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Overview of the Conserve Florida Water Clearinghouse

Topics to Cover

- Overview of Conserve Florida Water Clearinghouse
- The Clearinghouse's water conservation model- EZ Guide 2.0
  - Data sources and profile
  - Water audit
  - Water budget
  - BMP planning and optimization
  - Selecting priority retrofit homes
- Conclusions and contact information

About the Clearinghouse

Signatories of Water Conservation Agreement:

- Florida Department of Environmental Protection
- 5 Water Management Districts
- Florida Public Service Commission
- Utility Council of AWWA
- Utility Council of Florida Water Environment Association
- Florida Rural Water Association

Goals of the Clearinghouse

- Be the premier source in Florida of water conservation information for public water supply, drawing upon information and expertise from throughout the utility sector, the water management districts, the state university system, and other sources
- Help Florida become a national leader in water use efficiency

Why Water Conservation is Important in Florida

- Florida utilities will need to obtain future water supplies from alternative water sources. Improved water conservation is a cost-effective option for reducing average and peak water use rates by 20 to 60%
- Water conservation is the ideal way to reduce energy demands
- Sustainable urban water systems need to balance supply and demand management options

Core Services of the Clearinghouse

1. Develop a water conservation model
    - Current version is an Excel based model called EZ Guide 2.0
2. Establish and develop a water conservation library
3. Establish and refine an integrated data Infrastructure
4. Provide technical assistance
5. Develop a research agenda/program
6. Provide outreach to users

Conserve Florida Water Clearinghouse

Promoting Conservation in Our Public Water Supplies

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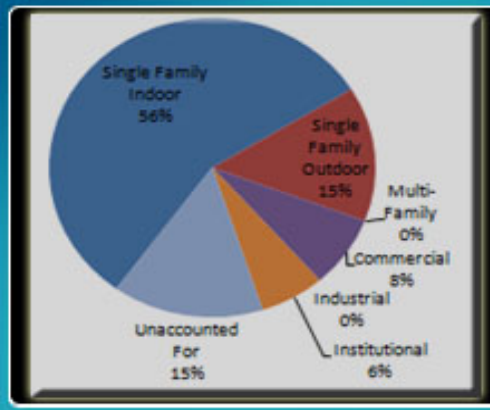
- CLEARINGHOUSE PUBLICATIONS
- LEARNING RESOURCES
- RESEARCH
- LINKS
- NEWS
- EVENTS



NEW: EZ GUIDE 2.0

A WATER CONSERVATION AND PLANNING TOOL

DOWNLOAD EZ GUIDE 2.0 BETA →

Please help us develop this new tool, try the Beta version Today!

This new tool is pre-populated for the utilities using water production, property appraiser, and census data. Check the new features of EZ Guide 2.0

Get Information Here to Help You Conserve Water

Mission: The mission of the Conserve Florida Water Clearinghouse is to develop collaborative relationships with related programs, and to collect, analyze, and make available reliable information and technical assistance to public water supply utilities and water managers for use in developing effective and efficient water conservation programs.

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Conserve Florida Water Clearinghouse

What is EZ Guide 2.0?

- EZ Guide 2.0 is an Excel based water conservation tool consisting of several analysis modules
- Profile: Basic utility information, water production
- Water Audit: Water losses, unaccounted-for water
- Utility Water Budget:
  - Water use by sector
  - End-use analysis, water use by fixture
- BMP Selection
- BMP Tracking
- Measures
- Reports

Why use EZ Guide 2.0

- Water conservation programs are goal-based, accountable, measurable, economically efficient, and affordable
- Information can be used as part of the Consumptive Water Use Permits
- Water use and parcel data pre-populated for each utility
- BMP savings determined directly; default savings rates not used
- Optimal mix of BMPs found using linear programming

Conserve Florida Water Clearinghouse Data Services

Centralized resource for water production data, population, and land use information:

- Water production numbers from FDEP's Monthly Operation Reports (MOR)

- Water production capacity and number of connections from the Basic Facility Reports (BFR) published by FDEP

- Population data from the U.S. Census

- Parcel level land use data from Florida Department of Revenue (FDOR)

Conserve Florida Water Clearinghouse Data Service

Home | DOR Parcel Attributes Raw Data Interface | Basic Facility Report Raw Data Interface

Query results are limited to 400,000 rows

County Name: ALACHUA City: Gainesville Zip Code:

DOR Land Use Code*: Census Block Group: Sector Type*: Single Family, Multi-Family, Commercial

Preview Data * allows multiple selections; Land Use Code: text field comma delimited e.g. 1,33,99; Sector Type: no item(s) selected equals "All"

Preview Records: 25; Total Records: 29,155; Estimated File Size (MB): 6.67

DOR Parcel Attributes

County Number	County Name	Parcel ID	Tax Roll Year	Land Use Code	Land Use Code Description	PA_Code	Special Assessm Code	Just Value	Land Sq Foot	Effective Year Buil	Actual Year Buil
11	ALACHUA	01360 002 000	2009	7	Miscellaneous residential (m	00		66000	136245		
11	ALACHUA	01636 004 002	2009	0	Vacant Residential	00		9000	49223		
11	ALACHUA	01832 002 000	2009	7	Miscellaneous residential (m	00		111000	149411		
11	ALACHUA	03127 020 025	2009	1	Single Family Residential	00		254400	217800	1996	1996
11	ALACHUA	03127 020 028	2009	1	Single Family Residential	00		221400	217800	1996	1996
11	ALACHUA	03149 003 000	2009	0	Vacant Residential	00		22000	159865		

DOR Data Formats

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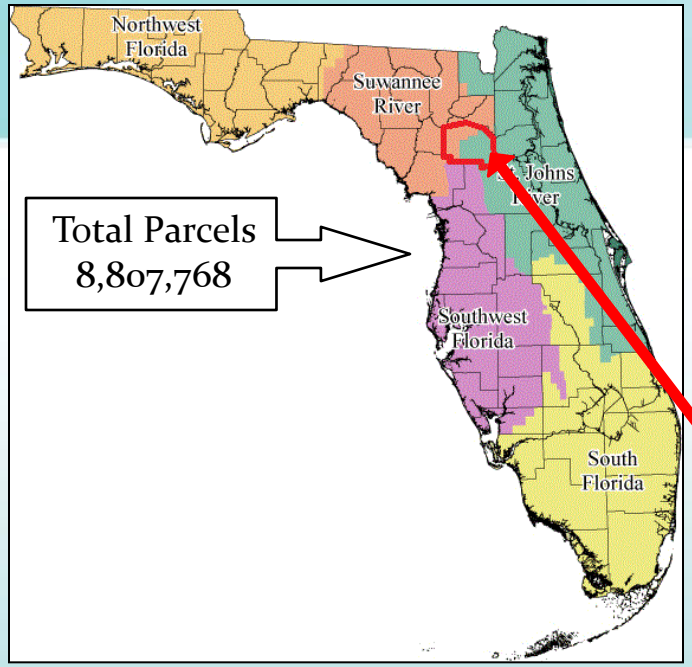
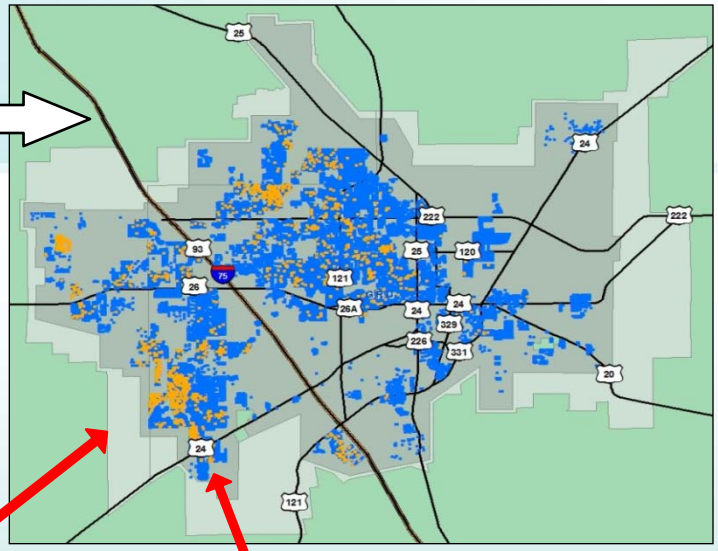
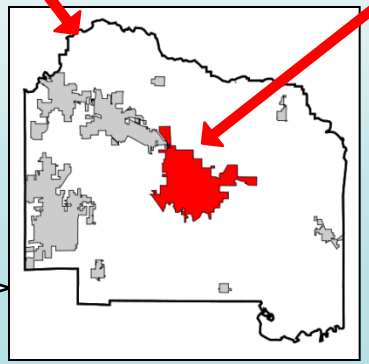
Conserve Florida Water Clearinghouse



Total Parcels
8,807,768

Total Parcels GRU
55,551





Parcels Alachua
99,305

SFR parcels GRU
30,910

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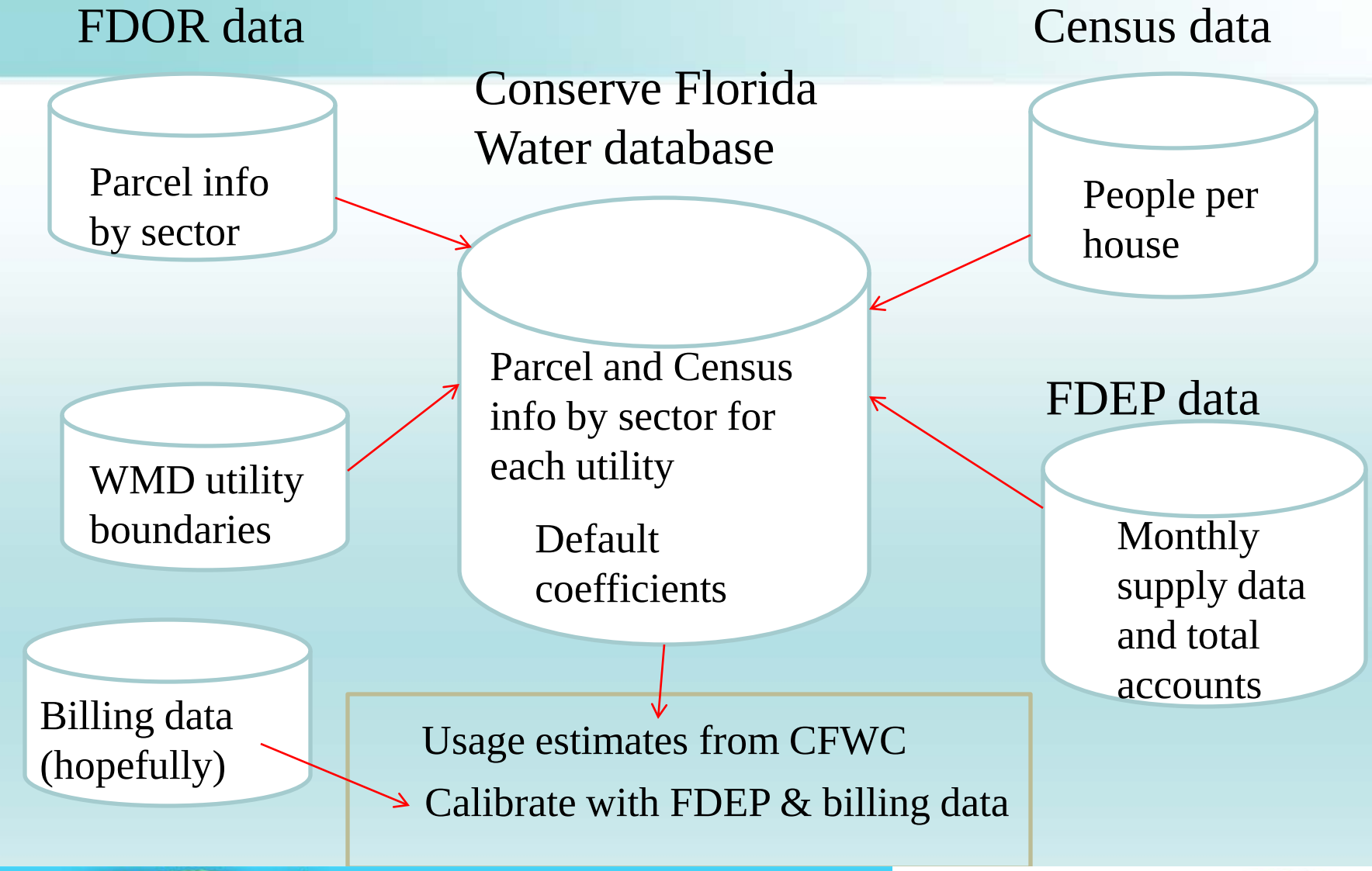
EZ Guide 2.0 Databases

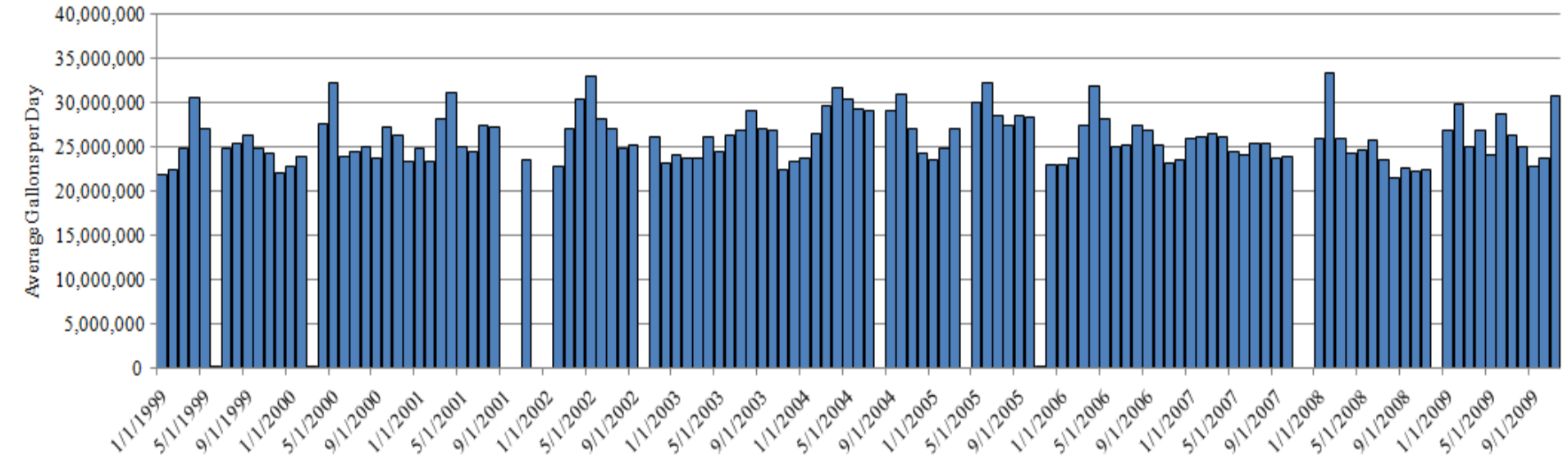


Utility Profile

- Basic utility information
- Water production data from MOR and BFR
- Data trends and anomalies can be identified
- User can correct data if errors are found
- Allows for selection of analysis year representing average conditions

Utility Profile-Monthly water production since 1/99

Figure 1.2.1 Monthly treated water from the Florida Department of Environmental Protection monthly operation reports



Utility Profile

Table 1.1.4 FDEP Basic Facility Report

FDEP Basic Facility Report	
Analysis Year	2006
Design Capacity (gal./day)	54,000,000
Number of Plants	1
Number of Service Connections	61,464
Population Serverd	178,344
Population Sold to	1,900

Table 1.1.6 Florida Department of Environmental Protection Monthly Operation Report Flow Data

Year/Month	Million Gallons per Month	Average Gallons per	Change Value	Quartile Validity	Days
Jan-2006	724.052	23,356,519	Change	OK	31
Feb-2006	662.303	23,653,690	Change	OK	28
Mar-2006	823.151	26,553,266	Change	OK	31
Apr-2006	888.827	29,627,556	Change	OK	30
May-2006	984.459	31,756,734	Change	OK	31
Jun-2006	912.767	30,425,569	Change	OK	30
Jul-2006	906.106	29,229,234	Change	OK	31
Aug-2006	901.336	29,075,349	Change	OK	31
Sep-2006	873.478	29,115,917	Change	OK	30
Oct-2006	958.535	30,920,497	Change	OK	31
Nov-2006	813.192	27,106,415	Change	OK	30
Dec-2006	753.705	24,313,078	Change	OK	31

Water Audit

- Can be used as part of a CUP application
- The user can select from different methods:
  - M36 Audit (AWWA)
  - AWWA 4.0
  - SWFWMD
  - SJRWMD
  - FRWA
- Useful to identify leaks and other system losses, and unaccounted for water

Water Budget

- Uses FDOR datasets to estimate number of fixtures
- Estimates average water use by sector and by type of water using fixture
- Can produce information on fixture type by land use and age of building
- Analysis does not require utility billing data

Water Budget

Figure 3.2.1 Calibrated Water Budget by Sector

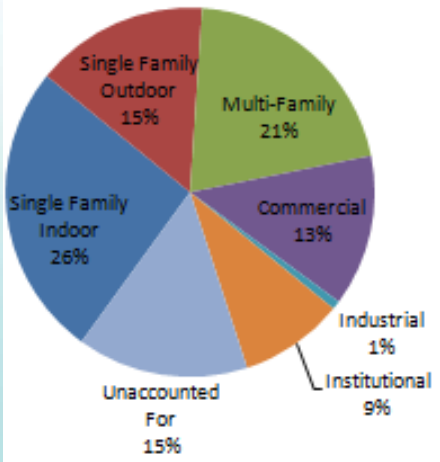


Table 3.2.1 Percentage and gpcd Summary by Sector

Sector	% of Total Water Use	Breakdown of Gross gpcd	Breakdown of Gal/Htd. Sq. Ft.
Single Family	41.0%	58	4.63
Single Family Indoor	25.9%	36	2.92
Single Family Outdoor	15.2%	21	1.71
Multi-Family	20.8%	29	4.96
Commercial	13.3%	19	5.05
Industrial	0.8%	1	0.83
Institutional	9.1%	13	4.80
Unaccounted For	15.0%	21	0.81
TOTAL	100.0%	141	5.40

End-Use Analysis

- Analyzes historical water use by fixture
- Provides an inventory of fixtures in the utility service area, based on FDOR data
- Fixture inventory can be used to develop production function for BMP optimization

Table 3.3.4 Number of Toilets

		Toilets/residence			
Fixture Efficiency Group	Total	1	2	3	4 or more
Single Family Pre 1983 (5.0 gal./flush)	39,445	1,101	26,030	10,275	2,039
Single Family 1983-1994 (3.5 gal./flush)	23,665	627	13,742	7,230	2,066
Single Family 1995-2008 (1.6 gal./flush)	28,412	628	15,280	9,273	3,231
Single Family Total	91,522	2,356	55,052	26,778	7,336

Table 3.3.18. Toilet Usage (gal./day)

		Toilet use, gallons/residence			
Fixture Efficiency Group	Total gal./day	1	2	3	4
Pre 1983	1,349,881	82,336	973,295	256,130	38,120
1983-1994	533,529	32,090	351,660	123,344	26,435
1995-2008	315,840	16,302	198,329	80,240	20,969
Total	2,199,251	130,728	1,523,284	459,715	85,524

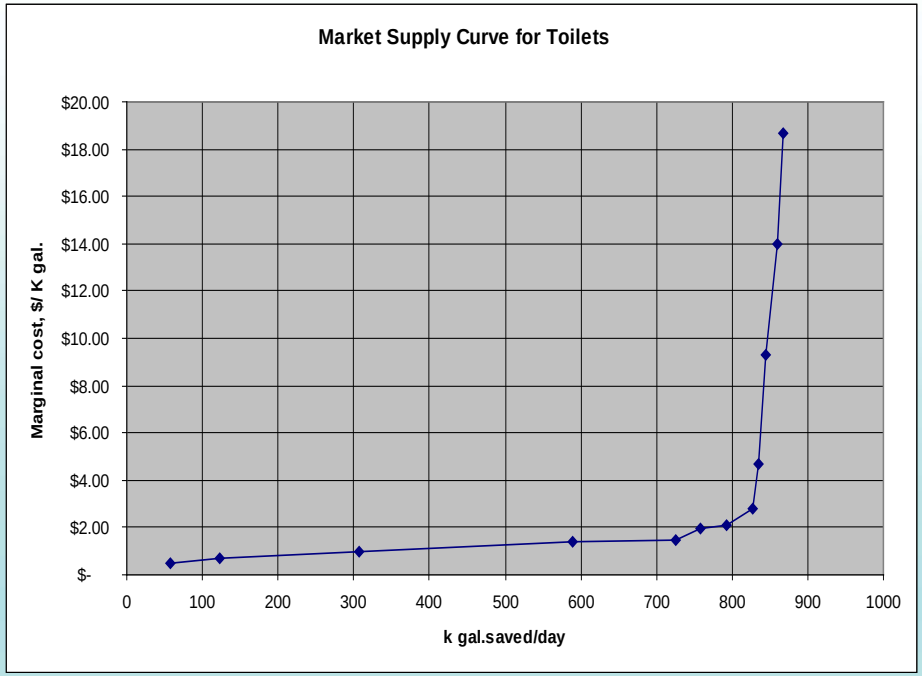
Best Management Practices (BMP)

- Water savings can be determined directly from existing conditions (water budget) and proposed BMP's
- Toilets, leaks, and clothes washers provide over 80% of potential savings
- Focus on older houses with fewer baths- higher uses per day
- Some of the leaks are outdoor

Indoor Residential Savings Potential

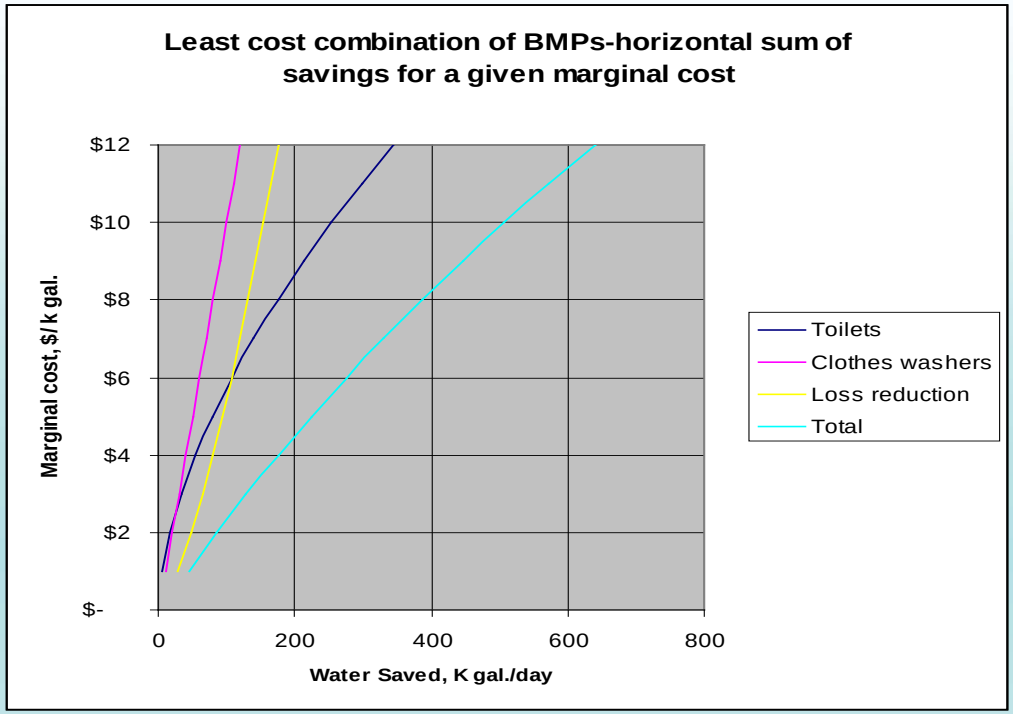
Fixture	Base gpcd	SOTA gpcd	Savings gpcd	% Savings
Toilets	17.9	7.8	10.1	26.0%
Leaks	18.8	3.7	15.1	38.8%
Clothes Washers	14.7	7.8	6.9	17.7%
Showers	12.4	9.1	3.3	8.5%
Faucets	9.4	6.2	3.2	8.2%
Baths	2.6	2.4	0.2	0.5%
Dishwasher	0.6	0.5	0.1	0.3%
Other	0.8	0.8	0	0.0%
Total	77.2	38.3	38.9	100.0%

Market Supply Curve for Toilets



- Combine performance function with toilet cost data to develop supply curve
- For a given savings rate (MB), the optimal solution is where MB = MC (Marginal Costs)

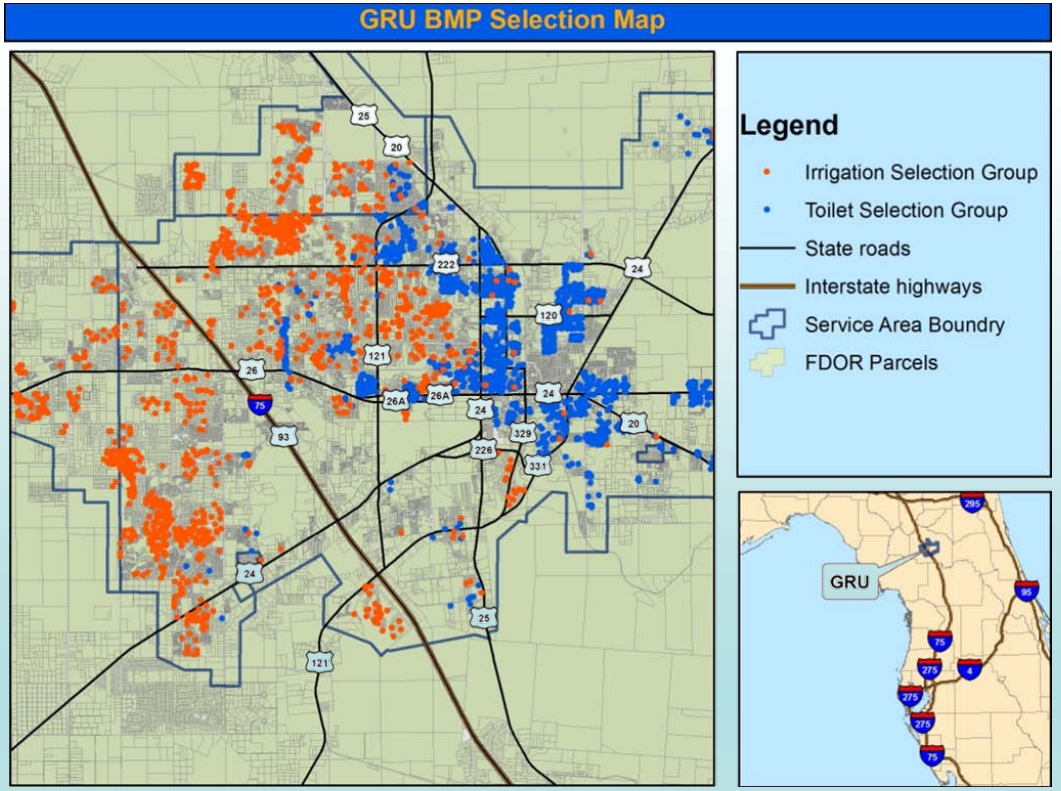
Least Cost Combination of Water Management Options



- Final result is the marginal cost curve for each option
- For a given savings rate, add water saved for each option to get the final answer
- EZG2.0 finds the best blend of options using linear programming

Selected Priority Target homes in GRU

- Customer billing and GIS data can enhance selection of target homes for retrofit
- For GRU, the promising homes for indoor retrofit are shown in blue
- The promising homes for outdoor retrofit are shown in orange



Conclusions

- New Water Budget feature provides a parcel level evaluation of current and historical water use patterns
- Water Budget provides detailed information on fixtures available for retrofit
- Linear programming feature finds optimal mix of BMPs automatically
- EZ Guide 2.0 can feed into CUP and/or planning processes:
  - Utility Boundary
  - Water Audit
  - Conservation Plan
  - BMP selection and tracking

Acknowledgment

The financial support provided by the South Florida, Southwest Florida, and St. Johns River Water Management Districts, the Florida Department of Environmental Protection and the Florida Section of the American Water Works Association is appreciated. The current beta version of EZ Guide 2.0 does not represent approved policies of any of the sponsoring agencies.

Conserve Florida Water Clearinghouse

- Clearinghouse website:

  www.conservefloridawater.org

- EZ Guide Download and User Manual

  http://conservefloridawater.org/ez_guide

- EZ Guide Questions/Comments:

  support@conservefloridawater.org