EXECUTIVE SUMMARY

SALUDA RIVER BASIN PLAN 2025 DRAFT

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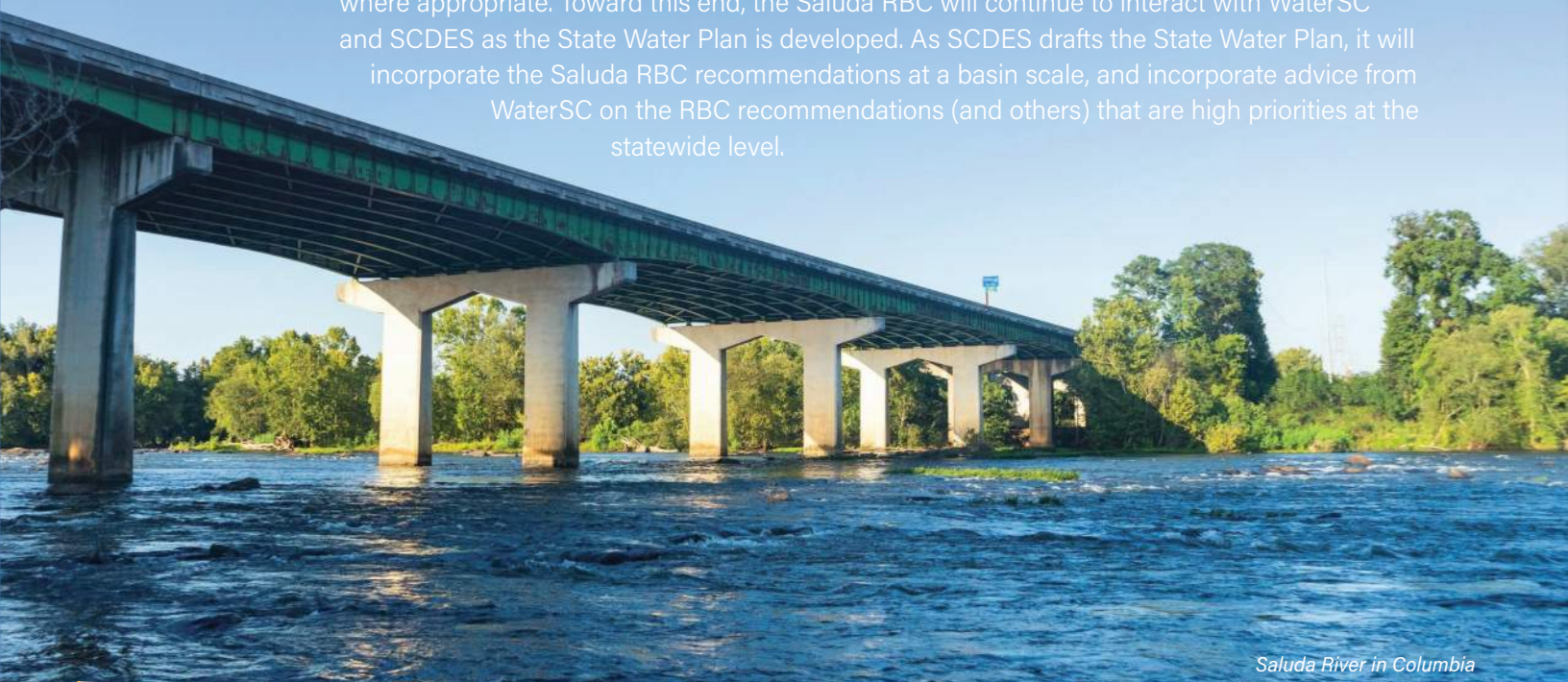
FOREWORD

The Saluda River Basin Plan is the result of years of preparation, work, and contributions from numerous stakeholders with a vested interest in water management. The State of South Carolina began implementing its vision for a comprehensive and actionable water plan in 2014 with the development of surface water quantity models for each of the eight major river basins in the state. An update of a detailed groundwater model of the Coastal Plain Aquifer System and the development of methodologies for projecting water demands for all water use sectors followed. This voluminous preparatory work, grounded firmly in science, provides River Basin Councils (RBCs) in all eight basins with the technical information needed to understand water availability, propose and test alternative management strategies, and make informed recommendations to water users, regulatory agencies, and state legislators for future management practices and policies to manage and protect the resource.

This report constitutes one of the eight river basin plans, and it is organized and supported by the work of the State Water Planning Process Advisory Committee (PPAC). That committee participated in a facilitated process to formulate a thorough, practical, and consistent planning approach that is being applied in the different river basins in South Carolina. Published in 2019, the South Carolina State Water Planning Framework now serves as a comprehensive, uniform guide for the Saluda RBCs, each charged with developing an understanding of the water resources in their respective basins; identifying the gaps or risks related to current and future water uses; and developing recommended policies, management practices, and legislative considerations "**designed to ensure the surface water and groundwater resources of a river basin will be available for all uses for years to come, even under drought conditions.**"

The individual river basin plans are the fourth of a five-step RBC process to update the South Carolina State Water Plan with actionable recommendations and priorities. All of the plans will inform the updated State Water Plan, which is why consistency in the planning process and categories of recommendations made is important. The updated State Water Plan will help guide decisions to preserve water for all uses throughout the state. It is being drafted in 2025 by the South Carolina Department of Environmental Services (SCDES) with assistance from WaterSC, a committee commissioned by the Governor to carry on the work of the original PPAC, with the goal of advising SCDES on recommendations for the State Water Plan. One of the principal goals of WaterSC and SCDES is to find commonality in the Saluda RBC recommendations, and translate high priority recommendations into draft language for regulatory and legislative consideration where appropriate. Toward this end, the Saluda RBC will continue to interact with WaterSC and SCDES as the State Water Plan is developed. As SCDES drafts the State Water Plan, it will incorporate the Saluda RBC recommendations at a basin scale, and incorporate advice from WaterSC on the RBC recommendations (and others) that are high priorities at the statewide level.



Saluda River in Columbia

Acknowledgements

The Saluda RBC consists of the following volunteer stakeholders representing eight different water interest categories. These individuals spent two years sharing their diverse perspectives and offering their expertise, culminating in the development of this River Basin Plan.

Name	Organization	Interest Category
Katherine Amidon (RBC Vice-Chair)	Bolton & Menk Inc.	At-Large
Jeff Boss	Greenville Water	Water and Sewer Utilities
David Coggins	Laurens County Soil & Water Conservation District/Farmer	Agriculture, Forestry, and Irrigation
Jason Davis	Saluda Valley Farms, LLC	Agriculture, Forestry, and Irrigation
Tate Davis	Easley Combined Utilities	Water and Sewer Utilities
Phil Fragapane	Duke Energy	Electric Power Utilities
Brandon Grooms	Colonial Pipeline Company	Industry and Economic Development
Robert Hanley	Greenville County Soil & Water Conservation District	Agriculture, Forestry, and Irrigation
Rick Huffman	Earth Design	At-Large
Patrick Jackson	Laurens County Soil & Water Conservation District/Farmer	Local Governments
Paul Lewis	Holly Tree Country Club	Agriculture, Forestry, and Irrigation
Kevin Miller	Foothills Paddling Club	Water-Based Recreational
Larry Nates	Lexington County Soil & Water Conservation District	Local Governments
Josie Newton	Friends of the Reedy River	Environmental Interests
Jay Nicholson	(Lexington) Joint Municipal Water & Sewer Commission	Water and Sewer Utilities
Devin Orr	SC Rural Water Association	At-Large
Eddie Owen	Dominion Energy SC	Electric Power Utilities
K.C. Price (RBC Chair)	Laurens County Water and Sewer Commission (LCWSC)	Water and Sewer Utilities
Melanie Ruhlman	Save Our Saluda	Environmental Interests
Kaleigh Sims	Renewable Water Resources (ReWa)	Water and Sewer Utilities
Thompson Smith	SC Farm Bureau and Twin Oaks Farm	Agriculture, Forestry, and Irrigation
Rett Templeton	Greenwood County	Local Governments
Charlie Timmons	Timmons Commercial	At-Large
Michael Waddell	SC Trout Unlimited	Water-Based Recreational
Rebecca Wade	Upstate Forever	Environmental Interests

The Saluda RBC would like to thank the following individuals and organizations who contributed to the development of this River Basin Plan by providing technical presentations and information, meeting coordination, modeling, administration, and other support services.

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Lake Murray

What to Know About this Plan

The Saluda River Basin Plan is one of eight river basin plans to be developed for South Carolina. The Saluda RBC, comprising stakeholders representing various water interests, collaborated with South Carolina Department of Natural Resources (SCDNR) and SCDES, and met monthly for over 2 years. They followed a carefully designed process using the statewide Water Planning Framework to establish goals and actions throughout the basin. Through facilitated dialogue, they discussed issues and concerns, increased their understanding of various perspectives, agreed on recommended actions or policies for improved water management, and offered viewpoints to aid decision-makers in realizing progress throughout the basin. This plan is a direct result of their efforts to improve the sustainability of water resources in the Saluda River basin, and to improve the balance between societal and environmental water uses.

Key Findings:

- **Current Water Use:** Surface water availability modeling suggests a low risk of water supply shortages based on current water demands, assuming that droughts will not be more severe than those that have occurred over the previous 90+ years in the Saluda River basin. Four agricultural users near tributary headwaters were found to be at risk of minor or infrequent shortages, but these should be manageable by small on-site storage capacity (farm ponds) that are not represented in the model. The RBC did not recommend any supply-side management strategies to manage shortages under current use patterns.

- **Growth Projection Impacts:** Modeling also suggests low probability of shortages under moderate or high economic growth assumptions through 2070. Simulated shortages occurred only for agricultural or golf course users near certain tributary headwaters. The RBC agreed that these shortages would be addressed by existing conservation measures and management strategies.

- **Overallocation (authorizing water withdrawals at a higher rate than may always be available in certain stream reaches):** If all surface water users withdrew at their permitted and registered amount 100% of the time (a hypothetical scenario in most cases), there would not be enough water for all users in certain reaches and three of the basin's tributaries would be unsustainably stressed. Many agricultural users and even some water suppliers would likely experience shortages, and average streamflow at most key river locations would likely decrease by 10 – 20 percent. Currently, only 28 percent (311 MGD) of the total permitted and registered surface water amount (1,097 MGD) is withdrawn in the Saluda River basin. The Fully Permitted and Registered Scenario is generally used for comparative purposes, and inherently affects current regulatory policy. However, because of the unlikelihood of this scenario occurring, it did not guide the Saluda RBC's water management recommendations, though it did guide recommendations for changes in policy and regulations.

- **Ecological Flow Metrics:** Simulated flow metrics for the Moderate and High Demand scenarios through 2070 result in low risk of impact to ecological integrity and tolerance of fish species (The Nature Conservancy et al. 2024) based on the methodology used. Because the Fully Permitted and Registered withdrawals are so much greater than historical or projected withdrawals, large changes in mean daily flow resulting from simulated withdrawals in the Fully Permitted and Registered Scenario are predicted to substantially reduce the number of fish species at one key river location, Rabon Creek (See Figure ES-7). Two other key river location showed significant reductions in river flow for this scenario: Bush River and Twelvemile Creek.

- **Reservoir Safe Yield:** Safe yield is simulated as the maximum monthly average withdrawal that can be sustained without running out of supply through the period of hydrologic record, including all recorded droughts. Drawdown is limited to the shallowest intake elevation, and downstream flow requirements must be maintained. In this assessment, Table Rock Reservoir, North Saluda Reservoir, Lake Rabon, Lake Greenwood, and Lake Murray were all evaluated for their safe yield. All were found to have sufficient reliability through 2070 to meet the high level of projected demand, with the exception of Lake Rabon. However, Laurens Commission of Public Works, who relies on Lake Rabon, can also withdraw from downstream on Rabon Creek (See Figure ES-7).

- **If Future Droughts Worsen:** The major reservoirs in the Saluda River basin can be considered inherently drought-resilient, though it is possible for future conditions to be more extreme than those observed historically or simulated in this study as extrapolation of historic events. Without assigning probability or associating future droughts with specific climate projections, the RBC examined the potential impacts of future droughts that might be more severe than historical droughts using a "what-if" approach. Two types of synthetic droughts were tested with the models:

    - The 24-month period covering the drought of record (2007 through 2008) was repeated sequentially, over a 25-year hypothetical period to help determine how long the reservoirs and supplies could sustain such conditions.

    - A second 24-month low-flow period covering 2011 through 2012 was also tested, repeating these two years sequentially.

  Neither Lake Murray nor Lake Greenwood demonstrated vulnerability to these scenarios, as drawdown and recovery patterns generally followed historical patterns. The latter scenario (2011-2012 repeated) had a significant effect on Lake Rabon, which is within a smaller watershed, rendering it more vulnerable to droughts. Lake Rabon was less sensitive to the repeating 2007-2008 drought. Neither Table Rock nor North Saluda Reservoir were sensitive to the 2011-2012 repeating pattern, but both exhibited continued simulated drawdown when subjected to the repeating 2007-2008 drought. Lake Keowee is critical to their resilience, providing a reliable interbasin transfer of water. Still, neither ran out of water until after 8-10 years of the continual dry conditions at Greenville Water's intended long-term withdrawal rates for these reservoirs.

Lake Murray

Recommendations:

- **Recommended Water Management Strategies:** The RBC identified and recommended a toolbox of demand-side water management strategies (using less water and using it more efficiently) for both municipal and agricultural water users that, if implemented, would help reduce the potential for shortages and help maintain adequate streamflows for environmental needs. Due to the very low risk of water shortages or ecological degradation throughout the basin, supply-side strategies were not deemed necessary; however, it was recognized that changing conditions beyond those examined could require supply-side strategies be implemented to reduce or eliminate potential surface water shortages and maintain sufficient flows to support recreation and ecological health.
- **Drought Management Recommendations**:
  - The RBC recommends that water utilities review and update their drought management plan and response ordinance every 5 years or more frequently if conditions change.
  - The RBC recommends that water utilities consider use of the Simplified Water Allocation Model (SWAM) which is a surface water modeling tool, to evaluate the potential effectiveness of drought triggers when updating their drought management plans.
  - The RBC recommends that water utilities coordinate, to the extent practical, their drought response messaging.
  - The RBC encourages water utilities in the basin to consider drought surcharges on water use during severe and/or extreme drought phases.
  - The RBC encourages water users and those with water interests to submit drought impact observations through the National Drought Mitigation Center's Condition Monitoring Observer Reports (CMOR).
- **Policy, Regulatory, and Legislative Recommendations:** The Saluda RBC agreed upon the following recommendations for policy, legislative, or regulatory action, either by full consensus or by majority in favor.
  - The Legislature should fund and SCDES should establish and manage a grant program to support the implementation of the actions and strategies identified in each RBC's River Basin Plan.
  - Utilities should identify alternative sources including interconnections to build resilience and ensure adequate quantity of water.
  - Water utilities within watersheds should consider regionalization opportunities. Regionalization is one tool to better manage the availability of water resources and build resilience.
  - The South Carolina Surface Water Withdrawal, Permitting, Use, and Reporting Act should allow for reasonable use criteria to be applied to all new surface water withdrawals, like those that currently exist for groundwater withdrawals.
  - The current laws that allow for regulation of water use should be improved so that they are enforceable and effective.
  - The State should support and fund RBC-led and statewide water education programs that include all sectors of water use and promote the types of water management strategies recommended in River Basin Plans.
  - State and local governments should develop/review/update/adopt and enforce laws, regulations, policies, and/or ordinances that improve the management of stormwater runoff, encourage infiltration, minimize streambank erosion, reduce sedimentation, and protect water resources.
  - SCDNR/SCDES should review the science behind minimum instream flow (MIF) standards to ensure they are based on best available science to adequately protect designated uses and recognize regional differences.
  - Regulation 61-119 Surface Water Withdrawal, Permitting, Use and Reporting should be reviewed to ensure consistency with the South Carolina Surface Water Withdrawal, Permitting Use, and Reporting Act, including a review of the existing definition of "safe yield" (SY) in the implementing regulations. SY should be redefined to be consistent with the law and protective of minimum instream flow requirements that safeguard the integrity and designated uses of state waters.

Introduction: Purpose and Utility of the Plan

This Saluda River Basin Plan is the fourth of eight plans that will be developed for the primary river basins in South Carolina (Figure ES-1). Numerous and diverse stakeholders throughout the basin worked with SCDNR, SCDES, and others during its development. The plan was prepared in response to the South Carolina Water Resources Planning and Coordination Act, and continues the work that began in 1998 with the first South Carolina Water Plan.

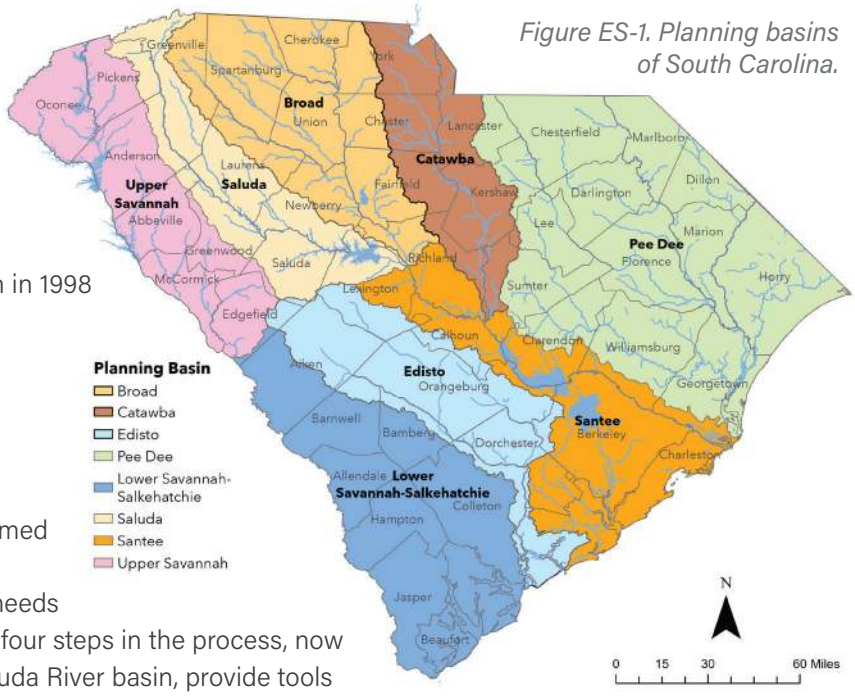


Figure ES-1. Planning basins of South Carolina.

In 2014, a five-step process was initiated to update and actualize the South Carolina Water Plan (Figure ES-2). The process was conceived and organized to provide the necessary scientific and water use information to stakeholders so they could make informed recommendations on water management actions, policies, and potential legislation in response to the needs of each basin. The first four steps in the process, now complete for the Saluda River basin, provide tools and data on surface water and groundwater resources, as well as historical water use, current water demand, and estimates of future demand for the basin. This plan is the completion of Step 4 of the process for the Saluda River basin. The plan assesses water availability in the basin over a 50-year planning horizon and presents the recommendations of the Saluda RBC—a diverse group of volunteer stakeholders representing eight different water-interest categories.

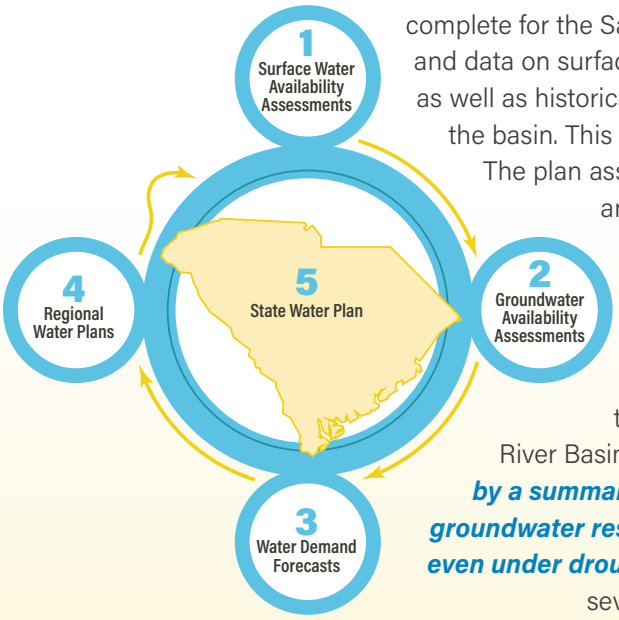


Figure ES-2. South Carolina's five-step process to update the State Water Plan.

Section ES-2 describes the planning process in more detail. As prescribed in the South Carolina State Water Planning Framework, the Saluda RBC was charged with supporting the development of this River Basin Plan as "***a collection of water management strategies supported by a summary of data and analyses designed to ensure the surface water and groundwater resources of a river basin will be available for all uses for years to come, even under drought conditions.***" This same planning process has been or will be applied in seven of the eight river basins in South Carolina. In the Catawba River basin, the pre-existing Catawba-Wateree Water Management Group is developing a similar basin-wide plan that will also support the State Water Plan.

Reedy River at Greenville

Specifically, each River Basin Plan will include data, analysis, and water management strategies to guide water resource development in the basin for a planning horizon of 50 years by answering four principal questions:

1. What is the basin's current available water supply and demand?
2. What are the current permitted and registered water uses within the basin?
3. What will be the water demand in the basin throughout the planning horizon, and will the available water supply be adequate to meet that demand?
4. What water management strategies will be used in the basin to ensure the available supply meets or exceeds the projected demand throughout the planning horizon?

River Basin Plans will focus principally on the quantity and availability of surface water and groundwater for all designated uses: drinking water, agricultural and other irrigation, forestry, industry and economic development, power generation, nonconsumptive uses such as aquatic habitat suitability and environmental needs, and water-based recreation. Plans will not focus directly on flood management or water quality (these important issues are considered in other programs); however, the Saluda RBCs are encouraged to consider water management strategies that have secondary benefits with respect to flood management and water quality.

All eight River Basin Plans will include recommendations for the updated and actionable South Carolina State Water Plan. While these plans do not prescribe regulatory, policy, or legislative decisions, they represent consensus-based recommendations from diverse and vested stakeholders on prudent actions and policies to be considered by citizens, water managers, state agencies, and elected officials to help ensure future water availability for all uses.

Overview of the Planning Process

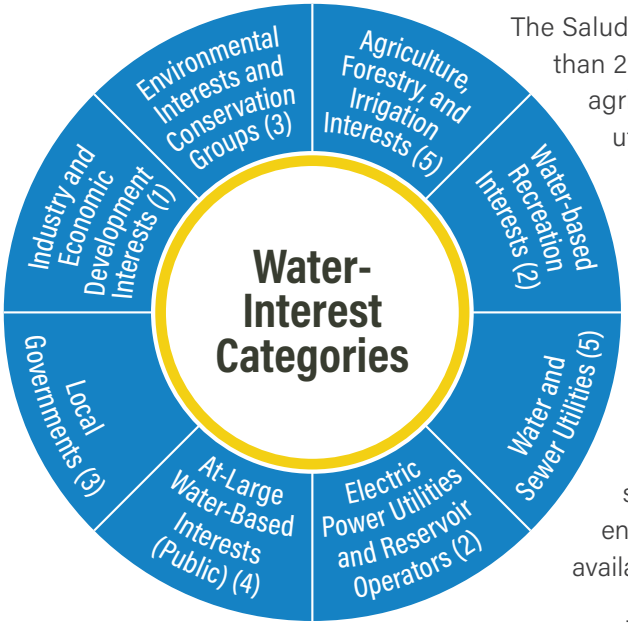


Figure ES-3. RBC water-interest categories represented in the RBC. Numbers in parentheses indicate RBC member representation.

The Saluda River Basin Plan was formulated by the Saluda RBC, a group of more than 25 individual volunteer stakeholders representing local governments, agriculture and forestry, environmental interests, water-based recreation, utilities (water, sewer, electric power), and industry/economic development (Figure ES-3).

The Saluda RBC met monthly over a 2-year period to follow the systematic planning process prescribed in the 2019 South Carolina State Water Planning Framework. SCDNR and the PPAC, a group composed principally of the same interest groups as each individual RBC but with academic representation, collaboratively developed the Planning Framework. As stated, its goal was to support the development of River Basin Plans as "a collection of water management strategies supported by a summary of data and analyses designed to ensure the surface water and groundwater resources of a river basin will be available for all uses for years to come, even under drought conditions."

The series of about 24 meetings of the Saluda RBC involved several field trips within the basin. In August 2023, the Saluda RBC toured the Laurens County Water and Sewer Commission (LCWSC) Lake Greenwood Water Treatment Facility. The following month, the Saluda RBC toured the Lake Murray Dam and Saluda Hydro Facility. The third field trip included tours of Greenville's Unity Park along the Reedy River and ReWa's laboratory and Mauldin Road Water Resources Reclamation Facility. In April 2024, the Saluda RBC visited several sites where stream stabilization projects had recently been completed, as well as a stretch of the North Saluda River where a stream stabilization project has been proposed. In September 2024, several Saluda RBC members also paddled a stretch of the Saluda River. These helped connect each Saluda RBC member to the physical setting of the river basin and the multiple needs the water serves. This holistic perspective of the basin helped foster consensus-building.

The planning process is divided into four phases, discussed below and in greater detail in the 2019 State Water Planning Framework. Each phase spanned approximately 6 months, equally representing one quarter of the entire process.

PHASE 1

Orientation, Administrative Tasks, and Background Information

During this phase, Saluda RBC members reviewed bylaws, protocols, expectations, and the planning process. They selected a chair and vice-chair and reviewed technical information to aid them in the planning process for the Saluda River basin. The Saluda RBC also developed a vision statement and a set of supporting goals.

PHASE 2

Comparison of Water Resource Availability and Demand

In this phase, the RBC reviewed the methods, tools, and results from the first three steps of the overall State Water Plan formulation, including surface water availability analysis and water demand projections. This provided a consistent and scientific perspective on the overall balance of supply and demand throughout the basin, as well as current and future risks. Results were derived from the surface water model developed in earlier steps. The RBC also developed and finalized performance measures to evaluate the effectiveness of various water management alternatives to be examined in Phase 3.

PHASE 3

Evaluation of Water Management Strategies

This was an interactive phase that involved the RBC and technical team identifying and evaluating surface water management strategies to address water shortages or water supply issues identified in Phase 2. Results were reported back to the RBC and evaluated against established performance measures. This interchange allowed the RBC to recognize common benefits and agree on recommended strategies and their relative priorities.

PHASE 4

River Basin Plan Preparation

This final phase involved the development of a draft version of the Plan, including recommendations for water management strategies, policies, legislation, and regulatory actions. It also included the formulation of recommendations for drought response initiatives and recommendations for improving the planning process. It included a period for public review and appropriate incorporation of public comments before finalizing the plan.

During Phase I, the Saluda RBC developed the following vision statement and goals specifically for the Saluda River basin.

VISION STATEMENT

A resilient and sustainably managed Saluda River Basin that balances human and ecological needs.

GOALS

1) To perform a review and update of the plan every 5 years at a minimum or sooner should a significant event occur requiring plan update.

2) Develop and implement an education and communication plan to promote the strategies, policies, and recommendations developed for the Saluda River Basin.

3) Apply science-based resource management and conservation strategies that consider resource availability and allocation.

The planning process included outreach to the public to educate and augment the RBC with important information and perspectives. Two initial informational meetings were held to explain the planning process and solicit participation in the RBC. Two additional meetings were reserved for presentation of the draft plan and solicitation of verbal and written comments, and for the presentation of the final plan after its release, to highlight changes to the plan made in response to public input.

Overview of the Saluda River Basin

The Saluda River basin covers approximately 2,523 square miles (sq mi) and is wholly contained within South Carolina, making up 8 percent of the state's total area (U.S. Census Bureau 2010). It is the fourth largest of the state's eight water planning basins, extending over 180 miles from the central Blue Ridge Mountains to the confluence of the Broad and Saluda Rivers near the City of Columbia and spanning almost 40 miles at its widest point (U.S. Army Corps of Engineers [USACE] 1977). Significant portions of Greenville, Greenwood, Laurens, Lexington, Newberry, and Saluda Counties all lie within the basin boundary. Smaller portions of Anderson and Pickens Counties, and even smaller portions of Abbeville, Aiken, Edgefield, and Richland Counties, also lie within the basin. The Saluda River is the major watercourse within the basin. Other major tributaries within the basin include the Reedy, Little, Bush, and Little Saluda Rivers, as shown in Figure ES-4.

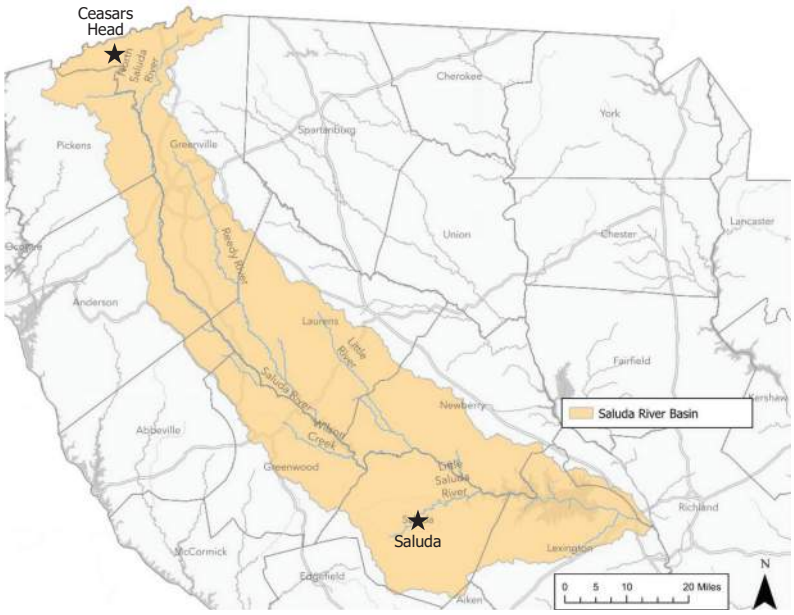


Figure ES-4. The Saluda River basin in South Carolina.
Note: See next page for statistics on the starred locations

Land cover in the Saluda River basin varies from rural farmland and forested areas to sprawling urban areas. The cities of Greenville, Greenwood, Laurens, and Newberry, and a significant portion of the Columbia suburbs are also within the basin. Agricultural lands are scattered throughout the basin but are mostly in the central and southern portions. Developed land and agricultural land have comparable acreage in the basin. Woodland is the dominant land cover in the basin, as shown in Figure ES-5 (Multi-Resolution Land Characteristics Consortium [MRLC] 2024a).

The annual average precipitation ranges throughout the basin from 42 to more than 63 inches, with rainfall decreasing from the upper basin to the lower basin (SCDNR State Climatology Office [SCO] 2021). The upper basin receives greater rainfall because of the topography. Higher elevations of the mountains cause air to rise, cool, and then condense, allowing for increased precipitation. This is known as orographic lifting. May and March are generally the wettest months (averaging 6.90 inches in May at Caesars Head, near the top of the watershed, and 4.19 inches in March at Saluda, in the lower-middle portion of the basin), and February and November are generally the driest months (averaging 5.41 inches in February at Caesars Head and 3.19 inches in November at Saluda) (SCDNR SCO 2023a).

Because of the variability in precipitation and differing climates between the stations at Caesars Head and Saluda, the historical dry and wet years differ between the two. The least amount of total annual precipitation occurred at Caesars Head in 1981 (approximately 45 inches), while the least amount of precipitation occurred at Saluda in 2001 (approximately 33 inches).

The wettest years for Caesars Head and Saluda were 2018 (approximately 117 inches) and 1975 (approximately 65 inches), respectively. While individual years for precipitation may vary between these stations, they share similar wet and dry periods: Noteworthy dry periods in the early and mid 2000s, and wet periods in 1975 and the 2010s.

The impact of drought on streamflow in the basin was analyzed using two USGS streamflow gaging stations in the Saluda River, near Chappells in the middle of the basin and near Columbia is at the bottom of the basin. Both are located downstream of dams with controlled releases. Although there are differences between the two gages for record lowest monthly flows, they both experienced record lowest annual flows in 2008. The most recent year of drought conditions (as defined by a Standard Precipitation Index of less than -1) in the in the Saluda basin was in 2016 at the Caesars Head station and in 2012 at the Saluda station (SCDNR SCO 2023b).

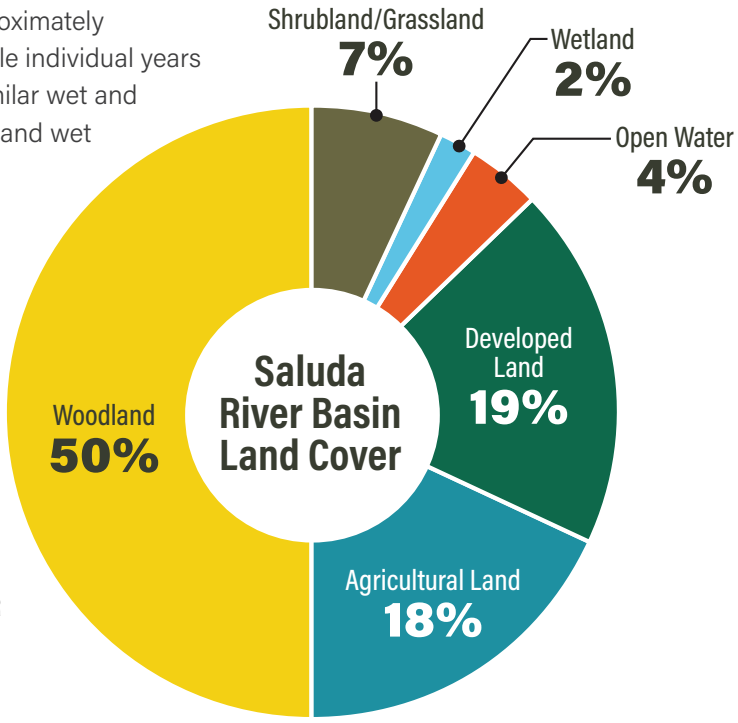


Figure ES-5. 2023 Saluda River basin land cover (MRLC 2024a).

The rivers and streams of the Saluda River basin are home to 86 species of freshwater fish, with 71 species being native to the area (SCDNR 2023a). Fish commonly found in the basin include the redbreast sunfish, greenfin shiners, and Piedmont darters. Representative aquatic species within the Saluda River basin are shown in Figure ES-6. The North, Middle, and South Saluda tributaries, as well as several mountain lakes in the basin, are stocked with a mix of rainbow, brook, and brown trout, among other popular recreational fish such as striped bass (SCDNR 2023b). Populations of largemouth bass and black crappie are managed throughout the basin, and fish habitat enhancement projects remain ongoing in Lake Greenwood and Lake Murray.

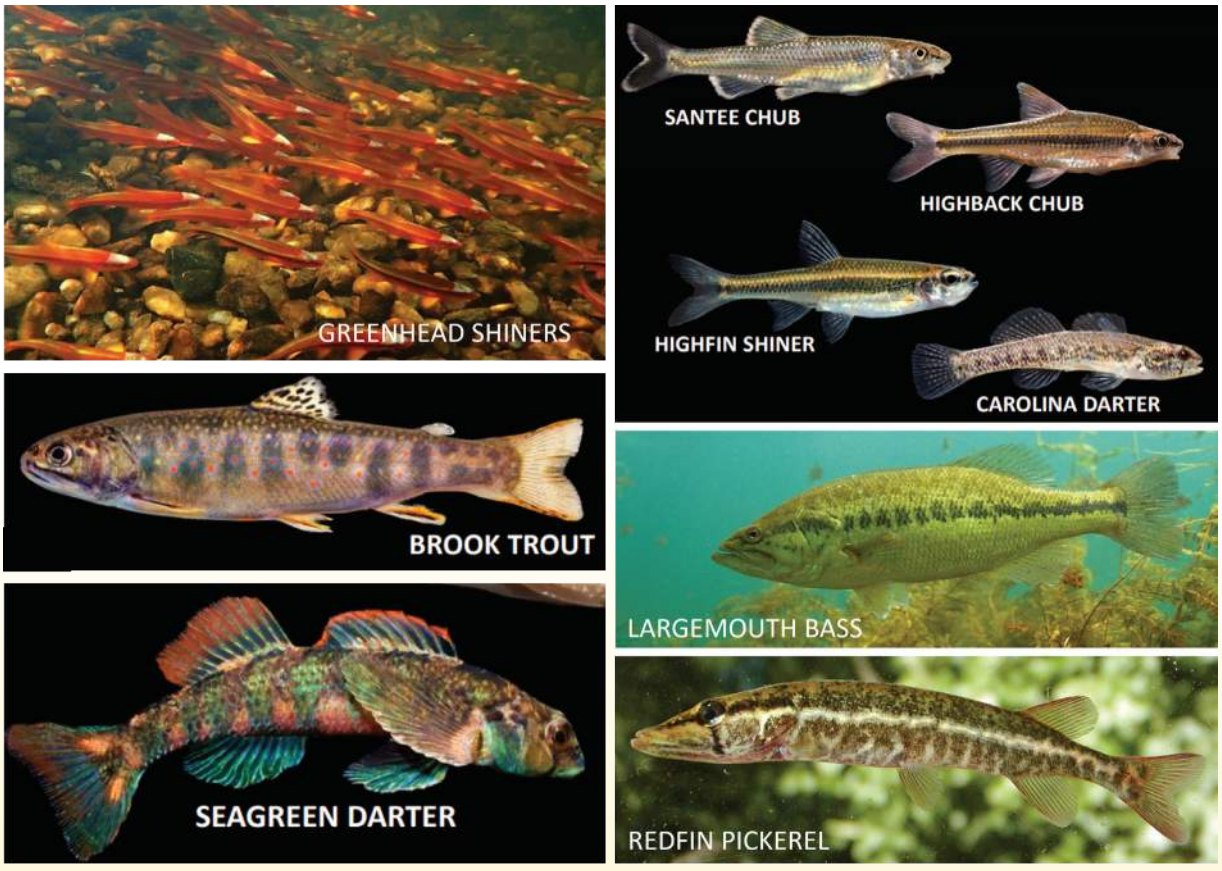


Figure ES-6. Representative aquatic species in the Saluda River basin.

Reedy River at Greenville

Water Availability: Supply and Demand

SURFACE WATER SUMMARY

The Saluda River is the main watercourse of the Saluda River basin in South Carolina. The river's headwaters originate in the Blue Ridge physiographic province of South Carolina, and the river flows across the Piedmont before joining with the Broad River near Columbia and forming the Congaree River. Major tributaries of the Saluda River are the Reedy River, Rabon Creek, Little River, Bush River, and Little Saluda River. No other river basins flow into the Saluda River basin, which shares a common northern boundary with North Carolina.

Streamflow in the Blue Ridge portion of the Saluda River basin is generally steady, with well-sustained base flow supported by groundwater in addition to heavy rainfall and runoff (SCDNR 2009). This results in well-sustained flows in the upper reaches of the Saluda River. Flows become increasingly variable with distance downstream, as the river travels through the Piedmont region, because of hydropower facility release patterns and less precipitation and groundwater discharge than occurs upstream. Streamflow is most variable downstream of the major hydroelectric facilities in the basin, including the Buzzard's Roost facility. These fluctuations lead to periods of extremely reduced flow, which can limit navigation, fish migration, and suitable fish habitat (SCDNR 2009). Because the major rivers of the Saluda River basin are completely contained within the borders of the state, the basin does not experience some of the surface water concerns common to other river basins of the state such as out-of-state withdrawals and out of state flow regulation from major reservoirs or Federal Energy Regulatory Commission (FERC)-licensed hydroelectric projects.

Table ES-1. Characteristics of the largest lakes and reservoirs in the Saluda River basin.

Name	Stream	Storage Capacity (acre-feet)	Purpose
Lake Murray	Saluda River	2,114,000	Power, recreation, and water supply
Lake Greenwood	Saluda River	270,000	Power, recreation, and water supply
North Saluda (Poinsett) Reservoir	North Saluda River	33,000	Water supply
Lake Rabon	Rabon Creek	6,832	Water supply, recreation, and flood control
Table Rock Reservoir	South Saluda River	15,000	Water supply
Saluda Lake	Saluda River	7,228	Power, industry, and water supply
Boyd Mill Pond	Reedy River	3,000	Power and recreation

Source: Adapted from Table 6-9 in SCDNR (2009).

The largest reservoirs and lakes in the Saluda River basin serve as a critical source of water supply and/or support hydropower operations (Table ES-1). Secondary uses include recreation and flood control. The largest reservoirs in the basin are Lake Murray and Lake Greenwood, both on the Saluda River. Additionally, 285 regulated dams and numerous unregulated small dams create small impoundments on many of the Saluda River tributaries. These are largely privately owned (SCDNR 2009).

Comprehensive streamflow monitoring is critical to understanding surface water availability and supporting sustainable management of surface water resources. At the end of the 2023 water year (September 30, 2023), there were 36 active monitoring stations operated by the U.S. Geological Survey (USGS) in the Saluda River basin in South Carolina, 32 of which report daily streamflow and/or stage data and many of which support modeling, as discussed below. An additional 11 gaging stations are no longer active but provide historical daily streamflow data. Most of the active gaging stations report mean daily discharge (flow) data.

Supported by data from the active and inactive gaging stations, the SWAM model, pictured in Figure ES-7, simulates the surface water stream network of the Saluda basin and its subbasins. The model quantifies current and future surface water availability based on historic hydrology and current and projected water demand. It also simulates future water management strategies to identify risks and reliability of surface water use.

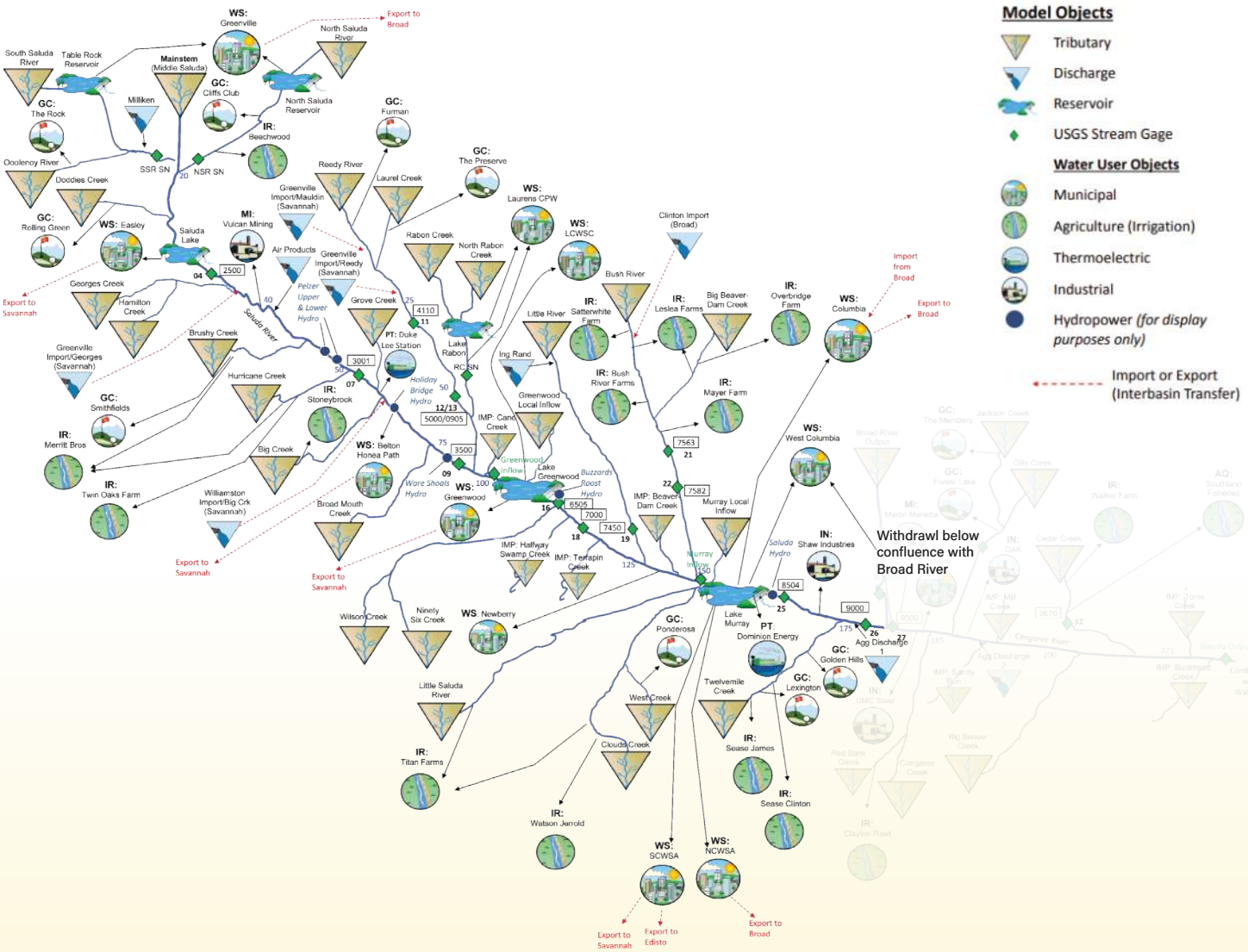


Figure ES-7. Simplified Water Allocation Model (SWAM) framework of the Saluda River basin.

LCWSC Lake Greenwood Water Treatment Facility

GROUNDWATER SUMMARY

Groundwater use within the basin is limited. In fact, the Saluda River basin had the least volume of groundwater withdrawals of the eight basins in the state in 2021 (SCDNR 2023c). Consequently, there are no areas experiencing significant water level declines because of overpumping within the Saluda River basin (SCDNR 2009).

Groundwater in the Saluda River basin is primarily stored in crystalline bedrock fractures and in saprolite rock, which underlie the Piedmont physiographic province (SCDNR 2009). The exception to this is the presence of Coastal Plain sediments, which constitute a shallow, sandy aquifer at the extreme southern end of the basin.

Groundwater is the principal source of residential water supply for rural homes in the basin (SCDNR 2023c). Well yields are low, but enough to support most domestic uses. Most wells in the basin are less than 350 feet deep (SCDNR 2009). Well yields are generally 20 gallons per minute (gpm) or less, but some yield as much as 400 gpm. Groundwater availability is limited to zones with substantial rock fracturing. One study determined that wells drilled into fracture zones yielded anywhere from 10 to 500 gpm, while wells drilled outside of fracture zones only yielded 1 gpm or less (SCDNR 2009). Wells drilled into metamorphic and igneous rock fracture zones and/or valleys with linear features also provided greater yields. Approximately 25 percent of wells within the Piedmont region of the basin are large-diameter bored wells, with depths ranging from 6 to 88 feet and averaging 50 feet (SCDNR 2009). Yields from these bored wells are typically only a few gallons per minute, with the shallowest wells becoming unreliable during drought.

SCDES designates a CUA where excessive groundwater withdrawals present potential adverse effects to natural resources, public health, safety, or economic welfare. SCDES then coordinates with affected governing bodies and groundwater withdrawers to develop a groundwater management plan for the CUA. The far southeastern corner of the Saluda River basin contains a very small portion of the Western Capacity Use Area (CUA), which includes Lexington County, and an even smaller portion of the Santee-Lynches CUA, which includes Richland County (Figure 1-5 in Chapter 1 Introduction). Under South Carolina's Groundwater Use and Reporting Act (Chapter 5, Section 49-5-60).

WATER DEMAND SUMMARY

Total current water withdrawals in the basin are approximately 312 million gallons per day (MGD). Only about 0.5 MGD is withdrawn from groundwater, with the rest coming from surface water. Approximately 53 MGD (17 percent) of the water is consumptively used and 259 MGD (83 percent) is returned to the streams and rivers after use. Thermoelectric withdrawals account for 55 percent (171.2 MGD) of current total withdrawals. Approximately 96 percent of the water withdrawn for thermoelectric use is returned to the system, with only 4 percent of the total withdrawal consumed. Dominion Energy, who operates the McMeekin Station, and Duke Energy, who operates the W.S. Lee Steam Station, indicated they have no expansion plans over the planning horizon, and no new energy-producing facilities are currently anticipated to be constructed in the Saluda River basin over the planning horizon. After thermoelectric use, public supply is the next largest use category (36 percent of basin withdrawals), then manufacturing (8 percent), then minimal withdrawals associated with agriculture (1 percent), golf course irrigation (0.2 percent), and mining (0.02 percent). Figures ES-8 through ES-10 summarize the current and projected water demands in the Saluda River basin.

For this planning effort, two future demand scenarios were developed, as required in the Planning Framework: the Moderate Demand Scenario, which is based on median rates of water use in recent reporting and moderate growth projections, and the High Demand Scenario, which is based on the maximum monthly rates of water use in recent reporting and high growth projections. From 2025 to 2070, total water demand in the Saluda River basin is projected to increase by 13 percent from 308 MGD to 348 MGD for the Moderate Demand Scenario and by 30 percent from 328 MGD to 427 MGD for the High Demand Scenario. Included in these projections is 0.5 MGD of groundwater withdrawals, which are projected to remain constant over the planning horizon. The Moderate and High Demand Scenarios have different starting points from one another and differ from the current use because the Moderate Demand Scenario is based on each user's median recent use, the High Demand Scenario is based on each user's maximum recent use, and the Current Use Scenario is based on each user's average recent use over the past ten years, where the average is usually higher than the median. This approach explores a wide range of future demand scenarios and reduces the impact of inherent uncertainty.

Both projected surface water demands are well below the total permitted and registered surface water amount of 1,097 MGD in the basin. Permitted and registered withdrawals should not be considered proxies for water availability in the basin, because sufficient flows to satisfy such withdrawals rates cannot be guaranteed into the future.

Most of the water demand growth in the Saluda River basin is expected to come from increasing demand for public water supply. In the Moderate Demand Scenario, public supply demands are projected to increase 9 percent between 2025 and 2070 (108 to 117 MGD) - recall that the Moderate demand projections are based on median levels of recent use for modeling purposes, and may not align exactly with current use patterns, which are reported as averages instead of medians. In the High Demand Scenario, public supply demands are projected to increase by 36 percent (116 to 158 MGD). Most of the public supply demand increase will be met by surface water, which will serve over 99 percent of demand.

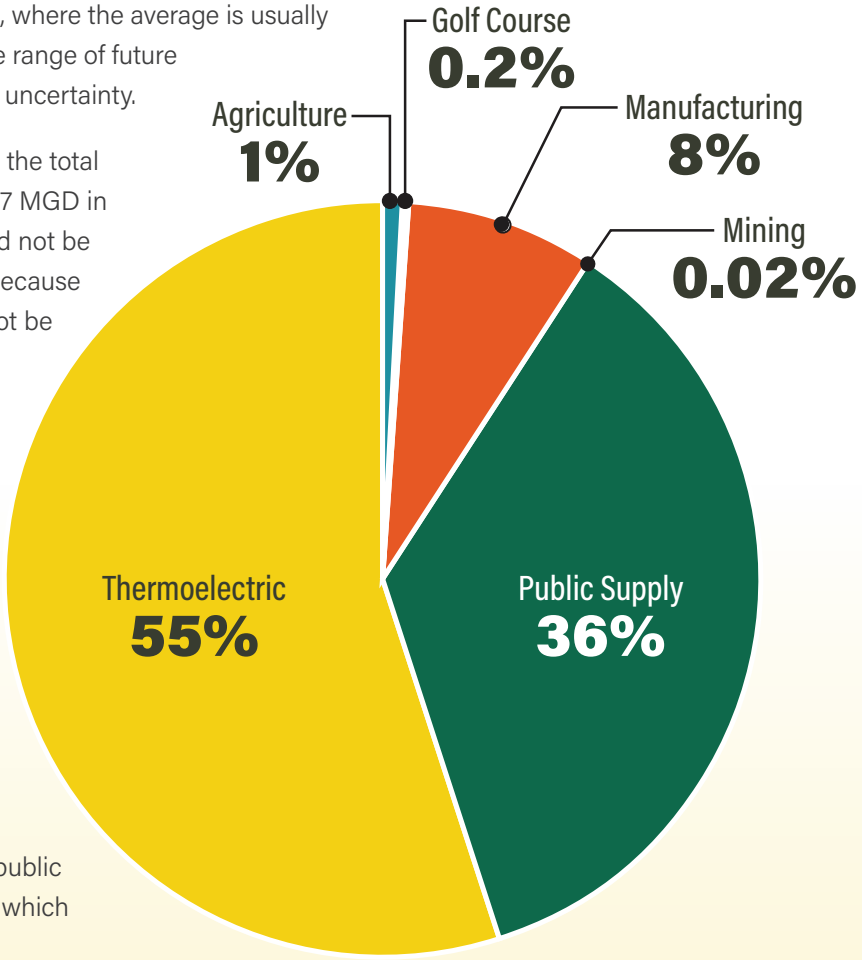
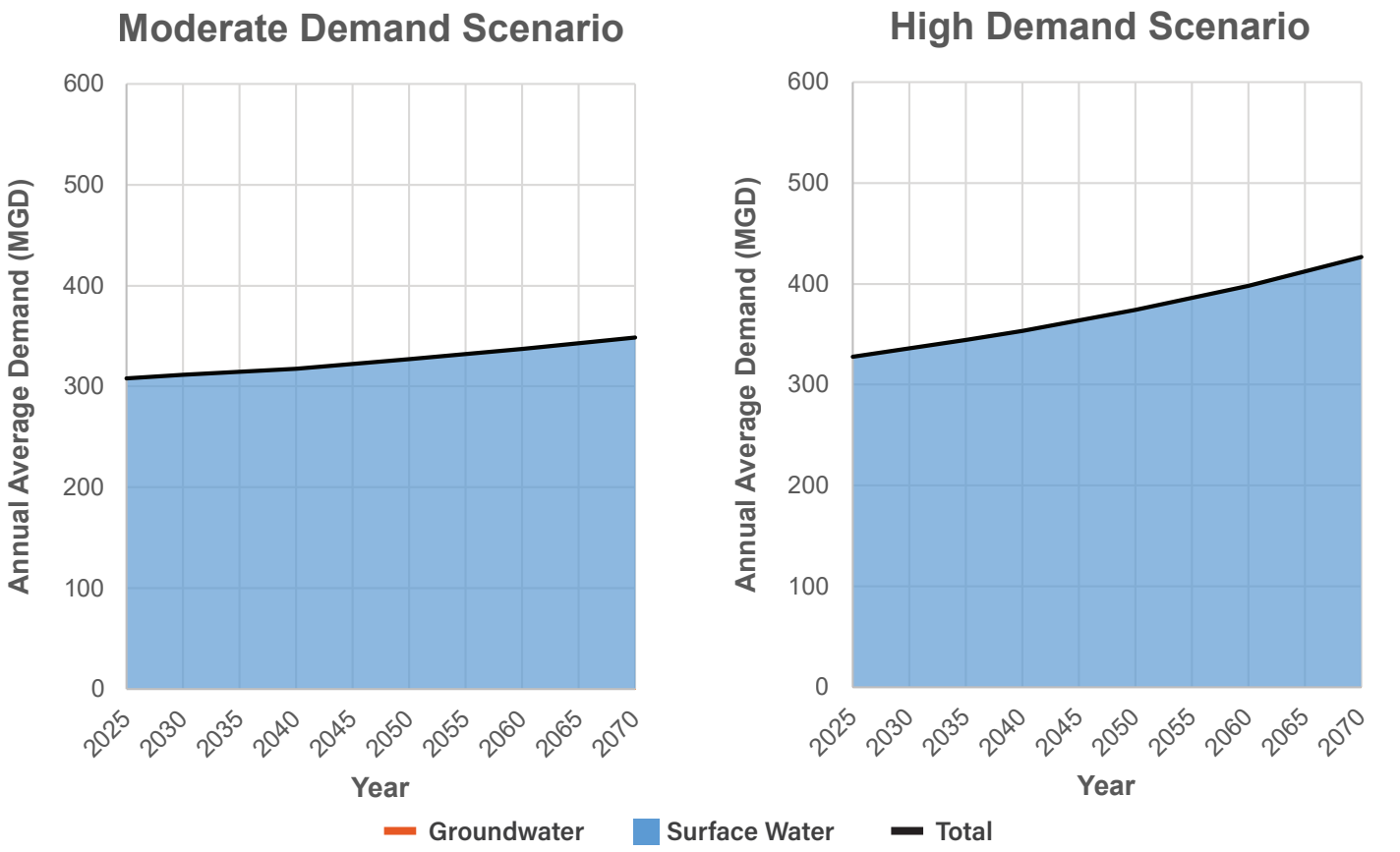
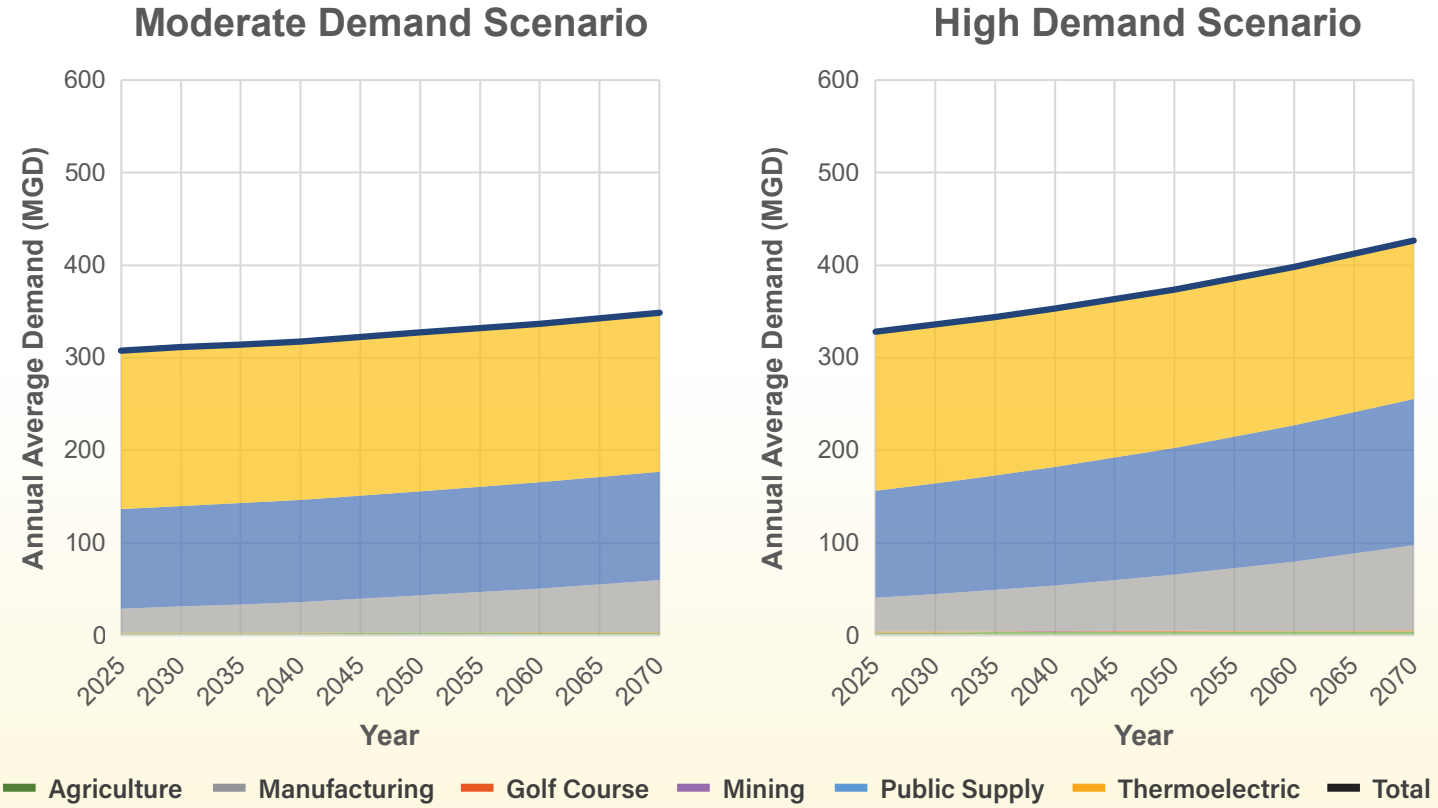


Figure ES-8. Current water use category percentages of total demand.



Note: Groundwater demands, projected at a constant average annual demand of 0.5 MGD are too small to be seen on this chart.

Figure ES-9. Demand projections by water source.



Note: Agriculture, golf course, and mining demands make up less than 1 percent of the total 2070 demands and may be too small to be seen on this chart.

Figure ES-10. Demand projections by water use category.

Reedy River at Greenville

WATER AVAILABILITY SUMMARY

Surface water modeling using current and projected rates of water withdrawals resulted in several key observations and conclusions about the availability of surface water resources in the Saluda River basin. These key findings, presented in the subsection below, led to the RBC to identify and evaluate a suite of water management strategies to address projected surface water shortages, promote the sustainable use of the resource, and maintain adequate river flows during low flow conditions. Section ES-5 summarizes the evaluation and selection of water management strategies.

In accordance with the Planning Framework, multiple planning scenarios were conducted to evaluate different levels of water demands. The demand scenarios were superimposed on historical hydrology, reflecting conditions over the approximately 94-year period from 1925 to 2019. The following scenarios were evaluated in this analysis:

- **Current Scenario.** A snapshot in time of current demands represented by average water use over the past 10 years.
- **Moderate Demand Scenario.** Projected moderate increase in demands through 2070 based on median water use over the past 10 years.
- **High Demand Scenario.** Aggressive assumptions of water demand based on maximum monthly rates of water use over the past 10 years and high population and demand growth through 2070. This scenario represents maximum total water demand for planning purposes because these demands would not likely occur month after month and year after year for all water users. This scenario, however, provided the RBC with information on which to base conservative management strategies.
- **Permitted and Registered (P&R) Scenario.** A hypothetical scenario in which all existing permitted and registered water users withdraw water at their fully permitted or registered amount. This scenario also represents an unlikely maximum for total water demand because most water users are not expected to need to withdraw their fully permitted or registered amount even 50 years from now, nor would they need to withdrawal at that level month after month and year after year.
- **Unimpaired Flow (UIF) Scenario.** The RBC requested a fifth scenario be run to understand naturally occurring hydrology in the absence of any human impacts (no withdrawals or returns).

Lake Murray

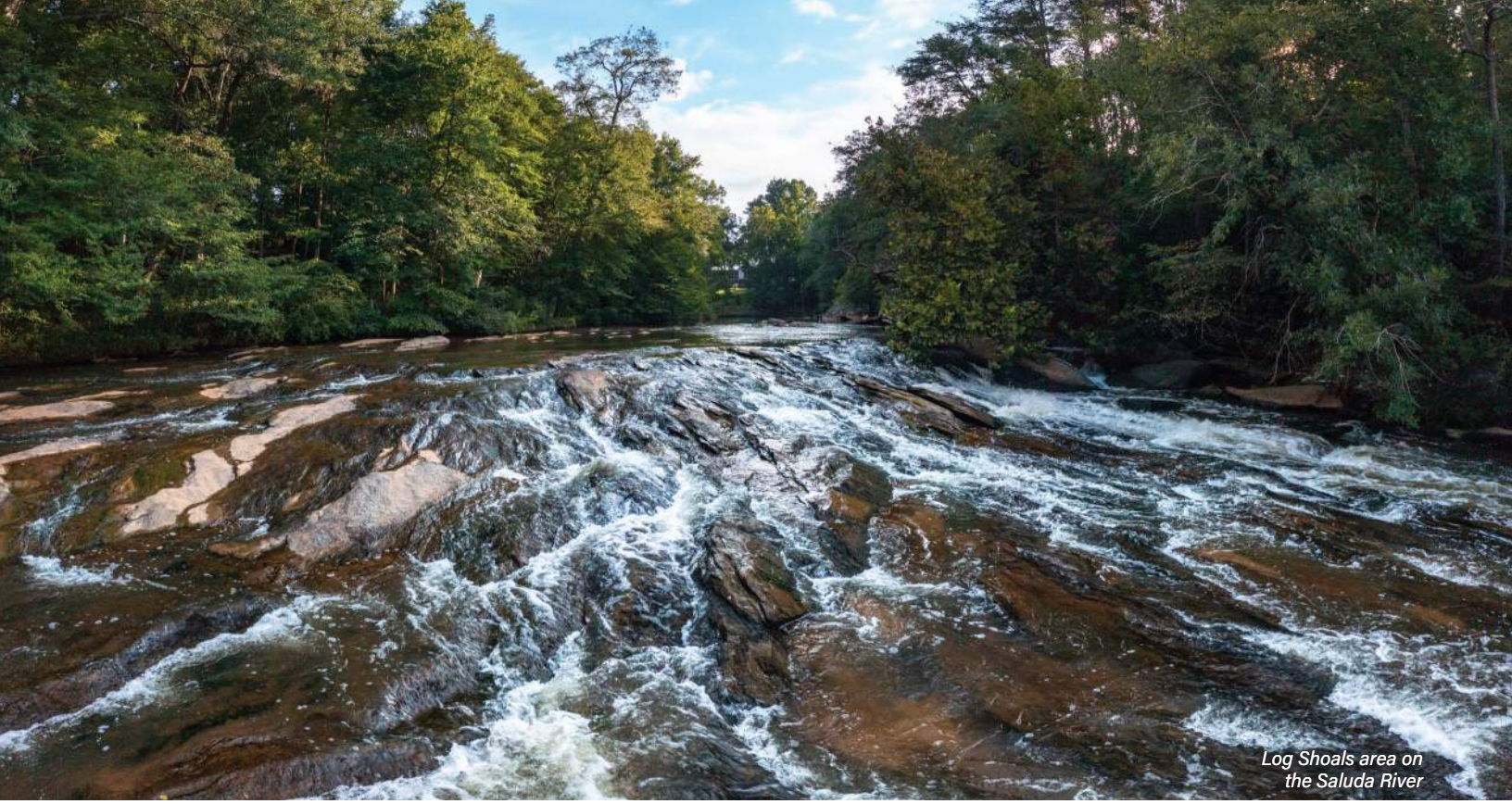
Following are the specific observations and conclusions relative to each planning scenario.

- **Current Use Scenario.** Surface water availability modeling suggests a low risk of water supply shortages under the Current Use Scenario. Water supply shortages were identified using current, monthly average demands when considering the almost 95-year period of record covering hydrologic conditions observed from 1925 to 2019. Shortages are projected for four agricultural water users on tributary streams, and all these users withdraw water from or are adjacent to storage ponds that are not accounted for in the SWAM model, and which can likely buffer short-term reductions in water availability from their supply streams.

- **P&R Scenario.** Results of this hypothetical scenario, which include projected shortages for seven agricultural operations, five golf courses, and two public water suppliers, demonstrate that the surface water resources of the basin are over-allocated based on existing permit and registration amounts without considering any requirements for minimum instream flows.

- **Moderate Demand Scenario.** Given current climate conditions and existing basin management and regulatory structure, basin surface water supplies are predicted to be adequate to meet increased demands, resulting from moderate economic and population growth, without considering any requirements for minimum instream flows. At 2070 demand levels, shortages are projected for three agricultural water users, all of which can withdraw water from adjacent storage ponds that are not accounted for in the SWAM model. River flows are predicted to decrease slightly to moderately, depending on location, compared to the Current Scenario. At the Saluda River gage near Columbia, mean and median flows are predicted to decrease by 0.5 to 1.2 percent, and low flows by about 0.4 percent, based on 2070 demands.

- **High Demand Scenario.** The three water users with shortages in the Moderate Demand 2070 Scenario exhibit slightly greater shortages under the High Demand 2070 Scenario. Two additional agricultural water users and one golf course experience shortages. River flows are predicted to decrease modestly to moderately, compared to the Current Scenario, throughout the basin. Modeled reductions are most pronounced during low-flow periods. At the Saluda River gage near Columbia, mean and median flows are predicted to decrease by approximately 2 to 4 percent, and low flows by approximately 1 percent, based on 2070 demands.



Log Shoals area on the Saluda River

- **UIF Scenario.** Simulated river flows for the UIF Scenario are generally greater than simulated Current Scenario flows, as expected. However, on the Bush and Reedy Rivers, the simulated UIFs are lower than Current Scenario flows. This reflects the removal of wastewater returns in the system for the UIF Scenario. The lack of wastewater returns in the Bush and Reedy Rivers more than offsets the lack of consumptive surface water use. at the Saluda River gage near Columbia, mean and median UIF Scenario flows are approximately 14 and 19 percent higher than Current Scenario flows, respectively. At this same location, low flows in this scenario (25th to 5th percentile flows) are approximately 2 to 39 percent higher than Current Scenario flows.

To assess potential ecological risk associated with increasing water use in the basin, biological response metrics developed by Bower et al. (2022) were correlated to model-simulated flows from the various planning scenarios. Simulated flow metrics for the UIF and Moderate Demand 2070 Scenarios result in low risk for ecological integrity and tolerance (The Nature Conservancy et al. 2024). This analysis is generalized based on historic watershed conditions and does not necessarily account for future changes in land use, and the impacts these might have on flow regimes and associated ecological integrity. This would require additional analysis. On the Reedy River, the mean daily flow metric for the UIF Scenario results in a moderate risk in terms of fish species richness; this is because of streamflow reductions from the absence of upstream wastewater discharges. Changes in mean daily flow for the P&R Scenario are predicted to substantially reduce the number of fish species, with the Rabon Creek location predicted to lose more than 50 percent of fish species. Low-risk outcomes in terms of timing of low flow were identified for all scenarios and locations assessed.

In accordance with the Water Planning Framework developed by the PPAC, results and conclusions are based on modeling that assumed historical climate patterns from the past 94 years. In subsequent phases of river basin planning, the RBC may decide to evaluate potential impacts to Surface Water Supply availability resulting from changing climate conditions such as increasing temperatures and more variable precipitation.

Table Rock Lake

Water Management Strategies Evaluated

The Planning Framework identifies a two-step process to evaluate water management strategies. As a first step, proposed management strategies are simulated using models to assess their effectiveness in eliminating or reducing identified shortages or in increasing water supply. For strategies deemed potentially effective, their feasibility for implementation is addressed considering cost and benefits, consistency with state regulations, reliability, environmental and socioeconomic impacts, and potential interstate or interbasin impacts. Section ES-6 discusses recommendations based on this information. The RBC identified and evaluated the water management strategies, which are grouped into agricultural and municipal demand-side in Table ES-2. The Saluda RBC did not identify any supply-side strategies (strategies that increase the amount of surface water available for withdrawal) because modeling results of the High Demand Scenario did not indicate any significant surface water shortages.

Table ES-2. Water management strategies evaluated by the Saluda RBC.

Demand-Side Strategies	
Agricultural Conservation and Efficiency Practices	**Municipal Conservation and Efficiency Practices**
Water Audits and Nozzle Retrofits	Develop, Update, and Implement Drought Management Plans
Irrigation Scheduling and Smart Irrigation	Public Education of Water Conservation
Soil Management and Cover Cropping	Conservation Pricing Structures / Drought Surcharge
Crop Variety, Crop Types, and Crop Conversions	Residential Water Audits
Irrigation Equipment Changes	Leak Detection and Water Loss Control Programs
Future Technologies	Time-of-Day Watering Limits
	Reclaimed Water Programs
	Landscape Irrigation Programs and Codes

Lake Greenwood

Recommendations

RECOMMENDED WATER MANAGEMENT STRATEGIES

The Saluda RBC's water management strategy recommendations align with its vision and goal statements developed for the Saluda River basin. By assessing and recommending these specific strategies, the stakeholders who make up the RBC recommended actions that help achieve their vision of "***a resilient and sustainably managed Saluda River Basin that balances human and ecological needs.***" The feasibility assessment supports the RBC's goal of "***apply[ing] science-based resource management and conservation strategies that consider resource availability and allocation.***"

Supply-side Strategies: Because simulation modeling revealed very low risk of unmanageable water shortages, and only in tributary headwater reaches for users who may already have management alternatives in place or in planning stages, the RBC did not recommend any new supply-side management strategies. The several large reservoirs (Table ES-1) and numerous small impoundments are recognized as effective strategies for maintaining water availability now, and through the planning horizon.

Demand-side Strategies: To help guard against unforeseen water shortages and ecological impacts, and to promote stewardship of the water resources in the basin, the RBC recommends a suite of municipal and agricultural demand-side water management strategies, as listed in Table ES-2. The RBC did not prioritize the municipal or agricultural strategies, leaving these decisions to individual water users. The strategies represent a "toolbox" of potential approaches to reduce water demands or use water more efficiently. Water users may find the descriptions and feasibility assessment presented in Chapter 6 (Water Management Strategies) helpful for determining which strategies to pursue.

Adaptive Management: Though the simulation of historic conditions revealed low risks for the Saluda River basin with respect to water availability and ecological flow needs, the RBC emphasized that future uncertainties should not be ignored. In keeping with a predominant trend throughout the United States, an adaptive approach, in which water users and the RBC continually monitor and evaluate emerging risks and respond accordingly is recommended. This avoids over-investment now, and can ward off under-investment if risks are recognized in time. Specific risks or conditions that the RBC recommends monitoring and planning for as needed include:

- Climate change
- Population growth
- Infrastructure maintenance
- Industrial growth and types of industry in the basin
- Cyberwarfare
- Energy uncertainty and loss of power
- Per- and polyfluoroalkyl substances (PFAS, also known as "forever chemicals") and other emerging contaminants
- Future land use patterns
- Extreme flood events and other natural hazards
- Uncertainties associated with modeling and data gaps

DROUGHT RESPONSE RECOMMENDATIONS

Ongoing drought management in South Carolina occurs at the state, regional, and local levels. At the state level, SCDNR develops, coordinates, and executes a statewide drought mitigation plan. The state also created the South Carolina Drought Response Committee (DRC) to be the major drought decision-making entity in the state. The DRC is a statewide committee chaired and supported by SCDNR and its South Carolina State Climatology Office, with representatives from local interests. Because the severity and impact of drought conditions can vary across the state, SCDNR delineated four Drought Management Areas (DMAs) that generally follow the major basin divides within the state (recognizing that some of the eight basins with RBCs flow into other basins downstream). The Saluda River basin is primarily within the Central DMA but includes parts of the West DMA, which is shared with the Savannah River basin.

Under the Planning Framework, the Saluda RBC has assumed additional responsibilities to help monitor and coordinate drought response effectively in the Saluda River basin. Two broad categories summarize these responsibilities:

- **Communication**
  - The Saluda RBC will communicate drought conditions and responses within the basin through a designated RBC Liaison. If any part of the basin is in a declared drought as determined by the DRC, the Liaison will solicit input from RBC members and other water managers and users regarding drought conditions and responses in their respective locations or interests. The Liaison is then responsible for communicating updates on drought conditions and responses within the basin to the Central and West DMA representatives on the DRC or the SCO, as well as the public.
- **Coordination of Drought Responses**
  - Collect and evaluate local hydrologic information for drought assessment
  - Provide local drought information and recommendations to the DRC regarding drought declarations
  - Advocate for a coordinated, basin-wide response by entities with drought management responsibilities (e.g., water utilities, reservoir operators, large water users)
  - Coordinate with other drought management groups in the basin as needed

Saluda RBC Drought Management Recommendations: Through consideration and discussion, the Saluda RBC developed the following five recommendations related to drought planning and response:

- The RBC recommends that water utilities review and update their drought management plan and response ordinance every 5 years or more frequently if conditions change.
- The RBC recommends that water utilities consider use of the SWAM model to evaluate the potential effectiveness of drought triggers when updating their drought management plans.
- The RBC recommends that water utilities coordinate, to the extent practical, their drought response messaging.
- The RBC encourages water utilities in the basin to consider drought surcharges on water use during severe and/or extreme drought phases.
- The RBC encourages water users and those with water interests to submit drought impact observations through CMORs.

ReWa Mauldin Road Water Resources Reclamation Facility

POLICY, LEGISLATIVE, REGULATORY, TECHNICAL, AND PLANNING PROCESS RECOMMENDATIONS

During the final phase of the planning process, the Saluda RBC developed, considered, and agreed on various policy, legislative, and regulatory recommendations. The RBC also offered technical recommendations and suggestions for improving the water planning process. The following subsections summarize these recommendations.

Policy, Legislative, and Regulatory Recommendations

The Saluda RBC engaged in discussion about issues and concerns with existing policies, laws, and regulations governing water withdrawals and water use. The following recommendations in Table ES-3 are intended to guide SCDES, WaterSC, and the legislature when considering changes to existing laws and regulations that govern water withdrawals and assist local government efforts to protect water resources. These recommendations are offered with either full or majority support of the RBC. Additional information can be found in Chapter 9 (Recommendations).

Table ES-3. Saluda River Basin Council policy, legislative, and regulatory recommendations.

Legislation and Regulatory Recommendations

- The Legislature should fund and SCDES should establish and manage a grant program to support the implementation of the actions and strategies identified in each RBC's River Basin Plan.
- The South Carolina Surface Water Withdrawal, Permitting, Use, and Reporting Act should allow for reasonable use criteria to be applied to all new surface water withdrawals, like those that currently exist for groundwater withdrawals.
- The current laws that allow for regulation of water use should be improved so that they are enforceable and effective.
- The State should support and fund RBC-led and statewide water education programs that include all sectors of water use and promote the types of water management strategies recommended in River Basin Plans.
- SCDNR/SCDES should review the science behind MIF standards to ensure they are based on best available science to adequately protect designated uses and recognize regional differences.
- Regulation 61-119 Surface Water Withdrawal, Permitting, Use and Reporting should be reviewed to ensure consistency with the South Carolina Surface Water Withdrawal, Permitting Use, and Reporting Act, including a review of the existing definition of "safe yield" (SY) in the implementing regulations. SY should be redefined to be consistent with the law and protective of minimum instream flow requirements that safeguard the integrity and designated uses of state waters.

Local Government and Water Utility Recommendations

- Utilities should identify alternative sources including interconnections to build resilience and ensure adequate quantity of water.
- Water utilities within watersheds should consider partnership and collaboration opportunities. Partnerships between utilities may allow for better management of water resources and build resilience.
- State and local governments should develop/review/update/adopt and enforce laws, regulations, policies, and/or ordinances that improve the management of stormwater runoff, encourage infiltration, minimize streambank erosion, reduce sedimentation, and protect water resources. The following are RBC-recommended best management practices:
  - Riparian buffer protection
  - Open space protection
  - Strengthening stormwater regulations to minimize stormwater runoff volume from construction sites
  - Incentivizing green infrastructure in development designs
  - Allocating local funding sources for land conservation
- The RBC strongly recommends counties and municipalities prioritize and incentivize native tree canopy protection and permanent vegetative cover within headwater streams and along riparian areas.

Technical and Program Recommendations

The RBC may make technical and program recommendations to address any data gaps or information needs identified during the river basin planning process. The following recommendations in Table ES-4 should be taken as considerations for future phases of the river basin planning process. To implement these recommendations, the Saluda RBC will need support and funding from SCDNR, SCDES, and other technical experts.

Table ES-4. Saluda River Basin Council technical and program recommendations.

Model Improvement Recommendations	▪ Future SWAM modeling should incorporate flow monitoring data collected at the county level to validate flows. ▪ Future SWAM modeling should incorporate scenarios that further examine future uncertainties, such as changes in rainfall and hydrology, alternative population growth scenarios, and potential impacts of future development on runoff.
Data-Related Recommendations	▪ SCDES should explore expansion of the ambient water quality monitoring network. ▪ State agencies and partners should collect and organize existing water quality data. ▪ The Saluda RBC will support continued efforts to maintain and expand streamflow gages. ▪ SCDES should create and maintain an online library of, or a catalog of links to, technical information that will enhance the RBC's technical understanding of water resources concepts and issues. ▪ The Saluda RBC should coordinate with SCDES to identify and define data gaps and possible avenues for filling gaps in future phases (or in preparation for future planning phases). ▪ The South Carolina legislature should fund and state agencies and partners should establish a mesoscale network of weather and climate monitoring stations in South Carolina.
Technical Study and Project Recommendations	▪ State agencies and partners should expand analysis and understanding of flow-ecology relationships. ▪ The Saluda RBC should explore the potential impacts of private and community/commercial wells, and how they may affect surface water (especially during droughts) and/or better characterize growth potential in future planning phases. ▪ The Saluda RBC should support the reduction of sediment loading to reservoirs and waterways. ▪ The Saluda RBC should work to remove the Saluda River hydrologic impairment (4C) below the Saluda Lake hydro project.
Expanded Future Focus Recommendation	▪ Future planning efforts should include evaluation of surface water quality and trends, including nutrient loading and sedimentation.

Table ES-4. Saluda River Basin Council technical and program recommendations. (continued)

Water-Related Planning Effort Alignment Recommendations	▪ For river basins with state or federal specially designated streams (e.g., National Wild and Scenic Rivers or State Scenic Rivers), watershed-based plans, and any other similar plans, the RBCs should assess alignment between the River Basin Plan and the management plan associated with the special designation. ▪ As part of the comprehensive planning process, each local government should consult the Resilience Plan developed by the South Carolina Office of Resilience, local Hazard Mitigation Plans, and the associated River Basin Plan(s) developed by the RBCs for inclusion within the resilience element as required by the South Carolina Local Government Comprehensive Planning Enabling Act as amended in 2020. ▪ The Saluda RBC encourages the use of the Saluda River Basin Plan as a tool for local comprehensive plans and economic development.

Recommendations to Improve the River Basin Planning Process

Table ES-5 lists the recommendations that should be considered for development of future river basin plans.

Table ES-5. Saluda River Basin Council recommendations to improve the river basin planning process.

Recommendations to Improve Communication Among RBCs and Other Groups	▪ SCDES, the RBC Planning Teams, and the RBCs should conduct regular (every 6 months) reviews of the RBC membership to make sure all interest categories are adequately represented and attendance across all interest categories meets the requirements of the RBC Bylaws. ▪ RBCs should hold additional public meetings to enhance public engagement. ▪ SCDES should organize an annual coordination meeting of all RBCs. ▪ SCDES should form an upstate Interbasin River Council. ▪ The Saluda RBC will support and promote outreach and education to increase awareness with the general public around watershed-based planning.
Funding Recommendation	▪ To continue positive progress at the state level for river basin planning, state agencies should assess the current funding to SCDES to support river basin planning.

Paddling on the Saluda River (photo courtesy Katherine Amidon)

Saluda River Basin Plan Implementation

The Saluda RBC identified six implementation objectives for the Saluda River Basin Plan listed in Table ES-6. These objectives were developed based on themes that emerged from the recommended water management strategies; the drought response recommendations; and certain planning process, programmatic, and technical recommendations.

Table ES-7 presents the strategies and corresponding short-term actions to achieve each objective. These are a selection from the fuller list of strategies and actions included in Chapter 10 (Implementation Plan).

Table ES-6. Implementation objectives and prioritization.

Objective
Objective 1. Reduce demand to conserve water resources
Objective 2. Communicate, coordinate, and promote findings and recommendations from the River Basin Plan
Objective 3. Improve technical understanding of water resource management issues
Objective 4. Protect water resources
Objective 5. Improve drought management
Objective 6. Promote engagement in water planning process

Table ES-7. Implementation objectives and representative short-term actions.

Objective	Representative Short-Term (5-Year) Actions[1]
Objective 1. Reduce demand to conserve water resources: **MUNICIPAL CONSERVATION**	1. Identify funding opportunities 2. Survey to understand the extent of advanced metering infrastructure (AMI)/automated meter reading (AMR) use amongst utilities 3. Encourage water utilities to conduct a water loss/leak detection audit using a water system appropriate method, such as American Water Works Association (AWWA) M36 Method, establish a baseline, and continue to measure every 2-3 years 4. Work with water utilities to determine how water is being used and understand where conservation measures may have the most impact 5. Develop and implement outreach and education program about recommended water management practices and funding opportunities 6. Individual water users to implement conservation practices 7. Develop survey of practices implemented, change in per capita use, funding issues, and funding sources utilized

Table ES-7. Implementation objectives and representative short-term actions. (continued)

Objective	Representative Short-Term (5-Year) Actions[1]
Objective 1. Reduce demand to conserve water resources: **AGRICULTURAL CONSERVATION**	1. Identify funding opportunities 2. Develop and implement outreach and education program about recommended water management practices and funding opportunities 3. Individual water users to implement conservation practices 4. Develop survey of practices implemented, funding issues, and funding sources utilized 5. Review and analyze water usage to improve understanding of water savings of strategies
Objective 2. Communicate, coordinate, and promote findings and recommendations from the River Basin Plan	1. SCDES and contractors to inform future RBCs of this recommendation to consider in their planning processes 2. Saluda RBC to plan and conduct public meetings during 5-yr update of Plan 3. SCDES to gauge the RBC's interest in holding annual, statewide RBC coordination meetings 4. If other RBCs concur with the recommendation, SCDES to plan first annual meeting location, agenda, and invitees. SCDES will also identify cost and assess availability of funding, if needed 5. Execute annual meeting
Objective 3. Improve technical understanding of water resource management issues	1. RBC to work with SCDES and/or contractors to identify the location and number of likely private/public/commercial wells in the basin and prepare a groundwater budget to help assess potential impact to surface water 2. RBC to assess results of analysis and incorporate findings into the next 5-year update 3. RBC to identify and assess any uncertainties for potential model scenario development and analysis 4. Contractor to perform analysis and present results to RBC 5. RBC to assess results of analysis and incorporate findings into the next 5-year update 6. RBC to identify specific water quality issues and concerns in the basin with consideration to approved SCDES Watershed-based plans
Objective 4. Protect water resources	1. Work with local governments and Councils of Government (COGs) to incorporate strategies into land use, planning, zoning, permitting processes 2. RBC to characterize current conditions and alternative conditions with contractor and potentially modeling support 3. RBC to invite Saluda Hydro operator to RBC meetings to review alternatives and opportunity for collaboration
Objective 5. Improve drought management	1. Public suppliers on the RBC to review and update their drought management plants and send them to the SCO 2. Public suppliers on the RBC to consider ways to incorporate RBC drought management recommendations into their drought plans 3. Updates to drought management plans should be shared with the SCO 4. Develop materials on benefits and implementation of RBC drought management recommendations 5. Develop outreach strategy to communicate with public suppliers and distribute material
Objective 6. Promote engagement in water planning process	1. SCDES, RBC Planning Team, and RBC to conduct review of membership every 6 months 2. SCDES and RBC to conduct outreach to promote membership for under-represented groups as necessary 3. RBC to develop outreach sub-committee 4. RBC to partner with SCDES and SCDNR to develop a statewide educational strategy and budget needs

[1]These examples are representative and do not reflect the complete list developed by the RBC, which are in Table 10-2 of the Saluda River Basin Plan.

Lake Murray Dam

FUNDING OPPORTUNITIES

Existing external funding sources may be leveraged to promote implementation of the objectives outlined in Chapter 10 (Implementation Plan). For example, EPA's Water Infrastructure Finance and Information Act program offers funding to support eligible water and wastewater infrastructure projects including those related to drought prevention, reduction, and mitigation. Other funding to support drought mitigation efforts may be available through the Federal Emergency Management Agency's Hazard Mitigation Grant Program (HMGP).

Although agricultural water use in the Saluda River basin is limited and expected to already be efficient, funding opportunities related to agricultural programs are also included in this section for reference. The USDA offers numerous programs for farmers and ranchers to reduce risk from drought or to restore land impacted by drought. The Farm Bill has authorized several programs to provide relief to farms and ranches experiencing drought, including the Federal Crop Insurance Program; the Emergency Conservation Program; the Pasture, Rangeland, and Forage Program; and the Livestock Forage Disaster Program. In addition, the Environmental Quality Incentives Program (EQIP) provides assistance to farm operations to conserve water and for other conservation measures. Some EQIP assistance is targeted toward water-conserving efforts in drought-prone regions through the WaterSMART Initiative, a collaboration between the USDA and the U.S. Department of the Interior's Bureau of Reclamation.

IMPLEMENTATION CONSIDERATIONS

The Saluda RBC may encounter challenges in the implementation of the identified strategies. The following are critical considerations:

Identification of Funding: For the implementation of Objective 1, water withdrawers may have limited financial capacity to pursue the recommended water management strategies. A municipal water utility's budget is limited by its customer base and rate structure. Increases to water rates necessary to fund implementation of the actions associated with these objectives may not be feasible for some communities. Agricultural water withdrawers may have limited financial resources to invest in new and potentially expensive water conservation or augmentation strategies. Industries will likely need to self-fund any conservation strategies. Any new funding sources pursued by the RBC with SCDES support may take time to develop, leading to delays in implementation. The identification of immediately available funding opportunities, the provision of support in funding applications, and the investigation of new funding sources are vital to implementation of the recommended strategies under Objective 1. Objective 3, which is intended to improve technical understanding of water resource management issues, includes strategies involving additional monitoring, modeling, or analysis that would require funding to implement.

Stakeholder Acceptance and Support: The RBC itself has no authority to enforce recommendations in the basin. Therefore, implementation of these strategies is dependent upon effective communication of RBC findings and influential recommendations to stakeholders.

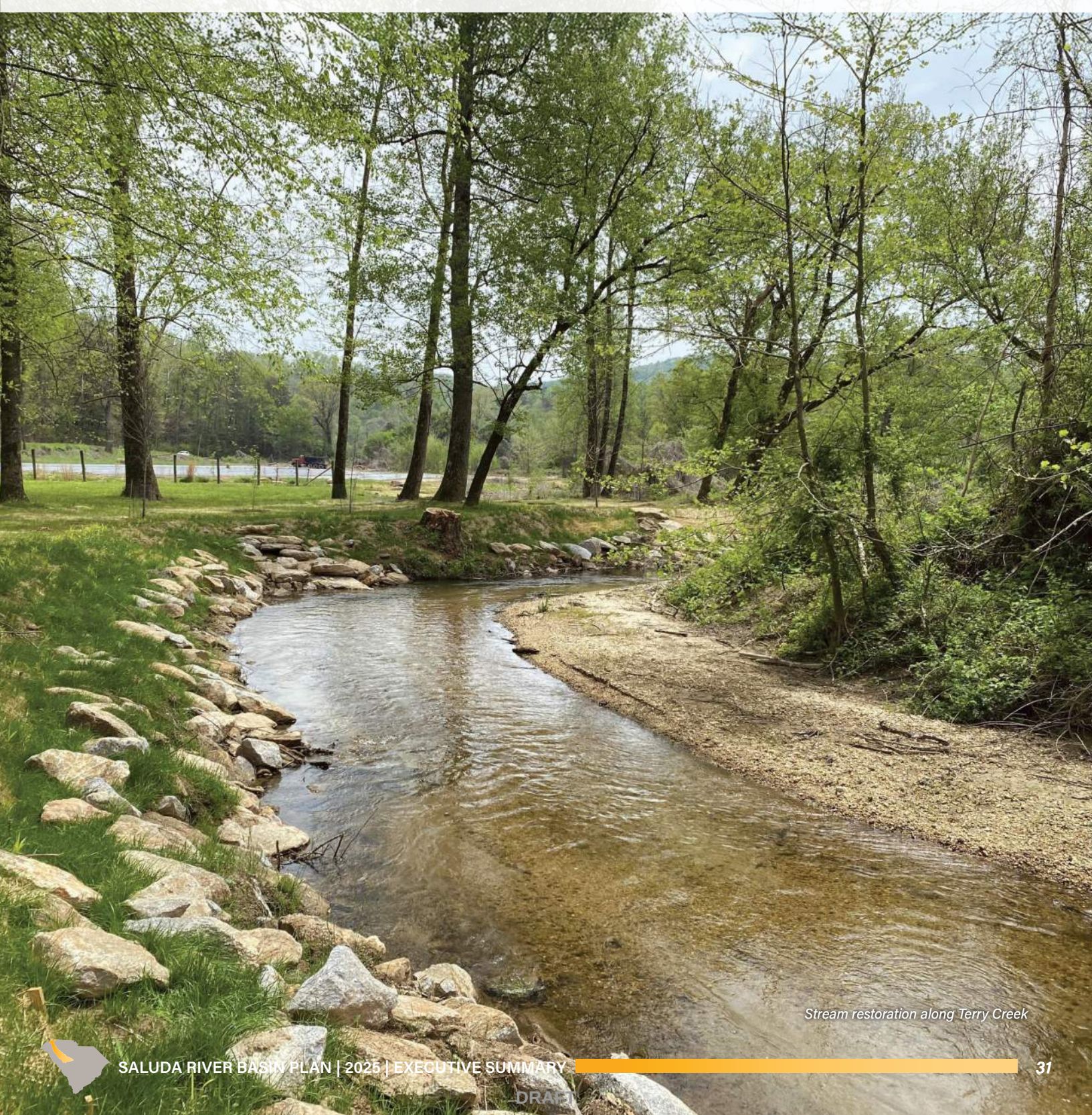
ReWa Mauldin Road Water Resources Reclamation Facility

Sustaining Momentum: To effectively implement the recommended strategies of the River Basin Plan, the Saluda RBC must continue to meet as a planning body. The Planning Framework states that the River Basin Plan should not be perceived as a static document and the RBC should remain active even after the publication of the Plan. Rather, the RBC is to be "actively engaged in promoting the implementation of the recommendations proposed" and "will continue to meet on a periodic basis to pursue River Basin Plan implementation activities as needed" (SCDNR 2019, p. 90).

Documentation of Future Agreement and Opinions: The Saluda RBC should aim to build consensus where possible and consider documenting alternative points of view when consensus is not possible. Documenting alternative points of view can be equally valuable to officials who have a role implementing water management strategies and/or recommendations made by a portion of the RBC. Full consensus on every issue is an unrealistic goal, but the RBC should continue to discuss, revisit, and document issues from this and later planning phases that are marked by alternative or opposing points of view.

SUMMARY

The Saluda RBC, the fourth of eight statewide RBCs to convene, has successfully followed the Planning Framework to develop a River Basin Plan for the Saluda River basin. The plan includes consensus-based recommendations on water management strategies, as well as documented dialogue on major policy, legislative, and regulatory issues that should help inform decision-makers on a broad array of stakeholder viewpoints and priorities. In the coming years, the policy and technical recommendations made by the RBC will help inform and support further water planning efforts in the basin, and the state. The RBC plans to interact with the ongoing WaterSC committee and with SCDES as they draft the State Water Plan, which is expected to be based largely on findings and recommendations from the RBCs.



Stream restoration along Terry Creek

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