Meeting Logistics

• The Engineering Report and Environmental Information Document can be found at: https://www.daviecountync.gov/1147/Water-Supply-Improvement-Project

• Please use Microsoft Teams Live chat to submit questions during the Public Meeting

• Any questions or comments received during the Public Meeting will be addressed at the end of the presentation

• All comments are due by January 25, 2022 at 5:00 p.m.
Agenda

• Introductions
• Project Purpose and Need
• Proposed Project Description
• Project Alternatives
• Environmental Impacts
• Financial Analysis

Model of New Cooleemee Water Treatment Plant
Introductions

Davie County Public Utilities
— Owner

The Town of Mocksville
— Owner

Hazen and Sawyer
— Engineer
Purpose of Public Meeting

• Inform the community regarding the Davie County and Town of Mocksville Water Supply Improvements Project

• Receive input from the public on the proposed project
Project Purpose and Need
Background

- Existing Water Treatment Facilities
  - Davie County Cooleemee Water Treatment Plant (WTP) – 2.6 million gallons per day (mgd)
  - Town of Mocksville Lagle WTP – 2.0 mgd
  - Both are aging facilities needing major upgrades or decommissioning

- Existing interconnections between the County and Town are undersized and cannot meet water supply demands

- Water supply alternative combining resources and meeting both utilities needs is being undertaken
Project Purpose and Need

The proposed near-term project to replace the existing 2.6-mgd Cooleemee WTP with a new 3.5-mgd facility and decommission the Lagle WTP will meet near-term water supply demands while minimizing rate impacts.

<table>
<thead>
<tr>
<th>Facility</th>
<th>Current Capacity (mgd)</th>
<th>Capacity at Near-Term Project Completion (mgd)</th>
<th>Capacity with Future Sparks WTP Expansion (mgd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sparks WTP</td>
<td>3.0</td>
<td>3.0</td>
<td>4.5</td>
</tr>
<tr>
<td>Cooleemee WTP</td>
<td>2.6</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>Lagle WTP</td>
<td>2.0</td>
<td>0.0 - Decommissioned</td>
<td>0.0 - Decommissioned</td>
</tr>
<tr>
<td>Total Capacity</td>
<td>7.6</td>
<td>6.5</td>
<td>8.0</td>
</tr>
</tbody>
</table>
A future expansion of the Sparks WTP will be planned to meet 2040 projected demands.
Safe Yield Analysis

- “Safe Yield” is a statistical measure of water available over an extended period without depleting that source even during drought conditions.
- Hunting Creek has limited safe yield
- Maintaining the South Yadkin River as a supply source (with the Cooleemee WTP) provides resiliency during droughts
Proposed Project Description
Project Description

- Replace the existing Cooleemee WTP with a new 3.5-mgd facility
  - Includes many process design enhancements
- Decommission the 2.0-mgd Lagle WTP
- Construct 18,500 linear feed (LF) of 12-inch and 16-inch transmission mains parallel to existing water lines
Project Location

Location of Existing and New Cooleemee Water Treatment Plant

Proposed 12” Transmission Mains

Proposed 16” Transmission Mains
New Cooleemee WTP

• Raw Water Pump Stations (RWPS)
  • New pumps, piping, and supporting infrastructure (both existing RWPS)

• Raw Water Transmission Main
  • New 16-inch pipeline to convey raw water to new WTP for treatment

• Coagulation and Clarification
  • New basins and mixers to coagulate solids and settle them before filtration
  • Two (2) rapid mix/flocculation/sedimentation trains
New Cooleemee WTP

• Filters
  • Four (4) new dual-media filters (sand + anthracite)
  • Backwash infrastructure (air scour blower and backwash pump)

• Ultraviolet (UV) Disinfection
  • Two (2) UV reactors to provide a multiple barrier pathogen disinfection strategy

• Clearwell
  • One (1) 900,000-gallon clearwell for chlorine contact and equalization
New Cooleemee WTP

- High Service Pump Station
  - Two (2) distribution pumps
  - One (1) backwash pump

- Treatment Residuals
  - One (1) 90,000-gallon equalization tank
  - All residuals discharged to sewer

- Chemical Facility
  - Chemical storage tanks and dosing pumps
WTP Site Plan

- Chemical Facility
- WTP Process Facility
- Equalization Tank
- Standby Generator
- Existing Access from Main St.
- Pump Station
- Clearwell
- Existing WTP
Transmission Main Expansion

- 16-inch pipe is needed along Main St. to convey water from the new Cooleemee WTP to the distribution system.
- 12-inch pipe along Nolley Rd, Gladstone Rd, and US 601 is needed to supply the Mocksville distribution system and complete loops in the County distribution system.
Project Alternatives
## Project Alternatives

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong></td>
<td>Phasing Option 1: New Cooleemee WTP (3.5 mgd) immediate term and Davidson Water interconnection (1.0 mgd) deferred until 2030 (Sparks Road WTP expansion deferred 20 years)</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>Phasing Option 2 (Preferred): New Cooleemee WTP (3.5 mgd) immediate term and expansion of Sparks Road WTP (4.5 mgd) deferred until 2030 (DWI interconnect deferred 20 years)</td>
</tr>
<tr>
<td><strong>3</strong></td>
<td>Phasing Option 3: Davidson Water Interconnection (3.5 mgd) immediate term and expansion of Sparks Road WTP (4.5 mgd) deferred until 2030</td>
</tr>
</tbody>
</table>

**No-Action Alternative**
## Determination of Alternatives

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Feasible?</th>
<th>Reasons for Accepting / Rejecting</th>
</tr>
</thead>
<tbody>
<tr>
<td>No-Action</td>
<td>No</td>
<td>The no-action alternative does not provide the required infrastructure improvements to meet current water demands or health needs of the service area.</td>
</tr>
<tr>
<td>Phasing Option 1</td>
<td>No</td>
<td>This alternative could meet the project purpose and need. However, it has the highest capital costs of the three phasing options and does not provide the highest level of ownership over the water supply system compared to phasing option 2.</td>
</tr>
<tr>
<td>Phasing Option 2</td>
<td>Yes</td>
<td>This alternative addresses the project purpose and need. Environmental impacts were fully evaluated. The alternative is preferred due to minimal rate impacts to Davie County and the Town of Mocksville while providing resiliency in the water supply system.</td>
</tr>
<tr>
<td>Phasing Option 3</td>
<td>No</td>
<td>This alternative could meet the project purpose and need. However, the dependency on the interconnection with DWI could result in uncertainty in future rates and operating costs. Additionally, this phasing option does not provide the County and Town the most resiliency in the water supply system.</td>
</tr>
</tbody>
</table>
Environmental Impacts
## Environmental Impact Comparison of Alternatives

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Environmental Impact Comparison</th>
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<tbody>
<tr>
<td>No-Action</td>
<td>The no-action alternative could potentially result in environmental impacts during extreme low-flow events, which are currently a concern noted by both the County and Town’s staff at their respective intakes and treatment facilities.</td>
</tr>
<tr>
<td>Phasing Option 1</td>
<td>This alternative would require more water transmission main improvements compared to the preferred alternative increasing land-disturbing activities.</td>
</tr>
<tr>
<td>Phasing Option 2</td>
<td>Refer to next slides for a detailed discussion of the anticipated environmental impacts of the preferred alternative.</td>
</tr>
<tr>
<td>(Preferred)</td>
<td></td>
</tr>
<tr>
<td>Phasing Option 3</td>
<td>This alternative would require more water transmission main improvements compared to the preferred alternative increasing land-disturbing activities.</td>
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</table>
## Summary of Environmental Impacts for the Preferred Alternative for the Water Supply Improvements Project

<table>
<thead>
<tr>
<th>Resource Category</th>
<th>Potential Direct Impacts</th>
<th>Measures to Mitigate Direct Impacts</th>
<th>Potential Secondary and Cumulative Impact</th>
<th>Local Ordinances to Mitigate Secondary and Cumulative Impacts</th>
</tr>
</thead>
</table>
| Topography and Floodplains         | • Erosion and sedimentation during construction  
• Addition of fill material  
• Excavation and grading  
• Disturbed areas returned to original grade  
• No new structures in floodway or floodplain  
• Erosion and Sedimentation Plan | • Disturbed areas returned to original grade  
• No new structures in floodway or floodplain  
• Erosion and Sedimentation Plan | • Potential future growth may lead to modification of topography for construction | • Local erosion and sedimentation ordinances  
• Local floodplain ordinances |
| Soils                              | • Erosion and sedimentation  
• Impact to water resources from construction runoff and spillage  
• Erosion and Sedimentation Plan | • Erosion and Sedimentation Plan  
• Waste material storage plan | • Potential increase in surface water turbidity | • Local erosion and sedimentation ordinances |
| Prime and Unique Farmland          | • No impact  
N/A | N/A | • Potential loss of prime and unique farmland due to urban growth | • Davie County Comprehensive Plan and Davie County Zoning Code |
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<td>Land Use</td>
<td>• Conversion of maintained lawn to WTP facility</td>
<td>• Davie County Comprehensive Plan</td>
<td>• Potential loss of open space, forested lands, or agricultural areas to urban uses • Potential for overuse of parks, greenways, and natural areas from growth</td>
<td>• Davie County Comprehensive Plan and Town of Cooleemee Zoning Ordinance</td>
</tr>
<tr>
<td>Forest Resources</td>
<td>• Forest clearing minimized for construction of the project components</td>
<td>• Minimal clearing of mature forest or significant forest resources</td>
<td>• Potential loss of forested land for urban growth</td>
<td>• Davie County Comprehensive Plan</td>
</tr>
<tr>
<td>Wetlands and Streams</td>
<td>• No direct wetland impacts from construction • Temporary, minor impacts to a stream during waterline installation</td>
<td>• Erosion and Sedimentation Plan • BMPs used for protection of surface waters</td>
<td>• Potential for increase in silt and sediment from development activities • Potential for loss or disturbance of wetlands from future development</td>
<td>• State stream buffer ordinances • Local erosion and sedimentation ordinances • Local stormwater ordinances</td>
</tr>
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<tr>
<td>Water Resources</td>
<td>Water quality degradation from runoff and sedimentation during construction</td>
<td>Erosion and Sedimentation Plan</td>
<td>Potential increase in surface water turbidity</td>
<td>Local erosion and sedimentation ordinances</td>
</tr>
<tr>
<td>Shellfish and Fish</td>
<td>Water quality degradation from runoff and sedimentation during construction</td>
<td>Erosion and Sedimentation Plan</td>
<td>Potential habitat degradation from development</td>
<td>Local erosion and sedimentation ordinances</td>
</tr>
</tbody>
</table>
| Wildlife and Natural Vegetation | Habitat degradation during construction                                                 | • Erosion and Sedimentation Plan  
• Construction areas mostly limited to existing maintained grassed areas | Potential habitat degradation from development                     | Davie County Comprehensive Plan                                  |
## Summary of Environmental Impacts for the Preferred Alternative for the Water Supply Improvements Project

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</thead>
<tbody>
<tr>
<td>Public Lands and Scenic, Recreational and State Natural Areas</td>
<td>No impacts</td>
<td>N/A</td>
<td>No impacts</td>
<td>N/A</td>
</tr>
<tr>
<td>Areas of Archaeological or Historic Value</td>
<td>No impacts</td>
<td>Coordinate with SHPO if significant cultural resources are identified during construction.</td>
<td>No impacts</td>
<td>Davie County Comprehensive Plan</td>
</tr>
</tbody>
</table>
| Air Quality                                            | Increase in emissions during construction | • Proper vehicle maintenance  
• Wetting of exposed soil and soil stabilization | Potential increase in air emissions due to growth | Local and state air quality standards |
### Summary of Environmental Impacts for the Preferred Alternative for the Water Supply Improvements Project

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</table>
| Noise Levels                    | • Noise generated during construction  
• Occasional and temporary noise from emergency generators | Construction hours limited to M-F, 6:00 am to 7:00 pm to maximum extent practicable.                | Increase in traffic noise from growth                               | Unified Development Ordinance                                |
| Introduction of Toxic Substances| Exhaust emissions and oil, fuel, or other vehicle fluid leaks                           | Proper maintenance and collection and disposal of fluid containers                                  | No impacts                                                         | N/A                                                           |
| Environmental Justice – Minority Population | No impacts expected as the block group has a minority population below threshold      | N/A                                                                                                 | Negligible impacts due to positive result of ensuring adequate, quality water service | N/A                                                           |
| Environmental Justice – Low Income Population | No impacts expected as the block group has a low-income population below threshold    | N/A                                                                                                 | Negligible impacts due to positive result of ensuring adequate, quality water service | N/A                                                           |
Financial Analysis
Estimated Customer Impacts - Mocksville

Original Rate Study assumed no grant funding or reduced interest rates

4.5% with awarded funding to date
Estimated Customer Impacts – Davie County

Original Rate Study assumed no grant funding or reduced interest rates

3.25% with awarded funding to date

Average Annual Increases in Water Bills - Davie County

- 5-yr average 2021 - 2025: Option 1 - 4.9%, Option 2 - 4.4%
- 5-yr average 2026 - 2030: Option 1 - 3.3%, Option 2 - 2.3%, Option 3 - 2.5%
- 10-yr average: Option 1 - 4.1%, Option 2 - 3.3%, Option 3 - 4.6%
Estimated Customer Impacts – Comparison

Estimated Bi-Monthly Water Bills in FY 2030

- Option 1: $104.26
- Option 2: $95.27
- Option 3: $90.87
- Estimated Median NC bill: $110.91

Average bill based on 10 kgal of bi-monthly use

Mocksville Water
Davie County Water
Total Funding Awarded to Date

- The County is continuing to pursue additional funding opportunities, including grants

<table>
<thead>
<tr>
<th>Funding Source</th>
<th>Approved Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>DWSRF Low Interest Loan (0.1%)</td>
<td>$24,926,193</td>
</tr>
<tr>
<td>DWSRF Principal Forgiveness</td>
<td>$2,000,000</td>
</tr>
<tr>
<td>State Reserve Project Grant</td>
<td>$1,123,807</td>
</tr>
<tr>
<td>EDA Grant Award</td>
<td>$1,587,000</td>
</tr>
<tr>
<td><strong>Total Project Funding to Date</strong></td>
<td><strong>$29,637,000</strong></td>
</tr>
</tbody>
</table>
Questions/Comments

• Please use Microsoft Teams Live chat to submit questions during the Public Meeting

• Questions can also be submitted to:
  Johnny Lambert, Utilities Director
  298 E. Depot St., Suite 200, Mocksville, NC 27028
  jlambert@daviecountync.gov

• Any public questions or comments received by January 25, 2022 at 5:00 p.m. will be acknowledged with a response and submitted for the record.