FINDING OF NO SIGNIFICANT IMPACT
AND ENVIRONMENTAL ASSESSMENT

DAVIE COUNTY
TOWN OF MOCKSVILLE WATER SUPPLY IMPROVEMENTS PROJECT

RESPONSIBLE AGENCY: NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY

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April 12, 2022

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FINDING OF NO SIGNIFICANT IMPACT

Article I, Chapter 113A of the North Carolina General Statutes requires an action to be subject to the requirements of the North Carolina Environmental Policy Act (NCEPA) if it involves the expenditure of public funds and if a potential impact is anticipated to the environment. The project has been evaluated for compliance with the NCEPA and is determined to be a major agency action, which will affect the environment.

Project Applicant:	Davie County, North Carolina
Project Description:	The proposed project will replace the existing 2.6 million gallons per day (MGD) Cooleemee Water Treatment Plant (WTP) with a new 3.5 MGD plant. The project will include the following components: upgrades to the existing intakes and raw water pump stations; demolition of the existing plant upon successful start-up and continuous operation of the new plant; decommissioning of the Town of Mocksville's Lagle WTP; construction of the new WTP; and construction of 18,500 linear feet of 12-inch and 16-inch transmission mains parallel to existing water lines. The new WTP will include the following components: one rapid mix chamber; six flocculation basins equipped with variable-speed vertical flocculators: two sedimentation basins; four multi-media filters; one clearwell; continued use of silo style finished water tanks; high service pump station; chemical building; one backwash equalization tank; one standby generator; and miscellaneous yard piping.
Project Number:	WIF-2018 SRP-D-0203
Project Cost:	$25,704,207
Drinking Water State Revolving Loan Fund:	$20,000,000
State Reserve Project Grant	$1,123,807
Revenue Bonds	$4,163,543
Local Funds:	$416,857

The review process indicated that significant adverse environmental impacts should not occur if mitigative measures are implemented, and an environmental impact statement will not be required. The decision was based on information in the Engineering Report/Environmental Information Document (ER/EID) submitted by the applicant and reviews by governmental agencies. The attached Environmental Assessment (EA), prepared by the Division based on the ER/EID, supports this action and outlines mitigative measures that must be followed. This Finding of No Significant Impact (FONSI) completes the environmental review record, which is available for inspection at the State Clearinghouse.

No administrative action will be taken on the proposed project for at least 30 days after notification that the FONSI has been published in the North Carolina Environmental Bulletin.

Sincerely,

Jon Risgaard

Jon Risgaard, Section Chief
State Revolving Fund Section
Division of Water Infrastructure

ENVIRONMENTAL ASSESSMENT

A. Proposed Facilities and Actions

The proposed project will replace Davie County's existing 2.6 million gallons per day (MGD) Cooleemee Water Treatment Plant (WTP) with a new 3.5 MGD plant. The project will include the following components: upgrades to the existing intakes and raw water pump stations; demolition of the existing plant upon successful start-up and continuous operation of the new plant; decommissioning of the Town of Mocksville's Lagle WTP; construction of the new WTP; and construction of 18,500 linear feet of 12-inch and 16-inch transmission mains parallel to existing water lines. The new WTP will include the following components: one rapid mix chamber; six flocculation basins equipped with variable-speed vertical flocculators: two sedimentation basins; four multi-media filters; one clearwell; continued use of silo style finished water tanks; high service pump station; chemical building; one backwash equalization tank; one standby generator; and miscellaneous yard piping.

Funding Status: The estimated total cost for the project is $25,704,207. The County is applying for a Drinking Water State Revolving Fund (CWSRF) loan of $20,000,000 State Reserve Project Grant of $1,123,807 An additional $4,163,543 will be funded through revenue bonds. Closing costs/administrative fees of $416,85 7will be paid with local funds.

B. Existing Environment

Topography and Soils. Davie County is in the Piedmont physiographic province, characterized by gently rolling, long low ridges and well-rounded hills. Topography varies from approximately 1,736 feet mean sea level (msl) to 620 feet msl. The project site is within the Charlotte Belt, which is comprised of plutonic rocks and metavolcanic rocks. The 100-year floodplain associated with the South Yadkin River is adjacent to but not within the Cooleemee WTP parcel.

The project area consists of approximately 34 percent Cecil sand clay loam, 21 percent Lloyd clay loam, 21 percent Enon fine sandy loam, 19 percent Urban land, and 5 percent Rowan sandy loam. Cecil soils consist of very deep, well-drained, moderately permeable soils typically found on ridges and side slopes in the Piedmont region of North Carolina. Cecil soils are prevalent throughout the Piedmont and are commonly found in cultivated, pasture, and forested areas. Lloyd soils consist of very deep, welldrained, moderately permeable soils in upland areas of the Piedmont. Enon soils consist of very deep, well-drained, slowly permeable soils typically found on ridges and side slopes in the Piedmont. Rowan soils consist of very deep, well-drained, moderately permeable soils.

Surface Water. The project area is located in the Yadkin River Headwaters Subbasin (HUC 03040101) and the South Yadkin Subbasin (HUC 03040102). The Cooleemee WTP intake is located in a section of the South Yadkin River classified as WS-IV and listed as impaired for total suspended solids and turbidity. Sections of the Yadkin River located in the project service area are also classified as WS-IV.

Water Supply. The primary sources of drinking water for Davie County's service area are the Yadkin River and South Yadkin River. The Town of Mocksville draws drinking water from Hunting Creek.

C. Existing Wastewater Facilities

The County owns and operates the 2.6 MGD Cooleemee WTP in the southern portion of the county and the 3.0 MGD Sparks Road WTP in the northern portion of the county. The Town of Mocksville owns and operates the 2.0 MGD Lagle WTP, located west of the town in central Davie County. The combined current capacity of the three plants is 7.6 MGD. The County's current demand is 4.72 MGD, and the Town of Mocksville's daily demand 1.29 MGD, for a combined demand of 6.01 MGD.

The County's Cooleemee WTP was originally constructed in the late 1920s to serve a mill and surrounding community. The County purchased and began operating the WTP in 1976. The WTP has been expanded and upgraded in multiple phases to reach the current 2.6 MGD capacity utilizing a conventional treatment process. The WTP has reached the end of its useful life. Over 2019-2020, the annual average demand was approximately 1.53 MGD and maximum daily demand was 2.66 MGD. Two existing raw water intakes and pump stations draw water directly from the South Yadkin River. The WTP has two rapid mix/flocculation trains operating in parallel. The existing coagulation process provides a larger detention time and lower mixing velocity gradient than recommended by design standards. The existing flocculation design provides sufficient detention time and mixing energy, but the ineffective design of the current coagulation limits optimized floc formation. The WTP also includes four sedimentation basins, each constructed as part of different expansion projects with varying dimensions. The structural condition of the basins is poor, with concrete past the end of useful life in several locations. The WTP is also equipped with six dual media filters. There is structural damage in the filter gallery and chemical dosing room. The existing clearwell also shows structural problems including surface delamination and cracking.

The Town's Lagle WTP treats raw water from Hunting Creek. This facility has also reached the end of its useful life and requires either major upgrades or decommissioning.

The Cooleemee WTP has 12-inch finished water transmission mains that connect to the County's distribution center. Water is distributed to the Town of Mocksville through an existing interconnection between the Cooleemee WTP and Lee Jeans Tank. Modeling conducted to simulate the projected flow through the existing distribution system following replacement of the Cooleemee WTP and decommissioning of the Lagle WTP showed that the existing transmission mains cannot accommodate the Town's current demand once the Lagle WTP is decommissioned. Hydraulic modeling was conducted to determine optimum sizing for the proposed interconnection between the County and the Town.

D. Need for Proposed Facilities and Actions

The Cooleemee WTP and Lagle WTP have both reached the end of their useful lives and would require significant financial investment to remain viable. Without the capacity provided by these plants, neither the County nor the Town would be able to meet their current water supply needs. Combining resources to replace the Cooleemee WTP with a larger facility and decommissioning the Lagle WTP will meet the capacity needs of both the County and the Town. The existing interconnections between the County and the Town of Mocksville are undersized and cannot hydraulically accommodate the Town's distribution system. The proposed transmission main will run parallel to existing lines to accommodate the Town of Mocksville's distribution system.

E. Alternatives Analysis

The alternatives analysis study considers long-range water supply needs for the region and includes future phases that are not part of the proposed project or covered by this FONSI and Environmental Assessment, but they are included in the summary for informational purposes. The proposed project is focused on short-term needs to meet existing demands.

No-Action: This alternative would continue operation of the existing WTPs with no modifications. This alternative does not address the current water supply needs of the County and Town; therefore, it was rejected.

Alternative 1 – Replace Existing Cooleemee WTP with New 6-MGD WTP: This alternative would simultaneously decommission both the Cooleemee WTP and Lagle WTP and construct a new 6 MGD WTP in Cooleemee. Future needs would be met under this alternative through expansion of the Sparks Road WTP. This alternative was deemed infeasible for three reasons: (1) it would require an interbasin transfer (IBT) study and IBT Certificate, which would take approximately five years and present significant cost; (2) the County's existing transmission mains lack capacity to pump 6 MGD from a new Cooleemee plant to northern portions of the county; and (3) the safe yield of the South Yadkin River at Cooleemee is much lower than the safe yield of the Yadkin River at the Sparks WTP, so this alternative would provide a less robust system because of the more limited water supply. For these reasons, this alternative was deemed infeasible and rejected.

Alternative 2 – Expand Sparks Road WTP to 4.5 MGD and Purchase 4.5 MGD from Davidson Water: This alternative would simultaneously decommission the existing Cooleemee WTP and Lagle WTP, expand the Sparks Road WTP to 4.5 MGD, and construct a connection to Davidson Water to enable bulk water purchases of up to 4.5 MGD. This alternative would result in an IBT from the Yadkin River Basin to the South Yadkin River Basin, but an IBT Certificate would not be required because the transfer would not exceed 2 MGD. While the safe yield of the Yadkin River is sufficient to meet the water supply needs under this alternative, the loss of supply from the South Yadkin River would result in a less resilient water supply system compared to the existing system that utilizes both rivers for raw water. This alternative has slightly higher capital

cost and much higher life 20-year lifecycle cost due to the cost of purchasing bulk water. This alternative was rejected because of the higher costs and reduced resiliency.

Alternative 3 – Construct New 3.5 MGD Cooleemee WTP, Expand Sparks to 4.5 MGD, and Limited Purchase from Davidson Water: This alternative would decommission the existing Cooleemee WTP and Lagle WTP, construct a new 3.5 MGD Cooleemee WTP, construct a connection to Davidson Water for limited bulk water purchase, and expand the Sparks Road WTP to 4.5 MGD. This alternative is preferred because it will not require an IBT, it will maintain the existing raw water intake on the South Yadkin River, and has lower costs compared to other alternatives. The new Cooleemee WTP and decommissioning of the existing Cooleemee WTP and Lagle WTP will be done as part of the proposed project covered under this Environmental Assessment. The connection to Davidson Water and the expansion of the Sparks Road WTP will be constructed as future phases that are beyond the scope of this assessment.

Alternative 4 – Expand Sparks Road WTP to 9 MGD: This alternative would expand the Sparks Road WTP to 9 MGD and decommission the Cooleemee WTP. This alternative would not have an emergency connection to Davidson Water. It would require an IBT, but not an IBT certificate. However, the County's existing transmission piping does not have capacity to pump water from Sparks Road WTP to the southern portion of the County. This alternative also results in loss of redundancy because the raw water intake at Cooleemee would be abandoned. This alternative was abandoned for these reasons.

F. Environmental Consequences and Mitigative Measures

Topography and Soils: Significant impacts to topography and soils are not anticipated. Some permanent impacts to topography and soil are expected due to minor grading for construction of new components at the WTP site. Some temporary disturbance will be required for waterline installations. A sedimentation and erosion control plan will be implemented. Direct impacts to the floodplain are not anticipated. Secondary and cumulative impacts (SCI) to topography, soils, and floodplains may result from growth and development in the service area, but adherence to Davie County's Code of Ordinances and Flood Damage Prevention program will minimize impacts.

Land Use: The WTP site is located in an area already zoned for public utilities, and no direct impacts are anticipated for the new plant. The waterline corridors will follow existing roadways in maintained rights-of-way. No significant impacts to land use are anticipated. SCI in the service area are likely to include changes in currently undeveloped areas with conversion to urban uses. Minor changes to land use are anticipated across the county with growth expected to be concentrated in or adjacent to areas of existing residential development. The County's zoning and development ordinances will minimize the impacts from development.

Wetlands: Significant impacts to wetlands are not anticipated. No jurisdictional wetlands are present on the project site. Some impacts to wetlands in the service area may occur as result of development, but such development is not anticipated to be induced by the proposed project. Local erosion and sedimentation control programs and stormwater ordinances will mitigate SCI.

Important Farmlands: Significant impacts to important farmlands are not anticipated. There are some prime and unique farmland soils along proposed waterline corridors. Some temporary disturbance will occur to install these lines adjacent to maintained roadways. Encroachment into currently farmed areas will be avoided, and current farming operations will not be impacted by construction or operation of the proposed project. Some loss of important farmlands in Davie County is anticipated with or without the proposed project, but the County has a Comprehensive Plan to encourage retention of traditional agricultural operations, especially in rural growth areas. SCI related to the project will be mitigated through compliance with the County's Zoning Code.

Public Lands and Scenic, Recreational, and State Natural Areas: Significant impacts to public lands, scenic, recreational, or state natural areas are not expected. No such areas are located in the immediate project site. Two areas designated as land managed for conservation and open space that contain community parks are near the Cooleemee area but will not be disturbed by the project. SCI are not anticipated as existing public, scenic, and recreational areas are expected to be retained even if development occurs in the service area.

Cultural Resources: Impacts to cultural and historic resources are not anticipated. Portions of the project are within the National Register-listed Cooleemee Mill Historic District. Based on consultation with the North Carolina State Historic Preservation Office (SHPO), the project will have no adverse effect on the historic district through efforts to minimize disturbances from machinery, returning construction areas to pre-construction conditions, and submitting photographs of completed work to SHPO (March 10, 2021, ER 21-0311). The waterline near Liberty United Methodist Church's cemetery will be installed on the opposite side of the road as requested by SHPO, and SHPO will be contacted if any significant cultural materials are discovered during construction of the project.

Air Quality: No significant impacts to air quality are anticipated. Construction activities may cause a temporary increase in particulates, but these impacts will be insignificant and similar to other construction activities in the area. On-site generators will be permitted and have limited hours of operation per year to minimize criteria pollutant emissions. SCI may result from urban growth in the service area including vehicle emissions, industrial activities, and construction. Development in the service area will be in accordance with the County's Comprehensive Plan.

Noise Levels: No significant permanent noise impacts are anticipated. Noise from construction activities will be temporary. Operation of generators and treatment plant equipment will have minor impacts similar to the existing plant. Development in the service area will be in accordance with the County's Comprehensive Plan.

Water Resources: No significant impacts to water resources are anticipated. Temporary, minor increases in turbidity and sedimentation may result from construction activities. A sedimentation and erosion control plan and best management practices will be implemented to minimize impacts. Impacts related to increased water withdrawal are expected to be minor. SCI may include increases in turbidity from construction associated with development. These impacts will be minimized through local erosion and sedimentation control ordinances.

Forest Resources: Significant impacts to forest resources are not expected. Approximately 0.57 acre of trees may be cleared for expansion of the WTP site. Construction of the waterline will be mostly in non-forested areas. SCI in the service area may include some clearing of forested areas. Development will be in accordance with the County's Comprehensive Plan, which encourages development in existing urban and suburban areas.

Shellfish or Fish and Their Habitats: Impacts to shellfish, fish, and their habitats are expected to be negligible. There is no evidence of threatened or endangered species in or downstream of the project area. Sediment and erosion control measures will minimize impacts from construction activities. SCI may include fragmentation or degradation of habitats and water quality; however, these impacts are expected to be minimal. Requirements for erosional and sedimentation control plans and best management practices for growth-related projects will minimize these impacts.

Wildlife and Natural Vegetation: No significant impacts to wildlife and natural vegetation are expected. Most construction will take place in previously disturbed areas. The waterline installation will involve temporary disturbance, and conditions will be restored to pre-construction grade and seeded with grass when construction is complete. No direct impacts to protected species are expected to occur. Habitat for Michaux's sumac and narrow-leaved smooth aster is present in the vicinity of the proposed project; however, surveys conducted at the site have not revealed the presence of either species. Suitable habitat is also present for the northern long-eared bat. If tree removal cannot be performed in accordance with the moratorium associated with the northern long-eared bat, then further investigation of the project site and consultation with the U.S. Fish and Wildlife Service will be initiated prior to construction. SCI may occur related to growth in the project's service area, but the project is not expected to increase the potential for impacts or accelerate growth in the County.

Introduction of Toxic Substances: The project is not expected to introduce toxic substances into the environment. Hazardous and toxic materials will be handled, stored, used, and disposed of in accordance with all applicable state and federal requirements during construction. Vehicles will be properly maintained and fluid containers will be collected and properly disposed to avoid release of toxic substances.

The U.S. Fish and Wildlife Service was consulted and did not object to the project. The North Carolina Wildlife Resources Commission, Natural Heritage Program, and DWR Winston-Salem Regional Office do not object to the proposed project. The U.S. Army Corps of Engineers was consulted and did not object to the project. The North Carolina Department of Natural and Cultural Resources determined the project will have no negative impacts with approved measures in place.

G. Public Participation, Sources Consulted

Davie County and the Town of Mocksville held a combined public and virtual meeting on January 24, 2022. The meeting included a presentation about the project and opportunity for public comments. No comments were received.

The current user charge for a typical residential customer is $102.53 per month for sewer and water combined, based on consumption of 5,000 gallons per month. The proposed project will increase the bill by $19.93 (approximately 19%), for a future sewer bill of $122.46.

Sources consulted about this project for information or concurrence included:

1) Davie County
2) Town of Mocksville
3) North Carolina Department of Environmental Quality
   -Wildlife Resources Commission
   -Natural Heritage Program
   -DEQ Winston-Salem Regional Office
   -Division of Air Quality
   -Division of Water Resources
   -Division of Forest Resources
   -Division of Environmental Assistance and Customer Service
   -Division of Waste Management
4) North Carolina Department of Natural and Cultural Resources
5) North Carolina State Clearinghouse
6) North Carolina Department of Public Safety
7) U.S. Fish and Wildlife Service
8) U.S. Army Corps of Engineers

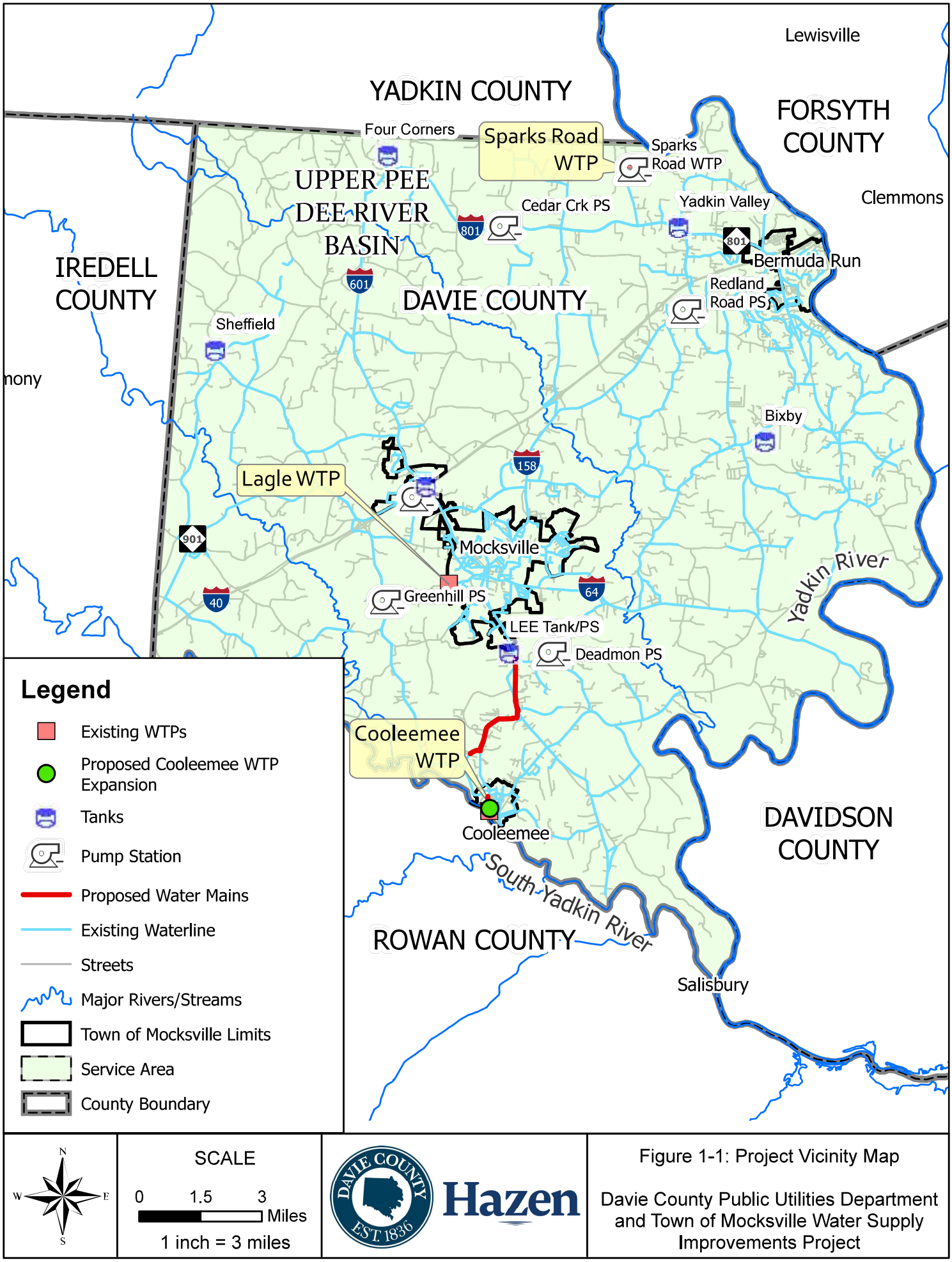

Figure 1-1: Project Vicinity Map

Davie County Public Utilities Department and Town of Mocksville Water Supply Improvements Project

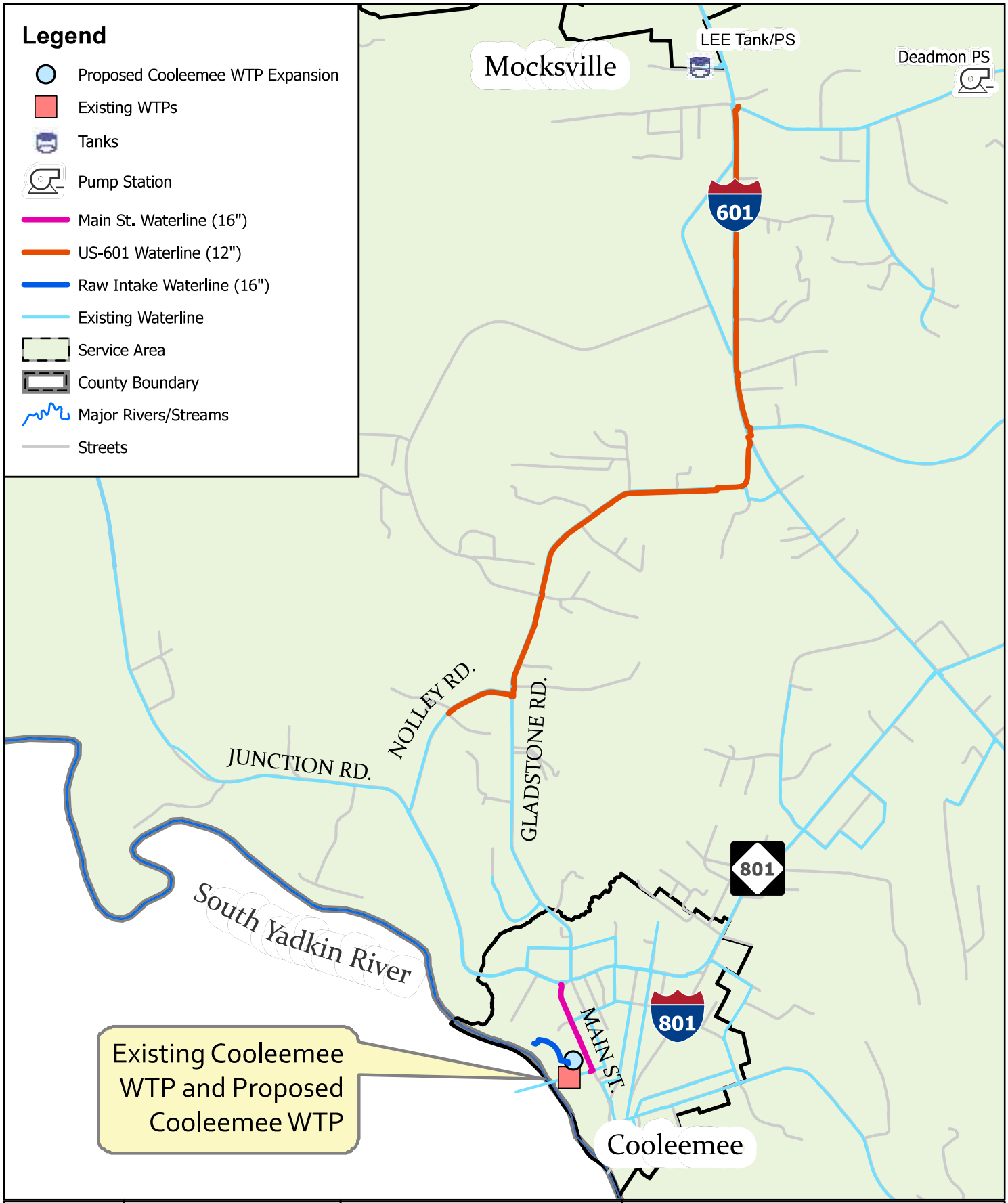

Figure 1-2: Project Location Map

Davie County Public Utilities Department and Town of Mocksville Water Supply Improvements Project