

STORMWATER REUSE: THE UTILITY BUSINESS PRACTICE

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INTRODUCTION

- A stormwater reuse or irrigation quality reuse utility is a non potable closed conduit pressurized system conveying water to a customer or a customer base.
- The utility typically charges for the services provided with minimum monthly charges in Florida from \$0 to \$15 per month for a residential customer and with consumption rates from \$0 to \$1.50 per 1,000 gallons.
- Capital construction costs have ranged from \$0.30 per gallon of source capacity to \$1.65 per gallon of source capacity depending on type and method of system.
- Technologies have ranged from operational chlorination to reverse osmosis blending with reclaimed water (Ocean Reef Club – North Key Largo Utility Authority).
- Such utility systems have lower pricing and cost requirements than either potable or wastewater utility systems.

Generalized Comparison of Florida Water, Wastewater and Irrigation Quality Water Systems (January 2007) ⁽¹⁾

Description	Unit	Stormwater Reuse/ Irrigation Quality	Potable Water	Wastewater
Minimum monthly charge	\$/month	\$0-\$15	\$5-\$30	\$8.70-\$41
Flow charge	\$/1,000 gal.	\$0-\$1.50	\$0.70-\$5.01	\$0.81-\$5.54
Source & Treatment Capital	\$/gal.	\$0.30-\$1.65	\$2-\$18	\$3-\$22
(1) Some values rounded, taken from Hartman Consulting and Design cost records.				

Such stormwater reuse utility systems have quietly become significant enterprises in Florida and now are under much more scrutiny as a means to attain “sustainability” and an acceptable “alternative water supply”.

MARKETS

- Environmental
- Fire Protection
- Stormwater Storage Enhancement
- Irrigation Quality Use

SOURCES

Primary Sources

- Wet and Dry Stormwater Ponds
- Shallow Vertical Wells
- Lakes
- Canals
- Horizontal Well Systems
- Drainage Wells (retrofit)

Supplemental Sources

- Reclaimed wastewater – (AST, AWT, MBR, etc.)
- Reject water from membrane processes – (membrane softening such as Dunedin County Road #1 WTP, etc.)
- Blow-down (from power plants, air conditioning units, etc.)
- Rain Harvesting – (From roofs see City of North Miami Beach, The New American Home (Ridgewood and Broadway, Orlando), and the UCF green roof.
- Air conditioning condensate.
- Near-by surficial aquifers.

Sources are evaluated for the volume and rate available diurnally, seasonally and annually. Water quality parameters are specific circumstances dictate.

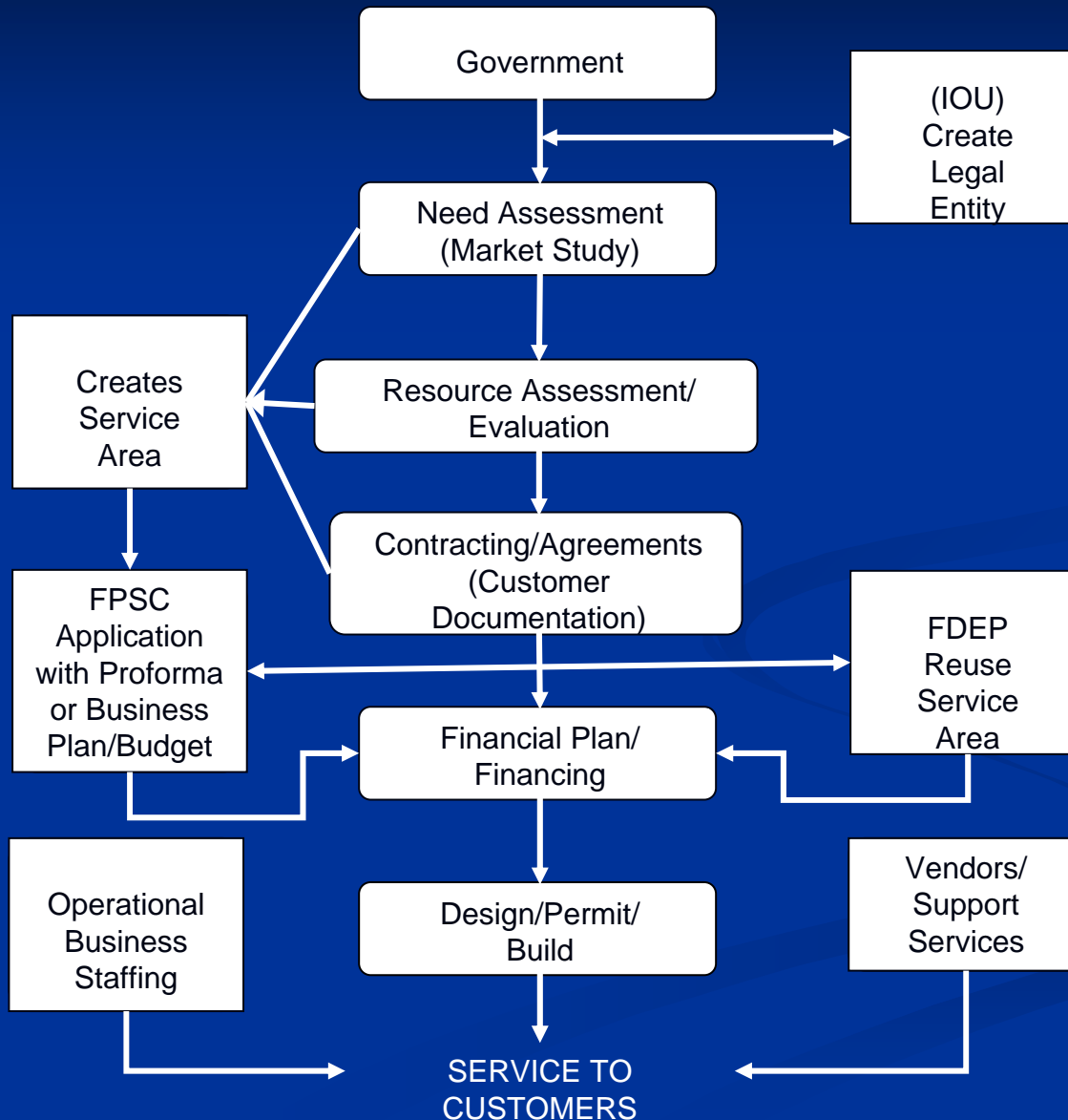
REGULATORY CONSIDERATIONS

- Water Use Permitting
- Alternative Water Supply
- Comprehensive Planning – DCA Sustainable Growth
- Florida Department of Environmental Protection
- Florida Public Service Commission
- Right of Way Utilization Easements
- State Water Policy

TECHNICAL CONSIDERATIONS

- Users
- Use Characteristics
- Environmental Setting
- Influence Area
- Quality Required
- Supplemental Flows Availability
- Soil Characteristics
- Electrical Power Feeds
- System Configurations and Integration Needs

HOW TO SET ONE UP



INSTITUTIONAL REQUIREMENTS

Florida Department of Environmental Protection

Creditworthiness Criteria
For
Drinking Water State Revolving Fund



December 1999

**HARTMAN &
ASSOCIATES, INC.**
engineers, hydrogeologists, surveyors & management consultants
ORLANDO • FT. MYERS • PLANTATION • JACKSONVILLE • DESTIN
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- Creditworthiness – entity, system, customers, etc.
- Criteria change for governmental to investor owned to special districts to non-for-profit entities to non-rate base entities.
- Data provided and/or estimated (pro forma)
- Financial ratios of debt service coverage, interest coverage, return on assets, operating ratio, debt to equity ratio, current ratio, top 10 ratepayer analysis, number of connections, growth trend and rate affordability are the most used with other specific requirements.
- Security requirements are agreed upon.
- Financial need, balance sheet before and after the financing, and income statement for the historical and pro forma period developed.
- Sound business structure developed.

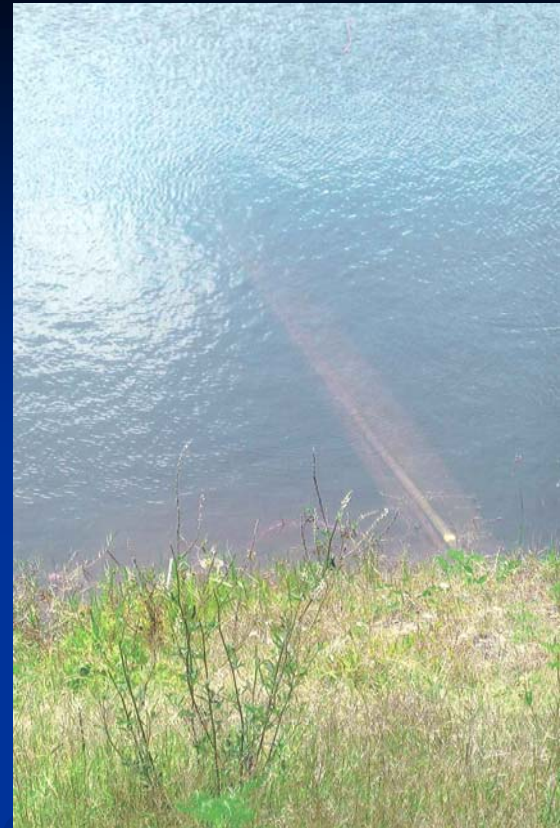
CASE STUDIES

Eagle Lakes Phase 1 – Flagler County

- Source Capital Cost - \$426,000
- Capacity – 750 gpm
- Cost per 1,000 gallons - \$0.30/1,000 gallons









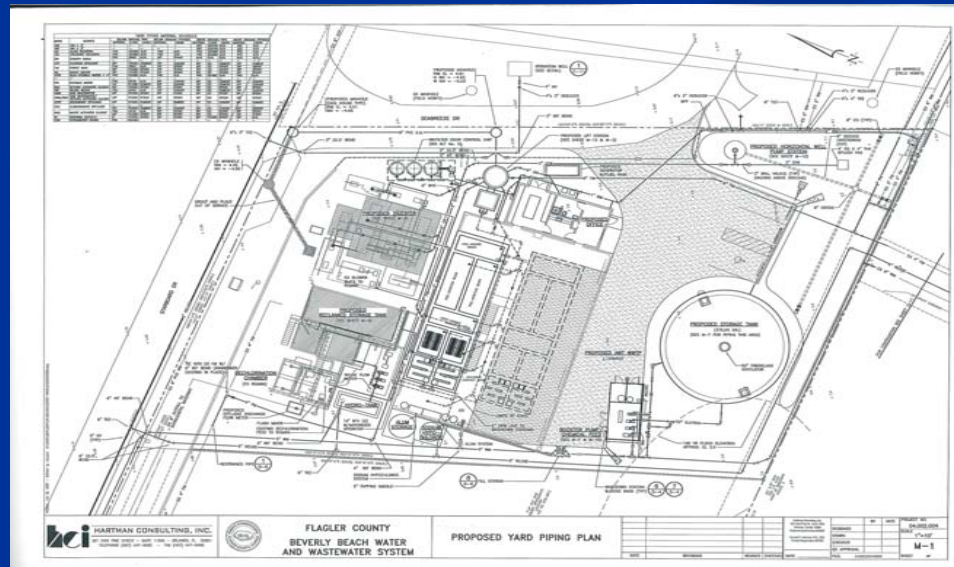
City of Miramar – Broward County



- Source Estimated Capital Cost - \$467,000
- Capacity – 1 MGD
- Cost per 1,000 gallons (Reclaimed & IQ) - \$0.80/1,000 gallons
- Capital Cost – Waived – new development required as CIAC

Beverly Beach – Flagler County

- Source Capital Cost - \$386,000
- Capacity – 350 gpm
- Estimated cost per 1,000 gallons (Reclaimed & IQ) - \$0.50/1,000 gallons
- Capital cost - Waived



Tiger Point/South Santa Rosa Utilities, Santa Rosa County

AMERICAN ARBITRATION ASSOCIATION
Commercial Arbitration Tribunal

In the Matter of the Arbitration between

Meadowbrook Golf Group, Inc. (Claimant)

and

Case No.: 33 181 00412 04

City of Gulf Breeze (Respondent/Counterclaimant)

**COUNTERCLAIMANT'S RESPONSIVE BRIEF
AND
BRIEF IN SUPPORT OF ITS COUNTERCLAIM**

Bill L. Bryant, Jr.
Akerman Senterfitt
106 East College Avenue
Suite 1200
Tallahassee, Florida 32301
850.224.9634
850.222.0103 (Facsimile)
Attorney for Respondent/Counterclaimant

- Source Capital Cost - \$442,000
- Capacity – 1.3 MGD
- Cost per 1,000 gallons - \$0.50/1,000 gallons for commercial and residential customers. Waived by agreement for golf course.
- Capital costs – CIAC at cost for commercial and residential customer. Golf Course – waived by agreement

City of Sanibel, Lake County

- Source Capital Cost - \$1.6 million
- Capacity – 2 mgd
- Cost per 1,000 gallons – (Reclaimed & IQ) - \$0.10/1,000 gallons golf course and \$1.37/1,000 gallons residential customer use.
- Capital cost – agreement waived for golf courses.
 - \$700 per residence or actual cost – CIAC

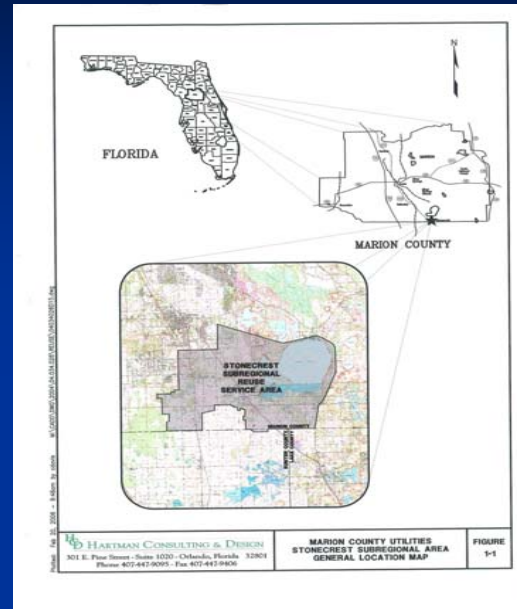
ECFS, Inc.

Orange, Osceola, Brevard

- Source Capital Cost - \$3,383,000 (original cost)
- Capacity – approximately 20 MGD facilities limited by CUP
- Cost per 1,000 gallons – surface water \$51.36/month (per customer)
 - raw water - \$0.1813/1,000 gallons (2003)
 - capital fee - \$2,221.39 per 350 gallons AADF (2003)
- Capital cost – agricultural - \$502,000 (East Central Florida Services, Inc. Water Tariff Certificate No. 537-W)
 - raw water - \$1,540,000
 - Reliant - \$1,341,000

SERVICE AREAS

- FDEP
Reuse/Irrigation
- FPSC/County
- Stormwater Reuse
Utility Valuation



EAST CENTRAL FLORIDA SERVICES, INC. Third Revised Sheet No. 18-B
WATER SERVICE - General Second Revised Sheet No. 18-B

AGRICULTURAL SERVICE
RATE SCHEDULE AS

AVAILABILITY - Available throughout the area served by the Company.
APPLICABILITY - For raw water service rendered for all agricultural applications within the Company's certificated service territory.
REGULATIONS - Subject to all of the Rules and Regulations of this Tariff and General Rules and Regulations of the Commission.

BILLING PERIOD - Monthly

RATE -

Well Size	Flat Monthly Rate
2"	\$13.77
2-1/2"	21.09
3"	25.94
4"	35.16
5"	45.54
6"	60.50

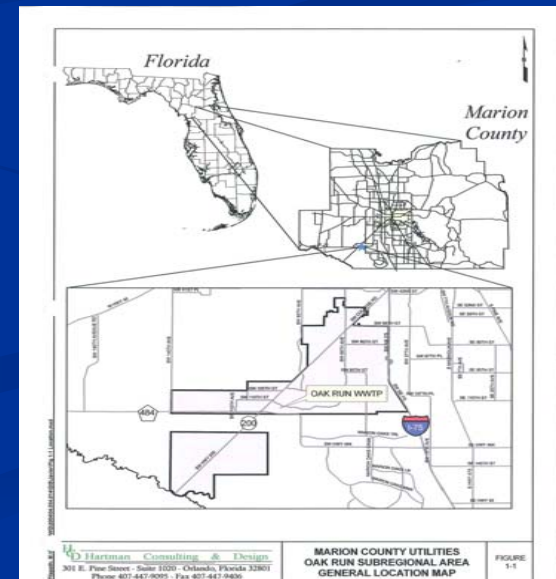
SPRING WELL RATES

Well Size	Flat Monthly Rate
6"	\$45.29
8"	51.15
10"	59.81
12"	67.71
14"	69.16

Continued to Sheet No. 18-13

EFFECTIVE DATE - December 27, 2003
TYPE OF FILING - 2003 Price Index

James H. Payne
DRAWING OFFICER
President
V.P.



STORMWATER REUSE VALUATION

- Cost Approach (Reproduction Cost Less Depreciation) - \$3,719,000
- Income Approach (Direct Capitalization) - \$3,106,000
- Market (Sale Comparison) - \$ N/A
- Opinion of Value - \$3,250,000
- Final Sale Price in Transaction - \$3,100,000
- Owner Investment - \$504,000/\$309,000 Depr.

CONCLUSION

Stormwater Reuse Utilities

The Up and Coming Utility