

MEMORANDUM

TO: MAYOR & CITY COUNCIL   
FROM: GREGORY J. ORAVEC, CITY MANAGER  
SUBJECT: SPECIAL JOINT MEETING OF JUNE 13, 2012  
ITEM 4E, UTILITIES  
DATE: JUNE 8, 2012

Attached, please find the memorandum of June 8, 2012, from Jesus A. Merejo, Utility Systems Director, entitled "The Past, Present, and the Future of Port St. Lucie Utility Systems". The memorandum may provide you with interesting discussion points to explore at the joint meeting.

If you have any questions or require additional information, please do not hesitate to contact me.

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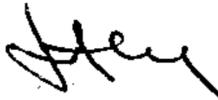
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## INTEROFFICE MEMORANDUM

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TO: Gregory J. Oravec, City Manager

FROM: Jesus A. Merejo, Utility Systems Director 

SUBJECT: The Past, Present, and Future of Port St. Lucie Utility Systems

DATE: June 8, 2012

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The Past: The Utility's first water treatment facility, the Northport Water Treatment Plant, was constructed by General Development Utilities (GDU) in 1959. The facility, which included a 150,000-gallon steel ground storage tank, was built to serve the early phases of the River Park community and a small commercial plaza adjacent to U.S. Highway #1.

The Southport Wastewater Treatment Plant was constructed in 1961 to specifically serve the Sandpiper Bay golf resort/hotel, and the homes General Development Corporation intended to build surrounding the resort's three golf courses.

Subsequent to GDC's and GDU's bankruptcy filings in 1990, St. Lucie County acquired the Utility through a "quick take" action, but a dialogue was opened between the Port St. Lucie and the County in 1993 that ultimately led to the 1994 transfer of the Utility from the County to the City. At that point in time, the utility had 17,228 water customers and 10,800 wastewater customers. Approximately 2,500 of those customers lived in the unincorporated County and less than 20% of the geographical City had water and wastewater service available.

The Present: Upon assuming ownership of the Utility, the City embarked on a multi-phased water and wastewater expansion program that resulted in potable water being made available to 100% of the City and wastewater collection service being available to approximately 98% of the City.

The Utility has the ability to treat and distribute a total of 41.65 million gallons of water per day from its two state-of-the-art water treatment facilities. On the wastewater side, 18 million gallons of wastewater can be collectively treated at two facilities and an equal amount of reclaimed irrigation quality water can be produced daily.

The number of customers served has soared to more than 65,000 water and more than 46,000 wastewater accounts.

Strategic planning has brought us to the point that we have extensive underground infrastructure, ample water and wastewater treatment capacities, and water storage facilities to successfully serve today's customers. To

continue our successful operations, we must undertake looking beyond the next 10-15 years and instead consider needs 50-100 years from now.

Long-term Future: It is estimated that by 2060, the City's daily drinking water demands will be 70.29 million gallons per day. Our current 20-year Water Use Permit issued by South Florida Water Management District only allows us to withdraw 51.513 GPD (6 MGD from the Surficial Aquifer and 45.513 from the Floridan Aquifer). By 2060, more than 18 MGD will have to come from sources other than aquifer wells.

As part of our 50-100 year strategic planning window, we have already conducted feasibility studies on ocean water desalination, surface water systems, ASRs, and capturing wasted water. Study findings have determined the following:

Ocean Water Desalination: The biggest advantage of this type of desalination is the unlimited source of raw water from the Atlantic Ocean. The drawbacks are numerous:

- a. Property acquisition for a treatment facility
- b. Environmental permitting issues including extremely long lead time of 10 or more years
- c. Costs for a subaqueous crossing of the Indian River
- d. Costs of nearly \$250 million to construct a 20 MGD treatment facility
- e. Estimated operating costs exceeding \$16 million per year

Fresh water sources will become more scarce, advances in desalination technology will continue to be made, and 50 or more years from now, ocean water desalination may eventually become a viable water source for the Treasure Coast

Surface Water Systems: Once considered only as links in drainage and flood control systems, it is believed surface water reservoirs will become a vital source of our future raw potable water supply. Advantages include the fact that annual operating costs for a 20 MGD facility would only be approximately \$6.4 million per year, nearly \$10 million less than a desal facility. There are currently two major drawbacks to surface water systems:

- a. The amount of property needed to provide adequately sized lakes or water storage reservoirs
- b. The limited time surface waters are available during the year

Aquifer Storage and Recovery Wells: Surplus water from a variety of sources can be pumped deep into earth into what is known as an ASR well. Surplus treated water is stored in an ASR well until needed; for example, during a period of seasonal drought. The stored water is then "recovered" by pumping it out of the well and distributed to customers. The City currently has a permit from the Florida Dept. of Environmental Protection that will allow us to pilot test and determine what, if any, drawbacks there may be to ASR's in our area. Models have already indicated the Floridan Aquifer in our locale is favorable for storing large volumes of water (potable and/or reclaimed water) in an ASR well system.

Capturing Wasted Water: Each day during the rainy wet season (6 months), approximately 243 million gallons of water spill over the S-97 water control structure that is located on the C-23 Canal along the City's southern limits. That water is considered to be "wasted water" and in a given wet season, more than 44 billion gallons of water that could be captured and treated to drinking water standards is instead allowed to travel downstream and discharge into the Indian River Lagoon. The major drawback to capturing wasted water is adequate reservoir storage sites, but there are many benefits including:

- a. Help meet future 70.29 MGD water demands
- b. Reduce stresses put on the Surficial and Floridan aquifers
- c. Help the City meet growing regulations for the reuse of water
- d. Help meet EPA's requirement to reduce nutrient loading in stormwater before it leaves the City
- e. Reduce freshwater discharges and negative impacts to the Indian River Lagoon including reducing the amount of nitrogen and phosphorus going to the Lagoon

Looking out 50-100 years, a well run utility will need to utilize multiple water sources. Final decisions about what water resource paths to follow do not have to be made immediately, but because of the planning, lengthy regulatory permitting, and property acquisitions required decisions should not be delayed for 20-30 years.

Other long-term issues that should be given consideration and discussion now include:

1. Increased interconnection with local utilities and perhaps even expanding to include interconnectivity with Indian River County and Martin County. This could include construction of a potable water trunk line along I-95 to encourage the sharing of water resources.

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2. Construction and operation of a regional wastewater sludge processing facility. Options could include treating the sludge to create fertilizer or even waste to energy processes.
3. Expanding the use of reclaimed water beyond irrigation. This could even lead to treating wastewater to drinking water standards.
4. Regionalization of utility service.

Short-term Future: There has been little dispute about the City's utility service area (USA) so long as it is confined to the limits outlined in the 1994 Utility Transfer Agreement. However, as the community has developed and is projected to develop, it has become more and more evident that the ability exists for the City to easily provide service to areas outside of the 1994 USA limits. This ability particularly applies to areas south of Midway Road that are west of Rangeline Road such as parcels along Rangeline Road that are adjacent to the City's expanded corporate limits. Resolution of conflicting service area boundaries is desirable. Such resolution will aid all of the local utilities in their long-term strategic planning.

Here are three suggestions that can possibly resolve the issue:

- Option 1 – The County can amend the 1994 agreement to allow PSLUSD to encompass the disputed area.
- Option 2 – The County can amend the 1994 agreement to grant the PSLUSD the ability to serve south of Okeechobee Road/State Road 70 and south of Midway Road.
- Option 3 – The County, FPUA, and PSLUSD can evaluate the current service areas in order to see what is the most efficient way to provide service to our county residents, resulting in amended agreements.

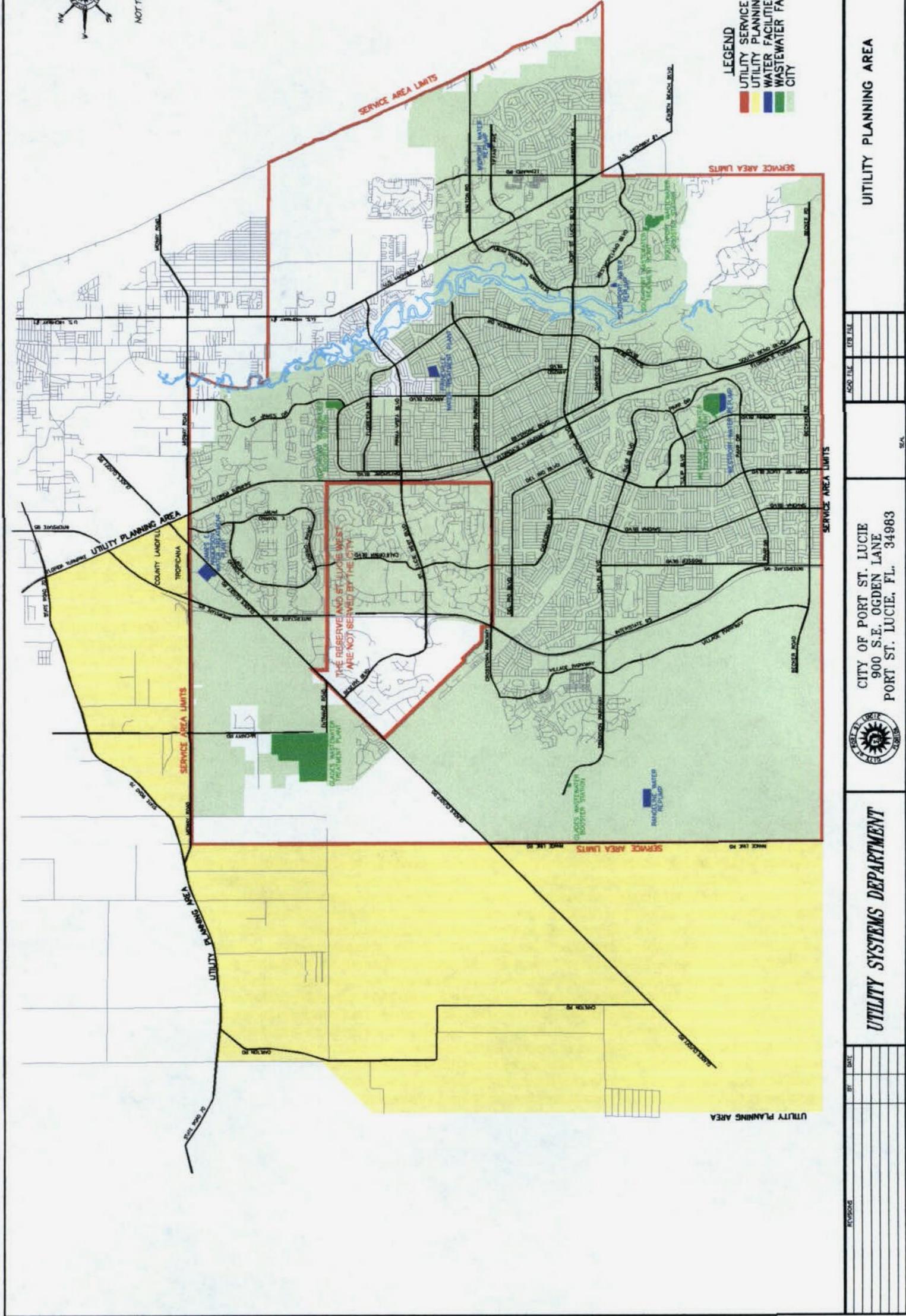
The attached maps detail the areas in Options 1 and 2.

If you have any questions or need additional information regarding this matter, please let me know.

/dr

c: Bradley E. Macek, Asst. Utility Systems Director  
Daniel M. Segui, Deputy Utility Systems Director  
Donna M. Rhoden, Utility Safety & Public Affairs Mgr.





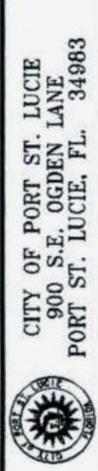
- LEGEND**
- UTILITY SERVICE AREA BOUNDARY
  - UTILITY PLANNING AREA
  - WATER FACILITIES
  - WASTEWATER FACILITIES
  - CITY

DATE	BY	REVISED	BY
11/7/00	MA	11/7/00	MA
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UTILITY PLANNING AREA

CITY OF PORT ST. LUCIE  
900 S.E. OGDEN LANE  
PORT ST. LUCIE, FL. 34983

ASD	DATE	BY



UTILITY SYSTEMS DEPARTMENT

REVISED	DATE	BY