

Thomas Hill, Deputy Director Lee County Utilities May 21, 2010



Diversified Sustainability

- Large service area and decentralized facilities
 - Diversity of water supply and treatment
 - Benefits of having a diversified water source
 - Challenges faced with different resources
 - Future direction and focus
 - Aggressive conservation measures & results
 - How LCU plans to "get there from here"

Overview of LCU - Water





LCU Water Service Area

Overview of LCU - Water



Where LCU is today



LCU's 6 Water Plants

S	Current Facility Status				Future Facility Plans			
lle	Plant	Capacity	Fresh	Alternative	Capacity	Fresh	Alternative	On Line
	Corkscrew	15	GW	LH & ASR	20	GW	LH & ASR	TBD
D	GM	9	GW		16	GW	LH & ASR	FYE-2013
LV	Olga	5	SW		10	SW	LH & ASR	TBD
un	North RO	5		LH	10		LH	Mar. 2011
0	PW NF & RO	5.3	GW	LH	5.3	GW	LH	
e	Waterway	0.6	GW	LH	0.6	GW	LH	



Diversity of Water Sources

Source Water Supply

- <u>Surface Water</u>
 ✓ Caloosahatchee River
- Fresh Groundwater
 - ✓ Surficial
 - ✓ Sandstone
 - ✓ Middle Hawthorn
- Brackish Groundwater
 - ✓ Lower Hawthorn
- Irrigation Quality Water
 - ✓ 80% beneficial use totaling 8.7MGD.
 - Reduces stress on potable resources





Benefits of Diversified Supply

- ee County
- Not reliant on any one source
- Efficient and cost effective
- Provides operational flexibility & sustainability
- Reduces "seasonality" impacts
- Provides source shifting ability for operational problems and seasonal stresses on resources
 - FMP's to meet source water challenges

Water Source Challenges

Surface Water

- Withdrawal limitations
- Drought conditions affecting water quality & quantity
 - ✓ Increasing chlorides, sodium and TDS
 - ✓ Algal blooms and associated taste & odors

	Contaminant	Results (units)
	Chlorides*	406 mg/L
	Sodium*	273 mg/L
	TDS*	1,050 mg/L
	Hardness	340 mg/L
	MIB	18,000 ng/L
09/06/2008	* 2007 finished water quality	

Water Source Challenges

es -ee County Util

Traditional Ground Water Sources

- Potential wetland impacts & seasonal availability
- Withdrawal limitations, timing & operational protocols
 Lower Hawthorn Aquifer Wells
 - Drive towards a source of unknown sustainability
 - Experience of water quality degradation over time
 - Multiple facilities regionally experienced up-coning
 - Fracture zones rendering wells inoperable
 - Come with growing pains, additional costs and prudent design & planning of well fields

Aquifer Storage and Recovery (ASR) Wells

- Arsenic mobilization & regulatory considerations
- Viable solution to storage but an uncertain future

Future Focus & Direction



Where are we going?



Focus on Resource Management

"Efficient Utilization of Traditional Sources"

Surface Water

- Expand Olga to 10 MGD and drought proof with Lower Hawthorn and RO capability
 Groundwater
- Maximize Lower Hawthorn blending at fresh water plants
- Develop groundwater to groundwater ASR's system to capture seasonally available fresh water sources to share between Corkscrew & Green Meadows plants
- Continue successful use of finished water ASR at the Corkscrew plant to reduce GW withdrawals in "dry season"
 Operational test Olga's 2 ASR wells to offset WQ impacts

Focus on Resource Management

"Develop Alternative Sources Incrementally"

- Expand North RO to 10 MGD for North Service area
- Expand Green Meadows with RO capability
 - ✓ Continued use of traditional "fresh" sources
 - ✓ Incorporate alternative Lower Hawthorn sources
 - ✓ Incorporate blending with Lower Hawthorn sources
- Continue successful use of Corkscrews finished water ASR's with storage >300 MG
- Develop shared GW to GW ASR system for additional fresh water source
- Utilize IQ water as wellfield recharge
- Increase IQ utilization from +80% to 100%

Focus on Source Shifting

Develop a Robust Infrastructure

- -ee County Utilities
- Focus on developing diversified and sustainable capacity geographically
- Develop regionalized transmission network to tie systems together hydraulically
- Utilize source water timing and availability to shift production to meet demands

Resource Management Thru Conservation

Aggressive Water Conservation Measures

- Demonstrates LCU's commitment to efficient resource management
- LCU was very progressive in adopting 2 day watering restriction ordinance in 2005
- Block rate structure
- 4 other ordinances in place
 - ✓ Ultra low flow plumbing fixtures
 - ✓ Rain sensors for irrigation systems
 - ✓ Xeriscape landscaping
 - ✓ Well development surcharge for high end users
- Public outreach programs
- Dedicated Utilities Web Site
- Customer Newsletters and Billing Stuffers
- We have a 118 gpd/pc which is <u>very low</u> for this area and in the State of Florida

Resource Utilization & Planning

-ee County Utilities

How to "get there from here"

Integrated Water Resources Master Plan

Plan Elements

- Major LCU initiative and investment of \$1.5M to identify & secure our future water supply needs
- Multiple meetings with regulators, permit agencies and key stakeholders early in the process to gain early buy-in
- Guidance document and road map out to year 2030
- Projects growth areas, demand and timing needs for resource development and utilization
- Provides integration of all water sources and infrastructure development required for source diversity, sustainability and flexibility

Incorporates full utilization of IQ, traditional and alternative sources to meet future demands & growth

Key to Success?

What is the key to the plan's success?

Regulatory Stakeholder's buy-in and partnering

"To Summarize"

- LCU is a large "spread out" utility
- Multiple diversified sources are essential
- LCU is able to meet source water challenges
- Plan to efficiently utilize & expand fresh sources while prudently expanding alternative sources
- Have demonstrated that aggressive water conservation measures are effective
- Most importantly, we have a vision and a plan to meet our future demands through partnering with regulatory stakeholders

Questions?

Thank You

Thomas Hill Lee County Utilities Deputy Director