlotte Waterworks:** The North Charlotte Waterworks certificated area covers approximately 17.96 square miles located along US 17, near the DeSoto County line, consisting of the Rivers Edge mobile home development and adjoining properties in Charlotte and DeSoto Counties. The utility operates a WWTP with a permitted capacity of 0.015 MGD.

**Knight Island Utilities:** The Knight Island Utilities certificated area covers approximately 0.92 square miles located on the bridgeless barrier islands of Knight Island and Thornton Key. The utility maintains a WWTP on the island, with a permitted capacity of 0.055 MGD.

**Florida Governmental Utility Authority:** The Florida Governmental Utility Authority certificated area covers approximately 2.47 square miles located immediately north of the Lee County line,

between US 41 and I-75, an extension of its certificated area in Lee County to the south. FGUA currently serves the Tropical Palms manufactured home park just north of the Lee County line on US 41. FGUA operates two WWTPs in Lee County with a permitted capacity of 4.550 MGD.

***Town & Country Utilities:*** The Town & Country Utilities certificated area covers approximately 27.79 square miles located north of Lee County Road 78, east of SR 31, and south of Charlotte County Road 74 in Charlotte and Lee counties, with approximately 20.96 square miles located in Charlotte County. This utility operates a WWTP in southeastern Charlotte County with a current permitted capacity of 0.200 MGD that provides service to over 1,500 ERCs.

This utility has been certificated to serve the new Babcock Ranch development, and its sanitary sewer disposal capacity will expand as the community develops. The utility expects to expand its WWTP to 6.000 MGD by 2031.

***Utilities, Inc. of Sandalhaven:*** The Sandalhaven certificated area covers approximately 2.12 square miles located in western Charlotte County, west of Rotonda and south of the Englewood area. The utility does not own or operate a WWTP, purchasing treatment capacity from the Englewood Water District.

***Community Systems:*** Several community systems serve areas of Charlotte County where centralized sanitary sewer systems do not exist but population densities do not allow sewage disposal to be provided by individual on-site sewage disposal systems. FDEP records indicate that there are 13 such community systems in Charlotte County that serve residential or residential-type development. These include mobile home parks, recreational vehicle parks, and the Charlotte Correctional Institute. These facilities have capacities ranging from 0.010 MGD (10,000 gallons per day) to 0.180 MGD (180,000 gallons per day), and serve a total of approximately 7,795 people. The locations of these community systems are shown on SPAM Series Map #86.

***On-site Sewage Disposal Systems:*** For those structures not connected to a centralized utility or a community system, their sanitary sewage disposal is most likely handled through on-site sewage disposal systems. According to the DOH, there are 10,639 properties known to be served by on-site sewage disposal systems, and these are shown on SPAM Series Map #89.

**FUTURE CONDITIONS – SANITARY SEWER**

**EXISTING AND PROJECTED SANITARY SEWER FACILITY NEEDS**

This plan incorporates the established wastewater LOS standard of 190 gallons per day per ERC. The majority of potable water used by customers is disposed through a sewage system in the form of wastewater, but a portion of water used, up to 25 percent, may be lost to consumption. This plan acknowledges that approximately 15 percent of the water demand will not be returned to the wastewater system. For that reason, the minimum LOS standard is approximately 85 percent of that for potable water. The ERC can be converted to gallons per capita per day (gpcd) by using the following formula:

$$1 \text{ ERC} = 190 \text{ gpd} / 2.14 \text{ persons per household} = 88.785 \text{ gpcd}$$

<b>Table WSW-18: Existing Permitted Sanitary Sewage Disposal Service Providers</b>			
<b>DEP ID</b>	<b>Supplier</b>	<b>Population</b>	<b>Permitted Capacity (GPD)</b>
FLA014067	Bay Palms MHP	50	10,000
FLA014130	Charlotte Correctional Institute	1,594	180,000
FLA014291	Charlotte County Utilities – East Port	79,807	6,000,000
FLA014048	Charlotte County Utilities – West Port		1,200,000
FLA014098	Charlotte County Utilities – Rotonda		2,000,000
FLA014083	Charlotte County Utilities – Burnt Store	6,300	500,000
FLA118371	City of Punta Gorda	29,561	4,000,000
FLA014126	Englewood Water District	48,970	4,200,000
FLA014641	Gasparilla Island Water Assn.	4,735	705,000
FLA014548	FGUA – Del Prado	42,000	4,250,000
FLA014463	FGUA – Lake Fairways		300,000
FLA014089	Gasparilla Mobile Estates	182	25,000
FLA014116	Harbor View Trailer Park	151	24,000
FLA014078	Hideaway Bay Condominiums	102	21,000
FLA014095	Knight Island Utilities	570	55,000
FLA014070	Lazy Lagoon MHP	157	70,000
FLA014088	Palm & Pines	126	15,000
FLA014072	Paradise Park Condominium Association	785	24,000
FLA014105	Pelican Harbor MHP	159	20,000
FLA014060	Riverwood Community Development District	2,133	499,000
FLA014122	River Forest Village	204	35,000
FLA014113	Shell Creek Park	465	20,000
FLA014120	Sun N Shade Campground	200	20,000

<b>Table WSW-18: Existing Permitted Sanitary Sewage Disposal Service Providers</b>			
<b>DEP ID</b>	<b>Supplier</b>	<b>Population</b>	<b>Permitted Capacity (GPD)</b>
FLA014062	Sun River Utilities	90	15,000
FLA665495	Town and Country Utilities	0	N/A
FLA014053	Utilities, Inc. of Sandalhaven	1,966	150,000
FLA014092	Villas Del Sol	88	29,000

Source: Florida Department of Environmental Protection, 2014

This standard was used in conjunction with the County’s population projections, presented in Table WSW-1, to determine the future sanitary sewer needs for Charlotte County. Estimates of future population were developed based on U.S. Census blocks, as with the potable water projection demands. These blocks were assigned to one of the nine centralized sanitary sewer service areas, and seasonal population estimates for each certificated area were developed from 2020 to 2040. Since the boundaries of the service areas do not always follow the boundaries of the Census blocks, in some cases the area used for population projection may be larger or smaller than the actual boundaries of the certificated area, increasing or decreasing the estimated population. Every effort was made to minimize these effects, and usually involved large, sparsely-settled Census blocks. In general, these effects are expected to balance out County-wide in the long run.

Table WSW-19, included in WSW Appendix A, depicts the projected sanitary sewer service demands from 2020 to 2040 based on estimated functional population. Projected demands are calculated by multiplying the projected population by the per capita equivalent minimum LOS standard of 88.785 gallons per day and are indicated in millions of gallons per day (MGD). The incorporated area of the City of Punta Gorda is calculated using the City’s adopted LOS. The functional populations in this table are greater than those shown in Table WSW-1 because they include the Charlotte Correctional Institution, a prison run by the Florida Department of Corrections and serviced by its own sanitary sewer facility. The inmate population of this facility was not included in the general County totals contained in Table WSW-1.

Table WSW-19 also compares the treatment capacity for each of the sanitary sewer service providers. This capacity is presented both as a permitted capacity, or the Average Annual Daily Flow through the wastewater treatment facility approved by DEP, and the peak capacity, or the maximum amount of flow the facility was designed to handle without failing. Since the LOS standard of 190 gpd/ERC represents a peak usage rate it can only be appropriately compared to the peak capacities of the facilities treating the wastewater. Unfortunately, an examination of the DEP permit applications showed that not every facility established its peak capacity using the same methodology. Some facilities used Peak Daily Flow (PDF), or the absolute maximum flow the facility could process on any single day. Some facilities used Maximum Monthly Average Daily Flow (MMADF), or the average daily flow for the month with the highest flow. Some facilities used Three Month Average Daily Flow (TMADF), or the average daily flow for the three-month

period with the highest flow. Finally, some facilities used Average Annual Daily Flow (AADF), or the average daily flow for the entire year. In general, the smaller the permitted capacity of the facility the more likely the facility used AADF to determine peak capacity.

The analysis presented in that table indicates that two utilities show an immediate deficit in sanitary sewage disposal capacity, including Charlotte County in its Mid-County and Burnt Store service areas and North Charlotte Waterworks. It also shows that two additional utilities are projected to show deficits within the projection horizon. The City of Punta Gorda is projected to show a deficit beginning in 2035, and the Riverwood CDD is projected to show a deficit beginning in 2040. Table WSW-20 shows planned facility expansions, including expansions of both the County’s Eastport facility that serves the Mid-County service area and the Burnt Store facility that serves the Burnt Store service area. The proposed Burnt Store facility expansion, from 0.500 MGD to 2.500 MGD, would address the projected treatment capacity deficit through the projection horizon, but it is not scheduled until 2024. The proposed Eastport facility expansion, from 6.000 MGD to 9.000 MGD, would address the immediate deficit, but it is not scheduled until 2023. There are no planned expansions for the NCWW, Punta Gorda, or Riverwood treatment facilities to address projected deficits.

<b>Table WSW-20: Planned Wastewater Treatment Facility Expansions</b>			
<b>Year of Improvement</b>	<b>Facility to be Improved</b>	<b>Existing Capacity (MGD)</b>	<b>Final Capacity (MGD)</b>
2023	CCU – East Port WRF	6.000	9.000
2024	CCU – Burnt Store WRF	0.500	2.500
2025	Town & Country WRF	1.500	3.600

Source: Charlotte County Utilities & Town & Country Utilities, 2018

Usage data for the Charlotte County and NCWW service areas indicates that the actual usage for these utilities is much lower than the projected level. Table WSW-21 shows the reported flows through the wastewater treatment facilities for the first six months of 2019 for the service areas showing immediate deficits. This table indicates usage patterns well below the peak capacities for each service area. All of these service areas have large areas that are not served by their collection systems, and residents in those unserved areas are dependent upon on-site sewage disposal systems. Compare the service areas shown on SPAM Series Map #86 with the location of on-site sewage disposal systems shown on SPAM Series Map #89. Charlotte County reports 37,094 residential connections in its Mid-County service area and 2,690 in its Burnt Store service area, while NCWW reported 40. Using the 2010 U.S. Census estimate of 2.14 persons per household, this equates to 78,391 people served by the Eastport facility, 5,756 by the Burnt Store facility, and 85 by NCWW. Compare this to the projected populations for those areas presented in Table WSW-19, of 97,839 for the Eastport facility, 6,560 for the Burnt Store facility, and 3,516 for NCWW. An operational analysis of these utilities shows that, given the most recent reported usage rates, projected growth, and planned facility expansions, all will remain within capacity through the projection horizon of 2040.

<b>Table WSW-21: Reported Monthly Wastewater Flow, 2019</b>			
<b>Month</b>	<b>Sun River AADF</b>	<b>Eastport AADF</b>	<b>Burnt Store AADF</b>
January	0.006	4.489	0.353
February	0.010	4.844	0.407
March	0.006	4.519	0.384
April	0.001	4.114	0.310
May	0.004	3.902	0.204
June	0.005	4.290	0.295

Source: Charlotte County Community Development Department, 2019

In 2009, North Charlotte Waterworks, as Sun River Utilities, received approval from the Florida Public Service Commission to extend its potable water and wastewater service area in Charlotte County. The PSC concluded that Sun River Utilities had both the financial and technical ability to provide service to their expanded service area. Further, the PSC concluded that Sun River Utilities had sufficient plant capacity to serve the expanded service area or the ability to construct a new plant when needed. This expansion increased the certificated service area of Sun River Utilities tremendously, but the supply facilities have not yet been expanded to serve the entire area. This adds to the projected shortage in wastewater disposal capacity. While Sun River Utilities currently does not have plans to expand their system to address this projected shortfall, the approval of the certificated area by the PSC indicates that the utility has demonstrated the capability, both technically and financially, to expand their supply when the time comes.

Table WSW-19 also projects that nine out of 13 community systems show an immediate service deficit. One facility, servicing the Harbor View manufactured home park, projects a service deficit by 2025, and another, servicing the Charlotte Correctional Institution, projects a service deficit by 2035. Unlike certificated utility areas, Charlotte County does not require community systems to report their monthly usage, so a comparison cannot be made between the system’s projected demand and its actual demand. Traditionally, however, these developments have a much higher percentage of seasonal residents than standard residential development, and therefore have a lower demand than may be projected by equating a manufactured home occupied only part of the year with a permanently-occupied site-built residence.

An examination of FDEP permit applications revealed some reported data, which showed that Paradise Park Condominium Association reported an Annual Average Daily Flow of 0.009 MGD, or 38 percent of the permitted capacity of 0.024 MGD. An operational analysis of this community system shows that, given current reported usage rates and projected growth, it will remain within capacity through the projection horizon of 2040. If all of the community systems have usage patterns similar to Paradise Park Condominiums then the deficits projected in Table WSW-19 do not exist.



Not all of a utility’s service area may actually be served by that utility. As discussed above, the County’s Mid-County service area within the Urban Service Area, served by the Eastport WRF, has a 2020 estimated functional population of 97,839, but reports only 37,094 residential connections for an estimated actual population served of 78,391. This disparity between the number of potential and actual connections is not unique to the County’s utility. Any structure not connected to a centralized sanitary sewer system must be connected either to a community system or to an on-site sewage disposal system. Table WSW-22 shows the number of on-site systems permitted since 1971, and projects future permits through 2040.

<b>Table WSW-22: Sewage Treated by On-Site Systems, 2008-2040</b>				
<b>Year</b>	<b>Existing Systems<sup>(1)</sup></b>	<b>Systems Added<sup>(2)</sup></b>	<b>Total Systems</b>	<b>Sewage Treated (MGD)</b>
2013	26,723		26,723	5.077
2015		458	27,181	5.164
2020		1,145	28,326	5.382
2025		1,145	29,471	5.599
2030		1,145	30,616	5.817
2035		1,145	31,761	6.035
2040		1,145	32,906	6.252

Source: Charlotte County Health Department, Environmental Health Division, 2014

(1) Calculated number of permitted septic systems.

(2) Assumes 229 new systems are permitted annually based on the average of new systems installed annually, 2009-2013.

Table WSW-23 shows the total projected demand and total permitted capacity for sanitary sewage disposal for Charlotte County from 2020 to 2040, including centralized sewer systems, community systems, and on-site sewage disposal systems.

<b>Table WSW-23: Current Sewerage Capacity vs Projected Demand, 2020-2040</b>							
<b>Year</b>	<b>Functional Population</b>	<b>Projected Demand (MGD)</b>	<b>Projected Permitted Capacity (MGD)</b>				<b>Available Capacity (MGD)</b>
			<b>Centralized Sewer<sup>(1)</sup></b>	<b>Community Systems</b>	<b>On-Site Systems</b>	<b>Total</b>	
2020	204,868	18.057	16.524	0.438	5.382	22.344	4.287
2025	217,348	19.154	24.924	0.438	5.599	30.961	11.807
2030	234,623	20.673	24.924	0.438	5.817	31.179	10.506
2035	256,667	22.614	24.924	0.438	6.035	31.397	8.783
2040	284,589	25.078	24.924	0.438	6.252	31.614	6.536

Source: Charlotte County Community Development Department, 2019

(1) Includes facility expansions shown in Table WSW-16.

Table WSW-23 shows that, County-wide, there will be adequate sanitary sewage disposal capacity through the projection horizon of 2040, especially when on-site systems are included in

the analysis, but as Table WSW-19 shows, not all service areas within the County will maintain this excess capacity. This table takes into account the planned facility expansions shown in Table WSW-20, but does not address any reduced demand based on water conservation methods, or any other facility expansions certain to occur within the horizons of this plan that are not yet planned or even considered. Even so, there is a projected surplus in sanitary sewer service by over 6.5 MGD, and since it is true that large portions of many existing centralized service areas are actually served by on-site sewage disposal systems rather than by centralized systems, it is likely that this situation will continue in the future despite the expansion of centralized systems, and that projected service deficits will not actually result in areas that are underserved by any form of sewage disposal. Plans for the expansion of centralized sewer systems will be discussed in further detail below.

### **PERFORMANCE OF EXISTING FACILITIES**

The existing sanitary sewer facilities providing service to County residents are generally adequately maintained and in fair condition. Based upon FDEP permitting information, all of the major certificated areas had surplus capacity and exceed the established level of service standards. Table WSW-23 indicates that total existing capacity of septic systems, community systems, and sewage treatment plants should be adequate to meet the needs of the projected population through the projection horizon of 2040 although, as indicated earlier, this County-wide total hides regional imbalances between demand and permitted capacity.

### **PROBLEMS AND OPPORTUNITIES FOR WASTEWATER FACILITY AND INFRASTRUCTURE EXPANSION**

Charlotte County is focused on the long-term expansion of centralized sanitary sewage collection and treatment systems and the reduced reliance on on-site and community sewage disposal systems that may have a negative impact on the natural environment and groundwater, especially in the urbanized area. The inclusion of Charlotte Harbor and Lemon Bay to the FDEP and EPA verified list of impaired waterways clearly indicate that a transition from on-site systems to centralized facilities should be prioritized in certain areas of the County.

Many of the smaller utilities fund the expansion of their collection and treatment systems through bonding, or even through bank loans. The County, however, has established Municipal Service Benefit Units (MSBUs) as the current method to fund sewer expansion initiatives. MSBUs are created by County ordinance or resolution as a funding mechanism to provide specific services to defined areas. The associated project costs are equitably assessed on each property within the benefit unit as non-ad valorem assessments that appear on their standard property tax bills. Unlike other MSBUs that may handle continuing maintenance, the sewer benefit units have been established for the purpose of constructing system expansions, and are designed to be removed once the project costs have been paid off. The County is in the process of exploring other

methods of obtaining revenue to offset a portion of the cost to individual property owners to be used in conjunction with the MSBU method.

Currently there are 12 active utility expansion MSBUs, as shown on SPAM Series Map #88. In total, these MSBUs provide sewer availability to approximately 15,900 properties. Future success in expanding CCU's centralized sanitary sewer service to areas that need it will require direction from the Board of County Commissioners regarding the prioritization of future expansion areas.

In 2017 the County's Utility Department completed a Sewer Master Plan, a conceptual long-term strategic plan to bring centralized sanitary sewer service to the entire County service area, which could make centralized sanitary sewer available to approximately 72,000 additional properties within the Urban Service Area. The classification of Charlotte Harbor and Lemon Bay as impaired waters, a newly developed sewer model, and the Future Land Use element's adopted Goals, Objectives, and Policies pertaining to the targeting of centralized utility services provided key criteria in establishing the Master Plan. Areas where capacity upgrades are needed to support future growth, as well as areas for future system expansion based on the age of existing on-site systems, proximity to surface water bodies, and other factors were used for this conceptual long-term strategic plan.

The East and West Spring Lake Wastewater MSBU is in the final stages of construction to connect approximately 1,900 occupied properties. The proposed El Jobean vacuum system, scheduled for construction beginning in late 2019, will connect approximately 300 occupied properties.

Other opportunities exist for the County to improve system efficiencies and performance. The current sewer infrastructure is a complex network of treatment facilities, transmission mains, force mains, lift-stations, and collection systems. As the system expands, modifications and additions to the existing network will be required to accommodate the additional capacity, adding to capital expenditures. Any expansion to the existing system also increases the long-term O&M costs due to additional electrical costs, chemical costs, additional piping, replacement parts, additional staffing and equipment costs.

To eliminate a portion of the existing pressurized transmission system, a 48-inch gravity interceptor is now under construction through portions of the Mid-County service area to intercept flows from localized transmission and collection systems and transport sanitary sewage to the Eastport WRF. This will reduce reliance on a more extensive lift station/force main transmission strategy. The increased capital costs for this system would be offset by the long-term O&M savings.

In addition, increasing costs for construction of low-pressure sewer (LPS) systems and the associated long-term LPS O&M costs make it advisable to implement the use of gravity, modified gravity, and vacuum systems as alternatives to LPS systems.

Despite the fact that the County appears to have ample sewerage treatment capacity for the future, it is important that the public and certificated providers continue to upgrade and expand their treatment facilities and comply with FDEP regulations. To that point, the County has initiated the process to expand its Eastport and Burnt Store WRFs. As shown in Table WSW-23, 26.0 percent of the County's sanitary sewage treatment capacity is handled by on-site septic systems and community systems. While this is down from nearly half of all capacity as recently as the mid-1980s, Table WSW-23 also shows that given existing and projected treatment capacities and expansion this proportion will only fall to 21.1 percent by 2040. If the County wishes to significantly decrease the reliance upon non-centralized systems, then the provision of additional centralized sewer service is necessary concurrent with new residential, commercial, and industrial development. Alternatively, growth management policies may be adopted that direct future development into areas that are already served by centralized infrastructure, decreasing the costs of expansion and the per-unit O&M costs in a served area. Such regulation is in place at both the State and local level, discouraging the use of individual on-site sewage disposal systems on lots of less than one-half acre in area. There will likely always be areas of the County that are served by on-site systems; rural areas will not remain rural if public utility lines are extended to them, and there are areas within the County where urban densities are inappropriate or unwanted. The density of on-site systems shown on SPAM Series Map #89, however, is also inappropriate. Centralized sewer expansion into these areas will benefit the customer, the environment, and the County as a whole.

Additionally, existing sewage treatment facilities are being monitored for capacity and efficiency to ensure that future demands and regulations are met. A study of the feasibility of interconnections between existing sanitary sewerage collection and treatment systems could provide information on the creation of regional sewage treatment plants. In addition, sanitary sewer providers should improve existing infrastructure to maintain the current level of service and to decrease infiltration and inflow of water into sewer systems.

### **ON-SITE SEWAGE DISPOSAL SYSTEM MANAGEMENT PROGRAM**

The Environmental Health Division of the Charlotte County office of DOH estimates that more than 48,000 on-site sewage disposal systems have been permitted over the years in the County (see Table WSW-24). An estimated 85 percent of these are likely or somewhat likely still in operation. SPAM Series Map #89 show the 10,639 locations that the Health Department has designated as "known septic." There are 26,786 sites that they have designated as "likely septic" and another 3,522 sites designated as "somewhat likely septic." These on-site systems require routine periodic maintenance to ensure proper function, and a large number of systems fail because this maintenance is not performed properly. Malfunctioning on-site systems may introduce fecal bacteria and viruses into the surface and groundwater supply. Enhanced programs by DOH have increased the functionality of septic systems by requiring larger areas for installation, maintaining strict separation between drainfields and seasonal high water tables, and requiring inspections on alternative aerobic systems required on projects with more intensive

wastewater handling needs.

While the County has a large number of vacant lots with centralized sewer service available, there are even greater numbers without. A goal of this Comprehensive Plan is to encourage the development of those vacant lots already served by centralized potable water and sanitary sewer systems, and reduce the reliance on on-site systems. Encouragement to develop within areas already served, or targeted to be served in the near future, will be accomplished through a combination of incentives and regulatory restrictions. This Plan also considers financial costs of providing infrastructure, and it recognizes that property owners using on-site systems have made a financial investment in those systems. Laws have been adopted by the County requiring less intensive use of land for on-site systems before requiring that alternative systems be employed. This has effectively required more connections to centralized sanitary sewer systems as a more cost-effective solution, and has upgraded the standards for the average on-site system.

<b>Table WSW-24: On-Site Sewage Disposal System Permits Issued</b>		
<b>Year</b>	<b>New Permits</b>	<b>Repair Permits</b>
Pre-1993	38,649	
1993	571	41
1994	497	185
1995	382	147
1996	402	212
1997	400	160
1998	336	160
1999	289	68
2000	325	75
2001	315	129
2002	365	135
2003	405	144
2004	406	70
2005	858	55
2006	1,171	212
2007	463	337
2008	166	462
2009	240	494
2010	158	369
2011	110	365
2012	125	414
2013	167	525
2014	181	549
2015	257	713
2016	354	713

<b>Table WSW-24: On-Site Sewage Disposal System Permits Issued</b>		
<b>Year</b>	<b>New Permits</b>	<b>Repair Permits</b>
2017	446	611
2018	701	617
<b>Total</b>	<b>48,739</b>	<b>7,962</b>

Source: Charlotte County Health Department, Environmental Health Division, 2019

On-site sewage disposal systems installed prior to 1983 are a concern in the County because they were built prior to the stricter regulations that are in effect today. In general, on-site systems present challenges when compared to a centralized sewer system due to the land area required per lot to install them, the costs associated with installing and maintaining them, and the high seasonal water table through much of the County, which requires many drainfields to be mound systems.

According to DOH records, 7,962 septic repair permits were granted between 1993 and 2018. This averages to 306 repairs or documented deficiencies per year, although 6,169 of those repair permits, or 77.5 percent of the total, were issued since 2007, as part of the County’s inspection and maintenance program, which requires property owners to upgrade deficient systems to current standards where and when possible. Many, if not most of Mid-County’s on-site systems were installed prior to 1983. In portions of West County, the Englewood Water District has successfully eliminated many of the older on-site systems and replaced them with vacuum sewer systems through the implementation of its regional central sewer program. As detailed above, the County has established several MSBUs to finance sewer expansion projects. The typical design life of an on-site sewage disposal system has been estimated at 15 to 20 years (Proposed Surface and Groundwater Quality Monitoring Program for Charlotte County, Florida, Mote Marine Laboratory, Technical Report #433, July 28, 1995).

On-site sewage disposal systems constitute a major component of existing wastewater treatment. While most of the County’s platted lots are not fully served by centralized utility service, there are a number of vacant lots that are ready for development and served by central potable water and sewer service.

The three urbanized areas of West County, Mid-County, and South County contain nearly 40,000 lots and parcels that have central sewer service available to them yet are vacant and ready to serve new development. Much of the County’s new development should be channeled into those areas in order to maximize the infrastructure investment that has been made.

---

## IMPLEMENTATION

### POTABLE WATER SUPPLIES, SANITARY SEWAGE DISPOSAL, AND GROWTH

The provision of centralized water or sewer lines, whether by a public agency or a private company, can be one of the strongest indicators of development potential. The extension of such infrastructure into a rural area is one of the most effective ways to ensure that such an area does not remain rural in the long run. The new utility lines allow for a much higher density of development than before and the utility provider must encourage higher-density development to realize an acceptable return on the infrastructure investment. Given the opportunities provided by the construction of infrastructure lines, such extensions should be considered a tool to direct development into areas that are deemed appropriate, and away from areas that are deemed inappropriate.

This comprehensive plan incorporates growth principles that identify locations where the County intends to direct development and capital investments in infrastructure. These areas are targeted due to their existing population densities and land uses, and their proximity to existing public infrastructure. By directing development to these areas, the County can reduce infrastructure costs by increasing the use of existing systems, reducing urban sprawl, saving money by not requiring the construction of new transmission or collection mains into undeveloped areas, and reducing the per-unit costs of operations and maintenance on the existing infrastructure systems.

Centralized potable water and sanitary sewer utilities may establish prioritization systems for expanding their service areas, but all such prioritization shall be consistent with the planning principles established and more fully described in the Future Land Use element.

### POTABLE WATER AND SANITARY SEWER SYSTEM EXTENSIONS

Besides roads, centralized potable water lines have had the greatest infrastructure influence on the development pattern of Charlotte County. Much of the urbanized area has been subdivided into small lots where the predominant land use is low-density residential. In addition, many of the commercial and industrial sites have also been subdivided into smaller lots. This development pattern enabled many developers to install only potable water lines and rely upon on-site sewage disposal systems for sanitary sewage disposal. On-site systems are more appropriate in rural areas, where large lots allow for wide separation distances between on-site systems and on-site potable water wells. These separation distances are necessary to prevent the on-site drainfields from contaminating the groundwater drawn by the wells. If potable water lines are installed in an area without sanitary sewer service, however, this allows the land to be subdivided into small lots and on-site systems may be installed at a much higher density than would otherwise be permitted.

While in this situation on-site potable water wells are not in danger of being contaminated by malfunctioning on-site systems, such a high concentration of on-site sewage disposal still has the

potential to produce adverse environmental effects, particularly in an area such as Charlotte County, where the soils are poorly equipped to deal with the percolation of effluent. The impairment of Charlotte Harbor and Lemon Bay, as determined by FDEP and EPA, was caused in part by a high concentration of on-site systems that have begun to malfunction due to age and lack of adequate maintenance.

One of the County’s objectives continues to be the reduction of dependence on on-site systems, especially within the Urban Service Area, by reducing the number of new construction projects using them. New development should be directed into areas where centralized sewer service is available. Additionally, new areas for infrastructure expansion are being identified.

The County currently requires simultaneous extension and certification of potable water and sanitary sewer utility lines. However, this condition may not be achievable when the water and sewer providers are not the same due to the overlap of service areas (one example would be the Charlotte Harbor Water Association certificated area and Charlotte County’s Mid-County service area). In these cases, extension of lines simultaneously should be evaluated on a case-by-case basis. The County presently has mandatory connection requirements if centralized water or sewer service is made available.

Currently, there are two utility providers in South County. These providers are the City of Punta Gorda and Charlotte County through its Burnt Store service area. While most of the City of Punta Gorda is served by central water and sewer service, much of the unincorporated areas surrounding the City are not. In order to ensure service provision to unincorporated areas, Charlotte County and the City continue to work towards solutions for providing the necessary infrastructure, including interlocal agreements for service provision and the sharing of expansion plans for meeting growing demands.

As development of the County continues, infrastructure expansion should continue in a manner consistent with the planning principles outlined in the Future Land Use element. The cost of infrastructure installation should be borne by those benefiting from its provision. Concurrency requires that adequate capacity for public services, including potable water and sanitary sewer, shall be in place to meet the projected demand upon those services from proposed development. If such capacity is not available at the time of proposal, it is generally the responsibility of the developer to provide it.

**CONCURRENCY MANAGEMENT**

Concurrency, or the policy of ensuring that public facilities are in place to serve projected demand produced by proposed development, is required by local ordinance. This concurrency is monitored by the County’s Concurrency Management System, and potable water and sanitary sewage disposal service are both included. Most of the public facilities in the concurrency system are provided by the County, including transportation facilities, public schools, and parks. Potable



water and sanitary sewer, however, are provided by many utilities, both public and private. All of these utilities are responsible for ensuring that concurrency is met for development within their service areas.

While the individual utilities are responsible for maintaining concurrency, the County, as the central agent for reviewing and approving development, makes any decision determining whether proposed development does or does not exceed the stated existing capacity of the utility. Every potable water and sanitary sewer utility in the County is required to report to the County the details of monthly usage, permitted capacity, and the number of customers. When development is proposed, County staff reviews these reports to compare the projected demand from the proposed development with the remaining permitted capacity of the utility serving the development, as reported. If the projected demand would exceed the available capacity, then the County will not issue an approval for the proposed project.

If a proposed development does not meet concurrency, there are several options to correct this situation. The developer may enter into an enforceable development agreement or development order with the utility to guarantee that the required facilities will be installed, or the developer may construct the facilities necessary to bring the utility into concurrency, or the developer may pay the utility to construct the necessary facilities. Other options may also be available. While the County may make the determination as to whether a proposed development meets concurrency for any utility within the County, it is the responsibility of that utility to ensure that concurrency is maintained or deficiencies are corrected.

## **FUTURE DIRECTION**

As shown in Table WSW-1, Charlotte County's population will continue to grow, although it is projected to increase at a slower pace than in the past. Potable water and sanitary sewer service will need to be available to provide for the health, safety, and welfare of the future population. Table WSW-6 indicates that, overall, utility providers will be looking for additional sources of potable water to support the projected population increase through 2040. Several utilities will need additional permitted capacity before this time to meet projected demand. Table WSW-19 also shows that, overall, utility providers will be looking to expand sanitary sewage treatment capacity to support the projected population increase by 2040.