
INFRASTRUCTURE DATA AND ANALYSIS

POTABLE WATER AND SANITARY SEWER WATER SUPPLY FACILITIES WORK PLAN

INTRODUCTION

The following is the Data and Analysis necessary to support the adopted Smart 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 section 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 9J-5 of the *Florida Administrative Code* (FAC). Specific parameters for this particular element are based on criteria established pursuant to Rule 9J-5.011. This section of Chapter 9J-5 requires that sewer and water services be provided in accordance with future land use projections and also identifies a basic framework for developing a series of goals, objectives, and policies which are 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 open land to build upon. The availability of water supply and 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 Charlotte County's development strategy as identified in the Future Land Use element.

Potable water in Charlotte County is supplied by thirteen individual utilities. The three largest providers, Charlotte County Utilities (CCU), the City of Punta Gorda, and the Englewood Water District are publicly owned while the remaining providers are privately owned. These 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 certificated area falls under the service of CCU.

Sanitary sewer service in Charlotte County is provided by ten individual utilities. Again, the largest providers are CCU, the City of Punta Gorda, and the Englewood Water District, and again all ten utilities have certificated service areas, with any land not specifically included in another utility's area being included within CCU's area.

Several community systems, for both potable water and sanitary sewer, have been approved by the Florida Department of Environmental Protection (DEP). These systems are usually established in mobile home parks, campgrounds, 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 abandoned when public utilities become available. According to FDEP, there are seven community water systems in Charlotte County and 16 community sewer systems.

Many residential units in Charlotte County do not have access to either public potable water or sanitary sewer systems. These units are served by private wells, private on-site septic systems, or both. There are an estimated 9,700 permitted private wells and an estimated 40,000 permitted private on-site septic systems in Charlotte County.

In order to ensure that there is adequate potable water supply and sanitary sewage disposal for all residents, Charlotte 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, and the City of Punta Gorda has established its own LOS standards for its incorporated areas. Currently, all the certificated potable water utilities in Charlotte County meet the adopted LOS standards and all but one of the sanitary sewer utilities currently meet the adopted LOS standards. The potable water utility that does not currently meet the adopted LOS standards is also one of the two deficient sanitary sewer utilities, and these two utilities have certificated areas that are much larger than their actual service areas, and therefore likely meet the adopted standards for their current customers.

This Comprehensive Plan incorporates Smart Growth principles which identify the locations where Charlotte County will seek to direct the majority of all capital improvement dollars in 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 upon those affected property owners.

RELATIONSHIP TO 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 must utilize 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 section must therefore be consistent with those established for other elements to promote a well-coordinated growth management strategy for Charlotte 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 central 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. CCU, a department of Charlotte County government and the largest provider of both centralized water and sewer services in 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 operating in Charlotte County is identified in the Capital Improvements element (CIE). This ten-year schedule of capital projects establishes and prioritizes future expenditures of public funds on infrastructure projects including roads, parks, public facilities, and central water and sewer systems. In general, the CIE only includes projects on which Charlotte County is spending funds (i.e., roads projects completed by the City of Punta Gorda or the State of Florida are not included). Due to State requirements for concurrency, however, all central 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 Charlotte County's ability to provide water and sewer are contingent upon interlocal agreements with various governmental entities. The majority of the County's potable water is currently supplied to CCU by the Peace River/Manasota Regional Water Supply Authority (PR/MRWSA). The geographic territory of this regional water supply authority includes De Soto, Manatee, and Sarasota counties, and that portion of Charlotte County located within the boundaries of the Southwest Florida Water Management District (SWFWMD). Currently, two utility providers in Charlotte County also serve portions of Lee County, one utility provider in DeSoto County serves customers in Charlotte County, and another utility provider in Charlotte County has a certificated area (but no customers) that extends into DeSoto County. Interlocal utility agreements between the County and neighboring jurisdictions are reflected in the Intergovernmental Coordination element.

The Intergovernmental Coordination element also identifies the various relationships between other agencies of the State of Florida that will affect potable water and sanitary sewer. These agencies include FDEP, the Department of Community Affairs (DCA), and the Department of Health (DOH). Other regional agencies include the Southwest Florida Regional Planning Council (SWFRPC), SWFWMD, and the South Florida Water Management District (SFWMWD). The two Water Management Districts regulate water usage and also evaluate water resource management issues. These issues are also an important part of the Natural Resources and Coastal Planning elements.

LEGISLATION

FEDERAL

Charlotte County's utility providers 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. 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, F.A.C.

The 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. These provisions have been implemented at the state level under 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

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."

LOCAL

In 2007, Charlotte County assumed regulatory authority of for-profit utilities from the Florida Public Service Commission (PSC) (*Ordinance 2007-092*). Town and Country Utilities, Lake Suzy Utilities, and Sun River Utilities, which cross the Charlotte County lines into Lee County, DeSoto County, and DeSoto County, respectively, remain under the jurisdiction of the PSC. The regulation of all of the remaining utilities within the County is handled by either Charlotte County or the utility's governing body.

EXISTING CONDITIONS

BASIS OF DEMAND – POTABLE WATER AND SANITARY SEWER

In order to properly plan for the expansion of central 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 2050 for use in this comprehensive plan. An explanation of the methodology used in the projections and projected population totals through 2050 may be found in the section of FLU Data and Analysis titled Basis of Demands – Population Projections and FLU Data and Analysis Appendix C.

For purposes of water and sewer 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 all year round. 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 long-range planning horizon of 2030 and up to the vision horizon of 2050.

Table WSW-1: Functional Population Projections, 2008-2050					
Year	Permanent Population	Seasonal Population	Functional Seasonal Population	Hotel/Motel Population	Total Functional Population
2008	159,889	15,793	11,166	3,356	174,411
2010	159,488	15,595	11,026	3,523	174,037
2015	173,594	16,617	11,748	3,935	189,277
2020	191,088	17,906	12,660	4,339	208,087
2025	212,273	19,472	13,767	4,734	230,774
2030	236,422	21,227	15,007	5,121	256,550
2040	285,489	24,553	17,359	5,871	308,719
2050	323,244	26,618	18,819	6,588	348,651

Source: Charlotte County Growth Management Department, 2009

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 certificated areas of the various utilities. The seasonal

population projections were not able to be geographically distributed in the same manner as the permanent population projections. Accordingly, when the projected populations were allocated to the various utility service areas, seasonal populations were allocated to the various utility service areas based on the percentage of the County’s permanent population located within that service area.

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 mobile home park or campground. These projections are based upon the total number of units within the development and the County’s annual growth rate of 1.2 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 stops for that development. Table WSW-2 shows the projected population growth for all community systems.

Table WSW-2: Community System Population Projections, 2008-2050										
System	Total Units	Max Pop	2008	2010	2015	2020	2025	2030	2035	2050
Alligator Park MHP	404	880	400	409	433	458	485	514	544	641
Bay Palms MHP	50	109	102	104	109	109	109	109	109	109
Burnt Store Colony MHP	240	523	514	523	523	523	523	523	523	523
Charlotte Correctional Institute			1,594	1,632	1,729	1,832	1,941	2,057	2,180	2,572
Gasparilla Mobile Estates	177	385	385	385	385	385	385	385	385	385
Harbor View Trailer Park	148	322	266	272	288	305	322	322	322	322
Hideaway Bay Beach Club Condominium	102	222	211	216	222	222	222	222	222	222
Lazy Lagoon MHP	157	342	316	323	342	342	342	342	342	342
Palm & Pines	116	252	241	246	252	252	252	252	252	252
Paradise Park Condominium Association	314	684	785	803	851	902	956	1,013	1,073	1,266
Pelican Harbor MHP	159	346	263	269	285	302	320	339	346	346
Pelican Perch RV Park	25	54	50	51	54	54	54	54	54	54
River Forest Village	204	444	394	403	427	444	444	444	444	444
Shell Creek Park MHP	214	466	465	466	466	466	466	466	466	466
Sun N Shade Campground	154	335	200	204	216	228	241	255	270	318
Tropical Palms MHP	293	638	350	358	379	401	425	450	477	562
Villas Del Sol	88	191	28	28	29	30	31	32	33	38

Source: Florida Department of Environmental Protection & Charlotte County Growth Management Department, 2009

The County’s projections have also been compared to the Regional Water Supply Plans prepared by SWFWMD and SFWMD, and the Water Facilities Supply Plan prepared as part of the Charlotte County Comprehensive Plan in 2007. 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, 2005-2050

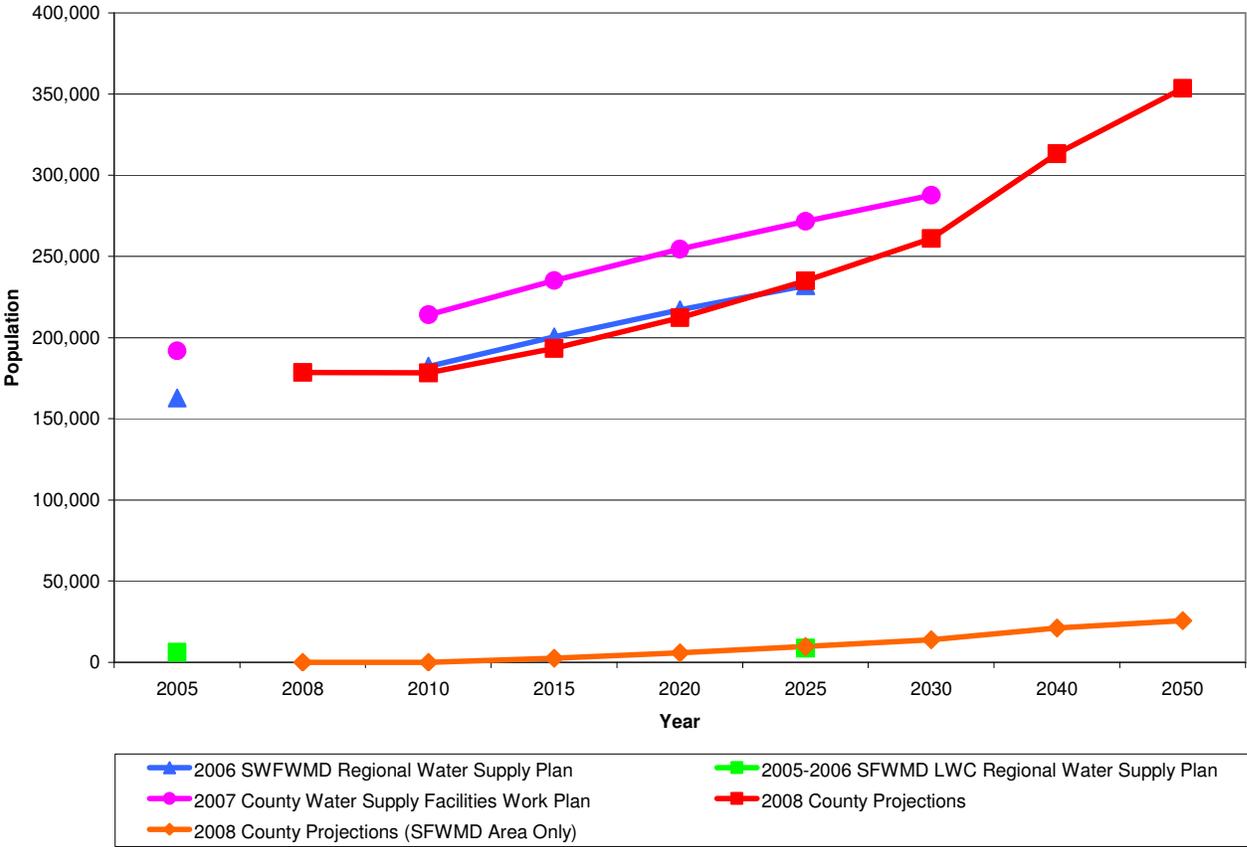
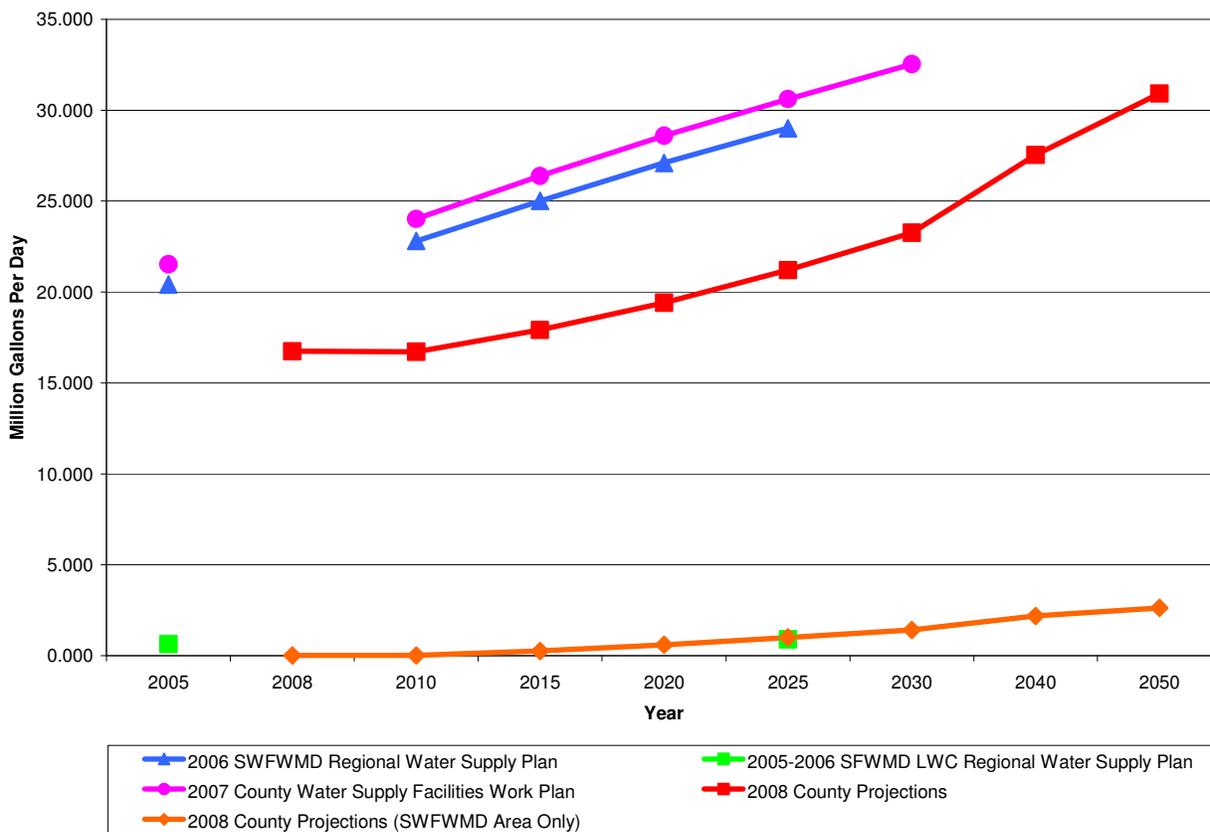


Chart WSW-2: Demand Projection Comparison, 2005-2050



This comparison shows that between 2010 and 2025 the County’s 2008 population projections range between 2.2 percent less and 1.3 percent more than SWFWMD’s projections, and that between 2010 and 2030 the 2008 projections range between 17.8 and 9.3 percent less than the 2007 Water Supply Facilities Work Plan projections. This is not a significant variation, and should ensure that the 2008 projections may be compared to these other projections without fear of inappropriate comparisons.

When demand projections are compared, the County’s 2008 projections result in potable water demand that is between 33.9 percent and 26.6 percent less than the SWFWMD projections and between 37.3 and 26.8 percent less than the County’s 2007 Water Supply Facilities Work Plan. These differences are accounted for on one hand by more optimistic population projections used in the 2007 Water Supply Facilities Work Plan, and by the use of higher per capita water use rates in SWFWMD’s Regional Water Supply Plan. The SWFWMD projections calculated projected demand using 2001 per capita usage rates included in SWFWMD’s 2001 Estimated Water Use Report. This rate was approximately 125 gallons, or 22 gallons per day per person more than the County’s adopted Level of Service of 103.211 gallons per day per capita for potable water.

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 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 225 gallons per day (gpd) per ERC is needed to meet peak demands and fire flows in the unincorporated areas of Charlotte County. Actual average day demands may be significantly lower. As reported in its 2008 SWFWMD Public Supply Annual Report, the CCU per capita usage was 75 gpd. Assuming 2.18 persons per household, actual average daily demand was 163.6 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 in Charlotte County, and customers utilize 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 Charlotte 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 13 public or certificated utilities. The three largest suppliers are all publicly owned: CCU, 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 a certificated area of operation throughout which they provide service. The certification grants 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 certificated area falls under the service of CCU. The 13 certificated potable water supply 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 campgrounds. 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 under Rule 9J-5.011 F.A.C. 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 Charlotte County were then identified based on the data obtained from the inventory. Future water demands were generated by applying population projections to the 225 gallons per day per ERC LOS standard

established in this element. Demands were equated to per capita water usage by dividing the 225 gpd ERC standard by 2.18 persons per household, the 2000 U.S. Census estimate for Charlotte County. 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 the local governments with membership. These include Charlotte, DeSoto, Manatee, and Sarasota Counties and the City of North Port, and have a population of over 750,000. PR/MWSA provides treated water to the local governments, who then actually distribute that water to their customers.

The Peace River Water Treatment Facility (PRF) is a 24 million gallon per day (MGD) surface water treatment plant (WTP) located in southwest DeSoto County, approximately 19 miles above the river's mouth in Charlotte Harbor. The PRF includes a diversion structure, a 625 million gallon (MG) off-stream reservoir, aquifer storage and recovery (ASR) wells, and aboveground storage. The Authority is presently expanding the capacity of the PRF to 48 MGD and constructing a 6 billion gallon off-stream reservoir. Upon completion of the expansion in 2009, the PRF is anticipated to be able to provide an annual average of 32.7 MGD to its members, approximately 16.1 MGD of which will be allocated to CCU. In addition, CCU has requested an additional 1.658 MGD from the Authority on an annual average day basis starting in 2014, increasing the total potential allocation from the Authority to 17.66 MGD.

Charlotte County Utilities: CCU is owned and operated by Charlotte County, and is the largest utility in the County. CCU's official service area includes all of Charlotte County not included in any other certificated 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, and portions of West County including Gulf Cove, East Englewood, Rotonda West, and South Gulf Cove. CCU also services a portion of the Burnt Store area of South County. In total, CCU supplies potable water to approximately 56,000 service connections which in 2008 created an average daily demand of 9.700 MGD. Of this total, 9.070 MGD was supplied by the PR/MRWSA, 0.420 MGD was supplied by the Burnt Store reverse osmosis plant, and 0.210 MGD was provided by the Englewood Water District. CCU has an annual daily average allocation from PR/MRWSA of 13.895 MGD, which amounts to County 53 percent of all the water produced by PR/MRWSA's Peace River Water Treatment Plant. In 2010, CCU's purchase from PR/MRWSA will increase to an annual daily average purchase of 15.031 MGD, and in 2011 it will increase to 16.102 MGD.

CCU currently operates one water treatment facility. The Burnt Store reverse osmosis (RO) facility has a current capacity of 1.127 MGD. The Burnt Store facility currently provides service

to approximately 2,292 service connections (3,628 ERCs) within its service area, including a small service area known as Burnt Store Marina in Lee County. Design for the expansion of the facility to 3.6 MGD was completed in September 2007 and construction of the upgraded WTP is scheduled for completion by the first quarter of Fiscal Year 2010.

CCU is also a provider of bulk water to three private utilities. The Riverwood Community Development District, El Jobean Water Association, and NHC Utilities all purchase bulk treated water from CCU and resell it to their customers. Since all three of these private utilities are located in the Mid-County region, the water they purchase from CCU was originally purchased by CCU from PR/MRWSA.

CCU 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 CCU maintains with its three bulk purchase customers.

City of Punta Gorda: The City of Punta Gorda official 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 withdraws surface water from Shell Creek, a tributary of the Peace River, located east of Interstate 75 near Washington Loop Road. The plant has a rated treatment capacity of 10 MGD and supplies water to over 11,700 service connections. The City water use permit allows withdrawals of 8.01 MGD annual average day 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 March 2009 the City completed an update to its Water Supply Master Plan, which identified a Phase 1 groundwater project to ensure water quality and quantity standards could be met through 2019. Currently, the Shell Creek impoundment serves as the sole source of potable water for the City. The goal of the Phase 1 project is to develop a brackish groundwater supply to be treated by reverse osmosis and blended with the existing surface water to produce drinking water that meets all primary and secondary drinking water standards.

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, generally that portion of Charlotte County west of Winchester Boulevard and north of Buck Creek, including Manasota Key, but not the bridgeless barrier island Knight Island.

The District uses three fresh water and two brackish water wellfields to provide source water. The three freshwater wellfields are capable of producing 3 MGD, but the Water Use Permit issued by the SWFWMD restricts withdrawals to a maximum of 1.35 MGD. The two brackish wellfields are capable of producing over 4.25 MGD to the RO plant. A sixth wellfield is currently being evaluated to determine its potential supply capacity. All three wellfields are located in Sarasota County.

Raw water from these sources is treated at the RO treatment plant which has a permitted capacity of 5.0 MGD. Finished waters from both plants are blended and sent into the distribution system. The District maintains over 16,400 residential and commercial service connections in both Sarasota and Charlotte Counties, of which approximately 45 percent are located in Charlotte County.

The District maintains an emergency interconnect with CCU.

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 water treatment plant, located east of Interstate 75 that treats water drawn from four wells and provides service to 1,820 residential and commercial service connections. Most of the service connections represent residential users. The facility has a permitted capacity of 0.750 MGD. This utility does not purchase water from CCU but does maintain an emergency interconnect with the County's utility.

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 more than 850 single family and multi-family service connections in the Riverwood development. The CDD does not own or operate either a water supply or treatment plant of its own, purchasing bulk treated water from CCU, 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 water treatment plant, wellfield, and color removal plant, located southeast of Rotonda in Charlotte County, with a combined permitted capacity of 1.846 MGD providing service to 1,673 residential and commercial service connections. The utility maintains an interconnect with CCU and purchased 0.225 million gallons in 2008.

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 600 residential and commercial service connections. The Association does not own or operate either a water supply or treatment plant of its own, purchasing bulk treated water from CCU.

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 200 service connections within the Vizcaya Lakes mobile home park with a permitted capacity of 0.09 MGD. The utility does not own or operate either a water supply or treatment plant of its own, purchasing bulk treated water from CCU.

Sun River Utilities: The Sun River Utilities 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. Sun River serves approximately 58 residential service connections and two general service connections. Raw water is treated at an RO treatment facility with a plant capacity of 0.04 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 RO treatment plant serving over 200 residential and commercial service connections with a design capacity of 0.09 MGD.

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 operates a RO treatment facility serving 220 residential service connections with a design capacity of 0.072 MGD.

Bocilla Utilities: The Bocilla Utilities certificated area covers approximately 0.91 square miles located on Don Pedro Island, a bridgeless barrier island. The utility operates a RO water treatment plant serving over 200 residential service connections with a permitted capacity of 0.12 MGD.

North Fort Myers Utilities: The North Fort Myers Utilities certificated area covers approximately 2.42 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. NFMU does not currently have any residential or commercial service connections. NFMU does not own or operate either a water supply or treatment plant of its own, purchasing bulk treated water from Lee County Utilities.

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. This utility has been certificated to serve the new Babcock

Ranch development. The utility has been permitted to construct a RO plant that will have a capacity of 5.00 MGD.

Lake Suzy Utilities: Lake Suzy 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 treatment plant of its own, purchasing bulk treated water from DeSoto County Utilities.

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 seven such community systems in Charlotte County that serve residential or residential-type development. These include mobile home parks, campgrounds, and the Charlotte Correctional Institute. 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 9,683 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, included in WSW Appendix A, 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 28.04 MGD of withdrawals in Charlotte County, and SFWMD permits 20.55 MGD. These significant non-potable water uses comprise a total of approximately 364 MGD of withdrawals on a peak monthly basis.

Existing and Projected Water Facility Needs

The 21 existing potable water suppliers in Charlotte County are permitted to provide 33,462,000 gallons of water in 2009 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
6080009	Alligator Park MHP	400	60,000	199	2.01	1	2
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	12,758,000	57,833	2.23	5	N/A
6080318	Charlotte County Utilities – Burnt Store	6,300	1,127,000	2,286	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
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	2,133	N/A	853	2.50	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
	Community Development District						
6080256	Shell Creek Park	465	50,000	290	1.60	1	1
6080272	Sun N Shade Campground	200	15,000	80	2.50	1	1
6084074	Sun River Utilities	90	40,000	40	2.25	1	1
	Town & Country Utilities						
6080324	Tropical Palms MHP	350	80,000	360	0.97	1	1

Source: Florida Department of Environmental Protection, 2009

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:

$$1 \text{ ERC} = 225 \text{ gpd} / 2.18 \text{ persons per household} = 103.2 \text{ gpcd}$$

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 13 certificated service areas, and population estimates for each certificated service area were developed from 2008 to 2050.

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 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. Due to the nature of the Census blocks on the bridgeless barrier islands, however, the service areas and populations of Bocilla Utilities, Knight Island Utilities, and Little Gasparilla Island Utilities were combined for statistical purposes in this analysis. Given the fact that these islands experience little development activity due to their difficult access, high costs, and significant build-out levels, this statistical combination is not expected to significantly affect the analysis.

Table WSW-6 depicts the projected potable water demands from 2008 to 2050 based on estimated functional population. Projected demands are calculated by multiplying the projected population by the per capita equivalent minimum LOS standard of 103.2 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.

Table WSW-6 also compares the supply capacity for each of the potable water suppliers within Charlotte County presented as permitted capacities and peak capacities of the treatment facilities and the withdrawal capacity of the utility based on any approved Water Use Permits. Permitted capacities are based upon the water treatment facility's permit from DEP and are presented in terms of Annual Average Daily Flow, 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 provides service to some population outside of Charlotte County, the reported demand does not include that service population and the permitted capacity has been adjusted accordingly. 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.

Withdrawal 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. Not every utility meets the minimum threshold requirements for a WUP, so Table WSW-6 does not include a WUP for every utility provider. Since a utility's WUP for withdrawals may be less than the permitted capacity of its treatment facility, both permits must be used to determine whether any particular utility will be able to meet expected demand based upon projected population.

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 Smart 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 rule 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.

The analysis presented in Table WSW-6, included in WSW Appendix A, shows that, based on peak demand and supply, Sun River Utilities shows an immediate supply deficit. No other certificated utility shows a supply deficit through the long-range planning horizon of 2030, but Charlotte Harbor Water Association and Charlotte County Utilities' Mid- and West County service area, including CCU's three bulk customers, show supply exceeding demand by the vision horizon of 2050.

Usage data for Sun River Utilities show that the actual usage rate is much lower than the projected level. Table WSW-7 shows the reported flows through the Sun River Utilities water treatment plant for the 26 months between June 2007 and July 2009, which were submitted to the County. Although only 15 months were reported during that 26-month span, the table

shows that the highest flow was 0.006 MGD and generally is recorded in the 0.003-0.004 MGD range. Sun River Utilities reported 58 single-family connections in July of 2009, which equates to 127 people using the 2000 U.S. Census estimate of 2.18 persons per household, compared to a functional population of 1,690 as estimated by the County’s projections. In 2009, 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 Sun River Utilities 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. At the time of this writing, Sun River Utilities and CCU are developing an agreement in which Sun River Utilities would purchase bulk water from CCU. Although the final amounts of water to be purchased have not been established, this agreement would eliminate the projected water shortage within Sun River Utilities’ service area.

Table WSW-7: Reported Monthly Potable Water Flow for Sun River Utilities, 2007-2009	
Month	AADF
Jun 2007	
Jul 2007	0.006
Aug 2007	
Sep 2007	0.004
Oct 2007	0.003
Nov 2007	
Dec 2007	0.005
Jan 2008	
Feb 2008	
Mar 2008	
Apr 2008	0.004
May 2008	
Jun 2008	0.004
Jul 2008	0.003
Aug 2008	0.004
Sep 2008	0.002
Oct 2008	0.002
Nov 2008	0.003
Dec 2008	0.004
Jan 2009	
Feb 2009	0.005
Mar 2009	
Apr 2009	
May 2009	0.003
Jun 2009	0.003

Table WSW-7: Reported Monthly Potable Water Flow for Sun River Utilities, 2007-2009	
Month	AADF
Jul 2009	

Source: Charlotte County Growth Management Department, 2009

Two community systems also show immediate shortages and a third shows a shortage in 2010. These community systems serve an RV park, a campground, and a condominium association in a very rural area of Charlotte County. A fourth community system, serving a mobile home park south of the City of Punta Gorda, shows a supply deficit beginning in 2040, after the 2030 horizon but before the 2050 horizon. 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 mobile home 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 Shell Creek Park Mobile Home Park reported usage of 0.034 MGD, or only 68 percent of the permitted capacity of 0.050 MGD and 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 these two community systems shows that, given current reported usage rates and projected growth rates, both will remain within capacity through 2030. If all of the community systems have usage patterns similar to Shell Creek Park MHP and Paradise Park Condominiums then the deficits projected in Table WSW-6 do not exist.

Charlotte County is currently working with PR/MRWSA to increase supply capacity, and is also evaluating the potential to develop alternative water supplies, such as brackish groundwater, within the boundaries of Charlotte County. The City of Punta Gorda was recently granted an increase in their Water Use Permit allocation from Shell Creek and is intending to expand the treatment capacity of their Shell Creek Water Treatment Plant. Charlotte Harbor Water Association and Gasparilla Island Water Association are extending water distribution mains to serve projected future growth. The planned capital projects of CCU, Punta Gorda, Charlotte Harbor Water Association, and Gasparilla Island Water Association are discussed further in the Capital Improvements section of this element.

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 and Water Use Permit allocations for each of the utility service areas with existing or pending permits.

Table WSW-8, included in WSW Appendix A, 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 in 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.

The potential future water supplies for Charlotte County are summarized below. Currently, 95 percent of CCU's water supply is provided by PR/MRWSA. CCU is the largest customer of PR/MRWSA and purchases more water than any other member government. Increasing populations in Charlotte County and the other member governments supplied by PR/MRWSA have resulted in water supply deficits that will require the Authority to continuously pursue new water supply sources and expansion projects over the next 20 years. CCU currently accounts for 53 percent of PR/MRWSA's total demand and is thus liable for an equal proportion of its revenue and capital improvement expenditures. At this time, Charlotte County is considering two water supply options to meet future demands.

Option 1: Increase reliance on water supplied by PR/MRWSA

Four projects are under consideration in a Source Water Feasibility Study produced by PR/MRWSA to meet the future water demands of its member governments. This study identified surface water reservoir sites in the Upper Myakka, Shell and Prairie Creeks, and Dona Bay watersheds and evaluated them for suitability as future surface water sources. Additionally, ground water sources were examined as a means of supplementing surface water supplies and reducing associated costs. These identified projects and their associated costs are identified in Table WSW-9. All of these projects would involve the construction of surface reservoirs of up to 6.5 billion gallons in capacity.

Table WSW-9: Potential New Water Supply Sources for PR/MRWSA			
Project Name	Estimated Finished Water Supply (MGD)	Capital Costs (\$M)	Annual Cost (\$/1,000 gal)
Upper Myakka River	10	\$298	\$7.29
Shell Creek A	12	\$287	\$6.13
Shell Creek B	20	\$340	\$4.59
Dona Bay	5	\$114	\$5.95

Source: Peace River/Manasota Regional Water Supply Authority, 2009

Several of the potential water supply sources and associated treatment facilities are not owned or controlled by PR/MRWSA. For example, Sarasota County owns two reservoirs and the treatment plant proposed for use in the Dona Bay project and either Shell Creek project would involve diversions from Tippen Bay/Long Island Marsh and would be operated by the City of Punta Gorda with the water treated at their Shell Creek facility. Currently, Sarasota County and the City of North Port operate their own supplies and treatment facilities and purchase water from PR/MRWSA only when demands cannot be met without aid from the regional system. Water demands for Punta Gorda are currently met through use of the City’s own supply, but the City also desires to sell water to PR/MRWSA for redistribution through the regional system.

Therefore, although the sources are connected to the regional system or, in the case of Punta Gorda, will be connected by 2012, the availability of the referenced source waters to PR/MRWSA for regional distribution is not established at this time. Storage for PR/MRWSA has been enhanced by the recent construction of a six billion gallon reservoir filled by diversions from the Peace River.

Option 2: Develop County-owned and operated water supplies

Diversity of supply through the use of groundwater to provide improved reliability and sustainability of the potable water supplies within Charlotte 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 reverse osmosis treatment facility and potential brackish groundwater well field in the eastern portion of the County. This treatment plant would receive water either from a potential on-site wellfield or from Babcock Ranch.

Since CCU 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 a six billion gallon reservoir 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 this new reservoir would be

completely empty, and there would be periods prior to the depletion of the reservoir supply where the water quality would be significantly degraded.

The construction of this reservoir does not address diversity of water supply, however. CCU would still be reliant upon PR/MRWSA and the flows in the Peace River for nearly all of its supply. A separate source owned and operated by CCU, even if only as a secondary source, would add to the diversity of the overall water supply in Charlotte County. This CCU supply could be used to back up not only CCU'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 Charlotte County's future reliance upon the regional water supply system, thus increasing available supply for other members. Once water demands increase in Charlotte County, as a result of population growth, 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 is 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, Charlotte County is currently seeking a water use permit from SFWMD for approximately 4 MGD of finished water by the year 2018.

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 CCU this source would eliminate the need for the County to purchase water from other PR/MRWSA members at higher rates, and would relieve stress placed upon the natural systems of the area by reductions of 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-10. Capital costs include construction of the Floridan wells, treatment and storage facilities, 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.

Table WSW-10: Babcock Ranch 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 ⁽¹⁾
12.5	10.0	\$161M	\$3.76	\$1.09	\$4.85
5.0	4.0	\$71M	\$4.16	\$1.09	\$5.25

Source: Charlotte County Utilities, 2009-2010

(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

Impact of Future Land Use

Pending future land use and zoning amendments also need to be taken into account during the estimation of future demand. 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, three potential plan amendments would increase potable water demand. These potential developments are shown in Table WSW-11.

Table WSW-11: Potential Plan Amendments				
Name	Acres	Allowable Density	Potential Maximum Population	Potential Maximum Demand (MGD)
Rural Settlement Overlay District	No more than 2,450.00	6,000 units maximum	13,080	1.350
Rural Community Mixed Use #1	739.90	2 units/acre 1,479 units	3,225	0.333
Rural Community Mixed Use #2	1,554.51	2 units/acre 3,109 units	6,777	0.699
TOTAL	4,744.41	10,588 units	23,082	2.382

Source: Charlotte County Growth Management Department, 2010

All three developments are located within the Rural Service Area. The Rural Settlement Overlay District is located in the East County region, immediately east of US 17 and south of the DeSoto County line. While this development is located within the Rural Service Area it is within the certificated area of Sun River Utilities. Specific development standards have not been prepared, but maximum development densities and intensities have been limited to 2,450 acres and 6,000 residential units. The Rural Community Mixed Use #1 is located in the East County region, north of C.R. 74 and west of S.R. 31. It encompasses 739.90 acres at a maximum density of two units per acre. The Rural Community Mixed Use #2 is located in the South County region, east of US 41 and immediately north of the Lee County line. It encompasses 1,544.51 acres at a maximum density of two units per acre.

As shown in Table WSW-11, these three potential plan amendments may result in a maximum of 10,588 residential units and a maximum population of 23,082, all within the Rural Service Area. This will create a maximum demand of 2.382 MGD. The Rural Settlement Overlay District is located within the certificated area of Sun River Utilities, and will only be permitted to develop when the utility demonstrates the actual physical capacity to serve the area. There is currently no timeline for the development of this capacity. The two Rural Community Mixed Use developments are located within the CCU service area, but not near any existing CCU potable water lines or facilities. These developments will be required to construct community systems in order to provide adequate potable water supplies.

Performance of Existing Facilities

The existing potable water facilities providing service to Charlotte 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, however, that demand currently exceeds capacity in the Sun River Utilities certificated area and that the CCU Mid- and West County region, the largest provider of potable water, will show a deficit by 2050. This CCU shortage includes CCU's three bulk customers, but the nature of the analysis does not allow a determination to be made as to whether the deficit will occur in any particular one of those four service areas. The Charlotte Harbor Water Association also shows a service deficit by 2040.

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. In order to meet the growing water demand for this area, the County is currently investigating other sources of surface water and possible RO alternatives.

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.

CAPITAL IMPROVEMENTS

Many of the certificated water providers in Charlotte County 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, CCU, the City of Punta Gorda, PR/MRWSA, and others have currently identified the need to expand potable water supply capacity. Accordingly, capital projects involving the expansion of water treatment plants to increase the amounts they can supply, the construction and expansion of surface water reservoirs, and the development of alternative water supplies have been scheduled. These projects are intended to increase the volume of water available to the individual local utilities for distribution. Regional interconnect projects have also been scheduled, between local utilities and with PR/MRWSA. 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 recycled 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 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 Charlotte 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 B of the Capital Improvements element.

WATER CONSERVATION

In 2009, SWFWMD declared a modified Phase II Extreme Water Shortage for the Charlotte County portion of the District. Lawn and landscape irrigation is limited to once per week. New lawns or plantings may be watered daily for the first 30 days with restrictions. Other water uses may also be restricted. Customers are encouraged to conserve recycled water by using it during the specified irrigation hours.

Several utility providers in Charlotte County have implemented water conservation programs in order to reduce the dependence upon potable water supplies. CCU has prepared written water conservation plans for the Burnt Store Service Area and the area supplied by the PR/MRWSA based on the Conserve Florida goal-based GUIDE program. CCU was among the first utilities in Florida to implement this program, a software tool that enables utilities to project the effects of water conservation policies based on historical water usage. CCU already has an exceptional water conservation record, as shown by the low per capita consumption rate of 83 gpcd based on a five-day average. CCU's per capita consumption rate was 75 gpcd as published in the 2008 SWFWMD Public Supply Annual Report. This per capita rate exceeds the goals outlined by SWFWMD to reduce per capita water consumption. In comparison, the interim policy the District has established is a 130-gpcd standard and a 110-gpcd standard has been set for 2010.

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 reuse water.

A Toilet Rebate Program was established by CCU in 2008, and cooperatively funded by the Peace River Basin Board of SWFWMD. The program was initially offered to commercial and multi-family customers and was later opened to all residential customers, and offers a rebate of up to \$100 per toilet when a pre-1994 toilet using 3.5 gallons per flush or more is replaced with a new toilet using 1.6 gallons per flush or less.

Tentatively, CCU anticipates continuing to implement existing conservation elements and expanding the following programs in the next five years: non-potable irrigation source rebates, non-residential water-use evaluations/implementations, reuse projects, toilet rebates, and a low-flow showerhead exchange. CCU was one of the first utilities within the 16-County boundary of SWFWMD to implement year-round conservation rates to promote responsible water usage. In times of severe water shortages, CCU 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 5,000 gallons.

Other water service providers within Charlotte 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.

Table WSW-12 is provided from the County-wide Water Conservation Plan and summarizes the estimated quantifiable water conservation savings from Best Management Practices (BMPs). The specific assumptions associated with this projection include:

- **Service Area** – The area analyzed includes all serviced customers within the existing certificated service area of CCU, including Burnt Store, but does not include Punta Gorda or other areas outside of the CCU service area.
- **Time Horizon** – Implementation of BMPs was assumed to occur over a ten-year time horizon, FY 2007-08 to FY 2017-18, with demand projections to FY 2027-28.
- **Specific Quantifiable BMPs** – The specific programs included in the savings calculation are the use of plumbing retrofit kits to replace inefficient faucet aerators and showerheads, and a toilet rebate program to upgrade older toilets to a performance level of 1.6 gallons per flush or better. Benefits from reuse programs are not included in this particular calculation. Conservation benefits from non-quantifiable programs, or water conservation measures such as education programs or the use of conservation rates, are not included in the analysis. The effects of water conservation measures are not easily quantifiable, and at this time the State has not proposed a methodology for accounting for the impact on demand related to the use of water conservation measures.

Table WSW-12: Projected Planned Demand Reduction for the CCU Service Area (including the Burnt Store Service Area)				
Year	Planned Water Savings Capacity (MGD)	Percent Reduction from Conservation	Forecasted Demand (MGD)	
			Without Conservation	With Conservation
2008	0.019	0.15 %	12.692	12.673
2012	0.176	1.06 %	16.635	16.460
2017	0.375	1.73 %	21.616	21.242
2022	0.375	1.39 %	26.975	26.600
2027	0.375	1.09 %	34.504	34.130

Source: Charlotte County Utilities, 2008

The data from Table WSW-12 can be used to update water demand projections for the Comprehensive Plan. Specifically, from 2017 onwards, a savings of 0.375 MGD can be attributed to water conservation as a direct offset of potable water demand.

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 139.06 gpd per connection, or 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 Charlotte County is provided by nine certificated utilities maintaining operations within Charlotte County. The three largest suppliers are all publicly owned: Charlotte County Utilities, 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 a certificated area of operation throughout which they provide service. As with certificated areas for potable water distribution, the certification grants 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 certificated area falls under the service of Charlotte County Utilities. The nine certificated sanitary sewage disposal supply areas are depicted on SPAM Series Map #86. This map also shows the location of community sewer systems for small developments such as mobile home parks and campgrounds. 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 under Rule 9J-5.011 F.A.C. The sanitary sewer 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 sewer needs for Charlotte County were then identified based on the data obtained from the inventory. Future 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 2.18 persons per household, the U.S. Census estimate for Charlotte 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: CCU is owned and operated by Charlotte County, and is the largest utility in the County. CCU's official service area includes all of Charlotte 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, East Englewood, South Gulf Cove, and Rotonda. CCU also services a portion of the Burnt Store area of South County.

CCU currently operates four wastewater treatment facilities. The East Port Water Reclamation Facility (WRF) is located in eastern Port Charlotte and has a permitted capacity of 6.000 MGD, serving the Mid-County region. This facility uses spray irrigation, deep injection wells, and reclaimed water distribution for effluent disposal. Sale of recycled water to customers for irrigation purposes is the first choice of disposal. It is anticipated that this facility will be expanded to 9.000 MGD by 2013.

The West Port WRF is located just west of the Myakka River, and has a permitted capacity of 1.200 MGD, serving the West County region. This facility uses spray irrigation, deep well injection, and reclaimed water distribution for effluent disposal. It is anticipated that this facility will be expanded to 2.5000 MGD by 2017.

The Rotonda WRF is located west of the Rotonda area, and has a permitted capacity of 2.000 MGD, serving the West County region. This facility uses recycled water distribution and on-site storage tanks for effluent disposal. A deep well injection effluent disposal process is currently being implemented at this facility. The Rotonda and West Port WRFs have a recycled water interconnect to better serve their recycled 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 area in Charlotte and Lee Counties. This facility uses on-site percolation ponds and deep injection wells for effluent disposal. This facility will be expanded to 2.500 MGD by 2013.

City of Punta Gorda: The City of Punta Gorda official 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 water reclamation facility with a permitted capacity of 4.000 MGD. This facility uses spray irrigation 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 located in the Englewood area of Charlotte County, and has a permitted capacity of 4.200 MGD. This facility uses deep well injection and recycled water distribution for effluent disposal.

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 wastewater treatment plant (WWTP) with a permitted capacity of 0.499 MGD. This facility uses spray irrigation 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 0.055 MGD.

Sun River Utilities: The Sun River Utilities 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.

North Fort Myers Utilities: The North Fort Myers Utilities certificated area covers approximately 2.42 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. NFMU does not currently have any residential or commercial service connections. NFMU operates a WWTP in Lee County with a permitted capacity of 3.500 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 S.R. 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 has been certificated to serve the new Babcock Ranch development.

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 maintains a WWTP with a permitted capacity of 0.150 MGD.

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 septic systems. FDEP records indicate that there are 16 such community systems in Charlotte County that serve residential or residential-type

development. These include mobile home parks, campgrounds, 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 5,251 people. The locations of these community systems are shown on SPAM Series Map #86.

On-site Septic 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 septic systems. There are an estimated 17,443 sites in Charlotte County that rely on on-site septic systems to provide sanitary sewage disposal, and these are shown on SPAM Series Map #89.

FUTURE CONDITIONS – SANITARY SEWER

EXISTING AND PROJECTED SANITARY SEWER FACILITY NEEDS

The 25 existing sanitary sewer service providers in Charlotte County were permitted to collect 23,997,000 gallons of sewage in 2009, as shown in Table WSW-13. 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:

$$1 \text{ ERC} = 190 \text{ gpd} / 2.18 \text{ persons per household} = 87.2 \text{ gpcd}$$

Table WSW-13: Existing Permitted Sanitary Sewage Disposal Service Providers			
DEP ID	Supplier	Population	Permitted Capacity (GPD)
FLA014121	Alligator Park MHP	400	60,000
FLA014067	Bay Palms MHP	50	10,000
FLA014086	Burnt Store Colony MHP	238	60,000
FLA014130	Charlotte Correctional Institute	1,594	180,000
FLA014291	Charlotte County Utilities – East Port	79,807	9,000,000
FLA014048	Charlotte County Utilities – West Port		1,200,000
FLA014098	Charlotte County Utilities – Rotonda		1,000,000
FLA014083	Charlotte County Utilities – Burnt Store	6,300	2,500,000
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
FLA014089	Gasparilla Mobile Estates	182	25,000

Table WSW-13: Existing Permitted Sanitary Sewage Disposal Service Providers			
DEP ID	Supplier	Population	Permitted Capacity (GPD)
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
FLA014062	Sun River Utilities	90	15,000
FLA665495	Town and Country Utilities	0	N/A
FLA014068	Tropical Palms MHP	350	60,000
FLA014053	Utilities, Inc. of Sandalhaven	1,966	150,000
FLA014092	Villas Del Sol	88	29,000

Source: Florida Department of Environmental Protection, 2009

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 certificated areas, and seasonal population estimates for each certificated area were developed from 2008 to 2050. 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 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. Due to the nature of the Census blocks on the bridgeless barrier islands, all four were combined into a single statistical area in this analysis, even though only one of the four, Knight Island, has centralized sanitary sewer service. This has the effect of over-estimating the demand on the Knight Island Utilities system.

Table WSW-14, included in WSW Appendix A, depicts the projected sanitary sewer service demands 2008 to 2050 based on estimated functional population. Projected demands are calculated by multiplying the projected population by the per capita equivalent minimum LOS

standard of 87.2 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.

Table WSW-14 also compares the treatment capacity for each of the sanitary sewer service providers in Charlotte County. 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. In Table WSW-14, Peak Capacity is compared to the demand projection to determine any projected service deficits.

The analysis presented in that table indicates that one certificated utility, Town & Country Utilities, shows a projected service deficit before the long-range planning horizon of 2030 and two more certificated utilities, Englewood Water District and the Riverwood CDD show a projected service deficit within the vision planning horizon of 2050. Two other certificated areas, Sun River Utilities and Utilities, Inc. of Sandalhaven, are technically experiencing service deficits at this writing. Table WSW-15 shows planned facility expansions, but none that will address the projected and apparent deficits. Data for Town & Country Utilities is conflicting, reporting different permitted capacities for the utility’s treatment facility, especially when Table WSW-14 is compared with Table WSW-15. Regardless, concurrency management policies will not permit the projected residential units to be built in the Babcock Ranch development, served by Town & Country Utilities, until appropriate sanitary sewer facilities are in place.

Table WSW-15: Planned Wastewater Treatment Facility Expansions			
Year of Improvement	Facility to be Improved	Existing Capacity (MGD)	Final Capacity (MGD)
2009	CCU – Rotonda WRF	1.000	2.000
2012	CCU – Burnt Store WRF	0.500	2.500
2013	CCU – East Port WRF	6.000	9.000
2015	Town & Country WRF	0.200	1.500
2015	CCU – East Port WRF	9.000	12.000
2019	CCU – West Port WRF	1.200	2.500
2025	Town & Country WRF	1.500	3.600

Source: Charlotte County Utilities & Town & Country Utilities, 2009

Usage data for the two certificated areas showing immediate service deficits indicates that the actual usage for these utilities is much lower than the projected level. Table WSW-16 shows the reported flows through the wastewater treatment facilities for Sun River Utilities and Utilities, Inc. of Sandalhaven for the previous 26 months, which they submitted to Charlotte County. This table, showing reported monthly flows of no more than 0.005 MGD for Sun River Utilities and 0.113 MGD for Utilities, Inc. of Sandalhaven indicates usage patterns well below the peak capacities for either utility. Both utilities report lower populations for their service areas than the population estimates do, which is a likely contributor to the higher demand projection when compared to actual usage. Sun River Utilities reported 58 single-family connections in July of 2009, which equates to 127 people using the 2000 U.S. Census estimate of 2.18 persons per household for Charlotte County, compared to a functional population of 1,690 as estimated by the County. Similarly, in July of 2009 Utilities, Inc. of Sandalhaven reported 723 total connections, including 688 single-family connections and 129 multi-family connections. This equates to 1,782 people within the utility’s service area, compared to 2,129 as estimated by the County. An operational analysis of these two certificated utilities shows that, given the most recent reported usage rates and projected growth rates, both will remain within capacity through the planning horizon of 2050.

Table WSW-16: Reported Monthly Wastewater Flow for Sun River Utilities and Utilities of Sandalhaven, 2007-2009		
Month	Sun River AADF	Sandalhaven AADF
Jun 2007		0.102
Jul 2007	0.006	0.100
Aug 2007		0.064
Sep 2007	0.004	0.060
Oct 2007	0.003	0.079
Nov 2007		0.080
Dec 2007	0.005	0.087
Jan 2008		0.113
Feb 2008		0.112
Mar 2008		0.113
Apr 2008	0.004	0.107
May 2008		0.113
Jun 2008	0.004	0.113
Jul 2008	0.003	0.056
Aug 2008	0.004	0.055
Sep 2008	0.002	0.062
Oct 2008	0.002	
Nov 2008	0.003	
Dec 2008	0.004	
Jan 2009		0.087
Feb 2009	0.005	

Mar 2009		
Apr 2009		
May 2009	0.003	
Jun 2009	0.003	
Jul 2009		

Source: Charlotte County Growth Management Department, 2009

In 2009, 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-14 also projects that six out of 16 community systems show an immediate service deficit, a seventh shows a deficit by 2015, and a seventh shows a deficit by 2025. One other facility, servicing the Charlotte Correctional Institute, shows a service deficit by 2040. 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 mobile 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 Alligator Park Mobile Home Park reported a Three Month Average Daily Flow of 0.026 MGD, or only 43 percent of the permitted capacity of 0.060 MGD and 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 these two community systems shows that, given current reported usage rates and projected growth rates, both will remain within capacity through the plan horizon of 2050. If all of the community systems have usage patterns similar to Alligator Park MHP and Paradise Park Condominiums then the deficits projected in Table WSW-14 do not exist.

It should also be noted that not all of a utility’s certificated area may be served by that utility. For example, the CCU Mid-County region within the Urban Service Area, served by the East Port WRF, has a 2008 estimated functional population of 85,504 and an estimated 43,560

dwelling units, but only 19,939 metered service connections, which include both residential and non-residential customers. This disparity between the number of potential and actual connections is not unique to CCU. Any structure not connected to a centralized sanitary sewer system must be connected either to a community system or to an on-site septic system for sewage disposal. Table WSW-17 shows the number of septic systems permitted since 1971, and projects future permits through 2050.

Table WSW-17: Sewage Treated by On-Site Septic Systems, 2008-2050				
Year	Existing Systems ⁽¹⁾	Systems Added ⁽²⁾	Total Systems	Sewage Treated (MGD)
2008	31,704		31,704	6.023
2010		332	32,036	6.087
2015		830	32,866	6.245
2020		830	33,696	6.402
2025		830	34,526	6.560
2030		830	35,356	6.718
2040		1,660	37,016	7.033
2050		1,660	38,676	7.348

Source: Charlotte County Health Department, Environmental Health Division, 2009

(1) Assumes 70% of all septic systems permitted before 2008 are still in service

(2) Assumes 166 new systems are permitted annually based on 2008 permit numbers

Table WSW-18 shows the total projected demand and total permitted capacity for sanitary sewage disposal for Charlotte County from 2008 to 2050, including centralized sewer systems, community systems, and on-site septic systems.

Table WSW-18: Current Sewerage Capacity vs Projected Demand, 2008-2050							
Year	Functional Population	Projected Demand (MGD)	Projected Permitted Capacity (MGD)				Available Capacity (MGD)
			Centralized Sewer	Community Systems	On-Site Systems	Total	
2008	174,411	15.353	16.674	0.618	6.023	23.315	7.962
2010	174,037	15.335	16.674	0.618	6.087	23.379	8.044
2015	189,277	16.647	16.674	0.618	6.245	23.537	6.890
2020	208,087	18.296	16.674	0.618	6.402	23.694	5.398
2025	230,774	20.282	16.674	0.618	6.560	23.852	3.570
2030	256,550	22.539	16.674	0.618	6.718	24.010	1.471
2040	308,719	27.107	16.674	0.618	7.033	24.325	-2.782
2050	348,651	30.612	16.674	0.618	7.348	24.640	-5.972

Source: Charlotte County Growth Management Department, 2009

Table WSW-18 shows that, County-wide, there will be adequate sanitary sewage disposal capacity through the long-range planning horizon of 2030, especially when on-site septic systems are included in the analysis, but as Table WSW-14 also shows, not all service areas within the County will maintain this excess capacity. Table WSW-18 also shows, however, that there will be a service deficit of nearly three million gallons per day by 2040 and of nearly six million gallons per day by 2050. This table does not take into account the planned facility expansions shown in Table WSW-15, 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 at this time. These planned expansions would add 13.700 MGD to the total sanitary sewage treatment capacity by 2025, addressing the projected shortfall. Even so, since it is true that large portions of existing certificated areas are actually served by on-site septic 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 Charlotte County 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-18 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 medium-range planning horizon of 2030 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 septic and community sewer systems that may have a negative impact on the natural environment and groundwater. The recent additions 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. CCU, 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 that have been established are for the purpose of constructing system expansions, and are designed to be repealed once the project costs have been paid off. CCU is in the process of exploring other methods of generating revenue to offset the cost to individual property owners to be used in conjunction with the MSBU method.

Currently there are 11 active utility expansion MSBUs, as shown on SPAM Series Map #88. In total, these MSBUs will provide sewer availability to approximately 16,000 properties. Future success in expanding CCU's centralized sanitary sewer service to areas that need it will require more specific direction from the Board of County Commissioners regarding the prioritization of future expansion areas.

CCU is in the conceptual stages of developing a long-term initiative intended to bring centralized sanitary sewer service to a large portion of the Mid- and West County regions, 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 will provide key criteria in establishing a long-term strategic plan for the expansion of CCU's sanitary sewer collection system. 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 septic systems, proximity to surface water bodies, and other factors will also be utilized for this strategic plan.

Further opportunities exist to improve CCU's system efficiencies and performance. The current sewer infrastructure is a complex network of lift stations and force mains. As the system expands, modifications to the existing network will be required to accommodate the additional capacity, adding to capital expenditures. Any expansion to the existing system also involves increases to the long-term O&M costs due to additional electricity requirements, additional piping, replacement parts, and additional staff and equipment costs.

An alternative to the current low pressure and gravity systems is a gravity collection interceptor system. This would involve constructing a series of large-diameter gravity mains, or interceptors, that would run through portions of the Mid County region and feed into the East Port WRF. These gravity mains would intercept flows from lift stations and localized collection systems throughout the Mid- and West County regions, reducing reliance on a complex lift station/force main transmission strategy. While the capital costs associated with initiating this concept are high, early indicators suggest that the long-term savings in maintenance, power consumption, and lower future construction costs, are significant. The capital costs for this system would be offset by the long-term O&M savings. Increasing costs to connect on-site systems to low-pressure sewer (LPS) systems and the long-term LPS O&M costs make it advisable to review gravity and modified gravity alternatives.

CCU has constructed a Regional Recycled Water Transmission Main as part of its Phase I approach to a cross-County Recycled Water System, which supplies 0.250 MGD. Upon connection of all identified future users, the recycled water supplied by the Phase I transmission main will increase to an estimated 1.270 MGD. Future plans for a second phase will complete the connection of the East Port WRF recycled water transmission system to an existing interconnected system between the West Port and Rotonda WRFs and will provide a cross-County recycled water transmission system capable of serving many users in the future.

Despite the fact that Charlotte 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 existing facilities. As shown in Table WSW-17, 17.8 percent of the County's existing 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-17 also shows that given existing treatment capacities this proportion is actually projected to rise to 20.8 percent by 2050. If the County wishes to decrease the reliance upon non-centralized systems, then the provision of additional centralized sewer services 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 septic systems on lots of less than one-half acre in area. There will likely always be areas in Charlotte County that are served by on-site septic 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. 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. CCU will also encourage connections to the new regional reclaimed water main to avoid the use of potable water for activities that do not require it.

SEPTIC SYSTEM MANAGEMENT PROGRAM

The Charlotte County Health Department, Environmental Health Division estimates that more than 45,000 septic systems have been permitted in the County (see Table WSW-19). These

septic systems require routine periodic maintenance to ensure proper function, and a large number of systems fail because this maintenance is not performed properly. Malfunctioning septic systems may introduce fecal bacteria and viruses into the surface and groundwater supply. Enhanced programs by the Florida Department of Health (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 great number of vacant lots with central 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 septic 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 septic systems have made a financial investment in those systems. Laws have been adopted by Charlotte County requiring less intensive use of land for septic systems before requiring that alternative systems be employed. This has effectively required more connections to central sewer systems as a more cost-effective solution, and has upgraded the standards for the average on-site system.

Septic systems installed prior to 1983 are a concern in the County because they were built prior to the more strict septic system regulations that are in existence today. According to DOH records, 2,592 septic repair permits were granted between 1994 and 2008. This averages to 162 repairs or documented deficiencies per year, although 1,011 of those repair permits, or 39 percent of the total, were issued between 2006 and 2008, as part of the County's septic 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 septic systems were installed prior to 1983. In portions of West County, the Englewood Water District has successfully eliminated many of the older septic tanks through the implementation of its regional central sewer program. Many older systems located in West County have been decommissioned and replaced with vacuum sewer systems. Several Municipal Service Benefit Units (MSBUs) and Municipal Service Taxing Units (MSTUs) have been created to finance future sewer expansion projects. The typical design life of a septic 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).

Table WSW-19: Septic System Permits Issued		
Year	New Permits	Repair Permits
Pre-1971	9,330	
1971	1,337	
1972	908	
1973	540	
1974	1,021	
1975	532	
1976	1,206	
1977	1,532	
1978	1,877	
1979	2,165	
1980	1,403	
1981	1,176	
1982	1,140	
1983	1,544	
1984	1,603	
1985	681	
1986	1,534	
1987	1,567	
1988	1,686	
1989	1,656	
1990	1,614	
1991	1,179	
1992	709	
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
Total	45,291	2,592

Source: Charlotte County Health Department, Environmental Health Division, 2009

Septic systems constitute a major component of existing wastewater treatment. While most of the County's platted lots are not fully served by central utility service, there are a number of vacant lots that are ready for development and served by central potable water and sewer service. Since 1992, the number of septic system permits has generally declined, indicating that a greater percentage of new construction has occurred on property served by central sanitary 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.

WATER REUSE

Ordinance Number 2007-041, § 1 (Article VI Section 3-8 Reclaimed Water System) of the Charlotte County Municipal code was adopted May 22, 2007. It is the intent of this ordinance to make recycled water available for irrigation purposes and other authorized non-potable uses in those areas of the County included within the CCU service area, and where the Board of County Commissioners determines that the construction of a recycled water distribution system is desired or requested by customers, and is practical and economical. The recycled water distribution system shall be constructed in phases to provide service to designated areas as determined by the Board of County Commissioners, pursuant to the terms and conditions described in the ordinance. Charlotte 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 effluent reuse as a condition precedent to wastewater treatment capacity availability if that service is available.

The Englewood Water District and CCU 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 recycled water facilities in the County is shown on SPAM Series Map #90.

INVENTORY – RECYCLED WATER PROVIDERS

Charlotte County Utilities: CCU is committed to reusing 100 percent of all wastewater effluent produced through the treatment of sanitary sewage. Capital improvement projects to further this goal include funding for transmission lines, a Water Reclamation Pump Station, and two 0.500 MG storage tanks. When complete, the tanks will provide an additional supply of reuse water which will allow the system to maintain a constant pressure for several hours during the day and improve reuse service to its customers. CCU currently serves twelve customers, all for irrigation purposes.

CCU compiles statistics on the reuse system at each water reclamation facility, including those related to reclaimed water use. Table WSW-20 presents a summary of the most recent collection of data.

Table WSW-20: Charlotte County Utilities Annual Reuse Data, 2008				
Wastewater Facility	Permitted Capacity (MGD)	Total Water Available for Reuse or Disposal (MGD)	Reuse Sub-Types	Effluent Disposal Methods
East Port WRF	6.000	3.921	Golf course irrigation (3 accounts); Residential irrigation (304 accounts)	Deep well disposal On-site irrigation
Rotonda WRF ⁽¹⁾	0.625	0.478	Golf course irrigation (2 accounts); Residential irrigation (71 accounts)	Reject Pond
West Port WRF	1.200	0.539	Golf course irrigation (3 accounts)	Deep well disposal On-site irrigation
Burnt Store WRF	0.500	0.267	Rapid infiltration basins (including some perc ponds)	Deep well disposal
Total	8.325	5.205		

Source: Charlotte County Utilities, 2008

(1) Rotonda WRF received increased FDEP permitted capacity to 1.0 MGD after release of this data

Englewood Water District: The Englewood Water District is committed to reusing 100 percent of its wastewater effluent water. Previous capital improvements to the reuse system include a new Water Reclamation Pump Station and a new Booster Station. The Englewood Water District will spend \$800,000 between September 2007 and June 2008 to construct a one-million gallon reuse ground storage tank. When complete, the tank will provide a constant supply of recycled water to the service pumps, which will allow the system to maintain a constant pressure for several hours during the day and improve reuse service to its customers. The Englewood Water District offers recycled 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, and Taylor Ranch either are or will be using recycled water for irrigation.

PROJECTIONS FOR REUSE

CCU’s current reuse program consists mainly of providing recycled water to local golf courses and approximately 375 private residential customers. SWFWMD does not currently associate golf course usage of recycled water with an offset of potable water because golf courses typically use ground water to irrigate and not potable water. Therefore, no potable water offset is associated with golf courses in the summary table.

CCU is in the final stage of a capital improvement project to expand the transmission and distribution capacity of the existing reuse system from the East Port WRF to much of the Mid-County region. When this project is completed in FY 2009 it will allow CCU to provide reuse service to a much larger customer base, and the expected future offset of potable water has been estimated to be 1.270 MGD.

Charlotte County has made the policy decision to promote the use of recycled water for new developments. It is anticipated that the majority of the future growth of the reuse system will come through new developments, as opposed to infill service. For the purposes of estimating future potable offsets associated with reuse, the following calculation can be used:

$$\text{Future Potable Offset (FPO)} = \text{DP} * \% \text{ND} * \% \text{EFF} * \text{AHOR}$$

Where,

DP = "Delta population" or the change in population over a given time period, divided by 2.18 persons per household (to normalize the units as households).

%ND = "Percent New Development", or the percent in population change attributed to new developments as opposed to infill growth. Past studies estimate that approximately 80 percent of all future growth may be attributed to new development.

%EFF = "Percent Efficiency", or the expected percentage of new households to utilize reuse service. This assumes that reuse service will not be available for all new developments. An estimate of 70 percent assumes that some new developments in the future will be built outside of the transmission and distribution network available for reuse service.

AHOR = "Average Household Offset of potable water due to Reuse", an estimate of the average use of potable water for residential irrigation. This approach assumes that the average household currently uses approximately 50 percent of their potable water for irrigation (based on past studies), and total potable water consumption is based on an estimated average daily consumption of 203 gals/household/day. Therefore, the estimated AHOR for this calculation is 101.5 gals/household/day or 50% * 203 gpd.

Table WSW-21 summarizes estimated future potable water offsets for new development by 2050.

Table WSW-21: Future Potable Offset 2008-2050							
2008 Population	2050 Population	Change in Population 2008-2050	Change in Households 2008-2050	% ND	% EFF	AHOR (gpd/ household)	FPO (MGD)
174,411	348,651	174,240	79,926	0.80	0.70	101.5	4.543

Source: Charlotte County Growth Management Department, 2009

The following approach for estimating the effects of reuse can be utilized. The future impact of reuse programs can be estimated by combining information regarding existing programs and future programs. Table WSW-22 summarizes the estimated expected potable water offset associated with reuse programs.

Table WSW-22: Summary of Future Potable Water Offset due to Reuse (2050 estimate)	
Reuse Customer Category	Potable Offset (Gals. / day – Yr. 2050)
Golf Courses	No potable water offset
Existing residential customers (2008 - 375 accounts)	No potable water offset from future demand because demand from existing customers is already factored into projections.
Current Expansion Program	1,270,000 gallons / day
Future Offset due to New Developments	4,590,057 gallons / day
TOTAL	5,860,057 gallons / day

Source: Charlotte County Utilities, 2009

These two tables show that between 4.5 and 5.8 million gallons of potable water per day may be saved in 2050 through existing reuse policies. Potable water that is not used for non-potable purposes acts, in effect, as an additional water supply and will reduce the need to develop new water sources in the future.

IMPLEMENTATION

POTABLE WATER SUPPLIES, SANITARY SEWAGE DISPOSAL, AND SMART GROWTH

The provision of 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 the area does not remain rural in the long run. The new utility lines allow for a much higher density of development than the 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 may be used to direct development into areas that are deemed appropriate, and away from areas that are deemed inappropriate.

This Comprehensive Plan incorporates Smart Growth principles which identify the locations where Charlotte County intends to direct development and capital investments in infrastructure. These areas are targeted due to their population densities, their existing 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 these Smart Growth principles.

The Smart Growth principles are more fully described in the Future Land Use element.

POTABLE WATER AND SANITARY SEWER SYSTEM EXTENSIONS

Besides roads, central 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 septic systems for sanitary sewage disposal. On-site septic 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 septic systems from contaminating the groundwater that is 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 septic 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 septic 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 septic systems that have begun to malfunction due to age and, possibly, lack of adequate maintenance.

One of the County's objectives continues to be the reduction of dependence on septic systems by reducing the number of new construction projects utilizing them. New development should be

directed into areas where central 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 certificated areas (an example would be the Charlotte Harbor Water Association and CCU certificated areas). In these cases, extension of lines simultaneously should be evaluated on a case-by-case basis. The County presently has mandatory connection requirements if water or sewer service is available.

Currently, there are two utility providers in South County. These providers are the City of Punta Gorda and CCU through the Burnt Store facilities. 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 Smart Growth 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 State statute and 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 Charlotte County only, 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 certificated area.

While the individual utilities are responsible for maintaining concurrency, Charlotte 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 2050. Several utilities will need additional permitted capacity before this time to meet projected demand. Table WSW-14 also shows that, overall, utility providers will be looking to expand sanitary sewage treatment capacity to support the projected population increase by 2050.