Mayor's Sustainability Advisory Board

Agenda

Dec 10, 2009

- Welcome
  Commissioner Katy Sorenson
- Andrés Duany, FAIA
  Architect and Town Planner
- Environmental Resources
  Lee Hefty, Assistant Director, Department of Environmental Resources Management
- Solid Waste
  Chris Rose, Deputy Director, Department of Solid Waste Management
- Water and Wastewater
  Bertha Goldenberg, Assistant Director, Water and Sewer Department
- Next Steps

greenPrint

Our Design for a Sustainable Future

Mayor's Sustainability Advisory Board

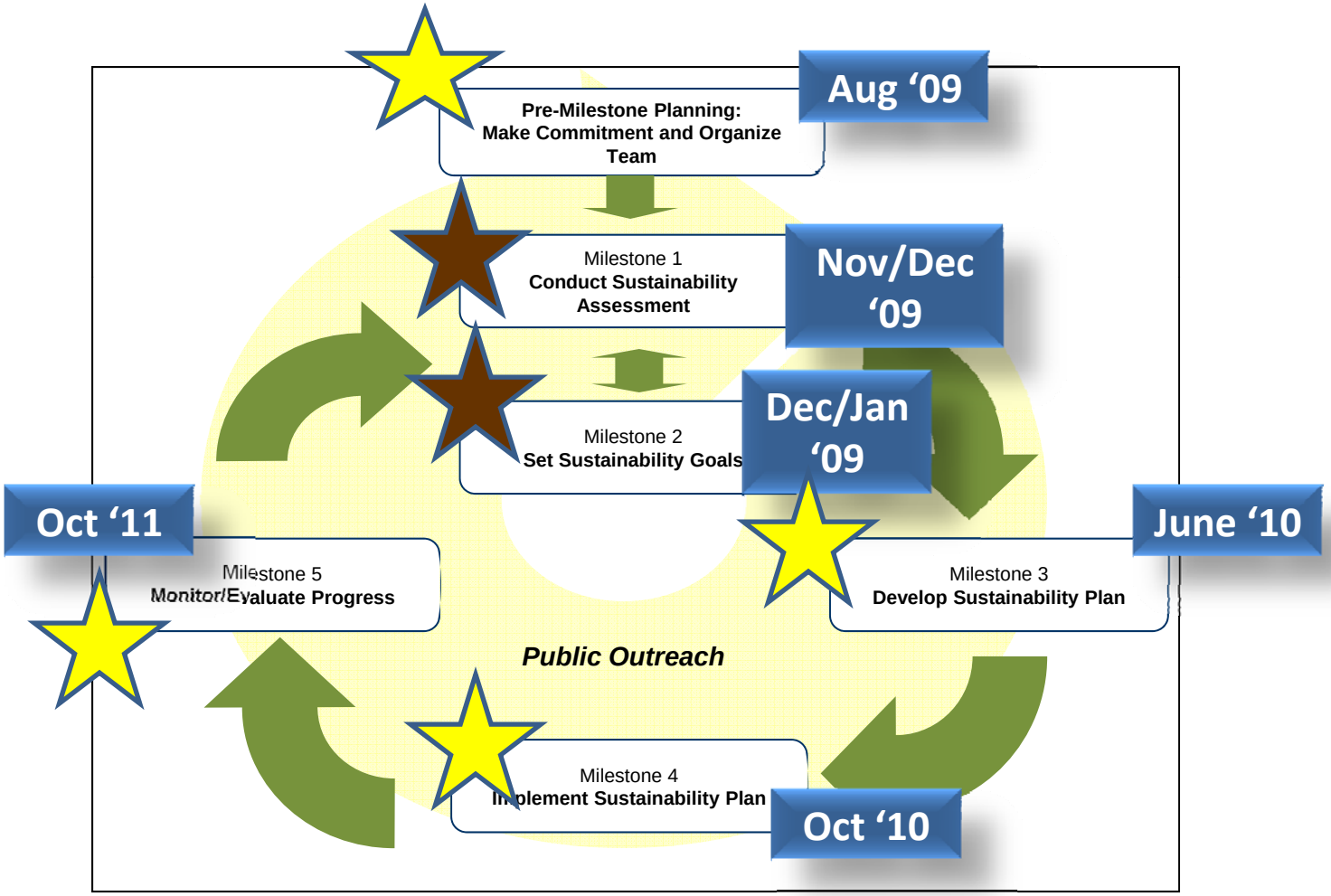
December 10, 2009

Today's Discussion

- **Welcome**, Commissioner Sorenson
- **Andrés Duany**, FAIA
- **Environmental Resources,** Lee Hefty, Assistant Director, DERM
- **Solid Waste**, Chris Rose, Deputy Director, DSWM
- **Water & Wastewater,** Bertha Goldenberg, Assistant Director, WASD

greenPrint
Our Design for a Sustainable Future

Milestones


Pre-Milestone Planning:
Make Commitment and Organize Team
Aug '09
Milestone 1
Conduct Sustainability Assessment
Nov/Dec '09
Milestone 2
Set Sustainability Goals
Dec/Jan '09
Milestone 3
Develop Sustainability Plan
June '10
Milestone 4
Implement Sustainability Plan
Oct '10
Milestone 5
Monitor/Evaluate Progress
Oct '11
Public Outreach

Draft Goal Areas

1. Healthy Communities
2. Vibrant Economy
3. Efficient Resource Use & Conservation
4. Responsible Land Use & Smart Transportation
5. Effective Climate Change Strategies
6. Strong Leadership, Connections & Commitment

greenPrint
Our Design for a Sustainable Future

Assessment Areas

1. Demographics & Economy
2. Climate Change
3. Energy
4. **Environment**
5. Government Operations
6. Health
7. Housing & Buildings
8. Land Use
9. Local Industry & Business
10. Schools
11. **Solid Waste**
12. Transportation
13. **Water & Wastewater**

Assessment

Environmental Resources

greenPrint
Our Design for a Sustainable Future

Miami River 1884

Natural Systems: Key Challenges

Managing water to protect drinking water supplies, prevent flooding, and to support critical natural systems.

1. **Restoring and enhancing Biscayne Bay, vital coastal and freshwater wetlands, reef communities, beaches, and forest communities.**

2. **Ensuring that the reuse of treated wastewater does not degrade groundwater quality or negatively impact sensitive ecological receptors.**

greenPrint
Our Design for a Sustainable Future

Natural Systems: Key Challenges

3. **Preventing further salt water intrusion that threatens drinking water wellfields and sensitive natural areas.**

4. **Continuing acquisition and management of strategically important environmentally sensitive lands.**

5. **Adapting water management and stormwater infrastructure to address flooding that may increase with rising groundwater levels.**

greenPrint
Our Design for a Sustainable Future

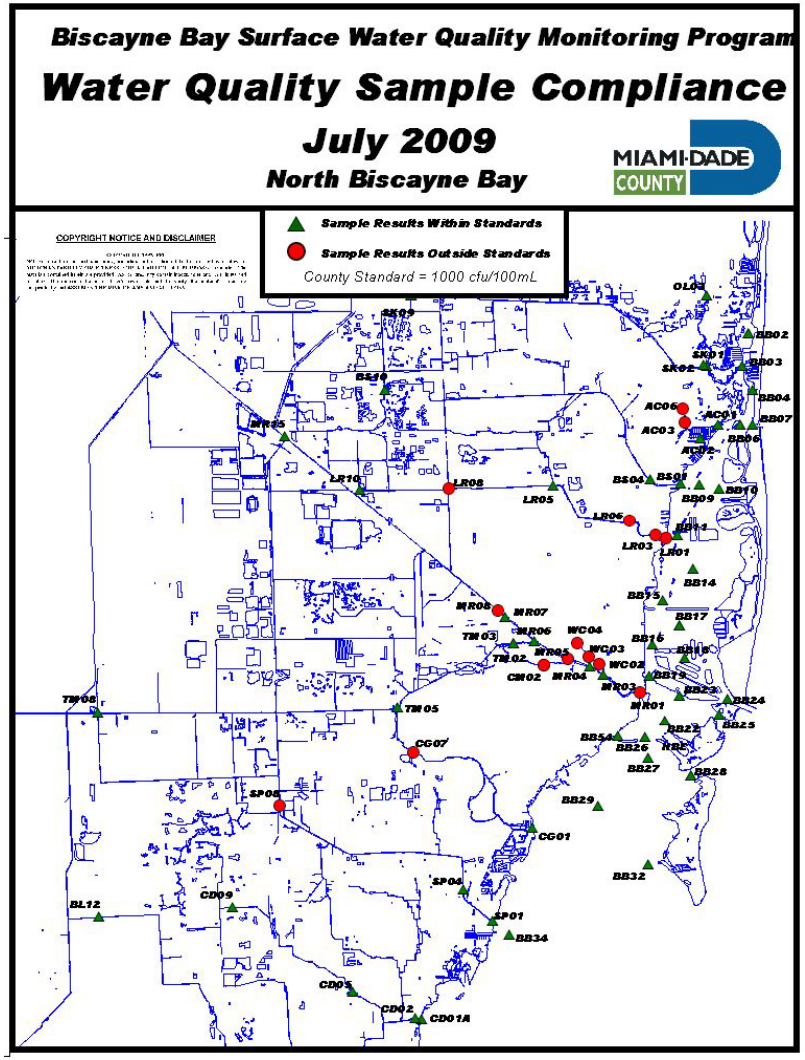
Natural Systems: Key Challenges

6. **Establishing regional coordination for the monitoring of "vital indicators" of climate change.**
   - **For example, a monitoring network that will correlate groundwater levels with sea level rise, monitoring temperature and salinity patterns, ecological indicators, and/or frequency of coastal flooding.**

7. **Retaining, promoting, and expanding partnerships with lead federal and state agencies working on South Florida ecosystem restoration.**

greenPrint
Our Design for a Sustainable Future

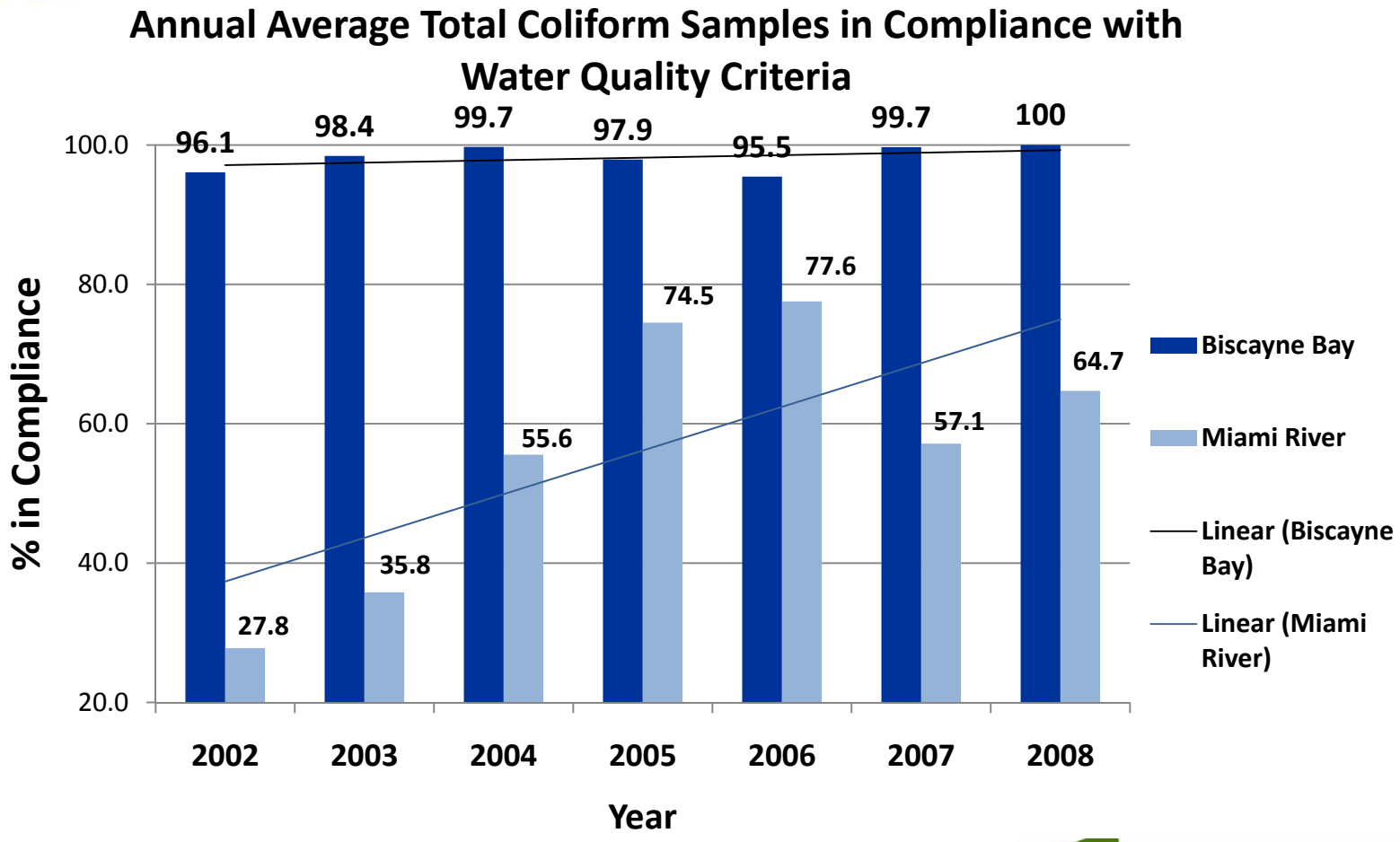
Surfacewater: Key Indicators



Example: Sample Results

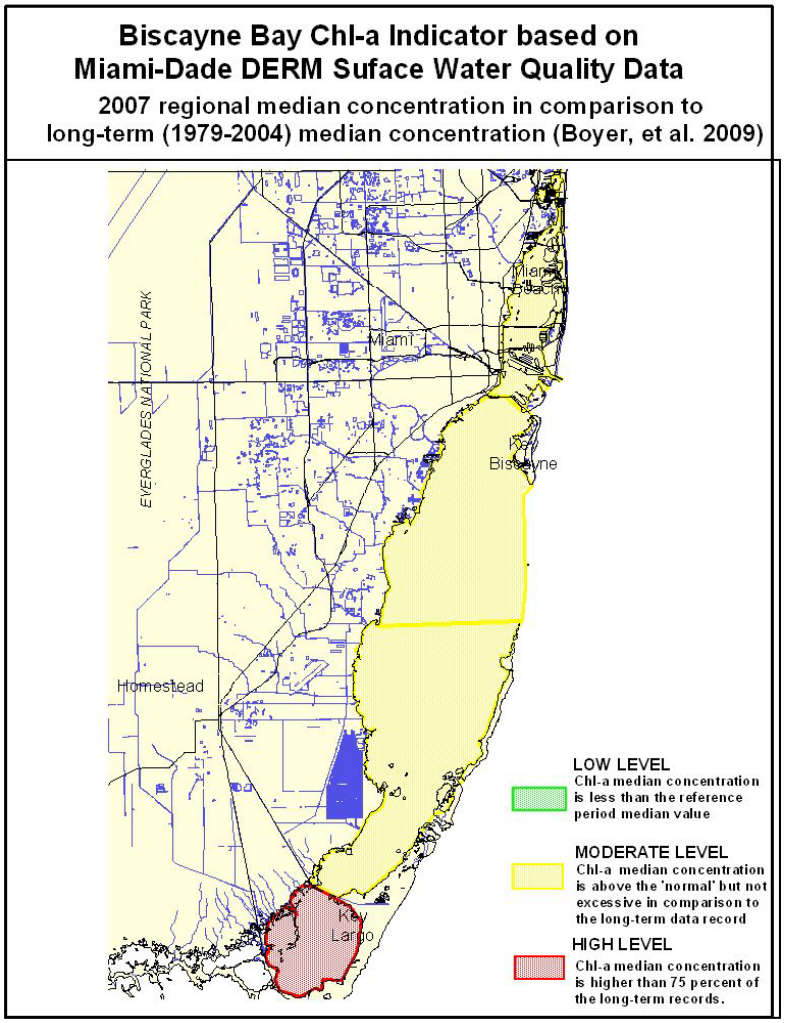
greenPrint
Our Design for a Sustainable Future

Surfacewater: Key Indicators



greenPrint
Our Design for a Sustainable Future

Surfacewater: Key Indicators



2007 Sample Results Compared to Baseline

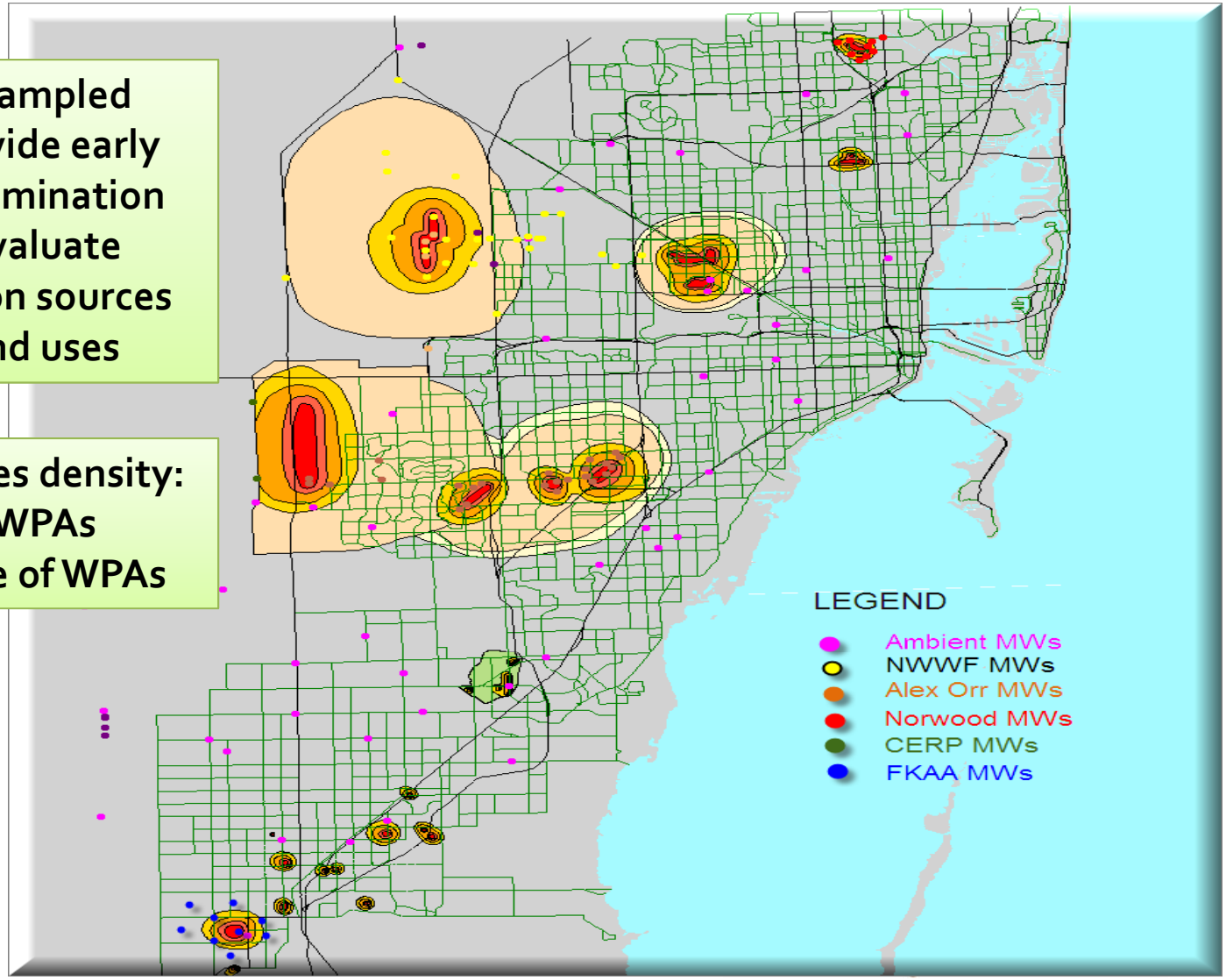
greenPrint
Our Design for a Sustainable Future

Groundwater: Key Indicators

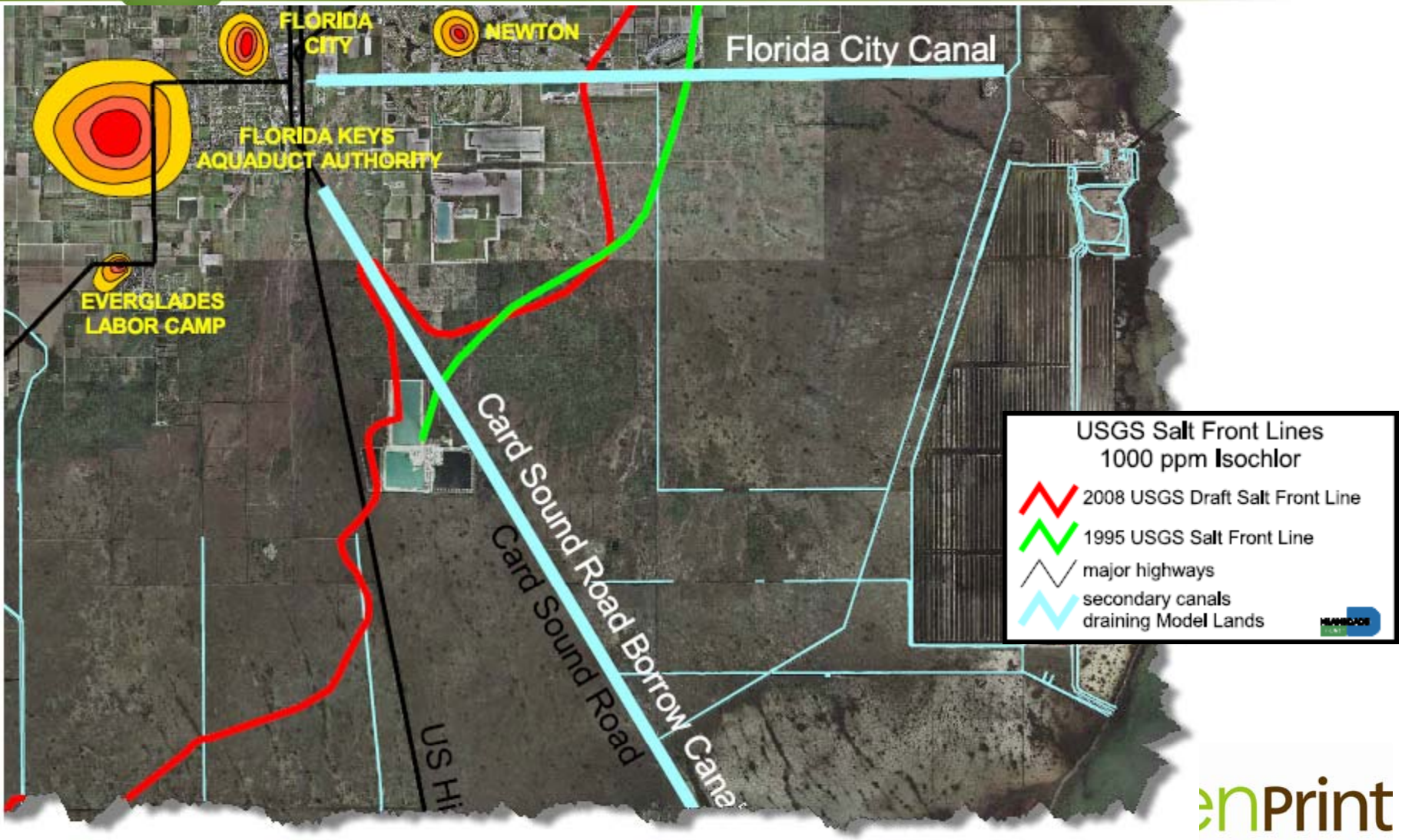
226 wells are sampled quarterly to provide early warning of contamination threats and evaluate potential pollution sources from major land uses

Contaminated sites density:

- 1.32 within WPAs
- 5.96 outside of WPAs

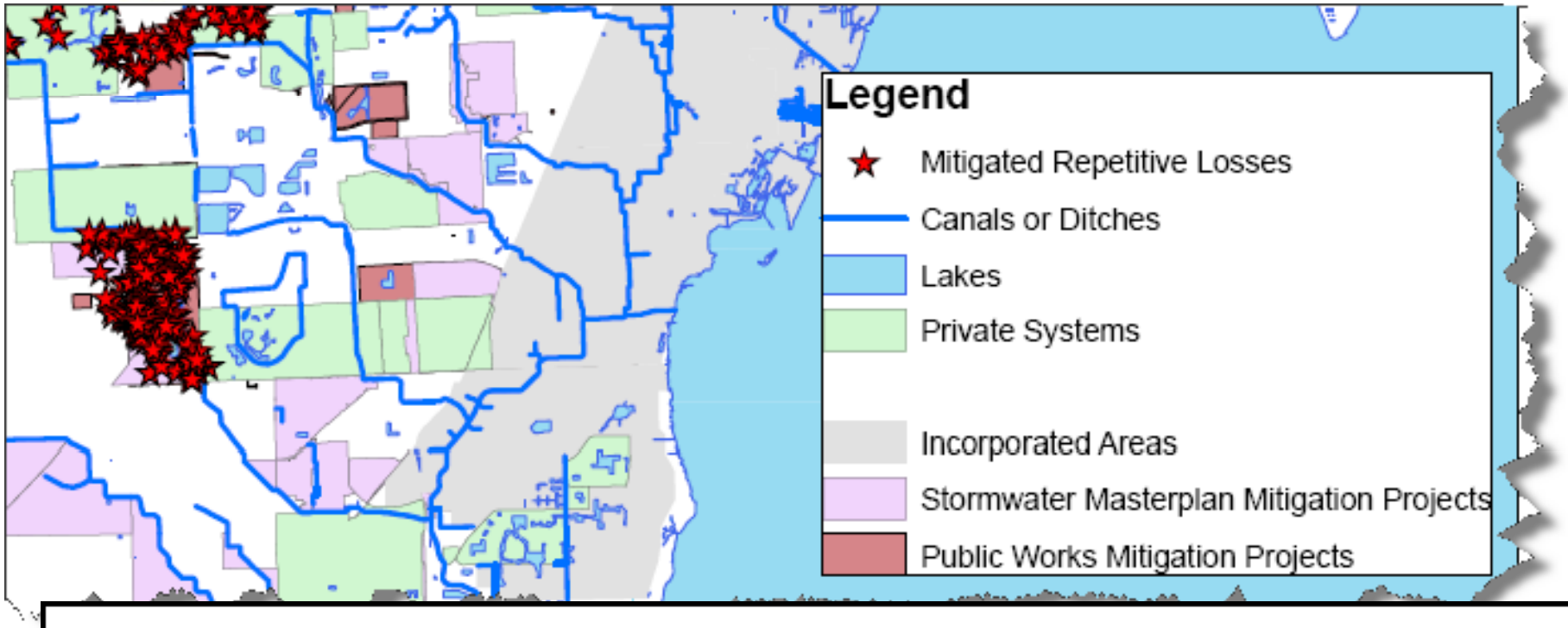


Groundwater: Key Indicators



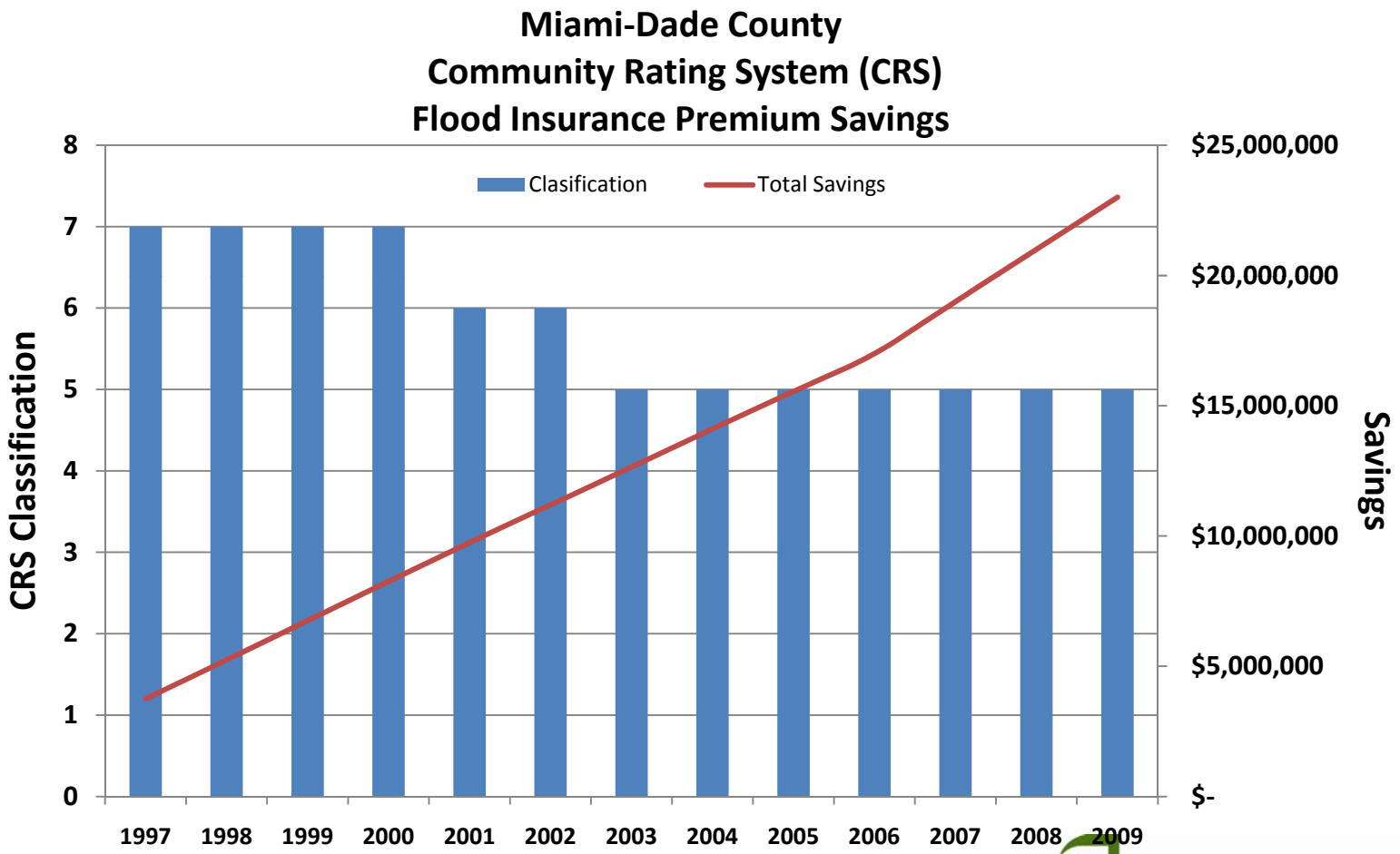
enPrint
Our Design for a Sustainable Future

Stormwater: Key Indicators



* For 2008 (Last Reporting Period), FEMA listed a total of 2125 Repetitive Losses (accumulated since 1991)
* 579 Repetitive Losses are considered mitigated by County, State and Federal programs.
* 477 repetitive Losses are located within private systems and need to be mitigated by the Homeowner's Associations
* A total of 1069 Repetitive Losses remain to be mitigated by County, State and Federal Programs in Unincorporated Miami-Dade County

Stormwater: Key Indicators

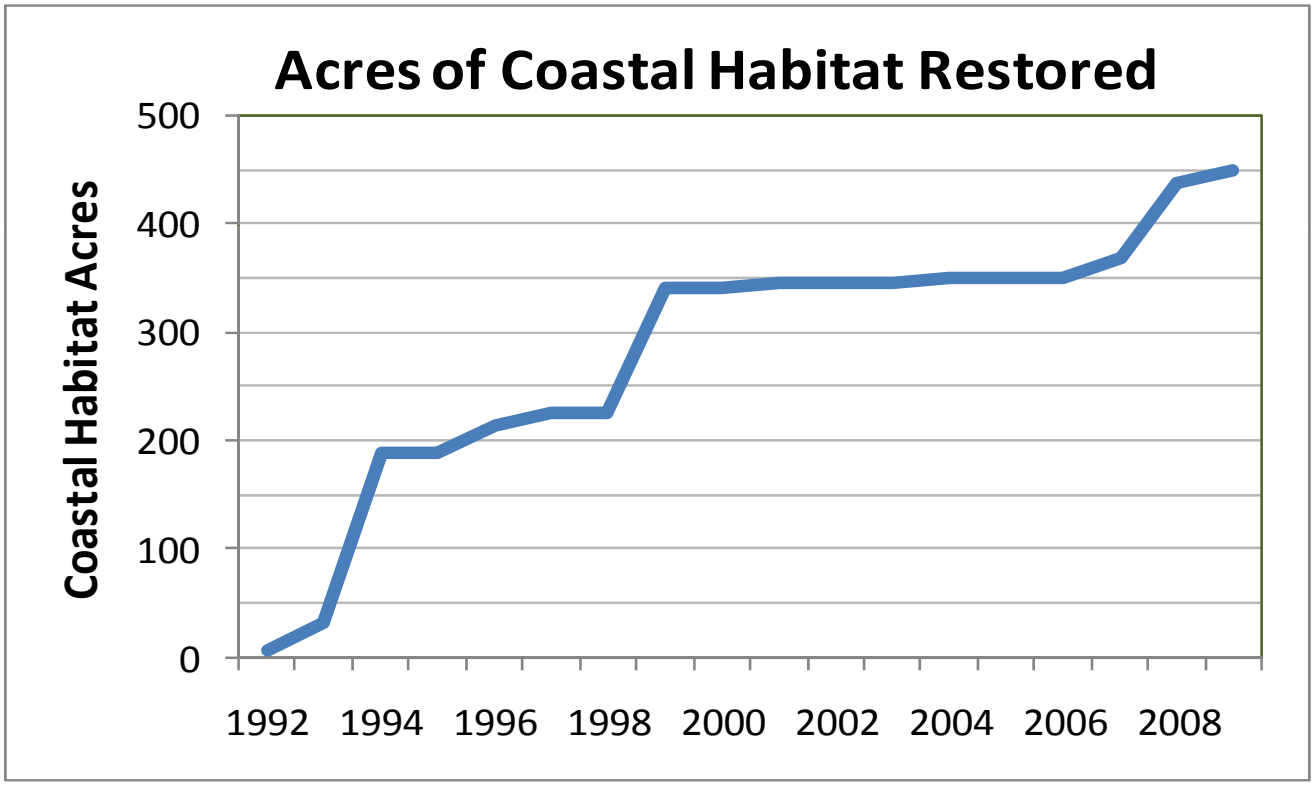


greenPrint
Our Design for a Sustainable Future

Natural Systems: Key Indicators

int
ble Future

Natural Systems: Key Indicators

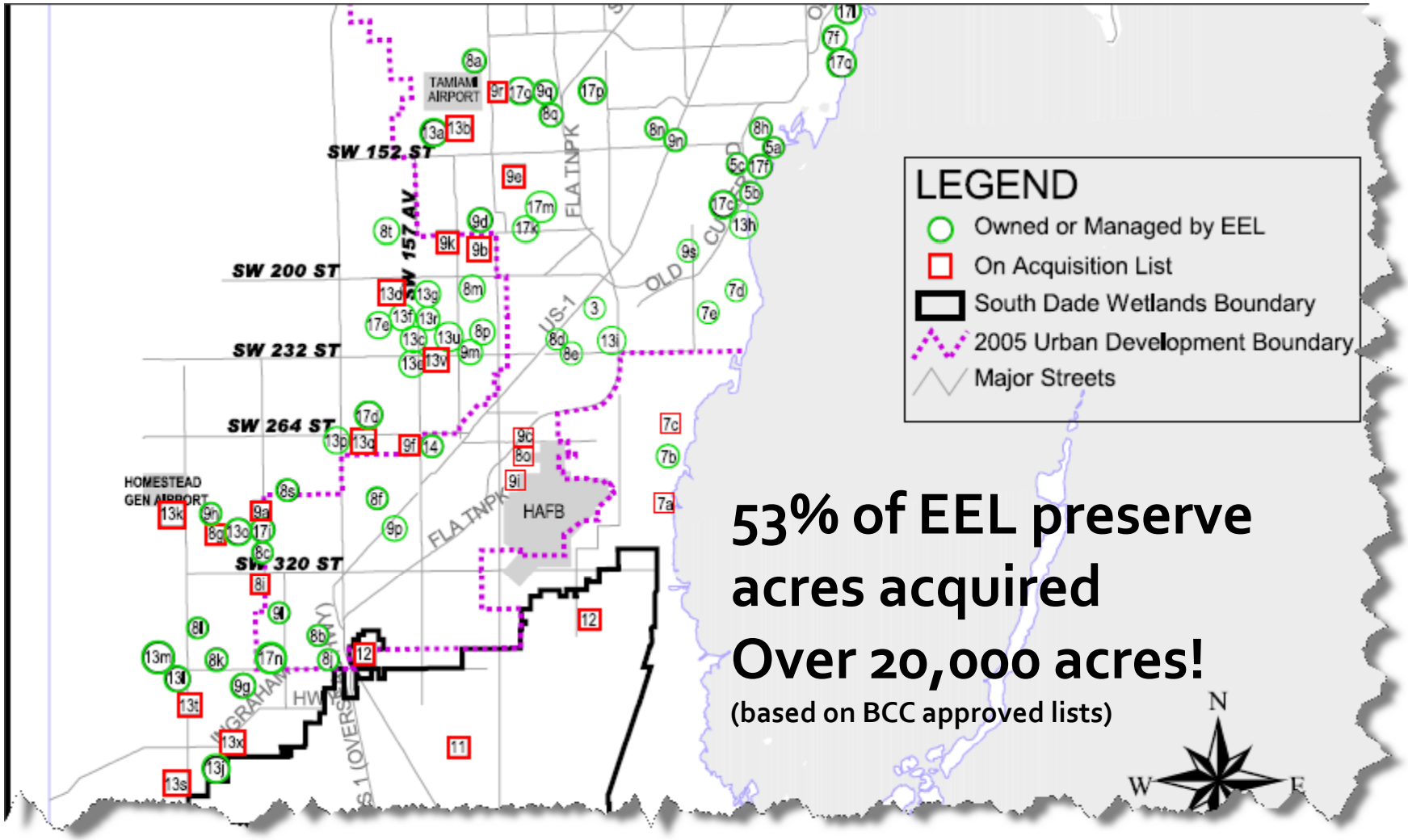


greenPrint
Our Design for a Sustainable Future

Natural Systems: Key Indicators

greenPrint
Our Design for a Sustainable Future

Natural Systems: Key Indicators



53% of EEL preserve acres acquired

Over 20,000 acres!

(based on BCC approved lists)

Air: Key Challenges

1. **Strengthening of ozone and particulate matter regulations.**

2. **Reducing the number of days when overall ambient air pollution levels in Miami-Dade County are harmful to sensitive populations.**

3. **Reducing exposure of sensitive populations to air toxics, including diesel emissions and asbestos.**

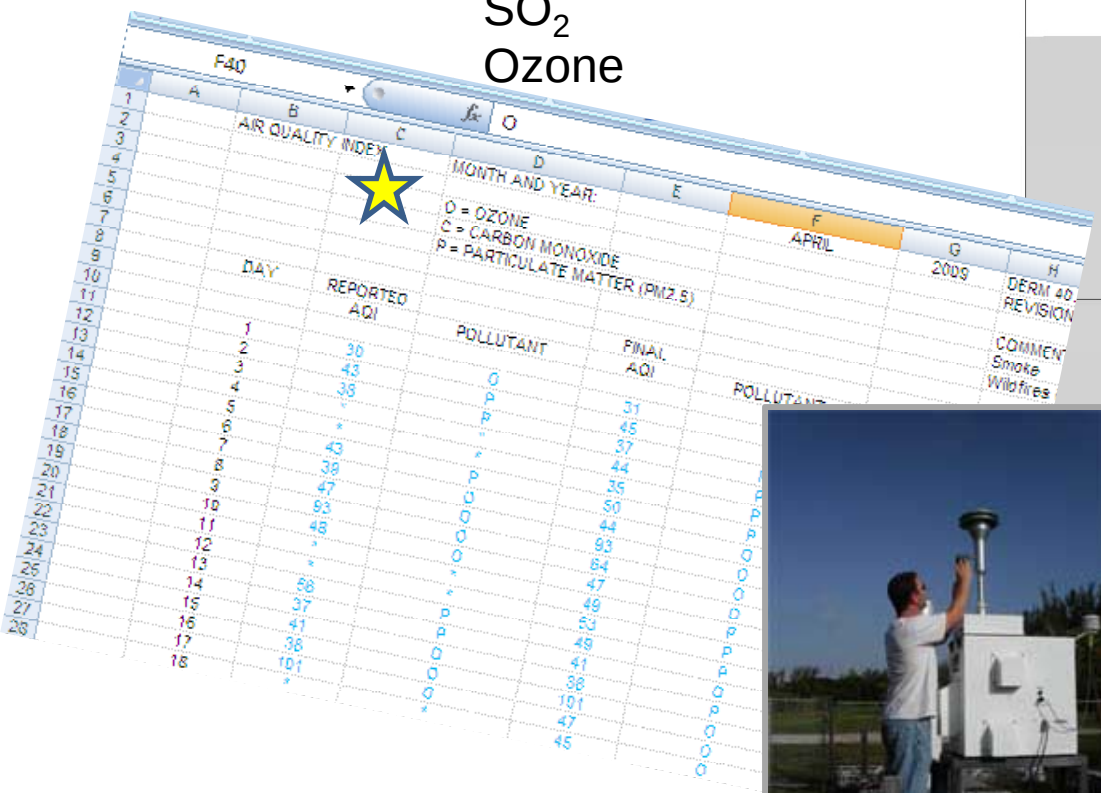
4. **Emissions from mobile sources account for approximately 70% of the smog-forming pollution in Miami-Dade County.**

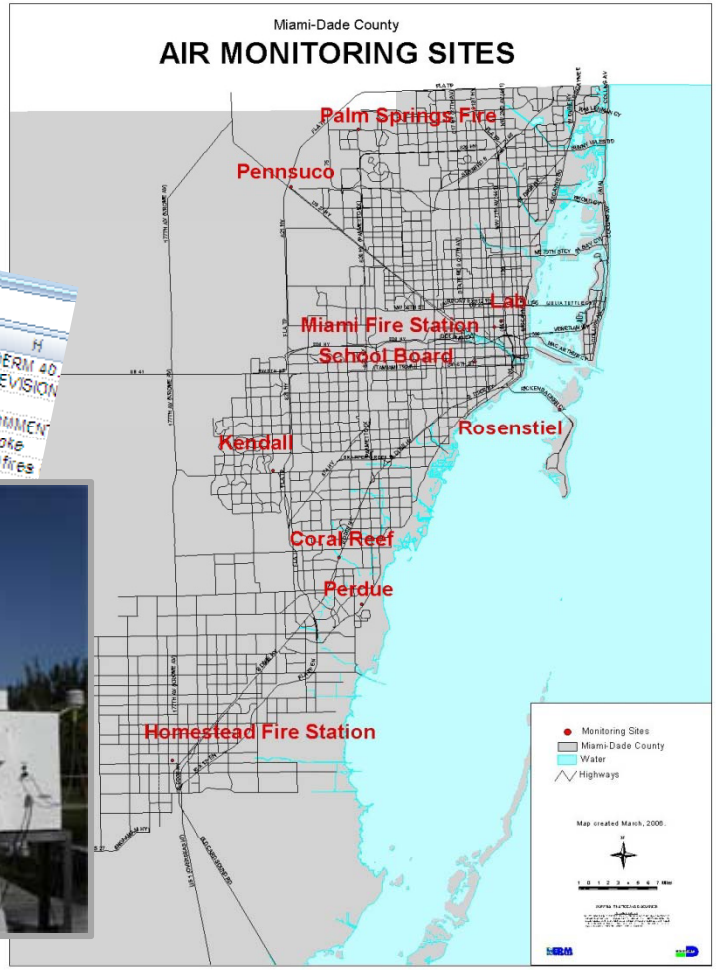
greenPrint
Our Design for a Sustainable Future

Air: Key Indicators

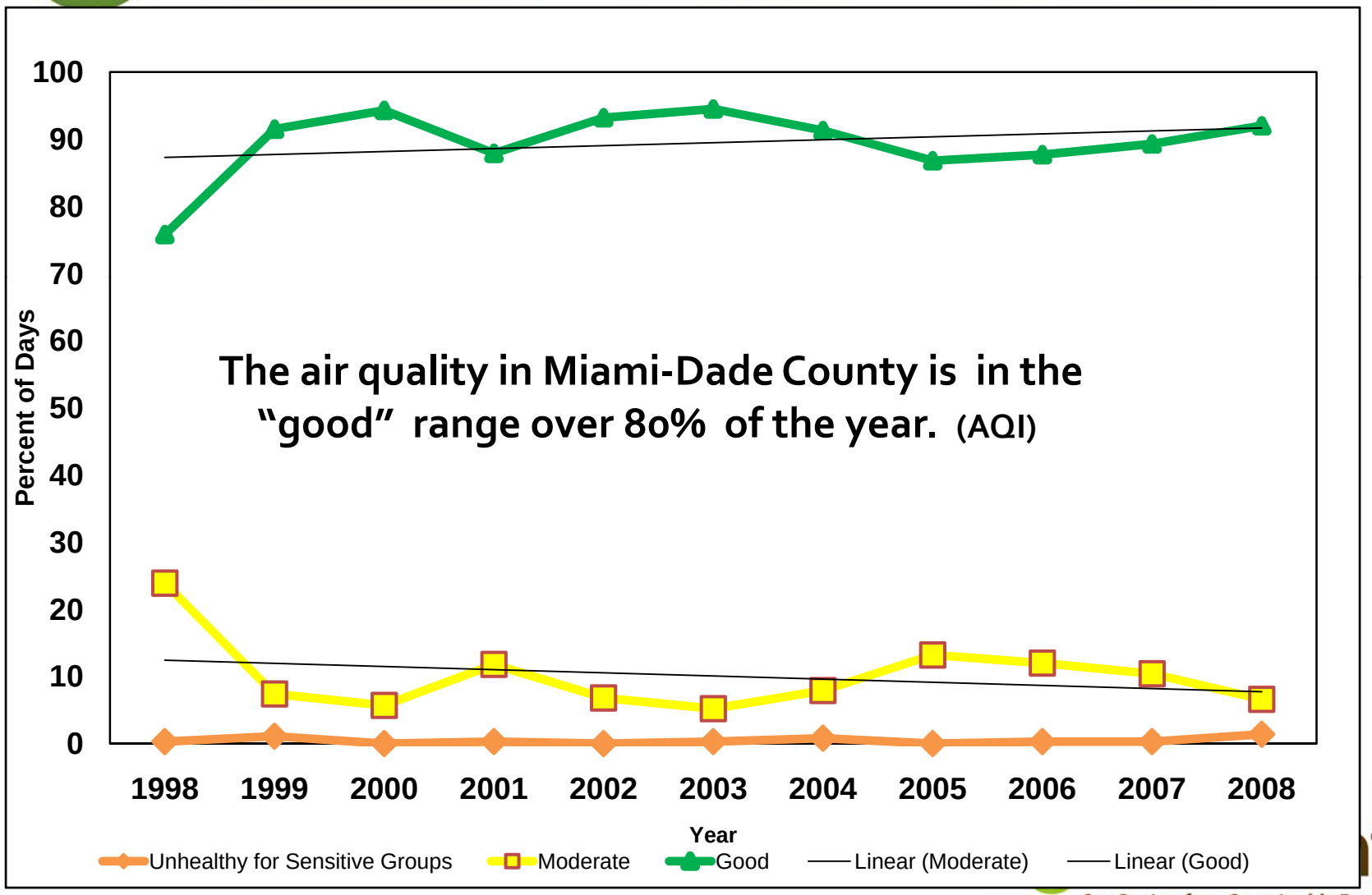
What we measure: Carbon Monoxide
Particulate Matter
NO_2
SO_2
Ozone

Where we measure:





Air: Key Indicators



Our Design for a Sustainable Future

Miami River 2007

Assessment

Solid Waste Management

greenPrint
Our Design for a Sustainable Future

Solid Waste Management

Mission: To provide our customers with exceptional waste collection, recycling and disposal services that protect, preserve and improve our environment and the quality of life in our community

We are the largest government owned and operated collection and disposal system in the southeastern United States

We collect from over 320,000 households in Unincorporated Miami-Dade County and nine municipalities

We dispose of waste for nearly everyone in Miami-Dade County

greenPrint
Our Design for a Sustainable Future

Dept. of Solid Waste Management

We provide Collection service to residents: twice-weekly garbage pickup, every-other-week recycling pickup, twice-yearly bulky waste pickup, and continuous service at the Neighborhood Trash and Recycling Centers

We are open and operating 362 days each year

We have 3 operating landfills, 1 Waste-to-Energy Plant, 3 Transfer Stations, 13 Neighborhood Trash and Recycling Centers, and 2 Home Chemical Collection Centers

We have just over 1,000 employees, an annual operating budget of just under $400 million, and a fleet of approximately 1,000 vehicles (both powered and un-powered)

Solid Waste and Recycling

- How do you take an aging, antiquated system, with users that don't like change, with ever-decreasing capacity, with a growing user-base, with a generally fixed revenue structure and make it environmentally and financially sustainable for the next 50 years?

Successes

- First, some successes
  - Customer Satisfaction is High

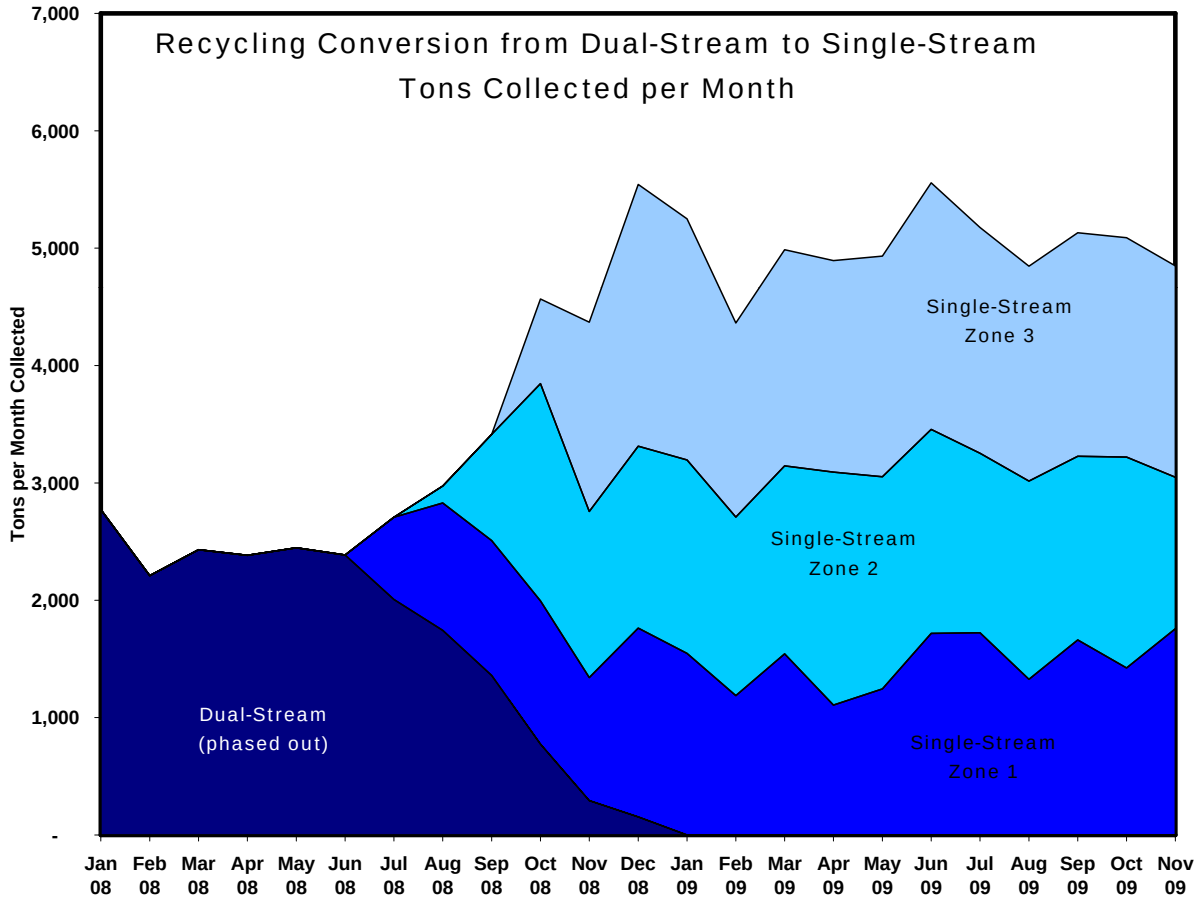
    (could always change quickly)
  - Conversion of Garbage Collection to Automated Service (1-person crews instead of 3-person crews)
  - New Recycling Program
  - Running the system more efficiently
  - Landfill Gas Project
  - Hybrid Trucks

Successes

- Miami-Dade is a Development Partner on the project
- We will have the first 6 trucks in existence
- We have pilot tested the one you see here
- They are diesel/hydraulic hybrids

greenPrint
Our Design for a Sustainable Future

Successes



- Since completing the conversion from dual-stream to single-stream recycling, residents of Miami-Dade County have responded!

greenPrint
Our Design for a Sustainable Future

Sustainable

greenPrint
Our Design for a Sustainable Future

Challenges: Dwindling Capacity

Estimate of North Dade Landfill reaching capacity
2012-2014

Estimate of South Dade Landfill reaching capacity
2017-2020

Proposed State of Florida 75% Recycling Bill
2020

Estimate of the Ash Landfill reaching capacity
2020-2023

2010

2013
RRF Industrial Revenue Bonds mature

2015

2015
Agreement with Waste Management for disposal capacity at Medley and Central Landfills expires

2015 - 15 of 18 Inter-local disposal Agreements with municipalities expire

2015 - Major hauler disposal agreements expire with BFI and Waste Management

2020

2025

2023
Current term of the RRF Agreement with Montenay-Dade expires

greenPrint
Our Design for a Sustainable Future

Challenges: Financial Stability

- Collections Fee Remains Constant while costs rise outside of management's control
- Disposal Fee is tied to CPI (both a positive and a negative)
- Disposal tons are down in a down economy, therefore disposal revenues are down

greenPrint
Our Design for a Sustainable Future

Challenges: Antiquated Facilities

- There are new technologies out there that we are unable to take advantage of without large capital investments
- The Waste to Energy Plant (built in 1982)
- Maintaining old facilities is costly (the most recently renovated facility was the Kendall Trash and Recycling Center in 2002)

Challenges: Outside Forces

- Population Growth (and sprawl)
- Traffic Congestion
- Upstream Packaging Increases
- Pounds Per Capita Disposed of Per Year
- Climate Change and Sea Level Rise
- Lack of Land for Future Facilities
- NIMBY

greenPrint
Our Design for a Sustainable Future

Solid Waste Master Plan

Will govern the next 50 years:

- Public Input and Advisory Process
- Evaluate Current and Future Solid Waste
- Management Needs
- Waste Composition Study
- Solid Waste Generation Projections
- Identify Regulatory and Policy Issues
- Evaluate Current Financial Program
- Identify Alternatives and Fatal Flaw Analysis
- Screen and Select Alternatives
- Prepare Financial Plan
- Develop Implementation Strategy
- Prepare Long-Term Master Plan

greenPrint
Our Design for a Sustainable Future

Solid Waste Master Plan

- Must include:
  - Transparency
  - Public Outreach and Education
  - Stakeholder Involvement
  - Financial Stewardship
  - Environmental Stewardship
  - Climate Change Mitigation and Adaptation
  - Modernization of Facilities and Processes
  - Regional Focus

greenPrint
Our Design for a Sustainable Future

Assessment

Water & Wastewater

greenPrint
Our Design for a Sustainable Future

Water & Wastewater: Key Challenges

1. **Providing adequate water supply while protecting the water resources through compliance with all current and future regulations.**

2. **Promoting water use efficiency as an alternative water supply (AWS) source instead or pursuing major capital investments will provide financial and environmental benefits.**

3. **Reducing the amount of water loss by expanding current leak detection program and acquire new technology for more accurate and expeditious discovery and repair of leaks.**

greenPrint
Our Design for a Sustainable Future

Water & Wastewater: Key Challenges

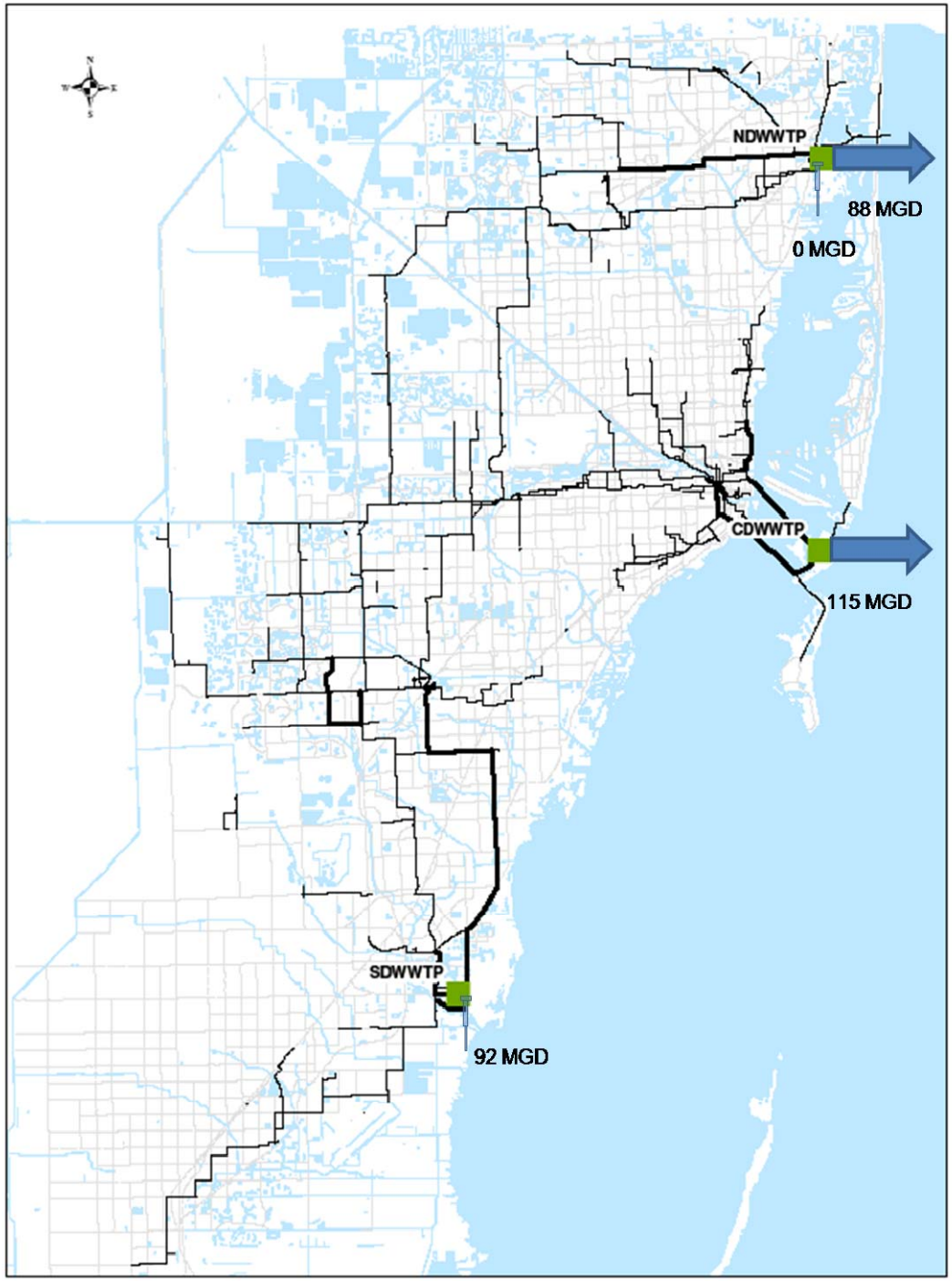
4. **Assuring that sufficient funding is available to maintain and manage the existing system.**

5. **Reducing energy consumption while implementing higher levels of water treatment, which are energy intensive.**

6. **Implementing new systems to better track and identify the various sectors of water users.**

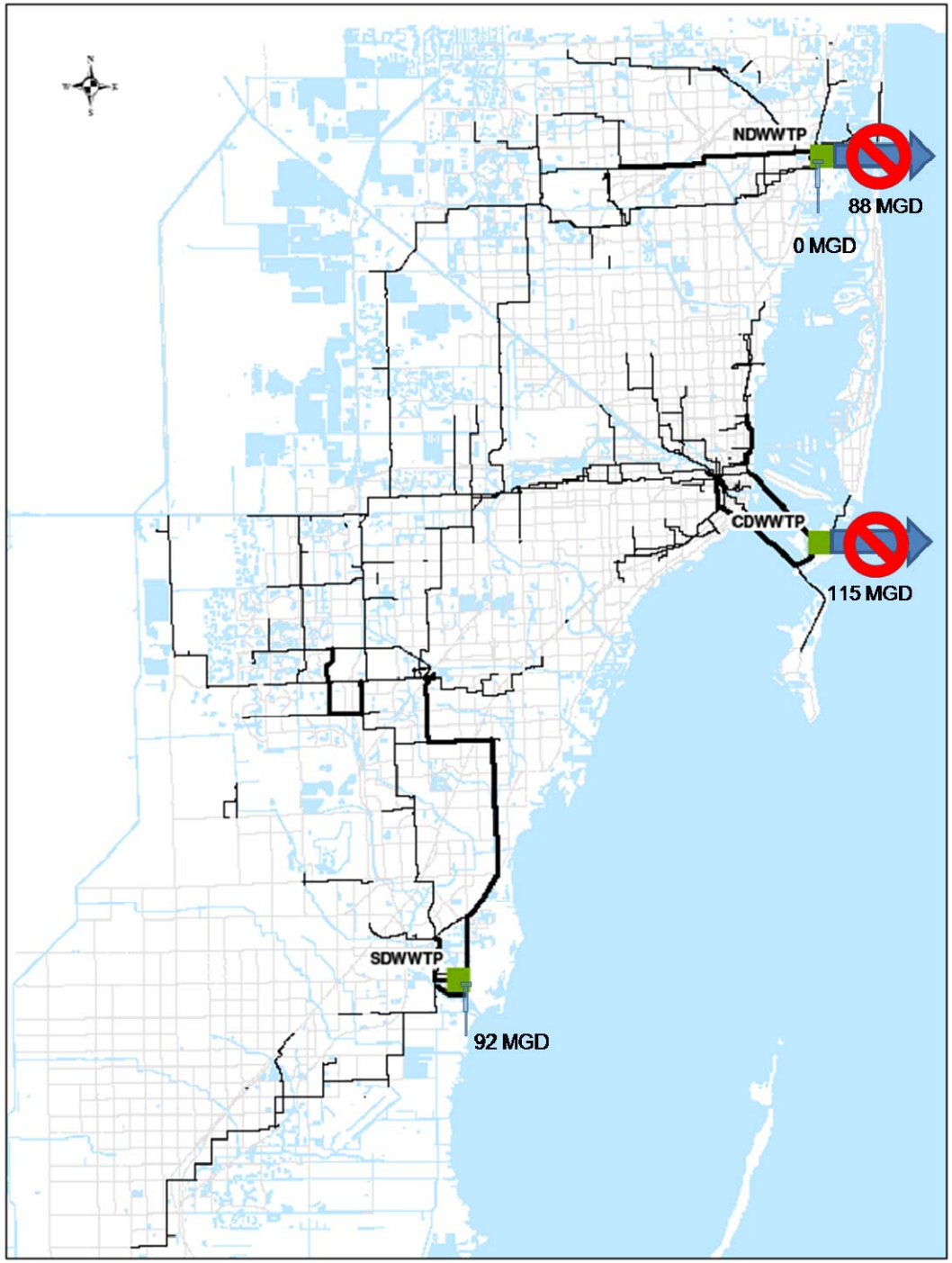
7. **Complying with outfall legislation, including the elimination of outfalls and implementing the 60% wastewater reuse requirements.**

greenPrint
Our Design for a Sustainable Future



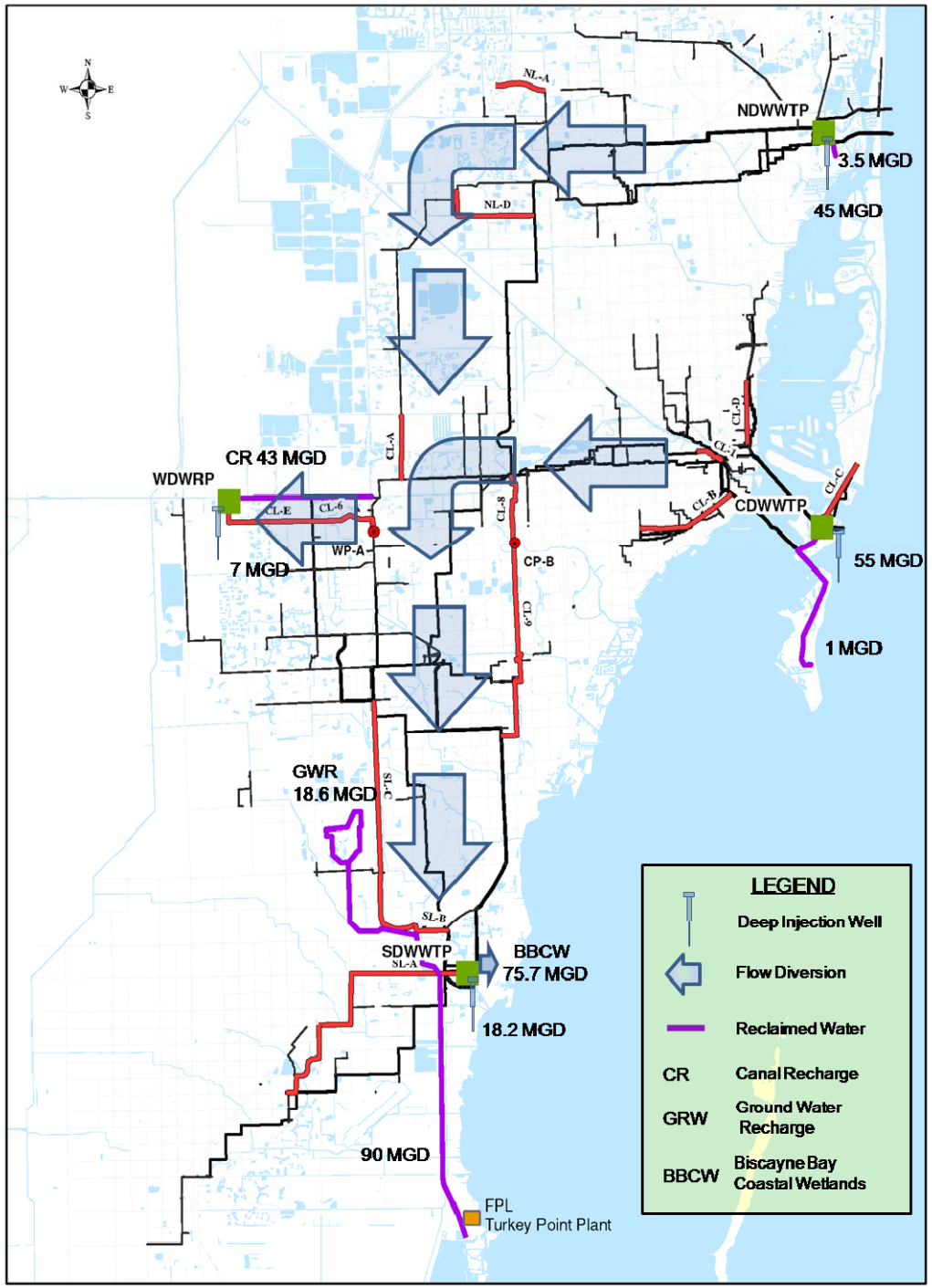
Existing Conditions

greenPrint
Our Design for a Sustainable Future



2025 Ocean Outfall Legislation (OOL) Requirements

greenPrint
Our Design for a Sustainable Future

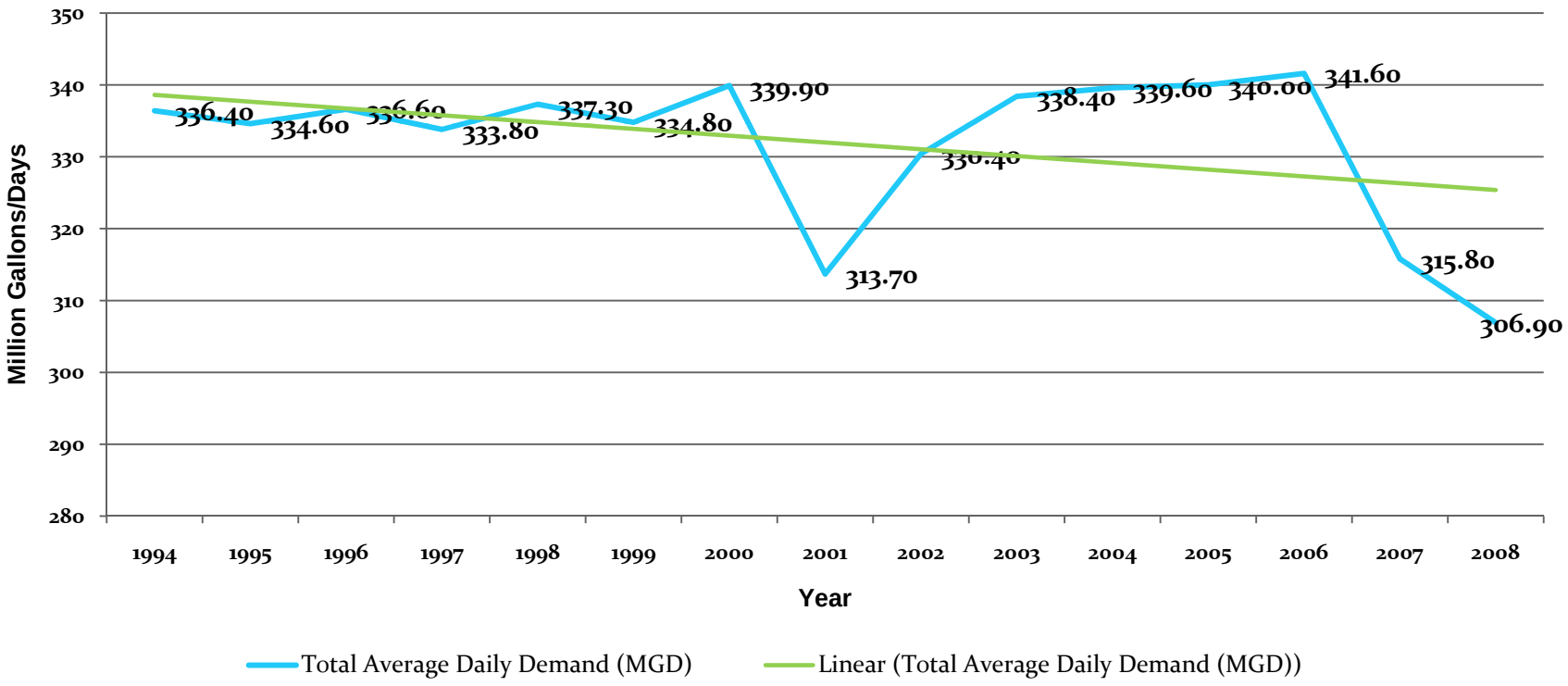


OOL Implementation Plan w/ Biscayne Bay Coastal Wetlands Rehydration

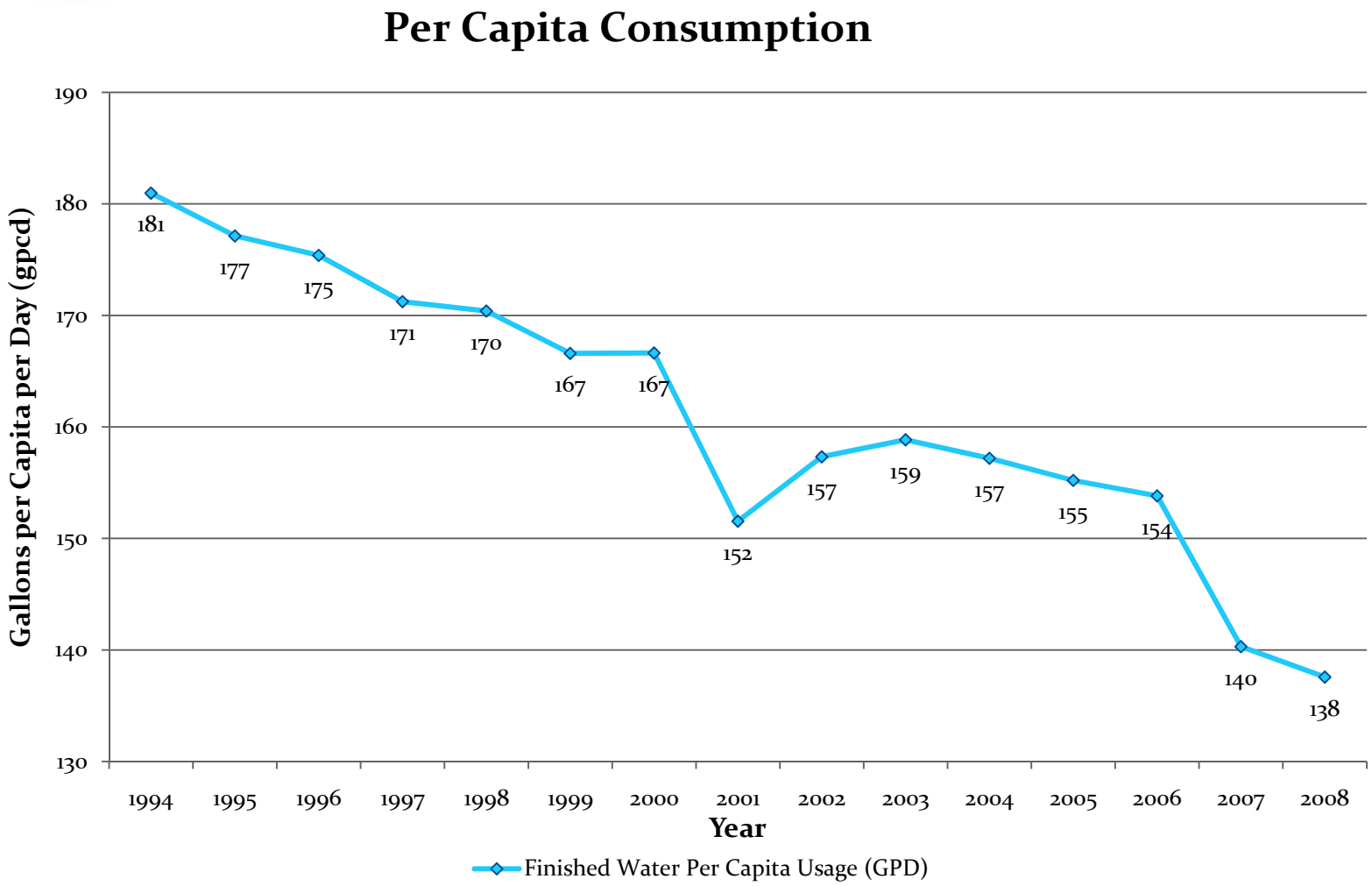
greenPrint
Our Design for a Sustainable Future

Water & Wastewater: Indicators

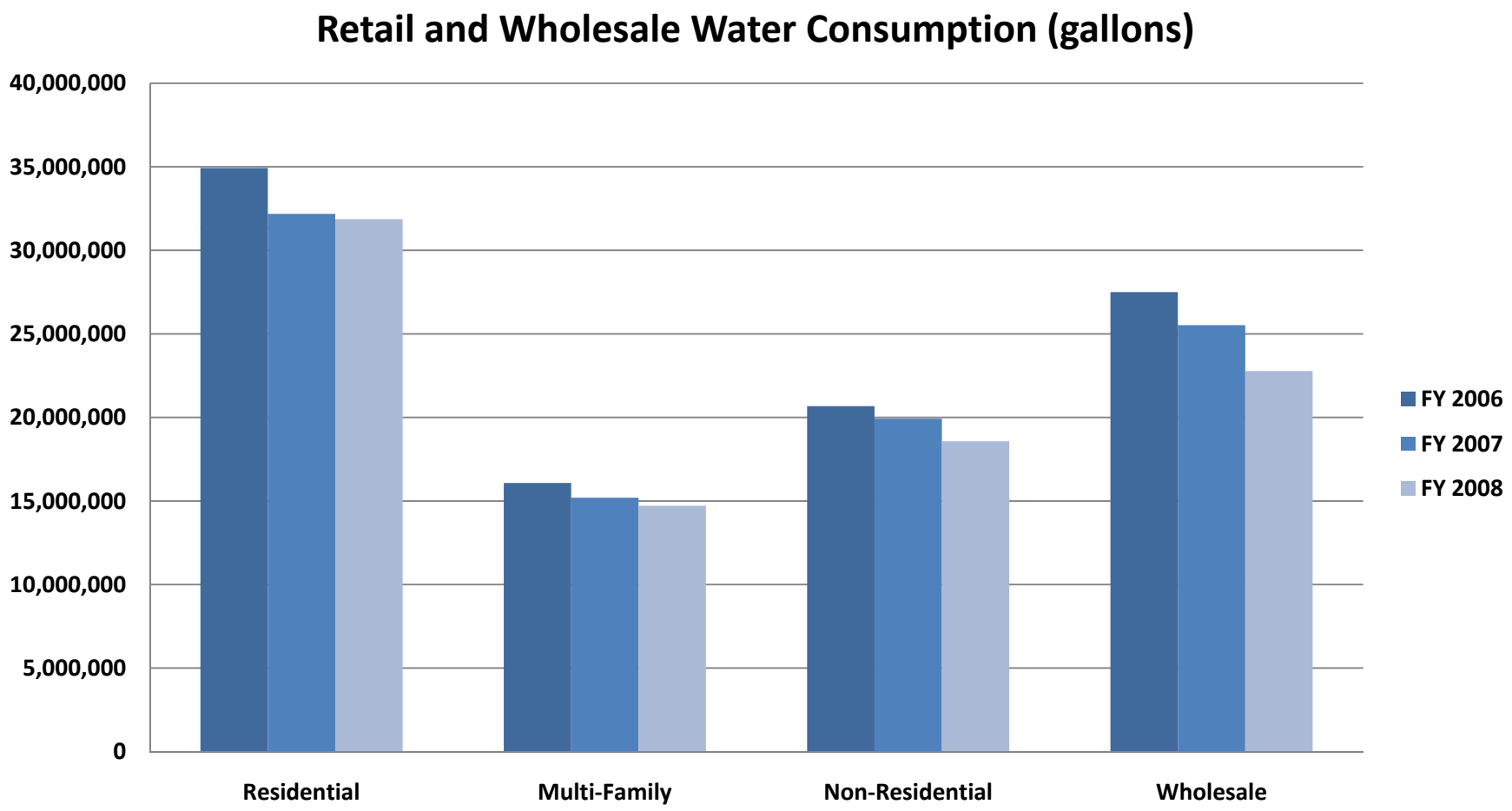
Historic Demand
Total Average Daily Demand (MGD)



Water & Wastewater: Indicators



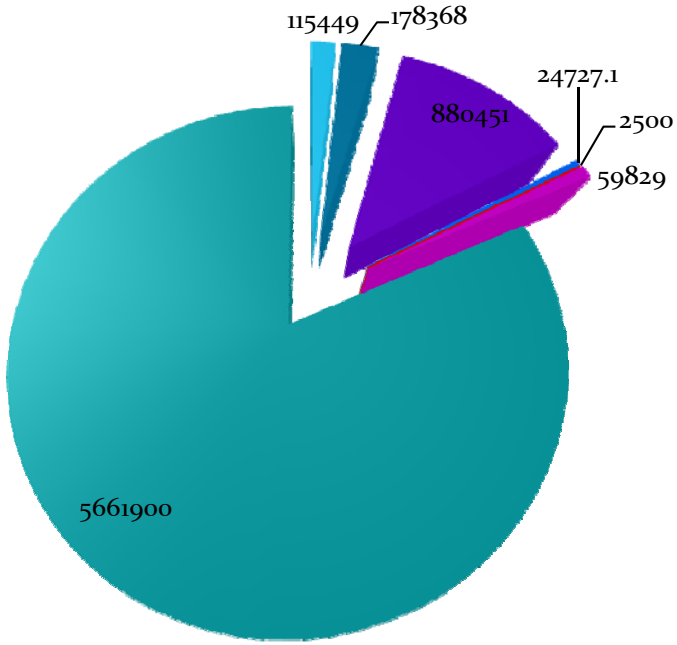
Water & Wastewater: Indicators



Water & Wastewater: Indicators

BMP Water Savings October '07 - June'09

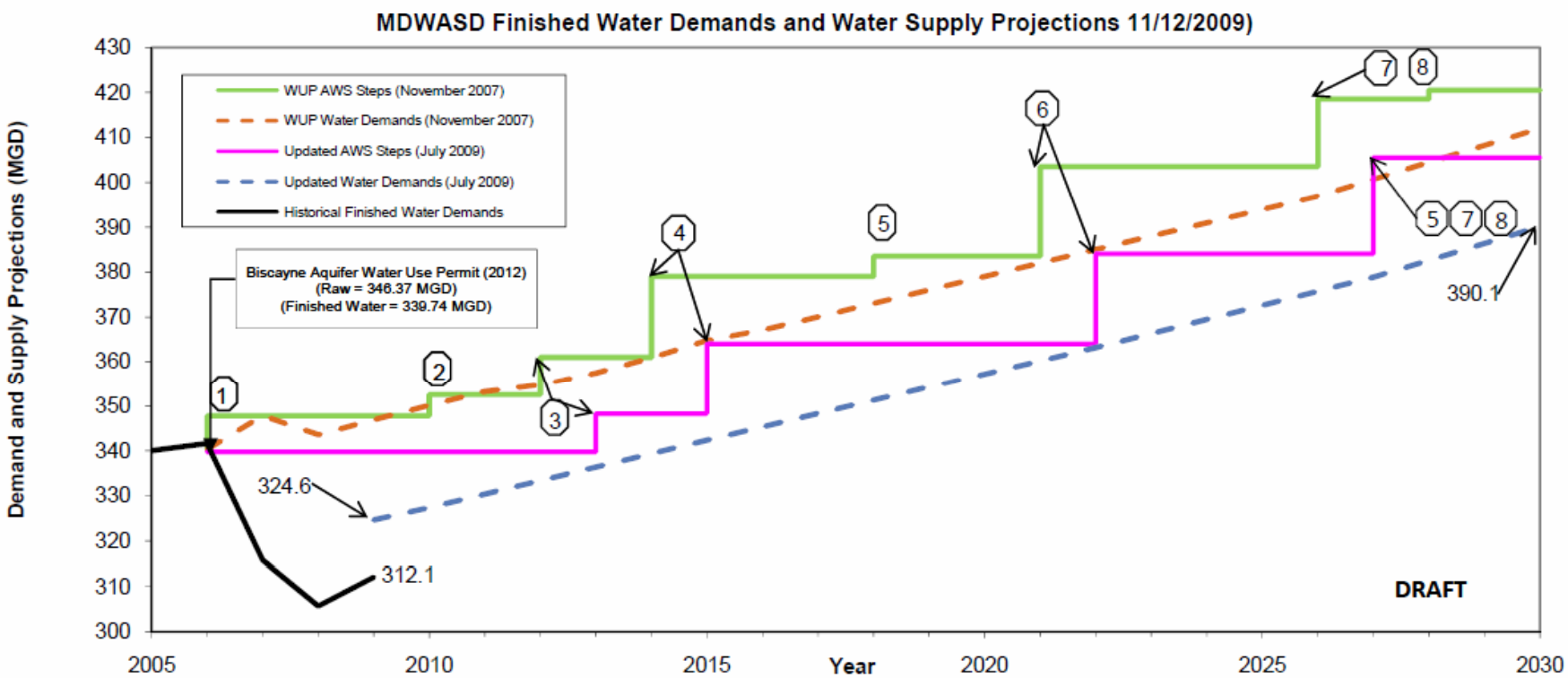
Total Gallons Saved
6,923,224



- High Efficiency Toilet Rebate
- Showerheads Exchange & Retofit Kit
- Green Restaurants Project
- HomeOwner Association Landscape Evaluations
- Senior Retrofit Project
- High Efficiency Washer Rebate Project
- Green Lodging Project

greenPrint
Our Design for a Sustainable Future

Water & Wastewater: Indicators



Project Names (per 2007 AWS program):

~~1. ASR Ultraviolet (UV) Disinfection System for ASR Sys. @ W&SW Wellfields (7.2 MGD ASR/blend, $6.4M)~~
~~2. Floridan Aquifer Blending Wellfield at Hialeah/Preston (4.7 MGD, $10.3M)~~
3. Hialeah Floridan Aquifer R.O. W.T.P. Phase 1 Capacity (8.5 MGD, $116.0M)(WTP Capacity = 10.0 MGD)
4. South Distr. W.R.P. Groundwater Recharge Ph 1(18.6 MGD, $359.0M)
5. Hialeah Floridan Aquifer R.O. W.T.P. Phase 2 (4.5 MGD, $25.6M) (WTP Capacity = 15.0 MGD)
6. West District W.R.P. Canal Recharge Ph 2 (21 MGD, $632.0M)
7. West District W.R.P. Canal Recharge Ph 3 (16 MGD, $594M)
8. Hialeah Floridan Aquifer R.O. W.T.P. Phase 3 (2.0 MGD, $12.2M) (WTP Capacity = 17.5 MGD)

11/12/2009
Comparison of WUP Projections and updated Per Capita Projections 111209.xlsRevised Step Chart 111209

Next Meeting

1. Demographics & Economy
2. Climate Change
3. Energy
4. Environment
5. Government Operations
6. Health
7. Housing & Buildings
8. Land Use
9. Local Industry & Business
10. Schools
11. Solid Waste
12. Transportation
13. Water & Wastewater

Next Meeting

December 14th 3pm

Thank you!

greenPrint
Our Design for a Sustainable Future

BIOGRAPHICAL INFORMATION

Andres Duany, F.A.I.A.

Andrés Duany is a founding principal at Duany Plater-Zyberk & Company (DPZ). DPZ is widely recognized as a leader of the New Urbanism, an international movement that seeks to end suburban sprawl and urban disinvestment. In the years since the firm first received recognition for the design of Seaside, Florida, in 1980, DPZ has completed designs for close to 300 new towns, regional plans, and community revitalization projects. This work has exerted a significant influence on the practice and direction of urban planning and development in the United States and abroad.

The firm's method of integrating planning with accompanying design codes is being applied in towns and cities for sites ranging from 10 to over 500,000 acres throughout North America, Europe, and Asia. DPZ has received numerous awards, including two State of Florida Governor's Urban Design Awards for Excellence. Seaside has been documented in over 800 articles and books and was described by Time Magazine as "the most astounding design achievement of its era." The projects of Duany Plater-Zyberk & Company have focused international attention on urbanism and its postwar decline. DPZ was instrumental in the creation of the Traditional Neighborhood Development Ordinance (TND), a prescription for pedestrian-oriented, mixed-use, compact urban growth, which has been incorporated into the zoning codes of municipalities across the country. The firm has developed a comprehensive municipal zoning ordinance called the SmartCode, prescribing appropriate urban arrangement for all uses and all densities.

Andrés Duany has delivered hundreds of lectures and seminars, addressing architects, planning groups, university students, and the general public. His recent publications include *The New Civic Art* and *Suburban Nation: The Rise of Sprawl and the Decline of the American Dream*. He is a founder of the Congress for the New Urbanism, where he continues to serve on the Board of Directors. Established in 1993 with the mission of reforming urban growth patterns, the Congress has been characterized by The New York Times as "the most important collective architectural movement in the United States in the past fifty years."

Andrés received his undergraduate degree in architecture and urban planning from Princeton University, and after a year of study at the Ecole des Beaux Arts in Paris, he received a master's degree in architecture from the Yale School of Architecture. He has been awarded several honorary doctorates, the Brandeis Award for Architecture, the Thomas Jefferson Memorial Medal of Architecture from the University of Virginia, the Vincent J. Scully Prize for exemplary practice and scholarship in architecture and urban design from the National Building Museum, and the Seaside Prize for contributions to community planning and design from the Seaside Institute.