CHAPTER 6 (A)

ST. LUCIE COUNTY
COMPREHENSIVE PLAN

POTABLE WATER -SUB-ELEMENT

Prepared by:

St. Lucie County
Board of County Commissioners

St. Lucie County
Department of Growth Management

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ST. LUCIE COUNTY
POTABLE WATER SUB ELEMENT

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ST. LUCIE COUNTY
POTABLE WATER SUB ELEMENT

INTRODUCTION

The Potable Water Sub-Element provides a summary of existing potable water supplies and treatment facilities in St. Lucie County (County). These facilities include municipal regional systems and area or ~~project~~development- specific systems, in addition to systems for individual residences. Only a small portion of the Unincorporated County is currently serviced through ~~county~~ County owned services~~. Other services are provided by either~~ (primarily the Holiday Pines development). A bulk user agreement is in place with the Ft. Pierce Utilities Authority (FPUA~~),~~) to provide service in the northern portion of the County's service area within the Urban Service Boundary. FPUA also serves customers within its retail service area. The Port St. Lucie Utility Systems Department ~~or St. Lucie County Utilities~~provides service in the southeast portion of the County within their designated service area. The majority of the residential supply within the Unincorporated County is provided by private means. The needs for the County~~=~~'s future are discussed, with goals, objectives and policies focusing on specific activities which will remedy those needs.

BACKGROUND

Terms and Concepts

A potable water supply system normally consists of a water supply source, a treatment plant, and a distribution and storage network. Either surface water, stored in natural lakes or man-made reservoirs, groundwater, or some combination of the two usually constitute the supply source for a system. The selection of a source for any system must consider the type and quality of sources available and the cost of developing the source for use.

Before being used for public consumption, all water must be treated. Treatment either removes impurities or renders them harmless from the raw water in order to improve its quality for either public health or aesthetic reasons, or both. The treatment process adds to the cost of supplying water, but it also expands the range of raw water sources that can be utilized.

After treatment, the water is supplied to individual users in a community by way of a network of pipes and storage ~~reservoirs~~tanks. Large transmission lines, called distribution mains, carry water to major demand areas and interconnect with a network of smaller lines which eventually supply individual establishments. Both the distribution mains and distribution network should be interconnected to form flow loops to allow water to circulate from various portions of the system to areas of highest momentary demand.

Water is delivered under pressure within the distribution system in order to ensure adequate flow to meet demands. ~~-~~Demand fluctuates during each day, usually exhibiting peaks during the morning and evening, corresponding to periods of highest residential use. Localized demand peaks also occur when the system is utilized for fire fighting purposes. In order to provide adequate quantities and pressure to meet peak use and fire flow demands, storage tanks are linked with the distribution system at strategic locations. During low demand periods these tanks are filled as water is pumped into the system. During the peak demand periods, water flows from the tanks back into the system to augment flows and maintain pressure. Ground level and elevated storage tanks are both commonly used. ~~Elevated tanks (water towers) are the most economical.~~ Many systems also include auxiliary pumps which operate only during peak demand periods.

Regulatory Framework

The federal government has established water quality standards for the protection of water for public use, including operating standards and quality controls for public water systems. These regulations are provided in the Safe Drinking Water Act, Public Law 99-339. This law directed the Environmental Protection Agency (EPA) to establish minimum drinking water standards. The EPA standards are divided into ~~Aprimary@~~Primary (those required for public health) and ~~Asecondary@~~Secondary (recommended for aesthetic quality) categories.

In accordance with federal requirements, the Florida Legislature has adopted the Florida Safe Drinking Water Act, Sections 403.850 - 430.864, F~~.S~~lorida Statute. The Florida Department of Environmental Protection (FDEP) is the State agency responsible for implementing this act. In this regard, FDEP has promulgated rules classifying and regulating public water systems under Chapter 17-550, 555 and 560 of the F.A.C. The primary and secondary standards of the Federal Safe Drinking Water Act are mandatory in Florida.

South Florida Water Management District (SFWMD) is responsible for managing water supplies to meet existing and future demands. Regulation of consumptive use is achieved through a permitting system, through which water resources are allocated among the permitted consumers.

In 2002, 2004 and 2005, the Florida Legislature enacted bills modifying Chapters 163 and 273, Florida Statute, to improve water supply and land use planning between the five water management districts, FDEP and the Department of Community Affairs (DCA). The 2002 legislation required local governments to prepare 10-year water supply facilities work plans and incorporate the work plans into their comprehensive plans. The 2004 legislation allowed local governments until December 1, 2006 to complete the work plans - a deadline that was later extended to January 2008. The 2005 update required local governments to coordinate the preparation of the work plans with the water supply plan prepared by the applicable water management district. In conjunction with the preparation of the 2008 comprehensive plan updates pertaining to water and sewer services, the County prepared the required work plan summarizing the existing and proposed conditions of each public and privately-owned Water Treatment Plant (WTP) in the unincorporated County area. Facilities owned by the City of Port St. Lucie, FPUA and St. Lucie West were not included in the County's Work Plan due to the fact that each entity was required to submit an individual plan. The Work Plan and comprehensive plan updates will be submitted to DCA and SFWMD upon approval by the County's Planning & Zoning Commission and the Board of County Commissioners.

EXISTING CONDITIONS

Existing Planning Documents

St. Lucie County ~~does not presently have~~is in the process of updating the Water and Wastewater Master Plan, which will serve as an overall planning document for potable water facilities. Completion of the master plan is anticipated in 2008. The two major urban areas of the County, Ft. Pierce and Port St. Lucie, have regionalized potable water treatment and distribution systems.

St. Lucie County Utilities (SLCU) is currently developing a regional water treatment and distribution system to serve unincorporated areas of the County within the urban service boundary. The City of Ft. Pierce completed a master plan update for water and wastewater in ~~1988. In 1994, the City of Port St. Lucie acquired General Development Utilities and now operates the primary water treatment plant within Port St. Lucie Utility Systems Department, and White Development Corporation began operating a water treatment facility in St. Lucie West in 1998.~~

~~In 1991, St. Lucie County formed a utility system through the purchase of General Development Utilities. Since that time, St. Lucie County transferred the utility to the City of Port St. Lucie. Since then, St. Lucie County Utility System has grown through the acquisition of the North Hutchinson Island Services and the construction of a utility system on South Hutchinson Island and the acquisition of Holiday Pines Utility systems in 1998. In 1992, St. Lucie County Utilities prepared a Water and Wastewater Master Plan. In 2000, the County=s Water and Wastewater Master Plan underwent review and was updated in August 2000~~September 2006.

Regional Facilities

Figure 6-A-1 outlines general areas of potable water service for the major regional facilities now operating in the County. Many small treatment facilities holding service area franchises also exist, but their area is usually limited to a single development or a relatively small area. The majority of these small facilities are listed in the package plant portion of this sub-element.

Ft. Pierce Utilities Authority: ~~The Ft. Pierce Utilities Authority (~~FPUA~~)~~ maintains a 20 ~~MGD (~~million gallon per day (MGD) potable water treatment plant~~. Raw water is obtained from several municipal wellfields and is processed for potable water use at the~~ referred to as the Henry A. Gahn ~~Treatment Plant~~WTP located on 25th Street in Ft. Pierce. This facility consists of two separate WTPs, one lime-softening and one reverse osmosis (RO), with a combined permitted capacity of 18.99 MGD. Raw water is obtained from several municipal wellfields consisting of both surficial aquifer and Floridan aquifer wells and is processed for potable water use at the. The water distribution system currently contains well over ~~206~~ 200 miles of water mains.

In 1999, the ~~Ft. Pierce Utilities Authority~~FPUA announced plans to complete a 4.0 ~~mgd Reverse Osmosis (~~MGD RO~~)~~ expansion to the existing facility, bringing the total plant capacity to 25.2 ~~mgd~~MGD. An additional 2.0 ~~mgd~~ MGD filter system in the future will increase the permitted treatment capacity to 27.2 ~~mgd~~MGD. The production capacity of this facility is presently permitted 17.9 ~~mgd~~MGD by the South Florida Water Management District water use permit. The first phase of expansion occurred in late 2000, with future expansion plans being adopted.

The current method of disinfection with ~~chlorammoniation~~chloramination requires continual operation of both lime softening units to achieve the 20 MGD design flow. Because this does not allow for maintenance down time, an effective maximum flow of 13 MGD is probably more realistic and in line with the currently available raw water supply.

This facility currently provides water service to the City of Ft. Pierce and adjacent unincorporated areas, including most of South Hutchinson Island to the Martin County line, and to areas north, west, and south of the City limits. Although the line on the South Island runs to one mile north of the Martin County line, most of the taps have been purchased resulting in limited additional available capacity. The water service boundary is approximately bounded by Midway Road to the south (and, on South Hutchinson Island by the Martin County line); by the Turnpike to the west; by St. Lucie Boulevard to the north; and by the Atlantic Ocean to the east. This is an area in which service could be provided given current capacity of the existing system. ~~Although the capacity exists to serve this entire area, the majority of~~FPUA has entered into a bulk agreement with the County to serve some of these adjoining properties ~~which are~~. Properties located adjacent to and nearby the City, are responsible for locating and maintaining their own water supplies. These on-site water supplies normally obtain their water from shallow aquifer wells.

During the 1990's, St. Lucie County initiated condemnation proceedings against the assets of General Development Utilities. After assuming responsibility of operating the General Development Utility system, St. Lucie County became the second largest water supplier in the County. In 1994, St. Lucie County transferred to the City of Port St. Lucie all of the former General Development Utility assets. The Port St. Lucie Utility Systems Department now operates this system.

Figure 6-A-1 Service Areas

Port St. Lucie Utility Systems Department: ~~Since acquiring the General Development Utility facilities~~On October 1, 1994, the City of Port St. Lucie ~~Utility Systems Department has undertaken an aggressive utility expansion program that will extend water services to most developed properties within the City of Port St. Lucie.~~

~~The Port St. Lucie Utility Systems Department owns and operates one lime softening water treatment plant with a permitted capacity of 6.85 mgd. Raw water for the plant is provided by 30 shallow wells with a combined wellfield production capacity of 10.24 mgd. A 4.0 mgd Reverse Osmosis (RO) expansion of this plant was completed in 1999. This expansion will draw its water~~ acquired the Utility's assets from ~~three Floridan Aquifer wells and will increase the permitted capacity of the water treatment plant to 10.85 mgd. A second phase of expansion will add an additional 4.0 mgd capacity, increasing the total capacity of the plant to 16.85 mgd. The Port St. Lucie Utility Systems Department currently~~ St. Lucie County through an Agreement of Transfer. The City subsequently implemented a phased water and sewer expansion plan that now provides a centralized water ~~production~~and wastewater treatment system to nearly every property within the City's limits, as well as to certain properties located in the unincorporated County. Prior to ~~almost all of the properties~~the City's expansion efforts, seventeen (17) sub-regional systems existed within the boundaries of Port St. Lucie's Utility Service Area. These sub-regional systems were not interconnected to each other and only served a small part of the population within the City's Utility Service Area. As the City's primary water and sewer systems were extended throughout the community, twelve (12) of these isolated treatment systems have been connected to the City's wastewater system and their treatment facilities decommissioned.

In additional to the system operated under the direction of the City of Port St. Lucie~~.~~'s Utility Systems Department, there are two other sizable sub-regional providers located within the City's corporate limits. The water and wastewater system belonging to St. Lucie West Community Development Services District was constructed as part of the St. Lucie West Development of Regional Impact in the late 1980's and is operated under the oversight of the Development District's Board of Supervisors.

The water and wastewater system belonging to The Reserve Community Development Services District was constructed in the early 1980's to serve the Go Team Industrial Park that is located within the City and a portion of The Reserve, an adjacent residential community that is located in unincorporated St. Lucie County.

As of January 2008, there were no plans to have either of these systems absorbed by the City; however, operational interconnects exist between the water systems to provide for back up services, should they be needed

St. Lucie West: St. Lucie West is a large development in the western part of Port St. Lucie. This system~~=~~'s franchise area is entirely within the City limits~~, and will therefore not be addressed in this Comprehensive Plan.~~

. St. Lucie West produces its water from the shallow aquifer, after being treated by membrane softening (a low pressure ~~reverse osmosis~~ RO process). ~~A 2 MGD reverse osmosis plant~~There is an existing 2 MGD RO WTP with plans to increase capacity to match the needs of the development. The St. Lucie West plant discharges its ~~reverse osmosis~~RO concentrate to its own wastewater treatment plant.

North Hutchinson Island Utility District: In 1991, ~~St. Lucie County Utilities~~SLCU acquired the Bryn Mawr and North Hutchinson Island Water and Wastewater Utilities and expanded them to form a regional water and wastewater utility serving all of North Hutchinson Island. In 1996, the North Hutchinson Island Wastewater Utility became fully operational with the 0.5 ~~mgd~~MGD wastewater plant.

~~Figure 6-A-1 Regional Facilities~~

North Hutchinson Utility District offers potable water to North Hutchinson Island from North A1A/ ~~Royal Palm Way~~Little Jim Bridge north to ~~P. V. Martins (~~approximately 2.2 miles south of the ~~county~~ County line~~). It purchases its water from the Ft. Pierce Utilities Authority~~. Construction is currently underway to extend this service north to the County line. The North Hutchinson Utility District purchases potable water from FPUA and resells the water to its customers on North Hutchinson Island. ~~A few private package plants also operate in the area.~~

In August 2005, the North ~~**County**~~ Hutchinson Island Utility District ~~**(f.k.a.**~~, the Airport Utility District, the North County (Holiday Pines) Utility District, the Mid County District, the Indian River Estates Municipal Services Benefit Unit (MSBU) District and the H.E.W. Utility District were consolidated into the St. Lucie County Water and Sewer District.

St. Lucie County Water and Sewer District (formerly known as Holiday Pines Service Corporation): In July 1999, ~~St. Lucie County Utilities~~SLCU acquired the Holiday Pines Service Corporation. The service area for the ~~North County Utility District lies within the~~ St. Lucie County ~~Utility's mainland north county service area. The North County Utility~~Water and Sewer District ~~area~~ includes the Holiday Pines subdivision and some commercial and residential areas fronting Kings Highway and Indrio Road. The August 2005 consolidation of the various utility districts described above incorporated the corresponding service areas into the St. Lucie County Water and Sewer District.

~~The North County Utility District~~
SLCU owns and operates a water treatment ~~plant~~plant in the St. Lucie County Water and Sewer District with a permitted capacity of 0.288 ~~mgd~~MGD (Holiday Pines WTP). Average daily flow at this facility in ~~1997~~2006 was 0.~~126 mgd~~124 MGD. Plans are currently underway to increase the Holiday Pines WTP capacity to 0.5 MGD.

Reserve Utility Corporation: ~~-~~This utility is intended to serve the area just west of Port St. Lucie known as The Reserve~~.~~. The Reserve is a planned residential, commercial, and industrial development~~.~~. There will be ~~4100~~3,200 residences, 240 acres of industrial and 55 acres of commercial, with ~~some~~approximately 80 percent of residences ~~already~~currently in place~~.~~. The water treatment plant has a permitted capacity of 0.~~2~~414 MGD and an interconnect agreement with St. Lucie West Services District for up to 0.750 MGD, which combined will serve ~~approximately two-thirds of the~~all units at build out.

Privately Owned Utilities ~~With~~ with Capacities Greater than 0.1 MGD

Panther Woods: Panther Woods, formerly Meadowood Golf and Country Club, owns and operates a lime softening ~~water treatment plant with a~~WTP that is permitted ~~capacity of 0.432 mgd. The plant was designed for lime softening, but has only provided aeration and filtration since the late 1980's. The plant has been able~~ to produce up to 0.432 MGD of potable water ~~that meets applicable FDEP public water supply standards without lime softening.~~
. The historical peak day production is approximately 0.2 MGD. The WTP, fed by four 8-inch surficial aquifer wells, was recently refurbished and start-up took place in January 2008.

Raw water is pumped from ~~three~~four 8-inch diameter surficial aquifer wells that are approximately 95 feet deep and have a combined capacity of about 200 gallons per minute ~~(gpm). The average daily water demand for the year ending March 1998 was only 0.085 mgd, well below the design capacity of 0.432 mgd.~~
~~.~~

Spanish Lakes Country Club: The Spanish Lakes ~~Country Club is an adult mobile home community with approximately 1,300 mobile home lots. Spanish Lakes~~

~~Country Club owns and operates a water treatment plant, which is designed and sized to provide water service to the development throughout buildout.~~

~~The water treatment plant has a permitted capacity of 0.330 mgd. Average daily demand for the year ending March 1998 was 0.219 mgd. Raw water is pumped from four 4-inch~~Mobile Home Park is owned by the Wynne Building Corporation. Potable water service is provided via an on-site RO WTP. As of February 2008, the RO system construction is not fully complete, but is operating with FDEP permission. Raw water is provided via four surficial aquifer wells~~, one at the water treatment site and three at remote sites. The maximum month water treatment flow over the year was 0.27 mgd, 82 percent (82%) of the permitted capacity. There is little or no area available for expansion of this facility.~~. The permitted capacity of the WTP is 0.33 MGD. The existing population within the mobile home park is 2,470 (1,300 lots), which is anticipated to increase to 3,040 in 2010.

Spanish Lakes Fairways:
Spanish Lakes Fairways is a ~~1,600 unit~~ private adult community located in the northwest portion of the County's mainland St. Lucie County ~~Utility mainland north county~~Water and Sewer District service area. The 1,600 unit development reached a build-out population of 3,200 people in 2004 and has no plans for further expansion. The development owns and operates a water treatment plant~~.~~

~~The water treatment plant is a Reverse Osmosis (membrane softening) plant~~ that provides potable water service via an on-site RO WTP with a permitted capacity of 0.570 ~~mgd. Average daily demand for the year ending March 1998 was 0.217 mgd. Raw water is pumped from four, 4~~MGD. Raw water is supplied to the water treatment plant by four 8-inch ~~surficial~~ wells~~, one at the water treatment plant site and three at remote sites. In 1997, the maximum monthly demand for this plant was 0.264 mgd and the average daily demand was 0.217 mgd~~ constructed into the surficial aquifer. The maximum day demands are well within the plant~~=~~'s permitted capacity.

~~Although there is no room in the existing building for additional RO skids, there appears to be some area available outside that would be suitable for expansion. Expansion of this facility may not be necessary because there appears to be adequate excess capacity available to serve future phases of development.~~

Package Treatment Plants

~~Package~~A number of package treatment plants supply ~~a large portion of the~~ potable water in St. Lucie County. **Figure 6-A-2** shows water treatment plants situated throughout the eastern half of the County including package treatment plants and was last updated in 1999. **Table 6-A-1** lists the plants by name and groups these plants by land use, also last updated in 1999. The table shows the location of the plants, the design capacity, operating capacity, percentage of capacity allocated for the unincorporated County, current number of people served, projected 1995 and 2000 population served and the current level of service (LOS). Many of these plants are concentrated ~~in North and~~on South Hutchinson Island, the White City area, and along U.S. 1. Both the Figure and Table require will require extensive efforts to update with current information. The County intends to update these items and the related information at a later date in the near future. Updates are, therefore, not included in the May 2008 revision to this sub-element.

Water Supply Wells

There is an increasing trend in the County to shift from the use of shallow groundwater, or the surficial aquifer, to a deeper aquifer known as the Floridan. The majority of the water supply wells in St. Lucie County presently draw water from the ~~shallow groundwater aquifer referred to as the~~ surficial aquifer. The wells located in this aquifer

range in size from one-inch, for the low demand systems, such as a home or small business, to ten-twenty-four inches for the larger demand regional systems. Also in service in the County are deepdeeper wells which are fed from the Floridan aquifer.

A large number of the smallsmaller wells are concentrated in residential developments that are not served by any regional water or wastewater facility. Many of these wells exist on 1/4-acre lots which generally also have an on-site septic tank and drainfield systems for their wastewater disposal.

The larger wells normally are primarily used to supply water to package plants and regional facilities. The regional facilities are as previously described. The package plants are found throughout the eastern portion of the County with the high concentration areas being along U.S. 1. The Floridan aquifer wells are generally located in the coastal areas. On the South Hutchinson Island, Ocean Towers, Princess Condominium and several otherMiramar condominiums use the Floridan aquifer well. Currently,s for their private WTPs. FPUA is looking into blendinghas recently received a water use permit from the SFWMD to construct Floridan aquifer wells that will allow FPUA to blend treated water from the Floridan aquifer with water from the surficial aquifer.

Water Quality

As previously mentioned, most of the water supply systems in St. Lucie County obtain their raw water from shallow supply wells which extend into the surficial aquifer. A few of the water supply systems obtain raw water from deep wells which extend into the Floridan aquifer.

Water quality is variable in the shallow aquifer due to natural and artificial causes. Water quality ranges from fair in the southeast mainland part of the County to brackish in the northwestern part of the County. The poorer water quality has been associated with the use of the brackish artesian aquifer for irrigation of citrus. Drilling records indicate that there is also an area of connate saltwater extending from the vicinity of St. Lucie Village

to the northern and eastern shores of Lake Okeechobee. The concentration of minerals in the connate water increases with depth to the base of the shallow aquifer and at that point it exceeds the mineral content of the artesian aquifer.

The artesian aquifer system is part of an extensive carbonate rock aquifer system that underlies most of Florida. In St. Lucie County, the artesian Floridan aquifer has three distinct producing zones of different hydrologic properties and water quality separated by semi-permeable zones. The upper producing zone of Zone 1, has the best water quality, but it is too brackish for domestic or public water supply. The water from Zone 1 is suitable for stock watering and some crops, most notably citrus. Most of the artesian wells in the County are developed in Zone 1 of the Floridan aquifer.

The Surficial aquifer is recharged through local area rainfall. In periods of prolonged drought, water supplies can become a concern. There is no natural groundwater recharge to the Floridan aquifer in St. Lucie County. The Floridan aquifer in St. Lucie County is believed to be recharged in the regions of West Central Florida (Polk, Lake and Orange Counties.)

The quality of water in theFPUA currently operates 35 surficial aquifer is generally good. Bacteriological results indicate no bacterial problems now exist although in some areas noncoliform bacteria are present. Iron (Fe) and sulfates (SO_4) are problems in some areas. These areas generally have a problem with either Fe or SO_4, but not both, although exceptions do exist. Sulfur dioxide (SO_2) is a frequent problem. The total dissolved solids (TDS) content causes no problems in this water. It ranges from 150-450 milligrams per liter (mg/l) with the average being approximately 300. Certain areas do exist in the County where, due to leaking flowwells and 9

Floridan aquifer wells (artesian wells flowing from the Floridan aquifer), the TDS content is uncharacteristically high for, and is currently in the process of constructing 2 additional Floridan aquifer wells. The City of Port St. Lucie has a combined system consisting of 34 surficial aquifer wells of this type. An additional source of, 11 existing Floridan aquifer water originates from the use of the these artesian wells as an alternate source of irrigation water which ultimately infiltrates and contaminates the potableand 6 proposed Floridan aquifer wells. St. Lucie County operates 2 surficial aquifer. wells that serve the Holiday Pines water treatment plant, and a pending water use permit from the SFWMD will allow for up to 25 future Floridan aquifer wells to supply 3 to 4 regional water treatment plants at build out of the unincorporated area.

Water Quality

As previously mentioned, most of the water supply systems in St. Lucie County obtain their raw water from the surficial aquifer or a combined surficial/Floridan system. Water quality is variable in the shallow aquifer due to natural and artificial causes. Water quality ranges from fair in the southeast mainland part of the County to brackish in the northwestern part of the County. The poorer water quality has been associated with the use of the brackish artesian aquifer for irrigation of citrus. Drilling records indicate that there is also an area of connate saltwater extending from the vicinity of St. Lucie Village to the northern and eastern shores of Lake Okeechobee. The concentration of minerals in the connate water increases with depth to the base of the shallow aquifer and at that point it exceeds the mineral content of the artesian aquifer.

Figure 6-A-2 Water Treatment Plant Locations

~~Water from the Floridan aquifer originates from two sources; relict sea water, and rainwater from recharge areas. Remnant sea water deposited along with the marine limestones of the Floridan aquifer is characterized by high concentrations of dissolved salts. The water quality in the upper portion of this aquifer in St. Lucie County is fair to poor. Waters usually contain more than 250 mg/l of chloride ions and are therefore classified as non-potable. Because of this poor water quality, the treatment systems which utilize the Floridan aquifer for their source water generally use a reverse osmosis treatment process.~~

~~NEEDS ASSESSMENT~~

~~The County presently has potable water service provided by three major utilities, several medium sized utilities, small package plants, and domestic wells. This section examines the needs of those areas in the County which are not included in a major or medium-sized utility service areas and which have been determined to be potential high growth areas or areas with identified problems.~~

TABLE 6-A-1
(Not Updated in May 2008 Revision)
Water Treatment Plants, St. Lucie County

Map Key	Water Plant	Location	Design Capacity (~~MGPD)~~MGD)	Operating Capacity (~~MGPD)~~MGD)	% Capacity for UNC	Current # of People Served	Projected 1995 Population Served	Projected 2000 Population Served	Current LOS
2	Benton Wood MHP	County	.057	not in file	100	134	134	134	98[ef]
3	Between the Waters MHP	County	.046	not in file	100	48	48	48	220[e]
6	Country Cove MHP	County	.129	not in file	100	296	296	296	100[ef]
8	FPUA	FP	10.00	9.3346 ave.	X[b]	X[b]	X[b]	X[b]	170[b]
11	Glen Oaks MHP System 2	County	not in file	not in file	100	54	54	54	801[e]
13	H & H MHP	County	.036	not in file	100	50	50	50	166[e]
14	Harbour Ridge	County	.036	.120	100	900	1520	1520	92[e]
16	Indian River Landing	County	.090	.017	100	44	136	136	470[e]
17	Lake Manor MHP	County	.100	not in file	100	120	120	120	192[e]
18	~~Lakewood Park~~Sampson Subdivision (H.E.W. WTP)	County	.050	.059	100	150	210	210	77[ef]
19	Meadowood County Club (a.k.a. ~~Pantherwoods)~~Panther Woods)	County	432	.059	100	30	100	500	1967[d]
20	North Hutchinson Services[a]	County	see FPUA	.525	100	498	498	498	170[a]
21	Ocean Towers/Island Village	County	.120	.133	100	768	768	768	36[ef]
22	Orange Co. Of Florida	County	.144	not in file	100	42	42	42	789[e]
23	Orchid Acres Trailer Park	County	.0225	.005	100	150	150	150	35[ef]
25	Rainbow Trailer Court	County	.036	.016	100	34	34	34	244[e]
26	The Reserve Utility Corp.	County	.200	.073	100	220	400	1000	332[d]
28	Rio del Mar MHP	County	.015	not in file	100	128	128	128	27[ef]

TABLE 6-A-1
(Not Updated in May 2008 Revision)
Water Treatment Plants, St. Lucie County

Map Key	Water Plant	Location	Design Capacity (~~MGPD)~~MGD)	Operating Capacity (~~MGPD)~~MGD)	% Capacity for UNC	Current # of People Served	Projected 1995 Population Served	Projected 2000 Population Served	Current LOS
29	St. Lucie West	PSL	1.000	.076	0	185	1832	26335	411[d]
32	Spanish Lakes Country Club Village	County	.115	.1263	100	1200	1200	1200	22[ef]
33	Spanish Lakes Fairways	County	.233	.080	100	300	1000	1600	267[d]
34	Spanish Lakes One MHP	County	.864	.241	100	1000	1000	1000	241[d]
37	Whispering Creek Village	County	.064	not in file	100	300	300	300	49[ef]
41	CJ~~=~~'s Steak House	County	.002	not in file	100	60	***	***	33
46	Delmaroo~~=~~'s Italian Restaurant	County	.003	.001 max.	100	50	***	***	60
50	Farrell~~=~~'s Motel	County	.014	not in file	100	45	***	***	311
53	Fontenelle Plaza	County	.079	not in file	100	250	***	***	316
56	Ft. Pierce Cottages and Trailer Park	County	.050	not in file	100	75	***	***	667
59	Gingerbread Land North Daycare	County	.0003	not in file	100	99	***	***	3
60	Gingerbread Lane Too Daycare	PSL	.002	not in file	0	75	***	***	27
61	Golfland Golf Shop	County	not in file	not in file	100	25	***	***	x[h]
70	Lexington Supplies	County	.0015	not in file	100	75	***	***	20
71	Monkey Tree Daycare Center	County	.002	not in file	100	45	***	***	44
72	Loyal Order of Moose #248	County	.00114	not in file	100	200	***	***	6
73	Norris~~=~~'s Place for Ribs	County	.010	not in file	100	192	***	***	52
84	Skyway Motel	County	.036	not in file	100	30	***	***	1200
86	Sorrento~~=~~'s Restaurant	County	.010	not in file	100	150	***	***	67

TABLE 6-A-1
(Not Updated in May 2008 Revision)
Water Treatment Plants, St. Lucie County

Map Key	Water Plant	Location	Design Capacity (~~MGPD)~~MGD)	Operating Capacity (~~MGPD)~~MGD)	% Capacity for UNC	Current # of People Served	Projected 1995 Population Served	Projected 2000 Population Served	Current LOS
90	Timberland Campground	County	.030	.0039 max.	100	100	***	***	300
95	Cloud Groves/Coca Cola Foods	County	.036	.004 max.	100	40	***	***	900
~~98~~	~~Harbor Branch Foundation~~	~~County~~	~~.050~~	~~not in file~~	~~100~~	~~159~~	~~***~~	~~***~~	~~314~~
~~99~~	~~Hubert Graves Packing~~	~~County~~	~~.024~~	~~not in file~~	~~100~~	~~55~~	~~**~~	~~***~~	~~436~~
100	Indian River Foods, Inc.	County	.130	not in file	100	34	***	***	3824
~~101~~	~~St. Lucie County Airport~~	~~County~~	~~.115~~	~~not in file~~	~~100~~	~~30~~	~~***~~	~~***~~	~~3833~~
102	St. Lucie Packing Corp.	County	.072	not in file	100	60	***	***	1200
114	Sun Grove Montessori School	County	.005	.0006 max.	100	115	***	***	4
115	White City Park	County	.0072	not in file	100	160	***	***	45

Notes:

a North Hutchinson Services receive its water from FPUA. The current LOS set by the FPUA in the 1988 Master Plan.

b FPUA data is based on connections. A connection could be hooked up to a single-family residence or to a condominium with numerous units. It is impossible to determine the exact numbers with the information available. Also, some residential units are considered commercial and are included in the ÃGeneral@ category. From September 1989, the connection count is: residential inside the City 9388; residential outside city 1805; general inside city 1972; general outside city 372. The Utilities Authority estimates the total number of residents served currently (December 1989) at 45,000. The projections for 1995 and 2000, taken from the 1988 FPUA Master Plan, are 54,252 and 58,412, respectively. The LOS of 170 gpd is taken from the FPUA 1988 Master Plan.

c Current LOS was determined by dividing the average current operating capacity by the current number of people served.

d Current LOS was determined from the following equation: (Design Capacity) (Factor of 0.23) / Current # of people served. The factor was determined from the total average difference between average operating capacity (exclusive of FPUA and PSL) and design capacity, for those plants where data was available on both capacities.

e Strongly influenced by seasonal population 60% of the year. Off-season population is approximately 65% of current number of people served.

f Current LOS was determined from the following equation: Design Capacity/Current # of people served. Due to lack of operating capacity, in some cases the LOS will be high. Due to the nature of commercial, industrial and public facilities, it is difficult to evaluate the LOS when it is determined this way.

g Current LOS not determined due to lack of design capacity data.

TABLE 6-A-1
(Not Updated in May 2008 Revision)
Water Treatment Plants, St. Lucie County

Map Key	Water Plant	Location	Design Capacity (~~MGPD)~~MGD)	Operating Capacity (~~MGPD)~~MGD)	% Capacity for UNC	Current # of People Served	Projected 1995 Population Served	Projected 2000 Population Served	Current LOS

Notes:

1) Not in file refers to information the local FDEP office would normally have in their files.

2) Due to lack of sufficient data, it is not possible to determine the current capacity surplus or deficiency.

3) FPUA - (Ft. Pierce Utilities Authority), PSL (Port St. Lucie Utility Systems Department), SLCU, LOSLOS, UNC (Unincorporated St. Lucie County).

~~Notes:~~

~~a North Hutchinson Services receive its water from FPUA. The current LOS set by the FPUA in the 1988 Master Plan.~~

~~b FPUA data is based on connections. A connection could be hooked up to a single-family residence or to a condominium with numerous units. It is impossible to determine the exact numbers with the information available. Also, some residential units are considered commercial and are included in the "General" category. From September 1989, the connection count is: residential inside the City 9388; residential outside city 1805; general inside city 1972; general outside city 372. The Utilities Authority estimates the total number of residents served currently (December 1989) at 45,000. The projections for 1995 and 2000, taken from the 1988 FPUA Master Plan, are 54,252 and 58,412, respectively. The LOS of 170 gopd is taken from the FPUA 1988 Master Plan.~~

~~c Current LOS was determined by dividing the average current operating capacity by the current number of people served.~~

~~d Current LOS was determined from the following equation: (Design Capacity) (Factor of 0.23) / Current # of people served. The factor was determined from the total average difference between average operating capacity (exclusive of FPUA and PSLUSD) and design capacity, for those plants where data was available on both capacities.~~

~~e Strongly influenced by seasonal population 60% of the year. Off-season population is approximately 65% of current number of people served.~~

~~f Current LOS was determined from the following equation: Design Capacity/Current # of people served. Due to lack of operating capacity, in some cases the LOS will be high. Due to the nature of commercial, industrial and public facilities, it is difficult to evaluate the LOS when it is determined this way.~~

~~g Current LOS not determined due to lack of design capacity data.~~

~~Notes:~~

~~1) Not in file refers to information the local FDEP office would normally have in their files.~~

~~2) Due to lack of sufficient data, it is not possible to determine the current capacity surplus or deficiency.~~

~~3) FPUA - (Ft. Pierce Utilities Authority), PSLUSD (Port St. Lucie Utility Systems Department), SLCU (St. Lucie County Utilities), LOS (Level of Service), UNC (Unincorporated St. Lucie County).~~

~~Areas Not in the Scope of this Plan~~

~~**Ft. Pierce Service Area:** The Ft. Pierce Service Areas is identified as extending south to about Easy Street, west to about North Kings Highway and north to about St. Lucie Boulevard. This encompasses a large area of unincorporated St. Lucie County. Ft. Pierce Water Utilities has planned to serve these areas in their water and wastewater master plan.~~

~~**Port St. Lucie:** The Port St. Lucie Utilities System Department service area generally encompasses everything south of Ft. Pierce Utilities, west to Interstate 95, and south to the County Line. The City contains several County pockets. Because of the density of these pockets and the relatively small size, interlocal agreements will be required to serve these areas with water. The exception may be at Gatlin Boulevard just east of the I-95 interchange, where a County pocket of respectable size is located within one-mile of the County service area. This area should be given special consideration during the site plan review process to ensure an adequate water supply.~~

~~**Savannas Area:** The Savannas area is generally defined as that area bounded on the north by the northern boundary of Sections 23, 24 and a small portion of 19 and 22; on the south by the northern boundary of the Port St. Lucie City limits; on the east by South Indian River Drive, and by an imaginary line located approximately 2 mile west of U.S.1.~~

The artesian aquifer system is part of an extensive carbonate rock aquifer system that underlies most of Florida. In St. Lucie County, the artesian Floridan aquifer has three distinct producing zones of different hydrologic properties and water quality separated by semi-permeable zones. The upper producing zone of Zone 1 has the best water quality, but it is too brackish for domestic or public water supply without proper treatment (i.e. RO membranes). The water from Zone 1 is suitable for stock watering and some crops, most notably citrus. Most of the artesian wells in the County are developed in Zone 1 of the Floridan aquifer.

The Surficial aquifer is recharged through local area rainfall. In periods of prolonged drought, water supplies can become a concern. There is no natural groundwater recharge to the Floridan aquifer in St. Lucie County. The Floridan aquifer in St. Lucie County is believed to be recharged in the regions of West Central Florida (Polk, Lake and Orange Counties.)

The quality of water in the surficial aquifer is generally good. Bacteriological results indicate no bacterial problems now exist although in some areas noncoliform bacteria are present. Iron (Fe) and sulfates (SO_4) are problems in some areas. These areas generally have a problem with either Fe or SO_4, but not both, although exceptions do exist. Sulfur dioxide (SO_2) is a frequent problem. The total dissolved solids (TDS) content causes no problems in this water. It ranges from 150-450 milligrams per liter (mg/l) with the average being approximately 300. Certain areas do exist in the County where, due to leaking flow wells (artesian wells flowing from the Floridan aquifer), the TDS content is uncharacteristically high for surficial aquifer wells of this type. An additional source of Floridan aquifer water originates from the use of these artesian wells as an alternate source of irrigation water which ultimately infiltrates and contaminates the potable surficial aquifer.

Water from the Floridan aquifer originates from two sources; relict sea water, and rainwater from recharge areas. Remnant sea water deposited along with the marine limestone of the Floridan aquifer is characterized by high concentrations of dissolved salts. The water quality in the upper portion of this aquifer in St. Lucie County is fair to poor as potable water, without treatment via a membrane system (such as RO). With proper treatment, the Floridan aquifer water is ideal for potable use. Waters usually contain more than 250 mg/l of chloride ions and are therefore classified as non-potable. Because of this poor water quality, the treatment systems which utilize the Floridan aquifer for their source water generally use a RO treatment process.

NEEDS ASSESSMENT

The County presently has potable water service provided by three major utilities, several medium sized utilities, small package plants, and domestic wells. This section examines the needs of those areas in the County which are not included in a major or medium-sized utility service area and which have been determined to be potential high growth areas or areas with identified problems.

Areas not in the Scope of the 10-Year Water Supply Facilities Work Plan Prepared in May 2008

Ft. Pierce Service Area: The FPUA Service Areas is identified as extending south to about Easy Street, west to about North Kings Highway and north to about St. Lucie Boulevard. This encompasses a large area of unincorporated St. Lucie County, as identified in the bulk user agreement between FPUA and the County. FPUA has planned to serve these areas in their water and wastewater master plan.

Port St. Lucie: The Port St. Lucie Utilities Department service area generally encompasses everything south of FPUA, west to Rangeline Road, and south to the County Line. The City contains several County pockets. However, these areas are considered to be within the Port St. Lucie service area.

Savannas Area: The Savannas Area is generally defined as that area bounded on the north by the northern boundary of Sections 23, 24 and a small portion of 19 and

22; on the south by the northern boundary of the Port St. Lucie City limits; on the east by South Indian River Drive, and by an imaginary line located approximately 2 mile west of U.S.1.

Unincorporated County Areas not in Water Service Area: The future land use plan for St. Lucie County identifies several higher density residential and commercial areas. Of the land uses identified, classifications which would be dense enough to require some form of regional or sub-regional public water supply are medium and high density residential, commercial, industrial and mixed use.

~~Much of the area east of I-95 is served by St. Lucie County Utilities (North Hutchinson Utility District, and North County Utility District), Ft. Pierce Utilities, Port St. Lucie Utility Systems Department (St. Lucie West), with the notable exceptions of South Hutchinson Island, the Savannas area, and that area north of the St. Lucie County International Airport (Indrio Road).~~

~~The western area of the County is planned as agricultural, leaving the central north-south strip to be considered. Most of this strip is planned for low-density residential, which is intended to have a minimal impact on the environment, and would be uneconomical to serve with a public water system. Water service to that area is expected to be provided by individual wells.~~
Much of the area east of I-95 is served by SLCU (the consolidated St. Lucie County Water and Sewer District), FPUA, Martin County (South Hutchinson Island) and Port St. Lucie Utility Systems Department (St. Lucie West). The far western area of the County is planned as agricultural. Much of the area just west of Interstate 95 has been acquired by developers. Proposed developments in this area are in various stages of approvals and several may require land use designation changes through the Department of Community Affairs. In anticipation of these areas being developed, SLCU is planning a series of 3 to 4 regional WTPs to provide service in the North, Central, and South County Service Areas.

Capacity Assessment

This assessment identifies facility requirements in the study areas by estimating demand, assigning demand to the existing (if any) facilities, and quantifying facility deficiencies. Demand was estimated by applying a ~~level of service~~ LOS standard for each facility to the projected population and land use within the study area, in order to estimate average flows for the planning period. Resident population estimates and projections were based on the ~~Traffic Area Zone (TAZ) data provided by the St. Lucie County Metropolitan Planning Organization. These TAZ data were based upon the high projections from the~~ University of Florida Bureau of Economic and Business Research ~~(BEBR) at~~ medium values and the University of Florida ~~for St. Lucie~~Shimberg Center, which focuses more closely on projections in the unincorporated County.

A range of per capita consumption ~~was developed~~, based on water use permits issued by the SFWMD ~~and this~~ is presented in **Table 6-A-2**. The land uses for City of Port St. Lucie Utility System Department and the small utilities reflect the proposed uses in the study areas and ~~a~~an LOS of ~~100~~ 117 gallons per capita per day (gpcd) or 120% of sewage flow is used herein as a planning guide. The ~~level of service~~LOS standard for potable water systems other than those operated by ~~Ft. Pierce Utilities Authority~~ FPUA shall be ~~88 gallons per capita per day; in August 2000~~100 gpcd; in February 2004, the Board of County Commissioners adopted the ~~Potable~~ Water and Wastewater Master Plan Update. A subsequent update is currently underway and a revised Master Plan is anticipated to be completed in 2008.

The ~~level of service~~LOS standard for those areas of the unincorporated County served by ~~Ft. Pierce Utilities Authority~~FPUA shall be ~~332 gallons per capita per day~~123 gpcd. This figure comes from the ~~Ft. Pierce Utilities Authority, July 1999. While the County realizes that this figure is extremely high, it must be recognized that all FPUA~~

~~customers are~~ FPUA water use permit obtained in 2006 and the master plan update prepared in September 2006.

TABLE 6-A-2

Raw Water Demand in St. Lucie County (Source: SFWMD Water Use Permits)

Facility	SFWMD WUP No.	Expiration Date	WUP Allocation (MG)				Peaking Factor	Population (maximum)	Per Capita (gpcd)
			Annual	Max Month	Max Day	Avg Day			
Existing County WTP (Holiday Pines)	56-00406-W	March 13, 2028	60.615	5.402	0.180	0.168	1.07	2,547	71
Proposed North County Regional WTP	56-00406-W	March 13, 2028	1,434.005	119.500	3.983	3.265	1.22	25,261	110
Proposed Central County Regional WTP	56-00406-W	March 13, 2028	836.360	69.697	2.323	1.904	1.22	14,733	110
Proposed South County Regional WTP	56-00406-W	March 13, 2028	649.932	54.161	1.805	1.480	1.22	11,449	110
Panther Woods	56-004620-W	April 3, 2012	42.377	4.518	0.151	0.118	1.28	900	129
Harbour Ridge	030113-8	June 29, 2008	52.590	6.000	0.200	0.144	1.39	1,573	92
Spanish Lakes (Through 2011)[1]	56-00401-W	July 15, 2026	112.660	12.200	0.407	0.313	1.30	3,040	99
Spanish Lakes (2011 through 2026)[1]	56-00401-W	July 15, 2026	80.250	10.200	0.340	0.262	1.30	2,470	99
Spanish Lakes Fairways	56-00627-W	April 10, 2013	140.160	21.900	0.730	0.384	1.90	3,200	120
City of Port St. Lucie	56-00142-W	January 12, 2025	17,844.696	1,487.058	49.5686	40.63	1.22	347,243	117
Fort Pierce Utilities Authority	56-00085-W	January 11, 2027	4,793.000	467.980	15.599	14.053	1.11	141,741	123

[1]Spanish Lakes was given ~~the same level of service standard. Since commercial customers use a great deal more water than residential customers, the 332 gallons per capita per day is necessary~~an additional monthly allocation and revised annual allocation to meet immediate needs for 3,040 people through 2011.

Water treatment facilities are designed based on the maximum daily flow expected, which is generally about 1.5 times the average daily flow. Storage, distribution and pumping capacity is based on the maximum hourly flow (generally 1.5 times the maximum daily flow) or maximum daily flow plus a fire flow, whichever is greater.

Distribution systems should be looped to minimize stagnation of water, which makes proper disinfection difficult. Pipe sizes should be determined with consideration given to ultimate flows. System pressures should be maintained at a minimum of 20 psi under maximum (fire) flow conditions.

~~**TABLE 6-A-2**~~
~~**Potable Water Demand in St. Lucie County, 1999**~~

Supply Source	Population	Water Use[1]		
		Annual	Daily	Per Capita
PUBLIC SUPPLY				
Spanish Lakes Country Club Village	1,710	54.8	0.150	88
Spanish Lakes MHP	2,286	82.6	0.226	99
Port St. Lucie Utility Systems Department	29,096	840.4	2.303	88
Ft. Pierce Utility Authority	42,600	2,907.7	7.966	192
SUBTOTAL	**72,985**	**3,951.9**	**10.827**	**148**
NON-PUBLIC SUPPLY	43,625	2,336.0	6.40	148
TOTAL	**116,160**	**6,287.9**	**17.227**	**148**

[1] Annual and daily water use is in million gallons; per capita use is in gallons per person per day.

Source: South Florida Water Management District, 1985 data.

Treatment facilities should be in the planning phase for expansion when flows reach 80% percent of capacity, and under construction at 90% percent of capacity.

A good master plan for system development is essential, as is the commitment to follow the plan.

SERVICE AREA POPULATION PROJECTIONS

According to the St. Lucie County Utilities, Water and Wastewater Master Plan, there are three primary The SLCU service area was previously separated into several sub-service areas within St. Lucie County: North Hutchinson Island Service Area (now consolidated into the St. Lucie County Water and Sewer District) from the Ft. Pierce Inlet north to the Indian River County Line on the barrier island; South Hutchinson Island Service Area from the Martin County Line north to the Ft. Pierce City Limits on the barrier island; the St. Lucie County Water and the North County Service AreaSewer District from the Indian River Lagoon to the east, the Indian River County Line to the north, Interstate 95 to the west and St. Lucie Boulevard to the south. The previously separated sub-areas listed above have all been consolidated, with the exception of South Hutchinson Island, into the St. Lucie County Water and Sewer District. The Indian River Estates MSBU District was also included in the consolidated County district. The County has recently reconfigured the service areas to include the north, central and south county service areas as illustrated on Figure 6A-1. The service areas for FPUA and the City of Port St. Lucie are also depicted on Figure 6A-1.

The population projection for each of the service areas indicates that as St. Lucie County grows there will be a need for additional service capacity within the existing water service facilities. **Table 6-A-3** indicates the projected population within the Service Areas for the in five year 2000, 2005 and the buildout of the service areaincrements from 2007 to 2027. This table indicates a significant portion of the County=’s overall population resides in an area located outside the proposed service

area of the ~~St. Lucie County Utilities~~SLCU. Those areas lying outside of the County~~=~~'s service area that are not served by FPUA or the City of Port St. Lucie will be provided potable water service via ~~the following methods:~~ one of the ~~other two public utility providers - Ft. Pierce Utility Authority or City of Port St. Lucie Utility Department; an internal potable~~3 to 4 proposed regional water ~~package system~~treatment plants or ~~via an~~private onsite well system~~.~~
s.

~~TABLE~~Table 6-A-3

St. Lucie County Utilities Service Area - Connected Population Projections, ~~2000 - Buildout~~2007-2027

~~Service Area~~	~~2000~~	~~2005~~	~~2020~~	~~Buildout~~
~~North County Service Area~~				
~~Permanent Residents~~	~~15,095~~	~~16,725~~	~~21,686~~	~~See Note 2~~
~~Seasonal Residents~~	~~0~~	~~0~~	~~150~~	~~See Note 1~~
~~Employment~~	~~3,182~~	~~3,607~~	~~5,150~~	~~See Note 3~~
~~School Enrollment~~	~~500~~	~~500~~	~~500~~	~~500~~
~~North County Total~~	~~18,777~~	~~20,832~~	~~27,486~~	~~269,203~~
~~North Hutchinson Island Service Area~~				
~~Permanent Residents~~	~~2,189~~	~~2,193~~	~~3,862~~	~~7,000~~
~~Seasonal Residents~~	~~1,653~~	~~2,320~~	~~4,320~~	~~See Note 1~~
~~Employment~~	~~189~~	~~201~~	~~235~~	~~460~~
~~School Enrollment~~	~~0~~	~~0~~	~~0~~	~~0~~
~~North Hutchinson Island Total~~	~~4,031~~	~~4,714~~	~~6,753~~	~~8,860~~
~~South Hutchinson Island Service Area~~				
~~Permanent Residents~~	~~4,309~~	~~4,198~~	~~3,862~~	~~7,000~~
~~Seasonal Residents~~	~~5,434~~	~~6,634~~	~~10,234~~	~~See Note 1~~
~~Employment~~	~~756~~	~~765~~	~~790~~	~~994~~
~~School Enrollment~~	~~0~~	~~0~~	~~0~~	~~0~~
~~South Hutchinson Island Total~~	~~10,499~~	~~11,597~~	~~14,886~~	~~14,994~~
~~1. Total Residential ERC-s - Permanent residents plus seasonal residents~~				

2. Residential water demand and wastewater flow for this service area is based on future land use and not on project buildout ERC=s
3. Commercial/industrial water demand and wastewater flow for this service area is based on available commercial/industrial area.

Service Area	2007	2012	2017	2022	2027
North County Service Area	3,194	15,821	48,968	69,041	80,059
Central County Service Area	0	8,852	20,384	31,337	41,962
South County Service Area	0	6,292	18,703	28,131	32,508
North Hutchinson Island[1]	8,098	-	-	-	9,935

[1]*Connected Population based on ERCs connected to NHI water system and assumes 2.2 people per ERC..*

Within St. Lucie County the average daily potable water demands were based on the following per capita demands: permanent & seasonal residents - 100 gpcd, employees - 120 gpcd, and school students - 20 gpcd. The estimated water demands for the year 2000, 2005, 2002 and buildout are indicated in Table 6-A-4. As this table indicates, waterWater demands will increase as the population increases within the service delivery area.

TABLE 6-A-4
Estimated Total Water Demands (MGD)

Service Area	2000	2005	2020	Buildout
North Hutchinson Island	0.41	0.48	0.68	0.88
South Hutchinson Island	1.07	1.18	1.50	1.51
- SLCU (FPUA) Service Area	0.79	0.87	1.10	1.11
-MCU Service Area	0.28	0.31	0.40	0.40
North County Service Area	1.90	2.12	2.81	29.00

1. All water demands are in million gallons per day. Values for NHI and SHI are representative of peak season flows. For North County, values are representative of annual daily flow.
2. Water demands indicated are for the potable water service areas located within St. Lucie County Utilities.
3. Per capita water demands were assumed to be: 100 gpcd for permanent and seasonal residents, 120 gpcd for each employee and 20 gpcd for students.
4. For buildout water demands for the North County study area, a unit water demand for commercial acreage of 2,000 gpd per acre was used. Buildout water demand for the North County area assume development in the airport and Indrio Road Mixed Use Districts achieve 70% of their maximum allowable density. Using this conservative assumption these areas account for 19.2 mgd, or 66% of the total buildout demand.

Source: St. Lucie County Water and Wastewater Master Plan, August 2000.

The St. Lucie County UtilitiesSLCU Water and Wastewater Master Plan also identifies the total projected demands for water connections through the buildbuild out date.

As **Table 6-A-~~5~~4** indicates, the demand for water connections will rise and, at ~~build~~build out, will account for the total water demand as previously indicated in Table 6-A-~~4~~3.

~~TABLE 6-A-5~~ ~~Connected Water Demand (MGD)~~				
~~Service Area~~	~~2000~~	~~2005~~	~~2020~~	~~Buildout~~
~~North County Service Area~~	~~0.128~~	~~0.288~~	~~2.33~~	~~N/A (1)~~
~~North Hutchinson Island Service Area~~	~~0.41~~	~~0.48~~	~~0.68~~	~~0.88~~
~~South Hutchinson Island Service Area~~	~~0.96~~	~~1.18~~	~~1.5~~	~~1.51~~
~~1. Buildout Connected Water demand for the North County area is not reported since it is not expected to occur within any useful planning horizon.~~ ~~2. Connected water demand is the water demand connected to SLCU water distribution system.~~				
~~Source: St. Lucie County Utilities, Water and Wastewater Master Plan, August 2000~~				

Table 6-A-4 Connected Water Demand[1] (MGD)					
Service Area	2007	2012	2017	2022	2027
Northern	0.351	1.740	5.386	7.594	8.806
Central	0.000	0.974	2.242	3.447	4.616
Southern	0.000	0.692	2.057	3.094	3.576
North Hutchinson Island	0.891	-	-	-	1.093

[1]Water demand based on population projections and an assumed per capita flow of 110 gpcd.

Savannas Area Needs

This area is expected to develop into a fairly high density area with residential urban, residential medium, and commercial uses represented. Although the existing water treatment plants are expected to accommodate the existing developments for several years, as the smaller treatment plants reach their useful life and more demand is placed on the aquifer, and as septic tank and treated effluent discharge to the groundwater become more common, the need for a ~~sub~~sub regional system will be increased. ~~The City of Port St. Lucie Utility Systems Department has incorporated the savanna area within its service delivery boundaries.~~

South Hutchinson Island Needs

~~South Hutchinson Island is currently served in part by the Ft. Pierce Utilities Authority down to the St. Lucie/Martin County line. A 12-inch water main runs the length of the island and at the south end runs adjacent to a 12-inch line coming from Martin County. These lines are not interconnected.~~

~~The population of Hutchinson Island is expected to grow only slightly, if at all, due to environmental concerns. Average daily flow is based on the level of service standard of 120 per capita per day (pcpd). This area has minimal commercial flow, which is estimated at 30,000 gpd. It is assumed that no additional commercial development will take place on this portion of the island.~~

~~South Hutchinson Island does not have a drinking water capacity problem, since apparent deficiencies are in reality served by FPUA. The facilities with on-site reverse-osmosis (RO) systems, however, are presently limited in their expansion capabilities by the new FDEP policy of requiring an Industrial Waste (IW) operating permit for the RO brine concentrate from new or modified systems. Since the FPUA service is a single line only, the service is at risk from line breaks and emergency demands. The availability of re-use water for all wastewater customers has increased the amount of domestic water capacity on Hutchinson Island.~~

~~SLCU does not own or operate any water facilities on South Hutchinson Island. However, SLCU has an informal agreement with FPUA dating back to 1979, which states that the South Hutchinson Island water distribution facilities would be acquired by SLCU in the future. In order to accommodate the population growth and increased water demand through the year 2020 and buildout date of South Hutchinson Island while becoming the public service provider for potable water, the St. Lucie County Utility Department as part of the Water and Wastewater Master Plan identified the following water facility needs and improvements:~~

1. ~~The acquisition of the Fort Pierce Utility Authority (FPUA) water lines on South Hutchinson Island.~~

2. ~~The acquisition of the Martin County Utility (MCU) water lines on South Hutchinson Island.~~

3. ~~Increase the capacity of the existing distribution system by increasing the diameters and interconnecting FPUA and MCU water systems on South Hutchinson Island~~

4. ~~Install a water transmission main across the Indian River Lagoon at a feasible location eventually interconnecting with Port St. Lucie Utilities System.~~

5. ~~Enter into a bulk water purchase agreement with MCU.~~

6. ~~Enter into a bulk water purchase agreement with FPUA.~~

7. ~~Construct and operate a water treatment plant on South Hutchinson Island.~~

~~Central County Area Needs~~

~~The central County area is generally identified as being all of the area south of Indrio Road between the Indian River and Interstate 95 and then the growth area west of North Kings Highway and Interstate 95 all the way south to the County line. This long strip is expected to develop as residential urban, residential medium density and commercial in the eastern portion and residential suburban in the western portion. The only water treatment plants of appreciable size are at the Reserve and at Spanish Lakes Country Club Village and Spanish Lakes Fairways.~~

~~Most of the growth from the east to I-95 has been served by the existing municipal or private service areas. It is anticipated that by 2001, population density, commercial~~

~~uses, and other high potable water demand uses will become apparent and require regional and subregional systems whether provided by large developers, private utilities, or by the County.~~

~~In 1999, St. Lucie County acquired the Holiday Pines Water Treatment Plant. This acquired facility allowed the County to provide and plan future service delivery of potable water into the central county area. The North County Utility service area was created. This area incorporates the land mass between the Indian River County Line south to St. Lucie Boulevard, east to the Indian River Lagoon and west to the Interstate 95 Interchange. The current North County facility is 0.288 mgd water treatment facility and distribution system. Treatment within this facility is provided by the membrane softening RO process and raw water is supplied by two surficial wells. Treatment facilities include pretreatment (sulfuric acid, caustic and anti-scalant), pressure filtration and a single skid-mounted RO unit. Chlorination facilities consist of a dual gas chlorinator with automatic switchover mounted on 150-pound chlorine cylinders. Other facilities include a degasifier mounted on top of a precast concrete clear well that flows by gravity to a 0.2-MG ground storage tank. Two 20 horsepower high service pumps pressurize the distribution system and a 50 horsepower fire pump is available to boost pressure for fire demand.~~

~~The maximum day flows at this facility have approached 95% of permitted plant capacity, indicating little excess capacity is available at this plant. This facility currently serves over 1,000 equivalent residential units and consists of approximately 10 miles of piping. In order to accommodate the population growth needs and water demands into the year 2020 and the north county buildout, the following water facility needs and improvements were identified:~~

~~8. Expansion of the Holiday Pines Water Treatment Plan (WTP) into a Regional Water Treatment Plan, increasing the facilities water capacity as follows:~~

~~a. 0.75 mgd by 2005,~~
~~b. 1.75 mgd by 2008, and~~
~~c. 2.75 mgd by 2015.~~

~~9. The installation of a Floridan Well.~~

~~10. Expand the distribution system along Indrio Road from US 1 to Interstate 95 Interchange, along US 1 to Harbor Branch and to St. Lucie Village, to the St. Lucie Airport Industrial Park.~~

~~11. Provide service to the existing developments within the North County Service Area, such as: Lakewood Park, Spanish Lakes Country Club and Pantherwoods.~~

~~12. Research and provide alternative raw water sources from either Surficial Wells or Floridian Aquifer Wells.~~

~~13. Construct and operate, by 2020, a new regional water treatment plant to be located south of Indrio Road and east of Taylor Dairy Road in St. Lucie County.~~

~~14. Create program for disposal of Reverse Osmosis concentrate from the Holiday Pines Water Treatment Plant and proposed Regional Water Treatment Plant.~~ South Hutchinson Island is currently served in part by FPUA down to the St. Lucie/Martin County line. A 12-inch water main runs the length of the island and at the south end runs adjacent to a 12-inch line coming from Martin County. FPUA and Martin County Utilities have recently completed construction of an interconnect on South Hutchinson Island.

The population of South Hutchinson Island is expected to grow only slightly, if at all, due to environmental concerns. Average daily flow is based on the LOS standard of 120 gpcd. This area has minimal commercial flow, which is estimated at 30,000 gallons per day (gpd). It is assumed that no additional commercial development will take place on this portion of the island.

South Hutchinson Island does not have a drinking water capacity problem, since apparent deficiencies are in reality served by FPUA. The facilities with on-site RO systems, however, are presently limited in their expansion capabilities by the new FDEP policy of requiring an Industrial Waste operating permit for the RO concentrate from new or modified systems. FPUA recently completed construction of an emergency interconnect with Martin County to provide for protection against line breaks and to meet emergency demands. The availability of reclaimed water for all wastewater customers has increased the amount of domestic water capacity on Hutchinson Island.

SLCU does not own or operate any water facilities on South Hutchinson Island. However, SLCU has a formal agreement with FPUA that took effect in February 2004, which states that the South Hutchinson Island water distribution facilities could be acquired by SLCU in the future. SLCU and FPUA are currently evaluating the viability of this option.

Unincorporated County Area Needs

As shown in Figure 6A-1, the County's service area consists of all portions of the County within the Urban Service Boundary that are not currently served by FPUA or the City of Port St. Lucie. Within the Urban Service Boundary, the St. Lucie County Water and Sewer District (from the Indian River Lagoon on the east, the Indian River County Line to the north, Interstate 95 to the west and St. Lucie Boulevard to the south) is primarily served by the FPUA bulk user agreement and/or the Holiday Pines water treatment plant. This long strip is expected to develop as residential urban, residential medium density and commercial in the eastern portion and residential suburban in the western portion. Other water treatment plants of appreciable size in this area are at Spanish Lakes Country Club Village and Spanish Lakes Fairways. The area outside of the Urban Service Boundary (primarily west of I-95) is also part of SLCU's service area and is broken down into the North, Central and South County Service areas.

Increasing growth within the St. Lucie County Water and Sewer District service area has warranted the need for a regional water treatment plant. SLCU currently plans to construct a regional system at the parcel recently acquired northwest of the County's airport, with construction anticipated to commence in FY2009/2010. This facility will serve the future residents within the St. Lucie County Water and Sewer District (existing customers will continue to receive potable water through the FPUA bulk user agreement), future growth within the remainder of the North County service area, and customers of the Sampson subdivision (located within Lakewood Park), currently served by the H.E.W. water treatment plant or via private wells (The County has a proposed MSBU project for the Lakewood Park neighborhood).

The County has also made provisions for a future South County water treatment plant in the vicinity of Rangeline Road and a Central County water treatment plant in the vicinity of the Fairgrounds to meet potential growth from new developments. These facilities will not likely be required until after 2010. The County has secured a water use permit for the proposed facilities.

In 1999, St. Lucie County acquired the Holiday Pines WTP. The current Holiday Pines WTP has a permitted capacity of 0.288-MGD and the associated distribution system. Treatment within this facility is provided by the membrane softening RO process and raw water is supplied by two surficial wells. Treatment facilities include pretreatment (sulfuric acid, caustic and anti-scalant), pressure filtration and a single skid-mounted RO unit. Chlorination facilities were recently converted from a dual gas

chlorinator with automatic switchover mounted on 150-pound chlorine cylinders to chloramination for compatibility with the water received through the FPUA bulk user agreement. Other facilities include a degasifier mounted on top of a precast concrete clear well. A recent expansion of the facility included the addition of a new 1.0 MG ground storage tank in addition to the existing 0.2-MG ground storage tank. Two high service pumps pressurize the distribution system and a 50 horsepower fire pump is available to boost pressure for fire demand. The County plans to expand the existing facility to 0.5 MGD via the addition of a second RO treatment skid. The County's existing water use permit has provisions for increased withdrawals from the existing surficial aquifer wells. Additional future demand in the unincorporated area will be provided by the proposed regional WTPs as described above and the related water supply facilities as follows:

1. WTP in northeastern section of the County's service area (North County Regional WTP)
2. Expansion of the Holiday Pines WTP
3. WTP in southwestern section of the County's service area
4. Upper Floridan Aquifer production wells at the proposed regional WTPs
5. H.E.W. WTP decommissioning and storage tank removal
6. 1 million gallon potable water storage tank in Northwestern section of the County's service area
7. Water Main on Okeechobee Road from the Florida Turnpike to Midway Road
8. Water Main on Johnston Road from Indrio Road to Angle Road
9. Water Main on Indrio Road from Emerson Avenue to I-95
10. Water Main on U.S. 1 from North A-1-A to Naco Road
11. Water Main loop on Koblegard Road, Emerson Avenue and Indrio Road
12. Water Main on Indrio Road from Emerson Avenue to U.S. 1
13. Water Main on U.S. 1 from Naco Road to Turnpike Feeder Road
14. Water Main on Orange Avenue, Campbell Road, Picos Road and Rock Road
15. Water Main on Kings Highway from Indrio Road to St. Lucie Boulevard
16. Water Main on Rangeline Road from Glades Cut-off south to County line
17. Water Main on Rangeline Road from Glades Cut-off north to Midway Road

North Hutchinson Island

On North Hutchinson Island, ~~St. Lucie County Utilities~~SLCU provides potable water to all developed units. ~~St. Lucie County Utilities~~SLCU owns and operates the North Hutchinson Island water distribution system storage and pumping facilities at the Bryn Mawr utility site and obtains water from FPUA through a master metered interconnect. The distribution system served approximately 3,~~100~~681 equivalent residential connections (ERC~~=~~'s) in ~~1998~~2007. There are some limited shallow wells utilized for irrigation on North Hutchinson Island, but none produce water of sufficient quality for potable water use.

Water distribution piping on North Hutchinson Island is a combination of PVC, ductile iron and asbestos cement (AC) pipe. There are approximately 5 miles of 6-inch to 10-inch AC pipe in the older, south portion of the system. Replacement of this AC pipe was included in the SLCU~~=~~'s 10-year Improvement Plan. There are approximately 5 miles of transmission main between the master metered FPUA connection at Little Jim Bridge and the northern limit of the distribution system. This transmission main is primarily 18-inch ductile iron pipe, with the exception of approximately 3,000 feet of 10-inch AC pipe south of the WWTP. Most of the newer water main installations are PVC pipe. All of the distribution piping is in good operating condition.

The Byrn Mawr utility water site includes a 0.2MG ground storage tank, two 40 horsepower high service pumps with associated piping and valves, and a 10,000-gallon ~~hydro~~hydro pneumatic tank. These facilities boost the system pressure for Bryn Mawr Ocean Towers, a high-rise development. The ground storage tank is a field-erected tank concrete tank and is in poor condition. ~~Spalling concrete and small leaks are evident at several locations on the tank.~~ The high service pumps and associated piping and valves are in good operating condition, with most of this newly installed in 1996. The ~~hydropneumatic tank appeared to be in serviceable condition but has not been subjected to a rigorous structural inspection in recent years. These facilities should be replaced by the proposed 1.0 MG prestressed concrete storage tank and~~ current capital budget includes provisions for replacement of the high service ~~pumping facility~~pumps (with relocation planned to the Bryn Mawr property) and demolition of the storage tank. The County has future plans to construct a new 1 MG ground storage tank at a site to be determined.

In order to maintain sufficient water capacity at the North Hutchinson ~~Water Plant~~WTP to maintain quality service at the ~~build~~build out of North Hutchinson Island, the following required improvements have been identified:

1. Implement the planned water system improvements;

   a. ~~Construction of a~~ 1~~.0 MG~~ million gallon potable water storage tank on North Hutchison Island and re-pump facility ~~at the Bryn Mawr site.~~(currently included in SLCU capital budget)
   b. Rehabilitate/replace portions of the existing distribution system.
   c. Replace portions of the water line distribution system.

2. Interconnect the existing system with Vero Beach to insure future delivery of services.

~~3. Direction drill from the North County.~~

General Performance of Existing Facilities

As can be seen in the preceding ~~date~~data, with the exception of ~~Fort Pierce Utilities Authority~~FPUA and the City of Port St. Lucie Utility Systems Department, all other treatment facilities in the County are project specific package plants. Information was not readily available with which to analyze the general performance of these facilities which serve the unincorporated County, evaluate the adequacy of the current ~~level of service~~LOS provided by the facilities, the general condition and expected life of the facilities, and the impact of the facilities upon adjacent natural resources. ~~Because, in part, of the lack of information for these~~The smaller facilities~~, the County has committed to prepare a Potable~~ have been included in the County Water ~~Master~~Supply Facilities Work Plan ~~for the Unincorporated County. As this information becomes available as a result of the master planning effort, it will be incorporated into this sub-element through the plan amendment process.~~.

Potable Water Master Plan for the Unincorporated County

In ~~January 1999, St. Lucie County Utilities~~2004, SLCU completed a ~~draft of~~ revision to the 1998-99 ~~Draft~~ Water and Wastewater Master Plan Update. The County is currently in the process of preparing a subsequent revision that is anticipated to be complete in 2008. This update ~~analyzed~~will analyze the existing systems, ~~identified~~identify overall needs and ~~laid~~lay out a program for the orderly provision of this service. Upon completion of this master plan, pertinent information will be

incorporated into this sub-element through the plan amendment process. ~~In August 2000, the St. Lucie County Board of County Commissioners adopted the St. Lucie County Utilities Water and Wastewater Master Plan Update.~~

GOALS, OBJECTIVES AND POLICIES

The following Comprehensive Plan Goals, Objectives, and Policies are modifications of the portions of the Element as adopted in ~~1990~~January 2004 update.

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POTABLE WATER SUB-ELEMENT
GOALS, OBJECTIVES AND POLICIES

GOAL 6A.1: **PROVIDE NEEDED PUBLIC UTILITIES IN A MANNER THAT RESULTS IN THE MOST EFFECTIVE, ENVIRONMENTALLY SOUND, SAFE AND ECONOMIC POTABLE WATER SYSTEMS CONSISTENT WITH PRESENT DEMAND AND FUTURE GROWTH REQUIREMENTS ~~AND~~AND THAT PROMOTES ORDERLY, COMPACT URBAN GROWTH.**

Objective 6A.1.1: **The County shall provide potable water facilities that do not promote urban sprawl.**

Policy 6A.1.1.1: The utility service areas, as ~~-~~delineated in the Water and Wastewater Master Plan, will be determined on the basis of economy and efficient operation but will not promote linear or leapfrog development. The utility service areas shall be reviewed and updated every 5 years (beginning ~~2002) ,~~2013).

Policy 6A.1.1.1b: The County will determine the most cost effective and efficient means of providing potable water service to all areas of the ~~-~~urban service area as depicted in Policy 1.1.5.1 in a manner that will not promote linear or leapfrog development consistent with Policy 1.1.5.2. The County utility department will publish on an annual basis a Service Availability Report setting forth the availability of potable water service from the various potential suppliers of such service to the unincorporated areas of the County that meets the requirements of Goal 6D.1 and this Policy.

Policy 6A.1.1.2 Provision of regional (not including package treatment plants) potable water service shall be limited to the utility service availability options set forth in the annual Service Availability Report described in Policy 6D.1.1.1b.

Objective 6A.1.2 **The County shall implement procedures for ensuring that when a development permit is issued, pursuant to the then current Service Availability Report, adequate facility capacity is available or will be available to serve the development concurrent with the impacts, in order to meet the adopted ~~level of service~~LOS standards.**

Policy 6A.1.2.1 All development will be specifically conditioned on the availability of services necessary to maintain ~~level of service~~LOS standards as adopted within this Comprehensive Plan.

Policy 6A.1.2.2 The ~~level of service~~LOS standard for those areas of the unincorporated County served by ~~Ft. Pierce Utilities Authority~~FPUA shall be ~~332 gallons per capita per day (Ft. Pierce Utilities Authority, 1999~~117 gpcd (FPUA Water Use Permit, 2007).

Policy 6A.1.2.3 The ~~level of service~~LOS standard for potable water systems other than those owned and operated by ~~Ft. Pierce Utilities Authority~~FPUA shall be permanent and seasonal residents - 100 gpcd, employees - 120 gpcd and school students - 20 gpcd ~~(gallons per day per capita)~~.

Policy 6A.1.2.4 The County shall include in the annual Service Availability Report an update of all improvements, expansions, or increases in the capacities of facilities of the various potential suppliers of service to the unincorporated areas of the County to ensure compatibility with the established ~~level of service~~LOS standards for such facilities.

Policy 6A. 1.2.5 The County shall prepare annual summaries of capacity and demand information for each facility of the various potential suppliers of service to the unincorporated areas of the County.

Policy 6A. 1.2.6 Development within the unincorporated areas of the County will only be permitted when such development ties into or makes provision for tying into a regional or sub-regional system that is available as set forth in the annual Service Availability Report.

Policy 6A. 1.2.7 The County shall require that developments of regional impact determine the available quantity and quality of water resources for treatment to potable water beneath the development; determine the effect of ~~withdrawl~~withdrawal on surrounding environment, users and potential users; and make such information available to the County.

Objective 6A. 1.3 The County will establish and maintain a five-year and twenty-year schedule of capital improvement needs for the public facilities in the recognized County service areas.

Policy 6A.1.3.1 ~~By December 2003, the County will form a committee, composed of representatives from the appropriate County departments, for the purpose of evaluating and ranking capital improvement projects proposed for inclusion in the five-year capital improvement schedule.~~The following public facility improvements within a facility type are to be considered in the following order of priority, as determined by the Board of County Commissioners:

A. Replacement of obsolete or worn out facilities, including repair, remodeling and renovation of facilities that contribute to achieving and/or maintaining levels of service.

B. New facilities that reduce or eliminate existing deficiencies in levels of service.

C. New facilities that provide the adopted levels of service for new growth during the next five fiscal years, as updated by the annual review of the Capital Improvements Element.

D. Improvements to existing facilities, and new facilities that significantly reduce the operating cost of achieving and/or maintaining levels of service.

E. New facilities that exceed the adopted levels of service for new growth during the next five fiscal years by either:

1. providing excess public facility capacity that may be needed by future growth beyond the next five fiscal years, or

2. providing higher quality public facilities that are contemplated in the County's normal design criteria for such facilities.

F. Facilities not described in Subsections A through E, above, but which the County is obligated to complete, provided that such obligation is evidenced by a written agreement the County executed prior to July 31, 1990.

G. All facilities scheduled for construction or improvement in accordance with this Policy shall be evaluated to identify any plans of State agencies or the South Florida Water Management District that affect, or will be affected by, the proposed capital improvement.

H. Project evaluation may also involve additional criteria that are unique to each type of public facility, as described in other elements of this Comprehensive Plan.

~~Policy 6A.1.3.2 The following public facility improvements within a facility type are to be considered in the following order of priority, as determined by the Board of County Commissioners:~~

~~A. Replacement of obsolete or worn out facilities, including repair, remodeling and renovation of facilities that contribute to achieving and/or maintaining levels of service.~~

~~B. New facilities that reduce or eliminate existing deficiencies in levels of service.C. New facilities that provide the adopted levels of service for new growth during the next five fiscal years, as updated by the annual review of the Capital Improvements Element.~~

~~D. Improvements to existing facilities, and new facilities that significantly reduce the operating cost of achieving and/or maintaining levels of service.~~
~~E. New facilities that exceed the adopted levels of service for new growth during the next five fiscal years by either:~~

~~1. providing excess public facility capacity that may be needed by future growth beyond the next five fiscal years, or~~

~~2. providing higher quality public facilities that are contemplated in the County=s normal design criteria for such facilities.~~

~~F. Facilities not described in Subsections A through E, above, but which the County is obligated to complete, provided that such obligation is evidenced by a written agreement the County executed prior to July 31, 1990.~~

~~G. All facilities scheduled for construction or improvement in accordance with this Policy shall be evaluated to identify any plans of State agencies or the South Florida Water Management District that affect, or will be affected by, the proposed capital improvement.~~

~~H. Project evaluation may also involve additional criteria that are unique to each type of public facility, as described in other elements of this Comprehensive Plan.~~

Policy 6A.1.3.~~3~~2 In the event that the planned capacity of public facilities is insufficient to serve all applicants for development orders, the Board of County Commissioners will schedule capital improvements to serve developments in the following order of priority:

A. previously approved orders permitting new development,

B. new orders permitting redevelopment, and

C. new orders permitting new development.

Objective 6A.1.4 **The County shall take steps to insure that entities in the unincorporated County are adequately served, and in order to protect our drinking water shall investigate needs for waste disposal other than septic tanks and sewage systems.**

~~Policy 6A.1.4.1 The County shall encourage interlocal agreements between FPUA and Martin County for an emergency connection at the County line on Hutchinson Island.~~

Objective 6A.1.5 **The County shall coordinate with the other potential providers of central potable water service within the unincorporated areas of the County so that the extension of, or increase in the capacity of, facilities to meet future potable water capacity is available when needed.**

Policy 6A.1.5.1 Prior to issuance of a building permit, the County shall require that all applicants provide verification that water service can be provided in conformance with the policies in this plan and that adequate system capacity is available if a central system is to be utilized.

GOAL 6A.2 **THE COUNTY SHALL AGGRESSIVELY IDENTIFY, PROTECT, CONSERVE, AND BEST UTILIZE THE COUNTY~~=~~'S AVAILABLE WATER SUPPLY RESOURCES.**

Objective 6A.2.1 **By December 31, ~~2004~~ 2008, the County will update the wellfield protection plan for public potable water supply sources in or adjacent to the unincorporated County.**

Policy 6A.2.1.1 By December ~~2003~~2008, the County shall in conjunction with FDEP, ~~SFWDM,~~SFWMD, the St. Lucie County ~~Public~~ Health ~~Unit,~~Department and existing utility systems, determine and map the location of all existing public potable water supply wells which are permitted to withdraw 100,000 gpd or greater. The County shall annually update this map and keep copies of this map on file.

Policy 6A.2.1.2 The County shall in conjunction with FDEP, SFWMD, County Public Health Unit, utilities and other potential providers of central potable water service establish the probable location of public potable water supply wells in the County.

~~Policy 6A.2.1.3 The County shall in conjunction with SFWMD, USGS, or other agencies, establish the shallow aquifer characteristics of proposed public potable water supply wells to allow approximation of the zones of influence of public potable water supply wells and shall develop regulations or restrictions, consistent with, and in coordination with existing State regulations to discourage or restrict the location of new or expanded activities that would or could impact upon the public potable water supply wells.~~

Policy 6A.2.1.3 The County shall identify land uses which may not be compatible with, and may contribute to the degradation of, public potable water supply wells.

Policy 6A.2.1.4 The County shall identify~~condition the issuance of development orders or permits on demonstration of the compatibility of the proposed~~ land uses ~~which may not be compatible~~ with~~, and may contribute to the degradation of,~~ existing or future public potable water supply wells.

~~Policy 6A.2.1.5 The County shall condition the issuance of development orders or permits on demonstration of the compatibility of the proposed land uses with existing or future public potable water supply wells.~~

~~Policy 6A.2.1.6 By July 2004 , the County shall establish a fee system to provide funding for development and implementation of a wellfield protection plan.~~

Objective 6A.2.2 **The County shall continue to develop a comprehensive water conservation program incorporating, at a minimum, the following policies.**

Policy 6A.2.2.1 The County shall continue to require water saving devices in new construction, consistent with the requirements of the Florida Building Code.

Policy 6A.2.2.2 The County shall enforce the landscaping portion of the existing land development regulations and on an ongoing basis require more exacting provisions for native landscaping plants~~ and xeriscaping~~.

Policy 6A.2.2.3 The Land Development Regulations shall require wastewater reuse plans for new sewage treatment plants operating above 250,000 ~~gallons per day.~~gpd. Any new reuse plan shall be approved by the FDEP.

Policy 6A.2.2.4 The County shall encourage reuse and reclamation of water for irrigation, landscape, agriculture, and industry as an alternative to the use of potable water supplies.

Policy 6A.2.2.5 The County shall provide for education of the public concerning the need for water conservation and the use of gray water for irrigation.

Policy 6A.2.2.6 No Conditional Uses for sand mining and no re-zonings to Industrial, Extraction (IX) will be granted within public potable water supply recharge areas designated through the Wellfield Protection Ordinance; when the information is available to designate aquifer recharge areas, this policy will be revised through a Comprehensive Plan Amendment to include those areas.

Objective 6A.2.3 **By December ~~2005~~2010, the County shall implement the Upper East Coast Water Supply Plan, prepared ~~-~~by the SFWMD, by amending the land development ~~-~~regulations to identify water available and allocation rates to protect natural systems from competing water uses.**

Policy 6A.2.3.1 For normal, average rainfall years, water availability, use, allocation, and management plans, the County shall prevent the increasing water demands from reducing the important ecological, recreational and navigational values provided by the natural systems.

Policy 6A.2.3.2 Water use, allocation, and management plans for emergency drought and flood situations shall avoid irreversible impacts on ecological systems and minimize long term adverse impacts.

Policy 6A.2.3.3 The County shall not rely upon water supply sources outside its jurisdictional boundaries to meet the water supply needs of new growth and development until water availability, use, allocation and management plans have been adopted for the proposed source ~~area~~areas which specifically allocate water for such use.

GOAL 6A.3 **~~THE COUNTY SHALL INSTITUTE A PROGRAM TO IDENTIFY THE AVAILABILITY OF PUBLIC POTABLE WATER SUPPLIES REQUIRED TO PROVIDE FOR THE GROWTH NEEDS IN THE UNINCORPORATED COUNTY~~The County shall institute a program to identify the availability of public potable water supplies required to provide for the growth needs in the unincorporated County.**

Objective 6A.3.1 **In cooperation with the SFWMD, the County shall, ~~by December 2002~~in 2008, complete a master plan which determines and quantifies groundwater resources available to growth areas in both the surficial and ~~Floridian~~Floridan aquifers, evaluates methods of treatment, considers environmental impact, considers alternative financing options, and provides a schedule for County acquisition of water service.**

Policy 6A.3.1.1. The County shall ~~continually~~ update the Water and Wastewater Master Plan approximately every 5 years to identify and provide for public water supplies to include:

A. Identification of areas of high growth potential which are (or will be) isolated by existing service areas, natural geographic boundaries, political boundaries, low growth potential areas, or other demarcations.

B. Projection of population growth in these areas.

C. Inventory of existing water treatment plants within the area, their condition, and their potential for acquisition.

Establishment of needs of a public water system, based on ~~level of service,~~ LOS, provision of service by potential suppliers of water and population as established above.

Policy 6A.3.1.2 The County shall as part of the Master Plan Update process, authorize or cause to be authorized, a treatment and transport study to determine the recommended methods for supplying water treatment and transport, if necessary, for each service area identified under Policy 6D.3.1.1.

The studies will include:

A. A review of needs, based on projected population and ~~level of service~~LOS.

B. An inventory of available water quantity and quality data.

C. An analysis of potential aquifer sources, well locations, treatment methods, environmental effects, waste disposal considerations, and economic costs and efficiencies.

D. Recommended method of treatment.

E. An evaluation of environmental effects, waste disposal considerations, and costs.

F. Identification of transfer needs and alternatives to deliver treated or raw water from the source to the distribution system.

G. An application to SFWMD for water ~~withdrawl~~withdrawal from the selected aquifer(s).

H. A recommendation for wellfield location, configuration, source aquifer, number and spacing of wells.

Objective 6A.3.2 **The County shall provide, where feasible, public water supply service within the unincorporated areas of the County; criteria for evaluating the feasibility of providing such public water service will be part of each Water Master Plan Update.**

Policy 6A.3.2.1 The County shall authorize engineering and financial studies for areas identified under Policy 6D.3.1.1, which studies will include:

A. Review of area needs and time frame for development.

B. Preliminary identification of facility development necessary to meet the needs and timing of provision of public water service.

C. Preliminary ~~-~~cost estimates and a schedule of capital expenditure projects financial considerations, including recommended method of funding, rate structure and revenue projections.

Policy 6A.3.2.2 The cost of all new potable water infrastructure and distribution systems shall be borne by those who directly benefit from the improved facilities.

Policy 6A.3.2.3 In order to provide the most cost effective and efficient provision of public water service within the unincorporated areas of the County, the County shall communicate with the other potential providers of public water service regarding availability of and willingness to provide public water service from such providers to meet the needs of development within the unincorporated areas of the County.

Policy 6A.3.2.4 By December 31, ~~2005~~2013, in order to provide maximum coverage of potable water delivery ~~on South Hutchinson Island~~within the St. Lucie County Water and Sewer District Service Area, for the 5-year planning period of the Master Plan and through ~~build~~build out of the area, the County shall implement the Water and Wastewater Master Plan by determining if the following identified facility needs and/or improvements will be required:

A. ~~The acquisition of the FPUA water lines on South Hutchinson Island~~Expansion of the Holiday Pines WTP from 0.288 MGD to 0.5 MGD in FY 2009/2010.

~~The acquisition of the MCU water lines on South Hutchinson Island~~B. Expand the distribution system along Indrio Road from US Highway 1 to I-95 Interchange, along US Highway No. 1 to Harbor Branch and St. Lucie Village, to the St. Lucie Airport Industrial Park.

~~C. Increase the capacity of the existing distribution system by increasing the diameters and interconnecting FPUA and MCU water systems on South Hutchinson Island.~~

~~D. Install a water transmission main across the Indian River Lagoon at a feasible location that will eventually interconnect with Port St. Lucie Utilities.~~

~~E. Enter into a bulk water purchase agreement with MCU.~~

~~F. Enter into a bulk water purchase agreement with FPUA.~~

~~G. Construct and operate a County owned Water Treatment Plant on South Hutchinson Island.~~

C. Provide service to the existing developments within the North County Service Area, including the towns, villages and countryside area, through a Regional North County WTP. Constructed is anticipated to commence in FY2009/2010.

D. Research and provide alternative raw water sources from either Surficial Wells or Upper Floridian Aquifer Wells.

E. Create a program for disposal of RO concentrate from the Holiday Pines Water Treatment Plan and proposed North County Regional WTP via deep injection well located at the North County WTP or alternatively identified beneficial reuse project.

~~Policy 6A.3.2.5 By December 31, 2005, in order to provide maximum coverage of potable water delivery within the North County Service Areas, for the 5-year planning period and through buildout of the area, the County shall implement the Water and Wastewater Master Plan by determining if the following identified facility needs and/or improvements will be required:~~

~~H. Expansion of the Holiday Pines WTP into a Regional Water Treatment Plant, increasing the facility by 0.75 mgd by 2005, 1.75 mgd by 2008 and 2.75 by 2015.~~

~~I. The installation of a Floridian Well.~~

~~J. Expand the distribution system along Indrio Road from US Highway #1 to I-95 Interchange, along US Highway No. 1 to Harbor Branch and St. Lucie Village, to the St. Lucie Airport Industrial Park.~~

~~K. Provide service to the existing developments within the North County Service Area.~~

~~L. Research and provide alternative raw water sources from either Surficial Wells or Floridian Aquifer Wells.~~

~~M. Construct and operate, by 2020, a new regional water treatment plant to be located south of Indrio Road and east of Taylor Dairy Road.~~

~~N. Create a program for disposal of Reverse Osmosis concentrate from the Holiday Pines Water Treatment Plan and proposed Regional Water Treatment Plant~~

~~Policy 6A.3.2.6 By December 31, 2005, in order to provide maximum coverage of potable water delivery within the North Hutchinson Island Service Area, for the 5-year planning period and through buildout of the area, the County shall implement the Water and Wastewater Master Plan by determining if the following facility needs and/or improvements will be required:~~

~~A. Implement the following planned water system improvements~~

~~1. Construct a 1.0 MG water storage tank and re-pump facility at the Bryn Mawr Site.~~
~~2. Rehabilitate/replace portions of the existing distribution system.~~
~~3. Replace portions of the water line distribution system.~~

~~B. Interconnect the existing system with Vero Beach to insure future delivery of services.~~

~~C. Direction drill from the North County.~~

Policy 6A.3.2.5 By December 31, 2013, in order to provide maximum coverage of potable water delivery within the North Hutchinson Island Service Area, for the 5-year planning period and through build out of the area, the County shall implement the Water and Wastewater Master Plan by determining if the following facility needs and/or improvements will be required:

A. Implement the following planned water system improvements

1. Construct a 1.0 MG water storage tank and re-pump facility at a site to be determined at a later date (currently locating property).
2. Rehabilitate/replace portions of the existing distribution system.
3. Replace portions of the water line distribution system.

B. Interconnect the existing system with Vero Beach to insure future delivery of services

BIBLIOGRAPHY

1. Barker, Osha and Anderson, Inc., Feasibility Study - Treatment and Disposal of Septage Wastes for the Board of County Commissioners, St. Lucie County, Florida, October, 1986.

2. ~~Camp, Dresser, and McKee~~City of Ft. Pierce, Ft. Pierce Utilities Authority ~~1988~~10-Year Water ~~and Wastewater Master~~Supply Facilities Work Plan, ~~1988.~~December 28, 2007

3. City of Ft. Pierce, Reserve Area Study, 1987, January, 1987.

4. Florida Department of Community Affairs, Model Element for Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Aquifer Recharge Element, May, 1987.

5. ~~Montgomery, James M., Consulting Engineers,~~ LBFH, Ft. Pierce Utilities Authority 2006 Water and Wastewater Master Plan, September 2006.

6. City of Port St. Lucie Water and Sewer System Master Plan~~ning Evaluation, March, 1987~~, 2006.

7. Reiss Environmental, City of Port St. Lucie Water Supply Facility Work Plan, November 2007 Revision.

8. South Florida Water Management District, ~~Non-Agricultural Water Use in the~~ Upper East Coast ~~Planning Area, Memorandum Report, November, 1979. United States Geological Survey and Florida Bureau of Geology, Water Available in Canals and Shallow Sediments in St. Lucie County, Florida, Tallahassee, 1972~~Water Supply Plan – 2006 Amendment, 2006.

9. St. Lucie County, Evaluation and Appraisal Report, 1996, November, 1996.

10. St. Lucie County, Draft Water and Wastewater Master Plan Update, 1999, January, 1999.

11. St. Lucie County, Water and Wastewater Master Plan Update, 2000, August 2000.

12. St. Lucie West Services District, Water Supply Facility Work Plan, January 2008 Revision.

13. United States Geological Survey and Florida Bureau of Geology, Water Available in Canals and Shallow Sediments in St. Lucie County, Florida, Tallahassee, 1972.