Broward County-wide Master Reuse Plan

Joint Broward Water Resources Task Force & Technical Team Meeting
April 4, 2014

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Natural Resources Planning and Management Division
Background:

Water Resources Task Force

- Task Force Report - January 2011
- Included 40 recommendations in the areas of:
  - Water conservation
  - Reuse planning and development
  - Regional water supply projects
  - Investigation and modeling
Eleven (11) recommendations specific to reuse including:

- Recommendation #19

Regional Reuse Master Plan
Background: Water Reuse Challenges

Challenges:

- Highly developed urban area (↑ cost, ↓ opportunities)
- 25 distinct water providers
- 15 distinct wastewater providers (non-convergent)
- Seasonal demand fluctuations
- Treatment costs/Requirements/disposal options
# New and Compelling Drivers

## Key Drivers in the Past
- Water/Wastewater concurrency
- Saltwater intrusion
- Costs for alternatives

## Key Drivers Today
- Regional Water Availability Rule
- Ocean Outfall Rule
- Climate Change
- Regulatory Requirements
Implications for the Future

- Limited access to current water sources
- Absolute requirements to develop reuse
- Loss of current wellfield capacity due to saltwater intrusion
  - 20% coastal wells are threatened (24 mGD)
- Increasing in water demand (16% by 2040)
  - 34 to 106 MGD additional water demand
Diverse Benefits

* Increase water supplies
* Diversify sources
* Protect existing sources
* Provide offset to additional consumption
* Meet regulatory obligations
* Optimize the beneficial use of our water sources
* Prepare for the future
Develop a Regional Reuse Master Plan that will build upon current municipal and county efforts and coordinate a regional approach to reuse planning, maximizing cost-effective reuse development within Broward County.

- Provide a common planning platform
- Improve coordination and communication
- Deliver flexibility
Coordination & Tool Development
Work Effort: Team Collaborations

- Review of previous studies/reports
- Stakeholder meetings
- Stakeholder specific/interactive project analysis
- Reclaimed water planning tools development
Work Effort: GIS Planning Tool

- Foundation for data storage interpretation
- Database of existing and planned reclaimed water infrastructure
- Addition of planned County Public Works Projects
- Google Earth platform allows for easy manipulations of alternatives
- Tool was used to develop proposed regional projects
Work Effort:
BC WWS Example

- Evaluated potential users based on distance from WWTP
- Two scenarios:
  - With utility boundaries
  - Without utility boundaries
### Work Effort: BC WWS Example, cont.

#### Scenarios

<table>
<thead>
<tr>
<th>Scenarios</th>
<th>Within Utility Boundary</th>
<th>No Utility Boundary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of Customers</td>
<td>Demand (mgd)</td>
</tr>
<tr>
<td>One mile radius</td>
<td>3</td>
<td>0.37</td>
</tr>
<tr>
<td>Three mile radius</td>
<td>38</td>
<td>3.63</td>
</tr>
<tr>
<td>Five mile radius</td>
<td>59</td>
<td>4.55</td>
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</tbody>
</table>
Criteria were developed with stakeholders.

Final criteria included the following categories:
- Project Benefits
- Project Implementation
- Project Reliability
- General Acceptance of Project
- Project Costs

Weights and scaling factors were established.

Model is in Excel – simplifies revisions.
Work Effort:
Master Reuse Plan

- Existing and planned reclaimed water infrastructure
- Planned County Public Works projects
- Costs and carbon footprint of potential reclaimed water projects
- Climate change impacts on reclaimed water options

- Potential reclaimed water opportunities by utility
- Regional reclaimed water projects
- Regional projects using Criteria Model
- Guidelines for future maintenance of tools
Future implementation
Master Plan Implementation: Benefits

Immediate:

- Database of existing reclaimed water infrastructure—not previously available
- **Catalyst** for multijurisdictional partnering
- Documents reuse projects for future funding under SB 444 or other

Future:

- Reduction in engineering costs for future planning efforts
- Ability to visually analyze options
- Platform to coordinate with future public works projects and potentially reduce construction costs
Implementation:
Potential Projects for Analysis

Estimated Capital Cost ($/gpd)
Opportunities for Collaboration

* Prioritize projects with a better than average return
* Work with utilities that have lower treatment and infrastructure costs
* Leverage funds to accelerated projects when early investment provides long-term cost savings
* Maximize recharge to maintain groundwater levels, provide offsets, and abate saltwater intrusion
* Reuse credits not reflected in cost calculations!
## Potential Phased Implementation

<table>
<thead>
<tr>
<th>Phase</th>
<th>MGD</th>
<th>Cost</th>
<th>Partners</th>
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</thead>
<tbody>
<tr>
<td>I</td>
<td>24.54</td>
<td>$167M</td>
<td>BC/Sunrise/Davie</td>
</tr>
<tr>
<td>II</td>
<td>23.61</td>
<td>$300M+</td>
<td>Cooper City/Pompano/Hollywood</td>
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<tr>
<td>III</td>
<td>13.87</td>
<td>$113 M</td>
<td>Plantation/Margate/Miramar</td>
</tr>
<tr>
<td>IV</td>
<td>9.12</td>
<td>$49M</td>
<td>Pompano/Davie/Sunrise/CSID</td>
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<tr>
<td>2030</td>
<td>71</td>
<td>$629 M</td>
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</table>
Implementation: Phase I 2015-2020
Implementation: Phase II 2020-2025
Implementation: Future !!!
What’s Next?

* Gain early traction: Pursue implementation with a funding proposal and strategy to incentivize these and related projects?
* Facilitate planning: Maintain a current database of infrastructure and plans?
* Deferred action: Wait until demands and realized constraints obligate the investment?
Questions?