



**INTEROFFICE MEMORANDUM
FROM
PUBLIC WORKS
UTILITIES**

Date: August 10, 2010

TO: Matt Noble

From: Howard Wegis *H.W.*

**SUBJECT: Proposed Mixed Use Communities in DR/GR
Analysis of LCU's Capacity to Serve in the Year 2015**

The purpose of this memo is to provide additional information regarding the above referenced subject as requested by the Lee County Planning Department (LCPD), in response to additional information requested by the Department of Community Affairs (DCA). This memo is intended to supplement the information provided in a memo to the LCPD on June 14, 2010. It is Lee County Utilities' (LCU) understanding that DCA has requested an analysis of LCU's capacity to provide potable water service to the Mixed Use Communities proposed in CPA 10-1 DR/GR, in the year 2015.

Projected Potable Water Demands as a Result of the Proposed Amendment

Below is the summary portion of Attachment 3 presented in the June 14, 2010 memo which quantified the increase in flows to wastewater facilities (WWTP) and increased potable water demands for water treatment facilities (WTP) as a result of the above referenced amendment. The total increase in demand for potable water as a result of the proposed amendment is 299,953 (Corkscrew WTP) + 148,262 (Pinewoods WTP) + 711,928 (Green Meadows WTP) = **1,160,143 gallons per day.**

| Facility | Flow (gpd) (AADF) |
|---------------------------|-------------------|
| LCU Corkscrew WTP TTL | 299,953 |
| LCU Three Oaks WWTP TTL | 148,262 |
| LCU Gateway WWTP TTL | 1,011,881 |
| LCU Pinewoods WTP TTL | 148,262 |
| LCU Green Meadows WTP TTL | 711,928 |

The Interconnected Nature of LCU's South Service Area

As represented in the June 14th memo, LCU's potable water transmission system is configured in such a way as to allow one system to supplement demands in another system. In the case of the three water treatment plants referenced above the systems are very well connected.

For the purposes of determining the capacity to provide potable water to serve the mixed use communities proposed in the DRGR amendment the interconnected nature of Lee County Utilities' (LCU) Corkscrew, Green Meadows and Pinewoods systems should be considered. LCU's Corkscrew, Green Meadows, and Pinewoods potable water systems are all interconnected with large diameter interconnects in close proximity to the subject development.

First it should be noted that the Corkscrew and Green Meadows systems are fully integrated. The interconnection labeled #6 on the attached figure is actually a 10 million gallon reservoir (Airport Haul Reservoir). The Airport Haul Reservoir is shared between the Corkscrew and Green Meadows water treatment plants. The potable water produced at the Corkscrew WTP (current capacity of 15.0 MGD) is sent through a 30" transmission main to the Airport Haul Reservoir. Similarly, the potable water produced at the Green Meadows WTP (current capacity of 9.0 MGD) is also sent through a 30" to the Airport Haul Reservoir. This reservoir serves as the source (point of connection) which serves the combined Corkscrew/Green Meadows system. The reservoir is filled by the two plants and pumped to the combined system, to meet demands, simultaneously.

The attached figure also shows the location, sizes and approximate capacities of additional interconnections between the three systems. The represented interconnect capacities are based on a velocity of 6.0 feet per second.

- Along Corkscrew Road there is a direct transmission system interconnection between the Corkscrew WTP and the Pinewoods WTP (interconnect #5 on the attached figure). This interconnection is 24" inch in diameter on the Corkscrew WTP side and 12" on the Pinewoods WTP side.
- There is also a connection between the Corkscrew/Green Meadows transmission system and the Pinewoods system on Ben Hill Griffin Parkway that is 16" in diameter (interconnect #10 on the attached figure).
- In addition, there is an interconnection between the Corkscrew/Green Meadows system and the Pinewoods system on Alico Road at the Alico Road Booster Pump Station (labeled #13 on the attached figure). This interconnection is 24" in diameter on the Corkscrew/Green Meadows side and 12" in diameter on the Pinewoods side of the system.
- There are three additional points of interconnection further out in the transmission/distribution system. The sizes and location of these three interconnections are shown on the attached figure.

All of the interconnections referenced above are fully functional, they do not function as emergency interconnects, but rather are used on a routine basis. LCU does valve the system to achieve maximum efficiency based on current demand configurations; however, as demand patterns change LCU would be able to simply reconfigure the valving to accommodate the changing conditions. Given the interconnections described above the three treatment plants can essentially be viewed as serving one potable water system, LCU's South system.

Analysis of Capacity to Serve

As stated above, capacity to serve the subject communities has been analyzed as a summation of the three facilities jointly providing service, namely Green Meadows, Corkscrew and Pinewoods. In 2008 LCU initiated an Integrated Water Resource Master Plan (IWRMP). LCU retained the services of AECOM to complete this study. The IWRMP is still in draft form however, demand projections have been performed as part of this effort and the Lee County Planning Department (LCPD) coordinated with AECOM on developing these projected demands. During the formulation of the IWRMP it became apparent that due to the interconnected nature of the three systems referenced above, the IWRMP would group these three systems together for its analysis and title this system the "South Service Area".

Table 3 below shows the current functional capacity, the 2015 and 2030 projected Maximum Month Average Daily Demand (MMADD) and calculated surpluses for LCU's South Service Area. The IWRMP projects a MMADD of 24.97 MGD and 28.09 MGD in 2015 and 2030 respectively for the South Service Area, This represents a surplus of 4.33 MGD and 1.21 MGD in 2015 and 2030 respectfully.

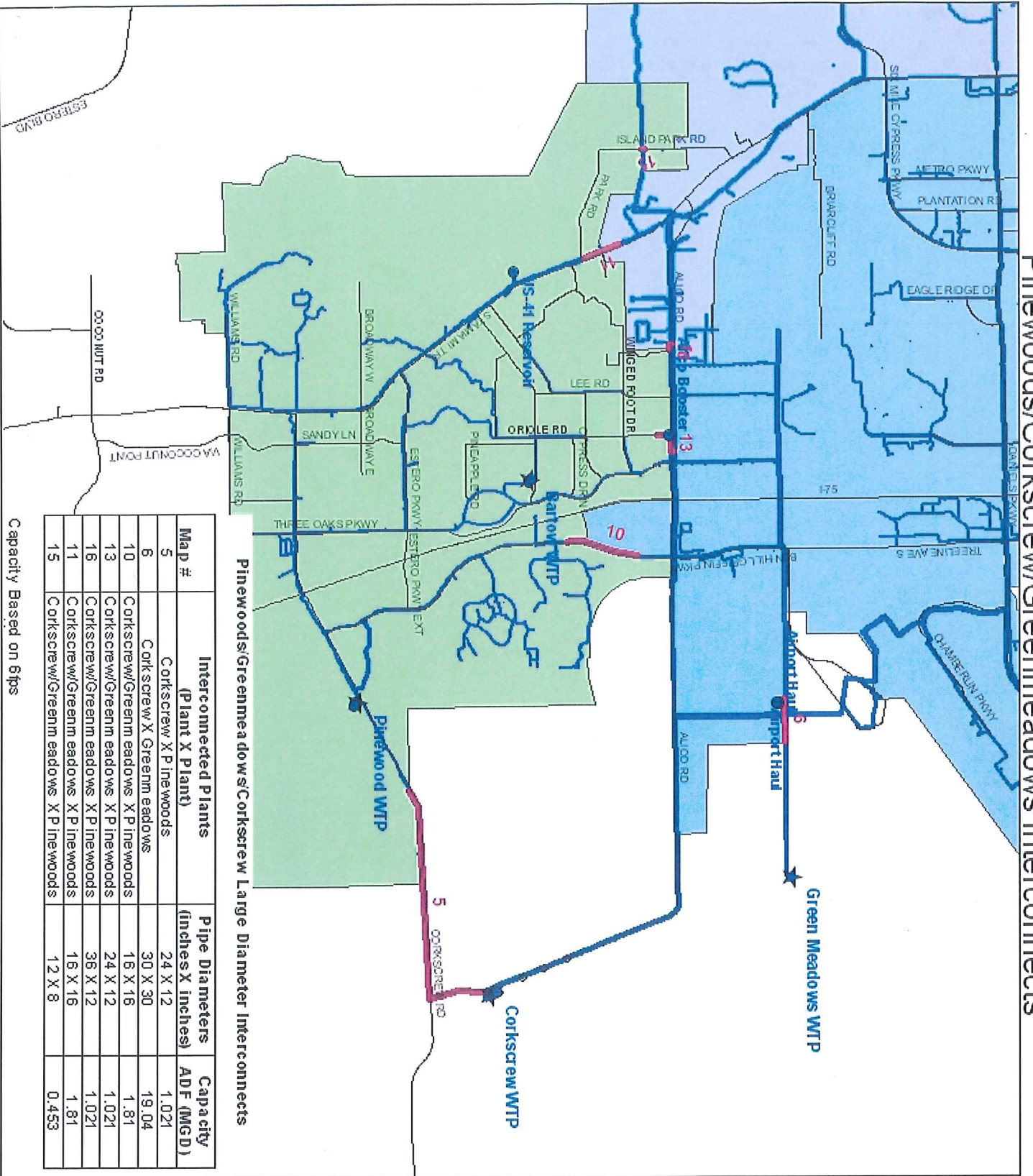
**Table 3
PROJECTED DEMANDS AND SURPLUS LCU SOUTH SERVICE AREA**

| Service Area | Current Functional Capacity (MGD) | 2015 IWRMP Projected Demand MMADF (MGD) | 2030 IWRMP Projected Demand MMADF (MGD) | 2015 Surplus Capacity MMDD (MGD) | 2030 Surplus Capacity MMDD (MGD) |
|---------------------|--|--|--|---|---|
| South | 29.3 | 24.97 | 28.09 | 4.33 | 1.21 |

The current and projected surpluses in LCU's South Service Area presented above do not include the demands associated with the mixed communities currently under review for a Comprehensive Plan Amendment.

As shown above the projected increase in demand as a result of the proposed mixed communities in the DRGR amendment is approximately 1.16 MGD. With a surplus capacity of 4.33 MGD projected for the year 2015 (Table 3) LCU's South service area is projected to have sufficient surplus capacity to serve the proposed mixed communities.

Pinewoods/Corkscrew/Greenmeadows Interconnects



Pinewoods/Greenmeadows/Corkscrew Large Diameter Interconnects

| Map # | Interconnected Plants (Plant X Plant) | Pipe Diameters (Inches X Inches) | Capacity ADF (MGD) |
|-------|---------------------------------------|----------------------------------|--------------------|
| 5 | Corkscrew X P Pinewoods | 24 X 12 | 1.021 |
| 6 | Corkscrew X Greenmeadows | 30 X 30 | 19.04 |
| 10 | Corkscrew/Greenmeadows X Pinewoods | 16 X 16 | 1.81 |
| 13 | Corkscrew/Greenmeadows X Pinewoods | 24 X 12 | 1.021 |
| 16 | Corkscrew/Greenmeadows X Pinewoods | 36 X 12 | 1.021 |
| 11 | Corkscrew/Greenmeadows X Pinewoods | 16 X 16 | 1.81 |
| 15 | Corkscrew/Greenmeadows X Pinewoods | 12 X 8 | 0.453 |

Capacity Based on 8ips



0.804 0 0.8 Miles



- Legend**
- Water Facility
 - all other facilities
 - Subtype
 - ACR Well
 - Booster Station
 - Deep Injection Well
 - Storage Tank
 - Water Tower
 - Water Treatment Plant
 - Large Diameter Interconnects
 - Pressurized Main
 - all other mains
 - Diameter
 - 36"
 - 30"
 - 24"
 - 20"
 - 18"
 - 16"
 - 12"
 - 10"
 - all
 - Water Treatment Plant Service Area
 - all other areas
 - Water Treatment Plant
 - Corkscrew WTP
 - Greenmeadows WTP
 - Pinewood WTP
 - Others