



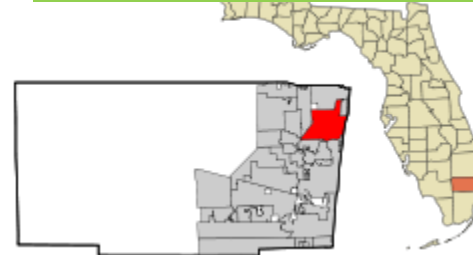
EUM AND LEAN/6 SIGMA INITIATIVES

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Beginning the Process

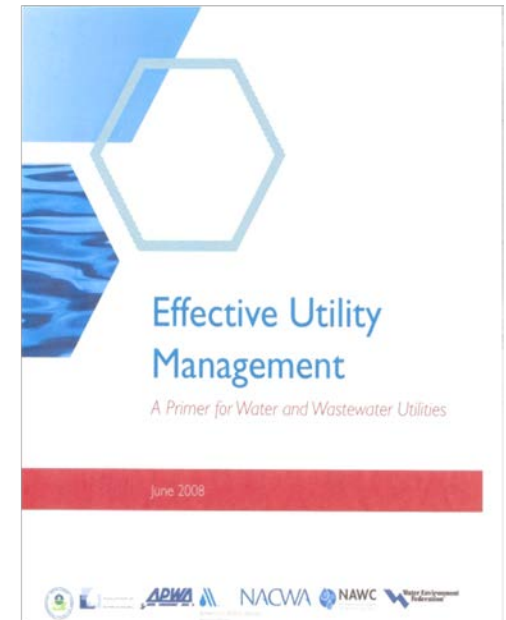
- City of Pompano Beach serves about 80,000 people for water, wastewater collections, reuse water and stormwater
- Wanted to measure current performance & develop an improvement plan
- Hired Consultant to conduct Effective Utility Management (EUM) assessment
- Developed improvement and implementation plan

**City located in
southeast Florida
in Broward County**



EUM 2009 Process

- Selected Champions for the 10 attributes from utility unit supervisors
- Placed 2-3 other supervisors and department heads (human resources, finance, customer service) into the attribute groups & sent EUM Primer & Assessment forms
- Each group listed strategies used in their attribute and the effectiveness
- We voted on the importance of each attribute to our organization, and determined the effectiveness of the ten attributes



EUM 2009 Process



- Performance level metrics were developed for each attribute
- The most important attributes with the lowest level of performance indicated the highest priority projects
- Priorities were developed based on need and difficulty of implementation
- Promoting Reuse was the highest priority in the Community Sustainability Attribute
- High priority under Water Resource Adequacy due to drinking water permit conditions

Community Sustainability and Water Resource Attributes – High Priority



- City ordered to construct reuse system as part of the consumptive use permit from the South Florida Water Management District
- 1989 to present - system grew to a 7.5 MGD tertiary treatment plant and 26 miles of distribution system serving parks, medians and City golf courses

Reuse Program – Low Performance



- In 2003 already had 300 commercial customers and the first lines to serve residential customers were installed
- The first kickoff for residential connections was in 2006. It was a disaster!
- Connections few - only connecting 73 in the next 4 years
- In 2010 staff went back to the drawing board to re-engineer the connection program

Selection of Lean/Six Sigma Tools

- EUM process identified **what** we needed to fix & how quickly
- We needed tools to actually do the improvements
- A new Reuse Connection program was a complex project involving multiple City Departments and regulatory requirements, with very low risk tolerance – roll out had to be nearly perfect
- We fell into the structured DMAIC Six Sigma process, while using elements of LEAN as needed – logical
- DEFINE MEASURE ANALYZE IMPROVE CONTROL



6 Sigma Tool - DMAIC

- **D – Define the problem** – Low residential customer connections to the reuse system
- **M – Measure** – only 73 residential connections in 5 years and 1200 residential connections available



6 Sigma Tool - DMAIC



- **A – Analyze** – Hired a PR firm to interview eligible customers to determine reasons for not connecting
- **A- Analyze** – used own customer responses and stories to list out reasons for not connecting
- **A – Analyze** - used Critical to Customer analysis and Voice of the Customer to map out current process deficiencies

Customer Issues

Issue	Solution
Cost of Connection to Private Irrigation System	Eliminate upfront cost by adjusting rates to pay for program for new customers
Customers Already Connected	Replace backflow device and maintain a lower rate for the original customers as long as they own their house
Hassle to select plumber & pull permit & undergo inspections	City obtains written permission to hire plumbers to work on private property
Annual testing of Backflow Device	City changed backflow device to non testable and installed Automatic Meter Infrastructure (AMI) for added protection
Maintaining backflow device	City assumed ownership of the new backflow device for Residential Customers

6 Sigma Tool - DMAIC

- **I – Improve** Created City wide team and developed a new process based on the Voice of the Customer and eliminating unnecessary steps



6 Sigma Tool - DMAIC

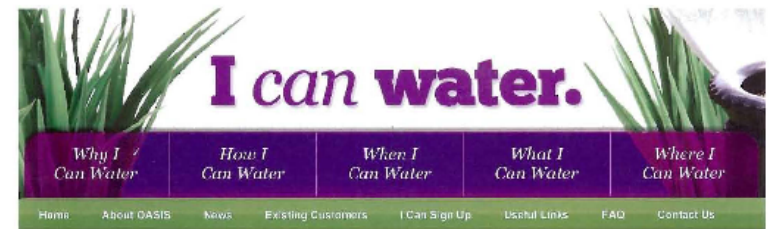
I- Improve - Generated list of items to complete for implementation including

- Financing
- Ordinances changes
- Implement Automatic Meter Reading System
- Contractor Selection (PR firm & Project Management firm)
- Department process changes
- Design Hose Box



6 Sigma Tool - DMAIC

- **I – Improve** Conducted Table top process flow scenarios
- **I – Improve** Selected a test customer and worked out process with the first connection



Pompano Beach's Our Alternative Supply Irrigation System

See What Others Are Saying ▶

Water is a huge part of our lives. More than 100,000 people call Pompano Beach home, and every one of us needs water.

For most of us, half the water we use is for our lawns. We want green and colorful lawns, but we want to make sure there is plenty of water to go around, too.

Irrigation is the key so that we can have our lawns and our refreshing water, too.

But, what if you don't have to wait until your scheduled day to water? What if you could water on the days your lawn really needs it?

You can. Our Alternative Supply Irrigation System, or OASIS from Pompano Beach provides reclaimed (or recycled) water for your lawn so the drinking water is saved for you, me and the rest of us.

But is OASIS right for you? It is if you want to say "I can water."

Here's two of your neighbors who speak up and said "I can water." Click on the videos below to see why they think you should speak up too.



Remember, just say, "I Can Water," and connect to the OASIS reuse water system.



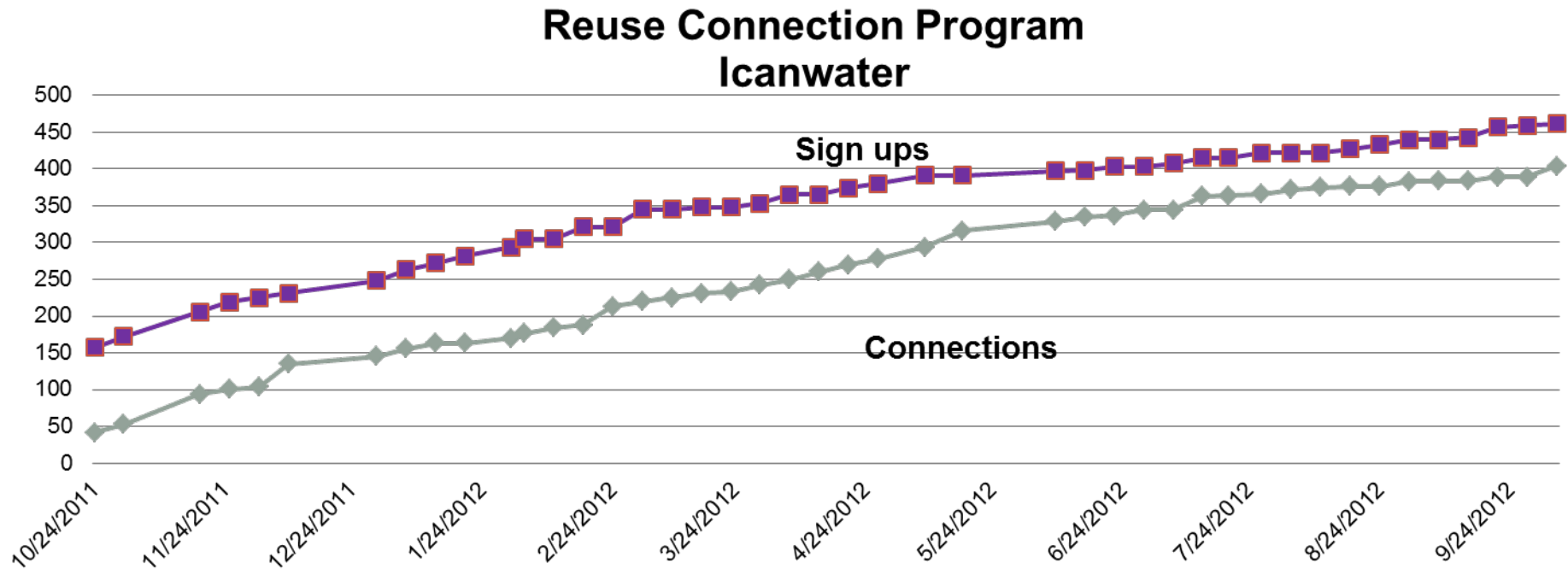
Our innovative public education program resulted in a better appreciation of water resources, management, and conservation.

Tour the OASIS Reuse Facility ▶

Website

6 Sigma Tool - DMAIC

- **C – Control** - Use time series plots to evaluate connection rates and review plateaus to search for bottle necks in process
- **C – Control** – Monitor the hotline for trends in customer questions, concerns, and plumber issues. Weekly meetings with Contractors



ICanWater Outcomes



- Over 440 connections by September 2012, exceeding 50% of the two year goal of 770 connections
- Anticipated annual water savings of 92.4 Million Gallons of water when 770 connected
- Broward County Greenleaf Award for Sustainability (August 2012)
- WaterReuse Association Public Education Program of the Year (September 2012)

Happy Customers

How are we doing?

How was the service during the application process?
 Excellent Good Fair Poor

Were the installing contractors on time?
 Yes No

Were they friendly?
 Yes No

How often are you using the OASIS per month?
 0 to 2 3 to 4 5 to 10 10+

Are you happy with the program?
 Yes No

Your Comments: *THANKS!*

Pompano Beach Utilities Department
1205 NE 5 Avenue
Pompano Beach, FL 33060

OASIS
REUSE WATER UTILITIES

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Pompano Beach Utilities Department
1205 NE 5 Avenue
Pompano Beach, FL 33060

OASIS
REUSE WATER UTILITIES

Your Comments: *I love my green beautiful grass!!*

Equals



Lessons Learned

- Did not set out to use 6 Sigma or Lean tools
- Used basic Total Quality Management & process improvement techniques from past experience & books
- We needed the structure and low risk associated with the DMAIC process
- 6 Sigma/Lean are powerful processes that require extensive training to fully utilize
- So logical anyone can apply simplified versions – and achieve results

Costs and our 6 Sigma/Lean Future

- Less than \$40 in books, Staff time planning the events and facilitation/tracking
 - After seeing effectiveness in this project and other projects, we are sending staff to formal training and initiating more groups
 - Redefining positions to include efficiency efforts and require 6 sigma training
- Has become our new way of doing business





Florida's Warmest Welcome