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

![Reuse Connection Program Icanwater](chart.png)
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)
• WateReuse Association Public Education Program of the Year (September 2012)
Happy Customers

equals

Sustainable Solutions for a Thirsty Planet

THE WateReuse Association presents its 2012 Public Education Program of the Year Award to the City of Pompano Beach’s “I Can Water” Campaign

For developing and implementing an innovative public education program, which resulted in a better appreciation of water resources, management, and conservation

27th Annual WateReuse Symposium
September 9–12, 2012
Hollywood, Florida
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
pompano beach
Florida’s Warmest Welcome