Running Out of Water is Not an Option

The Jordan Lake Partnership: Interlocal Cooperation for a Sustainable and Secure Water Supply

Don Greeley
WRRI Annual Conference March 18th, 2015

Presentation Outline

• Background
• Partnership
• Future Water Demands
• Preferred Regional Alternative
• Next Steps
• Questions
Background

The Triangle Region...

• ... has grown significantly;
• ... will continue to grow;
• ... is located in the headwaters of two river basins;
• ... has a history of differences;
• ... has a history of collaboration; and,
• ... has experiences two historic droughts since 2001.
Triangle Population Will Continue to Grow

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
<th>2050</th>
<th>2060</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Regional Population</td>
<td>1,066,100</td>
<td>1,421,100</td>
<td>1,785,500</td>
<td>2,130,900</td>
<td>2,452,300</td>
<td>2,773,600</td>
</tr>
</tbody>
</table>

From 1 million now... … to 2.8 million by 2060

Historic Droughts

NC Drought Monitor

December 25, 2007
Valid 8 a.m. EDT

Drought Classifications
- D0 - Abnormally Dry
- D1 - Moderate Drought
- D2 - Severe Drought
- D3 - Extreme Drought
- D4 - Exceptional Drought
Little River Reservoir & Dam

Image credit: https://www.sercc.com/drought

Falls Lake at NC50

Image credit: https://www.sercc.com/drought
Jordan Lake

Image credit: http://carync.activerain.com/post/203096/north-carolina-real-estate--drought--2007-style-

Partnership
Drivers for Collaboration

• Mutual need to reduce drought risk
• Economies of scale
• Technical constraints (one more intake allowed; limited sites)
• Streamline the approval process
• Strength through collaboration

Learning from others...

“We learned you have to work together – stop fighting wars. If you don’t, you will have other people deciding what happens in your cities and towns.”

Wayne Hill, former Chair of Gwinnett County, Georgia Commissioners, regional Chamber of Commerce event, Cary, NC, May 13, 2008
The Jordan Lake Partnership

What is the Partnership?

• Interlocal effort begun in 2009 to coordinate planning and further development of the regional water supply to meet future needs

• Local government led initiative – demonstrate that local leadership can solve regional water planning challenges

Purpose of Partnership

Long term sustainable and secure regional water supply for the Research Triangle area.
Who are the Partners?

Apex
Cary
Chatham County
Durham
Hillsborough
Holly Springs
Morrisville
Orange County
OWASA
Pittsboro
Raleigh
Sanford
Wake County

Water Service Areas
What are the Goals?

- A secure, sustainable water supply for the region
- Water conservation and efficiency
- Model for cooperation and communication
- Provide a forum to address mutual interests and work through challenges
- Ensure regional/basin-wide ability to meet long term water supply needs

The Partnership does not...

- Make ANY policy decisions
Key Objectives

- Develop & maintain buy-in from all governing boards
- Develop regional water supply plan
- Submit coordinated Jordan Lake allocation requests to State
- Explore options for additional facilities to access Jordan Lake water supply
- Coordinate with upstream & downstream stakeholders, state agency staff, and environmental groups

Future Water Demands
Peer Review Was Key

- Peer Review Process was set up to check each Partner’s long range water demand projections
- Facilitated information sharing and trust building among the Partners
- Produced benefits at a regional level
- Had a positive impact on individual water systems

<table>
<thead>
<tr>
<th>Projected Triangle Area Water Demand (JLP Members)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year:</strong></td>
</tr>
<tr>
<td>First Draft of Needs Assessment</td>
</tr>
<tr>
<td>Most Recent Projections</td>
</tr>
</tbody>
</table>
Projected Surplus / Need

Regional Alternatives

REGIONAL WATER SUPPLY PLAN
VOLUME 1: REGIONAL WATER SUPPLY INFEEDS AND REUSE
October 24, 2014
Overarching Frameworks

A – Preferred Options
B – Restricted Reservoirs
C – Limit Jordan Lake
D – Just the Partners
E – Everyone for themselves
F – Mega-regional cooperation
G – No Action
Collections of Sources

<table>
<thead>
<tr>
<th>Collection of Sources</th>
<th>E1</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
<th>F4</th>
<th>F5</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 – Preferred Options</td>
<td>Self-Supply</td>
<td>Large New Sources</td>
<td>Large New Sources</td>
<td>Large New Sources</td>
<td>Large New Sources</td>
<td>Large New Sources</td>
<td>No Action</td>
</tr>
<tr>
<td>A2 – Alternate Choice Option</td>
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<tr>
<td>B1 – No New Reservoirs</td>
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<td></td>
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<tr>
<td>B2 – Non-reservoir Sources</td>
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<td></td>
<td></td>
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<tr>
<td>B3 – Minimize new storage</td>
<td></td>
<td></td>
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<tr>
<td>C1 – Build New Sources</td>
<td></td>
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<tr>
<td>C2 – New Sources/Purchases</td>
<td></td>
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<td></td>
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<tr>
<td>C3 – Max. New Sources</td>
<td></td>
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<tr>
<td>D1 – Minimize New Sources</td>
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<td></td>
</tr>
<tr>
<td>D2 – Min. New Neuse Sources</td>
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<td></td>
</tr>
<tr>
<td>D3 – Min. Number of Sources</td>
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Preferred Regional Solution

- Based on information aggregated by partners and refined under a peer review process so that all partners agree it is accurate and will be supported by state.
- Meets all future water supply needs for partners through 2060.
- With regional solution downstream users will be able to meet their needs.
- Represents the preferred solution of the region and also reflects the preferred alternatives for each partner’s individual system.
Jordan Lake Water Supply Pool

<table>
<thead>
<tr>
<th>Water Supply Pool</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Allocated Water Supply</td>
<td>63%</td>
</tr>
<tr>
<td>Unallocated Water Supply</td>
<td>37%</td>
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</tbody>
</table>

The Jordan Lake water supply pool is estimated to safely yield 100 MGD under all modeled conditions.
Triangle Regional Water Supply Plan: Recommended JL Allocation Requests

<table>
<thead>
<tr>
<th>Applicant</th>
<th>Current</th>
<th>Round 4</th>
<th>Future (2060)</th>
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</thead>
<tbody>
<tr>
<td>Apex</td>
<td>32</td>
<td>39.2</td>
<td>41.4</td>
</tr>
<tr>
<td>Cary</td>
<td>3.5</td>
<td>3.5</td>
<td>3.6</td>
</tr>
<tr>
<td>Morrisville</td>
<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Wake Co. RTP South</td>
<td>3.5</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Chatham County N</td>
<td>6</td>
<td>13.0</td>
<td>18.2</td>
</tr>
<tr>
<td>Durham</td>
<td>10</td>
<td>16.5</td>
<td>16.5</td>
</tr>
<tr>
<td>OWASA</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Holly Springs</td>
<td>2</td>
<td>2</td>
<td>2.2</td>
</tr>
<tr>
<td>Orange County</td>
<td>1</td>
<td>1.5</td>
<td>2</td>
</tr>
<tr>
<td>Hillsborough</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Pittsboro</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Raleigh</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sanford</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>63</td>
<td>91.2</td>
<td>99.4</td>
</tr>
</tbody>
</table>

Accomplishments

- Peer-reviewed population and water demand projections
- Identification of future water supply needs
- Consensus approval of preferred regional solution
- Phase I Interconnections Inventory
- Interconnection Improvements
  - Chatham - Durham and Cary - Raleigh
- Phase II Interconnections Modeling underway
- Western Intake feasibility study
- Coordinated Jordan Lake allocation requests
Partnership Next Steps

• Plan future infrastructure investments
  • *Western Intake, treatment and transmission facilities*
  • *Regional interconnections*
• Broaden focus of regional collaboration
  • *Emergency response planning*
  • *Water efficiency education*
  • *Water shortage indicators*
Questions?

www.jordanlakepartnership.org

Western Intake Study

A shared intake will be more efficient and likely to obtain regulatory approval than individual intakes for each Partner

Feasibility Study was completed in 2014

Conceptual level study evaluated the feasibility of a shared raw water intake for:
  Chatham, Durham, Pittsboro, OWASA

Study Included:
  • Evaluation of three (3) alternatives:
  • Review of Partnership options
  • Development of a conceptual level permitting and a construction schedule for the Preferred Alternative