OCONEE COUNTY & WESTERN ANDERSON COUNTY SEWER MASTER PLAN

OJRSA

EXECUTIVE SUMMARY

The goal of this study was to develop a planning document that will guide future capital spending decisions for sewer within Oconee County. This Master Plan should be a guide for prioritization of sewer infrastructure maintenance, upgrades, and expansion for a 20-year project horizon (2024-2044).

The following are key components to this study:

A county-wide, high-level planning analysis was performed. Individual municipal systems were not assessed. Instead, a system-wide approach considered engineering feasibility, planning analysis, proximity to existing infrastructure and trunk line capacity, and stakeholder/public input.

Growth was projected using available census data, multiple projection tools, recent development interest, and recent new address points within the county.

Inclusion and revisions to the Fair Play and Townville Area Sewer Study (which included Western Anderson County), were incorporated into this master planning effort.

Data collected from land use, recent sewer requests, permitted developments, sewer drainage basins, current plant capacity, and the existing OJRSA sewer system, were analyzed together to develop a 20-year Master Plan (see page 2).

Three in-person public meetings, three stakeholder meetings, a customized project website, an interactive commenting map tool, a web-based and paper version project survey (382 complete responses), and a social media campaign were used to engage the public and collect feedback throughout the project.

Overall, public feedback was in favor of development with a call for balanced and controlled growth that respects the character and natural resources within Oconee County. General consensus is in support for septic systems to continue to be a viable wastewater solution in rural areas. Infill and smart growth principles are recommended to address growth, which will help keep maintenance of the exisiting sewer infrastructure manageable and encourage responsible extension of new sewer lines.

Based on the assumptions and criteria mentioned above, growth over the next 20 years was projected for the study area. Analysis and input from the public/stakeholders indicated that new sewer infrastructure expansion should be focused within the footprint of where existing sewer already exists between the three municipalities, and areas in close proximity to existing sewer infrastructure that are experiencing high development demand (i.e., east Seneca). Areas that are not feasible or cost-effective to serve with sewer are planned to be accommodated with septic systems. Additionally, developments should maximize gravity sewer over pump stations and force mains.

Total wastewater flow to the OJRSA system is projected to increase from 4.7 million gallons per day to 11.7 million gallons per day within the 20-year period.

Discharge limitations for potential new treatment plant locations on Martin Creek and Beaverdam Creek were analyzed, as well as discharge limitations for a potential capacity upgrade at the existing Coneross Creek Water Reclamation Facility location. The analysis found that an upgrade to the existing plant would be more feasible than the two new plant locations. Additionally, with capital costs and operational considerations, it was recommended that new growth be accommodated by a plant expansion at Coneross Creek rather than accommodating a new plant within capital improvement plans.

Over the 20-year period, it is recommended that pump station consolidation is incorporated by eliminating five pump stations within the Seneca system footprint, as well as rerouting the force main from Martin Creek directly to the plant to free up capacity with Speeds Creek and Perkins Creek pump stations.

PROJECTED CAPITAL IMPROVEMENTS NEEDED FOR 20-YEAR (2024-2044) BUILD-OUT

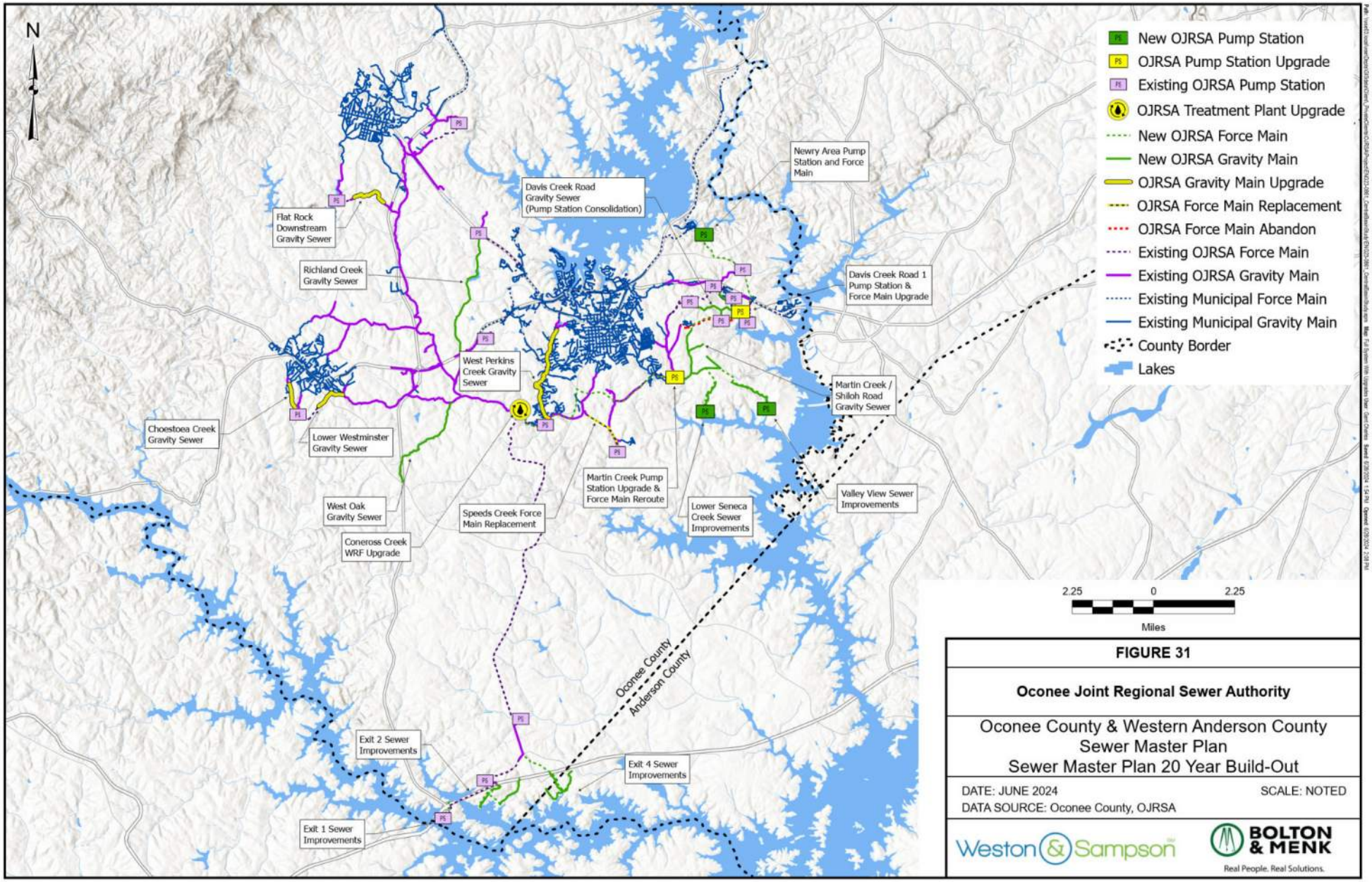

FIGURE 31

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County
Sewer Master Plan
Sewer Master Plan 20 Year Build-Out

DATE: JUNE 2024 SCALE: NOTED

DATA SOURCE: Oconee County, OJRSA

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OCONEE COUNTY & WESTERN ANDERSON COUNTY SEWER MASTER PLAN

July 2024

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County Sewer Master Plan

Oconee Joint Regional Sewer Authority
623 Return Church Road
Seneca, SC 29678

July 1, 2024

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Acronyms

ACOG – Appalachian Council of Governments

ADF – average daily flow

AWWA – American Water Works Association

BOD – biological oxygen demand

CAGR – Compound Annual Growth Rate

CCWRF – Coneross Creek Water Reclamation Facility

cfs – cubic feet per second

DO – dissolved oxygen

gpd – gallons per day

HUC – Hydrologic Unit Code

I&I – inflow and infiltration

LF – linear foot

M – million

mgd – million gallons per day

mg/L – milligrams per liter

MH – manhole (OJRSA Manhole Number identification system)

NAIP – National Agriculture Imagery Program

NPDES – National Pollutant Discharge Elimination System

OEA – Oconee Economic Alliance

OCSC – Oconee County Sewer Commission (predecessor of the OJRSA)

OITP – Oconee Industrial and Technology Park

OJRSA – Oconee Joint Regional Sewer Authority

PER – preliminary engineering report

SC – South Carolina

SCDES – South Carolina Department of Environmental Services

SCDHEC – South Carolina Department of Health and Environmental Control

TMDL – Total Maximum Daily Load

TMS – tax map system

ug/L – micrograms per liter

US – United States

WET – whole effluent toxicity

WRF – wastewater reclamation facility

Regulatory Agency Note

SCDES – South Carolina Department of Environmental Services – the successor environmental regulatory agency to SCDHEC that created by Act 60 of the Acts and Joint Resolutions of the General Assembly for the State of South Caorlina for the Year 2023 (“Act 60 of 2023”) with an effective date of July 1, 2024. Regualtory document name conversion will take time and as of the publication of this report, this change had not been completed.

SCDHEC – South Carolina Department of Health and Environmental Control – this agency was split by Act 60 of 2023 with an effective date of July 1, 2024. and established two new agencies to supercede it: South Carolina Department of Environmental Services (SCDES) to oversee environmental affairs and South Carolina Department of Public Health for health related matters.

1.0 INTRODUCTION

1.1 History of Sewer in Oconee County, South Carolina

The Oconee County Sewer Commission was formed in 1971 for the purpose of determining the feasibility for a modern, consolidated wastewater treatment facility under the terms of Act No. 950 of 1971, as amended. That Commission determined there was a means and method to provide service to improve the environmental and economic climate in Oconee County.

Oconee County held a "going into the business" sewer referendum and, by ordinance, No. 78-2 dated February 28, 1978, created the Oconee County Sewer Commission[1] (OCSC), establishing a sewer utility and constructing the new Coneross Creek Water Reclamation Facility (Coneross Creek WRF or CCWRF), located southwest of Seneca.

On February 4, 1980, the OCSC began receiving flow at its pump stations and the Coneross Creek WRF. Prior to becoming operational, OCSC entered into service agreements with the cities of Seneca, Walhalla, and Westminster (collectively referred to herein as Member Cities or Cities), as well as the town of West Union, under which the Cities would maintain ownership and maintenance of their existing satellite sewer systems and discharge their wastewater to the OCSC. These discharge points would be located at strategically located trunk sewer connection points for conveyance to the Coneross Creek WRF. This contract-based arrangement lasted until the mid-2000s, when it was decided the OCSC would best be served as its own organization without Oconee County's oversight.

The Oconee Joint Regional Sewer Authority (OJRSA) was established as a Joint Authority Water and Sewer System in 2007 under the provisions of Title 6 Chapter 25 of the Code of Laws of South Carolina 1976, as amended. Upon creation, the Oconee County transferred all of its assets, including the Coneross Creek WRF to OJRSA.

OJRSA was established, and is now governed, by the provisions of an agreement entitled "Inter-Municipal Agreement and Joint Resolution Creating a Joint Authority Water and Sewer System"[2] by and among the Member Cities and filed in the offices of the Clerk of Court of Oconee County as of October 31, 2007 (Authority Agreement). OJRSA is governed by a commission consisting of nine commissioners (Authority Commission). Pursuant to the Authority Agreement, the Authority Commission is composed of four members appointed by Seneca, two members appointed by Walhalla, two members appointed by Westminster, and one member jointly appointed by Walhalla and Westminster (each a Commissioner).[3]

The Authority Commission serves as the legislative body for OJRSA and is responsible for hiring an executive director to oversee OJRSA's day-to-day operations and implement the policies adopted by the Authority Commission. Neither Oconee County Council nor the town of West Union[4] have direct representation on the Authority Commission.[5]

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[1] Same name, different government organization from the Special Purpose District.
[2] Pursuant to Chapter 25, Title 6, South Carolina Code of Laws as Amended by Act No. 59, South Carolina Acts and Joint Resolutions, Effective June 6, 2007, and Assignment of Rights, Privileges, Duties and Obligations Previously Agreed to by the Parties, and Agreement of the Authority to Provide Sewer Services.
[3] The Walhalla/Westminster joint appointment and one of Seneca's four are "at large" representatives, meaning they cannot be an employee for any Member City, nor can they live inside the municipal boundary of one of the cities.
[4] Under the Authority Agreement, West Union will not be entitled to a representative until they reach 10% of the cumulative flow to OJRSA, per then intergovernmental governmental agreement.
[5] Both Oconee County and West Union own sewer infrastructure that is currently served by OJRSA.

An additional study to consider the governance structure of OJRSA was happening in parallel and is expected to be completed shortly after the Sewer Master Plan. This parallel study is titled the Regional Sewer Feasibility Planning Study (Feasibility Study). The Feasibility Study included the following:

- Background research of each public sector wastewater provider (both treatment and collections)
- An analysis of technical, financial, managerial, and operational concerns
- Final recommendation for the reorganization and/or consolidation of the OJRSA governing body, including next steps or phases. The recommendations were required to span the following core areas: (1)governance, (2) revenues and finance, (3) environmental compliance, (4) utility resources, and (5) efficiency in operations and service

The results of the Feasibility Study will need to be considered for future expansion and rehabilitation decisions, as ownership and/or the OJRSA's governance structure may evolve. It is anticipated that the study will be completed in midsummer 2024. Additional considerations related to governance are included in Section 2.6.

The Sewer Master Plan recommendations and the Feasibility Study results should work in conjunction as this area plans for the future. This report and the 20-year capital improvement plan, is to serve as a road map for both current and future leadership across all entities who may contribute to sewer growth in Oconee County. It is important that the stakeholder conversations continue, and that this analysis is revisited on a regular basis – recommended at least every three years – or if a catalyst project or changes in regulation greatly affects the projections.

1.2 Background and Study Area

The purpose of this study is to explore the feasibility of sanitary sewer upgrades and extension in Oconee County, South Carolina (SC) for the Oconee Joint Regional Sewer Authority (OJRSA). This study follows the recommendation from the 2023 *Fair Play and Townville Area Sewer Basin Plan* to consider a county-wide analysis of sewer expansion. The goals for this plan are as follows:

- Develop a planning document to guide future capital spending decisions
- Develop sewer revenue projections for operating the collection system over a 20-year period based on future growth projections over five-year windows from 2024-2044
- Gather public and stakeholder input regarding the potential for publicly provided sewer in the study area

This study included planning research, technical analysis, and both key stakeholder and public engagement to explore both feasibility and public support for these infrastructure improvements and extensions. The study area for the planning analysis and due diligence research included all of Oconee County, SC and the northwest corner of Anderson County (Census Tract 109). Anderson was included for continuity with the prior 2023 study (Figure 1 – Study Area – *note all map figures can be found in Appendix A*). The results of this research and stakeholder conversations informed the engineering recommendations, presented within this report, which incorporates and adjusts the 2023 *Fair Play and Townville Area Sewer Basin Plan*. The engineering recommendations considered the full study area, but due to the analysis and feedback from stakeholders and the public, the recommended infrastructure focuses on the central portion of Oconee County. This is where the sewer infrastructure is already in place and where the majority of all types (from single family residential to commercial) of recent growth has occurred. This area is bound roughly by the City of Westminster's future growth area to the west, Sumter National Forest and the City of Walhalla and Town of West Union to the north, and Lake Hartwell to the east and south.

This study did not look closely at the individual municipalities within the study area and their current needs for upgrades, rehabilitations, and expansions to their sewer collection systems. Instead, the results of this study provide the framework for main trunk lines to support projected growth, upgrades to the existing system, and addresses consent order concerns. The board (or future governing body) will need to determine the capital investments needed to begin implementation of this plan and each external sewer collection provider will need to work with OJRSA to complement these efforts.

Bolton & Menk LLC. focused on the planning analysis and stakeholder and public engagement, while Weston & Sampson, LLC. focused on the engineering feasibility and capital improvement planning for the project 20-year horizon. Collectively they make up the Project Team.

1.3 Public Sewer Today

OJRSA is the only public sewer treatment provider in Oconee County, excluding small package plants that serve specific properties, such as Oconee State Park[6]. They own and operate a 7.8 million gallons per day (mgd) Coneross Creek Water Reclamation Facility (WRF) in Seneca, SC as well as 65 miles of gravity sewer, 24 miles of force mains, and 15 pump stations. Each municipality also has their own public sewer infrastructure, which includes the following:

- Seneca, Walhalla, Westminster, and West Union each have their own municipal collection systems, pump stations, and force mains (Figure 2 – Public Sewer System Service Area). This infrastructure connects to the OJRSA trunk line system and are conveyed to the Coneross Creek WRF.
- Oconee County owns the Golden Corner pump station and force main that runs along Highway 59 which is commonly referred to as Sewer South Phase I. OJRSA operates and maintains the Sewer South infrastructure on behalf of Oconee County.
- A new sewer line from Golden Corner Commerce Park to Exit 1 and Exit 2 along Interstate-85, called Sewer South Phase II, is currently under construction. This study assumes construction for Phase II is expected to be completed in Summer 2024. This extension will be owned, operated, and maintained by OJRSA.

Currently, OJRSA is funded by base and volumetric fees assessed on the sewer customers served by the retail wastewater providers of Seneca, Walhalla, Westminster, and West Union (collectively referred to as the "retail providers"). The retail providers own and maintain their own collection systems that convey flow to OJRSA for transport to the Coneross Creek WRF for treatment. OJRSA does not receive any ad valorem tax (property tax) money or other funding except for maintenance funding for Sewer South Phase I, which is provided by Oconee County. Once the Sewer South Phase II Project goes online, OJRSA will be the retail provider for this area. The Appalachian Council of Governments (ACOG) designated OJRSA as being the retail provider for this area in 2018 when Oconee County began planning for Sewer South Phase II. Pioneer Rural Water District is also chartered for sewer collection services (not treatment); however, they declined to serve at the time as they did not want to get into the retail sewer business.

1.4 Private Sewer Today

There are several private package plants within the study area that are outside of the public sewer service areas (Figure 3 – Private Sewer – Package Plant Locations). The following existing sewer infrastructure was considered for this project for potential public sewer connection:

- Foxwood Hills – serves the Foxwood Hills residential community and resort. The treatment system design flow is 200,000 gallons per day (gpd). The system has recently been sold

[6] Owned by the State of South Carolina.

to a private entity and the new owners do not appear to have an imminent interest in selling the system. Taking the system offline would involve a pump station and lengthy force main to connect to an existing or proposed sewer system.

- Chickasaw Point – serves the Chickasaw Point residential community and resort. Wastewater is collected and treated via a spray irrigation system on the golf course. It is permitted for 150,000 gpd. There has appeared to be some interest amongst property owners to turn the system over to a public entity, but this would require a pump station and lengthy force main to connect to an existing or proposed sewer system.
- Jacabb Utilities (serves a travel center) – a land application system serving Exit 4 and is located in Anderson County. It is permitted for 15,000 gpd. This plant is in an area (Exit 4) that is feasible to serve with public sewer.
- West Oak High School – is owned/operated by the School District of Oconee County and serves the high school. The treatment system has a design flow of 32,000 gpd. This plant could be connected to public sewer with a gravity sewer extension.
- Carolina Landing Campground – has a treatment system with a design flow of 40,000 gpd. This plant is an area (near Exit 4) that is feasible to serve with public sewer.
- Welcome Center – is owned/operated by SC Department of Parks, Recreation, and Tourism. The treatment system has a design flow of 15,000 gpd. The plant is currently being eliminated and connected to OJRSA sewer with the Sewer South Phase II project.
- The Pier– originally constructed to serve a textile facility, is now privately owned and serves a development on the former industrial site. The treatment system has a design flow of 900,000 gpd. This plant could be connected to public sewer with a pump station and force main, however, with a sizable permit to discharge to Lake Hartwell, it would be detrimental long term to abandon that permit to then treat at an OJRSA facility.
- Keowee Key – serves a housing and recreation community at the north end of Lake Keowee. The treatment system has a design flow of 900,000 gpd. The plant is located several miles from any existing public sewer, and with the location on the lake and topography in the area, would be extremely costly and impactful to property owners to construct a pump station and force main to take it offline.
- Tamassee DAR School – small facility that serves a school in the Tamassee community along Highway 11 east of Mountain Rest. Actual capacity is unknown, but due to the small size and remote location, is not feasible to connect to public sewer within the study window.
- Oconee State Park – serves bathroom and other domestic facilities at the state park near Mountain Rest. Actual capacity is unknown, but due to the small size and remote location, is not feasible to connect to public sewer within the study window.

1.5 Septic Systems, Challenges, and Potential Transitions to Public Sewer

Within the study area (Figure 1) septic systems will continue to remain a viable wastewater treatment system as long as they are properly installed in the right types of soil and maintained. These are great in areas that are targeted for remaining rural as well as agricultural areas.

This study considered the potential for septic system conversion to public sewer should it be made available. Additionally, the Project Team sought to identify areas that were prone to septic system failure. Due to the lack of publicly available data for the age of septic systems in this area, an accurate depiction of failing units and the effect on water quality is unclear. Additionally, SCDHEC

(which hereafter may be referred to as SCDES[7] for futuristic items) only requires a permit for new or total replacement of septic systems. Maintenance and repairs to individual dwelling or business septic systems are the responsibility of the owner and do not require a permit or notice from SCDHEC, which makes tracking this information difficult (SCDHEC, 2022a). This makes it challenging to know the age of septic systems, those that are in need of maintenance or replacement, or those that could be contributing to water quality concerns within the county. Thus, in the absence of the available data, targeting areas that might benefit from the presence of public sewer infrastructure over the next 20 years was not accessible for this study.

Some developed areas within the study area are not capable of connecting to sewer because it is not economically feasible. These include areas that are distant from existing or proposed future sewer, as well as lake front areas. These systems that are outside of OJRSA's service area should be put on a scheduled/preventative maintenance plan that is preferably overseen by a homeowner's association or other such interested body.

For these areas, in the absence of sewer infrastructure, the existing developments in the study area have typically occurred along highways, which are generally located along ridgelines as that is historically where major roads have been constructed. However, sewer is optimally constructed along low-lying areas to utilize gravity sewers that allow for lower maintenance. This makes collecting sewer from existing residents and businesses difficult to do on a large scale because pump stations (which require a significant amount of maintenance and operating expenses) would need to be installed to move the wastewater against gravity to the ridge (higher areas). In many cases, gravity sewer lines have to be constructed along lower areas on either side of a ridgeline road, and gravity sewer branches running up to the road with pump stations would then be constructed to provide ridgeline roads with sewer service.

Serving lakefront areas can be problematic as well. Gravity sewers along low-lying areas (typically parallel to creeks and other water bodies) are most optimal to provide sewer service to areas. They are lower maintenance than pump stations and more cost effective to operate, and in general allow for future customers to tie on. However, with lakefront areas, these low-lying areas are underwater, and in cases of already developed areas, the most useful location to construct a gravity sewer is in existing backyards. To effectively serve lakefront areas it would typically require many pump stations and force mains. Additionally, with the topography typically found around Upstate lakes, force main routes would require winding, circuitous paths to get away from the lakefront areas to existing sewer infrastructure. All of these factors make it very costly and impactful to existing property owners to serve lakefront areas with sewer using conventional means, especially if the areas are already developed. There are grinder pump stations and vacuum sewer systems that have been utilized in other areas to serve lakefront property, but they present significant operation and maintenance challenges as well.

1.6 Infill and New Public Sewer Infrastructure Investments

Land use regulations influence the type and density of development. One type of development that can occur is infill. Infill development includes new construction or redevelopment of land that is typically underutilized or vacant and is also located within a developed area. For example, an

[7] As established by Act 60 of the Acts and Joint Resolutions of the General Assembly for the State of South Carolina for the Year 2023 ("Act 60 of 2023"), the environmental regulatory division of SCDHEC is to become the South Carolina Department of Environmental Services (SCDES) on July 1, 2024, and SCDHEC will no longer exist after that date as its health-related functions will then be served by the newly created South Carolina Department of Public Health.

empty parcel on a main road within a city or an abandoned commercial space. Sewer investments in these scenarios are typically cost effective and could include a pipe upsize (to handle the increased flow) or a shorter extension for service. Alternatively sprawl development is low-density development that includes large lot residential development or commercial development on the outskirts of cities and towns. Sewer investments, as well as other utility investments, in these areas are typically cost prohibitive because of the amount of new infrastructure required for service.

Sewer investments made in areas currently served by septic systems that would be considered infill development or in areas where future growth is likely to occur in a medium to high density manner will likely stimulate additional development that may not have been possible without public sewer access. Sanitary sewer service is a significant public investment and it has the potential to determine where and how the service area will develop and grow in the coming decades. Major sewer projects require thoughtful conversations weighing both costs and benefits, considering a variety of factors. The following were considered as part of this study:

- Existing sewer infrastructure needs
- Location of future growth areas
- Environmental concerns
- Economic development goals
- Population growth potential
- Commercial and industrial needs
- Feasibility of sewer by location
- Cost for installation and maintenance
- Cost/benefit for both the sewer provider and customers

This list and the policy considerations outlined below were the foundational analysis for this study.

1.7 2023 Fair Play and Townville Area Sewer Basin Plan

The results of the 2023 Fair Play and Townville Area Sewer Basin Plan were directly incorporated into this study with revisions based on stakeholder and public feedback. Adoption of this study by the OJRSA board should thus consider the 2023 study no longer applicable for long term planning. Census tract 109 within Anderson County was included as part of the 2023 study and including that prior analysis was the only consideration to Anderson County sewer expansion within this Sewer Master Plan. Anderson County was not further engaged for this study because it was determined at the onset of the project that OJRSA should first focus on their existing sewer needs and potential expansions before considering partnering with a neighboring county.

2.0 POLICY CONSIDERATIONS

2.1 Policy Considerations – Oconee Joint Regional Sewer Authority

OJRSA revised their Sewer Use Regulation and implemented it on October 1, 2023, to address comments from the public during the 2023 *Fair Play and Townville Area Sewer Basin Plan*. This was one of the most commented on concerns from the Fair Play and Townville engagement results. This is a major update to the prior language and allows those properties with a working septic system to delay connection to public sewer for the lifespan of their septic system unless an exception is applicable.

Oconee Joint Regional Sewer Authority Sewer Use Regulation Section 3.5 C and D states:

> *C. The Owner of all houses, buildings, or properties used for human occupancy, employment, recreation, or other purposes, abutting on any street, alley, or right-of-way in which there is a public sanitary sewer, is hereby required at the expense of the Owner*

to install suitable toilet facilities therein, and to connect such facilities directly with the public sewer in accordance with the provisions of these Regulations. Under unusual or specific circumstances, the Director may waive this provision. This requirement shall not apply to any of the above-described properties that, as of the date this Regulation is adopted, are utilizing a septic system permitted by SCDHEC in compliance with S.C. Regulation 61-56. Such properties may continue to utilize their existing septic systems until and unless SCDHEC requires those properties to connect to public sewer pursuant to S.C. Regulation 61-56.

D. Exceptions

1. Force mains shall not be considered accessible and shall not be utilized by any User for direct connection of sewer service.

2. Where annexation or easements to cross adjacent property are required to connect to the wastewater system at the time of application, then sewer shall not be considered accessible. A deed and plat must be on file with the Register of Deeds indicating the parcel(s) located between the property to be developed and the sewer system. The adjacent parcel(s) which must be crossed shall be identifiable by County Tax Map System (TMS) number.

(OJRSA, 2023).

2.2 Policy Considerations – South Carolina Department of Health and Environmental Control/South Carolina Department of Environmental Services

SCDHEC has regulation related to wastewater treatment facility accessibility, regulation R 61-56 Section 300, which reads as follows:

300.1 Permits for new onsite wastewater systems shall not be issued where a wastewater treatment facility is accessible for connection.
300.2 Repairs to or replacement of failing onsite wastewater systems shall not be allowed where a wastewater treatment facility is accessible for connection.

(SCDHEC 2022a).

Although SCDHEC does not currently specify a distance to which this accessibility regulation applies, there is an SC State statute that addresses the authority for determining the connection. SC Code, Sections 5-31-210, authorizes municipal governments to "adopt and enforce regulations requiring all properties to which sewer service is available to connect to the municipality's sewage collection facilities" (SC Code of Laws Title 5 - Municipal Corporations).[8] This puts the responsibility of determining accessibility in the provider's jurisdiction, which is why there are different policy approaches depending on the provider.

2.3 Policy Considerations – Anderson County Use of Public Sewer

Anderson County has a policy regulating sewer discharge within the county's jurisdiction. Their approach is tiered pending the linear foot (LF) distance from the property to the sewer availability based on land use and size of the development. The following is the verbiage in the regulation of sewer discharge within Anderson County's (2018) jurisdiction Section 44-26:

All sewage disposal within the jurisdiction of the county shall be regulated by the county, and disposal shall be by public sewers and sewerage system except where

[8] A legal opinion should be obtained to determine if this also applies to the OJRSA as a Joint Authority Water and Sewer System under SC Code 6-25, counties (SC Code Title 4), and other governments.

connection is impractical for technical reasons as follows:

- *Single Family Residence – 300 LF*
- *Duplex Apartment Complex (2-6 units) – 800 LF*
- *Up to 30 lot subdivision – 1500 LF*
- *30-60 lot subdivisions – 3000 LF*
- *60-90 lot subdivisions – 4500 LF*
- *Greater than 90 for subdivision – 1 mile*

There are some exceptions to this rule including challenging topography, right-of-way considerations, and subdivisions with lot sizes that are four acres or more. Additionally, according to this rule, force main lines are not considered to be readily available to the public and thus only properties that are approved for force main access by county council or wastewater department will be permitted to connect to these lines.

2.4 Policy Considerations – Clean Water Act - 303(d) Impaired Waters

Failing septic systems have been a concern within the study area. Several Clean Water Act Section 319 projects through SCDHEC have occurred over the past few decades to address failing septic systems within the study area. There are six Total Maximum Daily Load (TMDL) watersheds within the study area (Figure 4 – Total Maximum Daily Load Watersheds). TMDLs are set on waterbodies that do not meet their designated use criteria for water quality standards. All six TMDLs fecal coliform bacteria, which is an indicator of potential contamination from a variety of sources including failing septic systems, agricultural land uses, and wildlife. The following is a list of the TMDL reports prepared by SCDHEC:

- Beaverdam Creek (1999)
- Coneross Creek (2000)
- Cane and Little Cane Creeks (2005)
- Burgess Creek (2010)
- Choestoea Creek (2012)

All of these documents acknowledge both failing septic systems and sewer overflows as probable sources of fecal coliform bacteria in these creeks. Additionally, agricultural activities including cattle and horse grazing within the streams and runoff from livestock pastures were noted as probable contributors in all of these watersheds.

Coneross, Cane, Little Cane, and Beaverdam Creeks all underwent successful Clean Water Act Section 319 Grant implementation projects. In Coneross and Beaverdam Creeks, 38 failing septic systems in the area were repaired or replaced. In Cane and Little Cane Creeks, 17 alternative watering sources were developed to provide clean water to cattle, 18 on-site wastewater treatment systems were installed, and nearly 7,000 feet of fencing to keep cattle and goats away from the creeks.

In 2013, SCDHEC officially approved adopting *E. coli* as the bacterial indicator for recreational use, thus removing fecal coliform from the indicator list. According to the SC Watershed Atlas (SCDHEC, 2024) and the 2020-2022 combined 303(d) list (SCDHEC, 2022b), eight waterbodies within the study area are impaired due to *E. coli* that are not approved TMDL sites at the time of this report. These sites are also shown in Figure 4.

The Lake Keowee Source Water Protection Team has been implementing several of these replacements and repairs and they also performed a few additional repairs outside of the grant.

2.5 Policy Considerations – Comprehensive Plans

Oconee County mentions sewer expansion several times in their 2020 comprehensive plan. Expanding sewer facilities for new residential use is a goal under many elements within the plan and the availability of public sewer (and water service) is noted as having the following benefits:

- *Reduce initial residential construction and development costs and enable smaller residential lot sizes in appropriate areas" making "residential development more attractive to prospective developers and less expensive for potential buyers*
- *The extension of public sewer service to currently unserved areas can lower residential development costs.*
- *Increased availability of water and sewer service can also encourage the location of new industries and businesses that provide additional jobs and increased community investment.*

(Oconee, 2020)

Additionally, the Oconee County 2020 Comprehensive Plan acknowledges that "although wells and septic tanks can be less expensive alternatives to publicly provided water and sewer service over time", the need for larger lot sizes "can sometimes raise land prices higher than the smaller lots in more densely developed projects that have water and sewer service" and the initial development costs can be high for septic tank installation (Oconee, 2020). Table 1 – Summary of Sewer Related Goals for Oconee County Comprehensive Plan provides the goals, objectives, and strategies related to sewer within the Oconee County Comprehensive Plan. These listed goals and objectives should be part of future stakeholder discussions related to this topic.

Table 1 – Summary of Sewer Related Goals for Oconee County Comprehensive Plan

Goals/Objectives/Strategies	Accountable Agencies	Time Frame for Evaluation
Goal 3.2. Promote and enhance access to affordable, safe, and decent housing for all Oconee residents through public and private cooperation.		
Objective 3.2.2. Work with the State, municipalities, neighboring communities, and other public and private organizations to remove barriers to, and identify solutions for, the provision of affordable housing.		
Strategy 3.2.2.1. Encourage the expansion of water and sewer infrastructure and facilities to increase opportunities for new residential development and provide service for existing residential areas that are currently unserved.	• Oconee County • Municipalities • Water and Sewer Providers • S.C. Dept. of Commerce	2023
Goal 6.3. Preserve, protect, and enhance the quality and quantity of the water resources of Oconee County.		
Objective 6.3.1. Expand sewer service to additional areas as feasible.		
Strategy 6.3.1.1. Support wastewater treatment providers in the extension of sewer service to currently unserved or underserved areas to minimize the need for septic tanks where conditions are not suitable or water sources may be compromised.	• Oconee County • Oconee Joint Regional Sewer Authority (OJRSA) • Municipal Providers • Other Public and Private Providers	2025
Strategy 6.3.1.2. Support wastewater treatment providers in the upgrade and expansion of existing treatment facilities to accommodate the expansion of sewer service.	• Oconee County • OJRSA • Municipal Providers • Other Public and Private Providers	2023

Goal 7.1. Provide adequate, safe, and efficient infrastructure to support current and projected needs.		
Objective 7.1.2. Improve and expand wastewater treatment within Oconee County.		
Strategy 7.1.2.1. Expand sewer service throughout areas identified by the Land Use Element as potential areas of development, while implementing appropriate measures to avoid negative impacts on sensitive areas.	• Oconee County • OJRSA • Other Sewer Providers	2025
Strategy 7.1.2.2. Work with neighboring jurisdictions when possible to establish regional efforts to expand sewer service into prime commercial and industrial locations	• Oconee County • Neighboring Jurisdictions	Annually
Strategy 7.1.2.3. Partner with municipalities and the Joint Regional Sewer Authority to coordinate efforts to provide sewer throughout high growth corridors.	• Oconee County • Municipalities • OJRSA • Other Sewer Providers	Annually
Strategy 7.1.2.4. Establish partnerships with regional, state, and federal agencies to seek and secure funding for wastewater treatment facility upgrade and expansion needs.	• Oconee County • OJRSA • Other Sewer Providers • Relevant Regional, State and Federal Agencies	Annually
Goal 7.2. Manage community facilities, infrastructure, and public resources in a manner that ensures both current residents and businesses and future generations can enjoy the benefits and opportunities that make Oconee County an attractive and affordable place to live.		
Objective 7.2.5. Strengthen coordination among the County, municipalities, neighboring counties, regional and State agencies, and other public and private organizations.		
Strategy 7.2.5.2. Continue coordination of the provision of water, sewer, and electricity with municipalities and other public and private providers.	• Oconee County • Municipal Utility Providers • Public & Private Utilities	Ongoing

Note: Information directly sourced from Oconee, 2020

Anderson County does not specifically mention sewer expansion in their comprehensive plan. Anderson does acknowledge that cost is a factor for extending water and sewer to undeveloped land within the county, impacting the affordability of new residential development (Anderson, 2016). The comprehensive plan does note that there are many individuals on lot septic systems that exist in moderate density communities (Anderson, 2016). At the time of this report, Anderson was undergoing a Comprehensive Planning update to their 2016 plan.

2.6 Policy Considerations – American Water Works Association – Governance

American Water Works Association (AWWA) developed several reports to provide guidance to the water community to help address for long-term challenges. This includes organizations and professionals within the water, wastewater, stormwater, and water resources service areas. AWWA developed several reports in 2023, including one focused on governance. This report focuses on the following four categories:

1. *Implement a "One Water" governance approach.*
2. *Optimize utility governance and business models.*
3. *Develop governance that promotes innovation and sustainability.*
4. *Advance collaboration to drive (governance) innovation.*

The "One Water" approach is a deliberate water management approach that considers all aspects of water in a more holistic manner. The Feasibility Study is addressing this more directly, yet the main goals outlined in the governance report will be important for OJRSA to consider as they work to implement this plan alongside the recommendations of the Feasibility Study.

1. "Absolutely critical to success here is having a knowledgeable, apolitical, competent utility board that understands the mission and vision of the executive team, and meets minimum capabilities and expertise criteria" (AWWA, 2023).
2. The "One Water" approach is focused on unifying water governance under one agency.
3. Standards for water reuse is encouraged to be customized by location and end use.
4. AWWA's 2050 plan calls for regionalization of utilities by watershed. This encourages consolidation of systems in a way that balances efficiencies gained, while meeting the needs of the community. This idea is also intended to help develop better partnerships with stakeholders within the watershed including agricultural, land use, and manufacturing partners.
5. Integration of water utilities with other utilities especially the energy sector. There is an opportunity for a more circular economy.
6. Rates that reflect the full cost of service with affordability in mind are critical to ensuring investments are made to sustain the service provided. Government subsidies are mentioned as a potential solution to the equity concern.
7. A coordinated governance structure across all levels of government is recommended with incentives to plan for sustainability and resilience.
8. Performance standards are noted as an important path forward not only for accountability but also for increasing public trust.
9. Embracing innovation over the next 30 years will be important for the future success of water utilities. This includes data sharing and access to current and credible research.
10. Cooperative governance across political and geographical boundaries will be needed to avoid conflicts.

3.0 DATA ANALYSIS & GROWTH

3.1 Available Data

The initial tasks within this project included reviewing previous studies performed in this area, researching and analyzing additional data, engaging with the public, and meeting with a multidisciplinary sewer stakeholder group (Planning Stakeholders) early in the analysis (additional information is included in Section 4.0). Many previous studies, analyses, and data were considered as a part of this effort. Those items that were reviewed include, but are not limited to:

- Oconee County Comprehensive Plan (2020)
- Anderson County Comprehensive Plan (2016)
- Oconee County Zoning Enabling Ordinance (2009)
- Available land use, zoning, and future land use data from Oconee County, Seneca, Walhalla, and Westminster
    - *Note that during this project, Walhalla was undergoing their comprehensive planning process, and they did not have a Future Land Use Map for our team to consider. At the time of this report, their current zoning was being used as their future land use.*
- Major freight corridors and active rail locations
- Industrial sites
- Major developments that are underway or proposed based on available information and willingness of the information to be shared

- Census data by tract (2000, 2010, 2020)
- New address points within Oconee County (2016-2023)
- South Carolina Watershed Atlas for TMDL sites and impaired water bodies
- Prime farmland soils and available active farm locations
- Protected area locations which include conservation easements, wildlife management areas, state parks, and Sumter National Forest
- Recent prior requested areas for sewer by parcel (roughly tracked by the City of Seneca and OJRSA)
- Lake Keowee Surface Water Protection Team Septic upgrades
- Dry Weather and Wet Weather Hydraulic Model Results for OJRSA system (2023 version) (Goodwyn Mills Cawood)
- Wastewater Basin Study Interstate-85 Exit 4 (2021) (Thomas & Hutton)
- Sewer South Phase II construction design
- OJRSA Development Review Submittals
- OJRSA Fiscal Year 2025 Comprehensive Budget and Schedule of Fees Update
- Preliminary Engineering Report - Richland Creek Sewer for Seneca Light & Water, October 2023 (Goodwyn Mills Cawood)
- Sewer Study – Seneca Creek / Newry Planning for Seneca Light & Water, June 2022 (Goodwyn Mills Cawood)
- 2022 Work Plan – Pump Station Evaluation Report (WK Dickson & Co.)

3.2 Census Data & 20-year Projections

Population growth forecasts were considered as an important component to projecting future sewer flow demands within the project planning horizon. When analyzing the data available to project future growth of an area, The Project Team focused on reviewing past studies, analyzing available recent census data (2000-2020) and publicly available projections. This information was then compared to institutional knowledge from the Planning Stakeholders. We also considered the feasibility of growth in the area based on current land use and both growth opportunities and constraints.

First, the Project Team developed a baseline for the current population and mapped the extent of sewer within the study area (Figure 1). Census Data provided the population within the study area for prior years (2000, 2010, and 2020). Census data shows some of the census tracts growing during this period, while others saw a decline (Table 2 – Study Area Census Population, Growth Trends, and Projections).

Additionally, we consulted the following growth projection sources:

- The South Carolina Revenue and Fiscal Affairs Office provides population projections through 2035 for the state and each county based on Census data (2021).
- The ESRI ArcGIS projected Population Growth Rate provides a compound annual growth rate anticipated for through 2028 (2023b). ESRI develops this growth rate by repeating the growth anticipated annually, which they call a Compound Annual Growth Rate (CAGR).

According to the Revenue and Fiscal Affairs Office, growth in Oconee should continue through 2035 at a rate slightly lower than the total state growth. Both counties are projected to experience a tapered growth rate over time through 2035. The ESRI projections are highly focused on the next five years and the projections are just slightly higher in the near term to the Revenue and Fiscal Affairs Office. The Census data by Tract within the study area and the growth projections are provided in Table 2 – Study Area Census Population, Growth Trends, and Projections. and Table 3 – South Carolina and Oconee County Population Estimates and Projection

Table 2 – Study Area Census Population, Growth Trends, and Projections

Census Tract, Oconee County, SC	2000 Population	Census Tract, Oconee County, SC	2010 Population	Census Tract, Oconee County, SC	2020 Population	10-year (2000-2010) Percent Change	10-year (2010-2020) Percent Change	Esri 2023 Projections	Esri 2028 Projections	5-year Percent Change	Annual 2023-2028 Growth Rate
Tract 301	4,046	Tract 301	4,352	Tract 301	4,164	7.6%	-4.3%	4,261	4,340	2%	0.37%
Tract 302	5,498	Tract 302	5,764	Tract 302.01	2,500			2,541	2,555	1%	0.11%
				Tract 302.02	3,739	4.8%	8.2%	4,134	4,530	10%	1.85%
Tract 303	5,005	Tract 303	6,145	Tract 303.01	2,011			2,093	2,164	3%	0.67%
				Tract 303.02	5,175	22.8%	16.9%	5,663	6,144	8%	1.64%
Tract 304	7,892	Tract 304.01	6,989	Tract 304.03	2,598			2,579	2,530	-2%	-0.38%
				Tract 304.04	4,142		2.6%	4,184	4,100	-2%	-0.40%
		Tract 304.02	1,779	Tract 304.02	2,212	11.1%	24.3%	2,295	2,341	2%	0.40%
Tract 305	4,101	Tract 305	4,375	Tract 305	4,757	6.7%	8.7%	4,929	5,060	3%	0.53%
Tract 306	7,088	Tract 306.01	4,443	Tract 306.01	4,845		9.0%	4,962	5,039	2%	0.31%
		Tract 306.02	4,447	Tract 306.02	4,869	25.4%	9.5%	4,895	4,866	-1%	-0.12%
Tract 307.01	3,798	Tract 307.01	3,733	Tract 307.01	3,592	-1.7%	-3.8%	3,626	3,604	-1%	-0.12%
Tract 307.02	4,656	Tract 307.02	6,086	Tract 307.02	6,761	30.7%	11.1%	6,932	7,047	2%	0.33%
Tract 308	6,395	Tract 308	7,214	Tract 308.01	3,211			3,165	3,086	-2%	-0.50%
				Tract 308.02	4,415	12.8%	5.7%	4,555	4,668	2%	0.49%
Tract 309	8,602	Tract 309.01	2,454	Tract 309.01	3,148		28.3%	3,197	3,224	1%	0.17%
		Tract 309.02	7,526	Tract 309.03	4,688			5,036	5,370	7%	1.29%
				Tract 309.04	3,020	16.0%	2.4%	2,989	2,918	-2%	-0.48%
Tract 310	5,354	Tract 310	5,267	Tract 310	5,143	-1.6%	-2.4%	5,051	4,994	-1%	-0.23%
Tract 311	3,780	Tract 311	3,699	Tract 311	3,617	-2.1%	-2.2%	3,580	3,490	-3%	-0.51%
109, Anderson County, SC	3,757	109, Anderson County, SC	4,085	109, Anderson County, SC	4,504	8.7%	10.3%	4,683	4,869	4%	0.78%
TOTAL	**69,972**	**TOTAL**	**78,358**	**TOTAL**	**83,111**	**12.0%**	**6.1%**	**85,350**	**86,939**	2%	0.37%
TOTAL Central County Region*	**53,567**	**TOTAL Central County Region***	**59,941**	**TOTAL Central County Region***	**63,587**	**11.9%**	**6.1%**	**65,184**	**66,218**	2%	0.32%

Notes:

*Removes Census Tracts 301, 309 (and sub tracts depending on year), and Anderson 109

Blue highlighting indicates a Census Tract that split into additional Tracts between 2000 and 2020)

Table 3 – South Carolina and Oconee County Population Estimates and Projections

	Estimates			Projections			Projected Change
Location & Year	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**2010-2035**
South Carolina	4,635,846	4,896,006	5,130,729	5,366,452	5,601,742	5,827,845	1,191,999
5-year Percent Change		6%	5%	5%	4%	4%	26%
Oconee County	74,349	75,908	78,638	81,142	83,227	84,774	10,425
5-year Percent Change		2%	4%	3%	3%	2%	14%

Notes:
Estimates are updated on a regular basis and then the projections are adjusted accordingly. Projections are more accurate in the immediate future due to the potential for events that could significantly change the areas growth potential.

The values included in Table 2 – Study Area Census Population, Growth Trends, and Projections. and Table 3 – South Carolina and Oconee County Population Estimates and Projections were used to develop five initial population growth scenarios with the total projected growth over the 20-year project horizon shown in *italics*:

a. Gradual Growth, which assumed similar growth patterns to the SC Revenue and Fiscal Affairs Office. *10.4%*
b. Linear Growth, which assumed a standard linear regression growth using census data from 2010 and 2020 as the basis for developing the slope and intercept. *11.2%*
c. 3.0% Growth, which assumed a consistent 3.0% growth rate every five years, consistent with the growth rate observed in the study area between 2010 and 2020. *12.7%*
d. 5.3% Growth, which assumed a consistent 5.3% growth rate every five years, consistent with the growth rate observed in South Carolina between 2010 and 2020. *23.1%*
e. ESRI Growth, which assumed the CAGR rate extrapolated over the 20-year project horizon. This was the lowest scenario due to Census Tracts that are projected to experience a decline in population. *8.5%*

These five growth population models were presented to the Planning Stakeholders at the first meeting (held November 8, 2023) as potential final projections for total population over the 20-year project horizon. All models were rejected by the Planning Stakeholders because the models underestimate population growth compared to the recent growth observed. Oconee County provided additional data for consideration in our analysis. Upon receipt, the Project Team then reviewed three additional growth scenarios for consideration, one based on recent new address household growth (*31.7%),* a second based on a linear regression model adding the 2000 census data (*15.2%)*, and a third assuming a consistent 6.0% growth rate based on the growth observed between 2000 and 2010 (*26.2%*).

After careful consideration, the growth projection that was deemed reasonable and would be more inclusive of expected upcoming developments was the new address household growth model. Note that this model focuses on growth within Oconee County due to available data. Anderson County Census Tract 109 is outside of the current sewer service area and the future land use projected within that area is primarily agricultural.

3.3 New Address Household Growth Model

Oconee County began spatially tracking new addresses by land use type by year in 2016. The available eight full years of data (2016-2023) was provided to the Project Team to consider to better understand recent growth (Table 4 – Recent New Address Points by Category and Year).

Table 4 – Recent New Address Points by Category and Year

	Year									
Development Category	2016	2017	2018	2019	2020	2021	2022	2023	Total	%
Single Family Residential	468	560	668	566	628	799	876	843	5408	78.8%
Multi-Family Residential	26	52	224	190	16	140	251	29	928	13.5%
Commercial	32	52	29	32	33	31	60	18	287	4.2%
Agriculture	15	8	14	15	12	23	28	8	123	1.8%
Governmental	17	3	5	2	16	4	3	13	63	0.9%
Other	11	9				9	9		36	0.6%
Industrial	1	1		1		4	2	2	10	0.2%
Education	1	4	1		1	2	1		10	0.1%
Total	571	689	941	806	706	1012	1230	913	6868	100%

To visualize where this growth is occurring, we developed two visuals focusing on the most recent four years (2020-2023) for easy viewing (additional years made it challenging to visualize the data due to overlap) (Figure 5 - Recent New Addresses by Year (2020-2023) and Figure 6 – Recent New Addresses by Type (2020-2023). The following are important observations to note from these recent growth trends:

- Growth is happening across Oconee County with noticeable growth happening along the lakes and near the major cities and towns.
- Growth is happening in areas both within and outside of the current public sewer system service area.
- Growth is primarily single family and multi-family residential, accounting for 92.3% of the new address points over the 8-year period.
- Growth trends are not specific by year.

The new address household growth model started with the 2020 census population for the study area from the Census Bureau, 83,111 persons. To project the base year for this study, 2024, we assumed that the new single family residential and multi-family residential properties that became occupant ready between 2020 and 2023 each contained 2.34 persons, which is the persons per household value estimated by the U.S. Census Bureau for Oconee County (Census Bureau, Oconee, 2023). This value represents the number of people living in a housing unit, which includes a house, apartment, mobile home, a group of rooms, or single room that is occupied as a separate living quarter. This value of 2.34 is below the state average of 2.47 persons per household (Census Bureau, South Carolina, 2023). In 2000 the average household size in Oconee County was 2.40 and in 2010 it was 2.46.

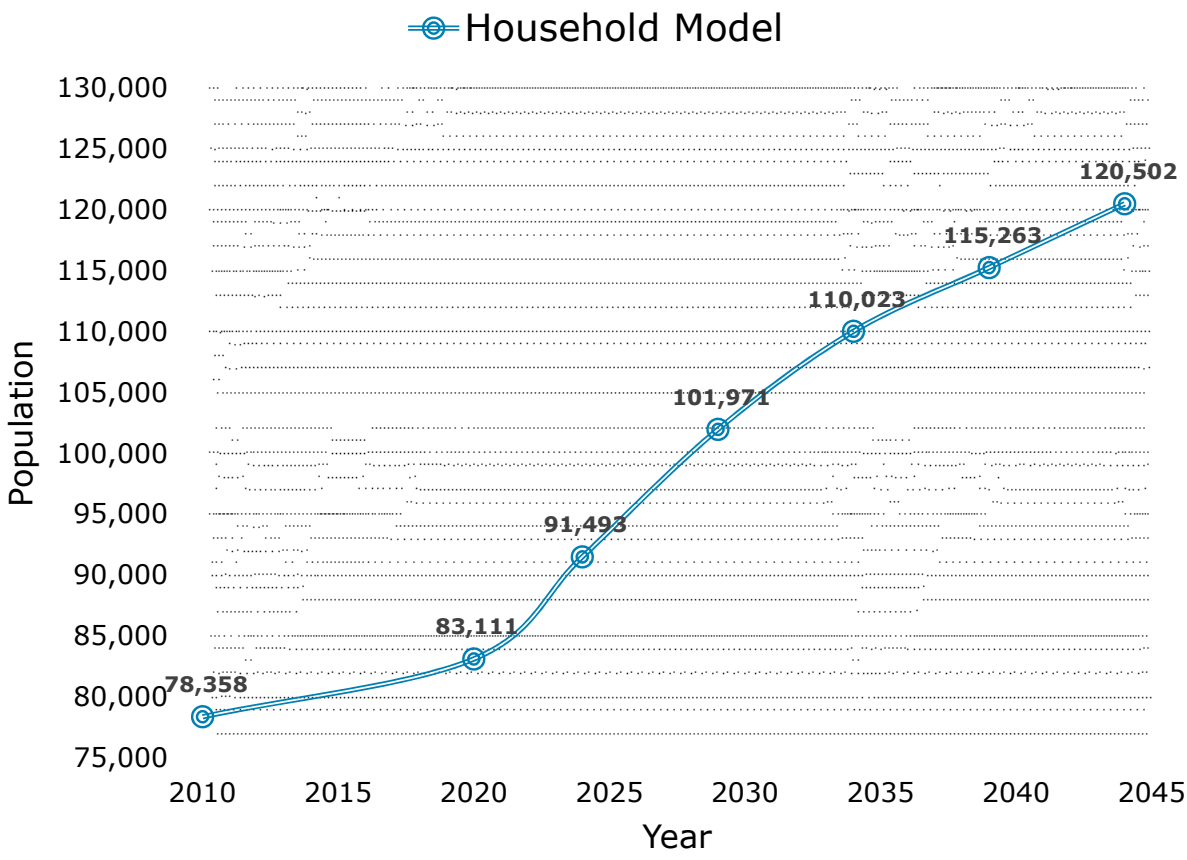
For the future projection analysis we held the 2020 value, 2.34 persons per household, constant as a more conservative approach.

The resulting estimated population assumes the base year of the study, 2024, starts with a population of 91,493 persons, a 10.1% increase in population from 2020, which the Planning Stakeholders agreed was more reflective of the recent growth observed in the county. The following growth was projected in five-year increments for the 20-year project horizon and assumes the following number of households:

- 2025-2029, 4,478 new households (extrapolating the observed new household growth between 2020-2023 accounting for an additional year). This would assume growth continues over the next five years similar to 2020-2023, which yields an 11.5% increase over these five years.
- 2030-2034, 3,441 new households (extrapolating the observed new household growth between 2016-2019, accounting for an additional year). This assumes growth starts to taper and yields a 7.9% increase over these five years.
- 2035-2039, 2,239 new households (half of the growth anticipated between 2025-2029). This assumes growth tapers over time and yields a 4.8% increase over these five years.
- 2040-2044, 2,239 new households (half of the growth anticipated between 2025-2029). This assumes growth tapers over time and yields a 4.5% increase over these five years.

A graph illustrating this growth is provided in the graph below (Figure 7 – New Address Household Growth Scenario: 20-year Population Projection). This model represents a 31.7% total increase in population between 2024 and 2044 equating to 29,009 new persons in Oconee County. This is the most aggressive model the Project Team developed.

Figure 7– New Address Household Growth Scenario: 20-year Population Projection



3.4 Assigning Growth to Sewer Basins

The Project Team then considered the new address trends observed over the 2016-2023 period and assigned the growth observed to the Hydrologic Unit Code (HUC) 12 Basins[9]. This analysis provided a way to assess and visualize where growth is happening within the current sewer service area versus outside of that region (Table 5 – Growth Category Percentage by HUC 12 Basin and Figure 8 – Recent Growth by HUC 12 Watershed Basins). This is one way to consider which sewer basins will receive which type of growth over the 20-year project horizon, providing a reference when allocating sewer basin flows. We combined the address types into the following main categories: single family residential, multi-family residential, industrial, and other (which included commercial, agriculture, government, education, and other). Using the 2016-2023 data we extrapolated the growth that could occur over the 20-year project horizon by category and by basin. The results of this analysis were used as a guide to check alongside the spatial analysis described in Section 5.0. The foundations of these projections are rooted in growth observed in the past and thus are just one way to consider where future growth may be directed. Should investments be made in new areas that are not currently sewered by public infrastructure, the growth by basin could change. For example, with Sewer South Phase II coming online later this year, one could anticipate more growth, especially commercial or industrial at those parcels that will now be served. This analysis, along with the spatial analysis and sewer capacity analysis, are all part of an iterative process, relying on Planning Stakeholder feedback and available data to develop this master plan as a proactive approach to sewer presented in this report.

[9] So called because the HUC 12 system uses a 12-digit code to identify local watersheds to the sub-drainage basin level

Table 5 – Growth Category Percentage by HUC 12 Basin (2016-2023 New Addresses)

Development Category HUC 12 Basin	Single Family Residential	Multi-Family Residential	Commercial	Agriculture	Governmental	Other	Industrial	Education	Total Development Percentage
30601010102									
30601010103									
30601010104					1.6%				
30601010105									
30601010201	0.9%		0.3%		1.6%	7.9%			0.8%
30601010204	3.8%	0.2%	2.4%	0.8%	1.6%	10.5%			3.2%
30601010301	1.1%			3.3%				10.0%	0.9%
30601010302	1.7%		1.0%	4.9%	1.6%			10.0%	1.5%
30601010303	0.9%			3.3%					0.7%
30601010304	7.8%	0.3%	2.8%	4.1%					6.3%
30601010305	15.2%	9.1%	18.5%	7.3%	7.9%	31.6%	36.4%		14.4%
30601010306	11.6%	0.0%	1.0%	4.1%	3.2%	10.5%			9.3%
30601010501	1.4%	0.0%	2.4%	4.9%	3.2%				1.3%
30601010502	14.3%	7.3%	25.1%	14.6%	22.2%	5.3%	63.6%	40.0%	13.9%
30601010503	5.9%	0.3%	2.8%	11.4%	3.2%	2.6%			5.0%
30601010802	2.7%	41.8%	4.2%	0.8%	1.6%				8.0%
30601010803	13.1%	40.3%	26.1%	4.1%	34.9%	26.3%		40.0%	17.4%
30601010804									
30601020204									
30601020209	0.4%			2.4%					0.4%
30601020210	0.5%		1.4%	2.4%	1.6%				0.5%
30601020301	1.5%			2.4%	1.6%				1.3%
30601020302	0.5%			2.4%					0.4%
30601020303	0.4%		0.0%	0.8%					0.3%

Development Category HUC 12 Basin	Single Family Residential	Multi-Family Residential	Commercial	Agriculture	Governmental	Other	Industrial	Education	Total Development Percentage
30601020304	1.2%	0.1%	2.1%	1.6%					1.1%
30601020403	0.9%	0.1%	1.4%	4.1%					0.9%
30601020502	7.1%	0.2%	4.5%	4.1%	7.9%	2.6%			6.0%
30601020505	2.1%	0.2%	1.4%	7.3%					1.9%
30601020506	0.3%		0.0%	2.4%					0.2%
30601020507	4.9%		2.4%	6.5%	6.3%	2.6%			4.1%

4.0 ENGAGEMENT

4.1 Stakeholder Engagement Process

The following activities were completed to assist with sewer projections for the Oconee County & Western Anderson County Sewer Master Plan:

1. Kickoff meeting with OJRSA
    a. September 14, 2023
2. Stakeholder Meetings
    a. In-person October 16, 2023, at OJRSA with a subcommittee of persons representing planning at each municipal level to discuss growth and land use
    b. In-person November 8, 2023, Planning Stakeholder Kickoff, at the City of Walhalla Depot
    c. In-person May 22, 2024,Planning Stakeholder Presentation at Seneca Light & Water Lake Keowee Water Treatment Plant
3. Public Meetings
    a. In-person February 8, 2024, at the City of Walhalla Depot
    b. In-person February 15, 2024, at the City of Westminster Depot
    c. In-person February 22, 2024, at the City of Seneca City Hall

Sign in sheets and the Planning Stakeholder meeting invitation list for the October 16, 2024 meeting are included in Appendix B.

4.1.1 Kickoff Meeting

A kickoff meeting with the Project Team was held at OJRSA on September 14, 2023, to review project scope, goals, schedule, and process. Additionally, the Planning Stakeholder group was identified, with the following groups originally recommended to be present at the stakeholder meetings:

- Utilities:
    - OJRSA
    - Duke Energy
    - Fort Hill Natural Gas
    - Pioneer Rural Water District
    - Blue Ridge Electric Cooperative
- City/County Governments:
    - City of Seneca
    - City of Walhalla
    - City of Westminster
    - Town of West Union
    - Town of Salem
    - Oconee County
- Other Governmental Agencies and Organizations:
    - Appalachian Council of Governments (“ACOG”)
    - US Army Corps of Engineers
    - South Carolina Department of Health and Environmental Control
    - Oconee County Soil & Water Conservation District
- Environmental Organizations:
    - Lake Hartwell Association
    - Lake Hartwell Partners for Clean Water

    - Upstate Forever
    - Friends of Lake Keowee Society ("FOLKS")
    - Lake Keowee Source Water Protection Team
    - Advocates for Quality Development ("AQD)"
- Private Package Plant owners/operators
    - Clear Water Solutions ("CWS")
    - The Pier/JACABB Utilities
    - Keowee Key
- Additional Organizations:
    - Oconee Economic Alliance
    - SC Farm Bureau
    - Clemson University
    - School District of Oconee County
    - Oconee County Parks, Recreation, & Tourism

4.1.2 Stakeholder Group Meetings

The Project Team then completed several weeks of due diligence research and preliminary GIS analysis ahead of the first stakeholder meeting, held on October 16, 2023. During this stakeholder meeting with planning entities, the municipalities and county were asked to provide feedback on the preliminary growth scenarios and provide input for land use trends. This was a critical step since the majority of the land in Oconee County is zoned as "control free" and the conversation resulted in the team considering a different growth projection scenario. All of the municipalities were invited to participate in this first stakeholder meeting along with Appalachian Council of Governments (ACOG). The following were present for this meeting:

- ACOG
- Oconee County
- Westminster
- Walhalla.

A full Planning Stakeholder group kickoff was held on November 8, 2023, to review the project process, data gaps, and analysis completed thus far. Each represented group was given the opportunity to speak to the group as a whole, in response to the following questions, which were provided ahead of time:

- What is most important to you as we consider sewer growth in Oconee County?
- What is your biggest concern about sewer expansion in Oconee County?
- What opportunities do you envision with sewer planning?
- Where in the County is the highest growth potential? – What type of development?

All of the entities listed as identified during the September 14th meeting were invited. The Town of West Union, the Town of Salem, and Clemson University did not participate in this meeting, nor did they provide feedback to the Project Team regarding these questions after the meeting. Due to the OJRSA potentially having a quorum of its board or standing committees in attendance, it was necessary to have this as a public meeting; however, there was not supposed to be an opportunity for the public to provide comments or questions

The following themes were noted: (*note: these are not the opinions of OJRSA or the Project Team, but reflect the opinions of the stakeholders present to the best of our ability*):

- General concern that this study could focus solely on growth and not consider the maintenance required on the existing system to keep up with current capacity needs, especially with current SCDHEC-issued Consent Orders[10]
- Suggestion to consider a collaborative municipal approach to land development regulations for a countywide land use plan
- General comments about a more proactive approach to land use planning and smart growth principles and using this study effort as an opportunity to control growth
- Concern about the requirement to connect to sewer infrastructure once sewer is made available
- Concern about the loss of agricultural land and the impacts of sewer running through farmland
- Rates of impact fees being reasonable and ensuring a growth friendly atmosphere
- Concern about keeping the "integrity" of Oconee County
- Comment that OJRSA is reactive to the growth and is not operating from a plan and a suggestion that developing a plan could be a stakeholder driven process
- Concern about water availability to meet the demands
- Sewer can help protect water quality in areas with failing septic systems – this is a known strategy that some entities have been trying to address through grant money.

A second Planning Stakeholder group meeting was held on May 22, 2024 where the Project Team reviewed the results of the survey, spatial analysis, and presented a final draft of the master plan for sewer investment over the 20-year project horizon. Questions and comments were in support of the results and no significant changes were requested. Due to the OJRSA potentially having a quorum of its board or standing committees in attendance, it was necessary to have this as a public meeting; however, it was not advertised as a meeting open for public comment, but a few were voiced during the comment and question time.

4.2 Public Engagement – In-person Meetings

Three public meetings were held in Oconee County in February of 2024. These meetings were on the following dates, times, and locations (approximate attendee total included in parathesis):

- February 8, 2024, 3:30-5:30 at the City of Walhalla Depot (15)
- February 15, 2024, 5:30-7:30 at the City of Westminster Depot (15)
- February 22, 2024, 5:30-7:30 at the City of Seneca City Hall (20)

Each meeting included three passive posters for attendees to review project background information, two printed maps differentiating between public and private sewer locations, a 20-minute presentation, time for questions, a mapping exercise, and a monetary spending activity. Snacks and water were provided, along with a children's activity (though no children attended). Background information and the survey were made available in hard copies for those that preferred a paper version (though no one used them at these events). The mapping exercise was very similar to the virtual mapping exercise available on the project website. Attendees were asked to place a green dot on the map where they would like to see sewer infrastructure and a yellow dot on a separate version of the same map where they would prefer no sewer to be extended (Figure 9 – Public Engagement – Sewer Growth Feedback). Each attendee had three of each color dots that they could choose to place, but they did not have to place all six of their dots.

[10] OJRSA, City of Walhalla, and City of Westminster were under active Consent Orders at the time of the study

The monetary spending exercise asked attendees to prioritize monetary investment by different ways public money could be spent on sewer. Each attendee was given five fake coins to place in seven different mason jars reflecting their opinion. Attendees could spread out their coins or combine them into the same investment category. The combined results from all three meetings in descending order of preference for the 25 total persons that participated are as follows (*note: total is not 100 due to rounding*):

- 49% - Existing Sewer Infrastructure Maintenance
- 16% - Existing Sewer Infrastructure Growth
- 12% - New Sewer to Existing Development
- 8% - New Sewer to Support All Types of Growth
- 6% - New Sewer to Support Institutional[11] Growth
- 5% - New Sewer for Economic Development
- 5% - New Sewer for Residential Development

A few changes were made after the first meeting to reflect feedback from attendees and observations made by the Project Team. These changes are as follows:

- The sewer service area map for the first meeting included an approximate boundary for the public sewer service area to avoid showing specific sewer lines. This caused confusion due to the size of the buffer. The municipalities agreed to let our team show the area served by sewer with a 200-foot boundary around the pipelines (gravity and force mains), providing better clarity for the service area. These revised maps were used for the subsequent two meetings.
- The capacity restricted area map was also confusing for attendees and so that map was simplified for the subsequent two meetings.

4.3 Public Engagement – Project Website & Social Media

A project website was hosted on the ArcGIS StoryMap platform and provided a single location for all project-related news and resources. The site was launched to the public on February 1, 2024, and was promoted on the OJRSA website, social media, and by press release to "mainstream media"[12]. Between February 1 and April 1 – the time frame the survey was open – the website was viewed 492 times.

In addition to background information, the project website hosted project news (media releases, upcoming event information), a project flyer, the open house presentation for those who were unable to attend, and digital feedback collection tools.

The two digital feedback collection tools were a survey and an interactive comment map using Bolton & Menk's INPUTiD mapping tool. The INPUTiD map outlined Oconee County, Census Tract 109 in Anderson County, and existing public sewer infrastructure with a 200-foot buffer. This tool invited the public to leave comments at specific areas they would prefer or were against sewer growth. Users also had the option to react to comments by "liking" and "disliking" comments.

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[11] "Institutional" includes a variety of public development such as a municipal building, hospital, library, or school facility.

[12] A press release dated January 24, 2024 (titled "OJRSA to launch engagement for the Central Basin Sewer Planning Study") was provided by the OJRSA's media consultant, Complete PR of Greenville, SC to: WGOG radio, WSNW radio, WYFF television, WSPA television, WLOS television, WHNS television, *The Journal* newspaper (Seneca, SC), *Anderson Independent Mail* newspaper, *Keowee Courier* newspaper (Walhalla), *GSA Business Report* newspaper, *Upstate Business Journal* newspaper, Upstate Biz website, GVLToday website, and *The Post & Courier* newspaper's Greenville office. Of those that received it, there was only record of it being reported on by WGOG, Upstate Biz, The Greenville Blog, and *The Post & Courier*.

There was a total of 24 comments and 44 reactions. This feedback was combined with data collected on the paper version of the map from the in-person events to create a comprehensive visual at preferred and unpreferred areas within the study area for sewer growth (Figure 9).

The project website, comment map, survey, and events were all promoted on OJRSA's social media accounts (X – formally known as Twitter, Instagram, and Facebook). There were 12 different posts about the project and in-person meetings and two promoted posts to drive survey engagement. The promoted posts reached over 7,100 people and received 381 clicks, substantially boosting project and survey awareness.

Prior to completing the survey there was a handout developed (Appendix B) to provide background for the project and also some baseline knowledge for what public sewer is, how it is differentiated from private sewer and septic tanks, and also the cost and environmental implications. A summary of the key considerations for public sewer are included below.

Potential benefits to public sewer:

- The presence of public sewer can lead to considerable increases in property value, as it can significantly increase the potential scale and value of site development.
- Areas served by public sewer can help attract new residential and commercial/industrial investment.
- Public sewer systems provide environmental benefits by replacing septic systems that are failing and/or are in areas with poor soil drainage.
- By avoiding the need for new septic tanks and removing existing aging septic tanks, both ground water and surface water can be better protected, which in turn helps protect drinking water systems and bodies of water that provide recreational benefit to residents and visitors.
- Publicly owned sewer systems are permitted and must meet stringent federal/state requirements that might not apply to existing private systems.
- Publicly owned sewer systems may allow for new connections to be added in the future, which if planned thoughtfully, can help with growth demands in the area.

Cost limitations and considerations for public sewer:

- All types of wastewater solutions (private or public, septic systems, and sewer systems) require maintenance. If wastewater systems are not properly maintained, failures can lead to the release of raw sewage into our environment, potentially affecting natural resources and public health.
- Septic systems - which are found throughout Oconee County– will continue to be a good solution for handling wastewater in certain areas. Infrastructure costs need to be considered. For example, extending public sewer long distances or to only serve a small number of properties over a large area may not be cost effective.
- Future growth planning may dictate larger infrastructure than initially required. While development is happening, oversized pipes, pumps, etc. may require more maintenance or an interim solution until more growth occurs.
- Topography may influence the ability for sewer to be installed cost-effectively in certain areas, since additional infrastructure may be needed to serve lower lying areas for proper drainage.

Access to public sewer will make more properties developable. Getting a permit for a septic tank on your property is not a guarantee. SCDHEC looks at several factors such as soil type, slope, house size, and proximity to private wells when determining if a permit can be issued for a new septic system.

4.4 Public Engagement – Survey

The public survey was active from February 1 – April 1, 2024. The survey was promoted on the OJRSA social media accounts, OJRSA's website, and on the project website. Paper copies were available at all three public open houses and were available through the municipalities, though no one filled out a paper copy (Appendix B). Of the 489 total responses, 382 were fully completed. Sampling bias was minimized by providing the survey online, advertising on social media with promoted posts, and avoiding – as best The Project Team could – convenience sampling. Assuming respondents were a representative sample of the population, the completed survey sample size provides a 95% confidence level and a margin of error of +/-5%. Comparing the incomplete survey responses to the completed ones did not reveal significantly different results. As a result, those responses were not included in the analysis. A full summary of the results is available at the end of this report in Appendix B. Below is a brief overview.

The survey originally included an additional question that asked respondents to choose what type of land use regulations should be considered by the municipalities and county. This question did not include a "none" response and caused concern for those that wanted to complete the survey but did not feel they could express their preferences. The Project Team was informed of this concern by community leaders and the question was removed from the survey on February 22 and the change communicated on the project website.

Property:

- 99% of the respondents reside and/or own property in Oconee County
- 70% support some level of growth within Oconee County
- 84% currently own property that is on a septic system

Growth:

- 92% of the respondents requested additional information before making an informed decision on sewer expansion which fell into the following categories:
    - Concerns about cost and transparency about spending
    - Maintenance plans for current and future systems
    - Concerns about loss of farmland
    - Environmental impacts
    - Traffic congestion concerns as a result of growth
    - Understanding who will benefit from sewer investments
    - Proof of need for additional sewer when existing infrastructure is underutilized
    - What role the development community can play in taking on the cost burden for growth
    - At what point the development community can be told no to development
    - The intent for the $25 million bond for sewer infrastructure that Oconee County is investing
    - More details about the location of future sewer investment
    - The results of this study
- Overall, there is a strong call for balanced, controlled growth that respects the community's character, preserves natural resources, and involves input from residents

Key Priorities Include:

- Environmental Concerns and Preservation: Many respondents expressed concerns about the environmental impact of sewer expansion on surrounding areas, including the disruption to natural beauty, wildlife habitats, and ecosystems. They emphasize the importance of preserving Oconee County's natural resources and scenic beauty.

- Opposition to Forced Connection and Potential Tax Burden: There is opposition to being forced to connect to sewer systems, especially if residents feel they do not need it or if they are content with their current septic systems. Additionally, there is resistance to shouldering the financial burden of expansion, particularly if it is perceived as benefiting only a few individuals or developers. The concern around financial implications also includes potential burden on taxpayers, ratepayers, potential cost overruns, and the need for transparent budgeting and spending.
- Transparency and Public Involvement: Many respondents highlighted the importance of transparency and public involvement in decision-making processes related to sewer expansion. They want to be kept informed and included in discussions and decisions regarding infrastructure projects that will impact their communities.
- Planned and Sustainable Growth: Some respondents support sewer expansion but emphasize the need for careful planning and sustainable growth strategies. They advocate for expansion to be targeted towards areas where it is necessary and appropriate, rather than promoting unchecked development. There are concerns about the potential for sewer expansion to lead to rapid overdevelopment, particularly in rural areas, and the strain it could place on existing infrastructure, such as roads and traffic congestion. They emphasized the importance of smart growth principles and balancing residential, commercial, agricultural, and industrial development.
- Infrastructure Concerns and Maintenance: Respondents expressed frustration with the current state of sewer more generally across the study area, including the need to maintain and upgrade the current system across the county regardless of ownership based on capacity needs and failing infrastructure. There is a strong demand for improved infrastructure and maintenance practices. Additionally, some residents currently on privately owned sewer systems (e.g., Chickasaw Point) mentioned the desire to convert over to the public system.
- Local Control and Governance: Respondents expressed distrust of elected officials and those in charge of making sewer infrastructure decisions across the county and they called for transparency, and suggested involving the community in decision-making through initiatives like ballot voting.

5.0 LAND USE & SEWER SUITABILITY

5.1 Spatial Analysis Review

In addition to considering census data and receiving feedback from the Planning Stakeholder group about target growth areas within this region, the Project Team considered spatial data to project growth. The current zoning for the study area (Figure 10 – Study Area Zoning) and the proposed future land use for the study area (Figure 11 – Study Area Future Land Use) from Oconee County, the City of Seneca, and the City of Westminster were studied. Note that the City of Walhalla was going through a Comprehensive Planning effort during this project and did not have completed future land use data for our consideration. Walhalla's current zoning was last updated in 2023 which also serves as their future land use map. Outside of the three city limits, the study area's current land use is predominately zoned as "control free district"[13] and the future land use in

[13] According to the Zoning Enabling Ordinance (ZEO), Oconee County defines "control free" zoning as not regulated by the zoning district restrictions but those areas do need to comply with all adopted performance standards, overlay districts, or any other applicable ordinance within Oconee County Code of Ordinances (2024). In 2009 at the adoption of the ZEO all parcels in the County limits were zoned within the Control Free District and would only change to a different zoning district upon rezoning request and approval.

those areas is predominately agricultural with some residential.

A growth constraint analysis was prepared which considered the following items as areas that may hinder developed from a feasibility or policy standpoint (Figure 12 – Development Constraints):

- 100-year floodplain
- Hydric soils
- Steep slopes greater than 33% over 10 feet (horizontal)
- Known conservation easements and protected lands (including South Carolina Department of Natural Resources Wildlife Management areas and US Army Corps of Engineers buffered land around Lake Hartwell)
- Sumter National Forest

This analysis illustrates that there are some steep slopes and hydric soils near the lakes, which would present a challenge for new sewer infrastructure. Additionally, many of the protected lands are clustered within the triangular area formed by SC State Highways 24, 59, and 243. Finally, the areas within and directly adjacent to Sumter National Forest are less suitable for development.

In addition to constraints, we wanted to consider the locations for prime farmland soils within the study area and parcels that are voluntarily zoned as agriculture within Oconee County (Figure 13 – Prime Farmland and Agricultural Zoning). There is a significant amount of prime farmland soil in the southern portion of the county and within Anderson Census Tract 109. Although prime farmland is not a direct constraint to new development or redevelopment, it is important to note where this land is located within the study area since both agritourism, and agriculture provide an important economic benefit to this area. The Project Team tried to get a comprehensive data set for active farms with Oconee County, but after reaching out to stakeholders and partner entities, we were unsuccessful at acquiring one. We did get some piecemeal data that helped confirm the area that has the most voluntarily zoned agriculture parcels is also where many of the current active farms are located. This was taken into consideration as the Project Team developed the 20-year sewer plan.

During the 2023 *Fair Play and Townville Area Sewer Basin Plan*, water quality (with respect to both failing septic and aging sewer infrastructure) came up as a concern for residents and stakeholders. This concern was repeated at the first stakeholder group meeting for this project. It is important to note that all types of wastewater solutions can have a negative effect on the environment if they are not properly maintained. Sewer can provide environmental benefit if failing septic systems are removed and those properties are brought onto public sewer systems that are well maintained. Water quality was considered by the Project Team by reviewing the location of bacterial impaired waters and TMDL approved watersheds (Figure 4).

Opportunities for development were also considered as part of this spatial analysis. We reviewed sewer requests received by the City of Seneca (2020-2023) and OJRSA (2022-2023) and noted where the primary areas of requests have been recorded. These requests are primarily located within the central area of the county near the four municipalities: Walhalla, Westminster, West Union, and Seneca (Figure 14 – Recent Sewer Requests).

Finally, we considered critical transportation routes (both freight corridors from SCDOT and railroads), current industrial sites, and feedback from Oconee Economic Alliance for primary growth corridors (Figure 15 – Critical Transportation and Industrial Sites).

5.2 Land Use Distribution Analysis

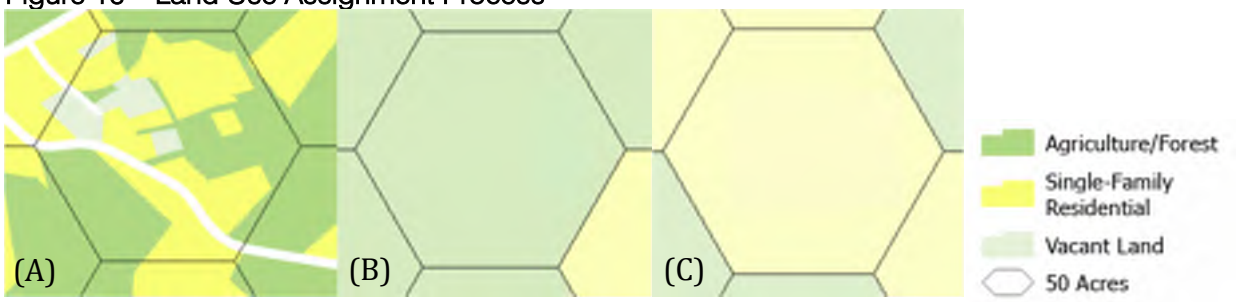
The goal of the land use distribution analysis was to create a realistic estimate of where land use could evolve over the project horizon. Land use and future land use helps inform what infrastructure is currently on the ground or what may be built in the future. This, in turn, provides information about the potential for sewer upgrades and expansion. For instance, an area with an agriculture/forest land use designation that is anticipated to remain that way in the future would not be suited for sewer expansion. The land distribution analysis was performed using the geospatial analysis software, ArcPro 3.1.3 (Esri, 2023).

This land use distribution analysis is a generalized estimate of land use across the study area rather than a specific study of each individual parcel. To look at the study area more broadly, it was divided into 50-acre hexagons. Using 50-acre hexagons removes the specificity of examining land use at a parcel scale while still being able to capture some of the nuances of the differences in land use. Hexagons allow the consideration for trends along major corridors that other shapes could not provide.

Each 50-acre hexagon began with no land use designation and, through a series of iterations, was assigned a land use class that best represented the estimated land use in the next 20 years. The hexagons were first assigned a land use class based on Oconee County's existing land use map and data from their 2020 Comprehensive Plan (Oconee County 2020). The land use categories from that plan were agriculture/forest, commercial, industrial, mobile home park, multi-family residential, parks and recreation, public and institutional, single-family residential, Sumter National Forest, utility, and vacant land. The empty hexagons were overlaid with the land use data, and a spatial join was performed so the hexagons were assigned the land use class that had the largest overlap with each hexagon. For example, if the hexagon overlapped with land use that was 75% commercial and 25% industrial, then the hexagon was assigned the commercial land use. Comparing the land use acreage of the source data to the hexagon land use acreage, from this first assignment, indicated that there was an overestimation of agriculture/forest and an underestimation of single-family residential.

To better align the land use of the hexagons with the county's land use data, the next analysis step examined several land use classes more specifically. These land use categories included single-family, multi-family, institutional, industrial, and commercial. Another spatial join was performed between these land use classes from the county's land use data and the hexagons using a new relationship called 'have their center within'. Hexagons across the study area were reassigned land use classes based on this new spatial relationship, which prioritized more intense land use categories. This reassignment better captured areas that contained a large portion of the land use class but were originally overlooked. This process of reassigning hexagons from agriculture/forest land use to more developed land use classes also better reflects the recent growth that Oconee County is developing and will continue to do so, meaning more areas of agriculture or forest will become residential, industrial, commercial, or other greater intensity land uses. Figure 16 – Land Use Assignment Process (below) illustrates this process where initially the hexagon was assigned the agriculture/forest land use because it comprised a large portion of the area but was re-assigned to the single-family residential land use class after the second spatial join to better reflect the presence of greater intensity land uses. Re-calculating the acreage breakdown per land use category from the re-assigned hexagon result showed that the agriculture/forest overestimation was resolved, and the other more developed land use categories better matched the county's land use breakdown from the comprehensive plan.

Figure 16 – Land Use Assignment Process



A) Oconee County's comprehensive plan land use overlapped with an empty 50-acre hexagon. B) Original hexagon land use assignment to agriculture/forest after first 'largest overlap' spatial join C) Hexagon land use re-assignment to single-family residential after second 'have their center within' spatial join.

After completing the previous steps, the result was a generalized land use distribution across the study area that closely matched the land use reported in Oconee County's 2020 Comprehensive Plan. Development has occurred since then and will continue to do so throughout the county. Therefore, the land use hexagons were updated again to better reflect projected growth and development expected over the 20-year project horizon. First, the hexagon land use was updated in and around the municipalities based on their future land use planning data (when available and as provided by each municipality). For instance, the future land use data for the City of Westminster designates several areas around the municipal limits as residential areas, so the hexagon land use was changed to single-family to reflect this data. All hexagons that were assigned a vacant land use category from the county's land use were assigned a specific land use type based on stakeholder feedback and by examining the current aerial imagery (NAIP, 2022) that displays what is on the ground. Based on municipal and stakeholder feedback on areas that are anticipated to grow, many more agriculture/forest hexagons were converted to greater intensity land uses such as single and multi-family residential, industrial, and commercial. Stakeholder feedback also included developer conversations that revealed potential upcoming projects. In addition, new home address data from 2020-2023 from Oconee County was overlaid with the hexagons to reveal what areas of the county have been growing since the Comprehensive Plan was completed to further inform where agriculture/forest hexagons have already been converted – in most cases to single-family residential.

The final results of the land use distribution analysis for Oconee County display the projected land use distribution over the next 20 years and can be seen in Figure 17 – Land Use Distribution Analysis. This analysis captures areas of anticipated growth and future development, which was the basis for which we embarked on determining the sewer growth potential by sewer basin.

5.3 Sewer Feasibility Distribution Analysis

From the land use distribution analysis finalized in the previous step, a multi-criteria suitability analysis was performed to aid in identifying where growth would be concentrated within the study area and to what magnitudes. The following criteria were identified as variables that were effective in determining the feasibility of sewer, and were available in spatial format. For each criteria, each hexagon was assigned a score of 1 (most favorable) to 10 (least favorable) for future growth and sewer demand.

- Areas experiencing recent population growth. The new address point data for the years 2016-2023 was utilized to calculate the number of new address points during that period per hexagon. Recent growth within an area is considered to be an indicator of likelihood for

additional growth within that area, or adjacent to that area. The results for this criteria analysis is shown in Figure 18 – Multi-Criteria Suitability Analysis: Population Density Results.

- Proximity to areas where recent sewer requests / inquiries have occurred. The data for recent sewer requests (last two years) obviously is an indicator of where there is demand for sewer within the area, and a predictor for additional development adjacent to those areas. The results for this criteria analysis is shown in Figure 19 – Multi-Criteria Suitability Analysis: Sewer Request Density Results
- Proximity to areas where pro-sewer feedback was received. The feedback from the public engagement phase (shown in Figure 9) was incorporated for this criteria. Specific locations noted from the public as being areas they would prefer to see sewer infrastructure developed or upgraded were identified, and hexagons then scored based on their distance from these locations. The results for this criteria analysis is shown in Figure 20 – Multi-Criteria Suitability Analysis: Pro Sewer Density Results.
- Proximity to areas where anti-sewer feedback was received. This analysis is the inverse of the above analysis for pro-sewer feedback. Specific locations noted from the public as being areas they would prefer not to see sewer infrastructure developed or upgraded were identified, and hexagons then scored based on their distance from these locations. Areas in close proximity to these locations scored worse than those areas further away. The results for this criteria analysis is shown in Figure 21 – Multi-Criteria Suitability Analysis: Anti Sewer Density Results.
- Proximity to existing gravity sewer. Because areas with existing sewer would tend to be more developed than currently unsewered areas, proximity to areas with existing sewer service is an indicator of areas likely to be developed in the future. Furthermore, serving areas close to existing sewer lines is most cost-effective for the utility compared to areas more remote in regard to sewer service. Proximity to force mains was not considered in this analysis since force mains do not have the capability to connect to. Pump stations were not specifically analyzed, but all of OJRSA's pump stations have gravity manholes immediately upstream that are covered in the analysis. The results for this criteria analysis is shown in Figure 22 – Multi-Criteria Suitability Analysis: Proximity to Existing Sewer Results.
- Proximity to existing gravity sewer with capacity. This analysis employed the same logic and procedure as the criteria of proximity to existing sewer, but filtered out any areas that are currently above capacity. Proximity to sewer above capacity is not as unfavorable to growth as having no sewer with an area, because the above capacity can be upgraded or I&I removed typically for less than the cost of an entirely new gravity sewer. The results for this criteria analysis is shown in Figure 23 – Multi-Criteria Suitability Analysis: Proximity to Existing Sewer w/ Capacity Results.
- Land Use Results. This analysis simply accounted for the future land use designations as developed in the previous step. Being projected for a specific land use (residential, commercial, or industrial) is an indicator that conditions are favorable to that specific type of development. The results for this criteria analysis is shown in Figure 24 – Multi-Criteria Suitability Analysis: Land Use Results.
- Proximity to existing major roads. Similar to other criteria, proximity to existing major roads is an indicator of the feasibility of future development. The results for this criteria analysis is shown in Figure 25 – Multi-Criteria Suitability Analysis: Proximity to Major Highway Results.

Upon developing each of the criteria detailed above, it was acknowledged that some of the criteria should be weighted more than others, as the link between the variable and future growth may be stronger for some criteria than others. The following weighting was decided upon (adding up to 100%):

- Weighted 15% each: (1) Population growth, (2) sewer requests, (3) pro-sewer feedback, and (4) anti-sewer feedback. These criteria were deemed to have the strongest links to predicting growth as they either directly reference growth that has occurred (population growth), directly reference specific sewer market demand (sewer requests), or reflect community feedback that would likely either be drivers or obstacles to growth in those areas (the feedback criteria).
- Weighted 10% each: The future land use designation as either (1) residential or (2) commercial.
- Weighted 5% each: The future land use designation as (1) industrial, (2) proximity to existing sewer, (3) proximity to existing sewer with capacity, and (4) proximity to major roads. The industrial land use criteria was not weighted as much as the residential or commercial land uses since industrial land is not as widespread generally concentrated in specific areas, more so than residential and commercial.

The above criteria scoring were added up, and a composite spatial analysis was created, shown in Figure 26 – Multi-Criteria Suitability Analysis: Composite Results. The analysis focused areas for likely growth within four specific areas:

- The area within the triangular footprint of Seneca, Westminster, Walhalla, and OJRSA infrastructure. Not all of the area within this footprint is currently served by sewer, but can be served relatively cost-effectively due to the proximity to existing infrastructure.
- Area east of Seneca between Seneca and Clemson. This area is partially sewered but largely through pump stations.
- The I-85 corridor along Exits 1, 2, and 4 in the southwest corner of the county.
- To a lesser degree than the above three areas, the western side of Lake Keowee northeast of Highway 28 between Seneca and Walhalla. This area already has a medium amount of development that is currently on septic systems.

In addition to the composite spatial analysis map described above, an exclusion test was applied to eliminate those areas that had any type of protected land (national forest, parkland, self-selected agricultural zoning). These areas would have significant inherent obstacles to development, so hexagons with these types of properties were excluded from being included in the analysis. The analysis with the exclusion tests did not provide any different conclusions than the original analysis (the same exclusions were essentially covered from some of the multi-variable results), but provide a clearer picture of the results by filtering out the excluded areas. The protected land is shown in Figure 27 – Multi-Criteria Suitability Analysis: Protected Lands and the results shown in Figure 28 – Multi-Criteria Suitability Analysis: Results with Exclusion Test.

5.4 Sewer Flow Projections

Table 5 shows the projected percentage of growth for each category of development, by HUC 12 basin. Total number of projected additional addresses by category corresponding to that percentage of growth are shown below in Table 6 – Growth and Flow Projections by HUC 12 Basin. For purposes of flow projections the commercial, agricultural, governmental, and “other” categories were combined into one “combined” category due to the limited number of some of the categories and similarity in amount of flow per address. Industrial flow was also separated out of this table, as it was looked at a per industrial development basis separately.

From these projected new addresses, total flow was developed for each basin by using the following factors:

- Single family residential: 300 gpd / residence (standard flow based on SC Regulation 61-67 Appendix A)
- Multi-family residential: 225 gpd / residence (based on SC Regulation 61-67 Appendix A; this assumes an average of a two-bedroom unit for all such developments)
- Combined category: 1,000 gpd / address point. Because of the wide variety of developments included in this category, there is not a defined assumption across all communities. However, SC Regulation 61-67 Appendix A was utilized for establishing the unit flow per address. A range of various types of developments and corresponding flows that would be included in this category are shown below. While there is a large variability in the flow amounts, generally the types of development with lower flows would be anticipated to be more frequent than those with higher flows. In reviewing prior developments, a unit flow of 1,000 gpd was determined to be most representative of the developments that would be expected:
    - Doctors Office (20 employees): 220 gpd
    - Offices (20 employees): 380 gpd
    - Barber Shops (8 chairs): 600 gpd
    - Gas station (100 cars served per day): 800 gpd
    - Church (500 seats): 1,000 gpd
    - Bowling Alley (12 lanes): 1,128 gpd
    - Bars (50 seats): 1,500 gpd
    - Fast Food Restaurant (50 seats): 1,500 gpd
    - Car Wash (100 cars per day): 5,600 gpd
    - Hotel (100 rooms): 7,500 gpd
    - School (700 students w/ cafeteria): 7,700 gpd
    - Fitness Center (250 members): 9,750 gpd

Table 6 – Growth and Flow Projections by HUC 12 Basin

Development Category / HUC 12 Basin	Number of New Addresses			Projected New Flow (gpd)			
	Single Family Residential	Multi-Family Residential	Combined [1]	Single Family Residential	Multi-Family Residential	Combined [1]	Total New Flow (All Categories)
30601010102	0	0	0	-	-	-	-
30601010103	0	0	0	-	-	-	-
30601010104	4	0	2	1,174	-	1,563	2,736
30601010105	0	0	0	-	-	-	-
30601010201	98	0	9	29,349	-	7,813	37,161
30601010204	401	4	24	120,331	880	20,313	141,524
30601010301	115	0	9	34,632	-	7,813	42,444
30601010302	178	0	21	53,415	-	17,188	70,603
30601010303	92	0	8	27,588	-	6,250	33,838
30601010304	822	6	24	246,531	1,321	20,313	268,164
30601010305	1608	164	148	482,497	36,980	123,438	642,914
30601010306	1229	0	26	368,623	-	21,875	390,498
30601010501	149	0	28	44,610	-	23,438	68,048
30601010502	1509	133	206	452,561	29,936	171,875	654,372
30601010503	620	6	47	186,072	1,321	39,063	226,456
30601010802	284	759	26	85,112	170,811	21,875	277,798
30601010803	1383	732	218	414,994	164,648	181,250	760,892
30601010804	0	0	0	-	-	-	-
30601020204	0	0	0	-	-	-	-
30601020209	45	0	6	13,501	-	4,688	18,188
30601020210	55	0	15	16,435	-	12,500	28,935
30601020301	160	0	8	48,132	-	6,250	54,382

Development Category / HUC 12 Basin	Number of New Addresses			Projected New Flow (gpd)			
	Single Family Residential	Multi-Family Residential	Combined [1]	Single Family Residential	Multi-Family Residential	Combined [1]	Total New Flow (All Categories)
30601020302	51	0	6	15,261	-	4,688	19,949
30601020303	41	0	2	12,327	-	1,563	13,889
30601020304	125	2	15	37,567	440	12,500	50,507
30601020403	96	2	17	28,762	440	14,063	43,265
30601020502	751	4	45	225,400	880	37,500	263,780
30601020505	223	4	24	66,916	880	20,313	88,109
30601020506	27	0	6	8,218	-	4,688	12,905
30601020507	515	0	38	154,376	-	31,250	185,626
TOTAL	10,581	1,816	977	3,174,383	4084,538	814,063	4,396,983

[1] *Includes commercial, agricultural, governmental, and other*

Each of the aforementioned 30 HUC 12 basins were then analyzed to determine if they either had existing sewer infrastructure within their boundaries, or if it would be a good candidate to serve with sewer. The following basins are located within the remote areas of the mountains in the northwest part of the county and would not be feasible to serve with sewer:

- 30601010102
- 30601010103
- 30601010104
- 30601010105
- 30601010201
- 30601010204
- 30601010301
- 30601010302
- 30601010304
- 30601020204
- 30601020209
- 30601020210
- 30601020301
- 30601020302
- 30601020303

Additionally, basins 30601020304 and 30601020403 were to the west of Westminster but those areas did not score well for sewer feasibility. Basin 30601010804 is in the very southwest corner of the study area in Anderson County and did not score well for sewer feasibility.

Basins 030601010306 and 0301010304 covered areas that scored well with the spatial analysis. However, both areas have a large portion of land that is lakefront (Lake Keowee) and fairly developed already. This makes sewer service difficult and not cost-effective. Therefore, any growth within those two basins was determined to be served via septic tanks.

Basin 3060020506 in Anderson County includes the Exit 11 area. However, it is remote in relation to any other existing or proposed sewer infrastructure. As a result, it was decided to leave this basin unsewered, and Anderson County can make a future decision as to whether to serve it with sewer, as it would just as easily be served from existing Anderson County infrastructure as by OJRSA.

After the above analysis, only nine basins remained that would be possible for sewer service. Flow within these nine basins was further divided into smaller sub-basins that would more precisely reflect where new growth would enter the OJRSA system. Within the existing system footprint, subbasins were created based on changes in pipe size and entering branch sewer locations. Subbasins were named based on the most upstream manhole in the subbasin, and all flow entering into the subbasin was allocated into that specific manhole (ensuring conservatism in the analysis of the system's future capacity).

For areas outside the existing system footprint, subbasins were created using HUC 14 basin boundaries, which are smaller in area than HUC 12 basins.

These HUC 14 basins were identified and whatever flow allocated to them will flow into a subbasin within the existing system footprint based on topography.

The nine basins were divided into a total of 138 subbasins consisting of 76 subbasins within the existing system footprint and 62 HUC 14 subbasins outside currently sewered areas. Flow projections for each basin were then further divided into the smaller subbasins, based largely on the spatial analysis results (more flow per acre was allocated into subbasins that scored better in the analysis).

In addition to the flow projections developed by the 20-year growth projections, specific flow was identified and added to the flow projections. These specific flows originated from OJRSA development review applications, projects OJRSA was aware of, and known industrial properties that Oconee Economic Alliance (OEA) is currently marketing. Additionally, where applicable, flows projected as part of the earlier Fair Play and Townville Area study in 2023 were included as well.

Industrial flows are extremely difficult to accurately estimate. Land available for industrial development is not always proportional to the amount of wastewater flow. “Dry industries,” such as warehouses that generate no process wastewater and often only contain restroom facilities for employees, can occupy large footprints but generate very small amounts of flow. Conversely, process-heavy industries (“wet industries”) can generate large amounts of wastewater and may not take up a lot of land area. The general trend in industrial wastewater generation and disposal for treatment is downward in flow, as recycling of process water is becoming more advanced and can lead to significant cost savings in the purchase of potable water. For industrial properties that the OEA is marketing, a flow of 1,500 gpd per acre of development was assumed, which is a commonly used assumption and best practice within the economic development community.

A map showing the total flow projections by HUC 12 basin (including the specific flows listed below) is shown in Figure 29- Basin Overview

The specific flows added to the 20-year projection are listed in Table 7- Specific Flow Projections Included in Analysis:

Table 7 – Specific Flow Projections Included in Analysis

Development	Flow (gpd)	HUC 12 Basin	Subbasin
OEA Oconee Industry and Technology Park (OITP) (future)	86,854	30601010502	MH-108[2]
West Oak High School	16,500	30601010502	MH-186
Coopers Mill Subdivision [1]	52,500	30601010502	MH-348
Seneca Multi-Family Apartments (proposed)	15,750	30601010502	MH-492
Monticello Subdivision (proposed)	16,800	30601010502	MH-492
Landmark / Thornhill Commercial Development (proposed)	169,050	30601010502	MH-492
Heirloom Farms Subdivision [1]	40,000	30601010502	MH-628
OEA US 123 & SC 11 property (future)	51,000	30601010502	MH-636
Cascade Point Subdivision[1]	44,700	30601010502	MH-706
Dalton Rd Subdivision (proposed)	7,500	30601010502	MH-797
Keowee Commons Subdivision (proposed)	15,000	30601010502	MH-797
Eastpointe Subdivision Phase 2	8,100	30601010502	MH-1063
Seneca Falls Subdivision [1]	46,800	30601010502	MH-1343
Newry Area Developments (future)	2,090,000	30601010802	MH-779-S
Paws Diner Multi-Family Development (proposed)	50,400	30601010803	MH-809
OEA Seneca Rail Park (future)	166,500	30601010803	MH-913
Wells Crossing Subdivision [1]	31,800	30601010803	MH-926
Seneca Tiny Homes Community (proposed)	10,800	30601010803	MH-1008
OEA Golden Corner Industrial Park (future)	483,000	30601020505	U-174[3]
OEA Lakeshore Drive (future)	145,500	30601020507	U-181
Exit 1 and Exit 2 Development (From 2023 Fair Play report)	180,000	30601020507	U-181
OEA Oconee Manufacturing Park / Project Tiger (future)	205,000	30601020507	U-188
Exit 4 Development (From 2023 Fair Play report)	137,103	30601020507	U-188

[1] Flow already accounted for in SCDHEC WRF flow allocation "Checkbook"

[2] Subbasins within existing service area footprint are designated based on the manhole that flow is allocated to. For example, flow from a development designated in Subbasin MH-108 is projected to enter the system at OJRSA Manhole Number 108.

[3] Subbasins outside existing service area footprint are designated with a "U" prefix (Unsewered).

A summary of flow projections by HUC 12 basins that are projected to be served by sewer are shown in Table 8 – HUC 12 Basin Projected Flow Summary:

Table 8 – HUC 12 Basin Projected Flow Summary

HUC 12 Basin	Flow from 20-Year Projection (gpd)	Added Specific Flow (gpd)	Total Flow (gpd)
30601010305	642,914	-	642,914
30601010501	68,048	-	68,048
30601010502	654,372	570,554	1,224,926
30601010503	226,456	-	226,456
30601010802	277,798	2,090,000	2,367,798
30601010803	760,892	259,500	1,020,392
30601020502	263,780	-	263,780
30601020505	88,109	483,000	571,109
30601020507	185,626	667,603	853,229
TOTAL	**3,167,994**	**4,070,657**	**7,238,651**

OJRSA's current SCDHEC "Checkbook"[14] permitted flow as of February 29, 2024 is 4,654,994 gpd (59.7% of the permitted capacity of the Coneross Creek WRF). Some of the developments listed in Table 7 are already included in the SCDHEC Checkbook flow (totaling 215,800 gpd). These flows will be kept in the analysis because of the assumption that the current system has not seen those flows (at least not close to buildout numbers), so it is flow that will be new to the system. However, this flow will be subtracted out from the projected flow needed for treatment over the 20-year period to avoid double counting. With the additional 7,238,651 of additional flow projected, the total treatment capacity needed within the 20-year window is 11,677,645 gpd (149.7% of current permitted capacity, based on 7.8 mgd).

6.0 INFRASTRUCTURE CONSIDERATIONS

6.1 WRF Treatment Capacity Increase

As discussed in the previous section, either an existing plant upgrade at Coneross Creek WRF or a new plant will be needed within the 20-year window. As of February 29, 2024, OJRSA is at 59.7% of its current plant capacity, but that percentage will increase to 66.1% once the projects in permitting (those designated as "proposed" in Table 7) are factored in. SCDHEC generally prefers for a Preliminary Engineering Report be completed by the 80% capacity stage (flow at 6.2 mgd) and project under construction by the 90% level (7.0 mgd). Timing of the flows projected are dependent on many variables. However, it is useful to identify what time window or windows the need for a capacity addition to the system would occur.

Flow projections for each 5-year window are shown in Table 9 – Timing of Treatment Capacity Needs.

[14] The SCDHEC Checkbook is defined as the permitted development flow inventory as tracked by SCDHEC

Table 9 – Timing of Treatment Capacity Needs

Type of Flow	Total Flow by End of Time Period (gpd)			
	0-5 years	5-10 Years	10-15 Years	15-20 Years
	2024-2029	2029-2034	2034-2039	2039-2044
Existing Flow	4,654,994	4,654,994	4,654,994	4,654,994
20-Year Projected Flow [1]	1,167,079	2,118,220	2,584,454	3,167,994
Industrial Flow [2]	233,214	466,427	699,641	932,854
Known Developments [3]	498,400	498,400	498,400	498,400
Newry Area Developments [4]	522,500	1,045,000	1,567,500	2,090,000
Fair Play Flow [5]	83,401	166,802	250,202	333,603
TOTAL	**7,159,588**	**8,949,843**	**10,255,191**	**11,677,845**

[1] Growth over 20 years based on estimates detailed in Section 3
[2] Industrial flow assumed to be added to system equally over the 5-year time windows
[3] Known developments assumed to be added in 0-5 Year window
[4] Newry Area developments assumed to be phased in equally over each of the 5-year time windows (522,500 gpd per five-year period).
[5] Fair Play area expected to not grow as soon as rest of the county since it will be dependent on new infrastructure being built. As a result, growth in this area is assumed to be equally phased in over each of the 5-year time windows. These numbers do not include industrial growth in Fair Play area, as that is contained within the Industrial Flow line item.

As can be seen in the above table, it is reasonable to expect that construction on a new plant / existing plant upgrade will need to be commenced within five years. Industrial flows could vary widely in either direction (either more or less aggressive). The 0-5 year flows for Newry Area would not be expected to exceed the assumed amount considering the amount of new infrastructure needed to serve the area, but a scenario where the buildout exceeds the 5-10 and 0-15 year flows above could be envisioned. However, if only the 20-year projected flow and known developments flow materialized over the next five years, the preliminary engineering report (PER) would need to be completed within the first five years regardless (results in a flow of 6.3 mgd).

As part of the scope of this study, we considered the impacts and benefits of either expanding the treatment capacity at the existing Coneross Creek WRF, or building new plants at two other potential sites. Decentralization (by constructing new plants) can have an upside if it can eliminate a needed upgrade at the existing plant, reduce conveyance costs, and provide more flexibility with operations.

In addition to an existing plant upgrade, two potential locations were also evaluated: Beaverdam Creek in the Fair Play area (identified in the 2023 report), and Martin Creek east of Seneca. Beaverdam Creek would serve the Fair Play area and the I-85 corridor and eliminate long pumping residence times in that part of the system. Martin Creek is the site of an existing pump station, and OJRSA owns 99 acres with plenty of land available to construct a new plant. Additionally, Martin Creek is located east of Seneca, which is projected to receive a large share of the projected growth. OJRSA owns a sufficient amount of property that can be used for a plant upgrade at the existing Coneross Creek WRF. The locations of the three treatment sites considered are shown in Figure 30- Potential Treatment Discharge Locations.

Additionally, to enhance this analysis, we engaged the services of Jeff deBessonet with Water Environment Consultants to provide a high-level assessment of the discharge parameters that might be encountered as a factor to consider in evaluating the treatment options. Mr. deBessonet, a South Carolina registered professional engineer, is considered a leading expert in this area, as he has over 38 years of regulatory and environmental engineering experience, most of that at

SCDHEC in the water and wastewater programs. While at SCDHEC, he was involved with a broad range of technical, legal, and public participation and policy issues including interpreting water quality standards, permitting and compliance assistance. We considered that there would be no other individual within South Carolina with a better understanding of the issues involved with this analysis. The following section is a summary of key excerpts from Mr. deBessonet's analysis. A full copy of the technical memorandum is included in Appendix C.

For the analysis, all three locations must consider several factors that will affect the permit limits at each site:

- Nutrient limits – All discharges ultimately flow into Lake Hartwell, which has numeric nutrient water quality standards. S.C. Regulation 61-68 gives the following numeric nutrient standards for lakes in the Piedmont ecoregion of the state: "total phosphorus shall not exceed 0.06 mg/L, chlorophyll shall not exceed 40 ug/L, and total nitrogen shall not exceed 1.0 mg/L." The further upstream from the lake the discharge is located, the more the nutrient concentrations may be attenuated before reaching the lake (e.g., discharges further upstream may have higher nutrient permit limits).
- Limits for Oxygen Demanding Pollutants (BOD and ammonia) – Limits for biological oxygen demand (BOD) and ammonia will be based on water quality modeling of the stream and possibly the entire lake arm to which the tributary flows. The details of the modeling requirements will be influenced by SCDES. The limits to protect dissolved oxygen (DO) concentrations are likely to be governed by the discharge effects on DO in the slow-moving lake arm rather than in the much faster moving stream. In general, the further upstream from the lake the discharge is located, the more the BOD and ammonia concentrations will be attenuated before the reaching the lake, and therefore a discharge farther upstream will have slightly higher BOD and ammonia permit limits.
- Toxicity and Dilution – Although ammonia affects DO, it is also toxic to aquatic lief and the permit limit will also consider instream toxicity concentrations. Whole effluent toxicity (WET) toxicity limits and ammonia limits are affected by the dilution in the stream as with other toxics such as metals. Discharge locations with larger upstream drainage areas and associate 7Q10 flows will have greater initial dilution of toxic pollutants and higher permit limits for WET effects, as compared to those with smaller drainage areas. Despite the higher stream flow for Coneross Creek, the cadmium impairment at this point would mean there would be no dilution credit for evaluating the need for a limit for cadmium.

The first two factors listed benefit from the discharge being as far upstream from the lake as possible. In contrast, the third factor generally benefits from the discharge being as far downstream as possible. Given that these factors conflict with each other when considering the optimal discharge location, the importance of relevance of each should be carefully weighed. Also, nutrient limits for the new locations would require negotiations with SCDES because of the lake standards.

Part of the analysis involves considering the 7Q10[15] flow for each receiving stream, which is defined as the lowest 7-day average flow that occurs on average every 10 years. This provides an accepted benchmark for considering the dilution potential in a receiving stream during a drought period that occurs on a 10-year recurrence interval. In general, the higher the 7Q10 flow, the more dilution the receiving stream can provide, and as a result, the higher the discharge limits would be.

[15] "7Q10" means the lowest 7-day average flow that occurs on average once every 10 years

The 7Q10 flows for each of the receiving streams considered are as follows:

- Coneross Creek – 11.8 cubic feet per second (cfs)
- Martin Creek – 1.0 cfs
- Beaverdam Creek – 3.0 cfs

Table 10 – WRF Discharge Comparison below summarizes the primary factors that should be considered in determining the optimal alternative for discharging the wastewater. All three options are feasible and could be permitted, but the best solution needs to consider cost, and a detailed review of potential permit limits would be needed to develop cost estimates.

A discharge in Beaverdam Creek or Martin Creek would require development of a new water quality model to determine the appropriate permit limits for BOD and ammonia. An expansion of the Coneross Creek WRF would not likely require a new model to obtain a waste load allocation, but we recommend evaluating and possibly refining the existing model or developing a new model to ensure that the permit limits are not overly conservative.

All three locations have some 7Q10 flow to provide limited dilution of toxic pollutants including WET. The Coneross Creek location has by far the greatest dilution flow. The Coneross Creek discharge is also locate the farthest upstream from the lake that than the other two locations. This will provide the greatest attenuation of BOD and ammonia and the likely highest permit limits for these pollutants.

Also, new discharges tend to get more public attention than expansions. For this reason, the table lists the discharges at Beaverdam Creek and Martin Creek as generating public concern, but we expect that the expansion of the existing discharge will generate much less, if any, concern from the public.

Table 10 – WRF Discharge Comparison

Factor	Alternative		
	New Discharge – Beaverdam Creek	New Discharge – Martin Creek	Expand Coneross Creek
Downstream impaired by relevant toxins	No	No	Yes (cadmium)
New water quality model needed	Yes	Yes	Maybe [1]
7Q10 flow (cfs)	3.0	1.0	11.8
Distance upstream from lake (miles)	1.1	0	4.0
Public Concern	Yes	Yes	Unlikely
Additional Staffing Needed	Yes	Yes	TBD, but if so, to lesser extent than a new plant
Additional Land Purchase Needed	Yes	No	No
Additional Power Service and Road Access Needed	Yes	Yes	No
Construction Cost	TBD	TBD	TBD
Operation and Maintenance Cost	TBD	TBD	TBD
Nutrient Limits	TBD	TBD	Set for phosphorus

[1] *A model review would be valuable to confirm SCDHEC's assumptions are not overly conservative*

Based on the review of existing stream impairments, ambient water quality data, and existing permits, we do not find any major issues (outside of tight limits) that would preclude any of the three discharge alternatives evaluated.

Given the information presented and the absence of further cost data, the expansion of the Coneross Creek discharge would likely have the most favorable effluent limits (except for a cadmium limit[16]). SCDES may want to address nitrogen with an expansion to Coneross Creek and the new discharge locations.

Based on the above considerations, all factors appear to favor the expansion of the existing plant over constructing one or two additional treatment facilities. Staffing is a significant concern with adding a second plant, as there is a statewide and industry-wide shortage of operators. Adding a second plant would leave OJRSA with less flexibility with staffing. Treatment costs are unlikely to be less for the new plants than the existing, with the tighter limits.

Beaverdam Creek option can be eliminated from consideration fairly easily. In addition to the considerations discussed above, the location is in an area where public feedback was against adding sewer infrastructure. Approximately 1.4 mgd of the projected flow within the 20-year period would go to the new plant, leaving 10.3 mgd still to be treated with an upgrade to Coneross Creek or a third plant. Thus, there would be no cost savings in adding a plant at Beaverdam Creek.

Martin Creek could provide capital cost savings by taking flow off of the Speeds Creek and Perkins Creek infrastructure between it and the plant. However, as discussed in the next section in more detail, there is an alternative solution by rerouting the Martin Creek force main directly to the Coneross Creek plant. The difference in capital costs between those two options is negligible, and for this reason and the additional reasons discussed above, it is our recommendation for OJRSA to expand the existing Coneross Creek WRF rather than build a new plant(s).

6.2 Scenarios Evaluated

To provide the most robust analysis, as well as to provide context to evaluate the various treatment plant options, multiple scenarios were investigate as part of the study. These scenarios are summarized in Table 11 – Scenario Summary.

Analysis was performed solely on the OJRSA system. Identifying needed Member City infrastructure improvements were not included in the analysis. For all of the scenarios, I&I removal is assumed to be completed to the extent that all infrastructure can accommodate I&I with 25% of the pipe capacity. Where a pipe is shown to experience greater than 75% of its capacity used from diurnal peak flow (using a 2.5 peaking factor), it is designated as needing upgrade.

The first three scenarios provide an “apples to apples” comparison of the three different treatment plant options. For all of the options, the plant capacities are assumed to be constructed to provide 111% of the treatment need for the 20-year period. This allows the plants to be at the 90% of capacity levels as they reach the 20-year end of the study period and prevents any additional costs of treatment plant upgrades needed beyond the 20-year study period to be included within the current 20-year period. Note that the OJRSA would need to begin the next expansion and/or construction of a new WRF once SCDES allocated capacity reaches 80% of permitted capacity rating.

Scenario 4 provides an alternative to Scenario 1 by rerouting the Martin Creek force main directly to Coneross Creek WRF. This provides cost savings by eliminating the need to upgrade Speeds Creek and Perkins Creek infrastructure.

[16] The OJRSA Coneross Creek WRF facility does not currently have a cadmium limit in its NPDES permit; however, it may in the future. The agency currently tests for cadmium in its industrial stormwater sampling but has yet to detect the pollutant at any level in a sample (results of analysis to date are “non detect.”)

Table 11 – Scenario Summary

Scenario No.	Coneross Creek	Martin Creek	Beaverdam Creek
1	Upgraded to 13.0 mgd (11.7 mgd ADF)	Pump Station	No plant – Golden Corner PS pumps to Coneross Creek WRF
2	Capacity kept at 7.8 mgd with 6.9 mgd ADF	New Plant w/ 5.4 mgd capacity (4.8 mgd ADF)	No plant – Golden Corner PS pumps to Coneross Creek WRF
3	Upgrade to 11.4 mgd (10.7 mgd ADF)	Pump Station	Plant with 1.6 mgd capacity (1.4 mgd ADF)
4	Upgraded to 13.0 mgd (11.7 mgd ADF)	Pump Station upgraded and force main rerouted to Coneross Creek WRF	No plant – Golden Corner PS pumps to Coneross Creek WRF

6.3 Projects Common to All Scenarios

It is important to note that in all discussions of construction costs within the remainder of this report, costs are shown in 2024 dollars. Capital cost estimates shown within the section include construction, soft costs (engineering, right of way acquisition, legal, and an overall 20% project contingency. Debt service on capital improvements are not included in the costs.

Capital improvements projects detailed below are shown in **Figure 31 – Sewer Master Plan 20-Year Buildout.**

There are some new service areas, system optimization projects, and O&M related projects that are common to all scenarios. These projects are listed below, and costs for all are included as applicable for all scenarios:

- **Existing O&M Projects at Coneross Creek WRF:** OJRSA has identified $8.4 M worth of projects to correct current issues at the plant that will be necessary to ensure the WRF can function as designed and permitted at its 7.8 mgd rating, regardless of which scenario is selected. These projects are scheduled to be complete by 2029. In addition to the projects identified, included in the total is an engineering assessment to identify measures that present options to gain additional treatment capacity without an upgrade.
- **Existing O&M Projects Within the Conveyance System:** Additional pump station and other conveyance system improvements have also been identified to correct current issues. The cost of these projects is estimated to be $10.2 million (M) and scheduled to be completed by 2029.
- **Sewer Rehabilitation Projects:** OJRSA has a $5 M sewer rehabilitation project that will begin later this year. Based on information provided by the design engineer for that project (WK Dickson), it is estimated that the remainer of the OJRSA system could be rehabilitated with the same approach for approximately $20 million. This work could be prioritized over a 10-year period to reach areas of the system needing the most work sooner.
- **Pump Station O&M Upgrades:** Pump stations typically require either a replacement or a significant upgrade every 20 years, and it is prudent to include these costs when budgeting for capital improvements over a 20-year window. For those pump stations that are projected to be eliminated, or have a growth-related upgrade projected, costs are included in each scenario for replacements.

- Richland Creek Gravity Sewer: A gravity sewer project within the existing footprint of the OJRSA project on the west side of Seneca. The interceptor, sized as a 15-inch gravity, would allow for the Halfway Branch Pump Station to be taken offline. Additionally, branches that could be constructed by Seneca Light & Water could eliminate their Bountyland, Cliffabee Leas, and The Crossing pump stations
- Lower Seneca Creek Sewer Improvements (New Service Area): Pump station, force main, and gravity sewer to serve the area east of Seneca between Martin Creek and Lake Hartwell.
- Valley View Sewer Improvements (New Service Area): Pump station, force main, and gravity sewer to serve area east of the Lower Seneca Creek area and along Shiloh Road (just to the west of the Pier development along Lake Hartwell).
- Martin Creek Gravity Sewer (New Service Area): Gravity sewer upstream of Martin Creek Pump Station, will provide discharge location for new Davis Creek Road No. 1 Force Main.
- Shiloh Road Gravity Sewer (New Service Area): Gravity sewer that will connect to the Martin Creek Gravity Sewer and provide sewer service along the Shiloh Road / Airport area
- Davis Creek Road Gravity Sewer: gravity sewer in the Davis Creek Road area that would eliminate Davis Creek Road No. 2, Millbrook, Seneca Creek, and Pelham Creek pump stations. Sewer could be staged to take the four different pump stations offline at different times depending on pump station conditions and capacity. Flow from the project would go to Davis Creek Road No. 1, which would need an upgrade.
- Davis Creek Road No. 1 Pump Station and Force Main Upgrade: Davis Creek Road No. 1 Pump Station would need to be upgraded to accept flow from Newry Area Pump Station and the other four eliminated pump stations from Davis Creek Road Gravity Sewer project. Force main would be rerouted to the new Martin Creek Gravity Sewer to go to Martin Creek Pump Station.
- Newry Area Pump Station and Force Main: pump station located along Little River downstream of Lake Keowee to serve proposed developments in the Newry area. Force main would be route to the Davis Creek Road No. 1 Pump Station, which would need to be upgraded.
- I-85 Exit 1 Improvements (New Service Area): pump station, gravity sewer, and force main to provide additional sewer service on the north side of Exit 1. The new infrastructure would be pumped to the Welcome Center pump station constructed as part of the Sewer South project.
- I-85 Exit 2 Improvements (New Service Area): pump station, gravity sewer, and force main to provide additional sewer service on the south side of Exit 2. The new infrastructure would be pumped to the Broomway Pump Station constructed as part of the Sewer South project.
- I-85 Exit 4 Improvements (New Service Area): pump station, gravity sewer, and force main to provide additional sewer service on the south side of Exit 4. The new infrastructure would be pumped to the gravity sewer in Fair Play being constructed as part of the Sewer South project.
- West Oak Sewer Extension (New Service Area): gravity sewer that will eliminate the existing package plant at West Oak High School and provide sewer service to the area north of the school. The sewer will connect to the existing interceptor west of the Coneross Creek WRF.

6.4 Scenario 1

This scenario maintains the status quo for the treatment plants for the system, keeping Martin Creek as a pump station, pumping to its existing discharge point, and all wastewater in the Fair Play area to be to Golden Corner Pump Station and pumped to Coneross Creek WRF. Total treatment capacity needed at Coneross Creek is 11.7 mgd (the entire system), so an upgrade to 13.0 mgd is assumed (5.2 mgd increase).

The following tables show projected 20-year capital costs for the following:

Table 12 – Scenario 1, Growth Related Existing Gravity Sewer Projects

Table 13 – Scenario 1, Growth Related Existing Pump Station Projects

Table 14 – Scenario 1, Growth Related Existing Force Main Projects

Table 15 – Scenario 1, Growth Related Existing WRF Projects

Table 16– Scenario 1, New Infrastructure Gravity Sewer Projects

Table 17 – Scenario 1, New Infrastructure Pump Station Projects

Table 18 – Scenario 1, New Infrastructure Force Main Projects

Table 19 – Scenario 1, O&M Related Projects

Table 20 – Scenario 1, Total Cost Summary

Table 12 – Scenario 1, Growth Related Existing Gravity Sewer Projects

Growth Related Existing Gravity Sewer Projects	Scope	Total Cost
Speeds Creek Gravity Sewer Upgrade	Replace 10,726 LF of 15" / 18" to 36" (MH 857 to MH 814)	$8,919,000
West Perkins Creek Gravity Sewer	Replace 7,522 LF of 10"/12" to 15" (MH 778 to MH 742)	$3,128,000
West Perkins Creek Gravity Sewer	Replace 4,448 LF of 12" to 18" (MH 742 to MH 659)	$2,004,000
East Perkins Creek Gravity Sewer	Replace 5,569 LF of 18" to 36" (MH 680 to MH 660)	$4,631,000
Flat Rock Downstream Gravity Sewer	Replace 5,844 LF of 8" to 10" (MH 582 to MH 559)	$1,890,000
Choestoea Creek Gravity Sewer	Replace 4,844 LF of 8" to 12" (MH 280 to MH 257)	$1,790,000
Lower Westminster Gravity Sewer	Replace 4,503 LF of 10" to 15" (MH 249 to MH 229)	$1,872,000
TOTAL EXISTING GROWTH RELATED GRAVITY SEWER		$24,234,000

Table 13 – Scenario 1, Growth Related Existing Pump Station Projects

Growth Related Existing Pump Station Projects	Scope	Total Cost
Davis Creek Road No. 1	Upgrade to 4,800 gpm peak	$18,100,000
Martins Creek	Upgrade to 6,000 gpm peak	$22,600,000
Speeds Creek	Upgrade to 6,500 gpm peak	$24,500,000
Perkins Creek	Upgrade to 7,200 gpm peak	$27,200,000
TOTAL EXISTING GROWTH RELATED PUMP STATION		$92,400,000

Table 14 – Scenario 1, Growth Related Existing Force Main Projects

Growth Related Existing Force Main Projects	Scope	Total Cost
Davis Creek Road No. 1	10,000 LF of 20" Force Main	$4,043,000
Martins Creek	7,500 LF of 24" Force Main	$3,378,000
Speeds Creek	8,100 LF of 24" Force Main	$3,649,000
Perkins Creek	4,600 LF of 24" Force Main	$2,072,000
TOTAL EXISTING GROWTH RELATED FORCE MAIN		$13,142,000

Table 15 – Scenario 1, Growth Related Existing WRF Projects

Growth Related Existing WRF Projects	Scope	Total Cost
Coneross Creek	Upgrade to 13.0 mgd	$104,000,000
TOTAL EXISTING GROWTH RELATED WRF		$104,000,000

Table 16– Scenario 1, New Infrastructure Gravity Sewer Projects

New Service Area Gravity Sewer Projects	Scope	Total Cost
Exit 1 Improvements	1,000 LF of 8" gravity sewer	$277,000
Exit 2 Improvements	8,300 LF of 8" gravity sewer	$2,301,000
Exit 4 Improvements	12,900 LF of 8" gravity sewer	$3,576,000
West Oak Sewer Extension	17,000 LF of 8" gravity sewer	$4,712,000
Richland Creek Gravity Sewer	19,000 LF of 15" gravity sewer	$7,900,000
Davis Creek Road Gravity Sewer	6,700 LF of 15" gravity sewer + 9,000 LF of 8" gravity sewer	$5,281,000
Lower Seneca Creek Sewer Improvements	5,200 LF of 8" gravity sewer	$1,441,000
Valley View Sewer Improvements	8,300 LF of 8" gravity sewer	$2,301,000
Martin Creek Gravity Sewer	8,800 LF of 36" gravity sewer	$7,318,000
Shiloh Road Gravity Sewer	6,500 LF of 8" gravity sewer	$1,802,000
TOTAL NEW SERVICE AREA GRAVITY SEWER		$36,909,000

Table 17 – Scenario 1, New Infrastructure Pump Station Projects

New Service Area Pump Station Projects	Scope	Total Cost
Exit 1 Improvements	175 gpm peak	$1,848,000
Exit 2 Improvements	175 gpm peak	$1,848,000
Exit 4 Improvements	175 gpm peak	$1,848,000
Lower Seneca Creek Sewer Improvements	175 gpm peak	$1,848,000
Valley View Sewer Improvements	175 gpm peak	$1,848,000
Newry Area Pump Station	3,600 gpm peak	$13,860,000
TOTAL NEW SERVICE AREA PUMP STATION		$22,572,000

Table 18 – Scenario 1, New Infrastructure Force Main Projects

New Service Area Force Main Projects	Scope	Total Cost
Exit 1 Improvements	2,900 LF of 6" Force Main	$469,000
Exit 2 Improvements	3,000 LF of 6" Force Main	$485,000
Exit 4 Improvements	8,300 LF of 6" Force Main	$1,342,000
Lower Seneca Creek Sewer Improvements	4,600 LF of 6" Force Main	$744,000
Valley View Sewer Improvements	8,100 LF of 6" Force Main	$1,310,000
Newry Area Pump Station	17,000 LF of 18" Force Main	$5,891,000
TOTAL NEW SERVICE AREA FORCE MAIN		$10,241,000

Table 19 – Scenario 1, O&M Related Projects

O&M Related Projects	Total Cost
Coneross Creek WRF O&M	$8,600,000
Conveyance System O&M	$10,200,000
Sewer Rehabilitation	$20,000,000
Pump Station O&M Upgrades [1]	$13,860,000
TOTAL O&M RELATED PROJECTS	$52,660,000

[1] *Includes upgrades for Cane Creek, Cryovac, Choestoea Creek, ISS, Wexford, and Golden Corner.*

Table 20 – Scenario 1, Total Cost Summary

Project Category	Total Cost
Existing System Growth Related Gravity Sewer	$24,234,000
Existing System Growth Related Pump Station	$92,400,000
Existing System Growth Related Force Main	$13,142,000
Existing System Growth Related WRF	$104,000,000
New Service Area Gravity Sewer	$36,909,000
New Service Area Pump Station	$22,572,000
New Service Area Force Main	$10,241,000
O&M Related Projects	$52,660,000
TOTAL CAPITAL COSTS	**$356,158,000**
TOTAL CAPITAL COSTS PER YEAR[1]	**$17,807,900**

[1] *20 year period, debt service interest not included*

6.5 Scenario 2

This scenario converts Martin Creek Pump Station to a 5.4 mgd plant, with Coneross Creek remaining as is without an upgrade needed in the 20-year window. All wastewater in the Fair Play area will continue to go to Golden Corner Pump Station and pumped to Coneross Creek WRF.

The following tables show projected 20-year capital costs for the following:

Table 21 – Scenario 2, Growth Related Existing Gravity Sewer Projects

Table 22 – Scenario 2, Growth Related Existing Pump Station Projects

Table 23 – Scenario 2, Growth Related Existing Force Main Projects

Table 24 – Scenario 2, New Infrastructure WRF Projects

Table 25– Scenario 2, New Infrastructure Gravity Sewer Projects

Table 26 – Scenario 2, New Infrastructure Pump Station Projects

Table 27 – Scenario 2, New Infrastructure Force Main Projects

Table 28 – Scenario 2, O&M Related Projects

Table 29 – Scenario 2, Total Cost Summary

Table 21 – Scenario 2, Growth Related Existing Gravity Sewer Projects

Growth Related Existing Gravity Sewer Projects	Scope	Total Cost
West Perkins Creek Gravity Sewer	Replace 7,522 LF of 10”/12” to 15” (MH 778 to MH 742)	$3,128,000
West Perkins Creek Gravity Sewer	Replace 4,448 LF of 12” to 18” (MH 742 to MH 659)	$2,004,000
Flat Rock Downstream Gravity Sewer	Replace 5,844 LF of 8” to 10” (MH 582 to MH 559)	$1,890,000
Choestoea Creek Gravity Sewer	Replace 4,844 LF of 8” to 12” (MH 280 to MH 257)	$1,790,000
Lower Westminster Gravity Sewer	Replace 4,503 LF of 10” to 15” (MH 249 to MH 229)	$1,872,000
TOTAL EXISTING GROWTH RELATED GRAVITY SEWER		$10,684,000

Table 22 – Scenario 2, Growth Related Existing Pump Station Projects

Growth Related Existing Pump Station Projects	Scope	Total Cost
Davis Creek Road No. 1	Upgrade to 4,800 gpm peak	$18,100,000
TOTAL EXISTING GROWTH RELATED PUMP STATION		$18,100,000

Table 23 – Scenario 2, Growth Related Existing Force Main Projects

Growth Related Existing Force Main Projects	Scope	Total Cost
Davis Creek Road No. 1	10,000 LF of 20” Force Main	$4,043,000
TOTAL EXISTING GROWTH RELATED FORCE MAIN		$4,043,000

Table 24 – Scenario 2, New Infrastructure WRF Projects

New WRF Projects	Scope	Total Cost
Martin Creek	5.4 mgd	$132,600,000
TOTAL EXISTING GROWTH RELATED WRF		$132,600,000

Table 25– Scenario 2, New Infrastructure Gravity Sewer Projects

New Service Area Gravity Sewer Projects	Scope	Total Cost
Exit 1 Improvements	1,000 LF of 8" gravity sewer	$277,000
Exit 2 Improvements	8,300 LF of 8" gravity sewer	$2,301,000
Exit 4 Improvements	12,900 LF of 8" gravity sewer	$3,576,000
West Oak Sewer Extension	17,000 LF of 8" gravity sewer	$4,712,000
Richland Creek Gravity Sewer	19,000 LF of 15" gravity sewer	$7,900,000
Davis Creek Road Gravity Sewer	6,700 LF of 15" gravity sewer + 9,000 LF of 8" gravity sewer	$5,281,000
Lower Seneca Creek Sewer Improvements	5,200 LF of 8" gravity sewer	$1,441,000
Valley View Sewer Improvements	8,300 LF of 8" gravity sewer	$2,3001,000
Martin Creek Gravity Sewer	8,800 LF of 36" gravity sewer	$7,318,000
Shiloh Road Gravity Sewer	6,500 LF of 8" gravity sewer	$1,802,000
TOTAL NEW SERVICE AREA GRAVITY SEWER		$36,909,000

Table 26 – Scenario 2, New Infrastructure Pump Station Projects

New Service Area Pump Station Projects	Scope	Total Cost
Exit 1 Improvements	175 gpm peak	$1,848,000
Exit 2 Improvements	175 gpm peak	$1,848,000
Exit 4 Improvements	175 gpm peak	$1,848,000
Lower Seneca Creek Sewer Improvements	175 gpm peak	$1,848,000
Valley View Sewer Improvements	175 gpm peak	$1,848,000
Newry Area Pump Station	3,600 gpm peak	$13,860,000
TOTAL NEW SERVICE AREA PUMP STATION		$23,100,000

Table 27 – Scenario 2, New Infrastructure Force Main Projects

New Service Area Force Main Projects	Scope	Total Cost
Exit 1 Improvements	2,900 LF of 6" Force Main	$469,000
Exit 2 Improvements	3,000 LF of 6" Force Main	$485,000
Exit 4 Improvements	8,300 LF of 6" Force Main	$1,342,000
Lower Seneca Creek Sewer Improvements	4,600 LF of 6" Force Main	$744,000
Valley View Sewer Improvements	8,100 LF of 6" Force Main	$1,310,00
Newry Area Pump Station	17,000 LF of 18" Force Main	$5,891,000
TOTAL NEW SERVICE AREA FORCE MAIN		$10,241,000

Table 28 – Scenario 2, O&M Related Projects

O&M Related Projects	Total Cost
Coneross Creek WRF O&M	$8,600,000
Conveyance System O&M	$10,200,000
Sewer Rehabilitation	$20,000,000
Pump Station O&M Upgrades [1]	$25,410,000
Speeds Creek Force Main Replacement [2]	$2,713,000
TOTAL O&M RELATED PROJECTS	$66,923,000

[1] Includes upgrades for Cane Creek, Cryovac, Choestoea Creek, ISS, Wexford, Speeds Creek, Perkins Creek, and Golden Corner.

[2] Because of ongoing maintenance issues, Speeds Creek Force Main needs replacement if it is not being upgraded for additional capacity. In this scenario, flow is being taken off Speeds Creek due to the Martin Creek WRF, so cost for replacement is included for a 16-inch pipe.

Table 29 – Scenario 2, Total Cost Summary

Project Category	Total Cost
Existing System Growth Related Gravity Sewer	$10,684,000
Existing System Growth Related Pump Station	$18,100,000
Existing System Growth Related Force Main	$4,043,000
New WRF	$132,600,000
New Service Area Gravity Sewer	$36,909,000
New Service Area Pump Station	$23,100,000
New Service Area Force Main	$10,241,000
O&M Related Projects	66,923,000
TOTAL CAPITAL COSTS	**$302,600,000**
TOTAL CAPITAL COSTS PER YEAR [1]	**$15,130,000**

[1] 20 year period, debt service interest not included

6.6 Scenario 3

This scenario keeps Martin Creek as a Pump Station, upgrades Coneross Creek WRF to a 11.4 mgd facility, and a new 1.6 mgd plant at Beaverdam Creek that treats all wastewater in the Fair Play area. A gravity interceptor would need to be installed between Golden Corner Pump Station and the Beaverdam Creek site (shown as Lower Mill Creek Sewer Extension).

The following tables show projected 20-year capital costs for the following:

Table 30 – Scenario 3, Growth Related Existing Gravity Sewer Projects

Table 31 – Scenario 3, Growth Related Existing Pump Station Projects

Table 32 – Scenario 3, Growth Related Existing Force Main Projects

Table 33 -- Scenario 3, Growth Related Existing WRF Projects

Table 34– Scenario 3, New Infrastructure Gravity Sewer Projects

Table 35 – Scenario 3, New Infrastructure Pump Station Projects

Table 36 – Scenario 3, New Infrastructure Force Main Projects

Table 37 – Scenario 3, New Infrastructure WRF Projects

Table 38 – Scenario 3, O&M Related Projects

Table 39 – Scenario 3, Total Cost Summary

Table 30 – Scenario 3, Growth Related Existing Gravity Sewer Projects

Growth Related Existing Gravity Sewer Projects	Scope	Total Cost
Speeds Creek Gravity Sewer Upgrade	Replace 10,726 LF of 15" / 18" to 36" (MH 857 to MH 814)	$8,919,000
West Perkins Creek Gravity Sewer	Replace 7,522 LF of 10"/12" to 15" (MH 778 to MH 742)	$3,128,000
West Perkins Creek Gravity Sewer	Replace 4,448 LF of 12" to 18" (MH 742 to MH 659)	$2,004,000
East Perkins Creek Gravity Sewer	Replace 5,569 LF of 18" to 36" (MH 680 to MH 660)	$4,631,000
Flat Rock Downstream Gravity Sewer	Replace 5,844 LF of 8" to 10" (MH 582 to MH 559)	$1,890,000
Choestoea Creek Gravity Sewer	Replace 4,844 LF of 8" to 12" (MH 280 to MH 257)	$1,790,000
Lower Westminster Gravity Sewer	Replace 4,503 LF of 10" to 15" (MH 249 to MH 229)	$1,872,000
TOTAL EXISTING GROWTH RELATED GRAVITY SEWER		$24,234,000

Table 31 – Scenario 3, Growth Related Existing Pump Station Projects

Growth Related Existing Pump Station Projects	Scope	Total Cost
Davis Creek Road No. 1	Upgrade to 4,800 gpm peak	$18,100,000
Martins Creek	Upgrade to 6,000 gpm peak	$22,600,000
Speeds Creek	Upgrade to 6,500 gpm peak	$24,500,000
Perkins Creek	Upgrade to 7,200 gpm peak	$27,200,000
TOTAL EXISTING GROWTH RELATED PUMP STATION		$92,400,000

Table 32 – Scenario 3, Growth Related Existing Force Main Projects

Growth Related Existing Force Main Projects	Scope	Total Cost
Davis Creek Road No. 1	10,000 LF of 20" Force Main	$4,043,000
Martins Creek	7,500 LF of 24" Force Main	$3,378,000
Speeds Creek	8,100 LF of 24" Force Main	$3,649,000
Perkins Creek	4,600 LF of 24" Force Main	$2,072,000
TOTAL EXISTING GROWTH RELATED FORCE MAIN		$13,142,000

Table 33 -- Scenario 3, Growth Related Existing WRF Projects

Growth Related Existing WRF Projects	Scope	Total Cost
Coneross Creek	Upgrade to 11.4 mgd	$72,000,000
TOTAL EXISTING GROWTH RELATED WRF		$72,000,000

Table 34– Scenario 3, New Infrastructure Gravity Sewer Projects

New Service Area Gravity Sewer Projects	Scope	Total Cost
Exit 1 Improvements	1,000 LF of 8" gravity sewer	$277,000
Exit 2 Improvements	8,300 LF of 8" gravity sewer	$2,301,000
Exit 4 Improvements	12,900 LF of 8" gravity sewer	$3,576,000
West Oak Sewer Extension	17,000 LF of 8" gravity sewer	$4,712,000
Richland Creek Gravity Sewer	19,000 LF of 15" gravity sewer	$7,900,000
Lower Mill Creek Sewer Extension	30,000 LF 18" gravity sewer	$13,514,000
Davis Creek Road Gravity Sewer	6,700 LF of 15" gravity sewer + 9,000 LF of 8" gravity sewer	$5,281,000
Lower Seneca Creek Sewer Improvements	5,200 LF of 8" gravity sewer	$1,441,000
Valley View Sewer Improvements	8,300 LF of 8" gravity sewer	$2,301,000
Martin Creek Gravity Sewer	8,800 LF of 36" gravity sewer	$7,318,000
Shiloh Road Gravity Sewer	6,500 LF of 8" gravity sewer	$1,802,000
TOTAL NEW SERVICE AREA GRAVITY SEWER		$50,423,000

Table 35 – Scenario 3, New Infrastructure Pump Station Projects

New Service Area Pump Station Projects	Scope	Total Cost
Exit 1 Improvements	175 gpm peak	$1,848,000
Exit 2 Improvements	175 gpm peak	$1,848,000
Exit 4 Improvements	175 gpm peak	$1,848,000
Lower Seneca Creek Sewer Improvements	175 gpm peak	$1,848,000
Valley View Sewer Improvements	175 gpm peak	$1,848,000
Newry Area Pump Station	3,600 gpm peak	$13,860,000
TOTAL NEW SERVICE AREA PUMP STATION		$23,100,000

Table 36 – Scenario 3, New Infrastructure Force Main Projects

New Service Area Force Main Projects	Scope	Total Cost
Exit 1 Improvements	2,900 LF of 6" Force Main	$469,000
Exit 2 Improvements	3,000 LF of 6" Force Main	$485,000
Exit 4 Improvements	8,300 LF of 6" Force Main	$1,342,000
Lower Seneca Creek Sewer Improvements	4,600 LF of 6" Force Main	$744,000
Valley View Sewer Improvements	8,100 LF of 6" Force Main	$1,310,000
Newry Area Pump Station	17,000 LF of 18" Force Main	$5,891,000
TOTAL NEW SERVICE AREA FORCE MAIN		$10,241,000

Table 37 – Scenario 3, New Infrastructure WRF Projects

New WRF Projects	Scope	Total Cost
Beaverdam Creek	1.6 mgd	$41,400,000
TOTAL EXISTING GROWTH RELATED WRF		$41,400,000

Table 38 – Scenario 3, O&M Related Projects

O&M Related Projects	Total Cost
Coneross Creek WRF O&M	$8,600,000
Conveyance System O&M	$10,200,000
Sewer Rehabilitation	$20,000,000
Pump Station O&M Upgrades [1]	$9,240,000
TOTAL O&M RELATED PROJECTS	$48,040,000

[1] *Includes upgrades for Cane Creek, Cryovac, Choestoea Creek, ISS, and Wexford*

Table 39 – Scenario 3, Total Cost Summary

Project Category	Total Cost
Existing System Growth Related Gravity Sewer	$24,234,000
Existing System Growth Related Pump Station	$92,400,000
Existing System Growth Related Force Main	$13,142,000
Existing System Growth Related WRF	$72,000,000
New Service Area Gravity Sewer	$50,423,000
New Service Area Pump Station	$23,100,000
New Service Area Force Main	$10,241,000
New WRF	$41,400,000
O&M Related Projects	$48,040,000
TOTAL CAPITAL COSTS	**$374,980,000**
TOTAL CAPITAL COSTS PER YEAR [1]	**$18,749,000**

[1] *20 year period, debt service interest not included*

6.7 Scenario 4

This scenario keeps Martin Creek as a pump station but reroutes the force main so that it bypasses Speeds Creek and Perkins Creek Pump Stations, eliminating an upgrade to them. Total treatment capacity needed at Coneross Creek WRF is 11.7 mgd (the entire system), so an upgrade to 13.0 mgd is assumed (5.2 mgd increase). All wastewater in the Fair Play area will continue to go to Golden Corner Pump Station and pumped to Coneross Creek.

A map of the

The following tables show projected 20-year capital costs for the following:

Table 40 – Scenario 4, Growth Related Existing Gravity Sewer Projects

Table 41 – Scenario 4, Growth Related Existing Pump Station Projects

Table 42 – Scenario 4, Growth Related Existing Force Main Projects

Table 43 -- Scenario 4, Growth Related Existing WRF Projects

Table 44– Scenario 4, New Infrastructure Gravity Sewer Projects

Table 45 – Scenario 4, New Infrastructure Pump Station Projects

Table 46 – Scenario 4, New Infrastructure Force Main Projects

Table 47 – Scenario 4, O&M Related Projects

Table 48 – Scenario 4, Total Cost Summary

Table 40 – Scenario 4, Growth Related Existing Gravity Sewer Projects

Growth Related Existing Gravity Sewer Projects	Scope	Total Cost
West Perkins Creek Gravity Sewer	Replace 7,522 LF of 10”/12” to 15” (MH 778 to MH 742)	$3,128,000
West Perkins Creek Gravity Sewer	Replace 4,448 LF of 12” to 18” (MH 742 to MH 659)	$2,004,000
Flat Rock Downstream Gravity Sewer	Replace 5,844 LF of 8” to 10” (MH 582 to MH 559)	$1,890,000
Choestoea Creek Gravity Sewer	Replace 4,844 LF of 8” to 12” (MH 280 to MH 257)	$1,790,000
Lower Westminster Gravity Sewer	Replace 4,503 LF of 10” to 15” (MH 249 to MH 229)	$1,872,000
TOTAL EXISTING GROWTH RELATED GRAVITY SEWER		$10,684,000

Table 41 – Scenario 4, Growth Related Existing Pump Station Projects

Growth Related Existing Pump Station Projects	Scope	Total Cost
Davis Creek Road No. 1	Upgrade to 4,800 gpm peak	$18,100,000
Martins Creek	Upgrade to 6,000 gpm peak	$22,600,000
TOTAL EXISTING GROWTH RELATED PUMP STATION		$40,700,000

Table 42 – Scenario 4, Growth Related Existing Force Main Projects

Growth Related Existing Force Main Projects	Scope	Total Cost
Davis Creek Road No. 1	10,000 LF of 20" Force Main	$4,043,000
Martins Creek	35,200 LF of 24" Force Main	$15,886,000
TOTAL EXISTING GROWTH RELATED FORCE MAIN		$19,929,000

Table 43 -- Scenario 4, Growth Related Existing WRF Projects

Growth Related Existing WRF Projects	Scope	Total Cost
Coneross Creek	Upgrade to 13.0 mgd	$104,000,000
TOTAL EXISTING GROWTH RELATED WRF		$104,000,000

Table 44– Scenario 4, New Infrastructure Gravity Sewer Projects

New Service Area Gravity Sewer Projects	Scope	Total Cost
Exit 1 Improvements	1,000 LF of 8" gravity sewer	$277,000
Exit 2 Improvements	8,300 LF of 8" gravity sewer	$2,301,000
Exit 4 Improvements	12,900 LF of 8" gravity sewer	$3,576,000
West Oak Sewer Extension	17,000 LF of 8" gravity sewer	$4,712,000
Richland Creek Gravity Sewer	19,000 LF of 15" gravity sewer	$7,900,000
Davis Creek Road Gravity Sewer	6,700 LF of 15" gravity sewer + 9,000 LF of 8" gravity sewer	$5,281,000
Lower Seneca Creek Sewer Improvements	5,200 LF of 8" gravity sewer	$1,441,000
Valley View Sewer Improvements	8,300 LF of 8" gravity sewer	$2,301,000
Martin Creek Gravity Sewer	8,800 LF of 36" gravity sewer	$7,318,000
Shiloh Road Gravity Sewer	6,500 LF of 8" gravity sewer	$1,802,000
TOTAL NEW SERVICE AREA GRAVITY SEWER		$36,909,000

Table 45 – Scenario 4, New Infrastructure Pump Station Projects

New Service Area Pump Station Projects	Scope	Total Cost
Exit 1 Improvements	175 gpm peak	$1,848,000
Exit 2 Improvements	175 gpm peak	$1,848,000
Exit 4 Improvements	175 gpm peak	$1,848,000
Lower Seneca Creek Sewer Improvements	175 gpm peak	$1,848,000
Valley View Sewer Improvements	175 gpm peak	$1,848,000
Newry Area Pump Station	3,600 gpm peak	$13,860,000
TOTAL NEW SERVICE AREA PUMP STATION		$23,100,000

Table 46 – Scenario 4, New Infrastructure Force Main Projects

New Service Area Force Main Projects	Scope	Total Cost
Exit 1 Improvements	2,900 LF of 6" Force Main	$469,000
Exit 2 Improvements	3,000 LF of 6" Force Main	$485,000
Exit 4 Improvements	8,300 LF of 6" Force Main	$1,342,000
Lower Seneca Creek Sewer Improvements	4,600 LF of 6" Force Main	$744,000
Valley View Sewer Improvements	8,100 LF of 6" Force Main	$1,310,000
Newry Area Pump Station	17,000 LF of 18" Force Main	$5,891,000
TOTAL NEW SERVICE AREA FORCE MAIN		$10,241,000

Table 47 – Scenario 4, O&M Related Projects

O&M Related Projects	Total Cost
Coneross Creek WRF O&M	$8,600,000
Conveyance System O&M	$10,200,000
Sewer Rehabilitation	$20,000,000
Pump Station O&M Upgrades [1]	$25,410,000
Speeds Creek Force Main Replacement [2]	$2,713,000
TOTAL O&M RELATED PROJECTS	$66,923,000

[1] *Includes upgrades for Cane Creek, Cryovac, Choestoea Creek, ISS, Wexford, Speeds Creek, Perkins Creek, and Golden Corner.*

[2] *Because of ongoing maintenance issues, Speeds Creek Force Main needs replacement if it is not being upgraded for additional capacity. In this scenario, flow is being taken off Speeds Creek due to the Martin Creek WRF, so cost for replacement is included for a 16-inch pipe.*

Table 48 – Scenario 4, Total Cost Summary

Project Category	Total Cost
Existing System Growth Related Gravity Sewer	$10,684,000
Existing System Growth Related Pump Station	$40,700,000
Existing System Growth Related Force Main	$19,929,000
Existing System Growth Related WRF	$104,000,000
New Service Area Gravity Sewer	$36,909,000
New Service Area Pump Station	$23,100,000
New Service Area Force Main	$10,241,000
O&M Related Projects	$66,923,000
TOTAL CAPITAL COSTS	**$312,486,000**
TOTAL CAPITAL COSTS PER YEAR [1]	**$15,624,300**

[1] *20 year period, debt service interest not included*

6.8 Scenario Summary and Recommendations

Table 49 – Scenario Summary With Costs summarizes the last 4 sections, and adds a cost column to Table 11:

Table 49 – Scenario Summary With Costs

Scenario No.	Coneross Creek	Martin Creek	Beaverdam Creek	Total Capital Cost ($)
1	Upgraded to 13.0 mgd (11.7 mgd ADF)	Pump Station	No plant – Golden Corner PS pumps to Coneross Creek	$356,158,000
2	Capacity kept at 7.8 mgd with 6.9 mgd ADF	New Plant w/ 5.4 mgd capacity (4.8 mgd ADF)	No plant – Golden Corner PS pumps to Coneross Creek	$302,600,000
3	Upgrade to 11.4 mgd (10.7 mgd ADF)	Pump Station	Plant with 1.6 mgd capacity (1.4 mgd ADF)	$374,980,000
4	Upgraded to 13.0 mgd (11.7 mgd ADF)	Pump Station upgraded and force main rerouted to Coneross Creek	No plant – Golden Corner PS pumps to Coneross Creek	$312,486,000

The project team recommends proceeding with Scenario 4, for the following reasons:

- Even though Scenario 2 is less expensive than Scenario 4, the difference is relatively minor (3.3%) and outweighed by the factors listed below.
- Dilution potential for plant discharges are more advantageous on Coneross Creek than the two potential locations closer to Lake Hartwell.
- Future treatment limits are more certain at Coneross Creek than the two potential locations closer to Lake Hartwell.
- Constructing a new treatment plant presents public relations and land acquisition challenges not present with an existing plant upgrade.
- Constructing a new treatment plant requires more staffing and operational effort than upgrading the existing plant.
- Constructing a new plant is still available as an option beyond the 20-year study window should it be more beneficial in the future.

6.9 Project Phasing

Moving forward with Scenario 4, the next step in prioritizing the various projects and separating them into 5-year windows. There can be a measure of subjectivity with prioritization of projects, but generally the hierarchy of priority would be:

1. Projects needed for SCDHEC Consent Order or other regulatory compliance
2. Projects that are needed for imminent developments in high-demand areas
3. Projects that provide operational improvements
4. Projects that are needed for more long-term developments.

Priorities can change as conditions do. Projects within the following list can move up or down as priorities shift, but the following provides a roughly equitable spread of cost over the 20-year window. For instance, should the Newry Area developments shift to later, that would open up budgeting options for other projects that could be accelerated.

It should be noted that Oconee County has secured a $25 M bond to construct the projects along the I-85 corridor (Exit 1, 2, and 4). Since that funding has been secured, those projects are not included in the prioritization / budgeting detailed below.

2024-2029 Projects: Projects of the highest priority that should be executed within the 0-5 years are shown in Table 50 – Capital Improvement Projects, 2024-2029. These projects focus on operational needs already identified by OJRSA, providing infrastructure to serve the Newry Area developments, and performing preliminary design, detailed design and permitting for an initial phase that would upgrade Coneross Creek WRF to 10.4 mg. See Figure 32 – Projected Sewer CIP: 2024-2029 for projects in the 0-5 year window.

Table 50 – Capital Improvement Projects, 2024-2029

Project	Total Cost
Coneross Creek WRF O&M Improvements	$8,600,000
Conveyance System O&M Improvements	$10,200,000
Sewer Rehabilitation (25% Complete)	$5,000,000
Speeds Creek Force Main Replacement	$2,713,000
Pump Station O&M Improvements (25% Complete)	$6,353,000
Martin Creek Gravity Sewer (needed to serve Newry Area development)	$7,318,000
Davis Creek Road No. 1 Pump Station & Force Main (Newry Area development)	$22,143,000
Newry Area Pump Station & Force Main	$19,751,000
Coneross Creek WRF Upgrade Phase 1 Design, Permitting (Upgrade to 10.4 mgd)	$7,500,000
TOTAL CAPITAL COSTS	**$89,578,000**

2029-2034 Projects: Projects that should be scheduled for the 5-10 year window are shown in Table 51 – Capital Improvement Projects, 2029-2034. Projects slated for this time period are continuing to address I&I and operation and maintenance projects, upgrading capacity needs in the West Perkins Creek system, completing design and permitting for the Martin Creek Pump Station and Force Main, and construction of the initial capacity upgrade for Coneross Creek WRF. See Figure 33 – Projected Sewer CIP: 2029-2034 for projects in the 5-10 year window.

Table 51 – Capital Improvement Projects, 2029-2034

Project	Total Cost
Sewer Rehabilitation (75% Complete)	$10,000,000
Pump Station O&M Improvements (50% Complete)	$6,352,000
West Perkins Creek Gravity Sewer	$5,132,000
Martin Creek Pump Station & Force Main (Design & Permitting)	$5,498,000
Coneross Creek WRF Upgrade Phase 1 Construction (Upgrade to 10.4 mgd)	$44,500,000
TOTAL CAPITAL COSTS	**$71,483,000**

2034-2039 Projects: Projects that should be scheduled for the 10-15 year window are shown in Table 52 – Capital Improvement Projects, 2034-2039. Projected sewer rehab for the 20-year period is completed by the 15-year mark. Martin Creek Pump Station and Force Main is projected to be completed in this period, as well as other existing capacity upgrades (Lower Westminster) and new service area extensions (Richland Creek and Shiloh Road). Richland Creek will eliminate one existing pump station and the Davis Creek Road project will eliminate four, improving operation and maintenance for the conveyance system. Finally, design and permitting for the second round of WRF upgrades is slated for this period as well. See Figure 34 – Projected Sewer CIP: 2034-2039 for projects in the 10-15 year window.

Table 52 – Capital Improvement Projects, 2034-2039

Project	Total Cost
Sewer Rehabilitation (100% Complete)	$5,000,000
Pump Station O&M Improvements (75% Complete)	$6,353,000
Richland Creek Gravity Sewer	$7,900,000
Martin Creek Pump Station & Force Main (Construction)	$32,988,000
Davis Creek Road Gravity Sewer / Pump Station Elimination	$5,281,000
Lower Westminster Gravity Sewer	$1,872,000
Shiloh Road Gravity Sewer	$1,802,000
Coneross Creek WRF Upgrade Phase 2 Design & Permitting (Upgrade to 13.0 mgd)	$7,500,000
TOTAL CAPITAL COSTS	**$68,706,000**

2039-2044 Projects: Projects that should be scheduled for the 15-20 year window are shown in Table 53 – Capital Improvement Projects, 2039-2044. With many of the higher priority projects completed in earlier periods, other lower priority sewer upgrades and extensions are slated for this final period. Construction of the second capacity upgrade for Coneross Creek WRF is also projected to be completed to meet the anticipated 20-year buildout flow. See Figure 35 – Projected Sewer CIP: 2039-2044 for projects in the 15-20 year window.

Table 53 – Capital Improvement Projects, 2039-2044

Project	Total Cost
Pump Station O&M Improvements (100% Complete)	$6,352,000
Flat Rock Downstream Gravity Sewer	$1,890,000
Choestoea Creek Gravity Sewer	$1,790,000
West Oak Sewer Extension	$4,712,000
Valley View Sewer Improvements	$5,459,000
Lower Seneca Creek Sewer Improvements	$4,033,000
Coneross Creek WRF Upgrade Phase 2 Construction (Upgrade to 13.0 mgd)	$44,500,000
TOTAL CAPITAL COSTS	**$68,737,000**

7.0 RECOMMENDATIONS AND CONCLUSIONS

These recommendations are based on the analysis completed, stakeholder conversations, and public engagement results for consideration for next steps. The results of the Feasibility Study will need to be considered as those may affect the recommendations made herein.

1. Policy:
    a) Implement the recommendations of the Feasibility Study and adjust the recommendations from this study accordingly using a stakeholder driven process
    b) Consider developing a sewer planning committee for collaboration across the municipalities within the study area to align sewer development goals and develop/revise policies that comply with the results of this study to avoid contradictory policies. This should include coordination with the municipalities on sewer related Comprehensive Planning goals.
    c) Consider recommunicating the recent OJRSA Sewer Use Regulation change to the public. As sewer infrastructure implementation occurs and existing septic users have the opportunity to connect onto new sewer, apply enforcement equitably across the county.
    d) Consider asking Oconee County to audit property taxes across the county. Many properties are grandfathered at the agricultural base rate, which potentially diminishes potential revenue for all types of capital improvement projects, including sewer.
    e) When recruiting industries and other desired economic development projects, as part of "their" incentive packages, consider providing funding to OJRSA for plant and/or conveyance system improvements so these costs do not fall entirely on the system's ratepayers.
    f) Oconee County should remove or make note on their Code of Ordinances (2024) website that the old sewer use ordinance language as being invalid as this continues to be a source of some confusion for the general public.
    g) If land use regulations are not adopted to aid in informing sewer growth, OJRSA should work with Oconee County and the municipalities within the county to define areas to remain rural and on septic at a minimum for capital improvement investment.
    h) Consider an incentive for infill development with each municipality.
    i) Consider developing a policy for consideration to future gravity sewer infrastructure needs when new developments are proposed and permitted.
2. Land Use Regulations:
    a) Consider working with the municipalities to revisit the current guidelines for the Oconee County overlay districts along with the current zoning and future land use such that it supports the type of development and growth by location within the study area based on the public feedback. Consideration to similar surrounding county's regulations for lessons learned could be a starting point for this effort. Different types of land use regulation including minimum lot sizes for septic tank developments should be considered. Additional public feedback that is coupled with land use regulation education and examples is recommended.

    b) Most of the respondents support growth with specific caveats, most of which revolve around land use regulations. Although not all respondents were in favor of zoning specifically, many want to see responsible growth; this also came up during the stakeholder meetings. Based on public and stakeholder comment, we recommend Oconee County and the municipalities collaborate on a future land use plan that can help better inform all the local utilities and the development community of what type of growth

and where that growth should occur that is both desired and community supported. A regionalized supported land use plan will greatly increase the thoughtful allocation of funds for sewer rehabilitation and expansion.

c) There have been multiple, recent, large parcel subdivision developments proposed, permitted, or built in Oconee County that have met opposition by the public and council members. A regionalized approach that the municipal stakeholders support could be considered for how sewer is used as an incentive, as an annexation tool, and how developers could assist in the funding for sewer expansions.

3. Failing Septic and Connections to Existing Development:

   a) Although information about failing septic tanks is not readily available, it would be beneficial to work with SCDES to further understand where failing septic systems within the study area may be located for a more proactive approach to sewer connections or septic repair/replacement.
   b) Develop an incentive plan for those that could transition onto public sewer through implementation of this master plan.
      i) Should it be determined that the financial burden is unattainable for some residents, Oconee and Anderson County could consider an annual stipend or grants that provide assistance for residents to apply as an offset to the costs to connect to sewer. This could be beneficial to Oconee County as they are currently required to subsidize the operation and maintenance of the retail sewer in the county if OJRSA is not able to receive enough revenue from the connected users to offset these expenses. If more customers are connected, especially in areas where gravity sewer is already available, then more revenue is likely achieved and costs for each user should be reduced. Other funding mechanisms and grants should be researched as well.
   c) Analysis should be performed to determine at each stage of sewer expansion if the wastewater system itself has the capacity to handle all the potential volume from property owners that could connect.

4. Communications:

   a) Public opinion was predominately in favor of growth, but their opinions were divided between strong opposition and strong support for where that investment should take place. There was also a clear divide between responders' opinions about which wastewater solution, septic or public sewer, was better for the environment. We suggest a partnership with other public entities including the Army Corps of Engineers, SCDES, Clemson University Center for Watershed Excellence, Oconee County, Lake Keowee Source Water Protection Team, Lake Hartwell Partners for Clean Water, Friends of Lake Keowee, and Upstate Forever for public outreach explaining the pros and cons to both, including publicly available supporting data. This could potentially be funded by a grant.
   b) There are many misunderstandings of the public's understanding of who controls or does not control growth and sewer. Additional outreach is recommended. The Project Team suggests providing a document with Frequently Asked Questions on OJRSA's website to clarify these misconceptions.

5. Infrastructure Recommendations:

   a) A formal plan and budget for routine maintenance items for all sewer collection and treatment providers should be put in place to avoid future disagreements about upgrades

and repairs to the existing system. This should also help avoid future consent orders within the system both internal and external to OJRSA's infrastructure .

b) The Project Team recommends OJRSA proceed with the improvements included in Scenario 4, which involves upgrading the Coneross Creek WRF and rerouting the Martin Creek Force Main directly to the plant. Constructing new plants at either Martin Creek or Beaverdam Creek do not appear to be the most optimal solution for treatment within the system during the 20-year study window.

c) Work with SCDES to recalibrate permitted flow Checkbook. This effort could enable OJRSA to delay the need for a treatment plant upgrade 1-2 years.

d) Begin a Preliminary Engineering Report for an upgrade at Coneross Creek WRF within the next 12 months. One component of the analysis (that could be done prior to the PER) would be to review the SCDES water quality model for the plant to confirm that their assumptions are reasonable and appropriate.

e) Work with Member Cities to minimize the length of time (residence time) that wastewater travels through the conveyance system. Seneca Light & Water especially has many pump stations operated in series, in addition to ones OJRSA owns in the same area. This can cause long residence times that increases hydrogen sulfide concentrations that can be a significant safety hazard to OJRSA and Member City staff as well as a source of corrosion that increases O&M issues for staff and can require costly repairs. Where reduction or elimination of hydrogen sulfide issues is not possible from pumping modifications, chemical feed systems or some other means of hydrogen sulfide control should be considered for use.

f) Consider an engineering assessment to seek cost effective solutions that may present options for gaining additional treatment capacity without needing an upgrade.

g) The capital improvements identified and recommended within this study are intended to be high level and useful for budgeting purposes. It is recommended that the assumptions and flow projections for individual projects be reviewed and updated as necessary prior to detailed design being initiated.

6. Future Assessment Considerations:

a) At a minimum, this plan should be revisited every three years or after a major change to the area such as a catalyst project or development.

b) We also recommend that the substantial stakeholder group established by this planning process continue to meet twice a year for a facilitated conversation regarding sewer to maintain the positive momentum and open lines of communication established during this project.

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Appendix A: Figures

N

PICKENS COUNTY

130
302.01
107
11
133
SALEM
28
302.02
303.01
183
137
301
304.04
WALHALLA
303.02
304.03
WEST UNION
304.02
188
130
76
306.02
305
183
11
306.01
76
93
SENECA
123
311
307.01
308.02
28
WESTMINSTER
307.02
59
310
308.01
123
309.04
309.01
24
187
182
309.03
85
OCONEE COUNTY
ANDERSON COUNTY
243
109

OJRSA Treatment Plant
Interstate
US Highway
State Highway
Other Major Roads
Lakes
2020 Census Tracts
Municipalities
County Boundary
Study Area

3.5 0 3.5
Miles

FIGURE 1

Oconee Joint Regional Sewer Authority

Study Area

DATE: MAY 2024 SCALE: NOTED

DATA SOURCE: Oconee County, USGS, NWI, SCDOT

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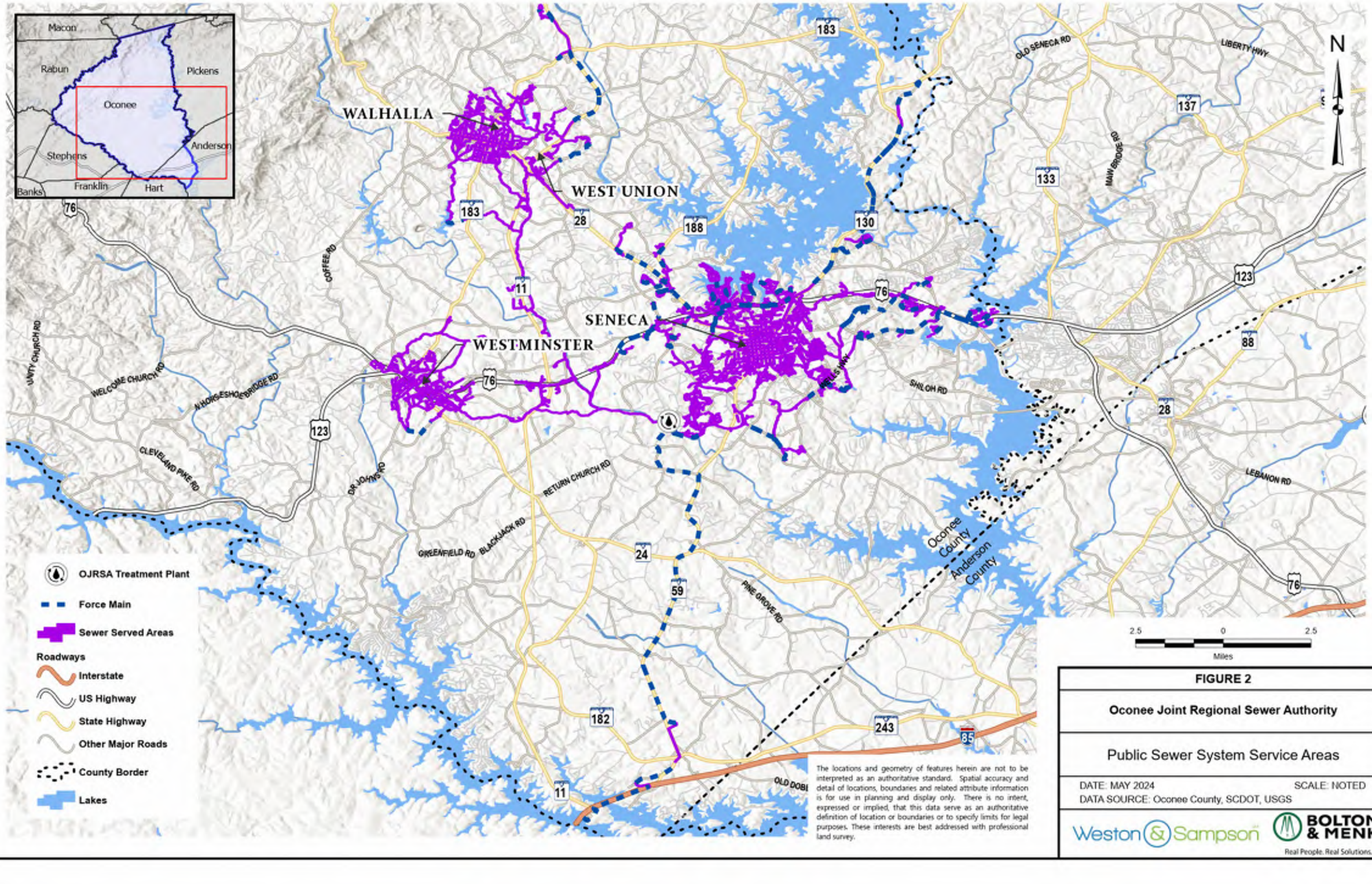

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FIGURE 2

Oconee Joint Regional Sewer Authority

Public Sewer System Service Areas

DATE: MAY 2024 SCALE: NOTED

DATA SOURCE: Oconee County, SCDOT, USGS

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WALHALLA
WEST UNION
SENECA
WESTMINSTER
Keowee Key
Coneross Creek WWTF
Clemson U WWTF
The Pier WWTP
West-Oak Hs
Foxwood Hills Sd
Chickasaw Point
Thousand Trails Campground
Oconee County
Anderson County
N
2.75 0 2.75
Miles

Package Plant
OJRSA Treatment Plant
Force Main
Sewer Served Areas
Roadways
Interstate
US Highway
State Highway
Other Major Roads
County Border
Lakes

The locations and geometry of features herein are not to be interpreted as an authoritative standard. Spatial accuracy and detail of locations, boundaries and related attribute information is for use in planning and display only. There is no intent, expressed or implied, that this data serve as an authoritative definition of location or boundaries or to specify limits for legal purposes. These interests are best addressed with professional land survey.

FIGURE 3

Oconee Joint Regional Sewer Authority

Private Sewer - Package Plant Locations

DATE: MAY 2024 SCALE: NOTED
DATA SOURCE: Oconee County, SCDOT, USGS

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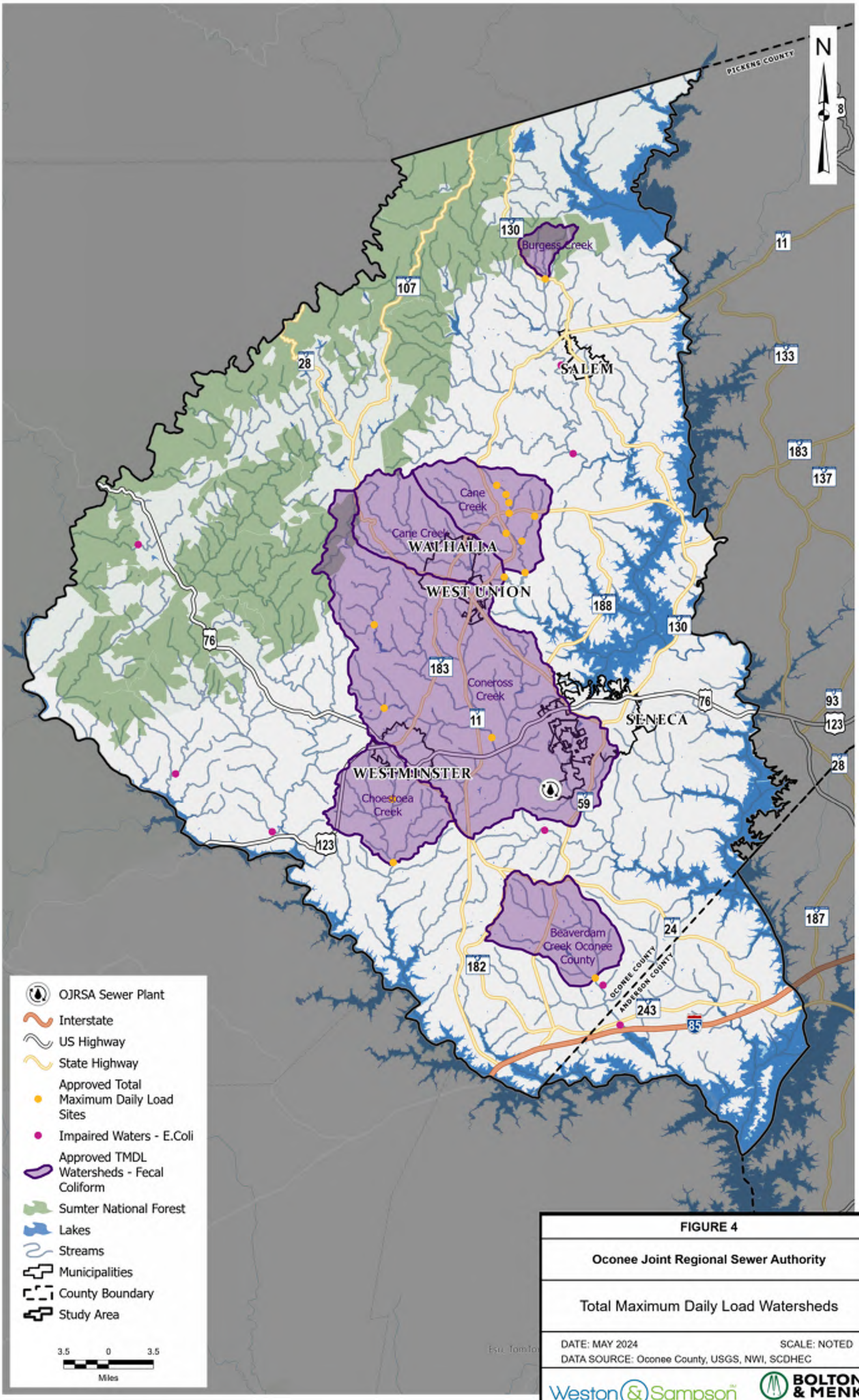

FIGURE 4

Oconee Joint Regional Sewer Authority

Total Maximum Daily Load Watersheds

DATE: MAY 2024 SCALE: NOTED

DATA SOURCE: Oconee County, USGS, NWI, SCDHEC

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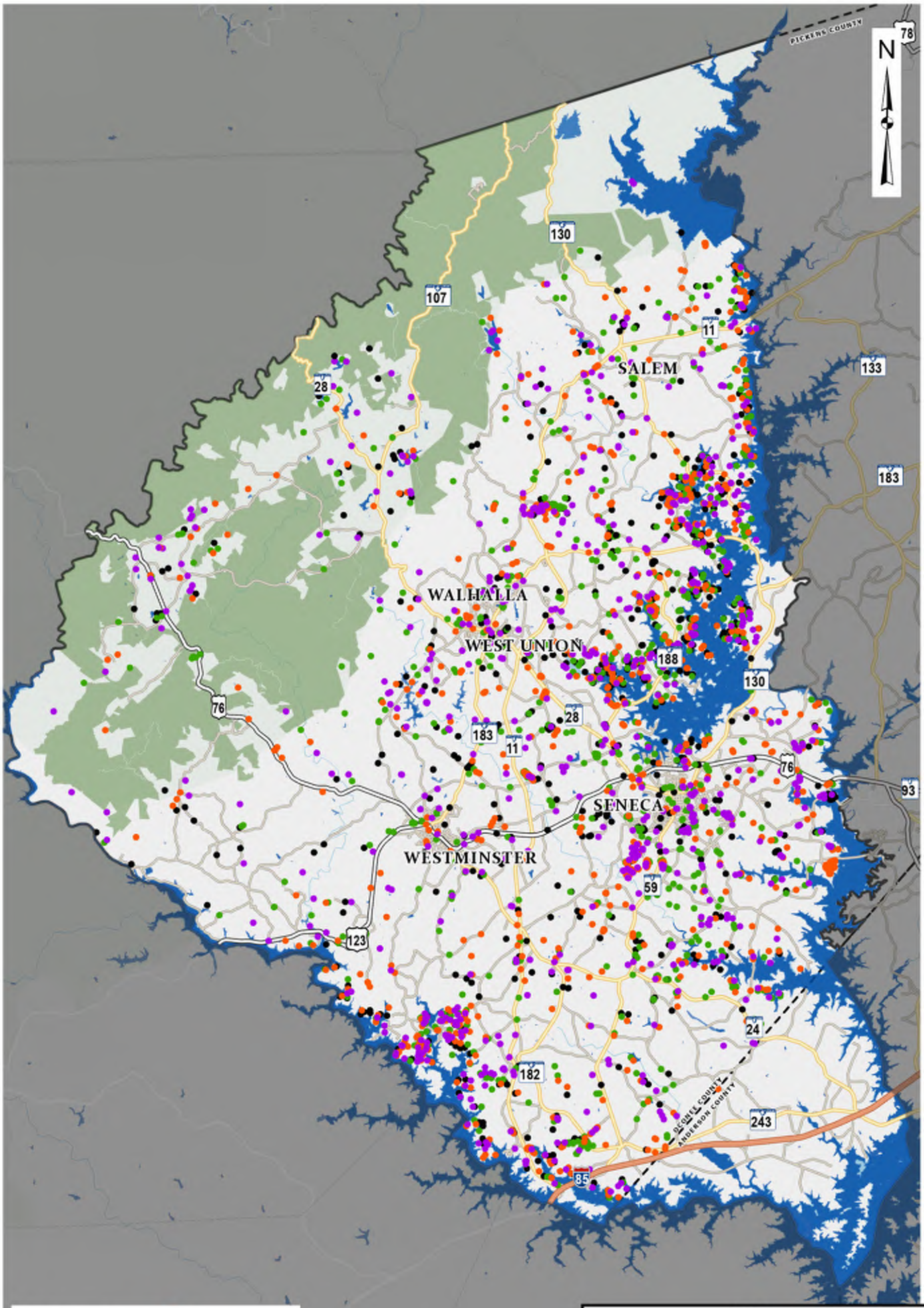

FIGURE 5

Oconee Joint Regional Sewer Authority

Recent New Addresses By Year (2020-2023)

DATE: MAY 2024 SCALE: NOTED

DATA SOURCE: Oconee County, SCDOT, USGS

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SALEM

WALHALLA

WEST UNION

SENECA

WESTMINSTER

PICKENS COUNTY

OCONEE COUNTY
ANDERSON COUNTY

78
130
107
11
133
28
183
188
76
93
59
123
24
182
243
85

New Address Type

- Agriculture
- Commercial
- Education
- Government Properties
- Industrial
- Residential- Multi-Family
- Other
- Residential- Single Family

- Interstate
- US Highway
- State Highway
- Other Major Roads
- Sumter National Forest
- Lakes
- County Boundary
- Study Area

4 0 4

Miles

FIGURE 6

Oconee Joint Regional Sewer Authority

Recent New Addresses By Type (2020-2023)

DATE: MAY 2024 SCALE: NOTED

DATA SOURCE: Oconee County, SCDOT, USGS

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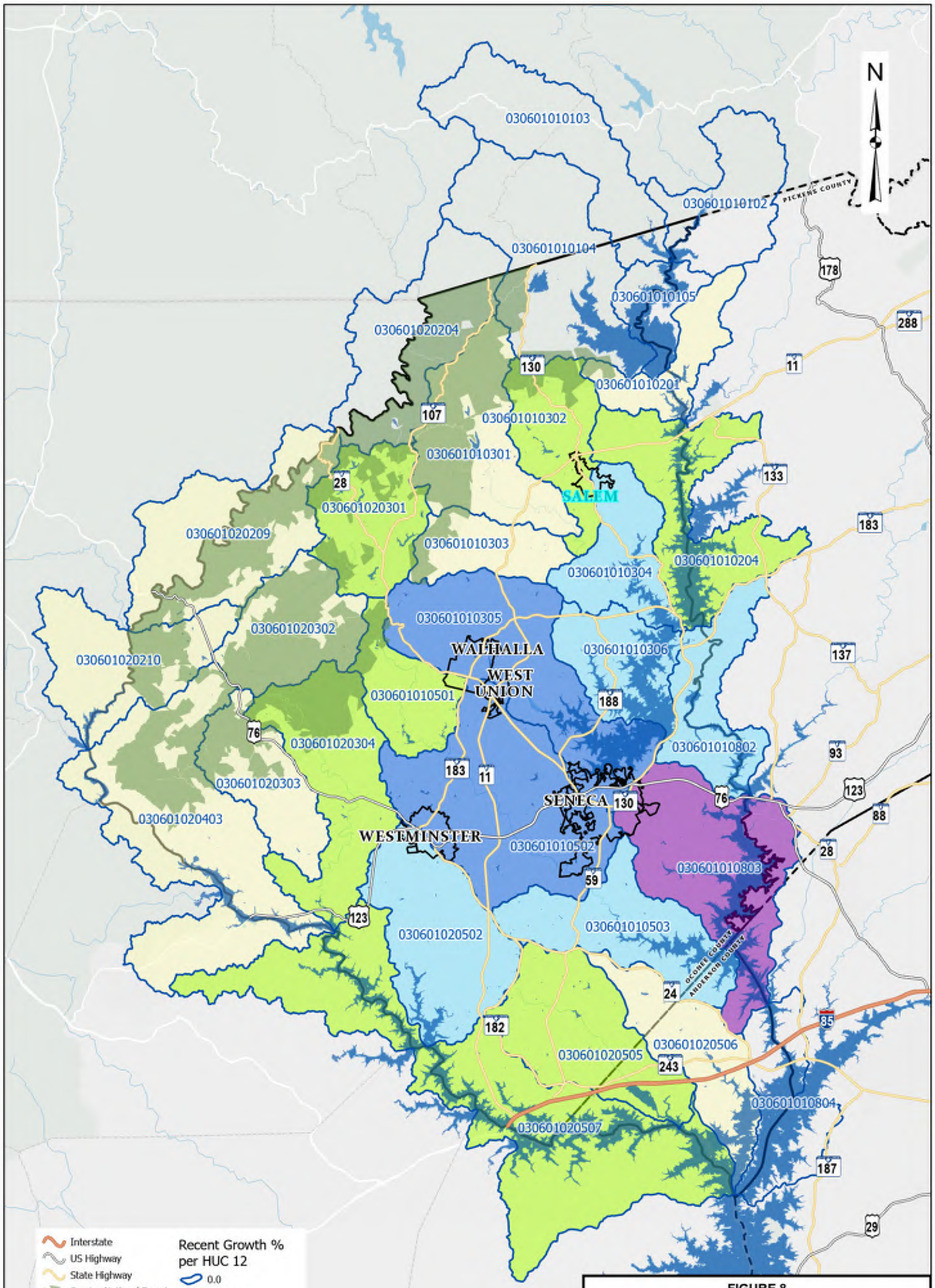

FIGURE 8

Oconee Joint Regional Sewer Authority

Recent Growth by HUC 12 Watershed Basins

DATE: MAY 2024 SCALE: NOTED

DATA SOURCE: Oconee County, SCDOT, USGS, SCDHEC

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SALEM

WALHALLA

WEST UNION

SENECA

WESTMINSTER

OJRSA Sewer Plant

Pro Public Sewer Growth

Anti Public Sewer Growth

Sewer Force Main

Interstate

US Highway

State Highway

Sumter National Forest

Lakes

Sewer Served Areas

Municipalities

County Boundary

Study Area

3.5 0 3.5

Miles

FIGURE 9

Oconee Joint Regional Sewer Authority

Public Engagement -
Sewer Growth Feedback

DATE: MAY 2024 SCALE: NOTED

DATA SOURCE: Oconee County, USGS, NWI

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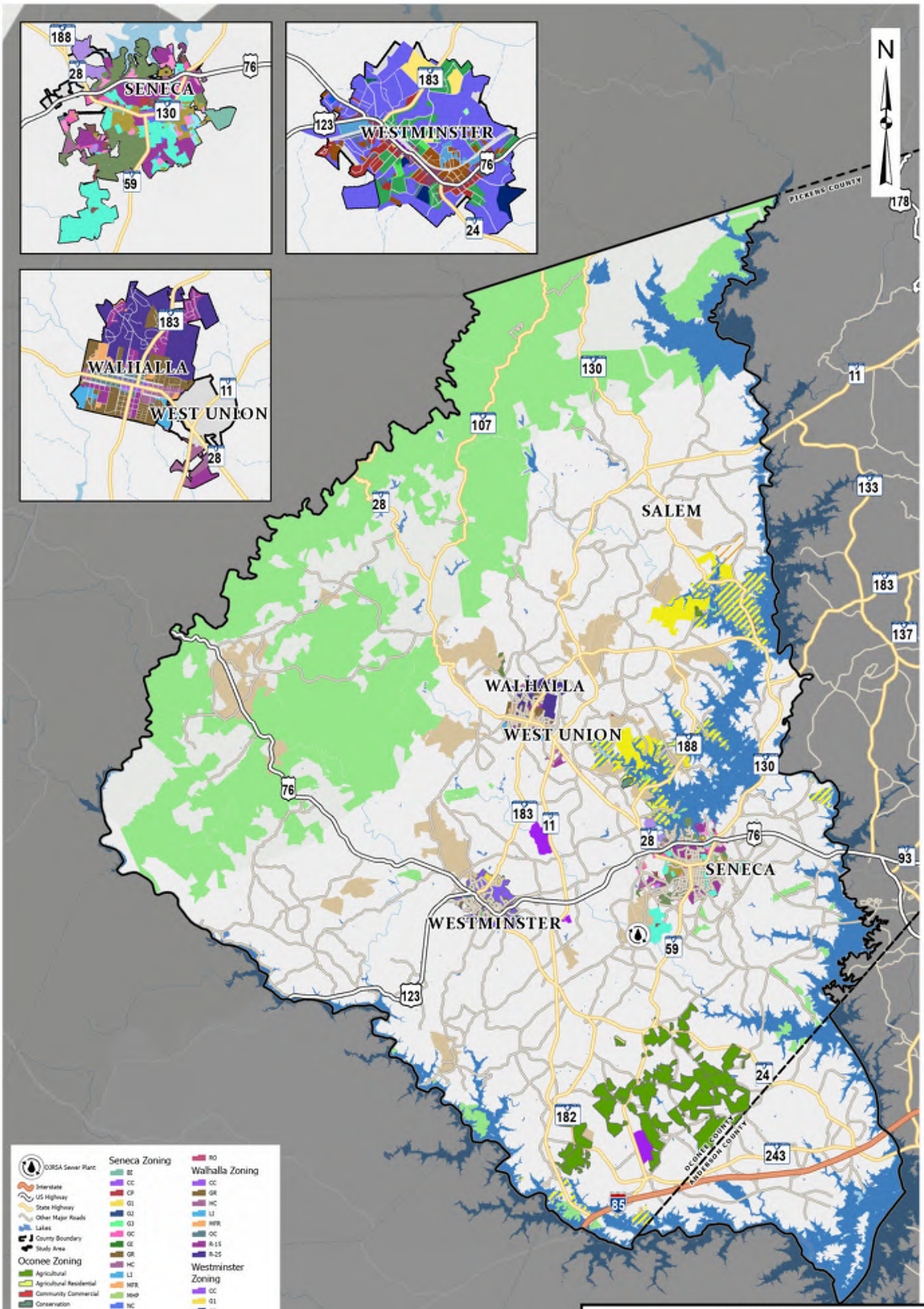

FIGURE 10

Oconee Joint Regional Sewer Authority

Study Area Zoning

DATE: MAY 2024 SCALE: NOTED

DATA SOURCE: Oconee County, SCDOT, Seneca, Walhalla, Anderson County

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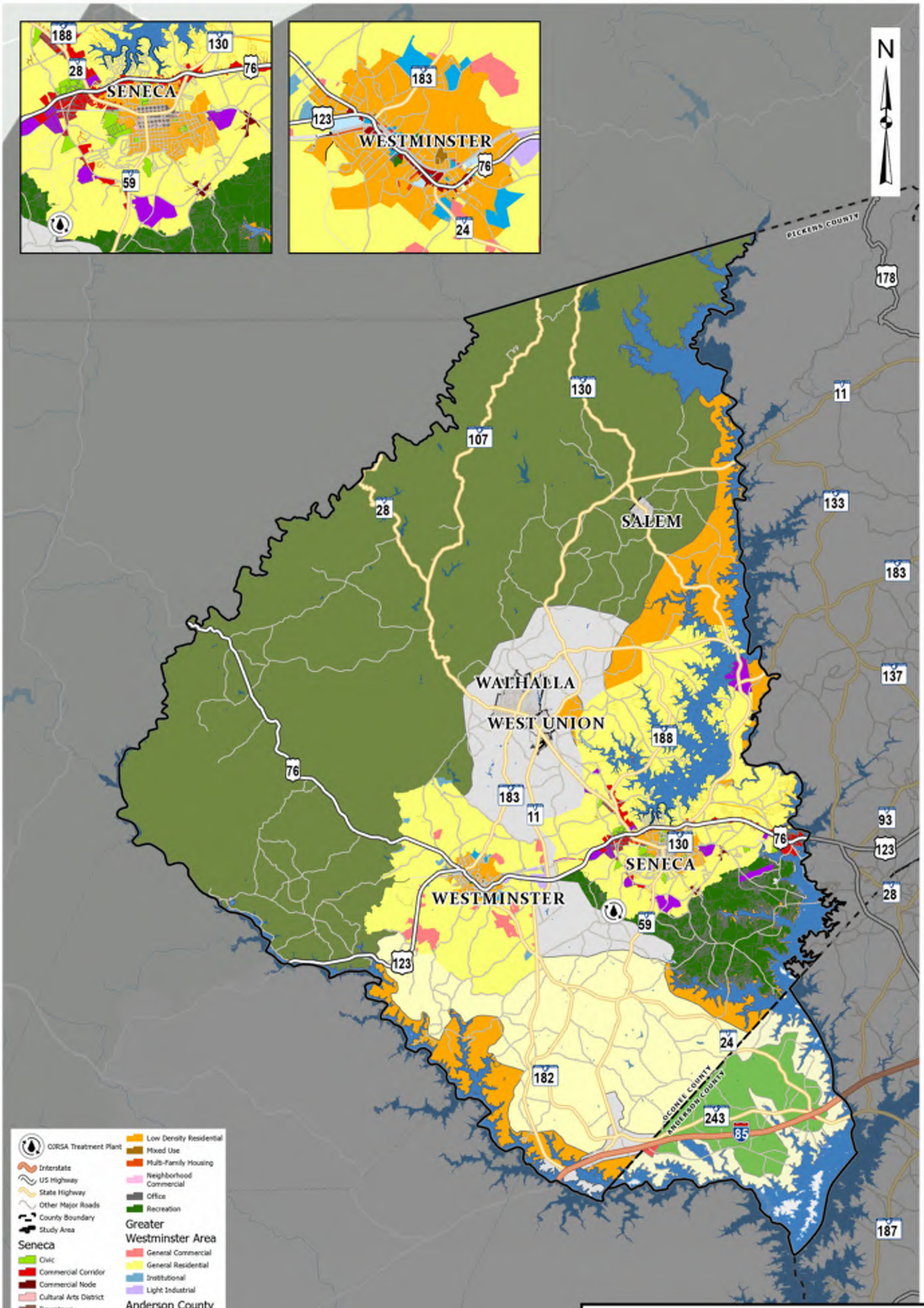

FIGURE 11

Oconee Joint Regional Sewer Authority

Study Area Future Land Use

DATE: MAY 2024 SCALE: NOTED

DATA SOURCE: Oconee County, SCDOT, Seneca, Westminster, Anderson County

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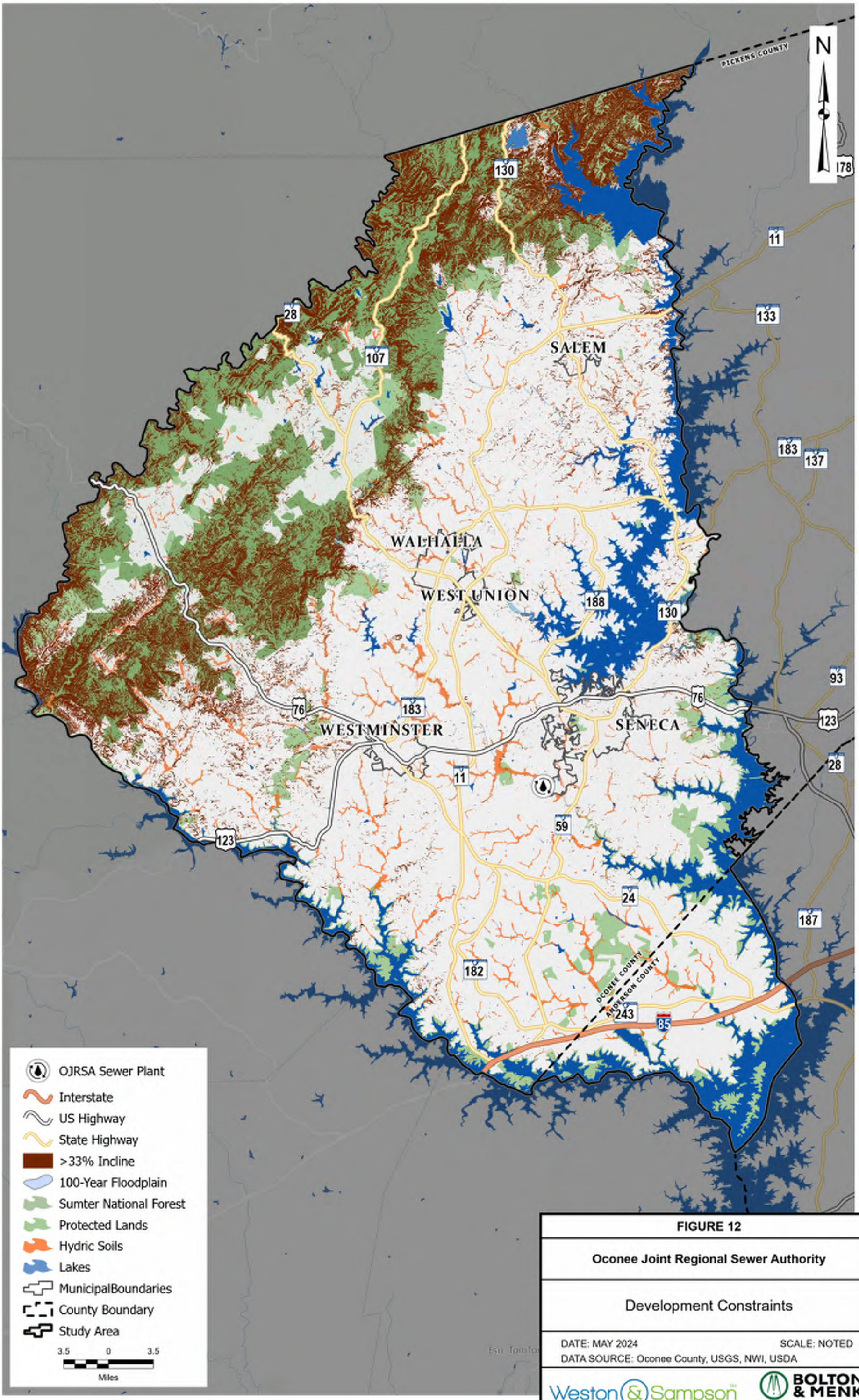

FIGURE 12

Oconee Joint Regional Sewer Authority

Development Constraints

DATE: MAY 2024 SCALE: NOTED

DATA SOURCE: Oconee County, USGS, NWI, USDA

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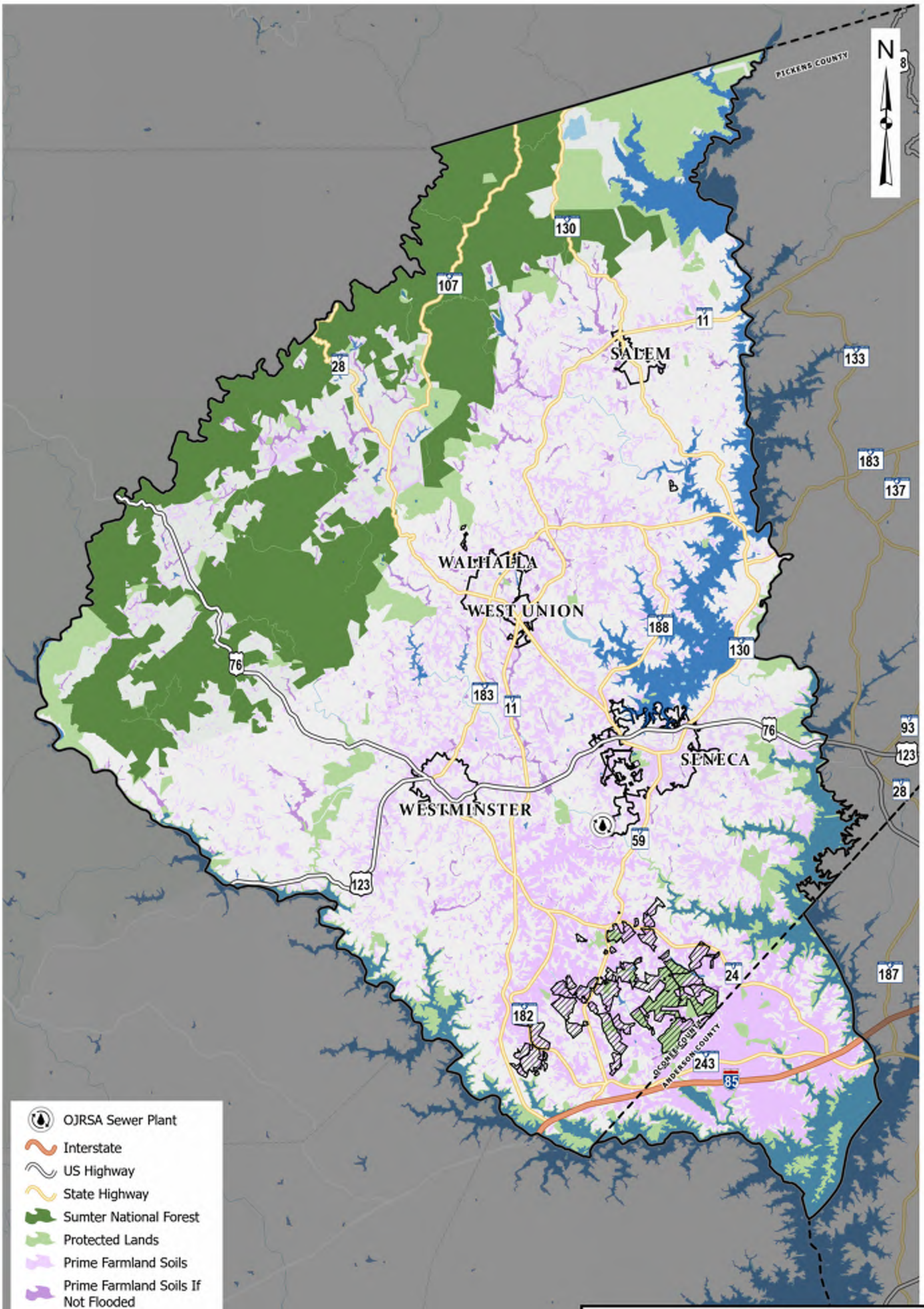

FIGURE 13

Oconee Joint Regional Sewer Authority

Prime Farmland and Agricultural Zoning

DATE: MAY 2024 SCALE: NOTED

DATA SOURCE: Oconee County, USGS, USDA

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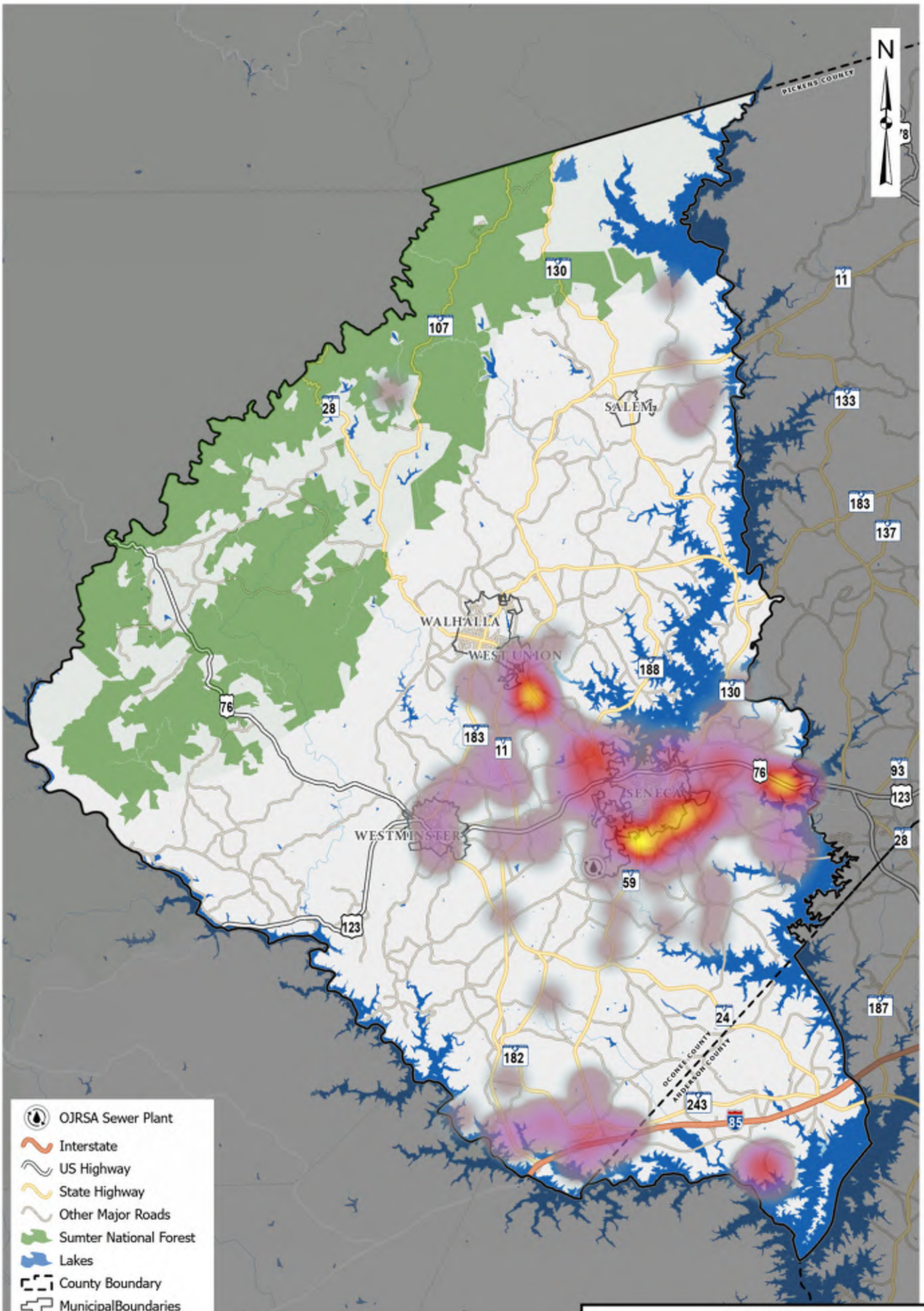

FIGURE 14

Oconee Joint Regional Sewer Authority

Recent Sewer Requests

DATE: JUNE 2024 SCALE: NOTED

DATA SOURCE: Oconee County, OJRSA, City of Seneca

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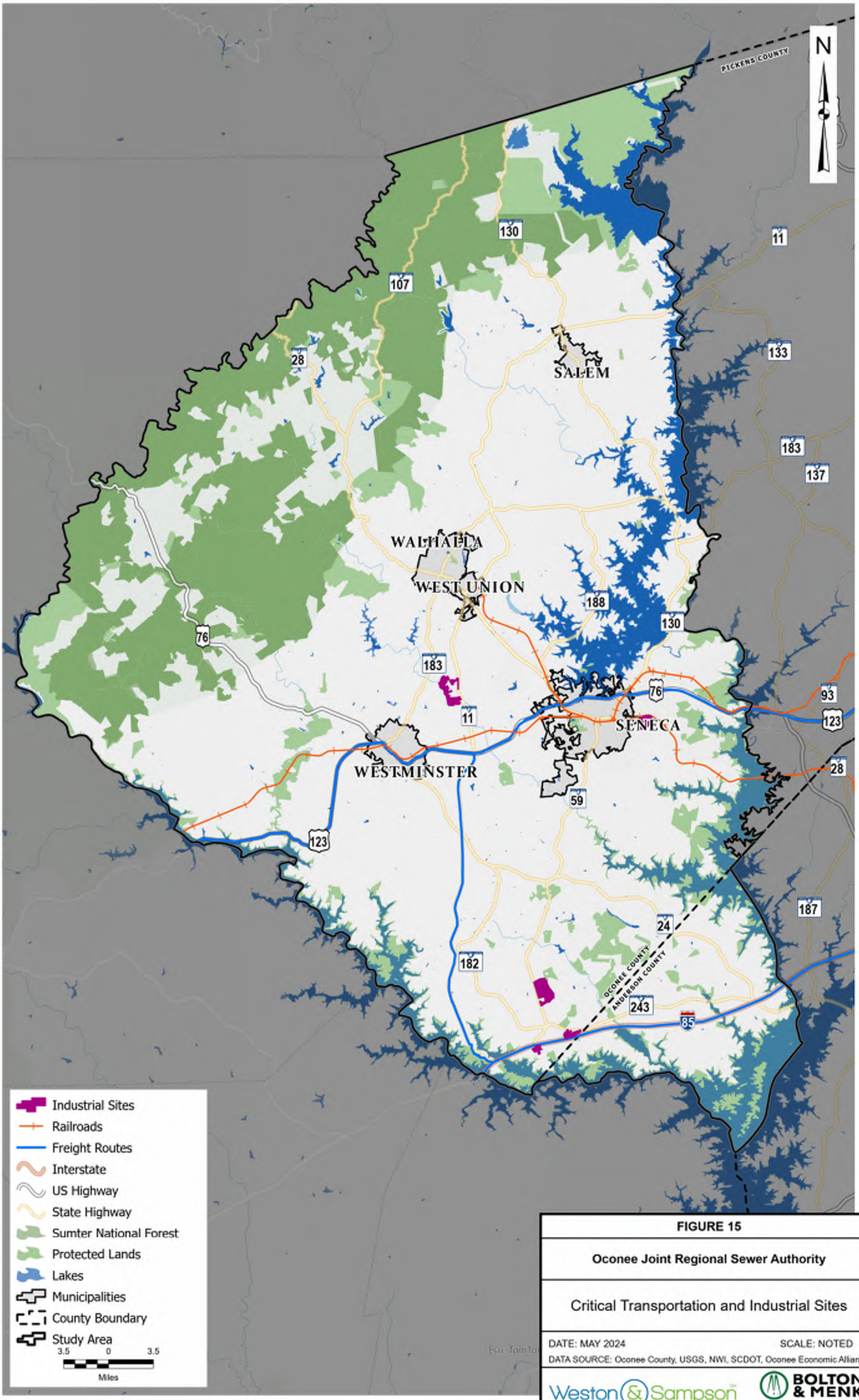

FIGURE 15

Oconee Joint Regional Sewer Authority

Critical Transportation and Industrial Sites

DATE: MAY 2024 SCALE: NOTED

DATA SOURCE: Oconee County, USGS, NWI, SCDOT, Oconee Economic Alliance

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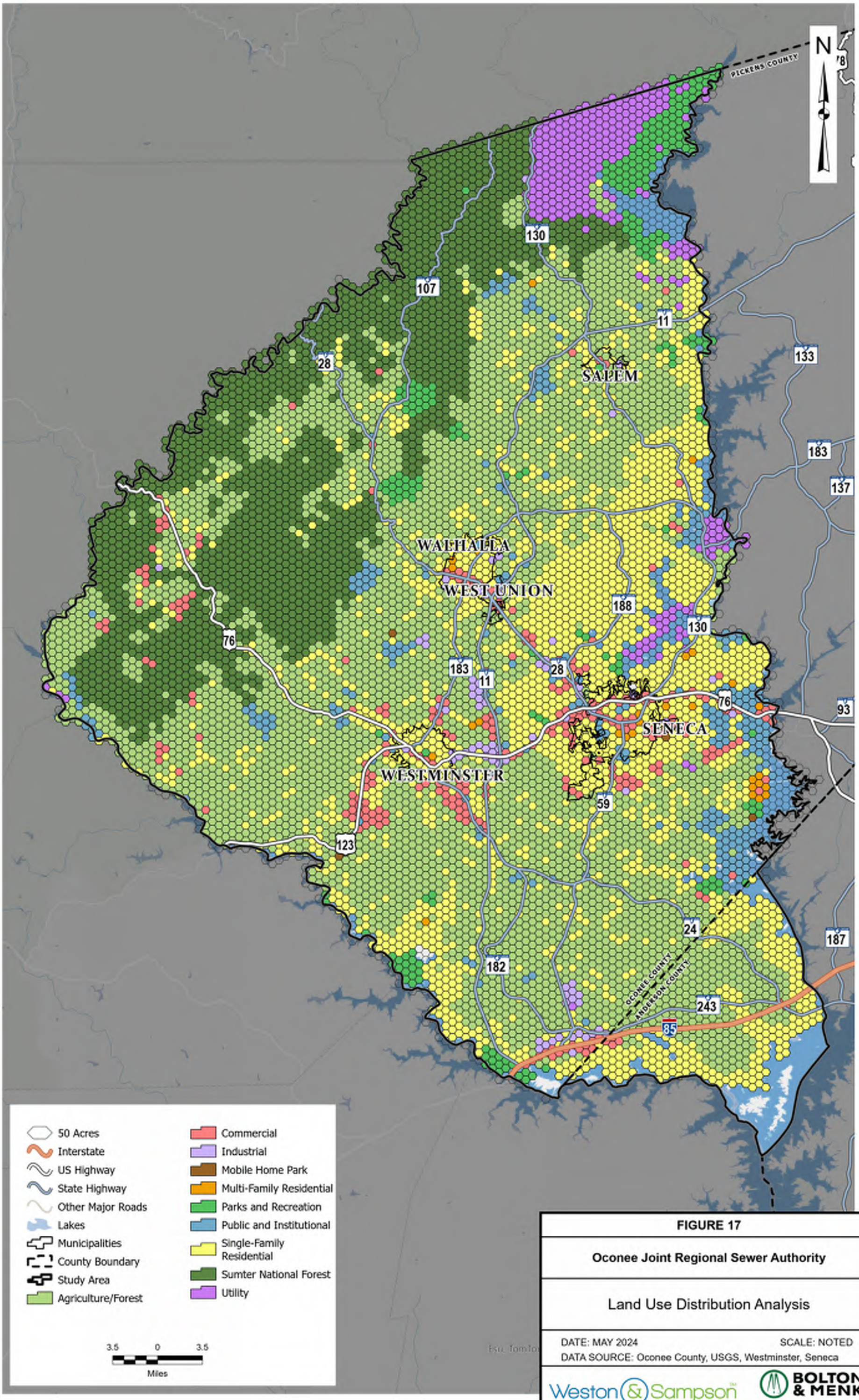

FIGURE 17

Oconee Joint Regional Sewer Authority

Land Use Distribution Analysis

DATE: MAY 2024 SCALE: NOTED

DATA SOURCE: Oconee County, USGS, Westminster, Seneca

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BOLTON & MENK

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N

MCA Results Layer

Scoring Tier

- 1 (Highest)
- 2
- 3
- 5
- 6
- 7
- 8
- 9
- 10 (Lowest)
- County Border
- Lakes

Oconee County

Anderson County

4.25 0 4.25

Miles

FIGURE 18

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County Sewer Master Plan
Multi-Criteria Suitability Analysis
HUC 12 Population Density Results

DATE: JUNE 2024 SCALE: NOTED

DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

BOLTON & MENK

Real People. Real Solutions.

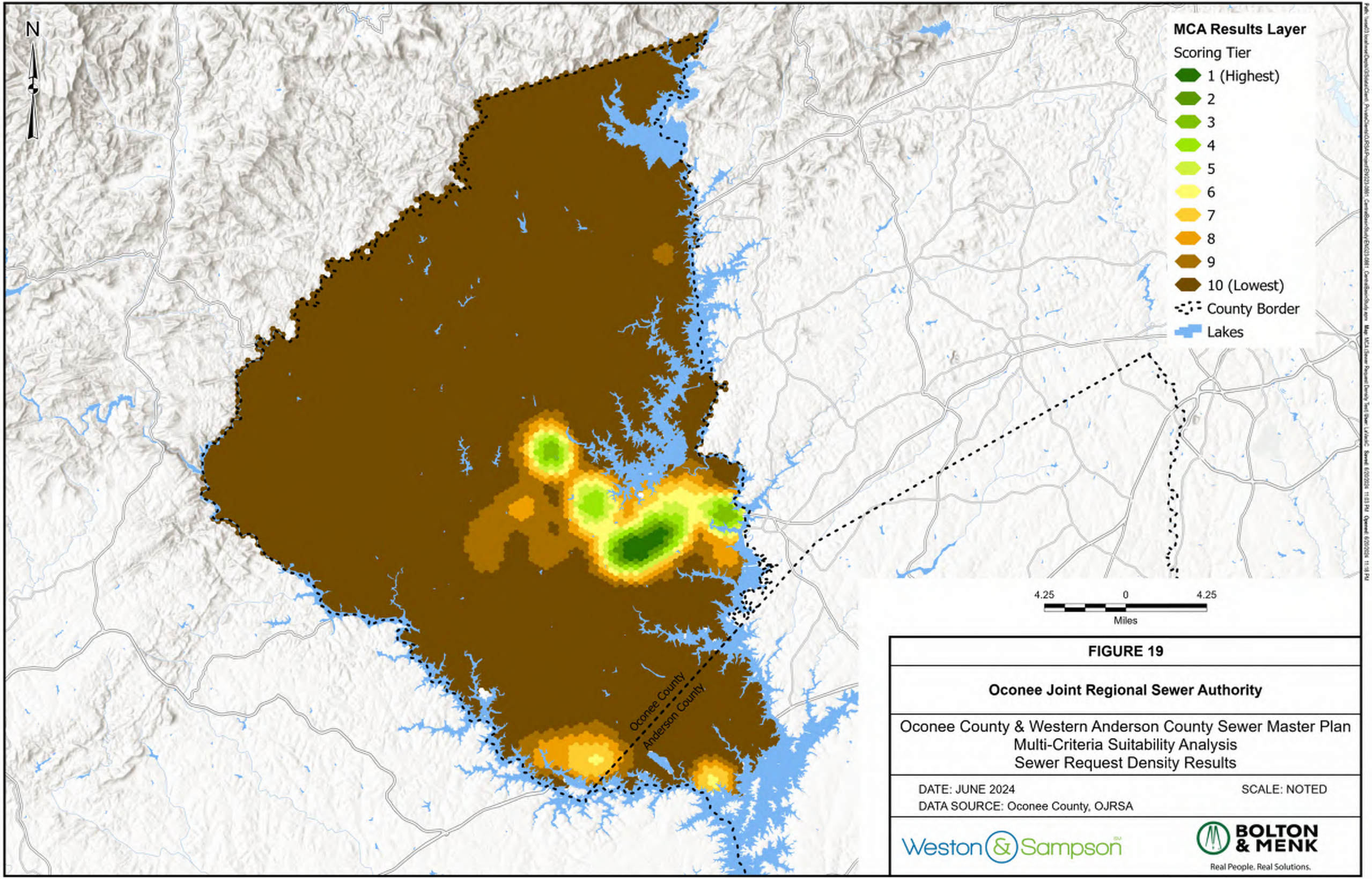

FIGURE 19

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County Sewer Master Plan
Multi-Criteria Suitability Analysis
Sewer Request Density Results

DATE: JUNE 2024 SCALE: NOTED

DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

BOLTON & MENK
Real People. Real Solutions.

N

MCA Results Layer

Scoring Tier

- 1 (Highest)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Lowest)
- County Border
- Lakes

Oconee County

Anderson County

4.25 0 4.25

Miles

FIGURE 20

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County Sewer Master Plan
Multi-Criteria Suitability Analysis
Pro Sewer Density Results

DATE: JUNE 2024

SCALE: NOTED

DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

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Real People. Real Solutions.

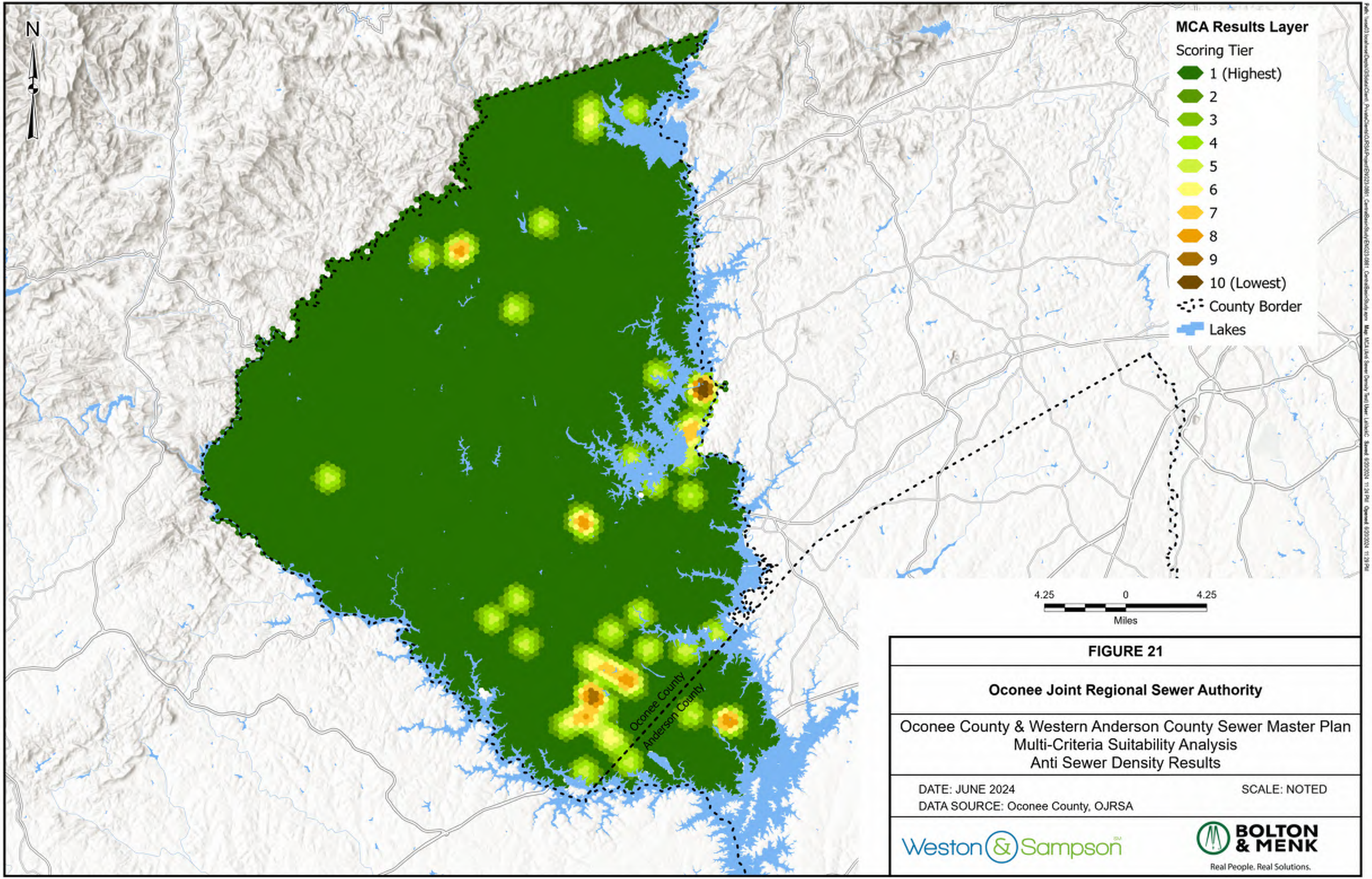

FIGURE 21

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County Sewer Master Plan
Multi-Criteria Suitability Analysis
Anti Sewer Density Results

DATE: JUNE 2024
SCALE: NOTED
DATA SOURCE: Oconee County, OJRSA

Weston & Sampson℠

BOLTON & MENK
Real People. Real Solutions.

N

MCA Results Layer

Scoring Tier

- 1 (Highest)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Lowest)
- County Border
- Lakes

Oconee County

Anderson County

4.25 0 4.25

Miles

FIGURE 22

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County Sewer Master Plan
Multi-Criteria Suitability Analysis
Proximity To Existing Sewer Results

DATE: JUNE 2024

SCALE: NOTED

DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

BOLTON & MENK

Real People. Real Solutions.

N

MCA Results Layer

Scoring Tier

- 1 (Highest)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Lowest)
- County Border
- Lakes

Oconee County

Anderson County

4.25 0 4.25

Miles

FIGURE 23

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County Sewer Master Plan
Multi-Criteria Suitability Analysis
Proximity To Existing Sewer w/Capacity Results

DATE: JUNE 2024

SCALE: NOTED

DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

BOLTON & MENK

Real People. Real Solutions.

N

Land Use Hexagons
- Agriculture/Forest
- Commercial
- Industrial
- Mobile Home Park
- Multi-Family Residential
- Parks and Recreation
- Public and Institutional
- Single-Family Residential
- Sumter National Forest
- Utility
- Vacant Land
- County Border
- Lakes

Oconee County
Anderson County

4.25 0 4.25
Miles

FIGURE 24

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County Sewer Master Plan
Multi-Criteria Suitability Analysis
Land Use Results

DATE: JUNE 2024
SCALE: NOTED
DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

BOLTON & MENK
Real People. Real Solutions.

N

MCA Results Layer

Scoring Tier

- 1 (Highest)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Lowest)
- County Border
- Lakes

Oconee County

Anderson County

4.25 0 4.25

Miles

FIGURE 25

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County Sewer Master Plan
Multi-Criteria Suitability Analysis
Proximity To Major Highway Results

DATE: JUNE 2024 SCALE: NOTED

DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

BOLTON & MENK

Real People. Real Solutions.

N

Variable Tested	Weighting %
Is Land Use Commercial	10
Is Land Use Industrial	5
Is Land Use Residential	10
Sewer Requests Density	15
Pro Sewer Density	15
Anti Sewer Density	15
Proximity To Major Highway	5
Proximity To Existing Sewer	5
Proximity To Existing Sewer With Capacity	5
Population Points Density HUC Method	15

MCA Results Layer

Scoring Tier

- 1 (Highest)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Lowest)
- County Border
- Lakes

Oconee County

Anderson County

4.25 0 4.25

Miles

FIGURE 26

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County Sewer Master Plan
Multi-Criteria Suitability Analysis Composite Results

DATE: JUNE 2024 SCALE: NOTED

DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

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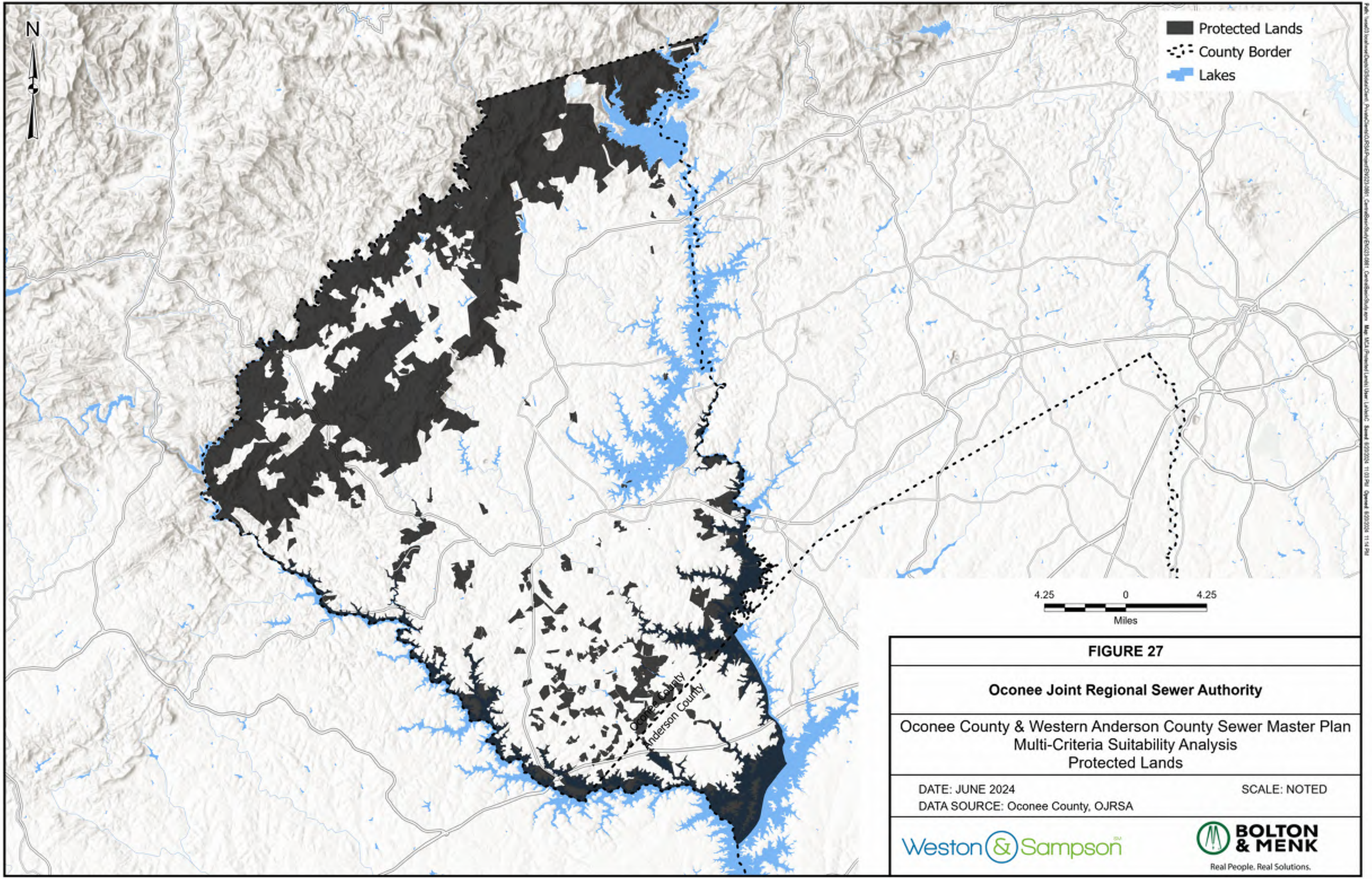

FIGURE 27

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County Sewer Master Plan
Multi-Criteria Suitability Analysis
Protected Lands

DATE: JUNE 2024
SCALE: NOTED
DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

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N

Variable Tested	Weighting %
Is Land Use Commercial	10
Is Land Use Industrial	5
Is Land Use Residential	10
Sewer Requests Density	15
Pro Sewer Density	15
Anti Sewer Density	15
Proximity To Major Highway	5
Proximity To Existing Sewer	5
Proximity To Existing Sewer With Capacity	5
Population Points Density HUC Method	15

MCA Results Layer

Scoring Tier

- 1 (Highest)
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10 (Lowest)
- County Border
- Lakes

Oconee County

Anderson County

4.25 0 4.25

Miles

FIGURE 28

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County Sewer Master Plan
Multi-Criteria Suitability Analysis Results With Exclusion Test

DATE: JUNE 2024 SCALE: NOTED

DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

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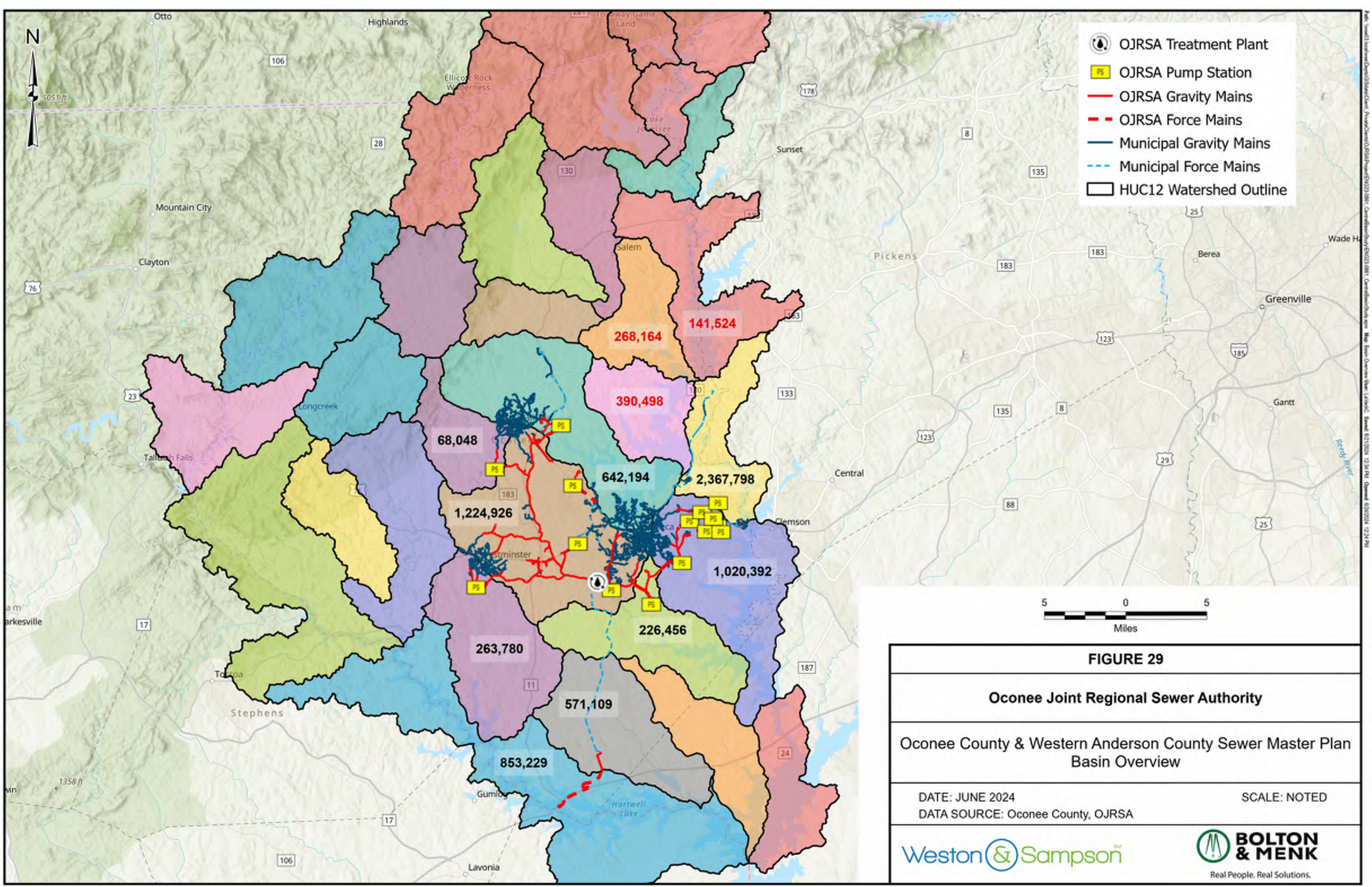

FIGURE 29

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County Sewer Master Plan
Basin Overview

DATE: JUNE 2024
SCALE: NOTED
DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

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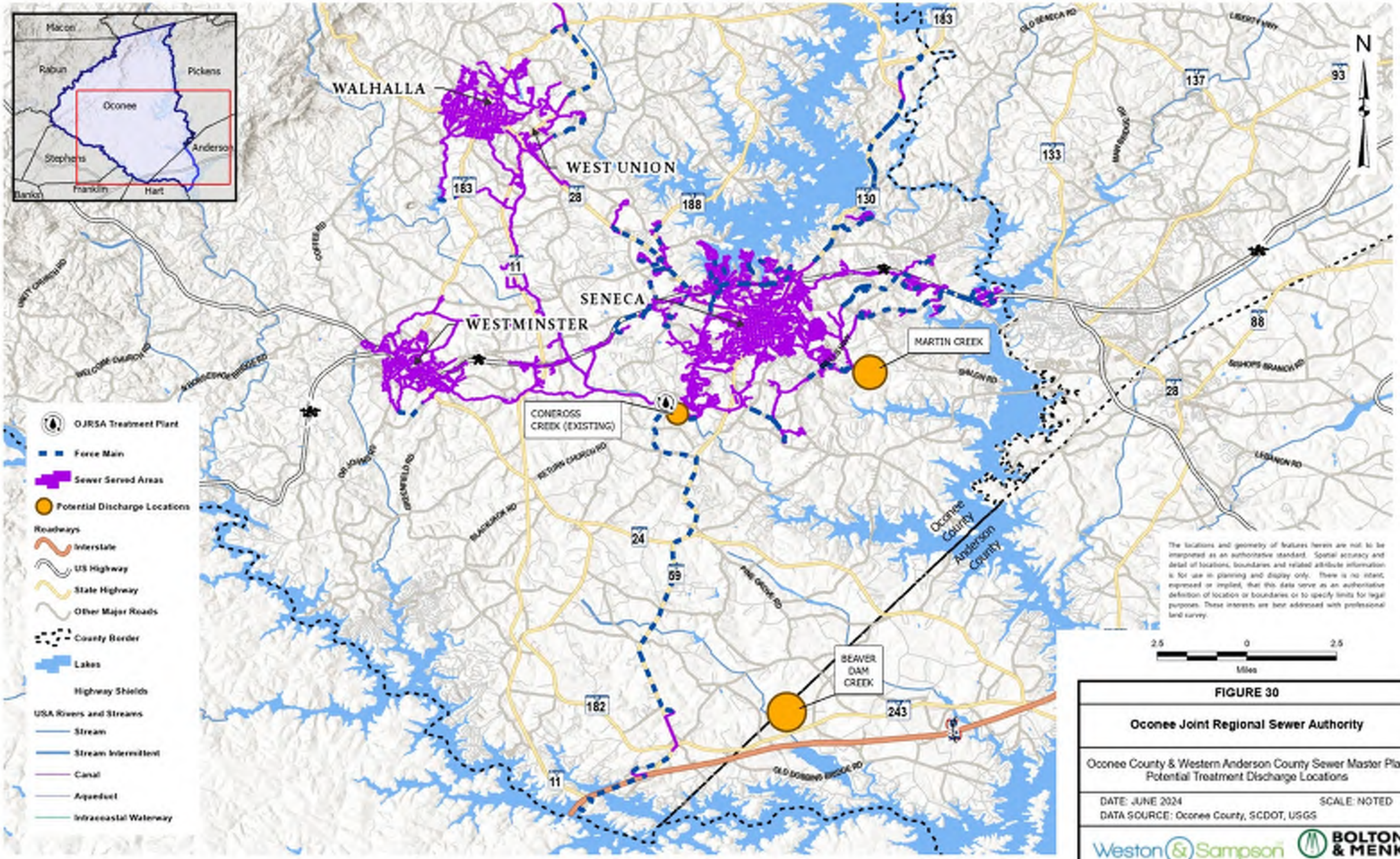

FIGURE 30

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County Sewer Master Plan
Potential Treatment Discharge Locations

DATE: JUNE 2024 SCALE: NOTED
DATA SOURCE: Oconee County, SCDOT, USGS

Weston & Sampson | BOLTON & MENK
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N

Flat Rock Downstream Gravity Sewer

Richland Creek Gravity Sewer

Choestoea Creek Gravity Sewer

Lower Westminster Gravity Sewer

West Oak Gravity Sewer

Coneross Creek WRF Upgrade

Davis Creek Road Gravity Sewer (Pump Station Consolidation)

West Perkins Creek Gravity Sewer

Speeds Creek Force Main Replacement

Martin Creek Pump Station Upgrade & Force Main Reroute

Newry Area Pump Station and Force Main

Davis Creek Road 1 Pump Station & Force Main Upgrade

Martin Creek / Shiloh Road Gravity Sewer

Valley View Sewer Improvements

Lower Seneca Creek Sewer Improvements

Exit 2 Sewer Improvements

Exit 4 Sewer Improvements

Exit 1 Sewer Improvements

Oconee County
Anderson County

- New OJRSA Pump Station
- OJRSA Pump Station Upgrade
- Existing OJRSA Pump Station
- OJRSA Treatment Plant Upgrade
- New OJRSA Force Main
- New OJRSA Gravity Main
- OJRSA Gravity Main Upgrade
- OJRSA Force Main Replacement
- OJRSA Force Main Abandon
- Existing OJRSA Force Main
- Existing OJRSA Gravity Main
- Existing Municipal Force Main
- Existing Municipal Gravity Main
- County Border
- Lakes

2.25 0 2.25

Miles

FIGURE 31

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County
Sewer Master Plan
Sewer Master Plan 20 Year Build-Out

DATE: JUNE 2024 SCALE: NOTED

DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

BOLTON & MENK
Real People. Real Solutions.

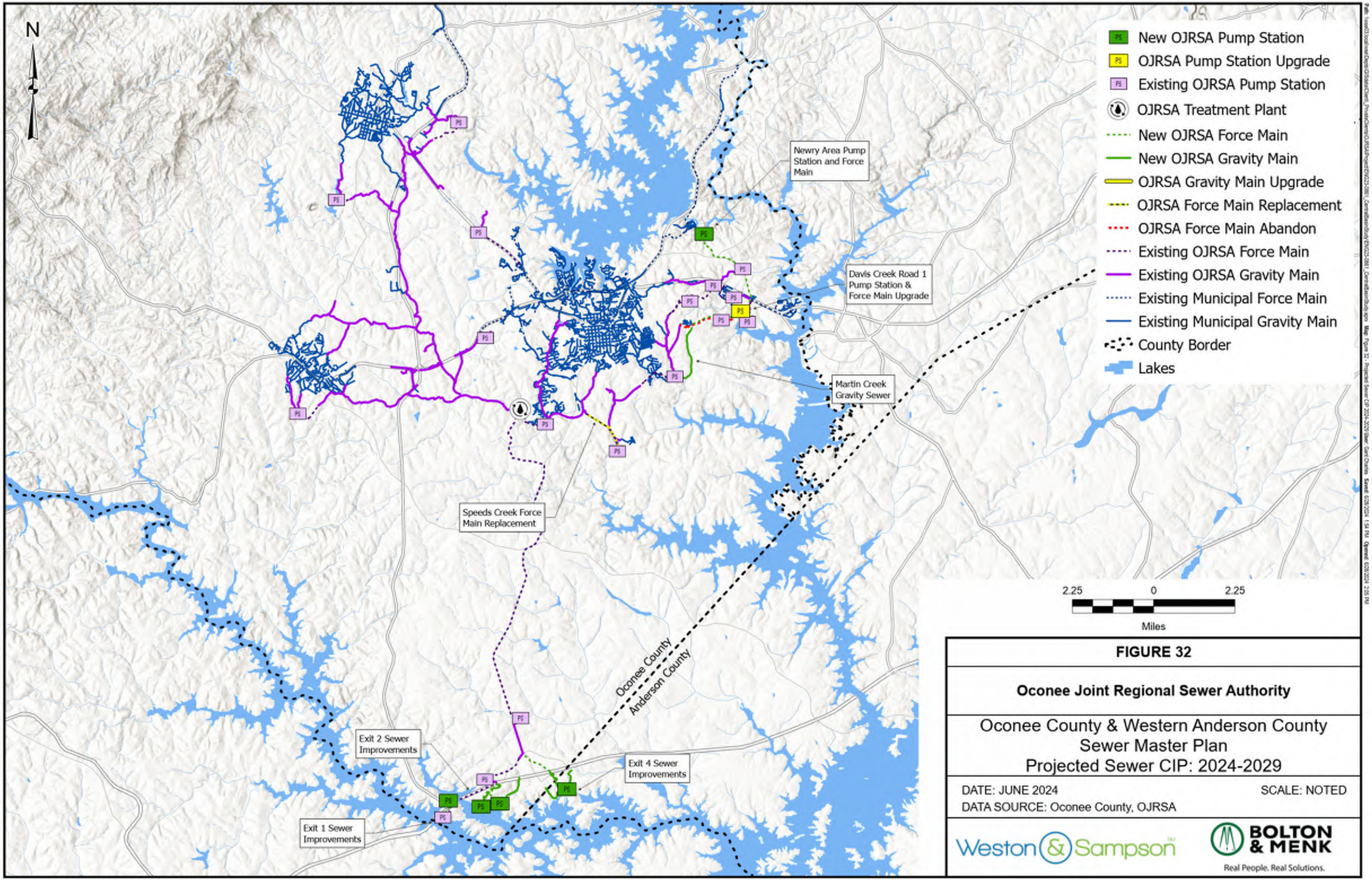

FIGURE 32

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County
Sewer Master Plan
Projected Sewer CIP: 2024-2029

DATE: JUNE 2024 SCALE: NOTED

DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

BOLTON & MENK
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N

West Perkins Creek Gravity Sewer

Coneross Creek WRF Upgrade (Phase 1)

Oconee County
Anderson County

- New OJRSA Pump Station
- OJRSA Pump Station Upgrade
- Existing OJRSA Pump Station
- OJRSA Treatment Plant Upgrade
- New OJRSA Force Main
- New OJRSA Gravity Main
- OJRSA Gravity Main Upgrade
- OJRSA Force Main Replacement
- OJRSA Force Main Abandon
- Existing OJRSA Force Main
- Existing OJRSA Gravity Main
- Existing Municipal Force Main
- Existing Municipal Gravity Main
- County Border
- Lakes

2.25 0 2.25

Miles

FIGURE 33

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County
Sewer Master Plan
Projected Sewer CIP: 2029-2034

DATE: JUNE 2024 SCALE: NOTED

DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

BOLTON & MENK
Real People. Real Solutions.

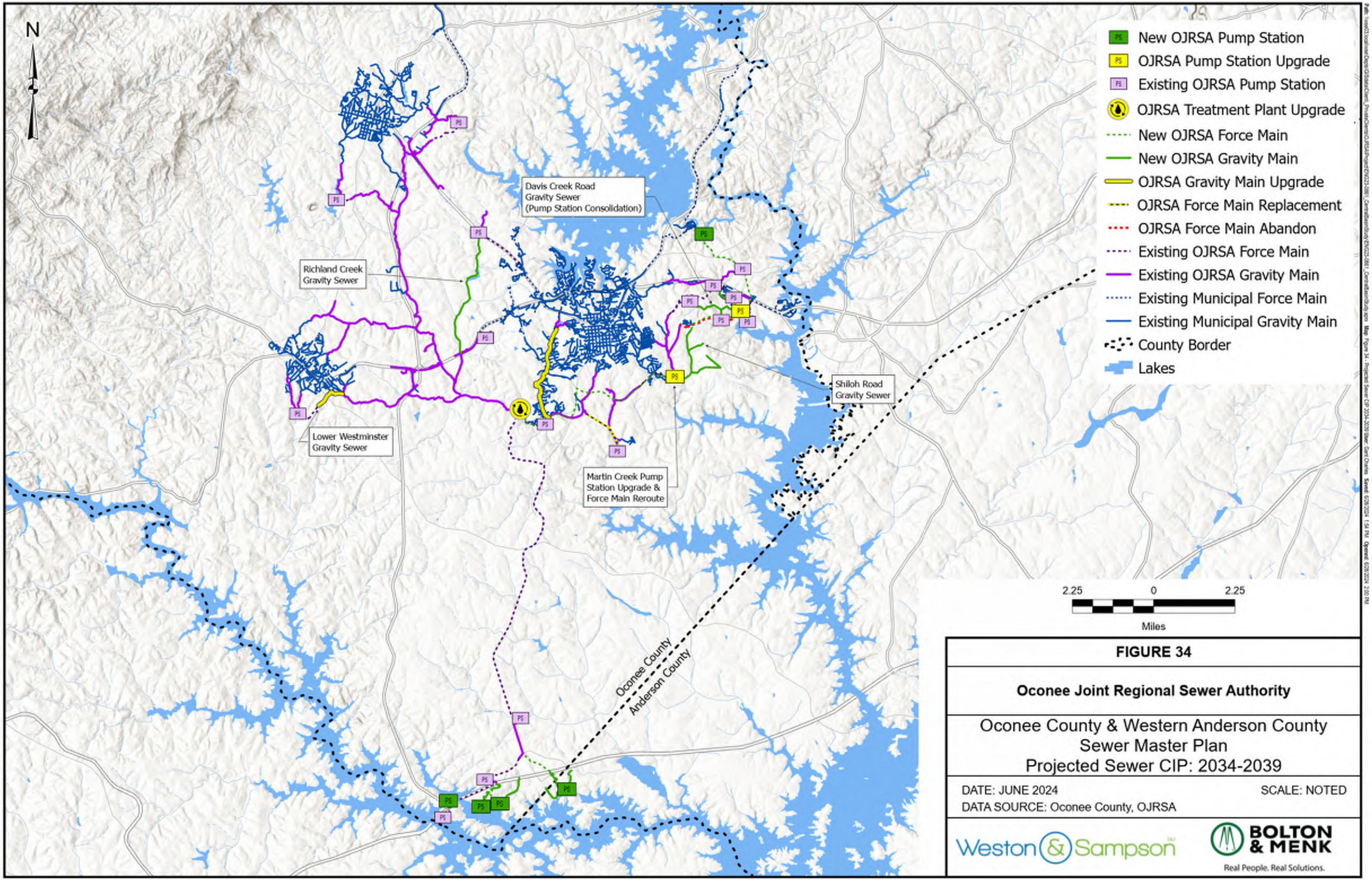

FIGURE 34

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County
Sewer Master Plan
Projected Sewer CIP: 2034-2039

DATE: JUNE 2024 SCALE: NOTED

DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

BOLTON & MENK
Real People. Real Solutions.

N

Flat Rock Downstream Gravity Sewer

Choestoea Creek Gravity Sewer

West Oak Gravity Sewer

Coneross Creek WRF Upgrade (Phase 2)

Lower Seneca Creek Sewer Improvements

Valley View Sewer Improvements

Oconee County

Anderson County

- New OJRSA Pump Station
- OJRSA Pump Station Upgrade
- Existing OJRSA Pump Station
- OJRSA Treatment Plant Upgrade
- New OJRSA Force Main
- New OJRSA Gravity Main
- OJRSA Gravity Main Upgrade
- OJRSA Force Main Replacement
- OJRSA Force Main Abandon
- Existing OJRSA Force Main
- Existing OJRSA Gravity Main
- Existing Municipal Force Main
- Existing Municipal Gravity Main
- County Border
- Lakes

2.25 0 2.25

Miles

FIGURE 35

Oconee Joint Regional Sewer Authority

Oconee County & Western Anderson County
Sewer Master Plan
Projected Sewer CIP: 2039-2044

DATE: JUNE 2024 SCALE: NOTED

DATA SOURCE: Oconee County, OJRSA

Weston & Sampson

BOLTON & MENK

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Appendix B: Stakeholder/Public Engagement Materials & Public Survey Results

- November 8, 2023 Stakeholder Meeting Invitation List
- November 8, 2023 Stakeholder Meeting Sign-in Sheet
- May 22, 2024 Stakeholder Meeting Sign-in Sheet
- February Open House Public Sign-in Sheets
- Sewer Master Plan Handout
- Resident Survey
- Non-Resident Survey
- Survey Results
- Survey Comments

OCONEE COUNTY & WESTERN ANDERSON COUNTY SEWER MASTER PLAN
NOVEMBER 8, 2023 STAKEHOLDER INVITATION LIST

Name	Organization	Title
Gerry Yantis	Advocates for Quality Development	Member
Rob Royer	Advocates for Quality Development	Member
Chip Bentley	Appalachian Council of Governments	Deputy Directory
Zach Hinton	Blue Ridge Electric	V.P. of Economic Development and Support Services
Ed Halbig	City of Seneca	Director of Planning & Development
Robert Faires	City of Seneca	Director of Utilities
Scott Moulder	City of Seneca	City Administrator
Celia Boyd Myers	City of Walhalla	City Administrator
Scott Parris	City of Walhalla	Public Utilities Director (Water & Sewer)
Kevin Bronson	City of Westminster	City Administrator
Reagan Osbon	City of Westminster	Assistant City Administrator
Robert Nichols	Clear Water Solutions	Regional Manager
Emily Stopka	Clear Water Solutions	Laboratory Manager
Julio Hernandez	Clemson University	Assistant to the President for Community Engagement
Trent Acker	Duke Energy	Government and Community Manager
Brett Garrison	Duke Energy	Lake Services Representative
Joey Hawkins	Fort Hill Natural Gas	Director of Industrial Relations
Brandon McCurley	Fort Hill Natural Gas	Gas Controller and Industrial Representative
Dale Wilde	Friends of Lake Keowee	President
Suzy McKinney	Friends of Lake Keowee	Secretary
Kevin McCraken	Keowee Key	Community General Manager
Ray Fedele	Lake Hartwell Association	President
Scott Willett	Lake Hartwell Partners for Clean Water	on LHPCW board
Dyke Spencer	Lake Hartwell Partners for Clean Water	on LHPCW board
Erika Hollis	Lake Keowee Source Water Protection Team	President
Scottie Ferguson	Lake Keowee Source Water Protection Team	Grant 319 coordinator
Amanda Brock	Oconee County	County Administrator
James Cooley	Oconee County	Director of Planning & Zoning
Phil Shirley	Oconee County PRT	Director of Parks, Recreation & Tourism
Jamie Gilbert	Oconee Economic Alliance	Director of Economic Development
Chris Eleazer	Oconee Joint Regional Sewer Authority	Executive Director
Lynn Stephens	Oconee Joint Regional Sewer Authority	Office Manager
Kyle Lindsay	Oconee Joint Regional Sewer Authority	Operations Director
Terry Pruitt	Pioneer Rural Water District	General Manager

Name	Organization	Title
Justin Ables	SC Farm Bureau - Oconee County	President
Tim Donald	SC Farm Bureau - State Piedmont District Representative	Vice President
Paul Wilkie	SCDHEC	Environmental Programs Manger
Gene Gravley	School District of Oconee County	Project Foreman
Tom Winkopp	The Pier Development	Developer of The Pier
Marvetta "Marti" Jennings	Town of Salem	Utilities Director / Clerk / Treasurer
Rebecca Wade	Upstate Forever	Clean Water Specialist
Allie Martinsen	Upstate Forever	Land Planning and Policy Manager
Sherry Barrett	Upstate Forever	Land Policy Director
Lisa Hallo	Upstate Forever	Deputy Director
Sandy Campbell	US Army Corps of Engineers	Park Manager
Linda Oliver	Town of West Union	Mayor
Crystal Simon	Town of West Union	Town Clerk
James Watkins	Town of West Union	Public Works Director
Daryll Parker	Willdan Financial Services	Financial Services for the Feasibility Study
Jeff McGarvey	Willdan Financial Services	Financial Services for the Feasibility Study
Joe Swaim	WK Dickson & Co. Inc.	Engineer for the Feasibility Study
Angela Mettlen	WK Dickson & Co. Inc.	Engineer for the Feasibility Study

OJRSA

Oconee Joint Regional Sewer Authority
623 Return Church Road
Seneca, South Carolina 29678
Phone (864) 972-3900
www.ojrsa.org

Meeting: Central Oconee County Sewer Planning Stakeholder **Meeting Host(s):** Weston & Sampson / Bolton & Menk

Date: November 8, 2023 **Time:** 1:30 pm **Location:** Walhalla Depot, Walhalla, SC

SIGNATURE	NAME (Print)	ORGANIZATION/COMPANY	PHONE	EMAIL
[signature]	Gene Gravley	SDOC	864-903-4579	wegravley@.org
[signature]	Chip Bentley	ACOG	864-884-6347	bentley@scacog.org
[signature]	Joe Swain	WK ~~Dod~~ Dickson		jswain@wkdickson.com
[signature]	Robert Royer	AQD	864 986 9074	jbroyer@[illegible]
[signature]	Wes Brown	Bolton & Menk	507-381-0380	Wesbr@bolton-menk.com
Heather Bryant	Heather Bryant	Pioneer Water	864-247-2908	heather@pioneerwater.net
Tom Wi[illegible]	Tom Winter	PieR	864-304-1562	Twinter@TomWinter.com
Angie Mettlen	[signature]	WK Dickson	843-540-1015	amettlen@wkdickson.com
Ed Halbig	[signature]	City of Seneca	864 885 2726	ehalbig@seneca.sc.us
Trent Adler	[signature]	Duke Energy	864.444.2562	trent.adler@duke-energy.com
Rebecca Wade	[signature]	Upstate Forever	864-250-0500 ext 134	rwade@upstateforever.org
Allie Martinsen	[signature]	Upstate Forever	913-660-8752	amartinsen@upstateforever.org
[signature]	Scottie Ferguson	LKSWPT	864-905-0001	sferguson@lkswpt.org
[signature]	Bob Faires	Seneca	864-710-4649	RFAIRES@SENECA.SC.US
[signature]	Kevin Bronson	Westminster	You have	it
[signature]	Phil Shirley	Oconee Co. PRT	864-723-5502	pshirley@oconeesc.com

Oconee Joint Regional Sewer Authority
623 Return Church Road
Seneca, South Carolina 29678
Phone (864) 972-3900
www.ojrsa.org

Meeting: Central Oconee County Sewer Planning Stakeholder **Meeting Host(s):** Weston & Sampson / Bolton & Menk

Date: November 8, 2023 **Time:** 1:30 pm **Location:** Walhalla Depot, Walhalla, SC

SIGNATURE	NAME (Print)	ORGANIZATION/COMPANY	PHONE	EMAIL
	Chris Eleazer	OJRSA	864 873 8120	chris.eleazer@ojrsa.org
	Jennifer H. Barrigh	W+S	864-844-3449	
	Jason Gillespie	W+S	864-436-9283	gillespie.jason@wspinc.com
	Katherine Amidon	Bolton & Menk	864-535-2732	Katherine.amidon@bolton-menk.com
	Kevin Laird	GMC	864-908-1772	kevin.laird@gmcnetwork.com
	Amanda Brock	Oconee	8646384245	abrock@oconeesc.com
	Joey Hawkins	Fort Hill Natural Gas	864-723-2864	joey.hawkins@thegy.com
	Dyke Spencer	ORJSA	864-269-5442	
	James Coley	Oconee	864 638 4218	jcoley@oconeesc.com
	Tim Donald	SC Farm Bureau	864-903-2764	timothyddonald@yahoo
	Brett Garrison	Duke Energy	864-430-5360	Brett.Garrison@duke-energy.com
	Danny Edwards	City of Walhalla	864-710-0612	dannyedwards@bellsouth.net
	Scott Moulder	City of Seneca	864-885-2721	smoulder@seneca.sc.us
	Scott Parris	City of Walhalla	864 638-4343	sparris@cityofwalhalla.com
	Robert T. Nichols	Clearwater Solution	334-345-0158	robert.nichols@clearwatersol.com
	Celia Myers	City of Walhalla	864-723-4141	cmyers@cityofwalhalla.com

OJRSA

Oconee Joint Regional Sewer Authority
623 Return Church Road
Seneca, South Carolina 29678
Phone (864) 972-3900
www.ojrsa.org

Meeting: Central Oconee County Sewer Planning Stakeholder **Meeting Host(s):** Weston & Sampson / Bolton & Menk

Date: November 8, 2023 **Time:** 1:30 pm **Location:** Walhalla Depot, Walhalla, SC

SIGNATURE	NAME (Print)	ORGANIZATION/COMPANY	PHONE	EMAIL
Dick Mangrum	DICK MANGRUM	WGOG	885-8250	DICKMANGRUM@GACARADIO.COM
Kevin McCracken	Kevin McCracken	Kcowcekey	710-9121	Kmccracken@kkpoa.com
Madeleine Bolick	Madeleine Bolick	Bolton+Menk		madeleine.bolick@bolton-menk.com

OJRSA

Meeting Topic: Oconee/Anderson Sewer Master Plan Stakeholder Meeting **Location:** SL&W Keowee Treatment Plant

Leader(s): See Notice of Special Meeting agenda **Date:** 05/22/2024 **Time:** 15:30

NAME (Print)	SIGNATURE
Kip Graham	
Jason Gillespie	
Sarah Barks	
Dick Mangrum	
David Dial	
Keith Pace	
Scott Moulden	
Rebecca Wade	
Phillip Maloney	
Scottie Ferguson	
Amanda Rhue	
Phil Shirley	
Allison Martinez	
Joey Hawkins	
James Coley	
Reagan Osborn	
Bob Faires	
Celia B Myers	
Dyke Spencer	
Paul Wilkie	

OJRSA

Meeting Topic: Oconee/Anderson Sewer Master Plan Stakeholder Meeting **Location:** SL&W Keowee Treatment Plant

Leader(s): See Notice of Special Meeting agenda **Date:** 05/22/2024 **Time:** 15:30

NAME (Print)	SIGNATURE
Brent Garrison	
Norm Cannada	

CENTRAL BASIN SEWER STUDY OPEN HOUSE SIGN-IN SHEET

Name	Address	Email / Phone Number	Sign me up for project updates! (circle method)
ERNEST M. RILEY	21 WESTWIND Ct. SENECA 29672		Text Email
DANA G. MOORE	206 HORSESHOE DR SENECA SC 29678	danagmoore@gmail.com 864 247 4807	Text Email
KELLY MINTON	202 NORTHCLIFF CT. SALEM, SC	KMINTON@BELLSOUTH.NET	Text Email
Dale Alexander	1610 S OAK St	Dalexander@Seneca.SLUS 864-710-8841	Text Email
JOHN MORREY	PO Box 91 Mtn Rest 29664	navyproud.sc@gmail.com 864-638-7036	(Text) Email
R. BOND	400 HIGHLAND VIEW DR MTN REST	RANNIE.D.BOND@gmail.com	Text Email
Joel Ward	918 Mitchell dr seneca	JWard@Seneca.S.C.us	Text Email
Jamie Gilbert	OEA	jgilbert@oconeesc.com	Text Email
Al Shadwick	405 E North 1st Street	SHADLICK@HOTMAIL.COM 864-324-2003	(Text) Email
BILL DOWNING	114 CEDAR CREEK LN SENECA 78	lauradowning@bellsouth.net	Text (Email)
LAURA DOWNING	114 CEDAR CREEK LN SENECA 78	lauradowning@bellsouthnet	Text (Email)
Ted Bisterfeld	129 South Port Dr. Seneca	ted.bister@gmail.com	Text (Email)
DYKE SPENCER		DSPENCER@POWDERSVILLEWATER.ORG	Text Email
John Mott		952 277 9984	(Text) Email
GLENN HART			Text Email
Mary Beth Geltz	201 S. Craggmore Salem		Text Email
Denise Rozman	302 Bobolink DR Seneca	denisemozman@bellsouth.net 864-903-3457	(Text) Email
			Text Email
			Text Email

OJRSA

CENTRAL BASIN SEWER STUDY OPEN HOUSE SIGN-IN SHEET

Name	Address	Email / Phone Number	Sign me up for project updates! (circle method)
Linda Lovely	710 Navigators Pt, Seneca, SC 29672	authorlovely@gmail.com	Text Email
GARY OWENS	208 E. WYNNWARD Pte, SALEM, SC 29676	GROWENS@GMAIL.COM	Text Email
Rachel Moore	108 Wits End Trl Seneca	rlmoore03@outlook.com	Text Email
Scottie Ferguson	104 Holmes Dr. Greenville SC	sferguson@lkswpt.org (864) 905-0001	Text Email
Phil Soper	146 Camelot 29672	philsoper1@gmail.com 864-873-8488	Text Email
James Coley	415 S Pine Walhalla	jcoley@oconeesc.com	Text Email
			Text Email
			Text Email
			Text Email
			Text Email
			Text Email
			Text Email
			Text Email
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			Text Email
			Text Email
			Text Email
			Text Email
			Text Email
			Text Email

OJRSA

CENTRAL BASIN SEWER STUDY OPEN HOUSE SIGN-IN SHEET

Name	Address	Email / Phone Number	Sign me up for project updates! (circle method)	
Robert Royer	807 Clifton Ct	jbroyer@bellsouth.com 864 986 9074	Text (circled)	Email
Gwen McPhail	320 Coyote Ln	wagyu4you@gmail.com / 864-247-7847	Text (circled)	Email
Watson Johnson	401 S. Way court	wojo124@mac.com	Text	Email (circled)
Matt Durham	153 Earls Ford Rd mtn Rest	District2@oconeesc.com 864-567-6358	Text	Email (circled)
Celia Myers	206 N Church St	cmyers@cityofwalhalla 864-638-4343	Text	Email (circled)
Amanda Brock	415 S Pine St Walhalla	abrock@oconeesc.com	Text	Email (circled)
Glenn Hart	266 Friend Valley Road	Seneca SC	Text	Email
			Text	Email
			Text	Email
			Text	Email
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OJRSA

CENTRAL BASIN SEWER STUDY OPEN HOUSE SIGN-IN SHEET

Name	Address	Email / Phone Number	Sign me up for project updates! (circle method)
BRIAN RAMSEY	Westminster		Text (Email)
Franklin Pearson	Westminster		Text (Email)
KEVIN BRUNSON	Westminster		Text Email
Kevin Bamby	Townville	Kevin.ramsey01@seaboard.com 864-247-5419	(Text) Email
DICK MANGRUM	SENECA	DICKMANGRUM@GACARADIO.COM	Text (Email)
Allen Neal	Fair Play	864-723-0185	(Text) Email
Junji Lynch	Westminster	juni.lynch20@gmail.com	Text (Email)
John EAGAR	Seneca	EAGARJ@bellsouth.net	Text Email
Sandra Powell	Westminster	Greatyp52@gmail.com	Text (Email)
Jimmy Powell	Westminster	202_jmpowell@gmail.com	Text (Email)
Rebecca Wade	Greenville	rwade@upstateforever.org	Text Email
James Coley	415 S Pine	jcoley@oconeesc.com	Text (Email)
Norm CaNNada	~~191 Oak Gr. St. Seneca SC~~ 210 W N1ST	ncannada@upstatetoday.com	Text Email
JULIAN DAVIS	160 Cedar Lane Rd 29693		Text (Email)
			Text Email
			Text Email
			Text Email
			Text Email
			Text Email

OJRSA

CENTRAL BASIN SEWER STUDY OPEN HOUSE SIGN-IN SHEET

Name	Address	Email / Phone Number	Sign me up for project updates! (circle method)
JIM CODNER	316 WILLOW OAK SENECA 29672	JCODNER@BELLSOUTH.NET	Text Email
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OCONEE COUNTY & WESTERN ANDERSON COUNTY SEWER MASTER PLAN

OJRSA

WHY DISCUSS SANITARY SEWER INFRASTRUCTURE IN OCONEE COUNTY?

Sanitary sewer service is a significant public investment that can determine where and how Oconee County will develop and grow for years to come. With big decisions ahead, major sewer projects require thoughtful conversations weighing costs and benefits to ensure all factors are considered. Decision makers must address the following when determining where to invest:

- Current infrastructure needs
- Location of future growth areas
- Environmental concerns
- Economic development goals
- Population growth potential
- Commercial and industrial needs
- Feasibility of sewer by location
- Cost for installation and maintenance
- Cost/benefit for both the sewer provider and customers

WHY TALK ABOUT IT NOW?

Oconee Joint Regional Sewer Authority (OJRSA) is the only public wastewater treatment provider in Oconee County, South Carolina. Seneca, Walhalla, Westminster, and West Union each have their own municipal collection systems, pump stations, and force mains. Oconee County owns the pump station and force main at Golden Corner Commerce Park. All the individual collection systems and pump stations connect to the OJRSA system and are conveyed to the Coneross Creek Wastewater Treatment Facility.

OJRSA, as successor in interest to the Oconee County Sewer Commission (originally established by ordinance No. 78-2 dated February 28, 1978), and the prior owner of the Coneross Creek Wastewater Treatment Plant, was established by its three member-municipalities: Seneca, Walhalla, and Westminster under South Carolina law to provide sewer treatment services on a regional basis.

POTENTIAL BENEFITS OF A PUBLIC SEWER

- The presence of public sewer can lead to considerable increases in property value, as it can significantly increase the potential scale and value of site development.
- Areas being served by public sewer can help attract new residential and commercial/industrial investment.
- Public sewer provides environmental benefits by replacing septic systems that are failing and/or in areas with poor soil drainage.
- By avoiding the need for new septic tanks and removing existing aging septic tanks, both ground water and surface water can be better protected, which in turn helps protect drinking water systems and bodies of water that provide recreational benefit to residents and visitors.
- Publicly owned sewer systems are permitted and must meet stringent federal/state requirements that might not apply to existing private systems.
- Publicly owned sewers may allow for new connections to be added in the future, which if planned thoughtfully, can help with growth demands in the area.

COSTS AND LIMITATIONS OF PUBLIC SEWER

- All types of wastewater solutions (private/public, septic systems, and sewer systems) require maintenance. If wastewater systems are not properly maintained, failures can lead to the release of raw sewage into our environment, potentially affecting natural resources and public health.
- Septic systems - which are found throughout Oconee County– will continue to be a good solution for handling wastewater in certain areas. Infrastructure costs need to be considered. For example, extending public sewer long distances or to only serve a small number of properties over a large area may not be cost effective.
- Future growth planning may dictate larger infrastructure than initially required. While development is happening, oversized pipes, pumps, etc. may require more maintenance or an interim solution until more growth occurs.
- Topography may influence the ability for sewer to be installed cost-effectively in certain areas, since additional infrastructure may be needed to serve lower lying areas for proper drainage.
- Access to public sewer will make more properties developable. Getting a permit for a septic tank on your property is not a guarantee. The South Carolina Department of Environmental Services (SCDES) looks at several factors such as soil type, slope, house size, and proximity to private wells when determining if a permit can be issued for a new septic system.

LET'S TALK ABOUT COST IMPLICATIONS!

	Public Sewer	Private Sewer (package plant)	Septic Systems
Cost Considerations	• Monthly service charges • System maintenance costs are shared among the sewer service area customers • Rates are subject to change by the sewer authority • Connection costs can be expensive, especially in rural areas* • Maintenance of the connecting line to the main line is typically the property owner's responsibility	• Monthly service charges/ assessments – varies by Homeowners Association (HOA) • Often more expensive due to economy of scale • Private collection system and Wastewater treatment facility • Permit required from State/ Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) • Requires contract with or hiring of operations and maintenance staff	• Installation, maintenance, and cleaning costs are all paid for by the owner • A new system is very costly and requires excavation and adequate space -septic requires replacement every 15-40 years • Septic systems require maintenance – the cost of which lands on the individual property owner

*See updated policy language on next page

LET'S TALK ABOUT ENVIRONMENTAL IMPLICATIONS!

	Public Sewer	Private Sewer (package plant)	Septic Systems
Environmental Concerns	• Need a safe place to discharge the treated wastewater where it won't negatively affect recreational activities and/or drinking water supply. Discharge is governed by NPDES permit. • Chemicals are required in the treatment process which can be harmful to the environment. All chemicals are governed by the NPDES permit and must meet all permit requirements. • The wastewater treatment process also requires a lot of energy. • Minimal maintenance is required, and regular maintenance can be done without excavating. • Public sewer can provide environmental benefits by replacing septic systems that are failing and in areas with poor soil drainage.		• Possibility of wastewater leaching into private wells and/or groundwater supply. • Septic systems cannot be located near lakes and rivers because they require soils to properly clean the wastewater. • Septic systems cannot be located on certain properties due to slope, soil types or space limitations.

ⓘ IMPORTANT! UPDATED REGULATION

Oconee Joint Regional Sewer Authority Sewer Use Regulation Section 3.5 C and D states: *"C. The Owner of all houses, buildings, or properties used for human occupancy, employment, recreation, or other purposes, abutting on any street, alley, or right-of-way in which there is a public sanitary sewer, is hereby required at the expense of the Owner to install suitable toilet facilities therein, and to connect such facilities directly with the public sewer in accordance with the provisions of these Regulations. Under unusual or specific circumstances, the Director may waive this provision. This requirement shall not apply to any of the above-described properties that, as of the date this Regulation is adopted, are utilizing a septic system permitted by SCDHEC in compliance with S.C. Regulation 61-56. Such properties may continue to utilize their existing septic systems until and unless SCDHEC requires those properties to connect to public sewer pursuant to S.C. Regulation 61-56.*

D. Exceptions

1. Force mains shall not be considered accessible and shall not be utilized by any User for direct connection of sewer service.

2. Where annexation or easements to cross adjacent property are required to connect to the wastewater system at the time of application, then sewer shall not be considered accessible. A deed and plat must be on file with the Register of Deeds indicating the parcel(s) located between the property to be developed and the sewer system. The adjacent parcel(s) which must be crossed shall be identifiable by County Tax Map System (TMS) number."

Please note, this is a major update to the prior language and allows those properties with a working septic system to delay connection for the lifespan of their septic system unless an exception is applicable.

ⓘ QUESTIONS?

Do you have any questions prior to filling out the survey? Please email the project public engagement lead at Katherine.Amidon@bolton-menk.com.

CENTRAL BASIN SEWER STUDY SURVEY
OCONEE COUNTY RESIDENTS/OWNERS

OJRSA

We need your input! Complete the survey to help us understand how you perceive current and future growth within the county. Your feedback will help us identify the public's priorities and preferences for future development.

1. How would you classify your relationship to Oconee County? Circle that apply:

A. Full-time resident
B. Seasonal/weekend resident
C. Business Owner
D. Rental property/investment owner
E. Agricultural
F. Open space/vacant property owner
G. Other: _____

2. Please circle which option best describes the property you own:

A. My property (residential, business, other) is on public sewer
B. My property (residential, business, other) is on private sewer
C. My property (residential, business, other) is on a spectic system
D. My property is a vacant lot but is within an area currently served by sewer (public or private)
E. My property is a vacant lot and does not have access to sewer
F. My property is a vacant lot and I don't know if it has access to sewer
G. I own multiple properties that fall into more than one of the categories above
H. Other: _____

3. Oconee County is currently experiencing rapid development in certain areas. With that in mind please circle the statement that best describes your outlook on growth.

A. I support growth without any additional land use or development controls
B. I support any growth that increases tax base, regardless of location
C. I support growth that steers development along main corridors (think I-85 and highway 123)
D. I support growth that steers development within Seneca, Walhalla, and Westminster
E. I support growth that drives development both within and around the municipalities (Seneca, Walhalla, Westminster, West Union, Salem) without significant change to rural areas (Mountain Rest, Fair Play, Tamassee, etc.).
F. I oppose most growth
G. I oppose all growth
H. Other: _____

4. Rate the following items with respect to public sewer growth based on their importance to you.

	Not important	Somewhat not important	Neutral	Somewhat important	Very important
Cost to tax/rate payers					
The organization in charge of sewer collection and/or treatment					
Location of **new** public sewer					
Installation of **new** public sewer more generally					
Current public sewer infrastructure maintenance					
Economic development					
Environmental concerns (would like to see more public sewer)					
Environmental concerns (would **not** like to see more public sewer)					

5. Rate in importance the type of development you would like to see in Oconee County.

	Not important	Somewhat not important	Neutral	Somewhat important	Very important
Commercial					
Residential (large lot rural)					
Residential (dense population)					
Multi-family					
Industrial					
Agricultural					
Institutional (i.e., community facilities such as schools, municipal, health care, etc.)					

6. Zoning and other types of land use regulations have many objectives. Rate the following items according to importance to you.

	Not important	Somewhat not important	Neutral	Somewhat important	Very important
Protect property value					
Maintain rural nature of Oconee County					
Protect open space and recreational areas					
Protect farmland					
Protect quality of the environment					
Enhance tax base within Oconee County					
Control the pace of development					
Control the type of development					
Development Moratorium to temporarily halt specific development to allow for municipalities to plan for growth					

7. What information would you need to make a more informed decision on sewer expansion? Circle all that apply:

A. Nothing, I have all that I need

B. Limits and challenges of existing system, and what that means for growth

C. Cost to property/business owners of expanded system

D. Potential economic growth potential of expanded system

E. Other benefits of an upgraded system (better service, environmental, etc.)

F. Other: _____

8. What is your zip code (where you live the majority of the time)?

_____

9. What race or ethnicity best describes you?

A. American Indian or Alaskan Native
B. Asian / Pacific Islander
C. Black or African American
D. Hispanic / Latin American
E. White / Caucasian
F. Multiple ethnicity / Other
G. Prefer not to answer

10. What is your age?

A. Under 18	B. 18 - 24	C. 25 - 34
D. 35 - 44	E. 45 - 54	F. 55 - 64
G. 65 - 74	H. 75+	

11. What comments/concerns do you have about sewer expansion. Use this space to be specific and concise about your thoughts.

CENTRAL BASIN SEWER STUDY SURVEY
OCONEE COUNTY NON-RESIDENTS

OJRSA

We need your input! Complete the survey to help us understand how you perceive current and future growth within the county. Your feedback will help us identify the public's priorities and preferences for future development.

1. Since you live outside of Oconee County, how would you classify your relationship to Oconee County? Select all that apply.

A. Concerned citizen residing outside the study area
B. Developer / real estate
C. Interested in investing in the area, currently residing outside of the County
D. Rental property owner, currently residing outside of the County
E. Employee to an Oconee County business
F. Other: _____

2. Oconee County is currently experiencing rapid development in certain areas. With that in mind please circle the statement that best describes your outlook on growth.

A. I support growth without any additional land use or development controls
B. I support any growth that increases tax base, regardless of location
C. I support growth that steers development along main corridors (think I-85 and highway 123)
D. I support growth that steers development within Seneca, Walhalla, and Westminster
E. I support growth that drives development both within and around the municipalities (Seneca, Walhalla, Westminster, West Union, Salem) without significant change to rural areas (Mountain Rest, Fair Play, Tamassee, etc.).
F. I oppose most growth
G. I oppose all growth
H. Other: _____

3. Rate the following items with respect to public sewer growth based on their importance to you.

	Not important	Somewhat not important	Neutral	Somewhat important	Very important
Cost to tax/rate payers					
The organization in charge of sewer collection and/or treatment					
Location of **new** public sewer					
Installation of **new** public sewer more generally					
Current public sewer infrastructure maintenance					
Economic development					
Environmental concerns (would like to see more public sewer)					
Environmental concerns (would **not** like to see more public sewer)					

4. Rate in importance the type of development you would like to see in Oconee County.

	Not important	Somewhat not important	Neutral	Somewhat important	Very important
Commercial					
Residential (large lot rural)					
Residential (dense population)					
Multi-family					
Industrial					
Agricultural					
Institutional (i.e., community facilities such as schools, municipal, health care, etc.)					

5. Zoning and other types of land use regulations have many objectives. Rate the following items according to importance to you.

	Not important	Somewhat not important	Neutral	Somewhat important	Very important
Protect property value					
Maintain rural nature of Oconee County					
Protect open space and recreational areas					
Protect farmland					
Protect quality of the environment					
Enhance tax base within Oconee County					
Control the pace of development					
Control the type of development					
Development Moratorium to temporarily halt specific development to allow for municipalities to plan for growth					

6. What information would you need to make a more informed decision on sewer expansion? Circle all that apply:

A. Nothing, I have all that I need

B. Limits and challenges of existing system, and what that means for growth

C. Cost to property/business owners of expanded system

D. Potential economic growth potential of expanded system

E. Other benefits of an upgraded system (better service, environmental, etc.)

F. Other: _____

7. What is your zip code (where you live the majority of the time)?

_____

8. What race or ethnicity best describes you?

A. American Indian or Alaskan Native
B. Asian / Pacific Islander
C. Black or African American
D. Hispanic / Latin American
E. White / Caucasian
F. Multiple ethnicity / Other
G. Prefer not to answer

9.

A. Under 18	B. 18 - 24	C. 25 - 34
D. 35 - 44	E. 45 - 54	F. 55 - 64
G. 65 - 74	H. 75+	

10. What comments/concerns do you have about sewer expansion. Use this space to be specific and concise about your thoughts.

OCONEE COUNTY & WESTERN ANDERSON COUNTY
SEWER MASTER PLAN

SURVEY RESULTS

The public survey was active from February 1 - April 1, 2024. The survey was promoted on the OJRSA's website and social media accounts and on the project StoryMap website.

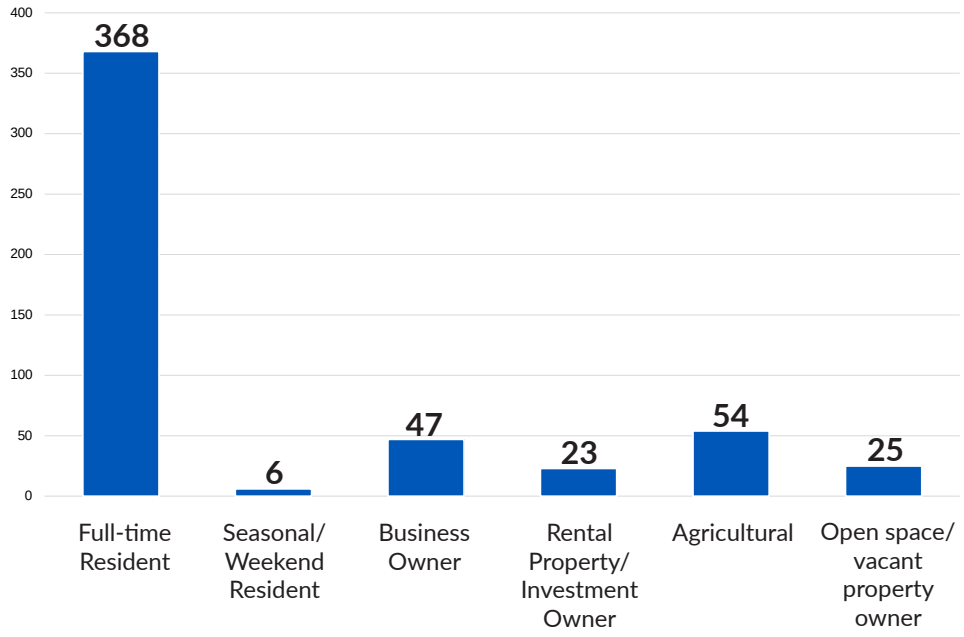
Of the 489 total responses, 382 were completed surveys. Assuming respondents were a representative sample of the population, this sample size provides a 95% confidence level and +/-5% margin of error. The results herein reflect only completed surveys.

PROPERTY

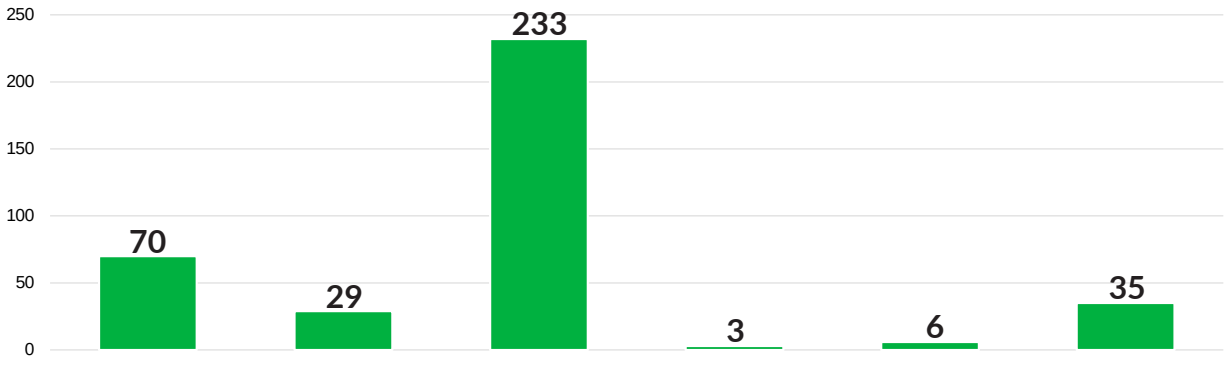
98.5%
of people reside and/ or own a property in Oconee County

Non-resident respondents (6) identified themselves primarily as concerned citizens living outside the study area.

How would you classify your relationship to Oconee County? (select all that apply)



Please check the box that best defines the property you own.



*Residential, business, other

^Vacant lot

GROWTH

Oconee County is currently experiencing rapid development in certain areas. With that in mind please choose the statement that best describes your outlook on growth.

3%
I **support** any growth that increases tax base, regardless of location

8%
I **support** growth without any additional land use or development controls

9%
I **support** growth that steers development within Seneca, Walhalla, and Westminster

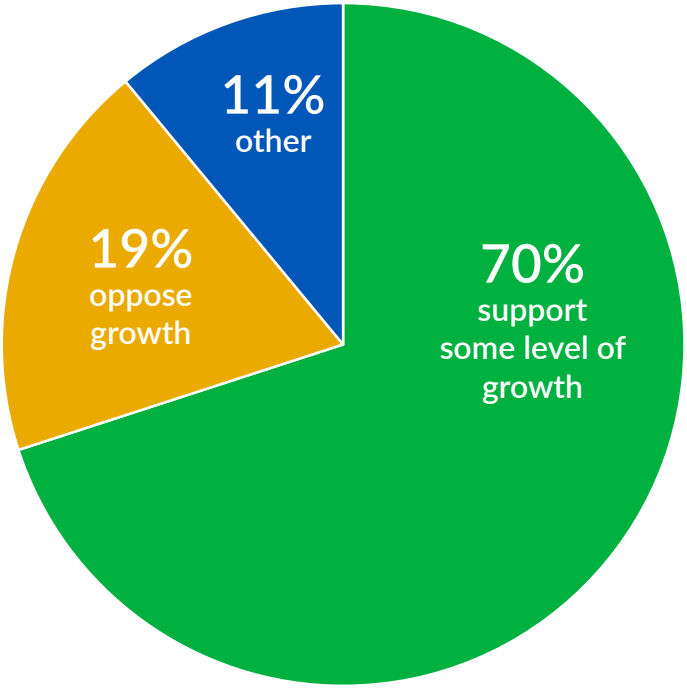
16%
I **support** growth that steers development along main corridors (think I-85 and highway 123)

34%
I **support** growth that drives development both within and around the municipalities (Seneca, Walhalla, Westminster, West Union, Salem) without significant change to rural areas (Mountain Rest, Fair Play, Tamassee, etc.).

16%
I **oppose** most growth

3%
I **oppose** all growth

11%
Other



There is a strong call for balanced, controlled growth that respects the community's character, preserves natural resources, and involves input from residents

Those who chose "Other" shared the following thoughts on growth:

Supporting Growth
- Emphasized the importance of managed, logical, and sustainable development, with consideration towards infrastructure, the environment, and quality of life
- Presented new suggestions for where growth should occur by noting specific corridors and and existing industrial parks
- Requested planning for growth by controlling the type and location of the growth.

Opposition to Growth
- Concerned about the negative effects of growth, including increased traffic, property tax increases, and loss of rural qualities
- Presented specific areas where growth should not occur

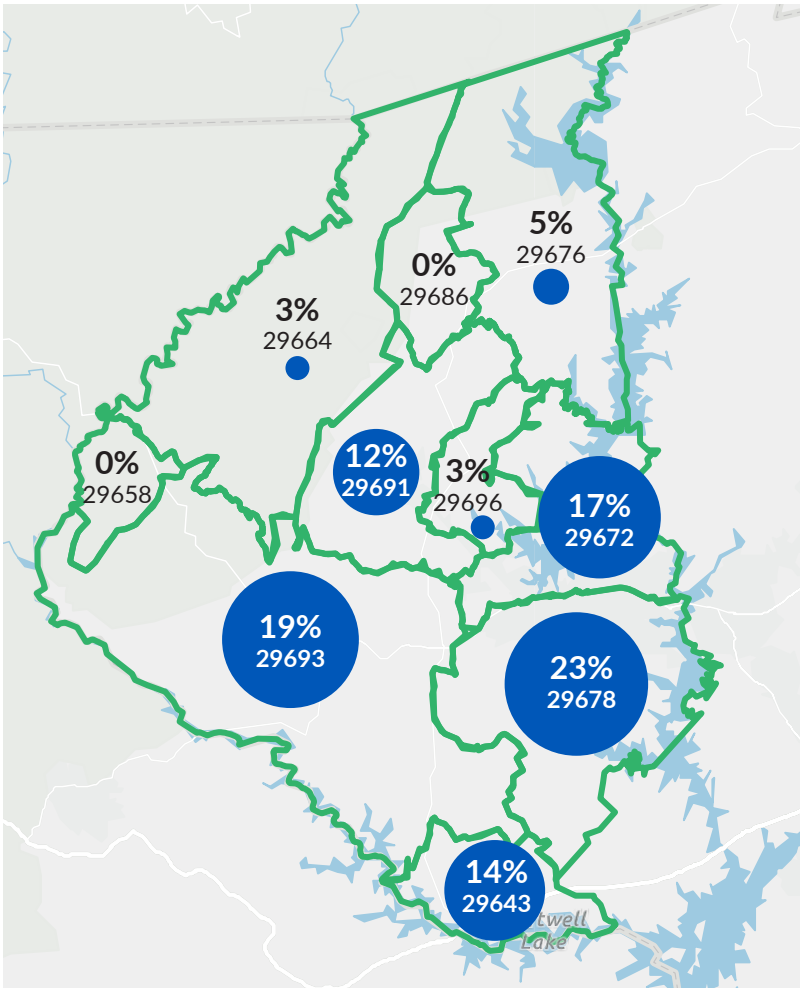
DEMOGRAPHICS

Why do we ask demographic questions?
Demographic information helps us better understand our audience, confirms results are representative of the population, and allows us to filter results based on sub-audiences.

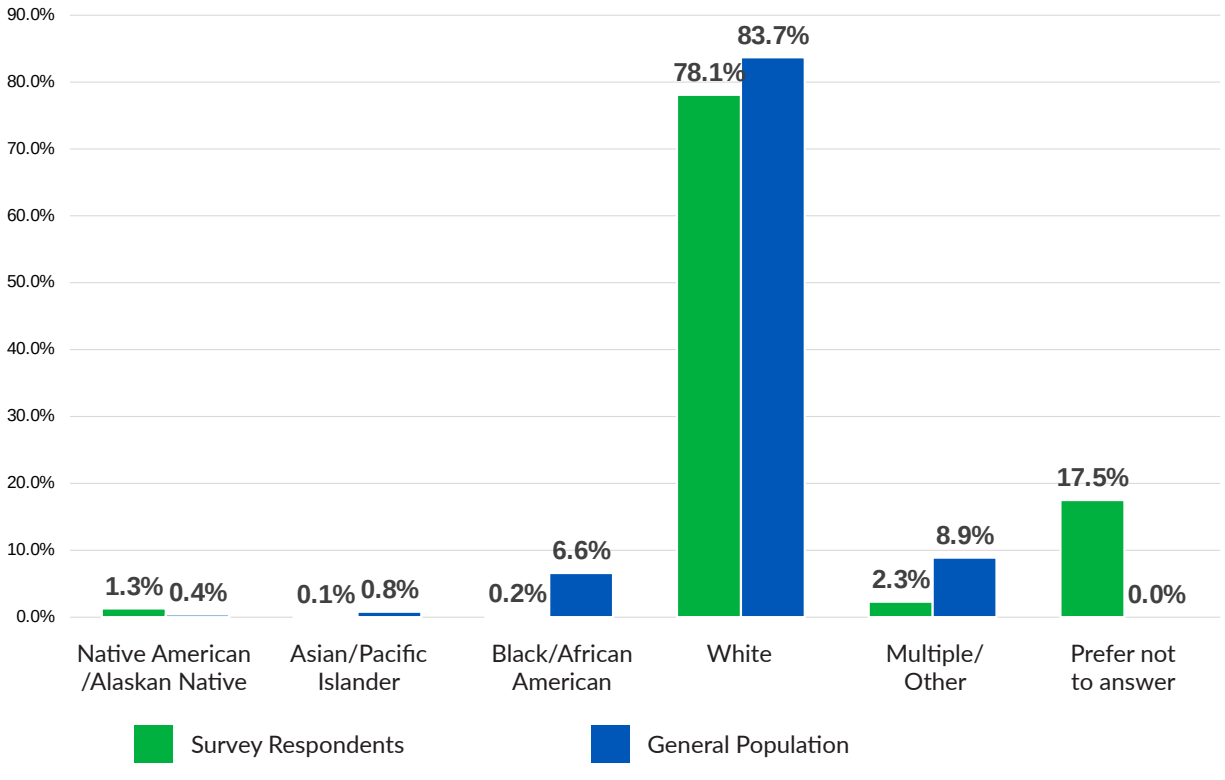
Results sometimes vary between demographic categories. For example, 100% of respondents who reported living within the 29664 zip code area support growth. The breakdown between supporting and opposing growth in other zip codes aligns with the total survey responses.

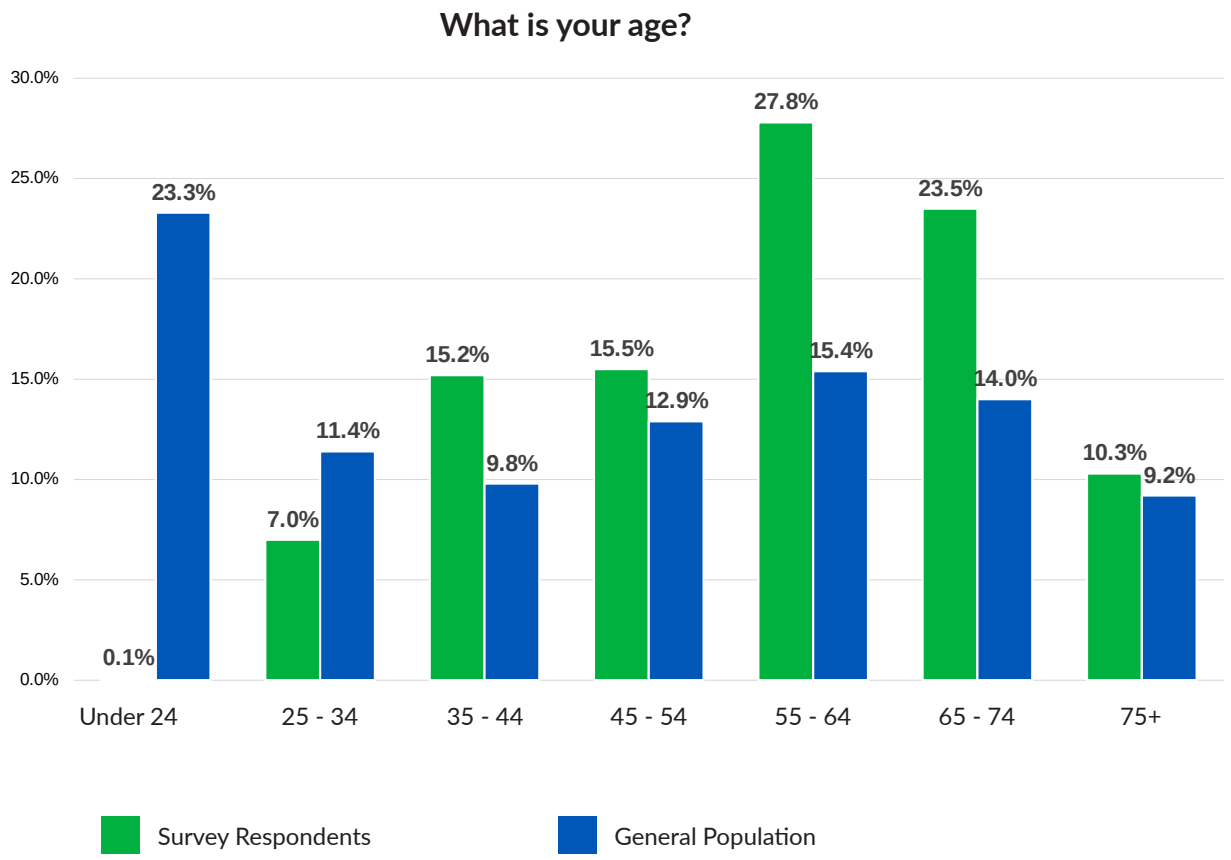
These insights were considered in the development of the 20-year master plan.

What is your zip code?



What is your race?




What is your age?
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
0.1%
23.3%
7.0%
11.4%
15.2%
9.8%
15.5%
12.9%
27.8%
15.4%
23.5%
14.0%
10.3%
9.2%
Under 24
25 - 34
35 - 44
45 - 54
55 - 64
65 - 74
75+
Survey Respondents
General Population

Rate the following items with respect to public sewer growth based on their importance to you.

	Not Important	Somewhat Not Important	Neutral	Somewhat Important	Very Important
Cost to tax/rate payers	4%	3%	11%	19%	63%
The organization in charge of sewer collection and/or treatment	3%	2%	16%	21%	57%
Location of new public sewer	5%	2%	7%	21%	65%
Installation of new public sewer more generally	7%	4%	10%	28%	51%
Current public sewer infrastructure maintenance	3%	1%	12%	20%	63%
Economic development	8%	8%	15%	26%	44%
Environmental concerns (would like to see more public sewer)	18%	9%	20%	20%	33%
Environmental concerns (would NOT like to see more public sewer)	19%	8%	28%	14%	32%

Rate in importance the type of development that you would like to see in Oconee County.

	Not Important	Somewhat Not Important	Neutral	Somewhat Important	Very Important
Commercial	13%	8%	17%	37%	26%
Residential (large lot rural)	16%	12%	27%	24%	21%
Residential (dense development)	48%	14%	15%	10%	14%
Multi-family	38%	16%	23%	13%	11%
Industrial	17%	10%	21%	29%	23%
Agricultural	4%	2%	16%	23%	55%
Institutional (i.e., community facilities such as schools, municipal, healthcare, etc.)	7%	5%	24%	34%	30%

Most Important to Respondents

Second Most Important to Respondents

Zoning and other types of land use regulations have many objectives. Rate the following items according to importance to you.

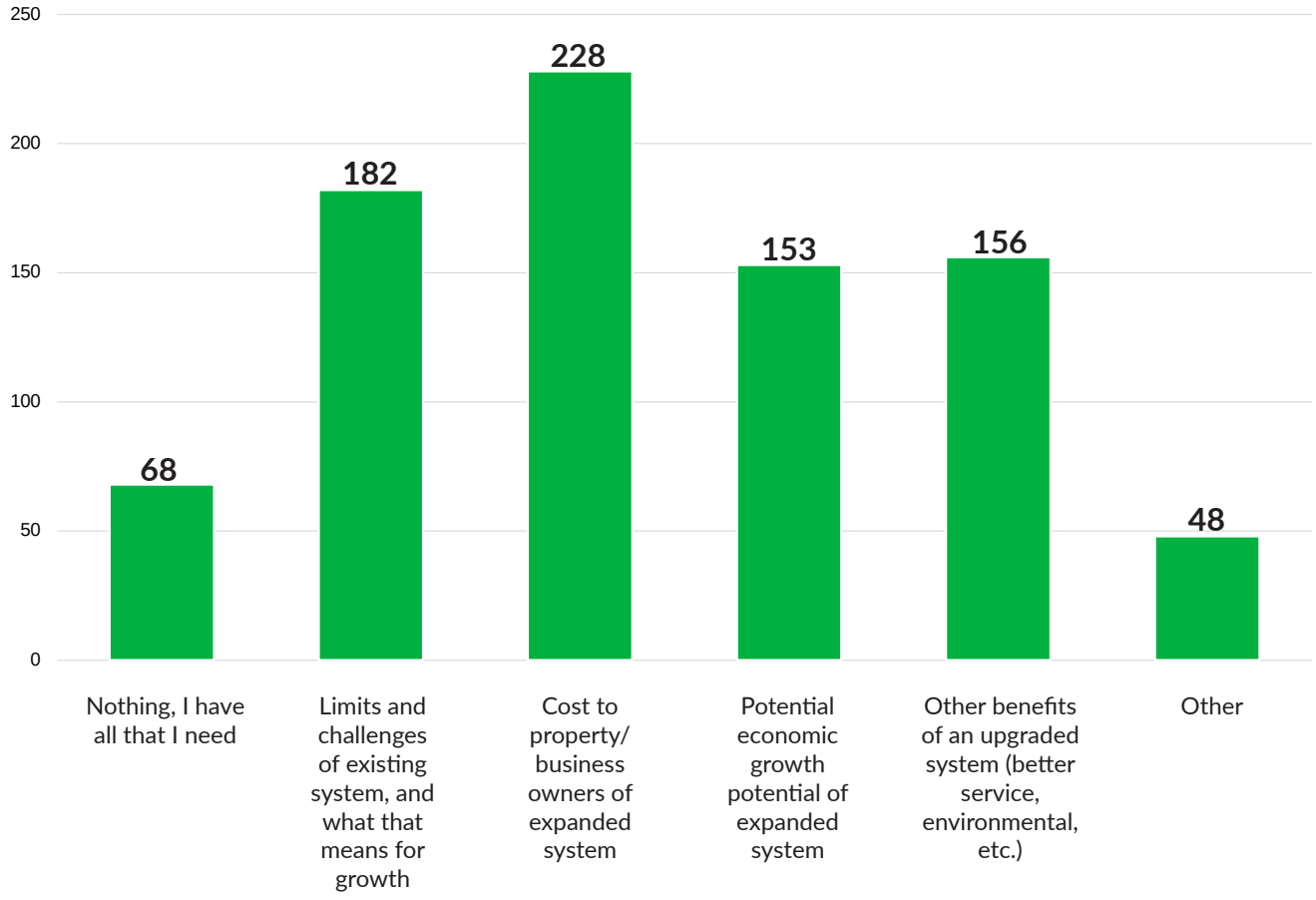
	Not Important	Somewhat Not Important	Neutral	Somewhat Important	Very Important
Protect property value	5%	3%	12%	23%	57%
Maintain rural nature of Oconee County	3%	3%	9%	14%	71%
Protect open space and recreational areas	3%	2%	5%	15%	75%
Protect farmland	2%	4%	7%	11%	76%
Protect quality of the environment	2%	2%	6%	15%	75%
Enhance tax base within Oconee County	13%	7%	26%	29%	24%
Control the pace of development	3%	3%	8%	23%	63%
Control the type of development	4%	2%	7%	17%	70%
Development Moratorium to temporarily halt specific development to allow for municipalities to plan for growth	12%	3%	14%	20%	51%

Most Important to Respondents

Second Most Important to Respondents

PUBLIC INFORMATION

What information would you need to make a more informed decision on sewer expansion? (check all that apply)



Those who chose "Other" shared the following information they would like before making an informed deicsion on sewer expansion

- **Financial Transparency:** Detailed breakdowns of costs, who oversees financial decisions, clarity on taxation, funding sources, and accountability for spending.
- **Infrastructure Planning:** Assurance that existing systems are maintained before investing in expansions, as well as detailed plans for new infrastructure, including location, size, and necessity.
- **Environmental Impact:** Environmental repercussions of sewer expansion, such as effects on wildlife, ecosystems, and natural resources. Residents want preservation efforts and sustainability measures integrated into expansion plans.
- **Community Input and Engagement:** Open communication channels, accessible information, and opportunities for public input (forums, surveys, etc.) throughout the decision-making process including acquiring public approval when department is involved.
- **Local Governance and Oversight:** Distrust or skepticism toward government involvement. Request for transparency in decision-making processes and clarity on roles and responsibilities of officials and agencies involved in sewer expansions.
- **Impact on Residents and Property Owners:** More information on how sewer expansion will affect them personally, including mandatory connections, property rights, and financial burden. Would like to have assurance that expansion plans consider individual circumstances and respect property rights
- **Development and Growth Management:** Concerns about unchecked growth, urban sprawl, and overdevelopment, request for growth management strategies, such as zoning regulations, development standards, and controlled expansion to preserve the character of their communities

COMMENTS

What comments/concerns do you have about sewer expansion. Use this space to be specific and concise about your thoughts.

Overall, the survey reflects a diverse range of opinions and concerns regarding sewer expansion in Oconee County as summarized in these key themes:

Environmental Concerns and Preservation: Many respondents expressed concerns about the environmental impact of sewer expansion on surrounding areas, including the disruption to natural beauty, wildlife habitats, and ecosystems. They emphasize the importance of preserving Oconee County's natural resources and scenic beauty.

Opposition to Forced Connection and Potential Tax Burden: There is opposition to being forced to connect to sewer systems, especially if residents feel they do not need it or if they are content with their current septic systems. Additionally, there is resistance to shouldering the financial burden of expansion, particularly if it is perceived as benefiting only a few individuals or developers. The concern around financial implications also includes potential burden on taxpayers, ratepayers, potential cost overruns, and the need for transparent budgeting and spending.

Transparency and Public Involvement: Many respondents highlighted the importance of transparency and public involvement in decision-making processes related to sewer expansion. They want to be kept informed and included in discussions and decisions regarding infrastructure projects that will impact their communities.

Planned and Sustainable Growth: Some respondents support sewer expansion but emphasize the need for careful planning and sustainable growth strategies. They advocate for expansion to be targeted towards areas where it is necessary and appropriate, rather than promoting unchecked development. There are concerns about the potential for sewer expansion to lead to rapid overdevelopment, particularly in rural areas, and the strain it could place on existing infrastructure, such as roads and traffic congestion. They emphasized the importance of smart growth principles and balancing residential, commercial, agricultural, and industrial development.

Infrastructure Concerns and Maintenance: Respondents expressed frustration with the current state of sewer more generally across the study area, including the need to maintain and upgrade the current system across the county regardless of ownership based on capacity needs and failing infrastructure. There is a strong demand for improved infrastructure and maintenance practices. Additionally, some residents currently on privately owned sewer systems (e.g., Chickasaw Point) mentioned the desire to convert over to the public system.

Local Control and Governance: Respondents expressed distrust of elected officials and those in charge of making sewer infrastructure decisions across the county and they called for transparency, and suggested involving the community in decision-making through initiatives like ballot voting.

OCONEE COUNTY & WESTERN ANDERSON COUNTY SEWER MASTER PLAN

SURVEY COMMENTS BY QUESTIONS

The following questions allowed for open-ended comment within the survey. These comments do not reflect the opinion of OJRSA and have been reported as written without corrections for spelling or grammar.

QUESTION: Oconee County is currently experiencing rapid development in certain areas. With that in mind please choose the statement that best describes your outlook on growth. *(Those that chose "other" wrote in the following)*

People need to check out Asheville Buncombe County it stated out with People moving from up north and building homes on the mountains next came the bike trails that nobody uses now there is a antfi member on city council also a anarchist book store property taxes are extremely high traffic is awful do some research on Asheville and Buncombe County and please don't turn Oconee into Buncombe do your research
Business growth along I-85 only and limited housing along 85. No more on 123
govt skould stop encouraging growth in rural areas fairplay folk have suffered enough loss cause of 85 and lake hartwell. instead of gambling on investments lets take care of not primary resident tax back to 4%. 6% is taking from older folks its wrong
I support growth at hwy 11 & 85! City of seneca has too much growth!
I support managed growth with planning and boundaries avoiding out-of-control growth
Growth is fine along major 85, 123. But on the outskirts it's not necessary. There s so much already that we need to just leave our small towns small. No need for large business. There is no need for sewer!
Growth that respects the rural qualities of Oconee County i.e. fewer thrown up housing developments, depletion of agricultural lands, losing the rural beauty of this county I love.
I believe that the oconee industrial park needs to be filled and used before we try and destroy more land and spend money on something that will be abandoned or unused like oconee industrial park. Wasn't that the reason for developing it?
I support logical growth, not high density housing. Should be a minimum of say 5 acres per house. Put high density in the cities
Planned growth that is sustainable Maintenance & upgrades to existing sewer lines is a must.
I support controlled growth with proper supporting infrastructure

You have destroyed our county. The city council is a bunch of buffoons on the take. You have no idea what you're doing. You've turned a beautiful park-like area into another filthy urban sprawl that will soon be overrun with junkies and invader illegals. Boo!
Support I85 exit 1 to 4 for business development only
I support growth that maintains our agricultural roots and protects our lakes, streams and rivers instead of having to see the rain flood our current system and causing health concerns to people and environment. Development with common sense for you people to STOP approving sewer your current systems can’t keep up with!!!
I would like to see growth, but want quality and desired business. Not more car washes, vape stores, etc
Sewer south is a huge mistake. Unless Im missing something, OC has not one commitment from any company to place business in the sewer south area. Doesnt seem logical at all. Why put a 25 million dollar bill on taxpayers in the hope that maybe, just maybe we’ll have even more plants trying to hire when the already established plants in OC are always hiring - just completely illogical. what should have happened is proper maintenance pr replacement of current infrastructure.
I oppose any growth until knowledgeable people elected to adequately prepare for it. high value properties here and not equally taxed. This county could have the most upgrades of just about any county in the upstate, but county plays favorites and don't justly assess the properties. specifically Keowee lakefront. Properly prepared budget with accountability and responsibility. NO MORE DEAD END TRAILS AND QUIT TRYING TO COMPETE WITH GREENVILLE!!
I oppose high density development along hwy 130, hwy 11 north of hwy 183, hwy 183 and hwy 28 north ofWalhalla. Scenic and environmentally sensative area need to be preserved.
Growth should be analyzed based on necessity, feasibility and impact to residents.
Managed growth. Don’t build on every blade of grass. Consider quality of life for those who have been here a long time.
Feasibility of necesitu and local economical impact of any growth should be analyzed individually and residents shall be well informed in advance.
I support growth, in all areas with perameters defined, this means more zoning in rural areas, to clean up junk, trash and hazardous empty buildings and trailers. Growth should have sustainable use in mind and provide a place that fosters family enviroments by putting children first
Define "growth". If it comes at the expense of current septic owners having to go on sewer against their will or spending money for someone's definition of "growth" in the southern part of the county against the wishes of the property owners, then NO. What is your definition of "growth"?
Support growth but with tighter land use and useage control
Unsure
I support filling out our current industrial parks and developing the I-85 corridor and Salem/Highway 11 corridor.
Downtown infrastructure to increase density in Seneca walhalla Westminster
I support smart growth- low density residential and industrial and commercial development where appropriate.
In the towns have small businesses, kid friendly and walking friendly. Around towns allow industry and manufacturing. In the country keep farm lands. Allow new housing developments only in areas that are not farmable.and only when all parties and neighbors agree. History shows that shopping Malls do not work.
I support smart growth with designated growth areas
I support growth in city jurisdiction only

I support growth that falls within the land use plan.
We need ro restore what we already have and stop the excessive building of housing developments. Protect our farm lands! Quit allowing sales to foreign prospects!
I support planned development which will require implementation of development standards and sensible zoning in which government helps residents get zoning changes made.
I support controlled residential growth that offers a balance of affordable housing for the lower/middle working class citizens of the county.
I support zoning fir growth.
I support responsible growth that includes changes to roads to handle increased capacity
I support growth based upon a comprehensive long term plan that considers impact to all communities.
I support growth, but with certain roles in place to keep the beauty of the area natural like having restrictions on size signs and trees, planet in front of industrial buildings along the roads
Growth along the corridors like 85 plus around the cities. But please fix the cities infrastructure with developers shouldering the cost
I support controlled growth that new developments pays for their needed infrastructure including planning, roads, water and sewer.
I support PLANNED growth.

QUESTION: What information would you need to make a more informed decision on sewer expansion? (check all that apply) *(Those that chose "other" wrote in the following)*

Track record of all potential people/companies involved
We need good sewer system down Hwy 123 towards Clemson from Seneca. Paws Diner area
U. S. govt spending all levels is out of control. focus need be on less tax all levels. govt stay out of development and real estate investments. put efforts on area already developed for growth but not yet occupied
This was very biased survey! Where is the question … do you support zoning ? Just point blank ! No zoning !
Safe roads, traffic congestion at 123 & 130
Maintenance plans for current and future systems. How the county will ensure this stays a priority . Ensuring that this potential tax hike doesn't displace citizens//humans from their homes. The KPIs that are being measured to determine the success of the project and ensure money is spent wisely
Current locations
The impact on housing, loss of farmland, the impact of those forced to use the system that can't afford it, the numbers of those against this and how much kick back others will get having this shoved down our throats
All of this information in an easy to read and access bulletin format, posted on websites and Facebook, along with having someone speak about it on a local radio station. Keep comments open to the public. More surveys and ways to comment on the decisions of the committee
potential locations
Why this needs to be done when what we already have isn't being used or is wasted.
All residents need to pay this bill, no student housing and no retail low paying jobs. We need good job for our kids!

The odor from the original sewer plant is horrid. I live behind it and rue this expansion get a handle on the odor and realize people live there
I detest that you are extracting money from us involuntarily while you plunder our beautiful natural resources and pave over and destroy our county. Do better or move away!
The intense growth will bankrupt city services and county services in the long run. It should not be for the public to bear the cost of the major developments needing utility services as the majority of our residents do iot use and should not be taxed for anything that these new awful developments require. Additional taxation for any cause needs to be seriously reconsidered.
Would like to know why I would be taxed for a system I would not use as I'm on septic.
That intention along I85 is for commercial only!
Treatment facilities specific location and size
Why is there a double cost for sewer and electric in Municipalities? Bad management by sewer is suspect!
Plans, and risk assessments
All of the above.
I am opposed to big government and city water/sewage
Repair and maintain current Infrastructure. Stop adding new debt to Oconee taxpayers that don't benefit from the system.
A detailed list of what each dollar goes to? Who is in charge of the destination of each dollar? Names of ALL people involved from the beginning of the entire idea from top to bottom.
Mandatory connection requirements regardless of cost and impact (existing French drains -mature tree removal - driveway and concrete walls -established lawn and garden within an existing single redidencr
Any new development must totally find their cause for expansion to the systems whether it be sewer , roads, etc
A decision to say No to developers at a certain point. I watch some areas be ruined by greed for developer monies, graft, taxes. Pace yourselves. I don't think that has done. Let's try it.
I think we should be able to choose between septic and public sewer not a complete takeover.
All of the above are relevant for residents
Each step of 5 year plan/phase along with analysis and cost impact to all parties. Marketing analysis for the potential growth in the southern part of the county we keep using as a reason for sewer expansion. Current Repair & Maintenance cost on current sewer systems in the county.
Don't need any more information. Keep sewer out of rural areas.
What are you doing with the 25 million and how did it get approved on our behalf without our request.
Attention to effect(s) on private properties
I think alot of people (me included) aren't understanding the basics of what exactly is happening although we want to be informed. I think a quick run down of the facts and what we are talking about exactly, simply would help people to understand.
Maintenance costs, projected costs to hook up,
How it will effect folks who will never be on it!
How it will affect the Eco System/Wildlife. Nature needs to be preserved by all means!
How controlling growth will make Oconee more desirable place to live ....a prize everyone should have copied!
I do not want nothern people to come in and start changing our County to what it is up north!

A detailed, public available map(s) showing, in detail, the extent of the current solid waste collection system.
Shut down Moores
Put the sewer where it is needed most! Don't run it to development doesn't exist. Don't manufacture uses for it. Go spend money where it is already needed
To know how this bond that was taken out on behalf of property owners will be paid for. Am I going to have to pay for it in additional taxes?
Less harassment from Matthew Durham and the OCC
Transparency on money allocation
Total cost to the tax payers
Agreement between Oconee and Anderson county since survey area crosses county line. How would the authority convince home owners to transition from septic to sewer?
Longer term costs of maintenance and financing (e.g., bond issues and debt burden)

QUESTION: What comments/concerns do you have about sewer expansion. Use this space to be specific and concise about your thoughts.

Do not want it. Keep Oconee free of manufacturing and high density housing
Making people that will not benefit from the expansion to pay for it.
I am most concerned about environmental impact on surrounding areas and the preservation of the beauty for citizens and natural resources (including wildlife-they support the ecosystems and all play a role). This also includes traffic issues from development. I am from James Island AND IT IS NOW A NIGHTMARE! PLEASE BE CAREFUL!!! This county is so beautiful, and the people so kind. Please don't ruin it. You have no idea what you will give up and you cannot get it back (in your lifetime).
fix what we have. especially on that sewer line that smells towards clemson
Read my previous comments about asheville buncombe county
With industry moving both North from Atlanta and south from Charlotte along interstate 85, are we going to be the only County that does not have industry and growth in this area? One only has to go about 12 mi south on 85 to begin to see the enormous amount of growth moving north from Atlanta. Are we going to deprive our county of some of this industrial growth and development that will provide jobs and benefit the entire county because some do not want industry to locate here but would rather be a retirement community that caters to the rich and affluent along the lakes and totally disregards families with children and low to middle income individuals?
My concern is not the expansion of sewer but how county council went about funding it was very shady. It should have been the citizens voting.
Highway 123 from Seneca going towards Clemson on right at Paws Diner area
That I will be forced to use it for no reason other then it was built
Our roads and flow of traffic, especially hey123
govt gotta stop spending tax dollars on ideas of enhancing tax base. spending spree gotta stop all levels gotta begin lower local levels of govt and work its way up the ladder. examples coming down are irresponsible an more than oppresive to people.

Don't want it.
I DO NOT want zoning ! No one has the right to tell others what they can do with property they don't own! Sanctuary Point will be such a great thing for Oconee County! Quit lying to people and being biased toward the city of Seneca ! There are other people who live here besides the city of Seneca! They should have used their funds better if they are so worried about their infrastructure instead of wasting money on useless spending!
Sewer expansion means more residential development and more traffic and stress on current services.
Keep the public involved and informed, as well as involved in decision making process! Don't hide behind closed doors.
I see the sewer expansion in Fair Play, without explanation of benefits or justification.
Fair costs to users, developers to pay fair share, not burden Seneca city residents with higher costs
Top issue: Make sure new tax revenue vs. cost of infrastructure is clearly understood.
Get on with it alredy!
Growth as a result of sewer expansion is overwhelming our infrastructures i.e. roads.
This project should be put to a ballot referendum. The public was not consulted prior to obtaining a major loan. The county council shoved the decision through over grave opposition. The whole affair does not pass the smell test.
Displacing humans from their homes when the tax hike happens. Homes are already expensive and people are struggling. The visibility into the project as a citizen. A checks and balances system to ensure the correct measures are taken to provide the best results. The accessibility of where this information is shared. I have already signed up and attended meetings on this subject with no email correspondence or follow ups
My community's sewer system is very old and needs upgrades that we have been requesting for years. Before new is considered existing need to be addressed.
None. Do it. Badly needed for the future at all levels.
Need sewers in areas of high growth for more services to the population like grocery stores, gas stations and restaurants i.e. rte 188, 183 and Knox Rd.
At this point in the the direction that the world is headed in we don't need to spend any money on expansion. All money needs to be spent on maintaining what we already have. If we can't keep what we have going and afford it, why put in more. 7 years ago the roads were nice. Now they are all shit and only getting worse. Roads are closed with out bridges. Towns have crappie water. But let's add sewer (lots of funds)and hope for new businesses to pay for it. Take that money and fix what's already broken.
Cost to home owners!
Planning and a clear timeline of maintenance schedules and upkeep should be public knowledge.
Realistic cost estimates to taxpayers for construction and maintenance and potential locations.
None need to expand to all neighborhoods
My concern is one being forced to connect to a Sewer service that I don't want or need. Two the monet that already been wasted on failed projects and development that did nothing but destroy forests and farms. We need to take a moment and look at our neighbors in Georgia and North Carolina and how they handled their growth issues. Learn from their mistakes so we don't follow suit. Development for the sake of development isn't what's needed. Development that is wanted or needed should be discussed, planned, and shown to the citizens and ultimately left to the citizens to decide by vote not county council or city councils. We will all be impacted by this and it won't matter what part of the county we live in. We have an industrial park on highway 11 that a majority of still

stays empty. Our tax money was wasted because we paid to build it then we paid to put buildings in and gave tax breaks to companies that pulled put after the work was completed. Now we sit here with lost revenue and empty industrial park and several empty buildings across the county that we can't fill with businesses and you think it's a good idea to do that again on both 11 and 123. If an industry or company wants to build a business here then offer them a place in the empty industrial park or one of the empty buildings across the county. Let them pay for the development they want or need not us. We've paid and continue to pay more than we should have to for these industries to have a place to build or move into. We don't need more development that we can't afford, need or use.
I own 250+ acres in Oconee and believe sewer is needed. It will make my values increase, yet I am not being forced to sale! It's a win win!
Cost of projects, people skills to maintain the if they grow.
Higher taxes, permanent easements, manholes in my front yard
A lot of time and money has already been spent on Sewer South. Let's finish this project before we increase expansion in to other areas. It would be foolish and selfish to with hold completing this long term project.
Need to slow down the growth of the residential housing developments in Oconee county.
We need 55+ developments. We do not need any more student housing.
Fix the roads, not sewer
Fix the process it should not stink and it does when you start running twice as much through there we will have to move
Would it go into existing homes on septic systems along the lake
I prefer upgrade / replacement of old systems
I would like to know what each town council thinks of new sewer and development of the area
The sewer expansion is needed along the I-85 corridor to entice business devleopment. Oconee County has done nothing to encourage growth in southern Oconee since the interstate was built. The main concentration has been on the cities within the county and we have missed out big on job development and revenue for over 40 years now. It is time to finally do something about this and bringing sewer to the interstate finally starts this long awaited process.
Cost. Tax base gain. Poorly controlled growth.
Totally against the new proposed deveopment proposed off of pickens Hwy
Expanding sewer will not benefit Oconee County as a whole. If the governing parties that balance the monies already collected in this county ,the county would support itself. We are a unique county in the upstate that has a nuclear plant that supports around a half of the budget , beautiful lake houses , the existing industry ,then rural community supports the county at this present time with the population at this date. More industry and higher population does not generate more revenue for the county as a whole .It only causes more burden on the county to generate more money to support bigger government. Industry only comes because the tax money our government gives to them. Industry will move away at some point is a fact of life and you never see that land go back to as we see it today. I'm all in for better maintenance and up keep of our present sewer system and let the whole county split the bill for the funds to do that.
Depending on where this growth/expansion happens, I can tell you that people in very rural areas like fair play and townville are opposed to any kind of growth and the tax increase that comes with that. We choose to live in the country for a reason.

My concern is what is it doing to the natural scenery of Oconee County and what is it doing to the wildlife of Oconee County and how do you they plan on keeping everything natural while moving forward with this..
Infrastructure needs to support growth. This burden should be placed on the new construction(impact fee) not the existing residents.
None
Sewer should expansion should be available to subdivisions in close proximity to other municipalities or businesses such as the old Johnson controls plant.
Everything taking farmland , cutting down trees and green areas all for new homes, fix up and use what's already there and abandoned or closed down. It's called recycling
The uncontrolled expansion of massive housing developments is not in the counties best interest in any way. It will strain our resources, roadways, and infrastructure. See Camden SC as an example. Any sewer expansion should not be a burden to current residents and should be the sole responsibility of those desiring any such expansion. Any taxes on someone who's rural and would not benefit from such a system expansion is both unjust and repugnant to our liberty and livelihood.
I'm on septic. I do not want to be taxed for something I will not be using. I do not condone the extreme expansion of population with the proposed neighborhoods. They are a nightmare for infrastructure and Oconee is lacking pertinent infrastructure for its current citizens. Put your current citizens before your pockets and the promise of future citizens to pay for your lacking infrastructure. This is considered a Ponzi scheme.
All county residents paid for the current system, yet it seams that now the Southern Oconee residents are being looked at to pay for the expanded sewer system. All county residents need to continue to Share these cost for the economic business and job growth it will bring.
Thought it was I85 commercial only corridor. It has been clearly stated at monthly meetings
I considered opening a business in Oconee County but choices were limited due to sewer access which was required.
Fix the roads first ! We don't seem to have money to even accomplish that.
I don't want to pay for it and I don't want the county tore up installing it
How large is the system planning to support? How many new developments are going in to warrent this?
I would like to see a sewer system in rural area.
Cost!
Who covers the cost. Impact fees should be assessed on those wishing to bring development here but are not from the area. For example a big dev group from Texas or somewhere wants to buy hundreds of acres they got affordability just to cram in hundreds of houses without respect to effects on community because it won't affect them where they live, they just want the profit, no thanks. Local investor wants to build 20 home tract with decent lot sizes or tiny home community for affordable housing, absolutely. Encourage local investment, discourage those that choose to abuse our community for their financial gain.
Grow the Oconee sewer board to have more than the city reps on the board. The sewer board needs to be proactive as it comes to investing in itself & economic development.
Do not have the money to pay for more taxez
The increase in development of both residential and commercial will ruin the community we currently have. Sometimes bigger is not always better. Soon we will be just another congested areas just like Greenville, Spartanburg. Slow it down and let's improve the current infrastructure we have. Once you loose your small town you can't go back.

Sewer expansion is exceedingly premature without a comprehensive plan for growth
I want the rural county that we have. More expansion means more businesses and less open farm land, etc. I know everyone has different opinions but my family and I want to keep Oconee the way it is. I understand that some change is going to happen but don't encourage it by paving the way for a takeover of all the California and New York people moving down here to make our county as bad as the ones they left.
Controlled growth. Protecting our farmlands
Stop giving sewer permission and approval for more subdivisions when you can't combat the the sewer you have at hand!
Why in this day and age, does our neighborhood (Keowee Ii) NOT have sewers?
This beautiful area needs better roadside maintenance, water safety controls to prevent pollution, plus sidewalks and bike lanes. A few more eateries, a few more reasonable priced, reasonably spaced houses, to keep this town from becoming some cut and paste replica of a model of insanity. Keep the character, ban any further chain restaurants, and attract young families who plan to stay forever.
Sewer is necessary for commercial and industrial areas and is also needed for high density residential. However, high density residential is in conflict with Oconee County's stated goal of maintaining a rural environment. Consequently, sewer in residential areas should be limited to those areas in which high density development is appropriate. Similarly, sewer should also be targeted to areas that are appropriate for commercial or industrial development.
Uncontrolled residential and commercial development that negatively impacts the quality of life for current Oconee taxpayers. Growth of government and regulations.
The current sewer treatment plant is very outdated. New treatment plant/s are needed to serve oconee county
Many other infrastructure issues need to be considered along with sewer
I don't want or need sewer
We don't need further development as our roads are very busy and also don't need sewer expansion as that encourages more development
Adding sewer south or any sewer projects alone does not in and of itself bring industry to this county. Looking at places near Charlotte that have experienced growth there are other factors at play which drive industrial/commercial growth. Additionally, the I-85 corridor between exit 1 and exit 19 in Anderson has many areas of property for sale that border the interstate. If you want to turn into the upper half of Spartanburg and knock up warehouses that's one option but again that investment should not be the tax payers burden nor should that be managed or owned by a county without industrial partnerships established. Development of the Golden Corner commerce site is a perfect example. Just because you think you have an ideal site and the county has started the leg work doesn't mean you will get takers. Partnerships or investment partners should be strategically aligned before spending tax payers money. I personally believe that the county itself should not invest in main infrastructure without a promise of strategic initiatives up front. Another great example of this is the Newry mill project. It wasn't until the state and the county were able to classify that area as an opportunity zone that the upfront tax incentives made the investment attractive. If im a major company why would i invest in between Charlotte and Atlanta it's a middle man zone with potential opportunity but the risk is not worth it because the support system that make a company sustainable are not here in oconee county. The main metropolitan areas are not located near highway 85, so hotels and other interstate type investments also don't make the most sense either. In my opinion building out the 123 corridor is the best long term effort. Think 5 years ago when you came in from Clemson to oconee county there was nothing and now you are starting to see growth along that corridor because it makes sense. The lake topography and mountain region make it so that corridor

development makes the ideal sense because you have natural buffer elements. The studies by McKinsey and company are worth analyzing https://www.mckinsey.com/industries/public-sector/our-insights/rural-rising-economic-development-strategies-for-americas-heartland as they highlight the need to have a specific target sector in order to have successful meaningful outcomes. The tax payers should not foot the 25 million dollar bond because of poor planning. Has the sewer expansion fully quantified the amount of additional capacity. When you look at major sewer upgrades in S.C. when industry came in the bonds and grants were in the 100's of millions of dollars range. Are we truly even making enough of an impact to actually attract the level of industry the county seems to think they will see. Example of this in Florence SC. https://undergroundinfrastructure.com/news/2023/june/florence-sc-to-fund-537-million-sewer-water-upgrade-with-bonds-and-5-rate-hike Infrastructure of large magnitude projects make sense when you have the upfront buy in.
Sewer expansion is very important for the long-term in Oconee but must be carefully planned and executed. Public input like this is great, but this survey is a bit confusing.
We don't need more development, just less Carpetbaggers
Sewer expansion should be paid for with sewer funds not county bonds. There used to be a surplus of money Before the current administration.
Would love to see Chickasaw Point as part of sewer expansion.
There are too many cookie cutter development housing projects going up in our rural areas.
Should be paid for by developers not taxpayers.
Im beginning to think that the people in charge of decision making in this county no longer care about the people. This always happens with government officials. Im beginning to suspect corruption. As we all know - Power tends to corrupt, and absolute power corrupts absolutely
County Council doesn't get overly ambitious with laying pipe and wait ten years before the availability of connections and process said sewage, like Fiber. Please plan ahead!! Don't lie to the public and disclose all information. Time for good ole boys (and girls) to lose their conflict of interest privileges. Don't require the public to spend their last dollar, more likely to borrow dollars to connect to the sewage system. Honestly, don't require connections!
Before adding a tax to cover the cost of any new sewer project the county needs to properly tax property owners. I am a realtor and I can tell you that many homeowners are not being taxed for their homes. I know of properties with million + homes homes that are being taxed as agricultural land 4 years after owners owners have moved in. That is horribly unfair and a huge loss of revenue for the county. I come across these properties all the time. Do an audit.
Concerns stated in previous section cost and impact onrxodyi
Stop rapid expansion and each developer must pay for our resource expansion. Utilize all the space that is already developed and stop things like malls which are out of style and going under all over the country. Don't become another Greenville, preserve oconee and greatly limit expansion. A good place to start is the overdevelopment of the sewer system!
Sewer expansion is important to attract higher paying companies to the area and for development along 85
Oconee does not need more industrial development. We do not have the workforce available. Speak to an experienced DOO at a manufacturing plant. My spouse has been an engineer in oconee for 9.5 yrs, eventually holding a management role that made understanding labor costs and availability a part

of his role. It's hard to find experienced labor in oconee. Everywhere is hiring. Regarding residential, I hardly recognize the county I grew up in. Council is allowing greedy developers to come in and kill the charm of an area with no regard for the lifelong residents. Sewer as a means to push land development is greed. The county is doing well financially (according to Durham). Why can't we work on improving systems we already have? Is it because that's not lucrative?
Cost is a major concern, but if helps the environment then I'm all for it.
Coneross treatment plant is old and can't process present volume. Directing more volume to the plant will result in disaster. DHEC's patience will run out.
I do not want to see more dense residential growth expanding out into rural areas.
Right now we can not afford increased taxes to fund just about anything. We need to wait until the economy stabilizes and cost of living drops.
I think any expansion for the county need to fully funded by the county
Would like sewer system to replace grinder pump system we have now.
will chickasaw point be able to hook up
Currently live in Chickasaw Point. our water and sewer rates are ridiculously too high. We need to get on public system.
Need the cost
The sewer south project is all wrong. Planned development should drive sewer expansion not the sewer itself. If there are any proposed developments especially any similar to Keowee Key where sewerage is a must. Protecting environmental assets like water quality and upland wildlife habitat need to be identified. Since the Corps of Engineers owns and manages Lake Hartwell, it is important to define their developmental guidelines and regulations. Almost every month citizens learn of proposed new residential and industrial development within the north and central areas of Oconee, not the south end of it. Also, it is surprising to me where sewerage is not provided. West Oak HS is not on the sewer and why DEHEC allowed this to happen is beyond me. There are no doubt other areas in the central county that should be considered for sewer before the south county. It would be good for the study to define the known or anticipated areas of denser development requiring sewer. Sewer service should be left to the three cities to provide. When there is a town of Fairplay, then they should be the entity to provide sewer. Please address why Blue Ridge Electric Coop is in the development business in the study area and why this should be part of the sewer planning.
Need to look at the rates and do something for the families that's on fixed income and us senior citizens.
Growth is inevitable, so we had better plan for it.
I am concerned about the rapid growth of our area...
The whole county is paying for a pet project that will make a few a lot of$
Politics.why don't you do what is in the best interest of the county and skip the personal bi bickering you all sound like a bunch of idiots in the paper
Environmental issues. Also. Don't promise more than is safe to developers that want the money but have no long term or short term caring about what they are doing to a city. Hit and run. Most of the time. I'm tired of it. Didn't move here for that. It's hard to go back once they milk all the property for everything it's worth. And then leave. Locusts.
Maintenence on what is already installed. Don't build new homes if the were can not handle it. It's okay to day no or negotiate bigger lot sizes with less homes.

Overall, I support public sewer and growing it. I'm happy to see the construction on highway 59 where I drive every day.
Feasibility study of Necessity, cost of proposed improvements, source of payment and future property tax impact.
Not everybody is for this “if we build it, they will come” mindset. PROGRESS guised under the mantra of “development” doesn’t meant it’s a good thing. And from the few conversations I’ve encountered, city of Seneca keeps tacking on these exorbitant fees…and the latest is the OCJRSA FEES. We are currently considering making a move (still within our county), but you can bet your bottom dollar I’ll consider my utility bills as a PRIORITY…
Hire thebest professionals that you can afford and build wisely with the future in mind. Our purpose is to provide a safe and healthy environment for people to thrive in. Plan wisely!
It needs to be thoughtful and consider our ag culture and what our county taxpayers can bear. It's all well and good to say "it's progress " give us details on the land use plan, tax incentives, types of allowed industries to settle here, etc. this is all being done, cart before the horse!!!
Any sewer expansion into areas currently served by septic systems needs to be at the agreement of the landowners, not government fiat. A nebulous "growth" plan for sewer based on potential future companies that may want to occupy properties in the southern part of the county needs to be publicly and transparently analyzed for all taxpayers to see. Assumptions could be wrong and once sewer goes in, it does not come out. Ever. These are monstrous decisions that must be made with full sunlight and participation.
Protect rural character of county.
How is this even going to happen when the current plant is at near capacity. Seems as though the city of Seneca needs there own treatment facility.
Continue south on highway 11 and north on 183
Traffic and road issues with increased population. Keeping the beauty of Oconee. Limiting additional new builds.
Stay out of our Fair Play RURAL community. We live here to be away from the dense developments. You will not get a dime of my money.
Sewer questions should not be used as an excuse for zoning. Private property rights are rights and should not be infringed.
Sewer needs to expand around cities. It should be funded by the county since they receive the tax benefit outside of the city and they also signed agreement with Cities and OJSRA to fund. County will be sued eventually over the fairness clause.
Almost total control by 3 sister cities at the present time.
I do not want any zoning or land use
I think expanding sewer is important for this community to protect public health and to allow Oconee County to grow smartly.
I think they need to really look at us that's on fixed income when they charge us each month.
Growth in areas that dont want it or cant handle it. We need to maintain the rural nature of our county.
Whom or what committee or group of people are overseeing the spending of the funds collected by and for the OJRSA and what specifically by line item breakdown are these funds being spent on? Are outside audits being performed to insure funds are being properly utilized and not embezzled? If so, how often are these outside audits being performed?

Sewer should be expanded between Walhalla and Seneca - particularly around bountyland - these areas are close to e dusting infrastructure and can support larger populations without damaging agricultural areas. Zoning must not be done without the consent of the property owner
That it is done in a way to manage growth and minimize impact to the taxpayers
Primary concerns are cost and location. Too often sewer expansion costs are financed by taxpayers with the promise that expansion will increase the tax base, which it ultimately will. However too often, additional development brings with it increased service delivery costs and the end result is insufficient revenue increase to cover all the costs created by growth.
House lots should be big enough to support their own septic tank
Cost, location, maintenance, ability to keep up with growth
How much it's costing tax payer .is it going to affect our blue ridge or water bills and if residents can get it
keep your sewer to only new construction. Leave the existing homes alone.
We have to keep our ag land separated from residential development and commercial development.
Sewer should not be speculative and/or cause harm to our rural areas
Not much communication about expansion unless you subscribe to the local paper
West Union city limits NEED public sewer. Thanks.
Am totally in favor of sewer expansion in West Union and Oconee
We have been told that we (Fair Play) would be required to hook up to this new sewer that WE DID NOT ASK FOR OR APPROVE THE MULTIMILLION LOAN TAKEN OUT. I absolutely oppose this. My septic is in place and working fine. We don't want the sprawl that comes with the sewer, keep it near the cities. I know lots of people want to to make money off of this, but keep it near the cities. Once sewer comes to a rural area, we are stuck with the dense developments that move in, which decreases the rural quality of life.
Have a plan where the county benefits and no politician benefits financially
If the expansion is for the benefit of the County, proceed with caution as to property rights & enviromental concerns. If the project is simply to enrich a few at the expense of others, then it is a no go IMO.
The Walhalla old water system pipes continue to require repair. When this systems fails it results in a large number of seneca and Walhalla, west union residents without a water supply. After repair of this system all residents and business endure dirty, contaminated water until the system is flushed. The contaminated water contains silt and other impurities that causes a build up of unwanted particles that collect in appliances and hot water heaters resulting in need to replace washers, faucets, dishwashers and any other appliances that have a direct contact with water supply which is expensive to replace. The homeowner endures the expense of these items and has to employ a professional for repairs or replace the appliance. The water is contaminated and not safe for drinking. I do not always receive a notification from Walhalla water department to boil my water before use. Most of the time I notice that the water is dirty first and the after the fact I MIGHT receive a notice!! Please offer a solution quickly. It’s past time for a new sewer/water system.
Get it to 85 as soon as possible.
With growth on the i-85 corridor you bringing more crime with more crime you need more law enforcement, as of now there's not enough to cover the county as it is it's like a domino effect. The cost of the taxpayers never end because of greedy politicians
It is important for citizens to understand that increasing population in our county does (and will) necessitate expanded sewer services.

Just exactly what it means for my area. I want my area to stay as it is. I would like to be on city sewer but I don't want other things coming into my rural area off exit 4 I-85
When I moved here in 1999, the sewer was "just around the corner". Now all of my family that this was promised to have died. The sewer never got to them, even around the lake where it is most important! Hire local companies and labor to get the job done and quit wasting time and money while you "talk" about it!!!
There should not be any restrictions on an individuals property without that owners approval. County or cities.
How will this affect costs of general taxpayers? Will it be like the pioneer water telling how great a new plant would be and how it would save us money and now my water bill is 3 times higher than it was 10 years ago and has gone up every year.
I feel that the expansion of sewer into the rural areas will encourage urban sprawl, high density development, and overcrowding. I feel it will have an extremely negative affect on our natural resources and available agricultural communities. I also strongly feel it will eventually eliminate the rural heartbeat of our county. Encouraging growth around the existing urban areas and main thoroughfares makes much more sense and would keep the overall costs lower for everyone involved.
I'm sickened and saddened by constant development of land. Destroying all trees and natural habitat is unnecessary. Instead, let's focus on reusing old buildings and already cleared spaces. And NO MORE HOUSING DEVELOPMENTS!
We moved to Oconee County for it's wide open spaces and less population vs. other counties. Hopefully the county will stay this way. Protecting the Farmland, Eco System and Wild Life is very important.
Question #8 should have option for "No new regulations". As written, you can now say every respondent was in favor of some form of new regulation.
We are farmers, usually when more development comes,it comes with more people, with that comes more regulatoions ,and that makes it harder for the farmer! Developers have regulations and can put way too many houses on the property they Develop .
Figure out where your future growth areas and boundaries are and match that with basin drainage maps and that is where you install new lines and spark smart growth and sell the community on it. This becomes the new marketing pitch for Oconee County!
Corridor does not equate to expansion 25 million bond should not be used for expansion of sewer, it should fix the current infrastructure, especially in the cities like Westminster and Walhalla
Not Mandatory
Much needed along 85
Cities need to stay where they are, only one city in the country is really stable, the rest live on hand outs from taxes we pay and get no benefits. The sewer system should be run by the county for everyone in the county, and not let the city make money off of county tax payers.
The sewer expansion by the county is the worst investment we can make. Proper growth means that utilities should be built in dense areas to minimize the cost per connection. Running the sewer to 85 because it is an interstate is just stupid. If you are worried about maintaining your rural areas, this is a surefire way to destroy them.
Where is the sewer expansion going to be?
It's just another way to get more money from taxpayers and taxpayers shouldn't have to pay for services they do not use or own.

Limit growth Preserve farmland No apartments/condos Limit industries in Fairplay
Glad to see progress being made on sewer south. Go Oconee! Live, Work, Play
Please consider putting in buffer zones to protect our ag lands and natural resources and the true beauty of our county . Please put restrictions on how far sewer can go from I 85 and existing sewer in the county. Please keep smart growth in mind and keep the growth where it is actually needed and not on a hope and dream.
Council to be transparent and held accountable for not being transparent.
I think it would help as well as hurt our county. I lived in Fair Play for 24 years and understand the impact of the sewer system on the growth of the interstate. However, when you give an inch seems they always take a mile plus some. Our agricultural areas will suffer. They need to be protected!
Some plans should be put on the Ballot to vote for or against.
It's just a bigger risk to our environment, and we don't need more yuppies moving in, making this place unrecognizable.
We must repair and the maintain current sewer infrastructure. Never let it get in the shape that it had gotten to before federal money was available to help. Municipalities must fix the inflow issues. Anything we build we must maintain.
I have family who live further east of Seneca city and they have sewer. I live within a stones throw of Seneca's eastern city limit and I have a septic system! Expansion within served areas must be addressed!
I refuse to pay to be added to a sewer that I didn't ask for and pay those bills when I have a fully functioning septic system.
I would like it to be modern, economical, and environmentally safe
We need to leave our rural farms and farmers alone, especially generational farms and farmers.
The commercial and residential property owners should pay for the expansion they require.
I have a farm with a creek that's runs through it. I don't want to see manhole covers popped up in my pasture and back yard, they are eyesores. Stop trying to build up this area in Southern Oconee County
Oconee county needs to take over sewer completely. The myriad of issues with OJRSA has proven the organization is beyond its means and needs a more wholesale approach.
Bring industry to the interstate, bring more businesses to our county.
Seems like a lot of shady things are happening. Promises of industry coming in when plenty of industries can't fill the jobs they have nor fill the Golden Corner commerce park due to soil issues. But the real question is who will benefit most from sewer? Perhaps Jerry Edwards and specific councilmen want development on I85 for their own benefit.
Distrust of Council leadership to push for sewer expansion when there may be potential conflicts of interest and ensuring farmland and rural areas in southern Oconee county is protected.
I breaks my heart to see land torn up for housing developments. It needs to slow down.
Vote for Glenn Hart
I'd like to see sewer expanded to where it is needed, not where it is being used to manufacture growth. Let it occur on its own, then expand to where the need is.

Cost far outpaces opportunity. Need is not there and expansion will not bring businesses to the area. That shipped sailed already...and moved to Anderson Co.
I don't need or want sewer expansion nor do I want to pay for it so that few can profit
Cost to homeowners
Don't do it
To much rain water getting in old system, man hole covers blowing up sewer water getting in Martin creek
Slow the roll Protect the natural areas.
We have more sewer line than is needed now.
cost to customers already in system.
I don’t want to see farm land and rural areas being over developed. Too much development and not enough land and resources animals are being displaced and loosing their domain. It’s a shame and disgrace that the county council is pushing for expansion and I feel that certain council members are making decisions in secret and dancing around when they are answering questions during county council meetings. They didn’t answer a lot of questions about how the bond would be paid for in the event that things didn’t go the way they planned it
I own my home and we are on septic. I am very concerned that I will be forced to attach to the sewer that you all wanted in Fair Play. We did not ask for this and are just fine how we are. I do not want the associated costs. I live in Fair Play for a reason - to not have to hook up to these type of services and not be around large developments. Keep the sprawl in the cities.
I have not studied the issue enough to make an informed suggestion.
I am concerned sewer will expand all over rural areas with gravity encouraging high density development throughout our farmlands and possibly mountains. I am concerned we will have to pay through out taxes for others sewers.
I am absolutely opposed to anyone currently using septic on their current residential property being forced to convert to sewer. I live in the country because I want to be away from things like that.
85 should’ve had sewer 20 years ago
Everyone on septic should not be charged for connecting to sewer. Most cannot afford it!
Just so the sore lines do not interfere with farmers and the natural beauty of Oconee County. So, when new businesses are built there be restrictions on how they can build, like putting a barrier of trees between them and the highway limiting the signs of size of their signs.
Stop hiding the details of the so called bond spending plan. Move priorities to 4 THEN down to 1. Stay off 11 Oops to late.
The city of Walhalla needs to rebuild the sewer system (and not just the side of the city where the jail is)! The whole system is broken!! Every time it rains our toilets overflow! We have had plumbers come to our home 4 different times and nothing is wrong on our end! So do I want more homes on the system for it can’t handle it!
Urban outreach/ I do not want to live in an overcrowded city. I have seen it too many times before you know it no one will recognize Oconee county.
Public sewer in rural areas that have been using septic systems for decades seems pointless and unnecessary. Especially without any guarantees on industrial usage. Which will result in the tax payers footing the bill as usual.
The destruction of Agriculture land

I think sewer expansion should be funded by user fees and not force taxpayers who don't consume the service to fund expansion through taxes.
I think sewer expansion along the I-85 corridor is important for industrial development, and needed, considering the decline of industry in this county.
NA
Who is in control of sewer expansion the county or the OJSA?
Get qualified personnel to serve on the governing body.
how would Anderson and Oconee handle the a joint venture? operations, billing, etc. What incentives are there for existing septic users to tie on to public sewer? Would there be requirements to tie on? If right-of-ways are not defined, would the authority practice eminent domain?
1. Infrastructure cost estimates have a history of underestimation due to a number of biases, incentive structures, legal workarounds, and political influences. I applaud OJRSA for hiring an outside consultant, but even here the consultant has incentive to retain business by virtue of infrastructure expansion. What measures and metrics will be instituted by OJRSA to mitigate cost underestimation bias? 2. Related to above, how is debt cost burden (bond issues) to residents being factored into planning and what is the impact of current and future interest rate scenarios? 3. Current residents are understandably concerned about the high-density development being pursued by developers in Newry and along Highway 130 and Keowee River. There is a history of developers exercising legal leverage beyond the resource capacity of current residents to attain PUD and other variances. Expanding sewer infrastructure is an enabler to high density development particularly when support infrastructure precedes development approvals and variances. How will the cost burden to the developer extend beyond sewer connection costs to include sewer and road infrastructure expansion that was put in place to enable such development? Who pays? Who should pay? 4. I witnessed the tale of two cities (Zionsville, IN, and Carmel, IN) where the former experienced predominantly residential growth and the latter deliberately pursued a balance that included industrial and large commercial growth. Carmel's strategy yielded a more favorable cost/value outcome in large part due to an industrial and large commercial business base that generates more tax revenue, creates more green and cultural space, and supports community improvement. How will OJRSA factor in the benefit of industrial and business partners who remain in the community as long term partners versus residential and small commercial developers who do not stay engaged in the longer term health of the community?
We need more public sewers

Appendix C: Discharge Options Review

Water Environment Consultants
P.O. Box 2221
Mount Pleasant, SC 29465

May 6, 2024

Jason Gillespie
Weston and Sampson
3453 Pelham Road, Suite 204
Greenville, SC 29615

RE Oconee County
Discharge Options Review - High-Level Assessment

Dear Mr. Gillespie:

See the following Attachment and let me know if this meets your needs at this point. We believe that all three options could be permitted, and we highlight some of the differences to consider. Additional review and modeling analysis would be needed to obtain actual proposed limits. To highlight one key idea from each location:

1. Martin Creek – Nearly a lake discharge at full pool of Lake Hartell with nutrient implication and no real stream assimilation allowed (new modeling needed to determine limits).
2. Coneross Creek- More predictable with current UOD and phosphorus caps, but review of model assumptions would be wise.
3. Beaverdam Creek – The Beaverdam Creek arm of Lake Hartwell is isolated from the lake and doesn't get good mixing with the main portion of the lake (new modeling needed to determine limits).

Sincerely,

Jeffrey P deBessonet, PE
Senior Engineer

cc: Matt Goodrich, WEC

ATTACHMENT A – Oconee Discharge Initial Review

Water Environment Consultants (WEC) completed this review for Weston and Sampson (W&S) to assist in the evaluation of alternatives to dispose of wastewater in Oconee County. This report provides a high-level assessment of the feasibility of a new point source discharge to a stream located near the proposed project site or sending the wastewater to an existing treatment plant that would be expanded to accommodate the additional flow. As part of this assessment, WEC completed the following:

- Reviewed existing stream impairments.
- Reviewed ambient water quality monitoring data.
- Reviewed Oconee Joint Regional Sewer Authority's (OJRSA) NPDES permit.
- Evaluated possible discharge locations based on topography, hydrography, and water quality considerations.

1 Background

Currently, OJRSA has a 7.8 mgd discharge permit to Coneross Creek. The potential new discharge will be in Oconee County, south of Seneca, SC in one of two tributaries flowing into Lake Hartwell (Figure 1). There are three potential wastewater discharge options under consideration: one is an expansion of the existing OJRSA Coneross Creek Wastewater Treatment Facility (WWTF), one is a new discharge into Beaverdam Creek, and one is a new discharge to Martin Creek. This section reviews the relevant data in the waters potentially affected by discharges at these locations, including existing stream impairments, ambient instream water quality monitoring data and existing permitted discharges to the streams.

1.1 Existing Wastewater Discharges

The locations of other NPDES permitted discharges to the river are shown in Figure 1. The discharges are listed in Table 1 below.

Table 1 – Major NPDES permitted discharges in the study area

NPDES #	NAME
SC0033553	OJRSA Coneross Creek WWTF
SC0000591	JACABB Utilities

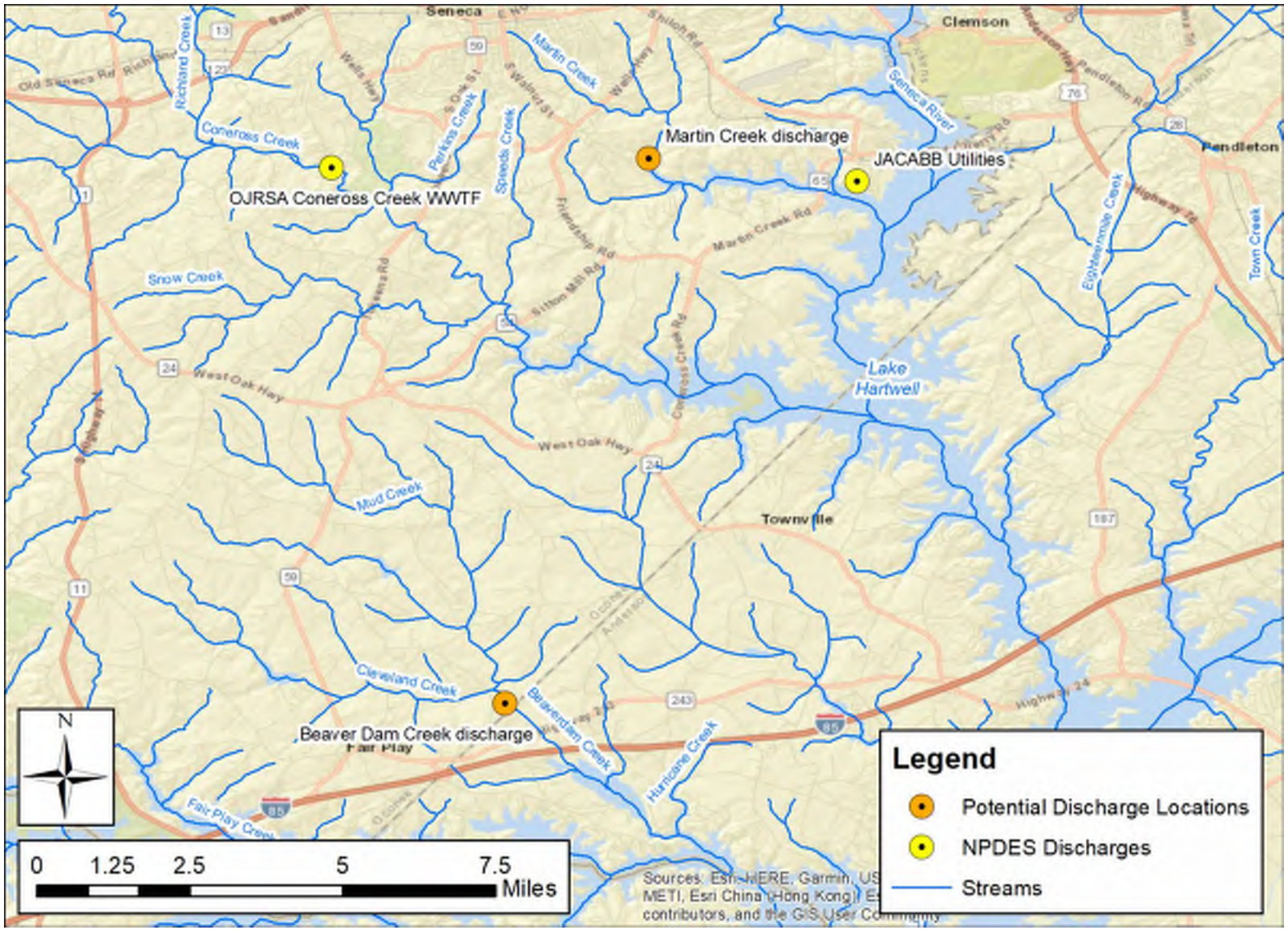


Figure 1 – Location map showing existing and potential discharges

1.2 Existing Stream Water Quality

1.2.1 Physical and Chemical Monitoring

The South Carolina Department of Health and Environmental Control (DHEC) collects water samples monthly at the fixed monitoring stations shown in Figure 2 (labeled as "monitoring stations"). The monitoring station samples are analyzed in a laboratory for turbidity, 5-day biochemical oxygen demand (BOD5), alkalinity, ammonia, total Kjeldahl nitrogen (TKN), nitrate/nitrite, total phosphorus (TP), total suspended solids, and *E. coli* bacteria. Quarterly measurements include selected metals concentrations. At the time of sample collection, DHEC also makes field measurements of water temperature, dissolved oxygen (DO) concentration, and pH.

As shown in Figure 2, the closest monitoring station to the Oconee Co/Coneross Creek wastewater discharge location is SV-004, located 2.2 miles downstream. The next closest station is SV-236, located 8.5 miles downstream in an arm of Lake Hartwell. A new discharge would be to either Beaverdam Creek or Martin Creek, both of which flow into Lake Hartwell. The closest upstream monitoring station to the potential discharge location along Beaverdam Creek is station SV-345, located roughly 1.5 miles upstream from the proposed location. The closest downstream monitoring station to this discharge is SV-364, which is located roughly 0.8 miles downstream. The closest monitoring station to the potential discharge location along Martin Creek is station SV-106, which is located roughly 2.7 miles downstream from the proposed location in an arm of Lake Hartwell. The next closest monitoring station to this discharge is RL-13079 (a random/temporary sampling location), which is located roughly 4.7 miles downstream in the lake. WEC downloaded the monitoring data for these stations using the Water Quality Portal, a cooperative service sponsored by the United States Geological Survey (USGS), the Environmental Protection Agency (EPA), and the National Water Quality Monitoring Council to which DHEC reports their monitoring data.

DHEC's water use classification for all areas downstream of the potential discharge is FW (freshwater), including: Beaverdam Creek (Southwest of Townville), Coneross Creek (South of Seneca), Martin Creek (South of Seneca), and the Savannah River downstream from the potential discharge locations. As shown by the observations in Figure 3, most of the DO measurements in the streams are above the DO water quality standard (WQS) for FW streams (daily average of 5 mg/l DO and minimum of 4 mg/l DO). None of the DO values in the past 10 years fell below 5 mg/l. As a result, these monitoring stations are not considered impaired for DO (i.e., not on the 303(d) list).

Figure 4 plots the observed BOD5, and the observations flagged as below detection limit (DL) are plotted as 2 mg/l. There is an improving trend in BOD5 concentrations, as the data prior to 2017 show concentrations between 2 and 8 mg/l, the BOD5 observations after 2017 are mostly around or below the DL.

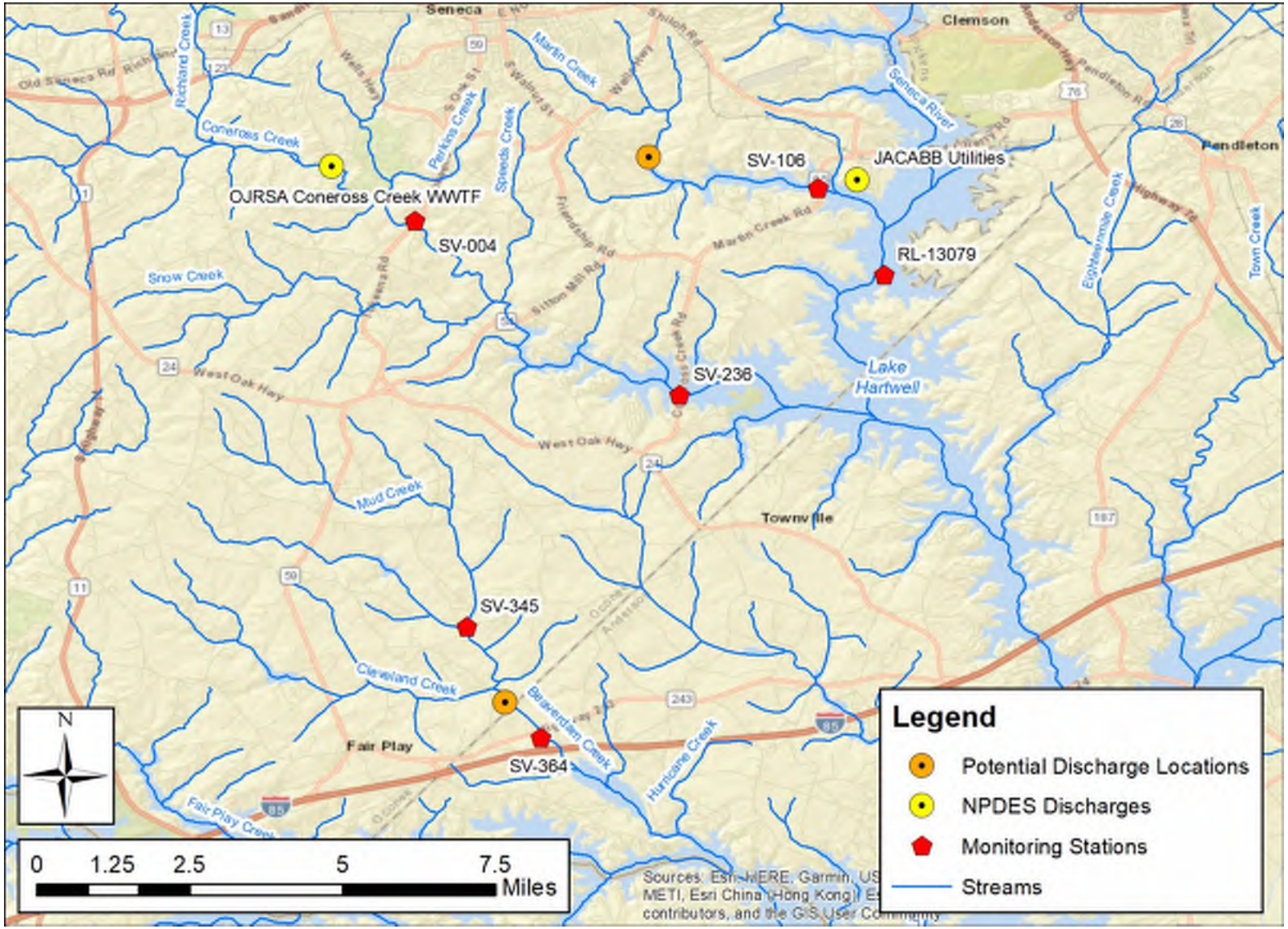


Figure 2 – Water quality monitoring locations

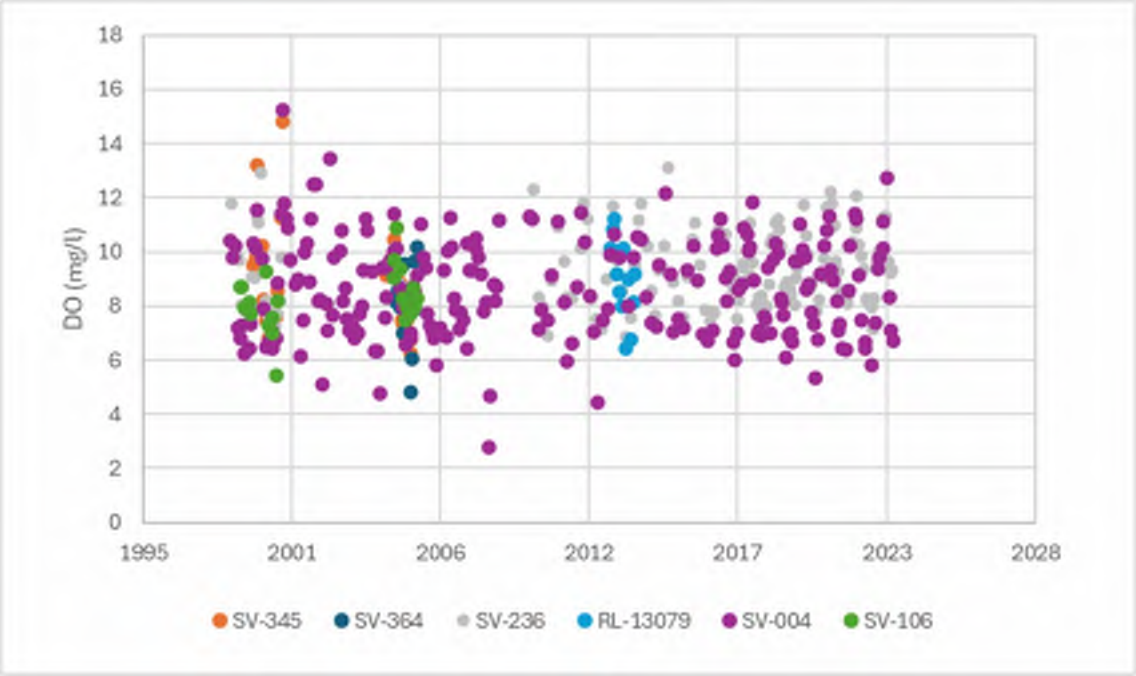


Figure 3 – DHEC DO monitoring data

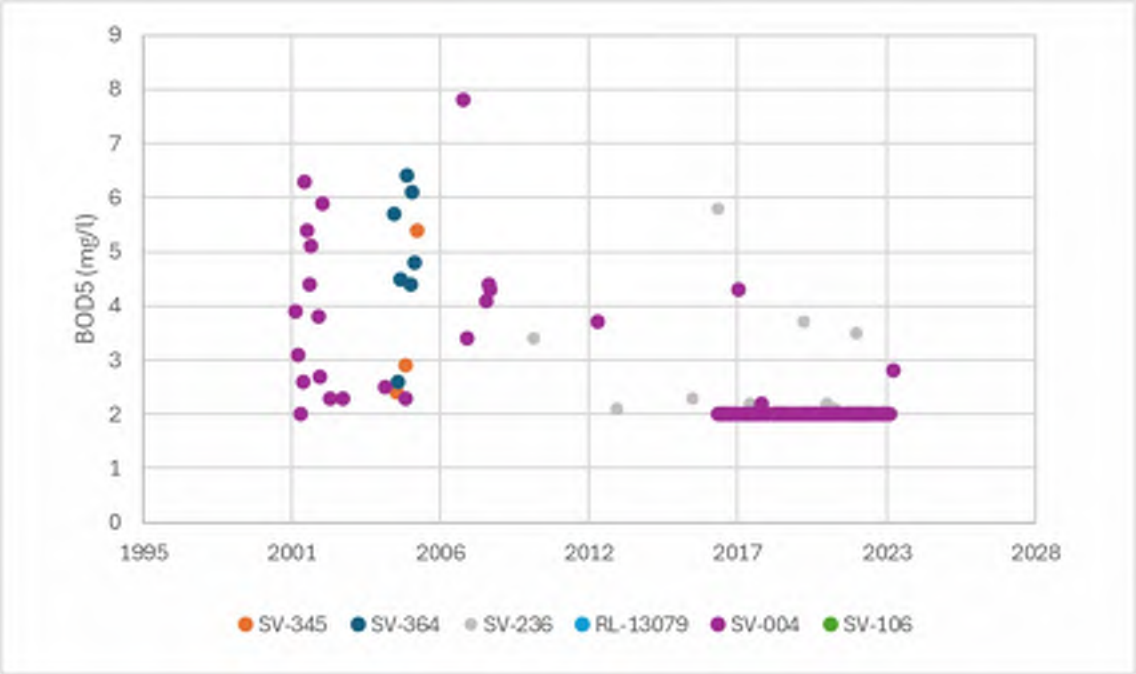


Figure 4 – DHEC BOD5 monitoring data

Nitrogen and phosphorus variables (including total nitrogen (TN), ammonia, nitrate & nitrite and TP) are plotted in Figures 5 through 8. There has been a decreasing trend in all of these variables since 2001.

As shown in Figure 9, turbidity at the stations did not exceed the FW standard of 50 Nephelometric Turbidity Units (NTUs) except for in station SV-004 in Coneross Creek, although the majority of measurements are below the standard, and two measurements at station SV-345 in Beaverdam Creek prior to 2006.

The DHEC limit for cadmium concentration is 0.0001 mg/L to prevent long-term effects on freshwater aquatic life. Figure 10 shows the cadmium concentrations for each station. For the two stations along Coneross Creek there have been several measurements that have exceeded the limit for cadmium, particularly in the upstream station, since 2015. Coneross Creek is impaired for cadmium. Cadmium becomes more mobile, and therefore more bioavailable, under low pH conditions. Wastewater discharge is slightly basic, so an expanded wastewater discharge would likely raise the pH and lower the mobility of cadmium in Coneross Creek.

The DHEC recommended range for pH for safe surface water conditions is between 6.0 to 8.5. Figure 11 shows the pH levels for each of the stations. In general, the pH is trending to slightly more acidic, but still within the recommended range. For stations SV-345 and SV-364, which are in Beaverdam Creek, there are several measurements showing the pH below the recommended limit. DHEC considers this stream impaired for pH. Stations SV-004 and SV-236, which are in Coneross Creek, also show several measurements, as recently as 2023, that are below the recommended limits. DHEC doesn't currently consider this stream impaired for pH, and a pH impairment in a stream would not limit a discharge.

1.2.2 Biological Monitoring

DHEC conducts ambient macroinvertebrate sampling to monitor the biological condition of SC waters at a point in time. The sampling locations in the study area are shown in Figure 12. DHEC biologists identify each macroinvertebrate in a sample, and they then analyze the data to generate a water quality score which reflects the degree to which the community meets expectations for that region of the state. There are no stations in the study area listed as impaired based on macroinvertebrate sampling.

1.2.3 Impairments

Figure 13 shows the stations on the 303(d) list that are impaired because they do not meet the WQS. The major impairments for the stations near the proposed discharge were cadmium, mercury (fish tissue consumption), PCB (fish tissue consumption), pH, and E. coli. There are no impairments related to DO or nutrients.

1.3 Existing Water Quality Models

There is one existing water quality model in the study area to evaluate ammonia and DO. DHEC used an uncalibrated QUAL2E water quality model of Coneross Creek to evaluate the WLA for the Oconee County/Coneross Creek discharge. The range of this model is shown in Figure 14, per DHEC's web page, although this warrants confirmation.

Figure 5 – DHEC TN monitoring data

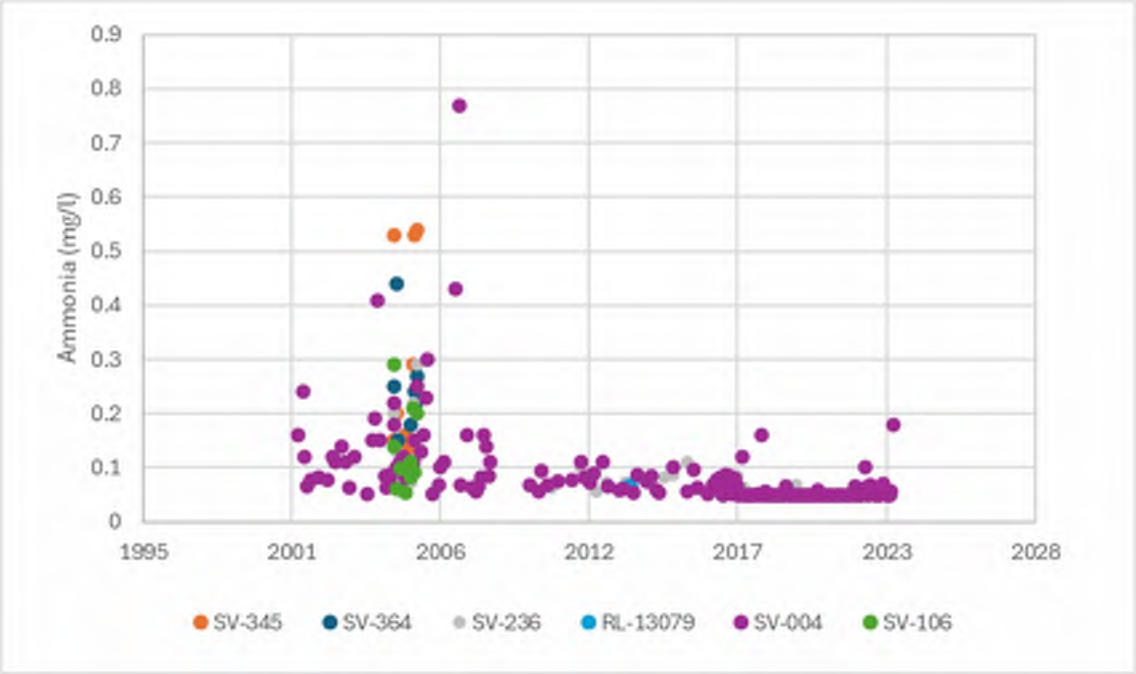


Figure 6 – DHEC Ammonia N monitoring data

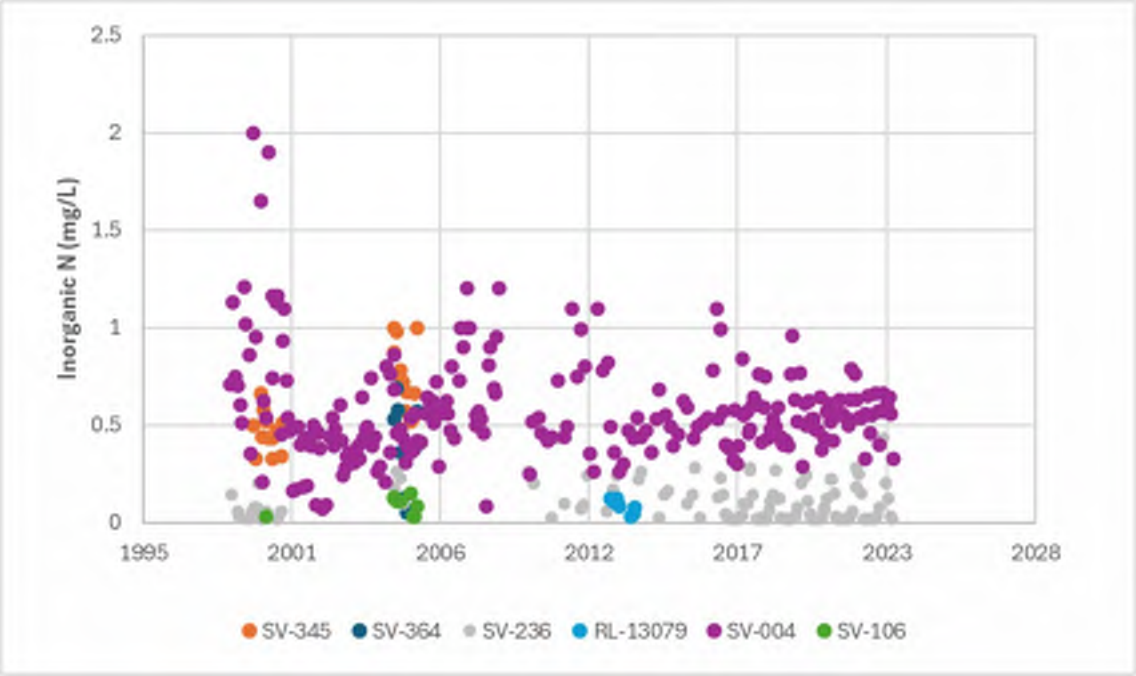


Figure 7 – DHEC nitrate & nitrite monitoring data

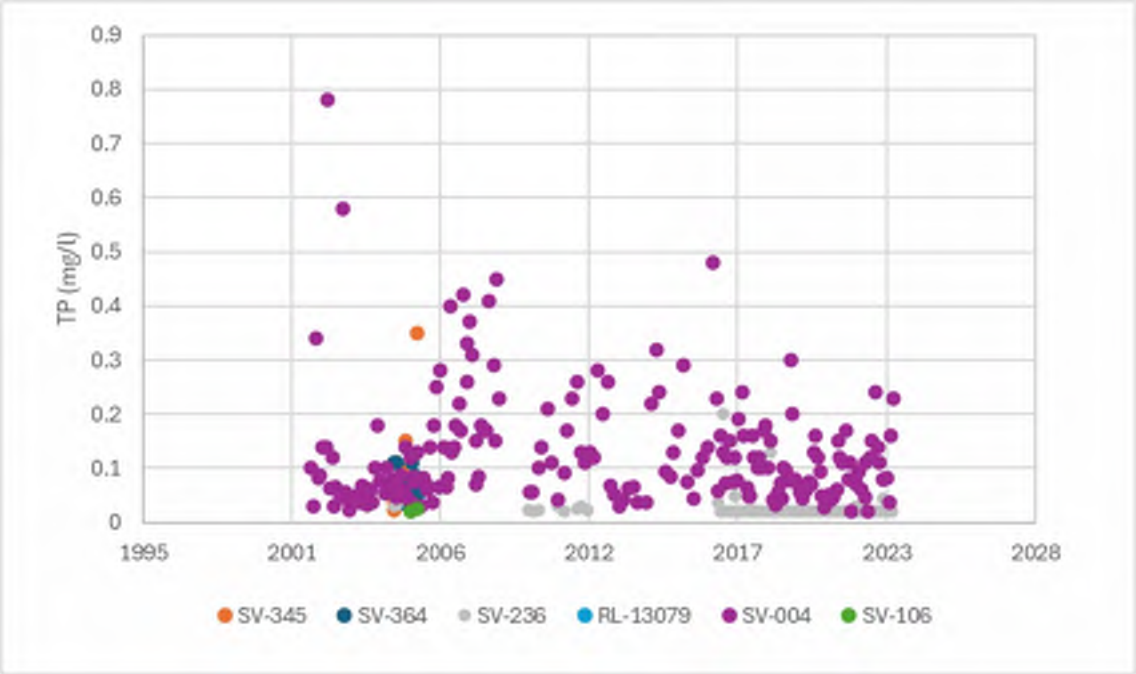


Figure 8 – DHEC TP monitoring data

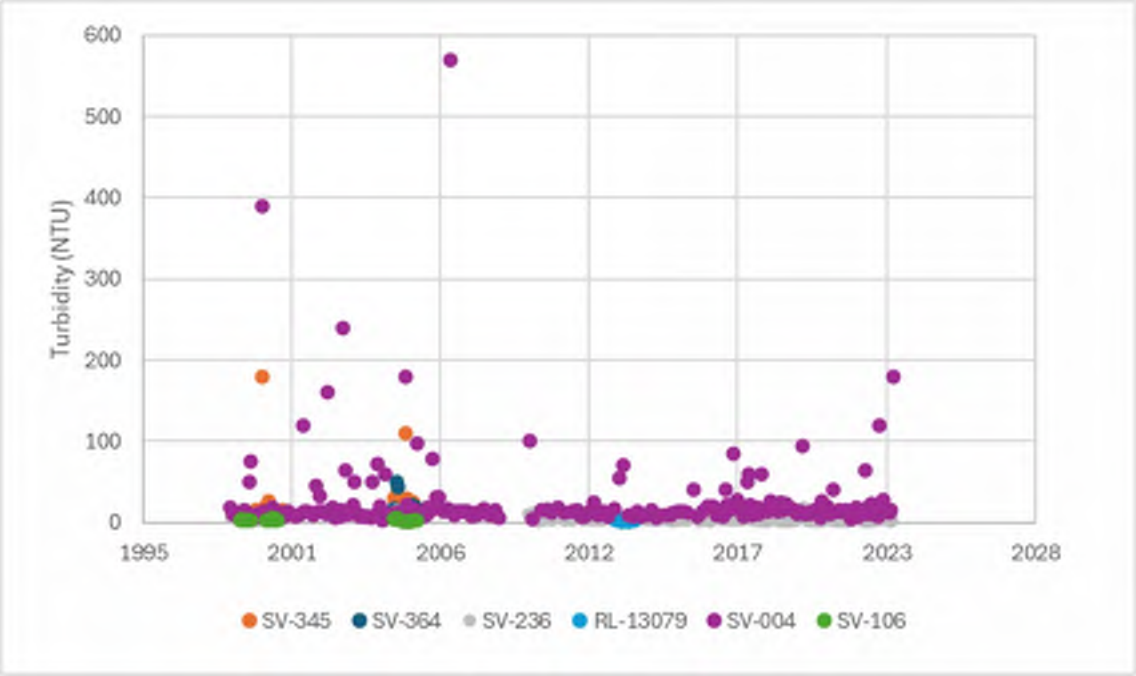


Figure 9 – DHEC turbidity monitoring data

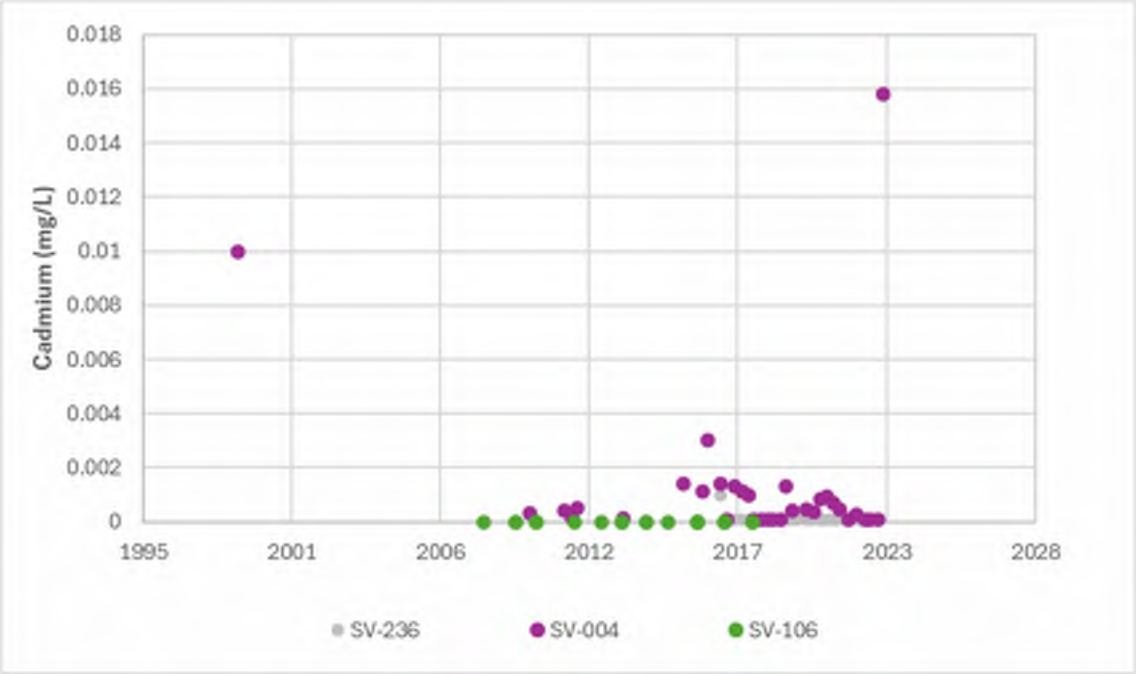


Figure 10 – DHEC cadmium monitoring data

Figure 11 – DHEC pH monitoring data

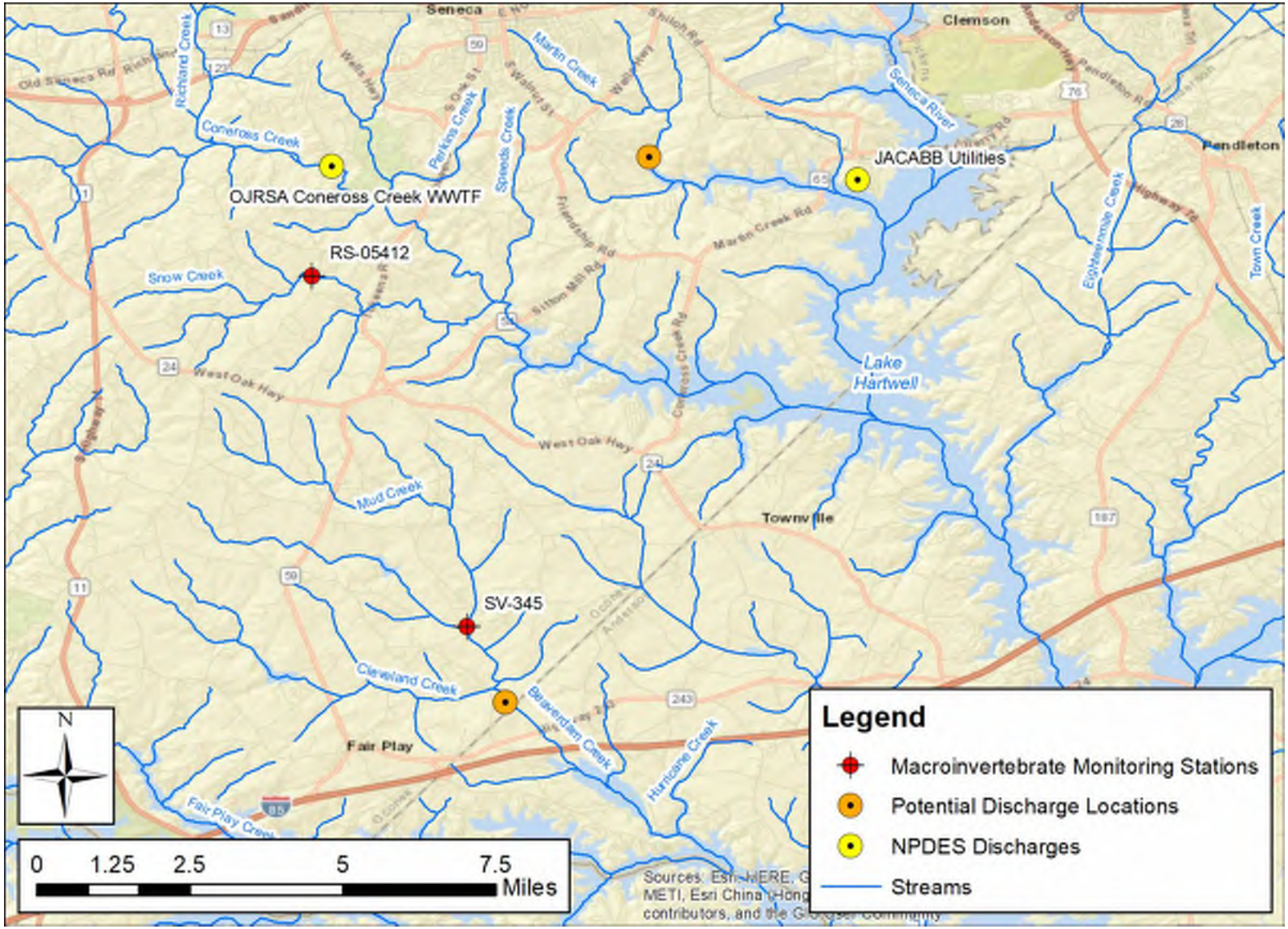


Figure 12 – DHEC macroinvertebrate monitoring stations (active and random stations)

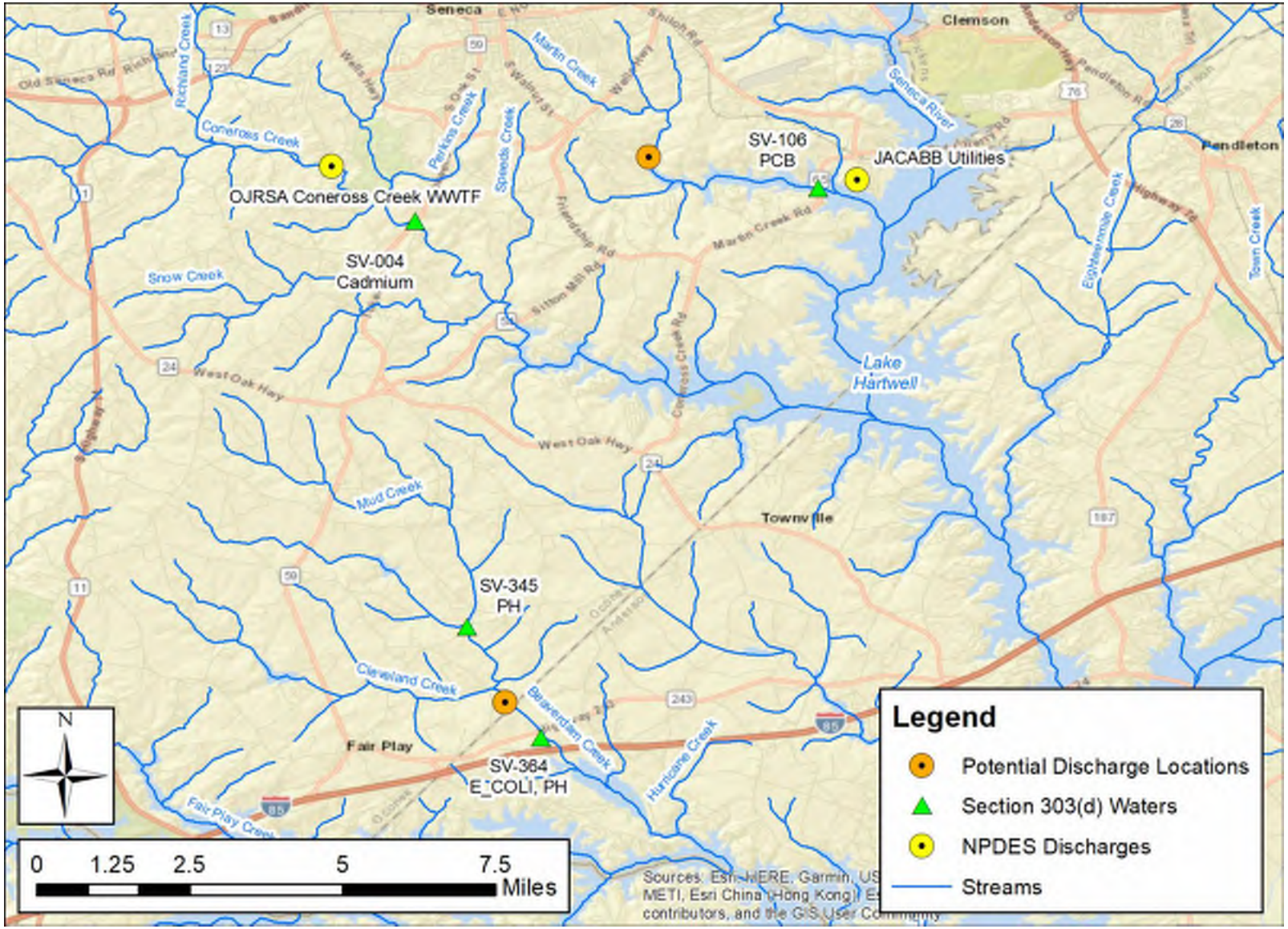


Figure 13 – Listed impairments

Figure 14 – Existing DHEC QUAL2E model

1.4 Hydrology

The drainage area where the existing discharge into Coneross Creek is located is 65.4 square miles and is located within HUC number 03060101 (Figure 15). The drainage area for the potential discharge along Beaverdam Creek is 16.5 square miles and is located within Hydrologic Unit Code (HUC 8) 03060102 (Figure 16). The drainage area for the proposed project site along Martin Creek is 5.4 square miles and is located within HUC number 03060101 (Figure 17).

There is a USGS stream gauge in Coneross Creek, which has similar hydrology to Beaverdam Creek and Martin Creek, which is USGS stream gauge number 02186645 and the name is Coneross Creek near Seneca, SC (USGS 2017). The USGS states that the 7Q10 flow at this station is 11.8 cfs and the drainage area is 65.4 square miles. If the 7Q10 is assumed to be proportional to the drainage area for streams with similar hydrology in this area, the 7Q10 of the remaining streams of interest can be calculated with the equation below:

$$7Q10_{site} = 7Q10_{gage} \frac{DA_{site}}{DA_{gage}}$$

Using this equation, the calculated 7Q10 value for Beaverdam Creek is 3.0 cfs, and for Martin Creek is 1.0 cfs. Therefore, the existing and potential critical condition flows are below:

- Coneross Creek = 11.8 cfs
- Martin Creek = 1 cfs
- Beaverdam Creek = 3 cfs

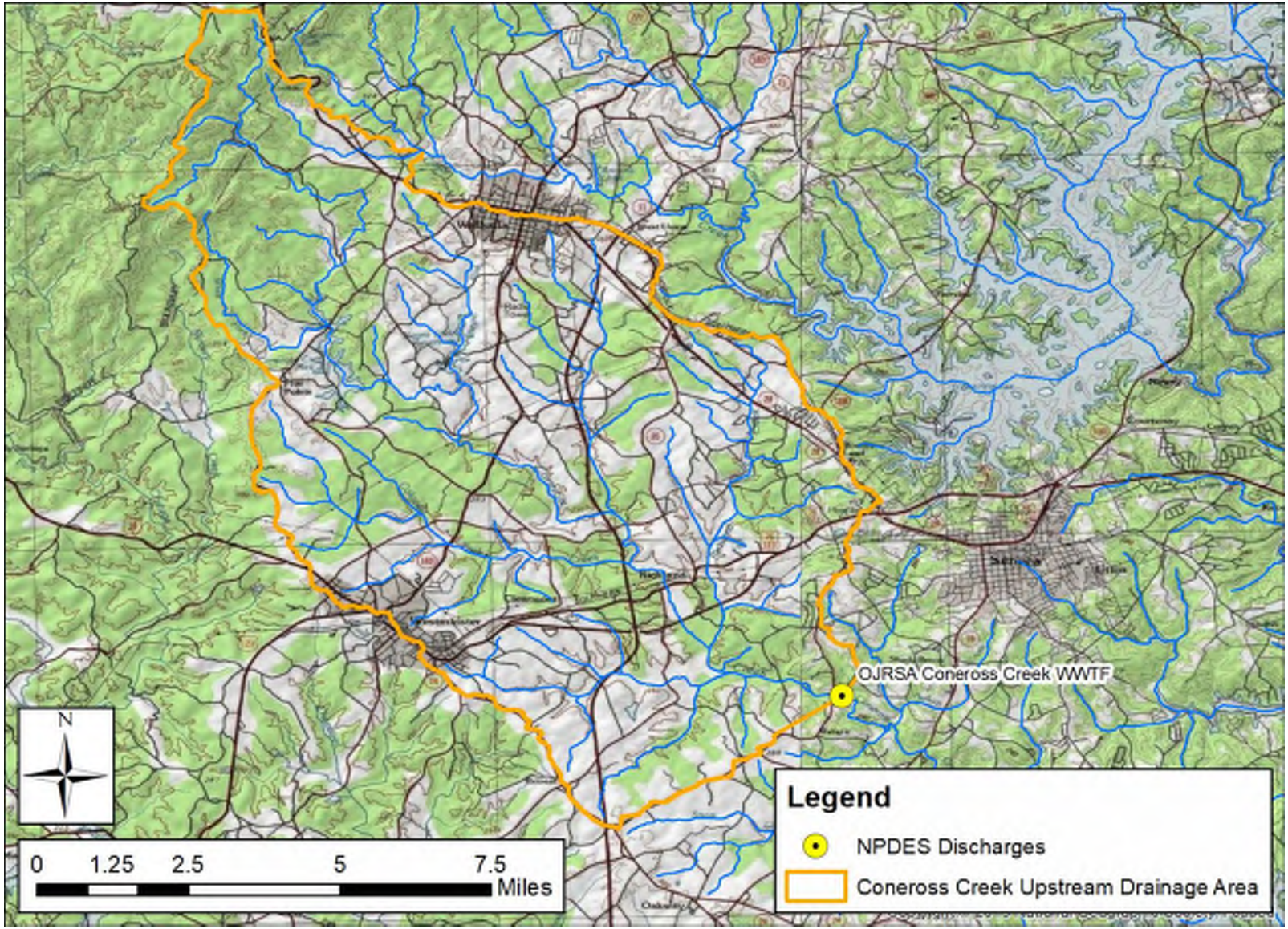


Figure 15 –Coneross Creek Discharge and drainage area.

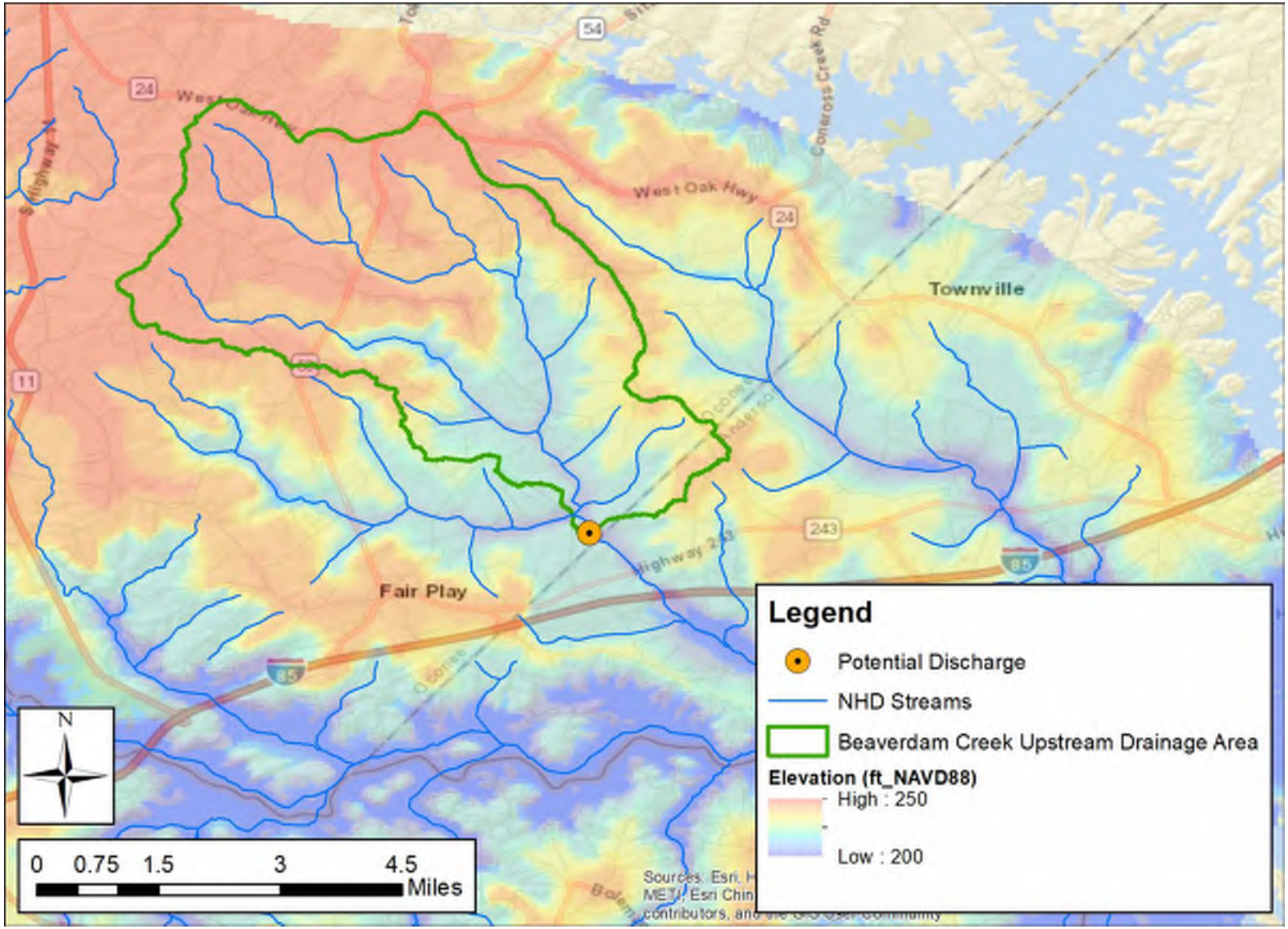


Figure 16 – Potential discharge and drainage area for Beaverdam Creek

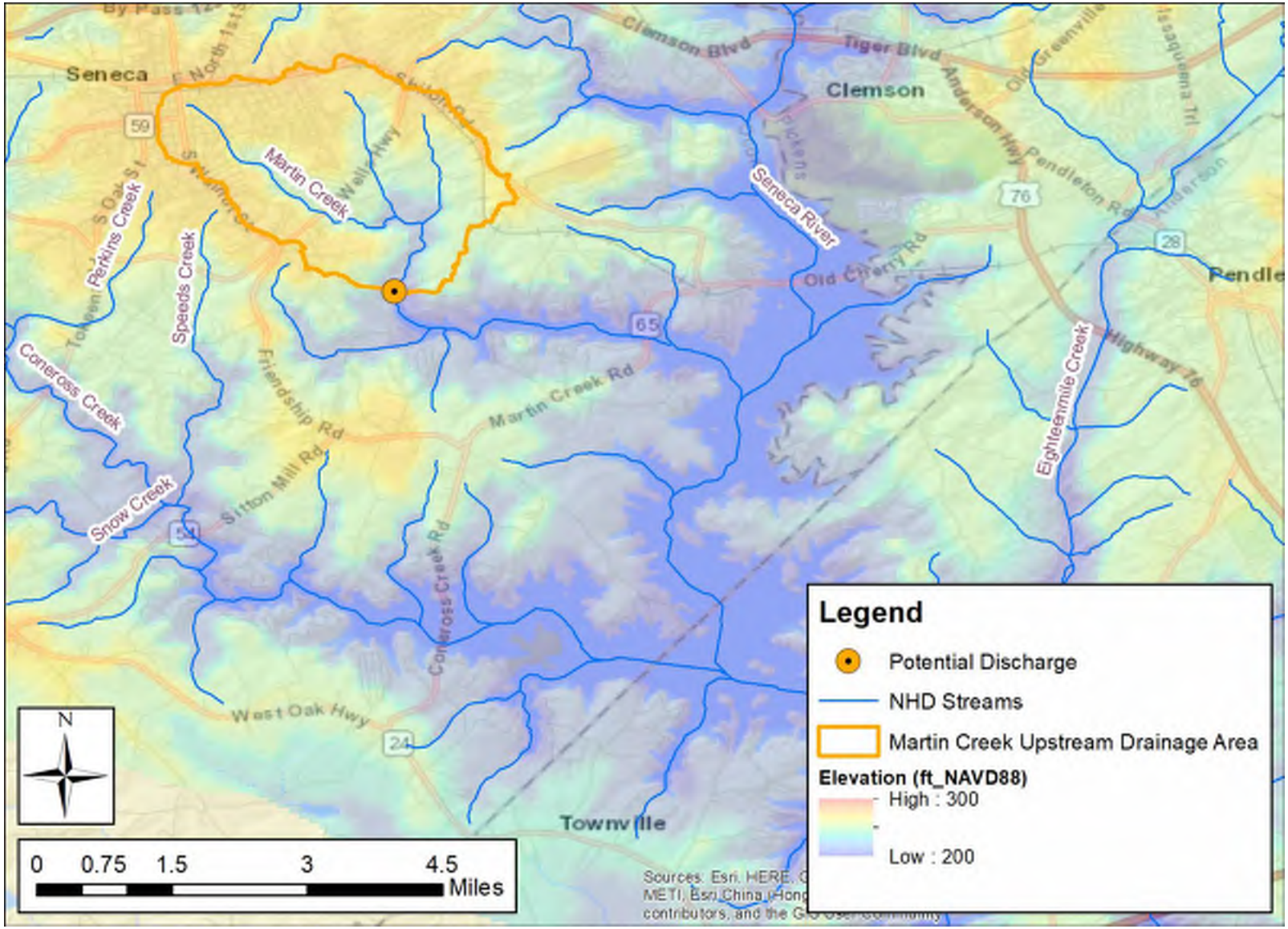


Figure 17 – Potential discharge and drainage area for Martin Creek

2 Discharge Alternatives

There are three potential wastewater discharge options under consideration to address growth: one is an expansion of the Oconee County/Coneross Creek WWTP located south of Seneca, one is a new discharge located in Beaverdam Creek west of Townville, and one is a new discharge located in Martin Creek just southeast of Seneca. All three discharge locations must consider several factors that will affect the permit limits at each site:

1. Nutrient Limits – All discharges ultimately flow into Lake Hartwell, which has numeric nutrient water quality standards. S.C. Regulation 61-68 gives the following numeric nutrient standards for lakes in the Piedmont ecoregion of the state: "total phosphorus shall not exceed 0.06 mg/l, chlorophyll a shall not exceed 40 ug/l, and total nitrogen shall not exceed 1.50 mg/l." The further upstream from the lake the discharge is located, the more the nutrient concentrations may be attenuated before reaching the lake (i.e., discharges further upstream may have higher nutrient permit limits).

2. Limits for Oxygen Demanding Pollutants (BOD and ammonia) – Limits for BOD and ammonia will be based on water quality modeling of the stream and possibly the entire lake arm to which the tributary flows. The details of the modeling requirements will be influenced by DHEC. The limits to protect DO concentrations are likely to be governed by the discharge effects on DO in the slow-moving lake arm rather than in the much faster moving stream. In general, the further upstream from the lake the discharge is located, the more the BOD and ammonia concentrations will be attenuated before reaching the lake, and therefore a discharge farther upstream will have slightly higher BOD and ammonia permit limits.

3. Toxicity and Dilution – Although ammonia affects DO, it is also toxic to aquatic life and the permit limit will also consider instream toxicity concentrations. WET toxicity limits and ammonia limits are affected by the dilution in the stream as with other toxics such as metals. Discharge locations with larger upstream drainage areas and associated 7Q10 flows will have greater initial dilution of toxic pollutants and higher permit limits for whole effluent toxicity (WET) effects, as compared to those with smaller drainage areas. Despite the higher stream flow for Coneross Creek, the cadmium impairment at this point would mean there would be no dilution credit for evaluating the need for a limit for cadmium.

Factors 1 and 2 benefit from the discharge being as far upstream from the lake as possible. In contrast, factor 3 generally benefits from the discharge being as far downstream as possible. Given that these factors conflict with each other when considering the optimal discharge location, the importance or relevance of each should be carefully weighed. Also, nutrient limits for the new locations would require negotiations with DHEC because of the lake standards.

2.1 New Discharge to Beaverdam Creek

The proposed discharge location into Beaverdam Creek is located 1.1 miles upstream of Lake Hartwell. This would provide some attenuation of BOD, ammonia and nutrients prior to reaching the lake, but a

water quality modeling analysis is needed to quantify the resulting instream DO concentrations and resulting permit limits. The lake arm into which the creek flows has a restricted passage connecting to the main lake body and therefore it has limited exchange with the main body of the lake. Pollutant concentrations will be higher in this part of the lake arm as compared to a lake arm with a more open connection to the main body of the lake. This will need to be considered in any future modeling of the lake arm water quality in response to the discharge. Regarding toxicity-based permit limits, the Beaverdam Creek location has a 7Q10 of 3.0 cfs (or 1.9 mgd), which would provide some dilution for a discharge at this location of roughly 2 mgd.

2.2 New Discharge to Martin Creek

As shown in Figure 20, a potential discharge into Martin Creek would be located close to the Lake Hartwell full pool elevation of 660 feet (Figure 18). Therefore, the discharge would not provide any attenuation of BOD, ammonia or nutrients prior to reaching the lake. Also, a more complicated model would likely be needed to evaluate the DO impacts in the slow-moving lake arm. Regarding toxicity-based permit limits, given the small upstream drainage area, this location has a 7Q10 of 1.0 cfs, which would provide the least amount of dilution as compared to the other two sites under consideration.

2.3 Expansion of Existing Coneross Creek Discharge

Critical condition (summer) limits for BOD and ammonia at the existing WWTF are 20 and 5.5 mg/l, respectively. The governing parameter for DO is the Ultimate Oxygen Demand (UOD) limit of 2,416 lb/day, which is apparently a by-product of a calibrated model, but warrants further review. Total phosphorus loading is regulated by a monthly average limit of 83.4 lb/day without a concentration limit. The existing UOD and phosphorus loading caps create a bit of certainty compared discharging at a new location.

The Coneross Creek discharge is located roughly 4 miles upstream of the Lake Hartwell. This would provide more attenuation of BOD, ammonia and nutrients prior to reaching the lake, as compared to the other two discharge site alternatives.

Apart from additional modeling revisions and analysis that could change the total loading limits to the creek, a flow expansion will be governed by the fixed UOD and phosphorus loading rates. Since the Coneross Creek arm of Lake Hartwell is not impaired for DO or phosphorus, then there would be no basis to restrict an expansion of flow given that the pollutant loading rates would be held constant in the permit limits. Both the stream water quality monitoring station SV-004 and the lake arm station of SV-236 meet standards. The existing stream model does not reach the lake arm, but DHEC is satisfied with the model since the lake arm meets the DO standard. However, the model could be overly-conservative.

While monitoring station SV-004 is impaired for cadmium, this means that an expansion can occur but there would be no dilution allowed in evaluating the potential need for a cadmium limit. As an aside, increased wastewater discharge to this creek could raise the pH and thereby decrease cadmium mobility and bioavailability in the creek, but we do expect DHEC to consider this in determining the permit limit.

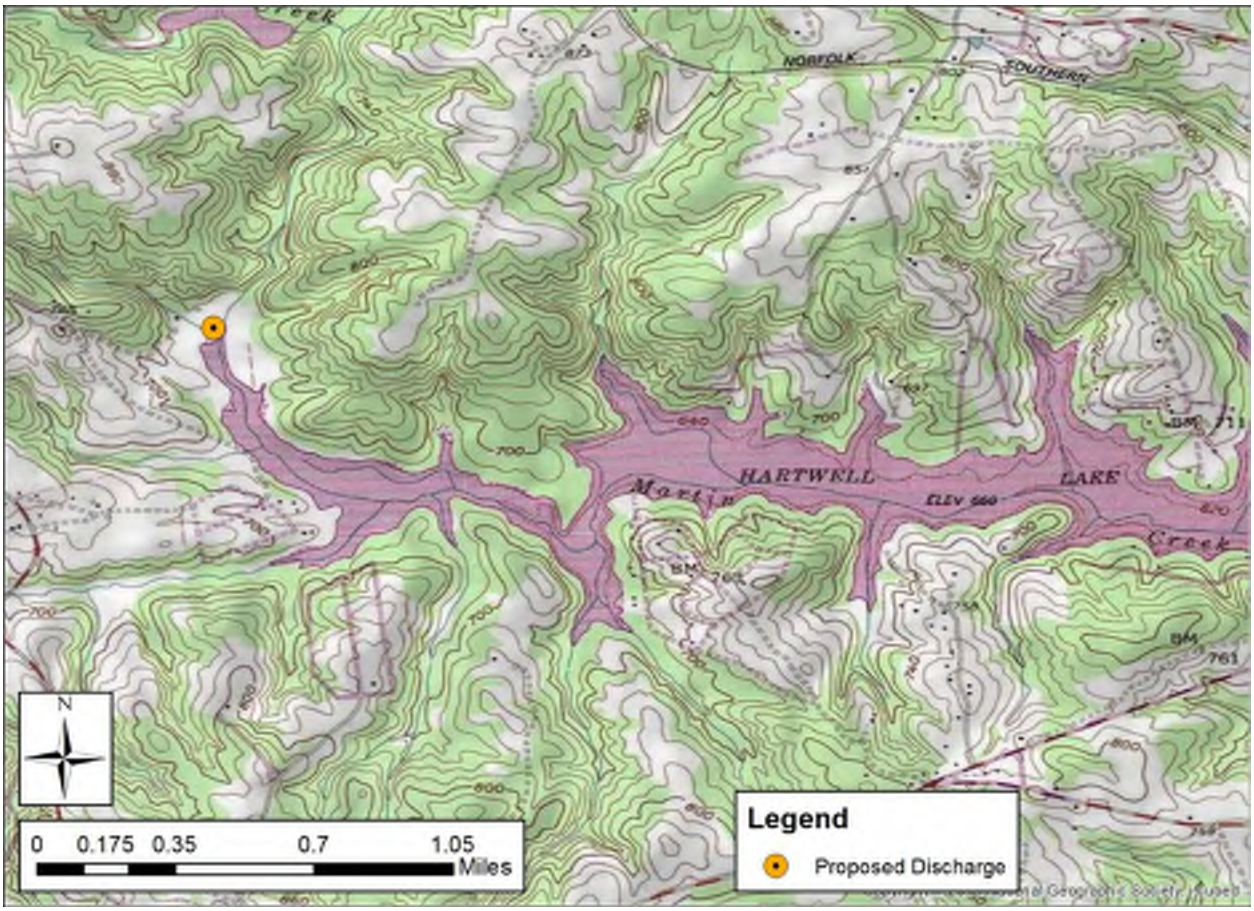


Figure 18 – Location of potential discharge to Martin Creek and full pool lake extents

This discharge location has a larger upstream watershed as compared to the other two alternatives, with a 7Q10 of 11.8 cfs (7.6 mgd).

2.4 Alternatives Comparison

The table below summarizes the primary factors that should be considered in determining the optimal alternative for discharging the wastewater. All three options are feasible and could be permitted, but the best solution needs to consider cost, and a detailed review of potential permit limits would be needed to develop cost estimates.

A discharge in Beaverdam Creek or Martin Creek would require development of a new water quality model to determine the appropriate permit limits for BOD and ammonia. An expansion at Coneross Creek would not likely require a new model to obtain a WLA, but WEC recommends evaluating and possibly refining the existing model or developing a new model to ensure that the permit limits are not overly conservative.

All three locations have some 7Q10 flow to provide limited dilution of toxic pollutants including WET. The Coneross Creek location has by far the greatest dilution flow.

The Coneross Creek discharge is also located the farther upstream from the lake that the other two locations. This will provide the greatest attenuation of BOD and ammonia and the likely highest permit limits for these pollutants.

New discharges tend to get more public attention than expansions. For this reason, the table lists the discharges at Beaverdam Creek and Martin Creek as generating public concern, but we expect that the expansion of the existing discharge will generate much less, if any, concern from the public.

Factor	Alternative		
	New Discharge – Beaverdam Creek	**New Discharge – Martin Creek**	**Expand Coneross Creek**
Downstream impaired by relevant toxics	No	No	Yes (cadmium)
New WQ model needed	Yes	Yes	Maybe*
7Q10 flow (cfs)	3.0	1.0	11.8
Distance upstream from lake (mi)	1.1	0	4.0
Public Concern	Yes	Yes	No
Construction Cost	TBD	TBD	TBD
O&M Cost	TBD	TBD	TBD
Nutrient limits	TBD	TBD	Set for phosphorus

*A model review would be valuable to confirm DHEC's assumptions are not overly conservative.

3 Observations

Based on WEC's review of existing stream impairments, ambient water quality data, and existing permits, we do not find any major issues (outside of tight limits) that would preclude any of the three discharge alternatives evaluated herein. Given the information we have presented and in the absence of cost data, the expansion of the existing Coneross Creek discharge would likely have the most favorable effluent limits (except for a cadmium limit). DHEC may want to address nitrogen with an expansion to Coneross Creek and the new discharge locations. As the project moves forward, the W&S project team can work with the OJRSA to identify the best option between the three alternatives by reviewing the information we have provided and developing rough costs associated with each alternative.

After the project team has identified a preferred alternative, we recommend that the OJRSA develop a calibrated water quality model for a new location to further evaluate appropriate discharge permit limits and support project permitting. Also, review of the Coneross Creek model would be wise to confirm the assumptions are reasonable. The existing DHEC modeling would not include a higher quality calibrated model due to limited resources. Alternatively, WEC could develop preliminary water quality models for

these locations to develop expected permit limits for BOD and ammonia, to better inform the site selection between these three alternatives.

References

USGS. 2017. Low-Flow Characteristics of Streams in South Carolina. Open-File Report 2017-1110.