

Project Planning

Triangle Water Supply Partnership
February 8, 2019

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Terminology – can we avoid confusion?

- **Water Shortage Response Plan Working Group** - summarizing partners' WSRPs, incorporating them into the OASIS model, and evaluating impacts of anticipated demand reductions on water sources/streamflows.
- **“Regional Water Shortage and Response Planning”** – Large Project envisioned to update regional distribution system hydraulic model, add Harnett and Johnston Counties, evaluate partner-defined scenarios
 - I'm going to call this **“Interconnection Model Update”**
- These are related and may likely be iterative as the group evaluates regional strategies for responding to water shortage.

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Goals/Outline for Today

- Review currently adopted 5-Year plan
- Review core Large Projects; Discuss, and confirm or modify priorities/timelines for large projects
 - Triangle Regional Water Supply Plan (FY21)
 - Interconnection Model Update (FY19)
- Discuss 5-Year Funding and Project Plan for FY20-FY24
- Identify action items
 - Preparation for large projects
 - Next meeting

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FY19-FY23 Plan included in MOA

Table 1: Triangle Water Supply Partnership 5-Year Project and Funding Plan

	Budgeted Expenses				
	FY19	FY20	FY21	FY22	FY23
A. Partnership Management					
Partnership Management Support	\$ 75,000	\$ 75,000	\$ 78,000	\$ 78,000	\$ 81,000
B. Small Projects					
Data summaries, regulatory evaluation, outreach, etc.	\$ 24,000	\$ 36,000	\$ 30,000	\$ 30,000	\$ 30,000
C. Large Projects					
1. Regional Water Shortage and Response Planning	\$ 150,000				
2. Interconnection Model Maintenance (FY24)					
3. Triangle Regional Water Supply Plan			\$ 250,000		
4. Emergency Spill Response and Mitigation Plan Coordination					\$ 150,000
Total Annual Expenditures	\$ 249,000	\$ 111,000	\$ 358,000	\$ 108,000	\$ 261,000
Total Dues	\$ 249,600	\$ 300,000	\$ 216,000	\$ 216,000	\$ 216,000
Partnership Operating Fund Target (beginning of year)	\$ 249,600	\$ 300,600	\$ 405,600	\$ 263,600	\$ 371,600
Expected End-of-Year Fund Balance (carry over to next year)	\$ 600	\$ 189,600	\$ 47,600	\$ 155,600	\$ 110,600

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5-Year Project and Funding Plan

- MOA included 5-Year Plan for FY19-FY23
- The group contemplated recurring (every 5 years) funding of 3 Large Projects, while looking at a 15-year time frame.
 - Core Large Projects (see Handout 1):
 - Interconnection Model Maintenance (first iteration of this is FY19 Regional Water Shortage and Response Planning)
 - Triangle Regional Water Supply Plan (FY21)
 - Additional Large Project
 - Emergency Spill Response and Mitigation Plan Coordination (FY23)
 - Future – to be determined
- \$30k/year budgeted for Small Projects

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Consideration of 15-Year Project and Funding

	Expenses														
	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31	FY32	FY33
A. Administration															
Partnership Management	\$ 75,000	\$ 75,000	\$ 78,000	\$ 78,000	\$ 81,000	\$ 81,000	\$ 84,000	\$ 84,000	\$ 87,000	\$ 87,000	\$ 90,000	\$ 90,000	\$ 93,000	\$ 93,000	\$ 96,000
B. Small Projects															
Data summaries, regulatory evaluation, outreach, etc.	\$ 24,000	\$ 36,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000	\$ 35,000	\$ 40,000	\$ 40,000	\$ 40,000	\$ 40,000	\$ 40,000
C. Large Projects															
1. Regional Water Shortage and Response Planning	\$150,000														
2. Interconnection Model Maintenance						\$ 150,000					\$ 175,000				
3. Triangle Regional Water Supply Plan			\$ 250,000					\$ 275,000					\$ 300,000		
4. Emergency Spill Response and Mitigation Plan Coordination				\$ 150,000											
5. Other Large Project TBD										\$ 175,000					\$ 200,000

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Triangle Regional Water Supply Plan

MOA Description

This Plan will be much more than a simple update of the Jordan Lake Partnership's Plan. This new plan will include the larger Triangle Water Supply Partnership membership and a comprehensive evaluation of potential water sources.

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Key Points from Partner Interviews: Demand Projections

- Some partners have recent formal updates; some are in process (Cary/Apex/Morrisville, Durham, OWASA, Raleigh)
- Harnett County has done projections in conjunction with hydraulic model.
- Holly Springs updates every year for Local Water Supply Plan
- Johnston County does internally and can update at any time

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Key Points from Partner Interviews: Long Range Planning

- Formal Plans: Cary/Apex/Morrisville, Durham, OWASA
- Need for long term look: Johnston County
- Desire for evaluation of new locations/sources: Harnett County
- Just received Falls Lake re-allocation serving needs through 2047: Raleigh
- No projects requiring Triangle Regional Water Supply Plan to be done faster or slower than planned

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Triangle Regional Water Supply Plan

Discussion

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Regional Water Shortage and Response Planning (aka Interconnection Model Update)

MOA description

This project will support regional reliability, resiliency and redundancy, using the Interconnection Model developed by the Jordan Lake Partnership, and the North Carolina Division of Water Resources' OASIS model of the Neuse/Cape Fear Basins, to further understand the capabilities and limits of the Triangle Region's present water supply network. The goal will be to estimate infrastructure investments needed to meet future needs – at both the regional and local scale – during sustained or short-term shortages or constraints such as short-term or longer-term infrastructure issues, water quality issues, or long-term regional drought.

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Interconnection[s] Model Maintenance

MOA Description

The Interconnection[s] Model will be updated about every five years. The Regional Water Shortage and Response Planning Project [aka Interconnection Model Update] will effectively update the Jordan Lake Partnership's Interconnection[s] Model so the first anticipated occurrence of this project is FY24.

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Key Points from Partner Interviews: Hydraulic Model

- Emergency response and interconnections are high priority for several partners.
- Most models are pretty up to date, with the exception of Apex and Hillsborough which have lots of new development to be added.
- All have been done by Hazen with the exception of Apex (Wooten) and Chatham County (McGill).
- Most partners mentioned one or more Issues/locations to be evaluated.
- None of the issues to be evaluated require use of the updated model faster than might be possible (next 2-3 years).

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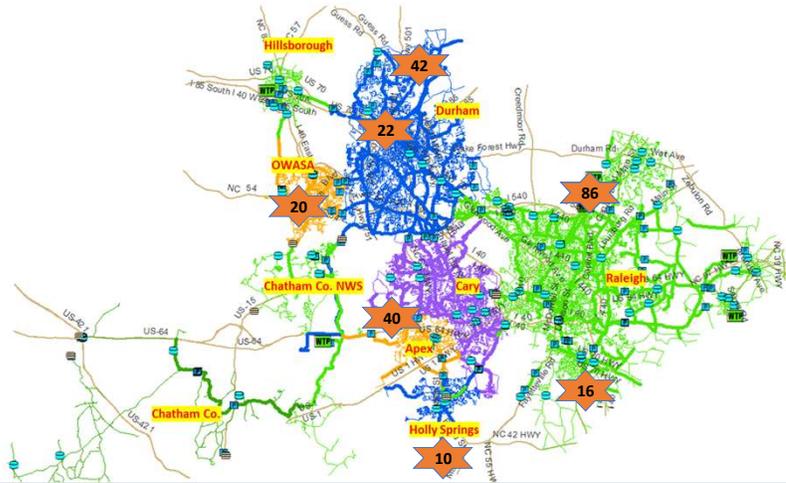
Interconnection Model Update Information from Hazen

(see Handout 2)

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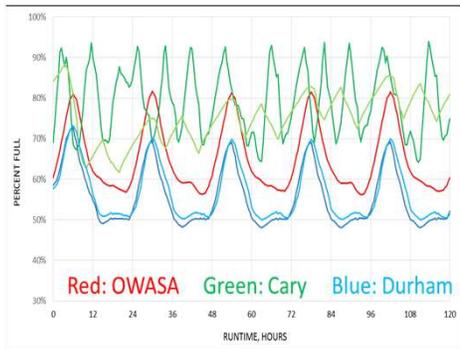
Vulnerability Assessments: Contingency Planning for Supply Outages

XX WTP Locations and Capacities in MGD



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Refinement: Evaluate Transfer Sustainability Considering Raw Water Supplies



Predicted tank performance from JLP model indicates sustainable transfers



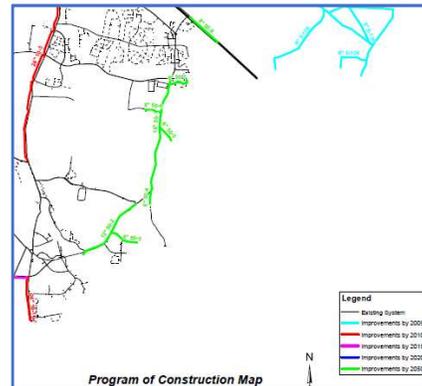
But transfers may not be sustainable considering raw water reservoirs

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Updating JLP Model to Maintain Confidence in Predicted Interconnection Performance

As needed for future projects, update systems of interest by:

- Adding new 16-inch and larger **transmission mains** – much less effort than building model
- Adding **new pumps and tanks**
- Incorporating **new pressure zones** or boundary shifts
- Adding large **new demands** such as wholesale or major industry
- **Checking performance for interconnection scenarios** from individual partners' master plans



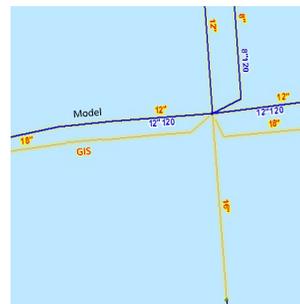
Hazen

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How to Update JLP Model

- Extract new pipes from GIS to a separate file
- Use model utilities to add new pipes, nodes and elevations to JLP Model
- Add new pumps and tanks
- Use system-specific multipliers to adjust model demands to match recent production records



Hazen

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Preliminary Project Information from Hazen: Assumptions

- Five Partner's models (Durham, Chatham County, Apex, Holly Springs and OWASA) would need to be updated (new pipes, pressure zone changes, demand factor adjustments)
- Calibration testing at 6 new interconnections (2 between Johnston and Harnett, 4 between Johnston and other Partners)
- Sanford and Pittsboro are again not included in the regional model
- The deliverable would be a PowerPoint presentation (no tech memo)

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Preliminary Project Information from Hazen

- Roughly \$110-115k and 9 months for model update based on assumptions listed
- Typical modeling task might be identifying the sustainable supply from interconnections during an outage at a water treatment plant:
 - Roughly \$50-55k and 4 months. This includes presenting preliminary results in a PowerPoint presentation and preparing a tech memo.
 - Several tasks from the previous project were in this range, but the fee and timing depend on the nature of the task. In the previous project, tasks varied from \$31,000 to \$73,000, and the average was \$44,000.

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Interconnection Model Update

Discussion