GRAND STRAND
WATER & SEWER AUTHORITY

2040

MESSAGE FROM THE CHIEF EXECUTIVE OFFICER

Grand Strand Water and Sewer Authority provides water and wastewater services that protect public health and the environment, promote economic development, and enhance quality of life.

Horry County and the Greater Grand Strand Community continue to grow at a remarkable pace. As one of the fastest growing areas in the country, the population is projected to increase from 354,000 to 584,000 by 2040, while expanding our customer base from approximately 103,000 to 164,000. Exploding customer growth, increased risk profile (hurricanes and pandemics), changing technology, workforce, operating environment and regulations that are ever more stringent require GSWSA to be at the top of its game to fulfill its mission and exceed customer and stakeholder expectations.

Within this strategic plan, GSWSA has updated its framework for guiding the organization on its path forward. The plan builds on the achievements made and the knowledge gained since GSWSA's creation in 1971. The updated strategic plan will guide decisions to ensure efficient and effective use of resources - natural, human and capital - in protecting public health and our natural environment while providing quality service at reasonable costs for our customers.

This strategic plan is our guide. Effective implementation will be the key to the organization's success. We all look forward to meeting the challenges that lie ahead.

Fred R. Richardson
Chief Executive Officer

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I. EXECUTIVE SUMMARY

The Coastal Carolina region of South Carolina which includes Grand Strand Water & Sewer Authority's (GSWSA) service area has experienced significant economic growth over the past 5 years in both residential and commercial real estate development. GSWSA's annualized growth rate of approximately 3.5% over this period exceeds typical industry growth rates. We are now adding customers at a similar rate as the early 2000's prior to the national economic crisis known as "The Great Recession." If the current trends continue, and we think they will, the service area will continue to grow and prosper.

As we have done in our previous strategic plans, this 2040 plan looks into the history of GSWSA and highlights the significant accomplishments and events that have impacted the Utility and the community it serves. It traces GSWSA from its start in 1971 – chartered with no assets, customers, or revenues - to where it is today: A major water and wastewater utility with over $849 million in assets, 100,000 customers, and annual revenues of more than $138 million.

The 2040 Plan also examines our current state of affairs. The Greater Grand Strand is both a major tourist destination and home to a large and growing number of permanent residents. Over 354,000 permanent residents reside in Horry County, and during the summer season, thousands of visitors may be in the county during a given day. The highway transportation network is being rapidly expanded and upgraded through the County's transportation sales tax. Housing, retail, and tourist attractions have returned to a more normal rate. New efforts are being made to recruit industry adding to the area's economic diversification. The area is becoming a more dynamic economic engine. Service areas outside of Horry, Marion, and Dillon counties are still in a recovery mode but they are in many ways optimally situated for industrial development. Columbus County in North Carolina also is growing at a very slow rate but as housing expands in Horry County, this area should also see an increase in the housing market.

GSWSA remains strong and financially viable, and a complimentary retail and wholesale system of services have evolved to meet the needs of the area served and also help stabilize revenues during slower economic times. Sufficient capacity is in place to meet intermediate growth needs; and capital reserves are in place for future capacity expansions. Customer rates are less and in most cases substantially less than other water and wastewater utilities operating on the coast of South Carolina. Facilities are in good condition using the latest technology available. Most importantly, GSWSA is meeting customer expectations by providing high value products and services.

A major focus of this plan is the capital improvements and financing required to meet customer needs through 2040. Horry County's population is projected to increase to over 584,000 by year 2040, accompanied by an increase in seasonal visitors. The peak month water flow projected for 2040 is over 122 million gallons per day (MGD), and wastewater flow is 72 MGD. Although excess capacity is in place to meet short-term to intermediate needs, major capital improvements will be required over the next 20 years. $641,999,000 is projected for capital improvements to the water system. Funding

for the plan will require only minor increases to impact fees and monthly base charges. $446,243,130 is projected for capital improvements to the wastewater system. Funding the wastewater improvement plan will also require minor increases to the wastewater impact fees and monthly base charges as well.

The growth in service demands will require other resources in addition to capital improvements. Structural, human resources, and operational requirements are also included in the 2040 Plan. The organizational structure continues to evolve based on the talents of our human resources and the demands of an expanding service area and customer base. We will continue to emphasize hiring highly qualified employees, training, development, and compensation to keep a superior workforce in place and to provide for management succession from within the organization. While additional staff will be required to meet the needs of a rapidly expanding customer base, growth in employees will be much less than overall customer growth. New technologies will continue to be used to provide an effective and efficient level of service to customers.

The financial plan is based on meeting service demands while holding operating cost increases to levels below inflationary indexes and reducing the level of current debt on an actual as well as per customer basis. This will be accomplished by increasing operating efficiencies through a more productive workforce and using the most cost-effective technology available in the industry. Debt levels will be reduced by minor increases in impact fees and monthly base charges. Increases in monthly wastewater capital charges will reflect the increased cost associated with more stringent regulatory requirements.

GSWSA's goal is to provide service throughout Horry and surrounding counties while maintaining the lowest rates of any water or wastewater utility operating on the coast of South Carolina. The 2040 Plan outlines how these goals are to be accomplished.

II. INTRODUCTION

The purpose of the 2040 Plan is to look to the future to determine the water and wastewater requirements for Horry County and surrounding communities over the next 20 years in order to effectively and efficiently meet the service needs of our residents, businesses, and visitors. The plan is based in part on the growth projections of the SC Revenue and Fiscal Affairs Office and Horry County IMAGINE 2040 Comprehensive Plan.

The current County Comprehensive Plan calls for "water and sewer suppliers…to support existing and new growth…and are critical for supporting economic development and for restoring normalcy after a disaster." Previous plans called for "a safe and adequate public supply of drinking water and water flow sufficient for fire protection purposes throughout the county…and treatment and disposal of wastewater in a manner which protects the public health, enhances the efficiency of treatment provision, and preserves the county's natural environment." This 2040 Plan effectively outlines the actions necessary for accomplishing these goals in a very cost-effective manner.

The plan is divided into the following parts:

- 5-Year Strategic Outlook
- History of GSWSA
- Current Operations
- Benchmarks for Rate Adjustments
- Future Plans

III. 5-YEAR STRATEGIC OUTLOOK

Grand Strand Water and Sewer Authority (GSWSA) initiated a strategic planning process in November 2020 to develop an updated framework for guiding the organization into the future. This strategic framework will help inform operational decisions and resource allocations over the next five years to ensure that GSWSA continues to offer efficient, reliable services to the community and that its long-term goals and objectives are achieved.

Strategic Planning Process

GSWSA's strategic planning update process was designed to produce the following:

- A shared vision of goals and organizational priorities
- A collective understanding of the available resources, the environment, and the principles upon which strategies will be based
- A plan that can be integrated effectively into daily operations

To achieve these conditions for success, GSWSA's strategic planning process involved input from a broad group of leadership and staff and consistent communication of the organization's vision, mission, and overall strategic plan. The process included these major elements:

Stakeholder Input

Input was obtained from GSWSA's Board of Directors, management team, and employees through a combination of interviews and an online employee survey.

Stakeholder Input Work Session

The management team met to review the input from the stakeholder engagement activities and considered the organization's aspirations, strengths, critical issues,and opportunities, as well as important trends that would shape the organization moving forward.

Foundation Workshop

The leadership team reviewed the stakeholder input and made preliminary decisions concerning the plan's vision, mission, values, and priorities for inclusion in the final plan.

Strategy Workshop

Once the priorities had been identified, a larger team of leaders participated in a workshop to define success around each priority and the specific strategies necessary to move the organization toward its desired future state.

Framework Review

After documentation of the Foundation and StrategyWorkshop results, the leadership team reviewed and provided input on the full strategic framework.

Industry Trends and Local Context

The population of GSWSA's service area is growing rapidly and the organization must be prepared to serve this larger customer base, as well as to address other national, regional, and industry trends. These trends include Population, the Operating Environment, Workforce, Technology, Customer Expectations, and Increased Risk Profile.

Key trends and potential GSWSA responses, many of which are embodied in the strategic framework, are presented on the following pages.

Trend 01: Population

The Current Situation

The population of Horry County has grown by more than 30% since the last United States Census, increasing from approximately 270,000 in 2010 to more than 360,000 as of 2020. GSWSA has grown even more rapidly, serving approximately 43% more customers in 2020 than it did in 2010. Population growth is expected to continue in the area, as the area's vibrant economy and recreation opportunities continue to attract new residents. Development is also expected to move west, into the less-dense areas away from the coast.

Many of the individuals moving into the area are retirees, attracted to the proximity to the beach and other cultural and recreation opportunities in the area. This is one reason why the population of Horry County is older than the national average, with a median age of 47.6 compared to 38.5 for the United States overall. The population of Horry County tends to be lower income than the national average, with a median household income of $50,704 compared to $62,843 for the United States overall. Additionally, approximately 12.7% of Horry County residents are in poverty, compared to a 10.5% national average. Approximately 24% of residents aged 25 and older have earned a bachelor's degree or higher, compared to a 32% national average. A total of 81% of Horry County residents identify as White and 13% identify as Black.

Potential Responses

- Continue the annual CIP process to ensure that the appropriate infrastructure is in place to serve a growing customer base.
- Continue to monitor growth patterns and regularly update the strategic business plan to prepare for this growth.
- Continue adding sites for future water and sewer facilities.

Trend 02: The Operating Environment

The Current Situation

Steady growth of its customer base, along with robust financial planning and a commitment to efficient operations, has helped GSWSA maintain a strong financial position. Its assets total approximately $848 million as of June 30, 2020, exceeding liabilities by approximately $571 million. In 2020, operating revenues totaled $98.9 million, approximately $68 million higher than the utility's $92 million in operating expenses. Surplus revenues are able to be invested into expanding infrastructure. Per capita water consumption has remained steady in recent years at approximately 100 gallons per person but, with the increasing customer base, average daily consumption rose from 40.47 MGD in 2015 to 43.25 MGD in 2020. Rate studies are conducted biannually, in conjunction with the development of the operating and capital budgets, and rates are set to cover future operating and capital costs based on population growth.

The consistent growth of its customer base has helped maintain strong revenues. As the area continues to grow, GSWSA will continue to maintain adequate facilities, serving customers in a cost-efficient manner while maintaining regulatory compliance. GSWSA currently meets or exceeds all federal, state, and local water regulations but anticipates challenges ahead. Changing political climates can lead to changes in regulation that GSWSA must track and prepare for. Additional regulations on emerging contaminates, like per- and polyfluoroalkyl substances (PFAS) are expected in the coming years, as are changes to the Lead and Copper Rule that will impact water treatment and distribution standards.

Potential Responses

- Continue to monitor legislation and new and potential regulations to prepare for coming changes, partnering with other utilities to advocate for effective regulations as appropriate.
- Leverage technology to better detect emerging contaminants in the water supply.
- Consider the potential environmental and regulatory impacts of continued growth and plan to mitigate these impacts.
- Understand the cost implications of system upgrades required to meet growth and regulatory demands.
- Continue to develop annual budgets and monitor expenditures throughout the year.
- Continue to take advantage of opportunities for funding and for financing projects at low interest rates.

TREND 03: Workforce

The Current Situation

GSWSA has approximately 350 skilled employees who embody a wealth of knowledge and experience. However, some of these employees will soon be eligible for retirement. It is important that staff have access to training and other professional development opportunities, both to minimize the institutional knowledge loss caused by retirements and other turnover and to ensure that employees are prepared to assume higher-level responsibilities when their colleagues leave the utility.

GSWSA is a lean organization which has allowed them to minimize costs and keep customer rates low. Moving forward, they must continue to manage employee resources to meet customer expectations and system demands while being mindful of overall costs.

Potential Responses

- Develop strategies to broaden recruitment efforts beyond traditional channels.
- Expand professional development programs at the organization to ensure that GSWSA maintains the appropriate licenses and that employees are prepared to move up in the organization.
- Regularly monitor workloads to evaluate whether existing staff capacity is adequate or if further positions are needed to maintain reliable operations and customer expectations.

Trend 04: Technology

The Current Situation

Technology is a vital tool for maximizing the efficiency of a utility's operations and for connecting with customers, but the use of technology can also carry risks, particularly for cybersecurity. Providing reliable water is crucial, so it is important for a utility to approach the use of new technologies cautiously while also ensuring it has the right tools in place to operate effectively.

GSWSA is taking steps to advance its technology. For example, it is evaluating the purchase and implementation of an Advanced Metering Infrastructure (AMI) system, which will allow meters to be read in real time. Initiatives like these are an important step forward, however, it is also vital to ensure that new technology is adequately supported with staff training. GSWSA's current team of Information Technology (IT) staff is small, and GSWSA may need to expand the capacity to effectively support technology enhancements.

Potential Responses

- Engage outside parties to provide support for technology systems to supplement the capacity of in-house IT staff.
- Purchase commercial off-the-shelf solutions with minimal customization to minimize ongoing support needs.
- Review existing technology and technology staffing and evaluate the need for enhancements.

Trend 05: Customer Expectations

The Current Situation

GSWSA has built a reputation for low-cost, high- quality water and wastewater services, and it prides itself on excellent customer service. The results of customer service surveys show high levels of satisfaction with GSWSA's services, including its rapid response time to issues in the field. However, GSWSA should continue to expand with proactive engagement with social media and in-person community engagements to continue to meet customer expectations.

Potential Responses

- Plan for future growth and consider how GSWSA can best balance costs with customer growth to maintain its low rates.
- Ensure that GSWSA has internal resources in place to maintain a high level of customer service even as the customer base grows.
- Identify opportunities for greater engagement with the community through the GSWSA website, social media, community events, and other initiatives.

Trend 06: Increased Risk Profile

The Current Situation

GSWSA faces many potential risks that could impact its ability to reliably provide safe, high-quality water and wastewater services to its customers. The region has endured numerous natural disasters and extreme weather events in recent years, including hurricanes, tornadoes, ice storms, and flooding from heavy rainfall. These types of events will continue in the future, and their impact is likely to become more intense due to climate change and increasing population density. Other risks faced include cybersecurity concerns, the potential for a malicious attack on the water supply, and the potential for unintentional water supply contamination.

GSWSA, like the rest of the world, is also weathering the impacts of a global pandemic. They have changed their processes for managing staff and for communicating with the public in response to the COVID-19 pandemic, but it continues to pose a risk to the health of the population. COVID-19 also has the potential to impact operations due to workers becoming ill or quarantining as a result of exposure. Finally, the virus has impacted the tourism-dependent region economically, which could have far-reaching impacts.

Potential Responses

- Evaluate the resiliency of pump stations and other infrastructure and put in place measures to ensure reliability of service even in case of natural disaster or other adverse events.
- Apply for grants to redevelop and secure critical infrastructure.
- Implement flood mitigation efforts at treatment facilities.
- Evaluate options for hydraulic improvements to allow flow diversions.
- Continue to regularly assess the organization's cybersecurity to ensure its adequacy.

Aspirations, Strengths, Critical Issues, and Opportunities

As part of the strategic planning process, GSWSA gathered input from Board Members and staff on the organization's aspirations, strengths, critical issues, and opportunities. This input provided valuable context for the strategic planning process by helping establish the framework of where GSWSA is today and where it should be heading in the future.

Aspirations focus on the expectations and hopes of stakeholders. The most compelling aspirations are as follows:

- Continue to offer reliable, high-quality service to customers at affordable rates
- Continue to grow and expand, especially into rural areas
- Continue to cultivate effective leadership at the Board and staff level
- Conduct succession planning to minimize the impact of employee retirements
- Implement more up-to-date technology that helps improve operational efficiency

Strengths are the areas within the organization that it builds upon to achieve success. When prioritized, they include these strengths:

- High-quality water and wastewater treatment
- A service area that is expanding into rural areas
- Affordable rates and a strong financial position
- Efficient operations
- An effective management team and dedicated employees
- A good reputation among stakeholders and the community

Critical Issues help the organization identify the most significant issues that will impact operations over the next five years. Critical issues identified by leadership and staff include:

- Rapid population growth and development
- Changing technology needs
- Aging infrastructure
- The potential for new rules and regulations
- Employee turnover and the need for succession planning

Opportunities help the organization identify strategies and approaches to meet future needs. Future opportunities include:

- Continue to partner with smaller utility systems needing assistance and expand into rural areas
- Provide more training and professional development opportunities for staff
- Engage more extensively with the community
- Plan and prepare for natural disasters
- Upgrade technology systems

Strategic Framework

This strategic framework, based on an extensive strategic planning process that considered both GSWSA's present circumstances and its future goals, will serve as a blueprint for decision-making moving forward.

It contains a vision, mission statement, values, and priorities that address GSWSA's current challenges and help ensure continued success in operations and the management of resources and assets.

Vision

Ultimately, implementation of this plan will enable GSWSA to achieve its desired future state as articulated in its vision:

To remain the preferred water and wastewater service provider and leader in quality and value while expanding our products and services within the region.

Mission

The following mission statement describes the organization's purpose and role within the service area:

GSWSA provides water and wastewater services that protect public health and the environment, promote economic development, and enhance quality of life.

Values

Values represent GSWSA's most deeply held beliefs, which it would like every member of the organization to embrace. Those organizational values have been organized in the following value statement:

GSWSA is committed to supporting the community's well-being by acting with integrity and fairness. We value:

1. **Affordable, Quality Service**
2. **Public Health and Environmental Protection**
3. **Customer Satisfaction**
4. **Efficient and Effective Operations**
5. **Employee Commitment**
6. **Teamwork**

Priorities

Priorities represent the most important issues that must be addressed to achieve the desired future. Comments relating to each are presented below:

Customer and Stakeholder Engagement and Satisfaction: To increase community confidence as the preferred utility provider and meet the needs of the community through transparent engagement, outreach, and education

GSWSA is proud of its record of excellent service. It is committed to providing quality water and wastewater treatment and responsive and reliable customer service as the customer base continues to grow and as customers' needs and expectations continue to change. GSWSA is dedicated to conducting outreach and engaging with stakeholders.

Dedicated Workforce: To recruit, develop, and retain a well-qualified and motivated team of employees

GSWSA's knowledgeable, dedicated workforce is crucial to its ability to provide high-quality services to customers while keeping rates low. The organization is committed to continuing to maintain a high-performing workforce by attracting and developing knowledgeable, talented employees.

Expansion and Economic Development: To ensure sufficient resources and capacity to support expansion and regional economic development

GSWSA will continue to expand its customer base to provide its low-cost, high-quality services to as many customers as possible. It will maintain reliable infrastructure to meet the needs of a growing population and will help promote economic vitality in the region by providing excellent utility services and by implementing economic development initiatives in collaboration with regional partners.

Operational Optimization: To seek continuous improvement, data-driven decision-making, and cost-effective operations through enhanced resource management, communication, and technology

GSWSA is committed to continued efficient, reliable operations using the appropriate technology and equipment to deliver high-quality water to customers, to effectively treat wastewater, and to protect natural resources and the environment.

Regulatory Compliance and Engagement: To exceed regulatory standards through understanding, advocacy, engagement, and continuous improvement

GSWSA exceeds environmental and water quality regulations at the federal, state, and local level and collaborates with regulators and partners to anticipate future regulatory changes and proactively work to remain in compliance.

Reliable Infrastructure: To ensure reliable infrastructure by managing asset lifecycles with established and innovative business systems

GSWSA maintains high-quality infrastructure and equipment to maximize organizational efficiency and the reliability of the services it provides. It is committed to use up-to-date technology and other systems to manage asset lifecycles and to proactively prepare for future needs of a growing population and customer base.

Technology and Innovation: To develop and integrate innovative technology solutions and processes that meet the needs of our organization and customers now and in the future

Adopting appropriate technologies and innovations is an integral part of assuring success as a resilient service provider with exceptional customer service. GSWSA will adopt up-to-date technology solutions to maximize the efficiency and effectiveness of operations and will ensure that it has the resources in place to support these technologies effectively.

STRATEGIC FRAMEWORK

VISION

To remain the preferred water and wastewater service provider and leader in quality and value while expanding our products and services within the region.

MISSION

GSWSA provides water and wastewater services that protect public health and the environment, promote economic development, and enhance quality of life.

VALUES

GSWSA is committed to supporting the community's well-being by acting with integrity and fairness. We value:

- Affordable, Quality Service
- Public Health and Environmental Protection
- Customer Satisfaction
- Efficient and Effective Operations
- Employee Commitment
- Teamwork

GRAND STRAND WATER & SEWER AUTHORITY

PRIORITIES

CUSTOMER AND STAKEHOLDER ENGAGEMENT AND SATISFACTION

To increase community confidence as the elite utility provider and meet the needs of the community through transparent engagement, outreach, and education

DEDICATED WORKFORCE

To recruit, develop, and retain a well-qualified and motivated team of employees

EXPANSION & ECONOMIC DEVELOPMENT

To ensure sufficient resources and capacity to support expansion and regional economic development

OPERATIONAL OPTIMIZATION

To seek continuous improvement, data-driven decision-making, and cost-effective operations through enhanced resource management, communication, and technology

REGULATORY COMPLIANCE & ENGAGEMENT

To exceed regulatory standards through understanding, advocacy, engagement, and continuous improvement

RELIABLE INFRASTRUCTURE

To ensure reliable infrastructure by managing asset lifecycles with established and innovative business systems

TECHNOLOGY & INNOVATION

To develop and integrate innovative technology solutions and processes that meet the needs of our organization and customers now and in the future

MEASURES

1. Percentage of Calls Answered
2. Number of community events or educational programs provided to the public
3. Number of visits to GSWSA's website
4. Customer Satisfaction Survey Rating

STRATEGIES

1. Maximize the effectiveness of GSWSA's website as a tool for customer service and information
2. Educate the public on GSWSA's mission and activities through social media and hands-on engagement
3. Develop resources for employees to utilize for effective communication with customers regarding GSWSA's programs and services

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1. Employee Morale Survey Rating
2. Employee Turnover Rate
3. Training Classes per Employee
4. Number of Licensed Employees

1. Develop a succession plan to minimize the organizational impact of anticipated staff turnover due to retirement
2. Expand employee recruitment activities to enhance applicant pool
3. Implement additional training opportunities, licensure programs, and other strategies to develop and motivate employees

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1. Total number of active accounts
2. Wastewater capacity utilization
3. Water capacity utilization
4. Number of new customers added annually
5. Linear feet of water and sewer lines installed

1. Project short- and long-term regional resource and capacity needs and develop associated budgets and funding strategies
2. Expand partnerships with regional organizations and the community to support system growth and economic development
3. Continue a systematic approach to growth through rural line and developer extension programs

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1. Cost per 1,000 gallons of wastewater collected and treated
2. Cost per 1,000 gallons of water treated and distributed
3. Number of gallons of wastewater treated per employee
4. Number of gallons of water treated per employee
5. Number of meter change outs
6. Number of grinder pump station failures
7. Overtime hours as a percent of hours worked

1. Continue to develop and implement well-planned budgeting, purchasing, and forecasting strategies
2. Continue to adopt solutions to enhance organizational efficiency, resource management, and data-driven decision-making
3. Enhance internal communication with employees

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1. Drinking water compliance rate
2. Miles of line cleaned
3. Number of regulatory samples analyzed
4. Number of valves exercised
5. Percent of water samples within acceptable limits

1. Implement and maintain programs, systems, and facilities that are capable of exceeding regulatory standards
2. Consider future regulations and develop plans to remain in compliance
3. Maintain active relationships with the regulatory community

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1. Number of leaks or breaks
2. Number of work orders generated and closed out by category
3. Water loss as a percent of gallons produced

1. Embrace innovative advances in the water industry to enhance the water and sewer systems
2. Continue effective asset management by balancing preventive and reactive maintenance, using metrics to minimize costs, and conducting condition assessments
3. Fully transfer asset management activities to an enterprise Computerized Maintenance Management System (CMMS) and integrate maintenance and accounting activities

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1. Average age of software systems
2. Average age of technology hardware
3. Number of assistance requests submitted to IT staff
4. Number of hours of technology training offered to employees
5. Number of ideas/process innovations submitted by staff

1. Review and update GSWSA's technology infrastructure to maintain cutting-edge technology
2. Expand training and education on current and future technology systems
3. Continuously review and update processes to increase efficiency

Effective Utility Management Framework

This strategic planning process was structured around the water utility industry's Effective Utility Management (EUM) initiative, a program designed to make informed decisions and achieve long-term goals. EUM identifies ten attributes of an effectively managed utility:

1. **Product Quality:** Meeting or exceeding regulatory compliance and producing water and wastewater that meets customers' needs and safeguards public health and the environment.

2. **Financial Viability:** Effectively planning for short- and long-term operating and capital costs and maintaining a balance between long- term debt, assets, operating expenditures, and operating revenues. Establishing stable rates that cover costs while maintaining affordability.

3. **Customer Satisfaction:** Providing reliable, responsive service to customers and using a wide variety of strategies to communicate and engage with customers to understand their needs.

4. **Infrastructure Stability:** Proactively maintaining infrastructure to enhance their condition over the long term and maximize useful life. Using condition assessments and an analysis of anticipated growth and community priorities to plan for future infrastructure needs.

5. **Operational Resiliency:** Anticipating risks and identifying strategies to mitigate their impact. Planning for business continuity and actively implementing those plans.

6. **Operational Optimization:** Ensuring ongoing effectiveness in all aspects of the utility's operations through the implementation of performance improvements, data-driven decision-making, resource conservation, and technological innovation.

7. **Community Sustainability:** Collaborating with local partners on initiatives to enhance the economic, environmental, and social health of the surrounding community. Taking a leadership role in efforts to improve the community's quality of life.

8. **Stakeholder Understanding and Support:** Engaging with all stakeholders who could be affected by the utility, coordinating with community partners on shared initiatives, and educating the public on the value of water and water services.

9. **Employee Leadership and Development:** Recruiting, developing, and retaining a knowledgeable, skilled, and motivated workforce. Cultivating a collaborative, positive atmosphere that takes the needs of an intergenerational workforce into account.

10. **Water Resource Adequacy:** Understanding current and future water resource availability and preparing for potential fluctuations. Implementing practices for long-term water resource management that meet community needs while preserving natural resources and the environment.

IV. HISTORY OF GSWSA

A. Historical Perspective

The 1950 census recorded 59,820 residents in Horry County. Most of these residents lived on tobacco farms, which were the county's largest income producer. Tourism was in its infancy. Vacationers stayed in seaside cottages and small motels along the Grand Strand. In 1954, Hurricane Hazel destroyed many of the cottages and with them part of the small community atmosphere. The cottages and motels were replaced with ocean front hotels and restaurants. Golf courses and other tourist attractions began to appear on the landscape. The 1960 census recorded 68,247 county residents, an increase of nearly ten thousand from the 1950 census. However, following the rapid increase in population after Hurricane Hazel, the 1960's were a time of consolidating growth. During the decade of the 60's the county population grew just slightly to 69,992. This period of consolidation did, however, lay the groundwork for dramatic growth during the next three decades. By 1980, the permanent population in Horry County had grown to 101,419 and to 145,300 by 1990. This dramatic growth continued during the 1990's and 2000's, and the 2010 census recorded 269,291 residents living in Horry County, a 37% increase from the 2000 census of 196,630. This population growth told only part of the story.

Horry County Population Growth							
Year	1950	1960	1970	1980	1990	2000	2010
Population	59,820	68,247	69,992	101,419	145,300	196,630	269,291

How does GSWSA fit into this story? A close look at the population growth indicates the county's ability to add to its permanent population was constrained during the 1960's, which saw an increase

in population of just 2.6 percent from 1960 to 1970. The county had limited water and wastewater infrastructure, which was confined to the relatively small areas inside the city limits of Myrtle Beach, North Myrtle Beach, Conway, and Loris. New developments were springing up outside these municipalities but were restricted by either on-site sanitary facilities or small private water and wastewater systems. Over fifty private water and wastewater systems were located along the Grand Strand. The track record of these small private systems was less than reliable which led to increasing regulatory concerns for general sanitation, environmental protection, and conservation of the area's natural resources.

B. Charter and Start-up

In the late 1960's, it became apparent that Horry County needed public water and wastewater facilities outside the municipalities to support growth and economic development. In 1971, the General Assembly of South Carolina created Grand Strand Water and Sewer Authority (GSWSA) to provide water and wastewater services to Horry County in the area between the Atlantic Ocean and the Atlantic Intracoastal Waterway (AIWW) excluding areas served by incorporated municipalities. In 1972, the Horry Water and Sewer Authority (HWSA) was similarly established to provide water and wastewater services in the area west of the AIWW excluding areas served by incorporated municipalities. The enabling legislation gave these Authorities broad powers for providing water and wastewater services. However, no funding or taxing authority was given to the utilities.

In the early years, GSWSA acquired many small private systems serving the developing areas. Most of these systems had regulatory and financial problems which allowed GSWSA to acquire them at minimal costs. From these small systems, GSWSA began to piece together a consolidated utility system in its rapidly developing service area.

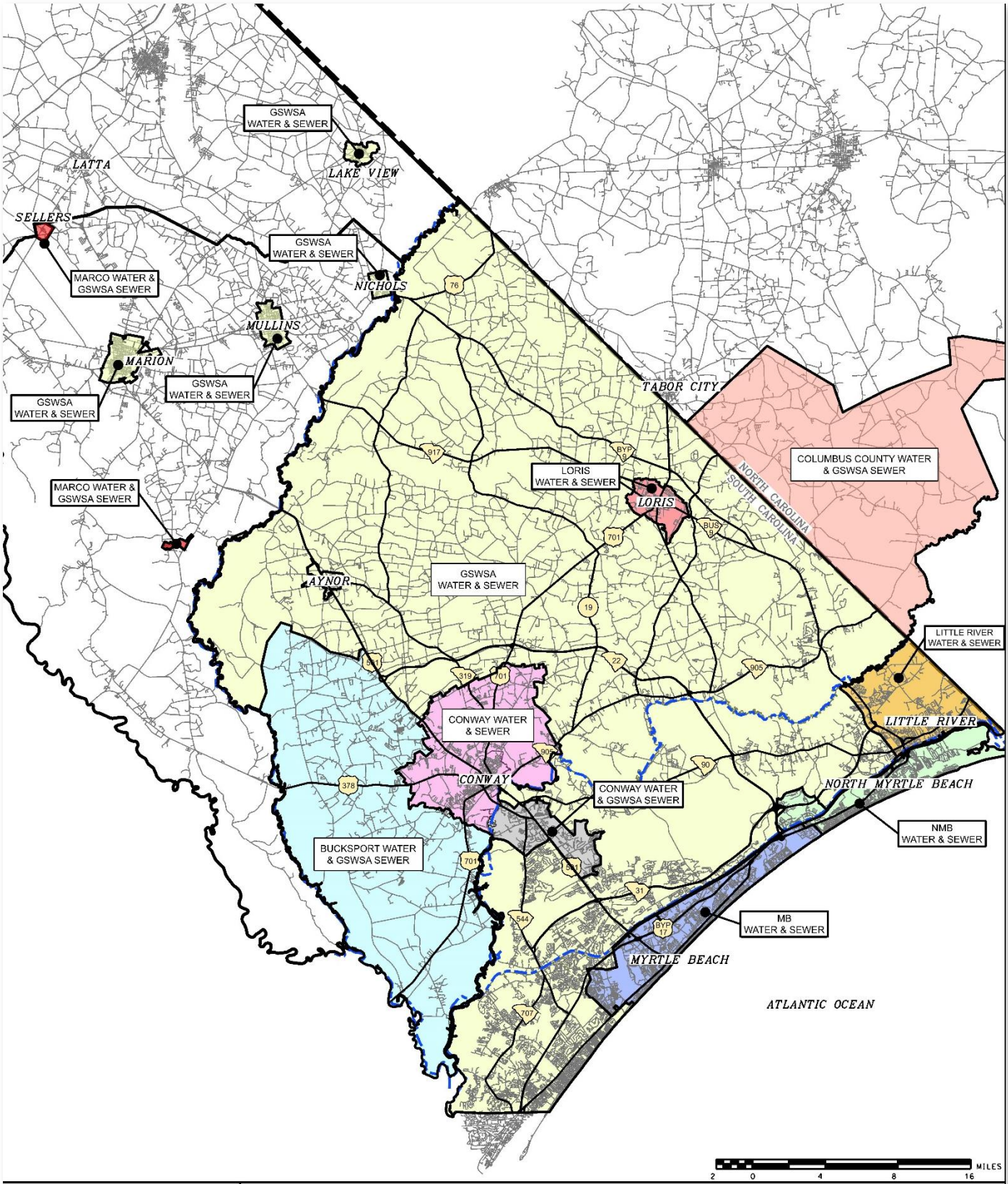
C. 201 Program

In 1971, the Federal Water Pollution Control Act created the Environmental Protection Agency and established funding to upgrade the nation's publicly owned wastewater treatment works to a minimum standard of secondary treatment. The program provided seventy-five percent grants toward construction of new wastewater treatment facilities provided certain criteria were met. These criteria outlined in section 201 of the act required the creation of facility improvement plans using twenty year growth projections. In 1974, GSWSA was designated as the lead 201 Planning and Management Agency for the coastal areas of Horry and Georgetown Counties. The intent was to develop comprehensive regional facilities plans in order to assure the federal funds allocated to the projects were spent in the most cost effective and environmentally sound manner. In the course of preparing the plans, many alternatives were considered. However, in most cases the plans recommended separate treatment facilities for each of the wastewater providers. These 201 Facilities Plans resulted in the construction of major wastewater treatment facilities to serve the City of North Myrtle Beach, the City of Myrtle Beach, and two facilities to serve GSWSA - a regional facility in the southern part of the county east of the AIWW and a regional facility in the northern part of the county just west of the AIWW. Additionally, in the western part of the county both the Cities of Conway and Loris constructed facilities under the 201 program. All total, over $80,000,000 was spent

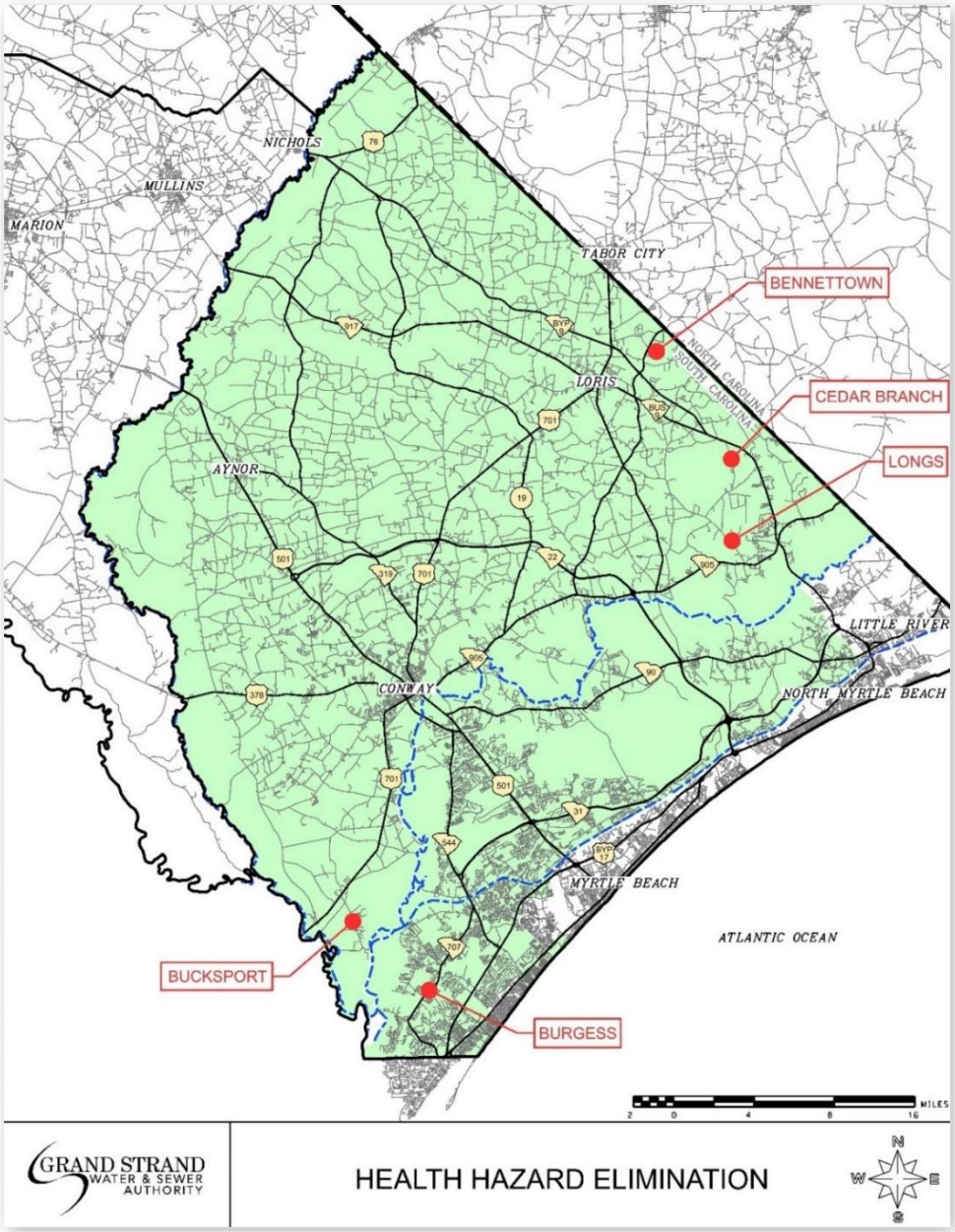
in Horry County to construct wastewater treatment facilities under the 201 program of which over 75 percent came directly from the federal government. The 201 program gave GSWSA the opportunity to connect and consolidate many of its small wastewater systems into regional systems serving the eastern portion of the county.

D. Merger of Authorities

Shortly after their creation, it became apparent that the AIWW would not serve as an appropriate service area boundary between GSWSA and HWSA. Although most of the development was east of the AIWW, the area between the AIWW and the Waccamaw River was also developing. Due to rapid development in GSWSA's service area and the proactive nature of its leadership, GSWSA was acquiring facilities, customers, qualified employees, and the general wherewithal to provide service to additional areas; whereas, HWSA had no customers, facilities, or employees and therefore did not develop the capability to provide services. Recognizing the economic potential of the area, in 1975 Horry County Government enlarged GSWSA's service area to include all areas between the Atlantic Ocean and the Waccamaw River excluding areas served by municipal systems. In subsequent years, GSWSA continued to grow and develop as a responsible, responsive, and progressive water and wastewater utility, while HWSA struggled with no assets, customers, or staff. In order to encourage growth and economic development in the western part of the county, in 1986, Horry County Government consolidated GSWSA and HWSA into a single special purpose district designated as Grand Strand Water and Sewer Authority. The service area of GSWSA was expanded to include all the 1,000 square mile plus geographic area of Horry County, excluding any area within an incorporated municipality owning and operating a waterworks and/or wastewater system and further excluding all areas within the service area of Little River Water and Sewerage Company, Inc., as well as excluding the area served by Bucksport Water Company, Inc. for water service only.

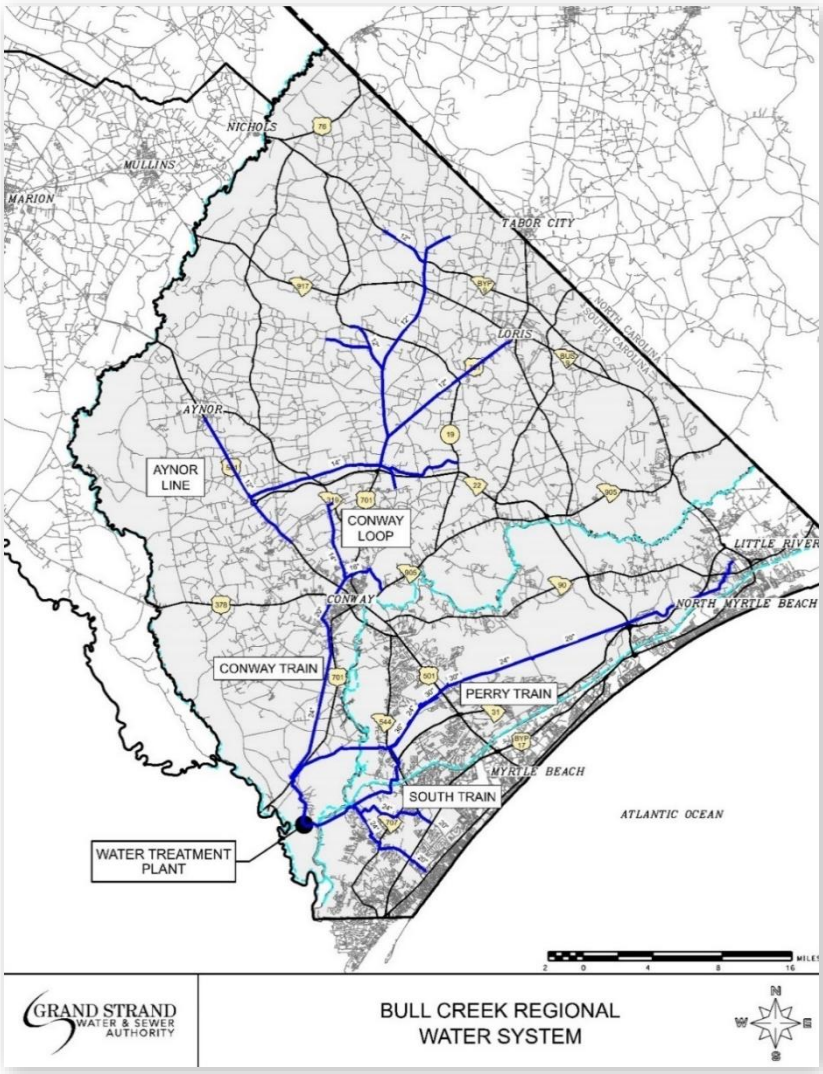

GSWSA WATER & SEWER
LAKE VIEW
LATTA
SELLERS
GSWSA WATER & SEWER
MARCO WATER & GSWSA SEWER
NICHOLS
MULLINS
MARION
GSWSA WATER & SEWER
GSWSA WATER & SEWER
TABOR CITY
COLUMBUS COUNTY WATER & GSWSA SEWER
LORIS WATER & SEWER
LORIS
NORTH CAROLINA
SOUTH CAROLINA
MARCO WATER & GSWSA SEWER
AYNOR
GSWSA WATER & SEWER
LITTLE RIVER WATER & SEWER
LITTLE RIVER
CONWAY WATER & SEWER
CONWAY
CONWAY WATER & GSWSA SEWER
NORTH MYRTLE BEACH
NMB WATER & SEWER
BUCKSPORT WATER & GSWSA SEWER
MB WATER & SEWER
MYRTLE BEACH
ATLANTIC OCEAN
MILES
2 0 4 8 16
GRAND STRAND WATER & SEWER AUTHORITY
GSWSA SERVICE AREA
N
W
E
S

E. Health Hazard Elimination



In 1986, just after GSWSA acquired the service area in the western part of the county, the South Carolina Department of Health and Environmental Control (DHEC) designated the Bucksport and Longs communities as imminent health hazards because of the large number of failing septic tanks in these areas. West of the Waccamaw River, very little public wastewater facilities existed outside the city limits of Conway and Loris. Providing service to the Bucksport and Longs communities required starting from scratch. GSWSA obtained funding through federal, state, and local governments to install wastewater collection systems and treatment facilities in these communities. In all, over 500 households received wastewater service within 24 months of GSWSA receiving authority to provide service to these areas. With the aid of a DHEC sponsored construction grant, a grant from the Federal Farmers Home Administration, Community Development Block Grants, and its own resources, GSWSA spent over $6,000,000 to eliminate these health hazards. At the time, these areas were rated among the most severe imminent health hazards in the State of South Carolina. Since that time, GSWSA has worked with local, state, and federal officials to install wastewater systems in other areas of the county designated as either imminent health hazards or environmentally distressed communities. These included the Burgess community, extensions of the systems in the Bucksport and Longs communities, the Cedar Branch community, and the Bennettown community. Well over 1,500 households have received water and/or wastewater service through these projects.

F. The Bull Creek Regional Water System



Until the mid 1980's, all public water in Horry County was supplied through deep water wells primarily drilled into the Black Creek aquifer. As the county's population and tourism industry grew, the withdrawal rates began to strain the aquifer such that salt water was beginning to intrude into the fresh ground water supplies. In addition, water from the Black Creek aquifer was high in fluoride concentration which caused discoloration in children's teeth.

In 1984, GSWSA prepared a regional water plan for Horry County and the Waccamaw Neck area of Georgetown County recommending the construction of a surface water treatment plant located on Bull Creek. Bull Creek was recommended because it was the source of large quantities of high quality water. The plan was a few years ahead of its time and was not implemented in part because the City of Myrtle Beach, a large user of water, decided to construct a surface water treatment plant within the city on the AIWW. Myrtle Beach had a dwindling ground water supply, and the city felt it was in their best interest to construct a plant to serve just their needs.

In 1986, the federal government passed amendments to the Safe Drinking Water Act which lowered the fluoride limits below the level that could be met from the ground water supply from the Black Creek aquifer. GSWSA reinitiated its proposal for a regional surface water treatment plant. The Cities of North Myrtle Beach, Conway, Surfside Beach, Aynor, Loris, and the water utilities of Little River Water and Sewerage Company (LRWSC), Bucksport Water Company, and Georgetown County Water and Sewer District (GCWSD) were invited to participate. After months of negotiations, Surfside Beach, Conway, LRWSC, Aynor, and Loris chose to fully participate in a regional water system. However, North Myrtle Beach chose to purchase water from Myrtle Beach. GCWSD chose to build its own plant on the Waccamaw River but participated in the Bull Creek project for the Murrells Inlet portion of its service area. Bucksport chose to remain on ground water supply even though it could not meet the secondary standards for fluoride. The total project cost approached $50,000,000, the largest financial undertaking and most complex project GSWSA had ever undertaken. The project was completed ahead of schedule and below budget. From the initial startup, the plant reliably

produced high quality drinking water for GSWSA and other participants. In short, the project was a huge success.

G. Service to New Developments

Since GSWSA was chartered without funding, taxing authority, or any apparent outside source of revenues, the cost of providing service to new developments has necessarily and appropriately been at the expense of the developer. In the very early years, cost sharing approaches were used for offsite facilities with the developers installing the internal or onsite improvements. Over the years, a very comprehensive set of specifications and guidelines has been developed in order to systematically handle new development. In the early 80's, impact fees became a part of the rate and cost of service structure in order to ensure that each customer was paying a proportionate share of the capital costs for transmission and treatment facilities. GSWSA has refined this policy over the years and now has a system in place to provide off-site improvements to service new development provided the developer pays the capital cost in impact fees necessary to support the project. Developers continue to install their internal improvements according to GSWSA's water and sewer system specifications and deed the improvements to GSWSA at the completion of construction for operation, maintenance, and service to the new customers.

H. Service to Rural Communities

In the early years, expanding service to existing residents and communities was usually handled on a case by case basis. If a community needed water service, costs were proportionally allocated to the existing and potential future customers. Many communities received service in this manner. However, this funding method was not an adequate mechanism for providing water and wastewater service to meet all the existing community needs. A more systematic basis was needed that would incorporate an equitable and uniform cost structure for serving the rural communities as well as providing a systematic method for determining when, where, and in what priority the communities would get service. Using several million dollars in surplus bond funds from the Bull Creek project as seed money, a rural program was established with a key criteria of having a minimum of 10 customers per mile petition for service before lines would be extended. Since establishing the rural program in 1992, over $43,000,000 has been spent installing lines to approximately 17,500 new customers. In addition to providing drinking water service, a major benefit of the program is water for fire flow protection in the rural areas. Lines installed in the rural areas are sized at a minimum required to support fire hydrants. The key criteria of new customer applications have been reduced from 10 to 3 customers per mile before lines can be extended.

Similarly, GSWSA established the criteria of a minimum of 10 customers per mile for extending wastewater service into the rural areas of the county. In urban areas, large diameter gravity sewer collection lines are laid on grade connecting to large pumping stations serving entire communities. Because of the lack of population densities, this type system is not feasible in rural areas. To provide service to the rural communities, small residential pumping stations are used. These units have proven to be a reliable and cost effective method of providing wastewater service to the rural areas of the county. Since initializing the rural sewer program in 1997, over $63,000,000 has been spent providing

service to approximately 9,300 customers. Similar to the rural water program, the minimum of customer applications have been reduced from 10 to 3 per mile for line extensions.

I. Mergers and Acquisitions

The success of the Bull Creek Regional System brought changes to the working relationships between GSWSA and the other water and wastewater utilities in Horry County. Both the success of the initial project and the ongoing quality and cost of service allowed for the formation of stronger relationships that could be built upon for future cooperative arrangements.

Although Surfside Beach was a wholesale water and wastewater customer, it could not obtain an efficient economy of scale in its retail operation. This resulted in a higher cost of service for residents of Surfside. In 1994, the Town held a referendum to sell its water and wastewater system to GSWSA. The referendum passed by an overwhelming majority.

The Town of Aynor was also receiving wholesale water service but did not have a wastewater system within the town. Many of the septic tanks in town were either failing or operating unreliably. Because of the poor soils, DHEC was not issuing septic tank permits in Aynor which was limiting growth in the town. In 1998, the town held a referendum to sell its water system to GSWSA in exchange for the installation of a wastewater system. This referendum also passed by an overwhelming majority. GSWSA installed a wastewater system throughout Aynor, and the town has since experienced unprecedented growth.

In 1994, as a result of its wastewater discharge permit violations, Conway was placed under a wastewater moratorium by DHEC. GSWSA offered to acquire the plant and upgrade the facility to meet the permit requirements. Conway agreed to the proposal, and the plant has since been upgraded, rebuilt, and expanded from 2 to 4 MGD. The City of Conway is now a wholesale customer for both water and wastewater services.

In 2000, the Cities of Myrtle Beach and North Myrtle Beach, acting jointly, purchased 4 MGD of water capacity. The water is delivered to North Myrtle Beach at the Barefoot Landing Resort.

In 2000, North Myrtle Beach purchased 3 MGD of wastewater capacity to serve both the area the city annexed west of the waterway and areas of the city east of the waterway. This is about forty percent of the city's wastewater capacity.

In 2001, the City of Loris was violating its wastewater discharge permit. GSWSA acquired the Loris plant and has upgraded the facility to meet the permit requirements. The City of Loris is also now a wholesale customer for both water and wastewater services.

In 2006, GSWSA acquired the City of Myrtle Beach's water and wastewater plants with the city becoming a wholesale water and wastewater customer. This was a large acquisition resulting in expansion of annual revenues of over thirty-five percent. Myrtle Beach City employees involved in water/wastewater plant operations transferred to GSWSA.

In 2008, a wastewater service area was acquired in Columbus County, North Carolina. This was quickly followed by installation of a main wastewater line to service two schools in the area. Another project has been completed which installed a system to eliminate failing septic tanks for a large community in the area.

In 2008, GSWSA acquired the wastewater system in the Town of Sellers in Marion County. The small town had a wastewater collection system feeding a failing land application system. GSWSA negotiated a contract with the Town of Latta in Dillon County to treat wastewater from Sellers. A project was completed which installed a wastewater line connecting Sellers to the Latta WWTP.

In 2010, GSWSA acquired the City of Marion's water and wastewater system. This is a mid-size system serving over 3,200 customers with annual revenues of over $2,000,000. The City of Marion is the Marion County seat and centrally located within the county. The system has excess water and wastewater capacity and the acquisition will lower customer costs and promote economic development in the area.

GSWSA also acquired the Town of Nichols in 2010 as well as the Centenary sewer system. In 2012, GSWSA acquired the Town of Mullins in Marion County and the Town of Lake View in Dillon County.

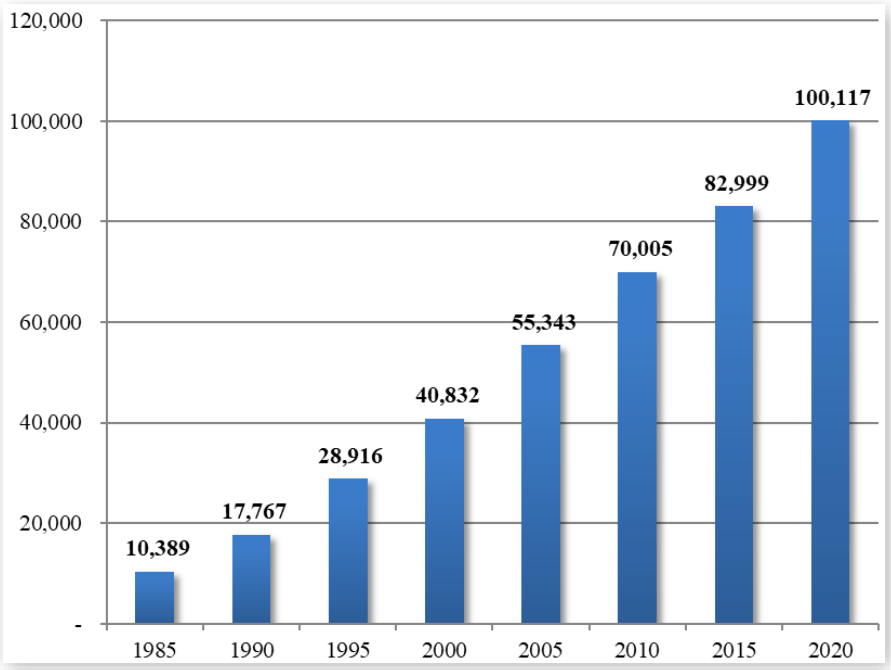
All the acquisitions of municipal systems occurred following a referendum of the municipal voters and in all cases the vote was overwhelmingly positive to transfer the systems to GSWSA. Today GSWSA now operates in five counties in South and North Carolina.

J. Customer and Financial Growth

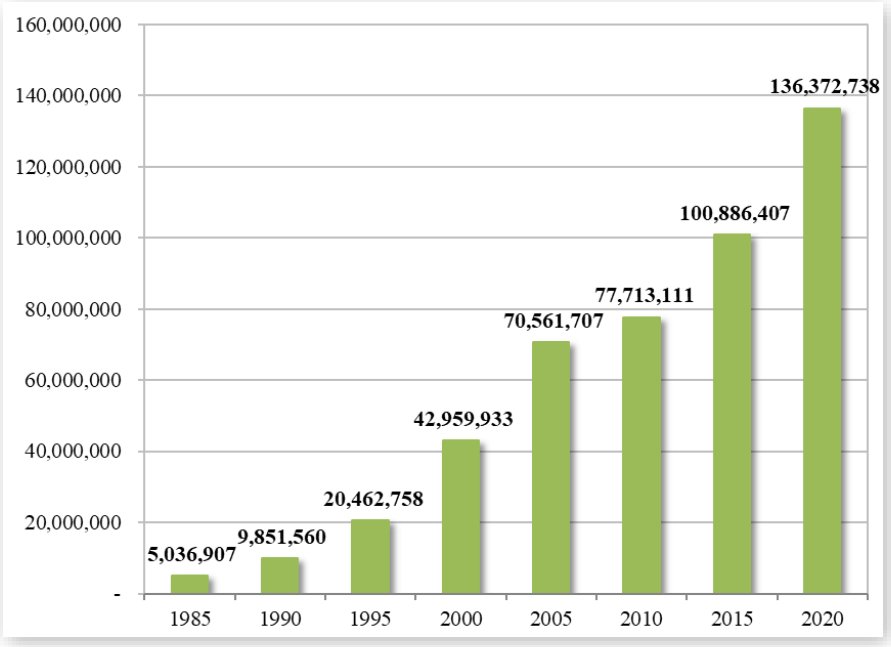
Starting in 1971 with no assets, income, or customers, GSWSA began acquiring small private systems at little or no costs and pursuing State and Federal grants to extend the systems to add new customers. Gradually this piecemeal utility system began to come together. By 1980, assets totaled $45,800,121, annual revenues were $2,312,244, and the customer base had grown to over 5,000. These early disconnected systems provided the framework to add facilities and to accommodate the rapid growth and development taking place in Horry County. During the next three decades, GSWSA was constantly expanding its systems to support this unprecedented growth.

The following charts show the growth in Total Billed Customers and Total Revenues from 1985 to 2020. The Total Billed Customers has an annualized growth rate of 6.69% while the Total Revenues has an annualized growth rate of 9.88%.

Total Billed Customers



Total Revenues



K. Board of Directors History

This Strategic Business Plan has several purposes, one of which is to be mindful of our history in order to better plan for our future. With this in mind, the following is a summary of our Board of Directors from GSWSA's inception in 1971. We are hopeful this information will be carried forward in future plans.

Board of Directors – 1971

- Johnny Squires
- Rayford Vereen
- J. Lambert Schwartz
- Dick Elliott
- WJ Williams

Board of Directors – 1974

- Johnny Squires
- Rayford Vereen
- J. Lambert Schwartz
- Dick Elliott

Board of Directors – 1975

- Johnny Squires
- Rayford Vereen
- J. Lambert Schwartz
- Dick Elliott
- Cecil Clarkson

Board of Directors – 1977

- Johnny Squires
- Rayford Vereen
- J. Lambert Schwartz
- Cecil Clarkson
- Wayne Baker
- Lloyd Conner

Board of Directors – 1982

- Rayford Vereen
- J. Lambert Schwartz
- Cecil Clarkson
- Edwin Navey
- F. Delano Sanders
- Sidney Thompson

Board of Directors – 1985

- Rayford Vereen
- J. Lambert Schwartz
- Edwin Navey
- F. Delano Sanders
- Sidney Thompson
- Egerton Burroughs

Board of Directors – 1987

- Rayford Vereen
- J. Lambert Schwartz
- Edwin Navey
- F. Delano Sanders
- Sidney Thompson
- Egerton Burroughs
- E. Gene Anderson
- John Griggs
- Wayne Jordan

Board of Directors – 1989

- J. Lambert Schwartz
- Edwin Navey
- Sidney Thompson
- E. Gene Anderson
- John Griggs
- Wayne Jordan
- James Dewitt
- Jimmy Thompkins
- Benjy Hardee

Board of Directors – 1992

- J. Lambert Schwartz
- Edwin Navey
- Sidney Thompson
- E. Gene Anderson
- John Griggs
- Wayne Jordan
- James Dewitt
- Benjy Hardee
- Bridget Fata

Board of Directors – 1993

- Sidney Thompson
- E. Gene Anderson
- John Griggs
- Wayne Jordan
- James Dewitt
- Benjy Hardee
- Jesse Ward

Board of Directors – 1994

- Sidney Thompson
- E. Gene Anderson
- John Griggs
- Wayne Jordan
- James Dewitt
- Benjy Hardee
- Jesse Ward
- Arnold Johnson
- David Singleton

Board of Directors – 2001

- Sidney Thompson
- John Griggs
- James Dewitt
- Benjy Hardee
- Jesse Ward
- Arnold Johnson
- David Singleton
- Robert Floyd, Jr.
- Kristen Hardee

Board of Directors – 2005

- Sidney Thompson
- John Griggs
- James Dewitt
- Benjy Hardee
- Arnold Johnson
- David Singleton
- Robert Floyd, Jr.
- Kristen Hardee

Board of Directors – 2006

- Sidney Thompson
- John Griggs
- James Dewitt
- Benjy Hardee
- Arnold Johnson
- David Singleton
- Robert Floyd, Jr.
- Kristen Hardee
- J. Liston Wells

Board of Directors – 2007

- Sidney Thompson
- John Griggs
- James Dewitt
- Benjy Hardee
- Arnold Johnson
- David Singleton
- Robert Floyd, Jr.
- J. Liston Wells
- Wilbur James

Board of Directors – 2009

- Sidney Thompson
- John Griggs
- Benjy Hardee
- Arnold Johnson
- David Singleton
- Robert Floyd, Jr.
- J. Liston Wells
- Wilbur James
- Robert Rabon

Board of Directors – 2011

- Sidney Thompson
- John Griggs
- Benjy Hardee
- Arnold Johnson
- Robert Floyd, Jr.
- J. Liston Wells
- Wilbur James
- Robert Rabon

Board of Directors – 2012

- Sidney Thompson
- John Griggs
- Benjy Hardee
- Arnold Johnson
- Robert Floyd, Jr.
- J. Liston Wells
- Wilbur James
- Robert Rabon
- Richard Singleton II

Board of Directors – 2021

- Sidney Thompson
- Benjy Hardee
- Arnold Johnson
- J. Liston Wells
- Wilbur James
- Richard Singleton II
- Mark Lazarus
- L. Morgan Martin
- Radha Herring

L. Horry County Legislative Delegation History

House of Representatives	Senators
Delegation – 1971 Charles E. Hodges Sidney T. Floyd John W. Jenrette, Jr. Phillip D. Sasser	James Stevens
Delegation – 1973 James B. Van Osdell Charles E. Hodges Sidney T. Floyd	James Stevens
Delegation – 1975 (Redistricting Law of 1974) District 103 – James B. Van Osdell District 104 – Charles E. Hodges District 105 – Sidney T. Floyd District 106 – T. Basil Barrineau	James Stevens
Delegation – 1977 District 103 – Jean B. Myers District 104 – Charles E. Hodges District 105 – M. Lois Eargle District 106 – T. Basil Barrineau	Ralph Ellis
Delegation – 1979 District 103 – Jean B. Myers District 104 – Charles E. Hodges District 105 – M. Lois Eargle District 106 – Julian A. Reynolds	Ralph Ellis
Delegation – 1985 District 104 – Dick Elliott District 105 – Liston D. Barfield District 106 – Benjamin E. Thraikill, Jr. District 107 – H.E. Pearce, Jr.	J. M. "Bud" Long
Delegation – 1989 District 104 – Dick Elliott District 105 – Liston D. Barfield District 106 – Thomas G. Keegan District 107 – Kenneth S. Corbett	J. M. "Bud" Long
Delegation – 1991 District 104 – Dick Elliott District 105 – L. Morgan Martin District 106 – Thomas G. Keegan District 107 – Kenneth S. Corbett	J. M. "Bud" Long
Delegation – 1993 District 58 – L. Morgan Martin District 103 – John J. Snow, Jr. District 104 – Harold Gene Worley District 105 – William D. Witherspoon District 106 – Thomas G. Keegan District 107 – Mark S. Kelley	Luke Rankin Dick Elliott
Delegation – 1995 District 58 – L. Morgan Martin District 103 – Theodore A. Brown District 104 – Harold Gene Worley District 105 – William D. Witherspoon District 106 – Thomas G. Keegan	Luke Rankin Dick Elliott

House of Representatives	Senators
District 107 – Mark S. Kelley	
Delegation – 1997 District 58 – Liston D. Barfield District 103 – Theodore A. Brown District 104 – Tracy R. Edge District 105 – William D. Witherspoon District 106 – Thomas G. Keegan District 107 – Mark S. Kelley District 108 – Vida O. Miller	Luke Rankin Dick Elliott
Delegation – 1999 District 58 – Liston D. Barfield District 104 – Tracy R. Edge District 105 – William D. Witherspoon District 106 – Thomas G. Keegan District 107 – Mark S. Kelley District 108 – Vida O. Miller	Luke Rankin Dick Elliott
Delegation – 2003 District 55 – Jackie E. Hayes District 58 – Liston D. Barfield District 68 – Thad T. Viers District 104 – Tracy R. Edge District 105 – William D. Witherspoon District 106 – Thomas G. Keegan District 107 – Alan D. Clemmons	Luke Rankin Dick Elliott
Delegation – 2005 District 55 – Jackie E. Hayes District 58 – Liston D. Barfield District 68 – Thad T. Viers District 104 – Tracy R. Edge District 105 – William D. Witherspoon District 106 – Nelson L. Hardwick District 107 – Alan D. Clemmons	Luke Rankin Dick Elliott
Delegation – 2005 District 55 – Jackie E. Hayes District 58 – Liston D. Barfield District 68 – Thad T. Viers District 104 – Tracy R. Edge District 105 – George M. Hearn District 106 – Nelson L. Hardwick District 107 – Alan D. Clemmons	Luke Rankin Dick Elliott
Delegation – 2013 (Redistricting) District 55 – Jackie E. Hayes District 56 – Mike Ryhal District 57 – J. Wayne George District 58 – Liston D. Barfield District 68 – Heather A. Crawford District 103 – Carl L. Anderson District 104 – Tracy R. Edge District 105 – Kevin Hardee District 106 – Nelson L. Hardwick District 107 – Alan D. Clemmons	Luke Rankin Greg Hembree

House of Representatives	Senators
Delegation – 2016 District 55 – Jackie E. Hayes District 56 – Mike Ryhal District 57 – J. Wayne George District 58 – Jeffrey Johnson District 68 – Heather A. Crawford District 103 – Carl L. Anderson District 104 – Gregory D. Duckworth District 105 – Kevin Hardee District 106 – Russell Fry District 107 – Alan D. Clemmons	Luke Rankin Greg Hembree
Delegation – 2017 District 55 – Jackie E. Hayes District 56 – Mike Ryhal District 57 – Lucas Atkinson District 58 – Jeffrey Johnson District 68 – Heather A. Crawford District 103 – Carl L. Anderson District 104 – Gregory D. Duckworth District 105 – Kevin Hardee District 106 – Russell Fry District 107 – Alan D. Clemmons	Luke Rankin Greg Hembree
Delegation – 2018 District 55 – Jackie E. Hayes District 56 – Timothy McGinnis District 57 – Lucas Atkinson District 58 – Jeffrey Johnson District 68 – Heather A. Crawford District 103 – Carl L. Anderson District 104 – Gregory D. Duckworth District 105 – Kevin Hardee District 106 – Russell Fry District 107 – Alan D. Clemmons	Luke Rankin Greg Hembree
Delegation – 2019 District 55 – Jackie E. Hayes District 56 – Timothy McGinnis District 57 – Lucas Atkinson District 58 – Jeffrey Johnson District 68 – Heather A. Crawford District 103 – Carl L. Anderson District 104 – William Bailey District 105 – Kevin Hardee District 106 – Russell Fry District 107 – Alan D. Clemmons	Luke Rankin Greg Hembree

V. CURRENT OPERATIONS

A. Board of Directors

GSWSA is governed by a nine-member Board of Directors who are residents of Horry County and appointed by the Governor upon the recommendation of the Horry County Legislative Delegation. Board members are appointed to overlapping six-year terms.

The Board is charged with providing water and wastewater services to the county, adopting an annual budget, setting rates and charges, and establishing policies and guidelines relating to how those services are delivered to its customers. Current Board members are:

- Sid Thompson, Chairman
- Benjy Hardee, Vice Chairman
- Arnold Johnson, Secretary
- J. Liston Wells, Member
- Wilbur James, Member
- Richard Singleton II, Member
- Mark Lazarus, Member
- L. Morgan Martin, Member
- Radha Herring, Member

B. Staff

The Chief Executive Officer is responsible to the Board of Directors for the proper administration and execution of the Board's policies, goals, and service objectives and all other affairs of GSWSA. All division chiefs and corresponding divisions report directly to the Chief Executive Officer. The staff is organized into six (6) main operating divisions:

- Administration
- Accounting and Finance
- Engineering and Construction
- Plant Operations
- Field Operations
- Technology

1. Administration Division

This division is managed by the Chief of Administration. Its primary responsibilities include providing support to the Chief Executive Officer and Board of Directors, providing excellent care to GSWSA's customers, sending timely and accurate customer billings, managing employee benefits and personnel policies, servicing/repairing company vehicles and equipment, and managing the purchasing activities of the organization. The division consists of the following departments:

- Administration
- Human Resources
- Fleet Services
- Customer Service (Conway & Marion locations)
- Billing & Collections
- Purchasing

2. Accounting and Finance Division

This division is managed by the Chief of Accounting and Finance. The primary functions are accounting, financial and budget management. The division consists of the Accounting & Finance Department.

3. Engineering and Construction Division

This division is managed by the Chief Operations Officer. The primary functions are development and implementation of the Capital Improvement Plan (CIP), coordination of private development, planning, design, approval, and construction of improvements and extensions to the existing GSWSA water and wastewater systems, implementation of the Safety Program and Emergency Response Plan, and support services for other divisions. The division consists of the following groups and departments:

- Design Engineering
- New Services Development
- Inspection Services
- Construction & Taps
- Community Development
- Property & Right-of-Way Acquisitions
- Facility Maintenance
- Safety & Emergency Response
- Support Services/Dispatch

4. Plant Operations Division

This division is managed by the Chief of Plant Operations. Its primary responsibilities are the production of safe drinking water, providing adequate wastewater treatment prior to disposal in receiving streams to meet federal and state standards, providing proper disposal of residual biosolids in a safe and environmentally productive manner, and coordination with federal and state environmental groups on compliance and permitting, along with establishing permits with Industrial Discharges into GSWSA's wastewater collection system. The division consists of the following groups and departments:

- Water Treatment
- Wastewater Treatment & Disposal
- Agricultural Operations
- Environmental Coordination & Compliance
- Treatment Facilities Maintenance

5. Field Operations Division

This division is managed by the Chief of Field Operations. Its primary responsibilities are delivering safe drinking water to customers, timely and accurate meter readings for billing, and the collection of wastewater from customers for delivery to the wastewater plants. The division consists of the following groups and departments:

- Water Transmission and Distribution Services
- Wastewater Collection and Transmission Services
- Meter Services
- Repairs services

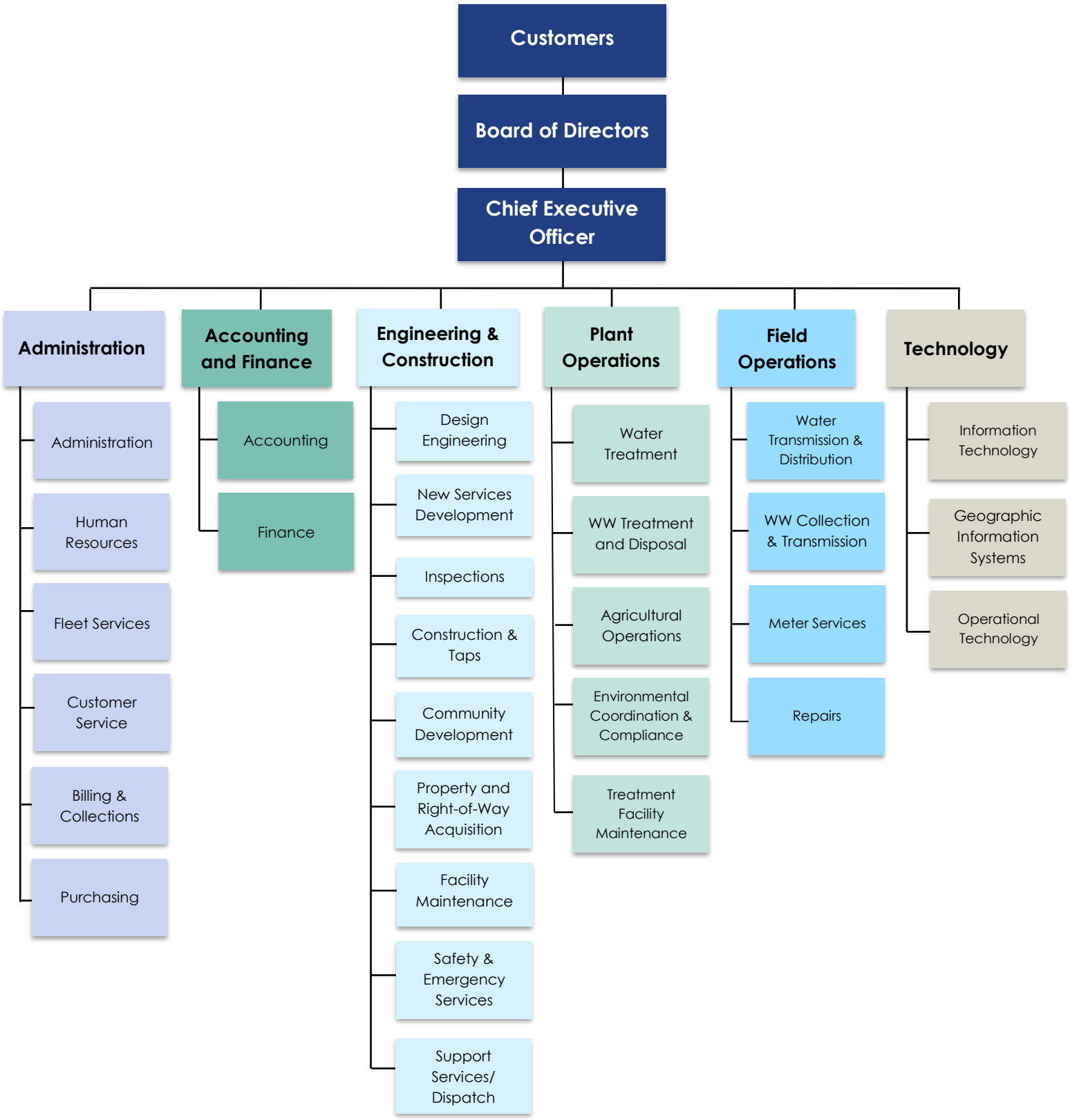
6. Technology Division

This division is managed by the Chief of Technology. Its primary responsibilities are Information Technology, Geographic Information Systems, and Operational Technology to provide a synergistic impact of technology use at GSWSA. The division consists of the following groups and departments:

- Information Technology
- Geographic Information Systems
- Operational Technology

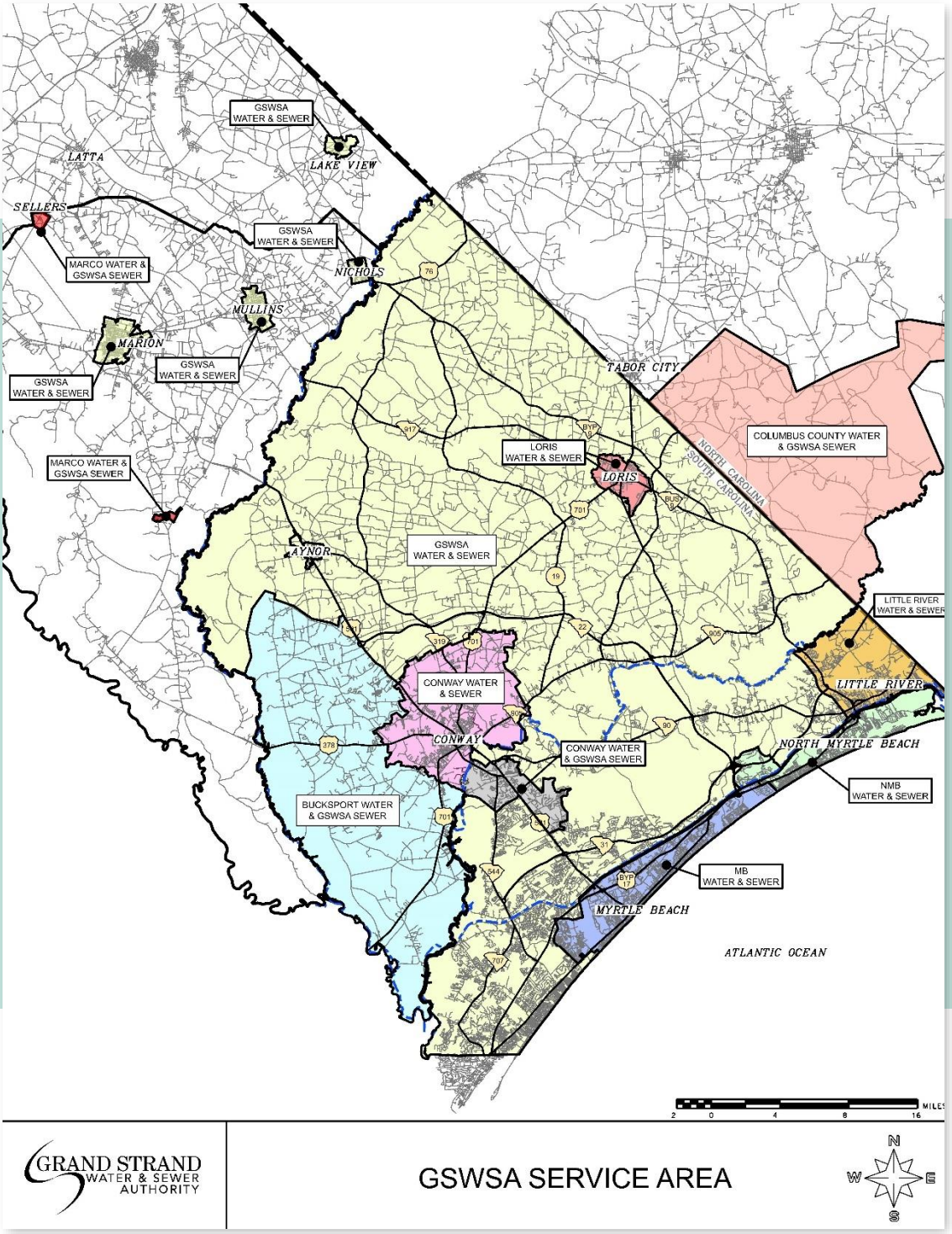
Grand Strand Water and Sewer Authority

Functional Organizational Chart



C. Service Area and Customers

GSWSA's retail service area covers the majority of the land mass in Horry County. Essentially, GSWSA's direct retail service area is any area of Horry County not designated as part of another utility's service area and sewer service to the Centenary Community in Marion County. Additionally, GSWSA has a wastewater service area contract for a portion of Columbus County, NC. Also, water and/or wastewater service is provided by contract for the Towns of Sellers, Marion, Mullins and Nichols in Marion County and Lake View and Latta in Dillon County.



1. Retail Customers

GSWSA provides retail water and wastewater service to over 100,000 customers. Each customer is designated according to residential equivalent units or REU's. Based on consumption studies, GSWSA's average residential customer uses 250 gallons of water per day. The following table lists the retail customer classes and the number of customers and REU's in each class.

Retail Customer Base		
Customer Class	**Accounts**	**REUs**
Single-Family Dwellings	90,013	101,605
Multi-Family Dwellings*	1,538	14,539
Commercial	6,279	32,702
Industrial	53	412
Miscellaneous	2,461	2,445
Inactives	6,566	12,370
Total	**106,910**	**164,073**

*Multi-Family Dwellings include apartments, condos, etc.

2. Bulk Customers

The bulk customer designation is given to the class of customers within GSWSA's retail service area that purchase water and wastewater services in large quantities and/or have an internal water or wastewater system further regulated by DHEC. The following tables list bulk customers and their peak quarter average daily consumption.

Bulk Water Customers	
Name	**Peak Quarterly Average Daily Gallons**
Pirateland Campground	127,713
Springmaid Beach Resort	81,291
Ocean Lakes Utilities	161,377
Garden City Mobile Home Resort	37,837
Total	**408,218**

Bulk Wastewater Customers	
Name	**Peak Quarterly Average Daily Gallons**
Ocean Lakes Utilities	482,900
Lakewood Camping Resort	143,340
Springmaid Beach Resort	101,520
Oceanside Village	135,892
Pirateland Campground	99,861
Coastal Carolina University	47,435
Wolverine Brass Inc.	21,656
Garden City Mobile Home Resort	11,013
Total	**1,043,617**

3. Wholesale Customers

Wholesale customers operate water or wastewater utilities outside of GSWSA's service area and purchase service from GSWSA.

The following utilities are receiving wholesale water and wastewater service solely from GSWSA:

- Little River Water and Sewerage Company
- Town of Loris
- City of Conway
- City of Myrtle Beach
- City of North Myrtle Beach (Water)

Additionally, to supplement the water and wastewater capacity from their plants, GSWSA provides contract wholesale services to the City of North Myrtle Beach, Georgetown Water and Sewer District, Bucksport Water Company, and the Town of Tabor City, North Carolina.

The following tables list the wholesale water and wastewater customers, their contracted capacity, and their peak quarter average daily consumption.

Wholesale Water Customers		
Name	**Contracted Daily Capacity (MGD)**	**Peak Quarterly Average Daily Flow (MGD)**
City of Conway	-	5.964
City of North Myrtle Beach	12.60	6.725
City of Loris	0.60	0.231
Town of Tabor City, NC	0.10	0.001
Georgetown County Water & Sewer District	1.15	0.869
Little River Water & Sewer	4.00	2.791
City of Myrtle Beach	-	16.346
Bucksport Water Company	-	0.000

Wholesale Wastewater Customers		
Name	**Contracted Daily Capacity (MGD)**	**Peak Quarterly Average Daily Flow (MGD)**
Georgetown County Water & Sewer District	-	0.147
Little River Water & Sewer	2.40	1.538
City of Conway	-	3.889
City of Myrtle Beach	-	11.157
City of North Myrtle Beach	3.00	1.196
City of Loris	-	0.662
Town of Tabor City, NC	-	0.196

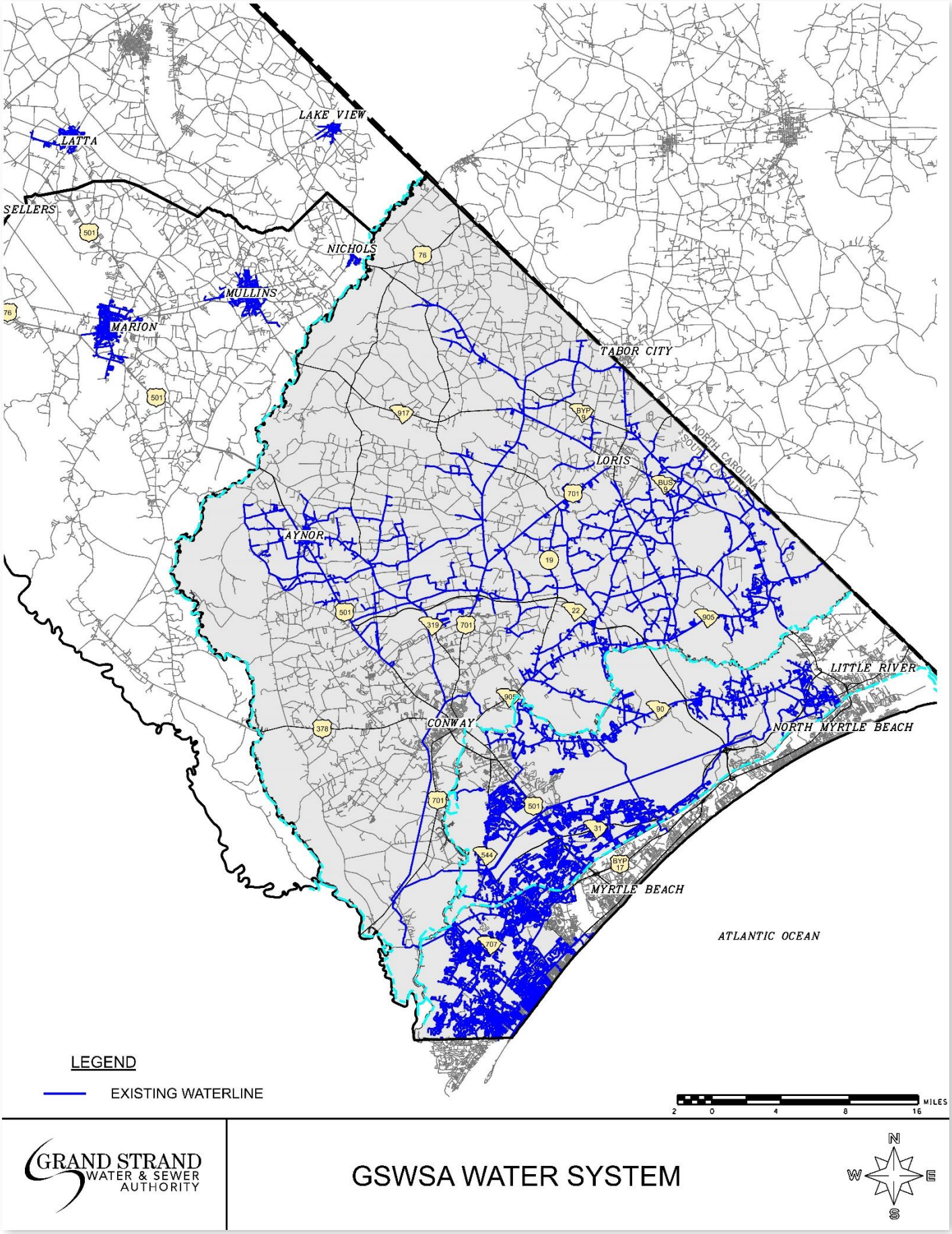
4. Service Agreement Customers

GSWSA has entered in Service Agreements with the Locust Tree Subdivision in Britton's Neck, SC in August 2017 and the Town of Latta in Dillon County in June 2019. The agreements provide for GSWSA to operate and maintain the wastewater collection and treatment system for Locust Tree and the water distribution and wastewater collection and treatment systems within the town of Latta.

D. Facilities

1. Water

Water facilities and services are provided in most areas of Horry County. Most of the system is supplied by a single water treatment plant located on Bull Creek in the southeastern part of the county, supplemented by Aquifer Storage and Recovery (ASR) wells and blend wells dispersed throughout the service area. Water transmission mains have been installed along most of the county's major transportation corridors. From the major transmission mains, rural lines have been extended to serve existing residents and businesses on a petition for service basis. Myrtle Beach and North Myrtle Beach are primarily supplied by the Myrtle Beach Surface Water Treatment Plant (MBSWTP), located on the AIWW near Myrtle Beach, along with some supplemental flows coming from the Bull Creek Surface Water Treatment Plant (BCSWTP). The City of Marion, City of Mullins, and the Town of Nichols are served by wells. The Town of Lake View's water is purchased from Trico Water Company. The following maps reflect the water systems within the designated service areas as well as a listing of the water system's major components.


LAKE VIEW
LATTA
SELLERS
NICHOLS
MULLINS
MARION
TABOR CITY
LORIS
AYNOR
CONWAY
LITTLE RIVER
NORTH MYRTLE BEACH
MYRTLE BEACH
ATLANTIC OCEAN
NORTH CAROLINA
SOUTH CAROLINA
LEGEND
EXISTING WATERLINE
MILES
2 0 4 8 16
GRAND STRAND WATER & SEWER AUTHORITY
GSWSA WATER SYSTEM
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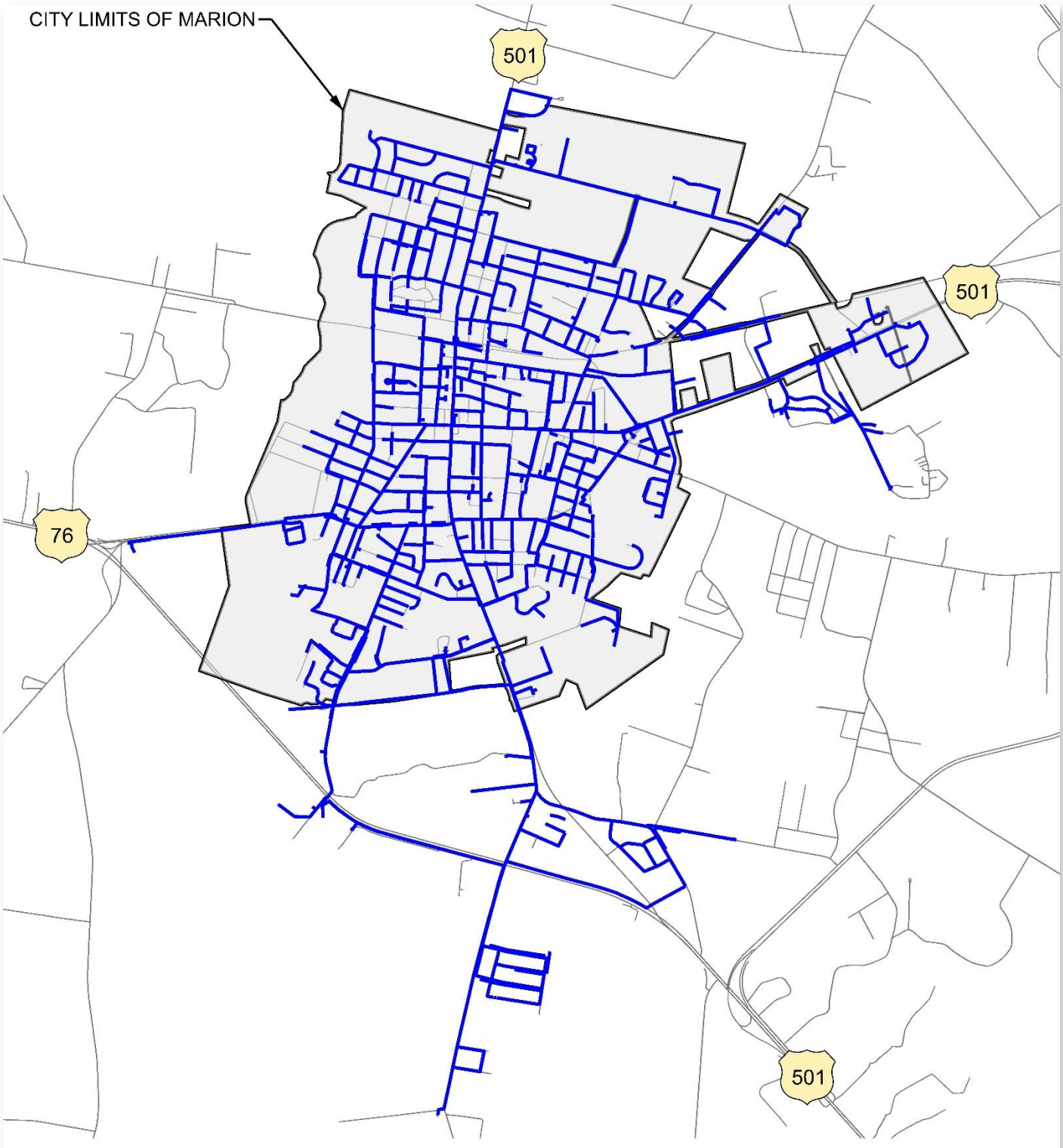
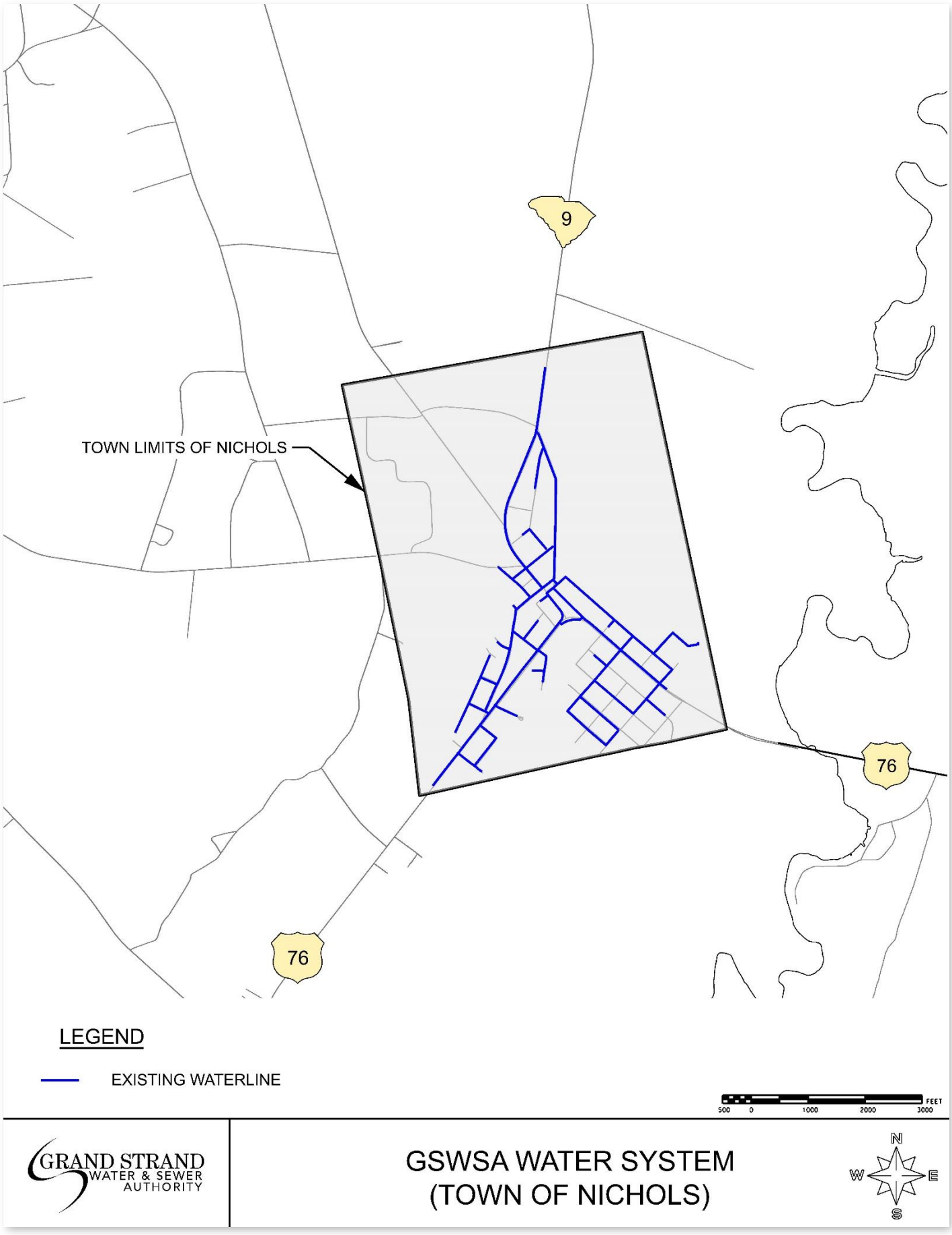


GRAND STRAND WATER & SEWER AUTHORITY

GSWSA WATER SYSTEM (CITY OF MARION)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TOWN LIMITS OF NICHOLS
76
76
LEGEND
EXISTING WATERLINE
500 0 1000 2000 3000 FEET
GRAND STRAND WATER & SEWER AUTHORITY
GSWSA WATER SYSTEM
(TOWN OF NICHOLS)
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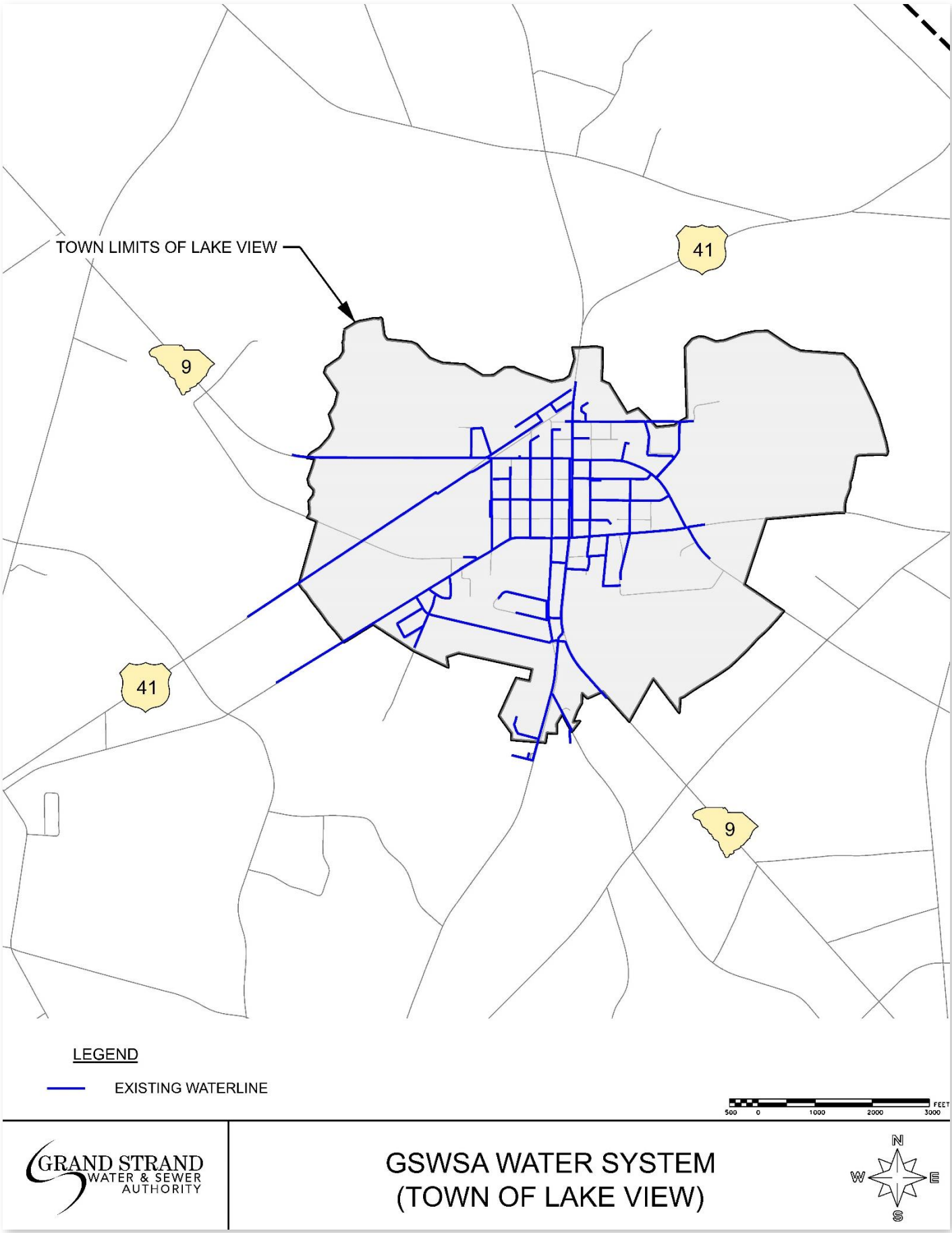
TOWN LIMITS OF LAKE VIEW
41
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41
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LEGEND
EXISTING WATERLINE
500 0 1000 2000 3000 FEET
GRAND STRAND WATER & SEWER AUTHORITY
GSWSA WATER SYSTEM
(TOWN OF LAKE VIEW)
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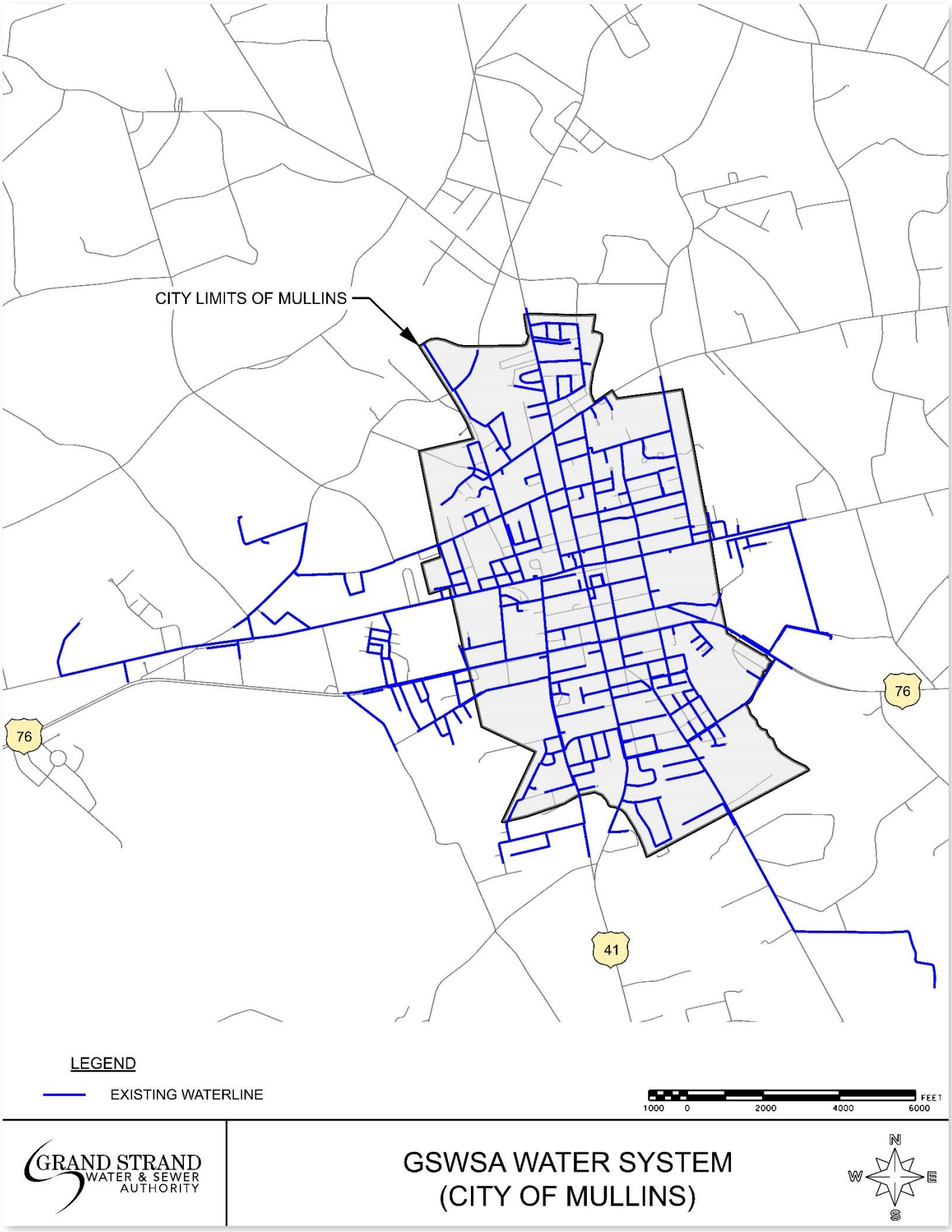


GRAND STRAND WATER & SEWER AUTHORITY

GSWSA WATER SYSTEM (CITY OF MULLINS)

a. Sources

The main water intake is located on Bull Creek which carries about 60% of the water flowing through the Great Pee Dee and Little Pee Dee Rivers. The Great Pee Dee drains 11,620 square miles in Virginia, North Carolina and South Carolina. The Little Pee Dee which enters the Great Pee Dee River just above Bull Creek drains 2,790 square miles of this drainage area. Minimum flow in the Great Pee Dee just above Bull Creek during the drought of 2002 was approximately 1,100 cubic feet per second or 710 MGD. Average flow in the Great Pee Dee in the past fifteen years was 4,550 cubic feet per second or 2.9 BGD. During the same fifteen year period, the average flow in the Little Pee Dee was 2,485 cubic feet per second or 214 MGD.

Bull Creek is an abundant source of high quality raw water that is less costly to treat than most of the slow moving low flow rivers in and around Horry County. A second water intake is located on the ICWW in Myrtle Beach. The ICWW is fed from the Great Pee Dee, Little Pee Dee, and Waccamaw Rivers.

Marion, Mullins, Nichols, and Lake View wells draw water from the McQueen Branch and Charleston Aquifers (formerly Black Creek Aquifer System).

b. Bull Creek Surface Water Treatment Plant

The plant is located on a 5,000 acre site in the Bucksport community between the Waccamaw River and Bull Creek. The plant was constructed in 1991 with an initial capacity of 21 MGD. It has since been expanded to 26 MGD in 1996 and to 45 MGD in 2000. The Bull Creek plant uses a "conventional" treatment process of coagulation, flocculation, settling, filtration, and disinfection. However, this plant is unique in that flocculation and sedimentation occur in a patented up flow clarification process directly followed by Greenleaf filters eliminating the usual piping arrangement. The plant peak 3 day ADF occurred in May 2019 at a flow of 39.2 MGD. During this same period there was 2.37 MGD of flow being added to the distribution system from ASR & Blend wells concurrently for a total system demand of 41.6 MGD. Fluoride is added to the finished water for recommended dental health protection. The by-product of the treatment process, alum sludge, is thickened and land applied to a designated centipede grass turf farm.

Bull Creek Surface Water Treatment Plant			
Capacity – MGD	Annual ADF – MGD	Peak Month – ADF	Peak 3 Day – ADF
45	29	35.9	39.2

MGD = Million Gallons per Day / ADF = Average Daily Flow

c. Myrtle Beach Surface Water Treatment Plant

The plant is located on the ICWW adjacent to Mr. Joe White Avenue in Myrtle Beach. It was constructed in 1986 with an initial capacity of 21 MGD. It has since been expanded to 45 MGD. The plant also uses a conventional treatment process. The plant peak 3 day ADF occurred in July 2011 at a flow of 30 MGD. The peak 3 day ADF for 2019 occurred in July 2019 at a flow of 28.2 MGD.

Myrtle Beach Surface Water Treatment Plant			
Capacity – MGD	Annual ADF – MGD	Peak Month – ADF	Peak 3 Day – ADF
45	17.7	27	30

MGD = Million Gallons per Day / ADF = Average Daily Flow

d. Aquifer Storage and Recovery (ASR) Wells

GSWSA is a national leader in the development of ASR technology. This technology allows storing treated surface water in wells during off peak periods for use during emergencies or peak consumption conditions. Currently 22 ASR wells are in operation or under development/construction with a combined storage volume of nearly 1.2 billion gallons available for recovery each year. Treated water can be withdrawn for use from ASR wells at a rate of 18.5 MGD.

e. Blend Wells

GSWSA has 8 groundwater wells, producing 6.7 MGD by blending native groundwater with treated surface water at major entry points to the distribution system.

Groundwater Blend Wells		
Location	**GPM**	**GPD**
Conway	700	1,008,000
Perry	1,000	1,440,000
Tern Hall	800	1,152,000
Bay Rd	600	864,000
Green Sea	300	432,000
Long Bay	250	360,000
Myrtle Beach #1	325	468,000
Myrtle Beach #2	700	1,008,000
Total	**4,675**	**6,732,000**

Aquifer Storage and Recovery & Groundwater Blend Well Flows				
Well Type	**Annual ADF – MGD**	**Annual ADF – MGD**	**Peak Mo ADF – MGD**	**Peak 3 Day ADF –MGD**
ASR	18.5	4.3	8.3	10.4
Blend	6.7	4.0	4.9	6.0

Aquifer Storage and Recovery Wells Locations (Current or In Progress)		
Location	**GPM**	**GPD**
Hwy 501	350	504,000
Prestwick	350	504,000
Watson Riverside	350	504,000
Crystal Lakes	750	1,080,000
Studio City	550	792,000
North	543	781,920
Tilly	380	547,200
Chestnut	350	504,000
3rd Avenue - Surfside	350	504,000
Aynor	450	648,000
Burning Ridge	650	936,000
Pirateland	500	720,000
Carolina Forest	880	1,267,200
Caropine	360	518,400
Jamestown	550	792,000
Daisy	480	691,200
North Booster	550	792,000
Seaside	850	1,224,000
Deerfield	900	1,296,000
TPI	900	1,296,000
Braves Village	900	1,296,000
Ten Oaks	900	1,296,000
Total	**12,843**	**18,493,920**

f. Marion System

Marion is served by seven (7) wells with a total capacity of 5.6 MGD. Average daily flow is 1.1 MGD and peak day is 1.4 MGD.

g. Mullins System

Mullins is served by five (5) wells with a total capacity of 4.0 MGD. Average daily flow is 0.82 MGD and a peak of 1.0 MGD.

h. Nichols System

Nichols is served by one (1) well with a total capacity 0.57 MGD. Nichols also has a connection to Marco Water Company as a backup for emergencies. Average daily flow is 0.045 MGD with a peak of 0.05 MGD.

i. Lake View System

Lake View water is served by Trico Water Company. Average daily flow is 0.092 MGD and a peak of 0.120 MGD.

j. Transmission, Distribution, and Storage

Water is distributed to most sections of Horry County through a combination of large diameter transmission mains and smaller distribution lines. Plant treated water is stored in reservoirs and pumped through large diameter pipelines to three areas of the county for storage and distribution. These areas are:

- West area covering western Horry County including Conway, Loris, Aynor, and Green Sea.
- Central/North area covering east Conway including Coastal Carolina University and Carolina Forest.
- South area covering the south strand beaches and Socastee.

Since the service area covers so many miles, the system is equipped with major pumping stations at the plant and reservoirs and re-pumping stations to boost the pressure in the remote portions of the distribution system. Water is stored to meet the peak diurnal demands in ground storage reservoirs, elevated storage tanks, and ASR wells.

Water Pipeline	
Diameter Inches	**Length Miles**
36	16
30	11
24	37
20	30
16	2
14	7
12	238
10	89
8	552
6	725
4	106
3	60
2	102
Total	**1,975**

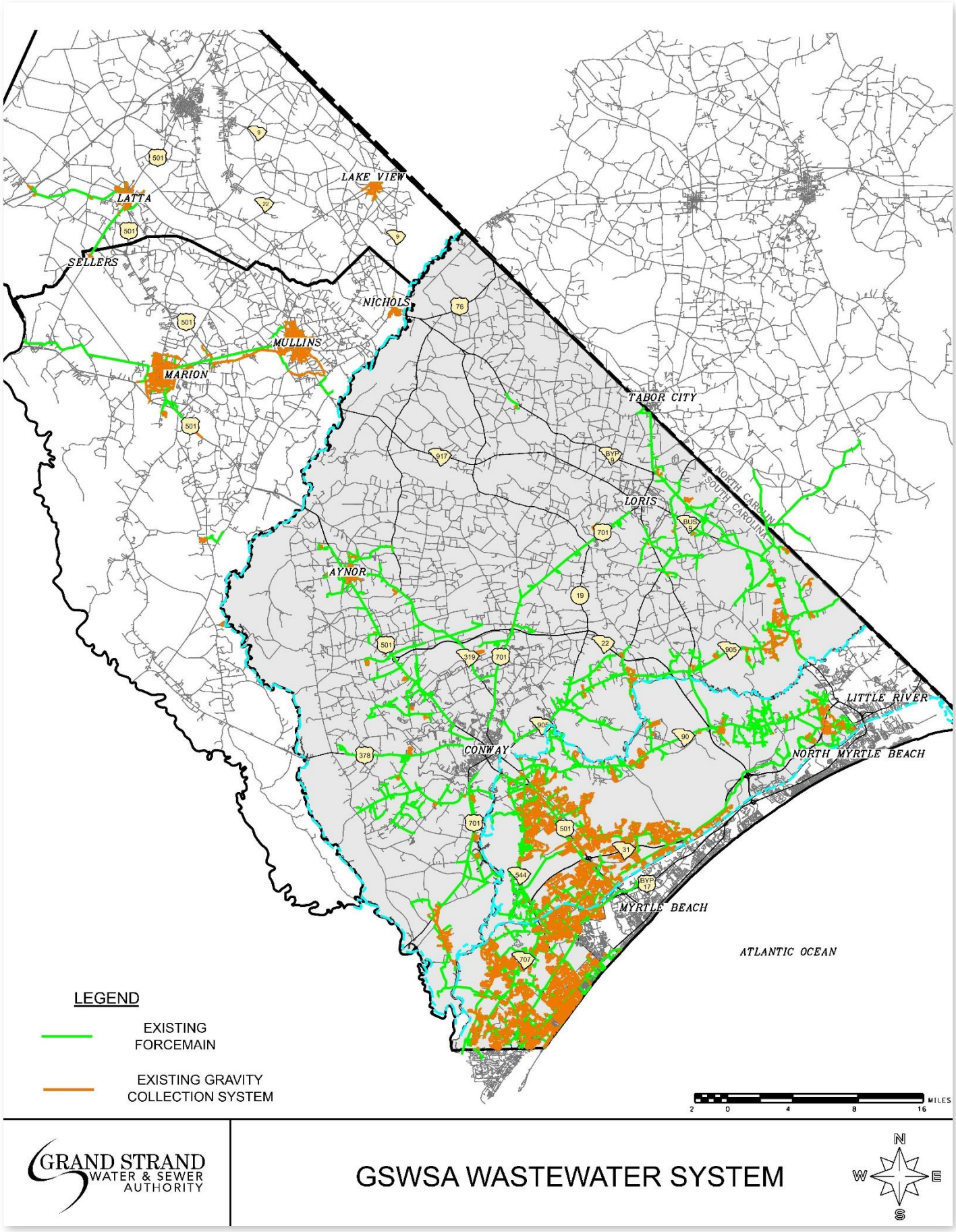
Elevated Storage Tanks			
Tank Name	**System**	**County**	**Capacity – MG**
Burning Ridge	Bull Creek	Horry	0.250
Deerfield	Bull Creek	Horry	0.250
3rd Ave - Surfside	Bull Creek	Horry	0.300
10th Ave - Surfside	Bull Creek	Horry	0.200
Caropines	Bull Creek	Horry	0.250
Garden City	Bull Creek	Horry	0.500
Hwy 501	Bull Creek	Horry	0.250
Carolina Forest	Bull Creek	Horry	0.500
North	Bull Creek	Horry	0.500
Longs	Bull Creek	Horry	0.100
Conway Mill	Bull Creek	Horry	0.300
Aynor	Bull Creek	Horry	0.100
Cool Springs	Bull Creek	Horry	0.250
Smith	Marion	Marion	0.250
Zion	Marion	Marion	0.250
Railroad	Marion	Marion	0.150
Industrial	Mullins	Marion	0.300
Springs Mill	Mullins	Marion	0.300
Front	Mullins	Marion	0.300
Well Site	Nichols	Marion	0.100
3rd Ave - Lake View	Lake View	Dillon	0.075
12th Ave - Lake View	Lake View	Dillon	0.150
		Total	**5.625**

Ground Storage Tanks			
Tank Name	**System**	**County**	**Capacity – MG**
Clearwell #1 at BC SWTP	Bull Creek	Horry	0.5
Clearwell #1 at BC SWTP	Bull Creek	Horry	2.0
South Pump Station	Bull Creek	Horry	5.0
Perry Rd Pump Station	Bull Creek	Horry	5.0
Conway Pump Station	Bull Creek	Horry	2.0
Clearwell #1 at MB SWTP	Myrtle Beach	Horry	2.0
Clearwell #2 at MB SWTP	Myrtle Beach	Horry	2.0
Carolina Pines Pump Station	Marion	Marion	1.0
Eutaw St Pump Station	Marion	Marion	1.0
		Total	**20.5**

Booster Pumping Stations			
Pump Station Site	**System**	**County**	**Capacity – MG**
Finished Water Pump Station @ MB SWTP	Myrtle Beach	Horry	45.0
Finished Water Pump Station 1 @ BC SWTP	Bull Creek	Horry	20.0
Finished Water Pump Station 2 @ BC SWTP	Bull Creek	Horry	25.0
South Pump Station (Central Train)	Bull Creek	Horry	10.0
South Pump Station (Coastal Train)	Bull Creek	Horry	10.0
Perry Rd Pump Station	Bull Creek	Horry	20.0
North Booster Pump Station	Bull Creek	Horry	8.0
Conway Pump Station	Bull Creek	Horry	8.0
Mill Pond Road Pump Station	Bull Creek	Horry	4.0
Boggy Road Pump Station	Bull Creek	Horry	0.4
Hwy 905 Booster Pump Station	Bull Creek	Horry	0.6
Hwy 9 Booster Pump Station	Bull Creek	Horry	0.7
Hwy 319 Booster Pump Station	Bull Creek	Horry	0.7
International Drive Booster Pump Station	Bull Creek	Horry	0.7
Buck Creek Booster Pump Station	Bull Creek	Horry	1.0
		Total	**154.1**

2. Wastewater

Wastewater facilities and services are located in most areas of the county. Treatment services are provided by thirteen wastewater treatment plants and one leach field. Wastewater transmission mains have been installed along most of the county's major transportation corridors. From the major transmission mains, rural lines have been extended to serve existing residents and businesses on a petition for service basis. Wastewater facilities and services are also located in the City of Marion, City of Mullins, Town of Nichols, Town of Lake View, Town of Sellers, and the Centenary Community. GSWSA also serves a portion of Columbus County, NC with wastewater facilities. The following maps reflect the wastewater systems within the designated service areas as well as a listing of the wastewater system's major components.


LAKE VIEW
LATTA
SELLERS
NICHOLS
MULLINS
MARION
TABOR CITY
LORIS
AYNOR
CONWAY
LITTLE RIVER
NORTH MYRTLE BEACH
MYRTLE BEACH
ATLANTIC OCEAN
NORTH CAROLINA
SOUTH CAROLINA
LEGEND
EXISTING FORCEMAIN
EXISTING GRAVITY COLLECTION SYSTEM
2 0 4 8 16 MILES
GRAND STRAND WATER & SEWER AUTHORITY
GSWSA WASTEWATER SYSTEM
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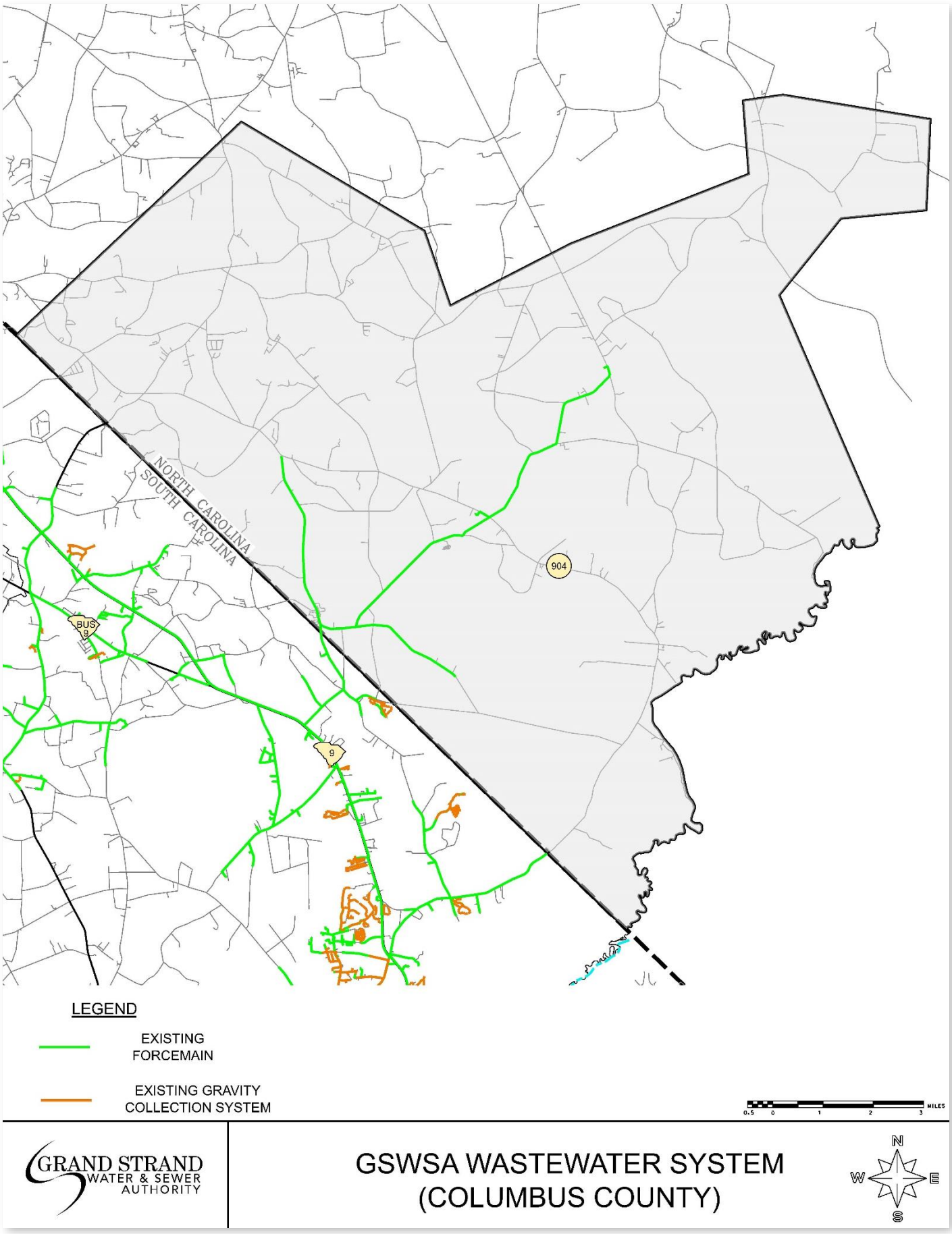
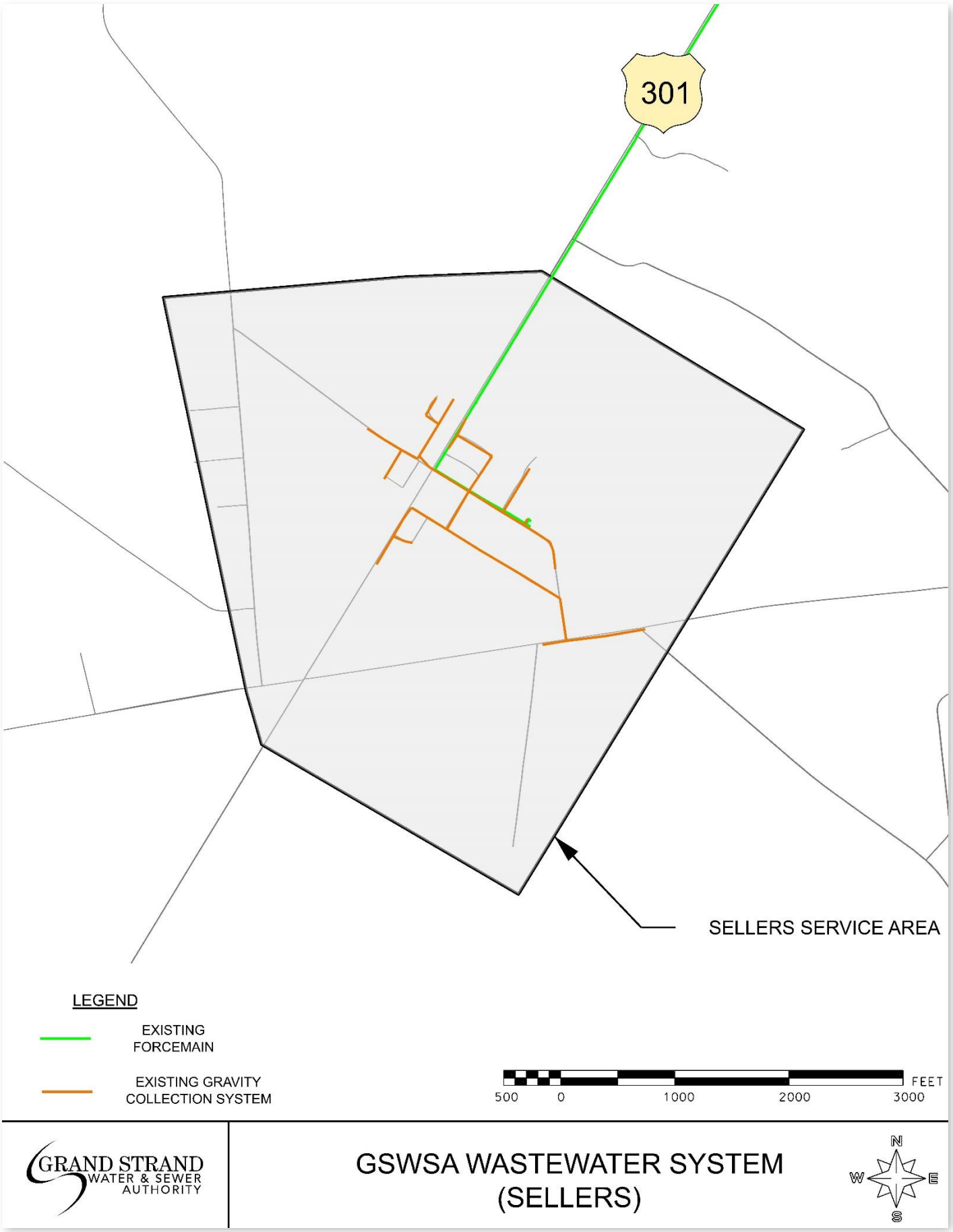


GRAND STRAND WATER & SEWER AUTHORITY

GSWSA WASTEWATER SYSTEM (COLUMBUS COUNTY)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LEGEND
EXISTING FORCEMAIN
EXISTING GRAVITY COLLECTION SYSTEM
500
0
1000
2000
3000
FEET
GRAND STRAND WATER & SEWER AUTHORITY
GSWSA WASTEWATER SYSTEM (SELLERS)
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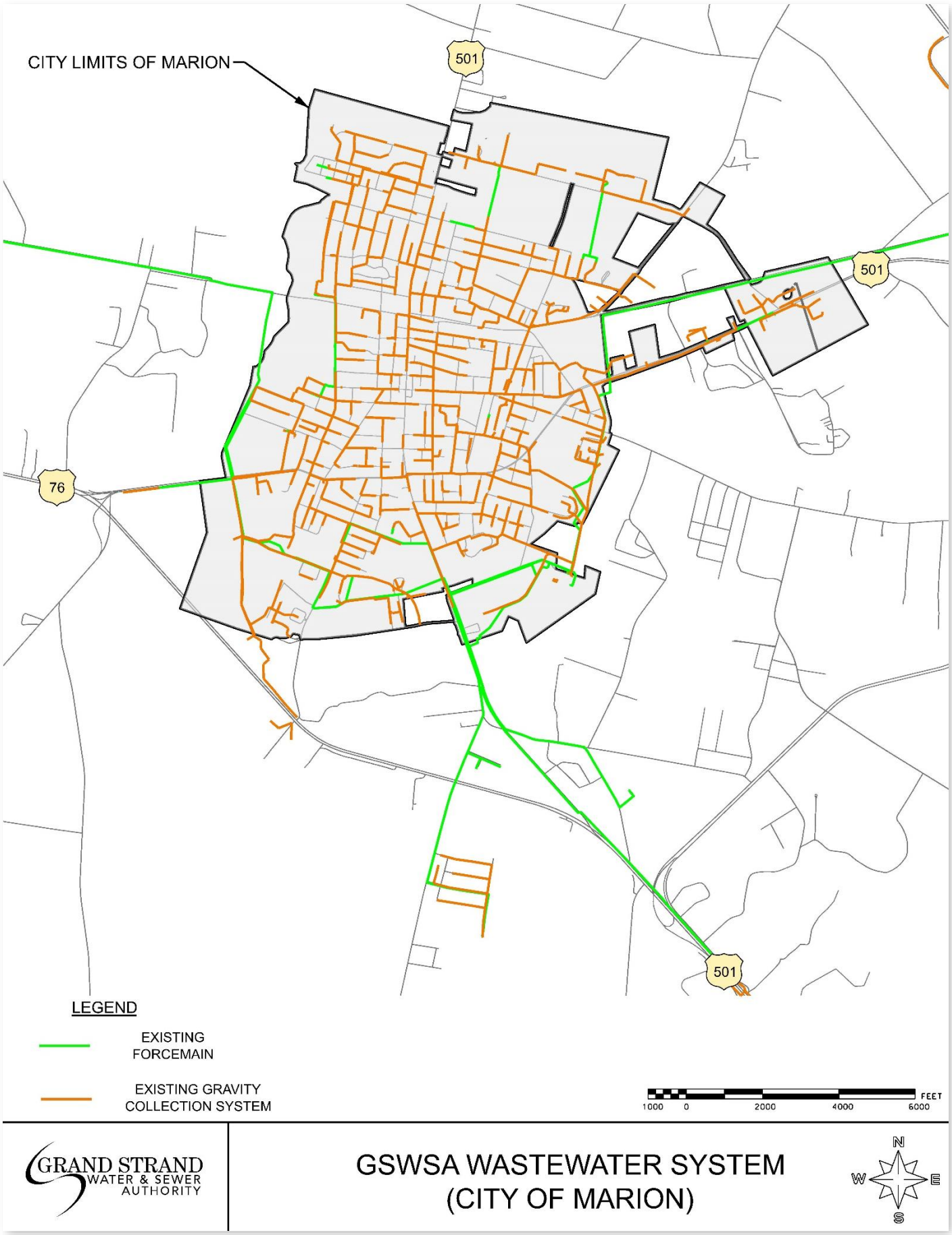
CITY LIMITS OF MARION
501
501
76
501
LEGEND
EXISTING FORCEMAIN
EXISTING GRAVITY COLLECTION SYSTEM
1000 0 2000 4000 6000 FEET
GRAND STRAND WATER & SEWER AUTHORITY
GSWSA WASTEWATER SYSTEM
(CITY OF MARION)
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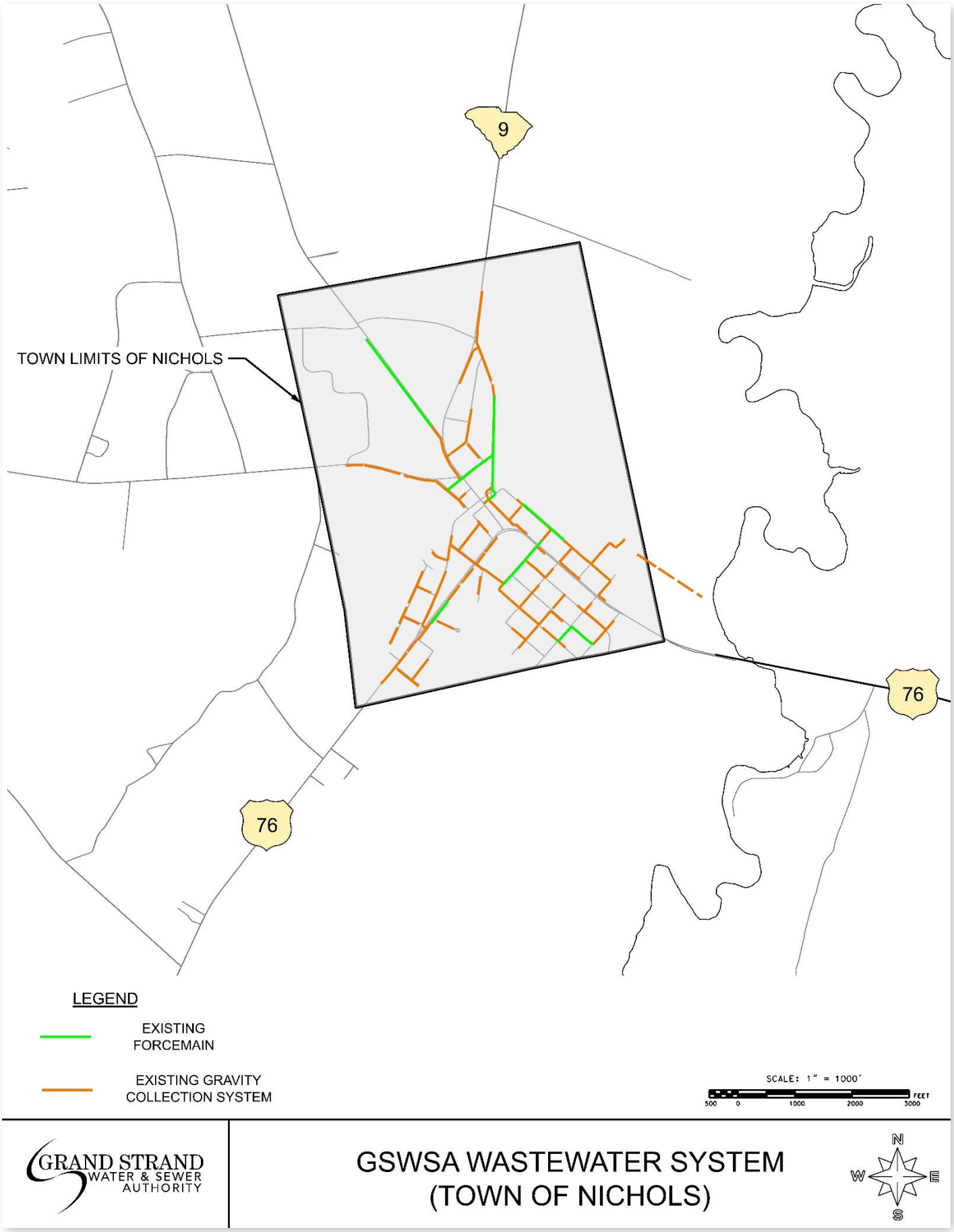
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TOWN LIMITS OF NICHOLS
76
76
LEGEND
EXISTING FORCEMAIN
EXISTING GRAVITY COLLECTION SYSTEM
SCALE: 1" = 1000'
500 0 1000 2000 3000 FEET
GRAND STRAND WATER & SEWER AUTHORITY
GSWSA WASTEWATER SYSTEM
(TOWN OF NICHOLS)
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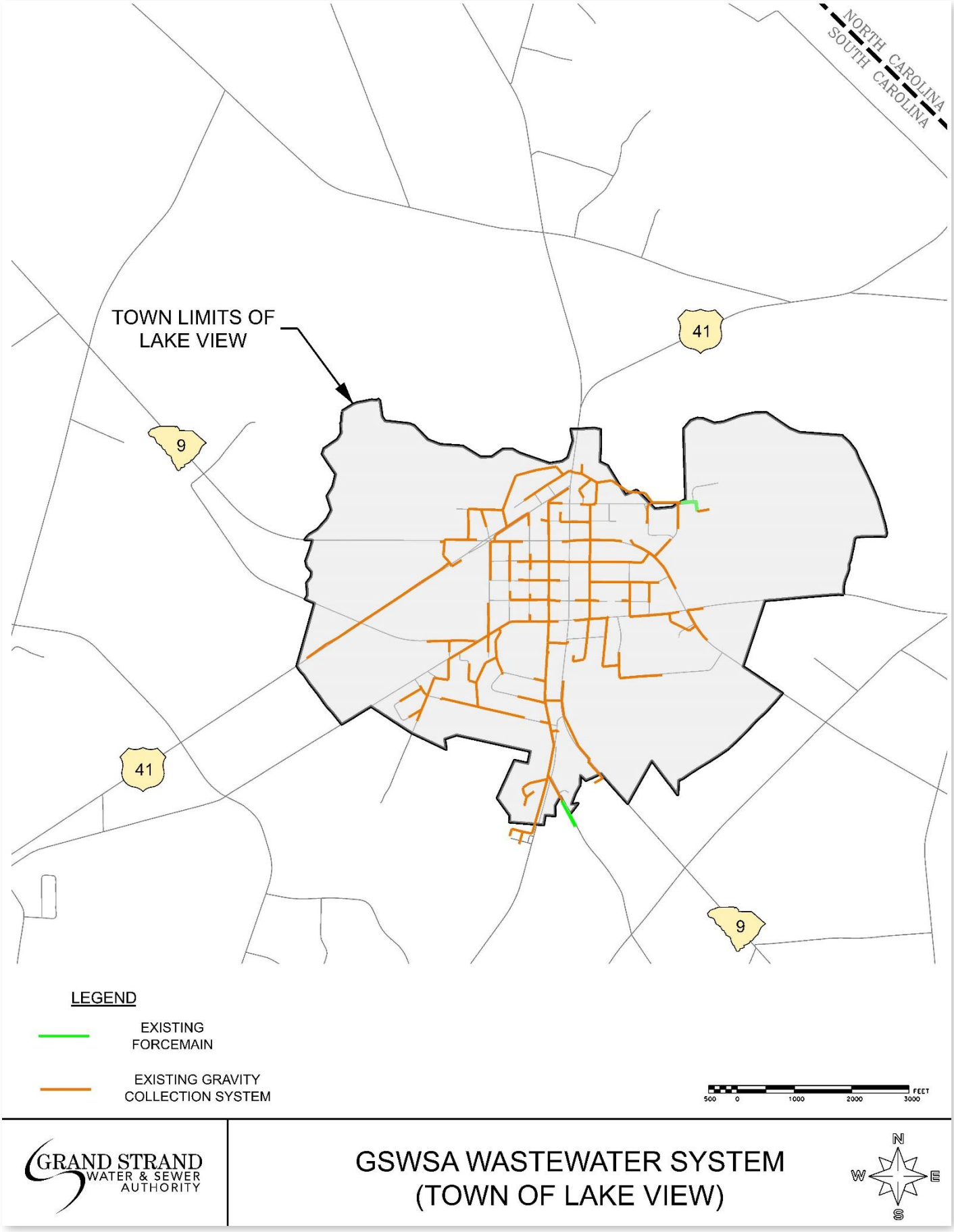
NORTH CAROLINA
SOUTH CAROLINA
TOWN LIMITS OF
LAKE VIEW
41
9
41
9
LEGEND
EXISTING
FORCEMAIN
EXISTING GRAVITY
COLLECTION SYSTEM
500 0 1000 2000 3000
FEET
GRAND STRAND
WATER & SEWER
AUTHORITY
GSWSA WASTEWATER SYSTEM
(TOWN OF LAKE VIEW)
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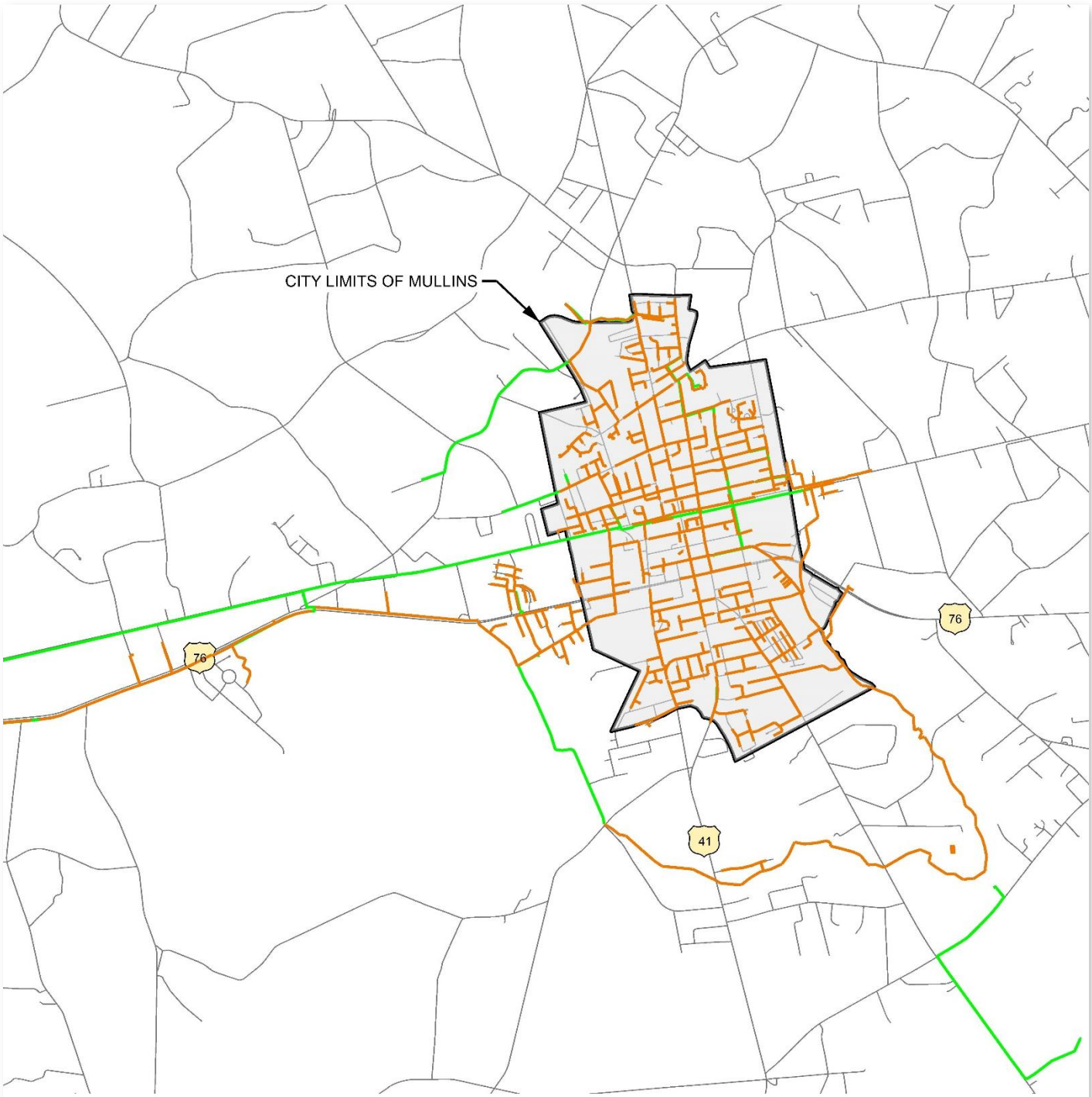
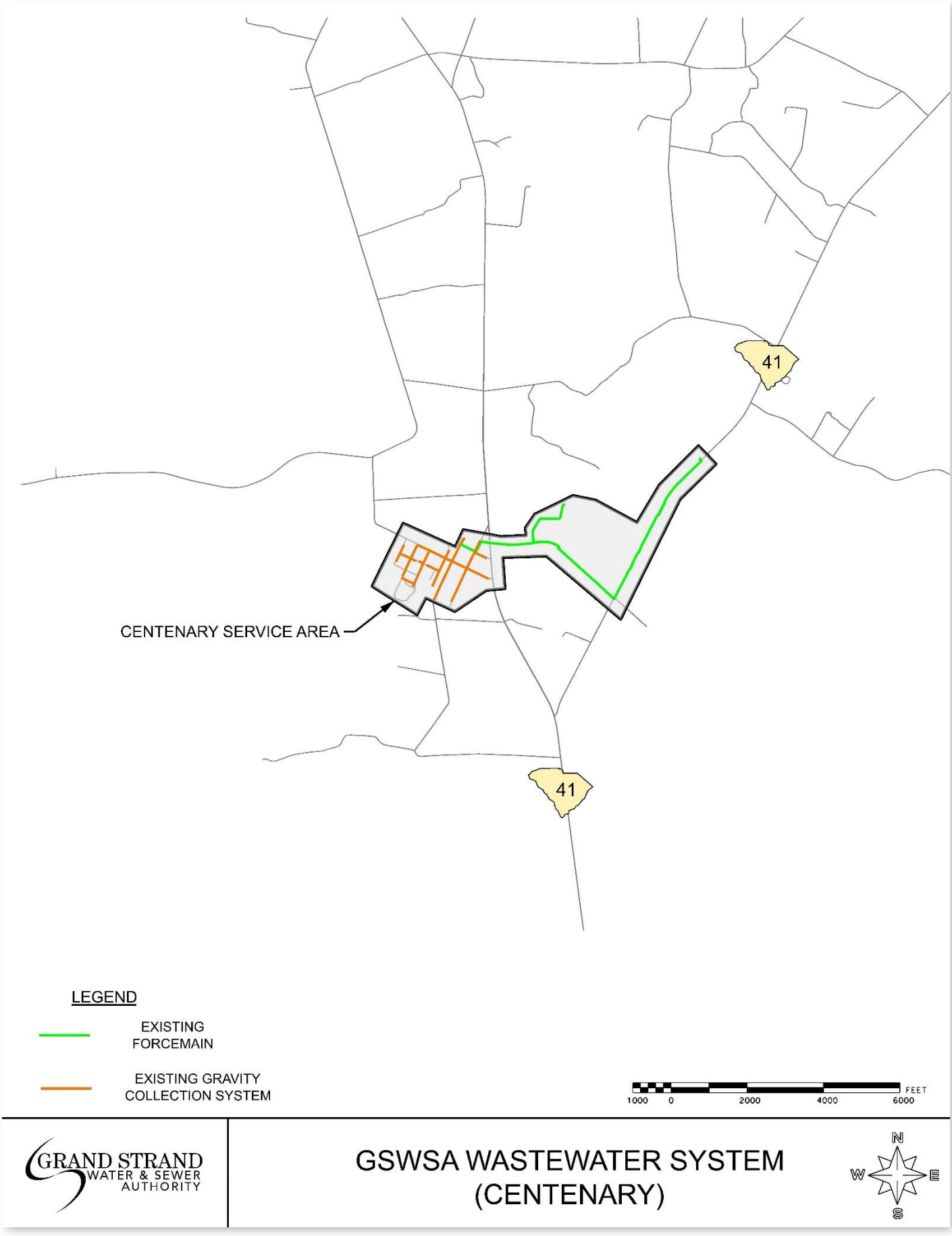


GRAND STRAND WATER & SEWER AUTHORITY

GSWSA WASTEWATER SYSTEM (CITY OF MULLINS)


41
CENTENARY SERVICE AREA
41
LEGEND
EXISTING FORCEMAIN
EXISTING GRAVITY COLLECTION SYSTEM
1000 0 2000 4000 6000 FEET
GRAND STRAND WATER & SEWER AUTHORITY
GSWSA WASTEWATER SYSTEM (CENTENARY)
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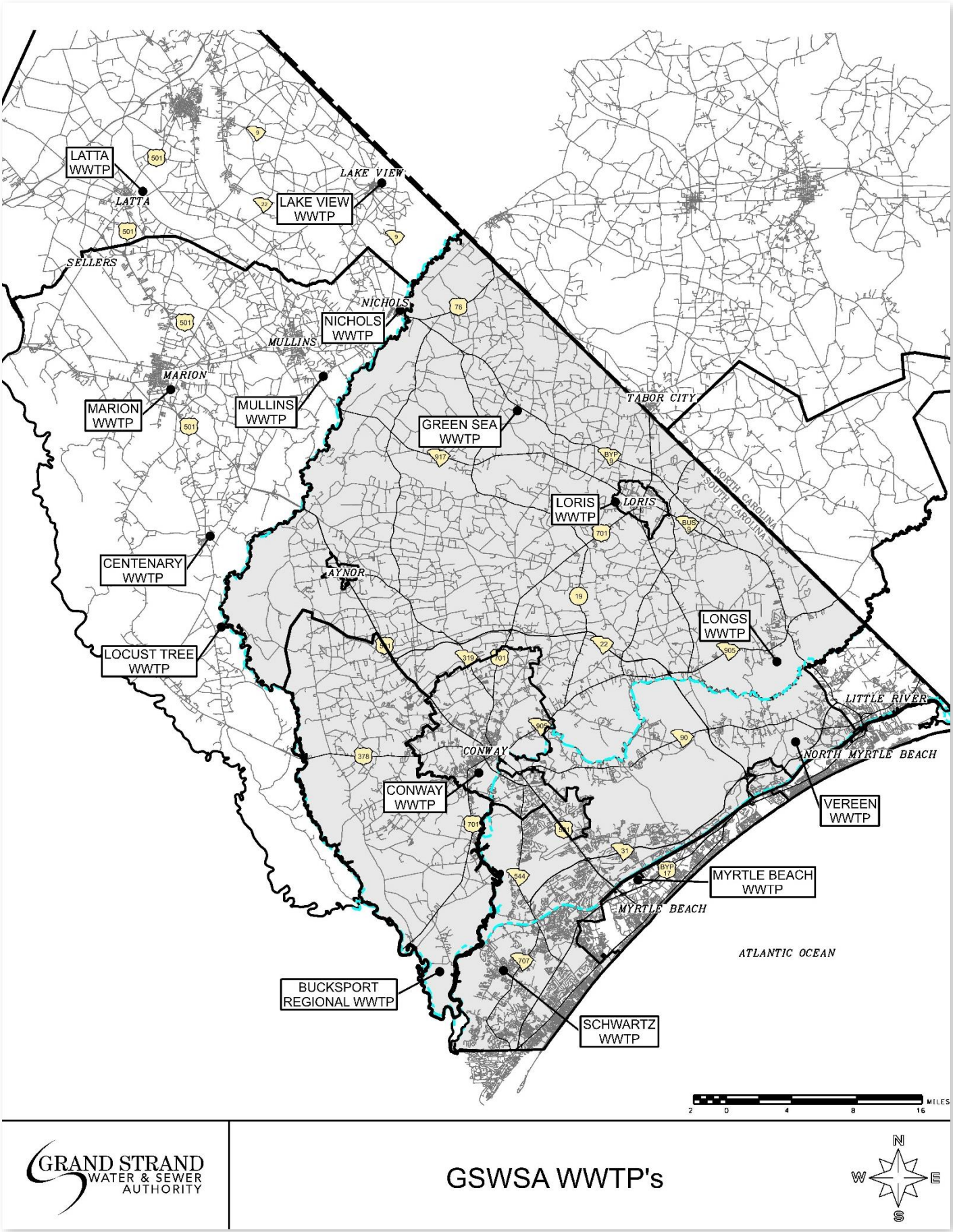
a. Wastewater Treatment Plants (WWTPs)

The Schwartz WWTP serves the south strand and east Conway areas. The Myrtle Beach Plant serves the City of Myrtle Beach. The Vereen WWTP serves the northeast area including service to Little River Water and Sewerage Company and parts of North Myrtle Beach. The Conway WWTP serves the City of Conway, the Town of Aynor and the west central portion of the county. The Loris WWTP serves the Town of Loris and the northwestern part of the county. The Mullins WWTP serves the City of Mullins. The Lake View WWTP serves the Town of Lake View in Dillon County. The Nichols WWTP serves the Town of Nichols in Marion County. The Locust Tree WWTP serves the residents in the Locust Tree community in the Britton's Neck area of Marion County. The Longs WWTP serves the Longs community, and the Bucksport WWTP serves the Bucksport community. A small plant is located in the very northwestern part of the county and primarily serves the Green Sea – Floyds High School, Middle School, and surrounding community.

GWSA Wastewater Treatment Plants			
Plant	**UOD lbs/day**	**Capacity – MG**	**Peak Month – ADF**
Schwartz	3,202	19.4	12.7
Myrtle Beach	4,191	22.4	14.2
Vereen	796	7	5.1
Conway	303	4	3.8
Bucksport Regional	N/A	5	4.68
Loris	N/A	0.7	0.6
Marion	3,413	6	2.7
Mullins	N/A	2.75	1.7
Lakeview	35.6	0.27	0.64
Nichols	N/A	0.135	0.03
Longs	222	3	0
Green Sea Floyds	N/A	0.015	0.0103
Locust Tree	N/A	0.00375	0.008795
Total	**12,163**	**70.67**	**46.17**

The following map identifies GSWSA WWTP's facilities within the designated service areas.



GRAND STRAND WATER & SEWER AUTHORITY

GSWSA WWTP's

The following describes each of the wastewater treatment plants:

1. Schwartz: The Schwartz South Strand Regional Wastewater Treatment Plant, located in the Burgess community inland from Surfside Beach, is the oldest plant in GSWSA's system. The plant receives wastewater from the old Myrtle Beach Air Force Base south to Garden City and Garden City Point and inland to Carolina Forest and Coastal Carolina University area including Forestbrook and Socastee. It is permitted to treat up to 19.4 MGD using a process that combines several different treatment trains and processes. The treated and disinfected effluent is discharged through an outfall that combines with effluent from the Myrtle Beach Treatment Plant and discharges into the Waccamaw River at a site near the Georgetown County line. A small portion of the by-product sludge is treated and discharged to the 210-acre Turf Farm where it is sprayed to provide irrigation and nutrients to grow Bermuda turf grass. The remainder is dewatered and composted to provide nutrients for Tip Top Tree Farm (1,600 acre site) and other agricultural sites.

2. Myrtle Beach: The Myrtle Beach WWTP is the largest GSWSA plant with a permitted capacity of 22.4 MGD, using an activated sludge process to produce advanced secondary effluent. Treated effluent is discharged through an outfall that combines with effluent from the Schwartz WWTP and discharges into the Waccamaw River at a site near the Georgetown County line. Much of the sludge is composted for use on our permitted land application sites. The plant is located at the end of Mr. Joe White Avenue in Myrtle Beach.

3. Vereen: The Vereen North Strand Regional WWTP is permitted to treat up to 7.0 MGD using an activated sludge process to produce an advanced secondary effluent, which is discharged to either the AIWW or one of GSWSA's four Carolina Bays. The by-product sludge is treated in a portion of the older treatment plant using a process that treats and dewaters the sludge for composting at the Bucksport Compost Facility and later disposal at GSWSA's land application sites.

The plant is located near the Wampee community and receives wastewater from Little River, Longs, the northern portion of Carolina Forest, and Wampee. The plant also is contracted to accept up to 3.0 MGD from the City of North Myrtle Beach.

4. Conway: The Conway WWTP is permitted to treat up to 4.0 MGD using an activated sludge process to produce an advanced secondary treated effluent that is discharged through Wadus Swamp to the Waccamaw River. The by-product sludge is dewatered and transported to the Bucksport Compost Facility for later disposal at GSWSA's land application sites. The plant is located near Lake Busbee off Hwy 701 South and receives wastewater from the City of Conway and the Town of Aynor as well as most of western Horry County not served by other plants.

5. Bucksport Regional: The Bucksport Regional WWTP is permitted to treat up to 5.0 MGD using an activated sludge process that includes total nitrogen removal. The treated effluent is discharged into 10 separate Rapid Infiltration Basins (RIB's) or onto the existing Tip Top Tree Farm. Solids are dewatered and processed at the Bucksport Compost Facility located adjacent to this plant and later disposed of at GSWSA's land application sites. The plant is located in Bucksport and receives wastewater from Bucksport, south Conway and the Burgess areas.

6. Marion: The Marion WWTP is permitted to treat up to 6 MGD using an activated sludge process. Treated effluent is discharged to the Pee Dee River. Solids are dewatered and transported to the Bucksport Compost Facility and composted for later disposal at GSWSA's land application sites. The plant is located in the southeastern part of town behind the Marion High School.

7. Mullins: The Mullins WWTP is permitted to treat up to 2.75 MGD using an activated sludge process. Treated effluent is discharged into the Little Pee Dee River via White Oak Creek. Solids are digested in two aerobic digesters and applied at an adjacent GSWSA owned land application site where Coastal Bermuda grass is harvested as hay. The plant is located on the southeastern side of the City of Mullins.

8. Lake View: The Lake View WWTP has two separate discharge permits, one to a land application site, and one to the Lumber River via the Bear and Ashpole swamps. The land application permit is for 270,000 GPD, while the river discharge permit is for 250,000 GPD. The plant consists of a 5 acre aerobic lagoon and intermittent sand filters to complete nitrification and solids reduction. The by-product sludge is treated in the lagoons and is stored until it is removed for disposal at GSWSA's land application sites. The plant is located on the eastern side of the Town of Lake View, behind the Lake View High School and receives only wastewater from the Town of Lake View.

9. Loris: The Loris WWTP is permitted to treat up to 700,000 GPD and uses lagoon treatment followed by filtration to produce an advanced secondary effluent for discharge into Pleasant Meadow Swamp. Part of the flow can be diverted to the Conway WWTP via a diversion pump station down Hwy 701 from Loris to Conway. The by-product sludge is treated in the lagoons and is stored until it is removed for disposal at GSWSA's land application sites. The plant is located on the western edge of Loris and receives wastewater mostly from the town.

10. Nichols: The Nichols WWTP is permitted to receive 135,000 GPD and uses lagoon treatment with secondary effluent being discharged into the Lumber River. The by-product sludge is treated in the lagoons and is stored until it is removed for disposal at GSWSA's land application sites. The plant is located on the eastern side of the Town of Nichols and receives wastewater from the Town of Nichols.

11. Longs: The original Longs WWTP is permitted to receive up to 200,000 GPD and uses a lagoon treatment system to produce a secondary effluent that is permitted for discharge to the Waccamaw River. Since 2008, the treated effluent has been diverted to the Vereen WWTP. In 2020 construction began to construct a new 3.0 MGD Activated Sludge Extended Aeration Oxidation Ditch that will treat and discharge its effluent into the Waccamaw River. The plant is located in the Longs community and receives wastewater from the Longs community as well as surrounding areas.

12. Green Sea-Floyds: The Green Sea-Floyds WWTP is permitted to treat up to 15,250 GPD and uses a lagoon treatment system to produce secondary effluent for discharge to a land application site. The by-product sludge is treated in the lagoons and is stored until it is removed for disposal at GSWSA's

land application sites. The plant is located off Highway 9 just east of the Green Sea-Floyds High School.

13. Centenary: Centenary leach field is permitted for disposal of 29,500 GPD or a corresponding maximum of 70 taps or service connections. This system includes a 3.5 acre underground leaching system. The plant is located on the northeastern portion of Centenary and receives flows from the Centenary community and Creek Bridge High School.

14. Locust Tree: Locust Tree WWTP is an Activated Sludge Package treatment plant designed for 0.00375 MGD that discharges to a percolation pond. The plant is located near Britton's Neck in Marion County. The plant serves the residents of Locust Tree subdivision on the Little Pee Dee River.

b. Collection and Transmission

GSWSA owns 887 miles of combined gravity sewer. The gravity sewer is primarily a conventional gravity system except the small diameter sewers with settling tanks serving Longs, Bucksport, Centenary and Burgess Communities. Gravity sewer flows to pumping stations connected through 921 miles of pressure transmission mains to treatment plants.

Pumping stations are grouped as follows:

Residential – 5,990 pumping stations that serve only one or two customers.

Subdivision - 721 subdivision pump stations each having a 5 or 6 foot wet well, two pumps, and associated gravity sewer generally designed to serve a small area consisting of one subdivision. A few serve more than one subdivision, serve adjacent properties, or serve only part of a larger subdivision.

Re-pumping - 77 re-pumping stations receive wastewater from one or more subdivision pump stations. Many receive wastewater from only one or two other pump stations. However, several regional re-pumping stations serve much larger areas.

Sewer Pipeline		
Diameter – Inches	**Force Mains – Miles**	**Gravity Mains – Miles**
48	6	0
36	13	0
30	38	0
24	10	2
21	-	1
20	12	3
18	12	2
16	35	0
15	-	1
14	14	0
12	65	9
10	116	11
8	122	850
6	212	7
4	133	0
3	59	-
3	0	-
2	73	-
Total	**921**	**887**
Total	**1,808**	

Wastewater Booster Pump Stations			
Pump Station	**Area Served**	**County**	**Capacity – MG**
PS 1	South Strand	Horry	6.5
PS 2	South Strand	Horry	3.0
PS 3	Socastee	Horry	3.5
PS 10	South Strand	Horry	2.0
PS 53	Aynor	Horry	1.0
PS 171	Surfside	Horry	1.5
PS 253	Eastern Horry County	Horry	15.0
PS 319	Carolina Forest	Horry	1.5
PS 578	West Marion	Marion	2.0
PS 583	East Marion	Marion	1.8
PS 605	Longs	Horry	1.5
PS 615	West Mullins	Marion	1.5
		Total	**44.8**

1. Marion: The City of Marion has 56 miles of gravity collection line, 28 miles of force main with 17 pump stations.

2. Mullins: The City of Mullins has 55 miles of gravity collection line, 18 miles of force main with 18 pump stations.

3. Nichols: The Town of Nichols has 8 miles of gravity collection line, 2 miles of force main with 7 pump stations.

4. Lake View: The Town of Lake View has 11 miles of gravity collection line, 1 mile of force main with 1 pump station.

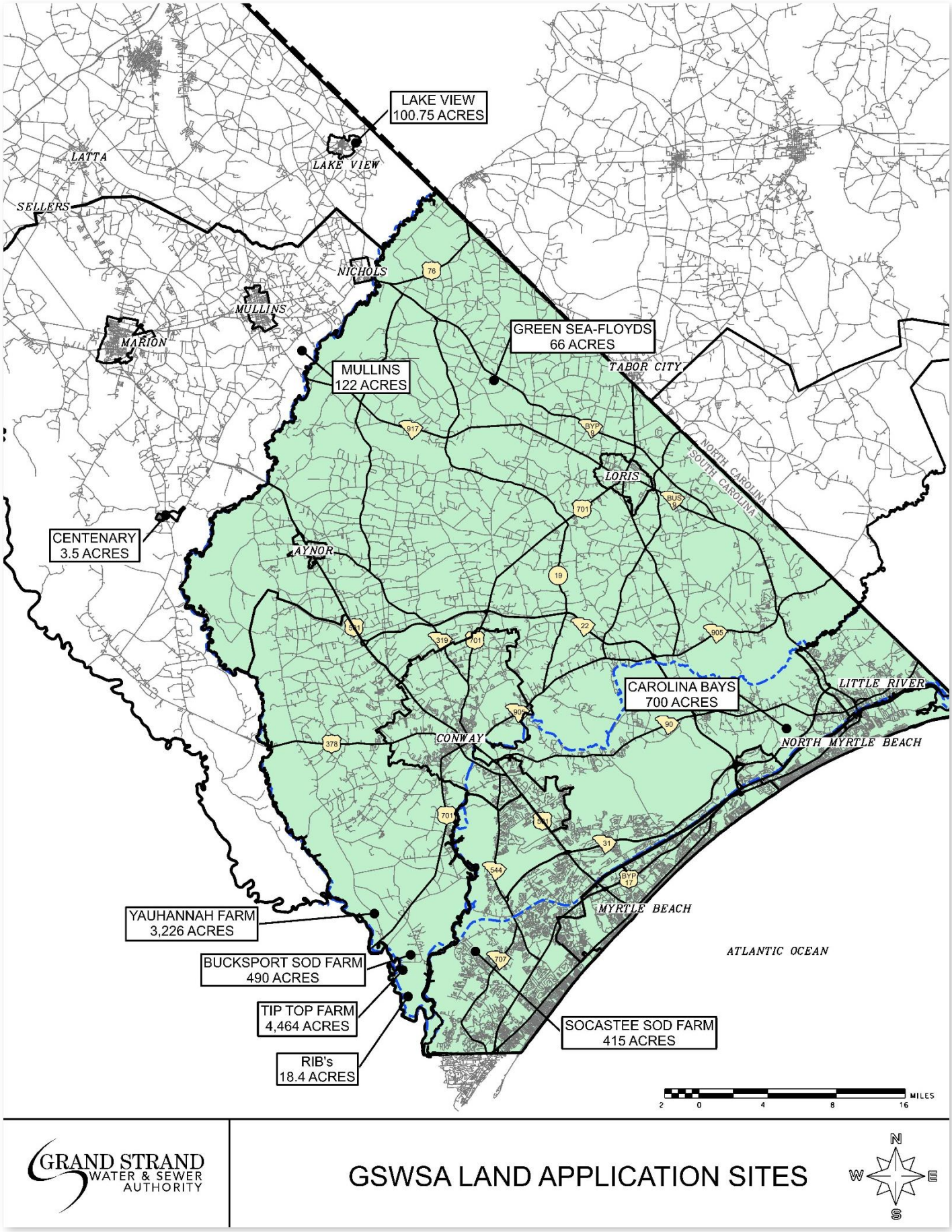
5. Centenary: The Community of Centenary has 2 miles of gravity collection line, 2 miles of force main and 2 pump stations. Centenary has solid settling tanks and effluent is discharged to a spray field for treatment.

6. Sellers: The Town of Sellers has 2 miles of gravity collection line, 6 miles of force main and 1 pump station. Sellers' sewer is pumped to the Town of Latta for treatment.

Marion and Dillon County Systems				
System	**County**	**Pump Stations – #**	**Force Mains – Miles**	**Gravity Mains – Miles**
Marion	Marion	17	28	56
Mullins	Marion	16	55	18
Nichols	Marion	8	2	7
Sellers	Marion	1	1	2
Centenary	Marion	2	2	2
Locust Tree	Marion	1	0.2	1
Lake View	Dillon	1	0.2	1
Latta	Dillon	9	14	18
	Total	**55**	**102**	**115**

c. Land Application

Land application of treated wastewater and sludge by-products from water and wastewater treatment processes are a major component of GSWSA's disposal strategy. As regulations and criteria for discharges directly into rivers become more stringent, alternative disposal strategies are critical to finding cost effective and environmentally compatible disposal methods. GSWSA has developed effluent and sludge management plans for over 9,000 acres of land throughout Horry County, 130 acres in Marion County, and over 100 acres in Dillon County. The following map reflects the land application sites operated by GSWSA.


LAKE VIEW
100.75 ACRES
LATTA
LAKE VIEW
SELLERS
NICHOLS
MULLINS
MARION
MULLINS
122 ACRES
GREEN SEA-FLOYDS
66 ACRES
TABOR CITY
LORIS
NORTH CAROLINA
SOUTH CAROLINA
CENTENARY
3.5 ACRES
AYNOR
CAROLINA BAYS
700 ACRES
LITTLE RIVER
CONWAY
NORTH MYRTLE BEACH
MYRTLE BEACH
ATLANTIC OCEAN
YAUHANNAH FARM
3,226 ACRES
BUCKSPORT SOD FARM
490 ACRES
TIP TOP FARM
4,464 ACRES
RIB's
18.4 ACRES
SOCASTEE SOD FARM
415 ACRES
MILES
2 0 4 8 16
GRAND STRAND
WATER & SEWER
AUTHORITY
GSWSA LAND APPLICATION SITES
N
W
E
S

1. Socastee Farm: The Socastee Farm was the first sod farm developed by GSWSA. It was developed and expanded concurrently with the Schwartz WWTP to handle the biosolids from the plant and use part of the plant effluent for irrigation needs. The 415 acre site has 210 acres permitted and used for disposal of treated biosolids and effluent to aid in the production of 419 Bermuda sod and various other crops. About 50 acres may be developed for future biosolids disposal and the remainder is buffer, storage lagoons, and wetlands. The farm operates three storage lagoons, an 8 MG aerated lagoon for temporary storage of excess Schwartz plant influent or effluent, a 10 MG lagoon for stormwater, and a 6 MG lagoon for storm water or effluent. The farm also operates 0.6 MG of aerated biosolids storage tanks.

2. Bucksport Farm: The Bucksport Farm was developed concurrently with the Bull Creek Surface Water Treatment Plant to dispose alum sludge and backwash water. Subsequently it has been permitted for disposal of Myrtle Beach water plant alum sludge and treated wastewater biosolids from several of GSWSA's smaller treatment plants. The 490 acre site has 341 acres permitted for alum sludge and 175 acres of that is permitted for wastewater biosolids and compost to aid in the production of centipede sod and various other crops. About 50 acres may be developed for sludge reuse in the future and the remainder is buffer and wetlands.

3. Tip Top Farm: This 4,464 acre site is about half wetlands and half uplands. DHEC has permitted 1,600 acres of sandy upland soils as acceptable for tree farm irrigation with 10.5 MGD of treated effluent from the Schwartz and Bucksport Regional WWTPs. Currently 700 acres are used to dispose of up to 5 MGD of effluent from these facilities to aid in the production of pine trees and coastal Bermuda grass for hay production. This site has 10 MGD of rapid infiltration basins (RIBs) for effluent disposal. The site also has several colonies of Red Cockaded Woodpeckers and 300 acres are set aside as Safe Harbor areas for the protection and propagation of this endangered species. Approximately 800 additional acres are used for biosolids reuse.

4. Yauhannah Tract: This 3,226 acre site has approximately 1,200 acres of uplands tree farm with the remainder being riverine and isolated wetlands. The site accepts biosolids and dewatered alum sludge from the compost facility and several treatment plants. The site was purchased in 2004 and is permitted for bio-solids application to enhance tree growth.

5. Carolina Bays: This 700 acre site at the Vereen WWTP consists of four Carolina Bays ranging in size from 130 to 250 acres. These Bays were originally permitted by the EPA and DHEC as an innovative and alternative method of wastewater treatment and disposal. These wetlands are now only occasionally used as a backup for effluent application from the recently upgraded plant.

6. Green Sea – Floyds Land Application Site: This 66 acre site has about 5 acres of upland that is used for the treatment and disposal of wastewater from the Green Sea-Floyds High School, Middle School, and surrounding community. The remainder of the site is wetlands and buffer.

7. Mullins Land Application Site: This 128.5 acre site is permitted for biosolids disposal from the Mullins WWTP aerobic digestion process that is applied to coastal Bermuda grass for hay production.

8. Lake View: This 100.75 acre site is permitted for 270,000 GPD of treated effluent disposal from the Lake View WWTP. Coastal Bermuda grass is grown and harvested as hay at this location.

9. Centenary: This 3.5 acre site is a leach tile field that serves the Centenary community and local school.

3. Support Facilities

a. Office, Maintenance and Inventory Facilities

Grand Strand Water and Sewer Authority's Administrative Office is located just off Highway 544 on Jackson Bluff Road. The 23,000 sqft facility was completed in the Winter of 2005 and houses GSWSA's administrative, financial, customer services, information technology, and engineering divisions.

The former Administrative Office is now currently the Operation's Office, which is located adjacent to the Administrative Office. This 10,000 sqft facility houses staff for the water and wastewater operations and maintenance, technical services, construction, and meter reading service departments.

The Repairs and Inspections staff are now housed within the former 5,000 sqft Construction Building, which is located behind the Operation's Office.

At the end of 2008, three new facilities were completed which included the Inventory Warehouse, Fleet Services Shop, and Pump Repair buildings. The Inventory Warehouse is comprised of 13,585 sqft and is designated for the storage of GSWSA's inventory supplies and construction materials. The Fleet Services Shop is 6,154 sqft and is used for the maintenance and repair of all vehicles, equipment, trailers, and additional smaller equipment. The Pump Repair Building is a 2,375 sqft facility in which the Wastewater Operations Department uses for the maintenance and repair work of existing pump stations.

In 2010, a new Operations compound was completed for the Field Operations Division located adjacent to the existing Operation's Office. The compound included two (2) – 1,800 sqft metal buildings used for storage and workshop space for the water and sewer field operators. Two (2) sheds were also completed totaling 8,820 sqft and are used for equipment storage such as generators and by-pass pumps.

As the service area expanded into Marion and Dillon Counties, a need for a central Field Operations compound was realized. In 2015, an office/safety training building was completed in the City of Marion and is comprised of 2,925 sqft. The building houses field operations' groups and serves as the Emergency Operations Center for Marion and Dillon Counties. The compound also includes 4,410 sqft of shed area to store equipment. The compound site includes an existing 5,000 sqft wood building that was upgraded and now serves as storage for the field operations staff. In 2016, the Marion Administration Office was completed on this site totaling 1,500 sqft to provide customers in the area convenient access to customer service representatives and for bill payment.

In 2016, the Operations compound at the Central campus was expanded to include three (3) additional sheds totaling 12,548 sqft and are used for equipment & material storage and two (2) – 1,800 sqft metal buildings used for storage and workshop space for the water and sewer field operators. The compound was expanded again in 2018 with the addition of two (2) sheds totaling 3,000 sqft and are also used for pipe & equipment storage.

In 2019, a new shed totaling 7,200 sqft was completed for the Construction Department on the Central campus adjacent to the Repairs building for storing large construction equipment and materials.

As the service area, customer base, and number of employees continue to increase, GSWSA continues to expand and improve facilities to provide more reliable and efficient resources for employees as well as customer service.

b. Fleet

Having nearly a 1,200 square mile service area served by approximately 340 employees requires GSWSA to maintain a fleet of vehicles suited for the many varying activities required to provide quality water and wastewater services. GSWSA currently maintains a fleet of 306 service vehicles.

c. Equipment

GSWSA maintains its own construction and repair crews that regularly construct and maintain the entire water and wastewater system. Using in-house construction crews allows GSWSA to extend new services at a lower cost and to respond more quickly to make repairs on damaged facilities. To support these activities, GSWSA maintains a full line of heavy equipment including but not limited to backhoes, trackhoes, tractors, dozers, boring machines, and trailers. GSWSA currently maintains approximately 342 pieces of heavy equipment.

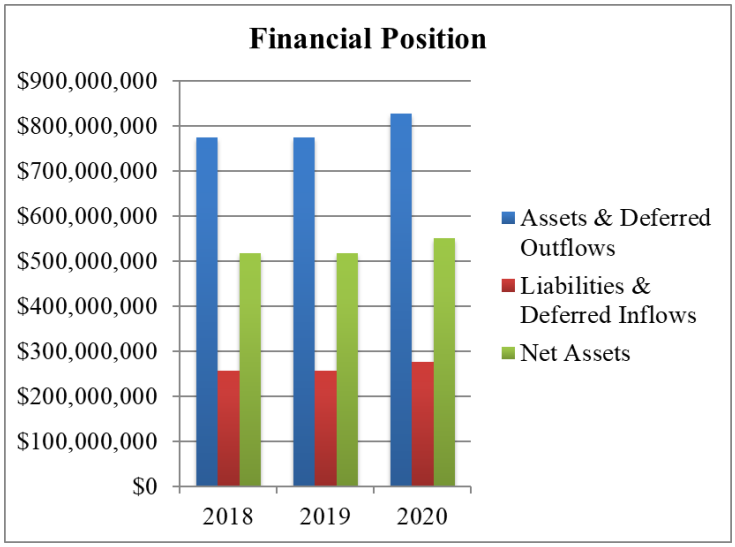
d. Laboratories

Water labs are located at the Bull Creek Water Plant and the Myrtle Beach Water Plant. Wastewater labs are located at the Schwartz, Vereen, and Marion Wastewater Treatment Plants. Minor labs are also located at the Conway, Bucksport Regional and Mullins Wastewater Treatment Plants. These labs are fully equipped to provide all routine analysis required for the continued operation of our water and wastewater systems.

E. Financial Position

Grand Strand Water and Sewer Authority's (GSWSA) financial statements for fiscal year 2020 were audited by Smith Sapp, P.A. In their opinion, the basic financial statements represent fairly the financial position and cash flows in accordance with generally accepted accounting principles. GSWSA also received the Government Finance Officers Association's Certificate of Achievement for Excellence in Financial Reporting for the 31st consecutive year. The following information was taken from the 2020 annual report.

While the national economy has been in turmoil since the onset of Covid-19, GSWSA has continued to experience positive growth and financial positions. GSWSA has also continued to build financial strength and stability as a result of its conservative management. The current financial condition and operating and long-term plans have enabled GSWSA to meet customer needs now and well into the future. The following chart summarizes the statement of net position.



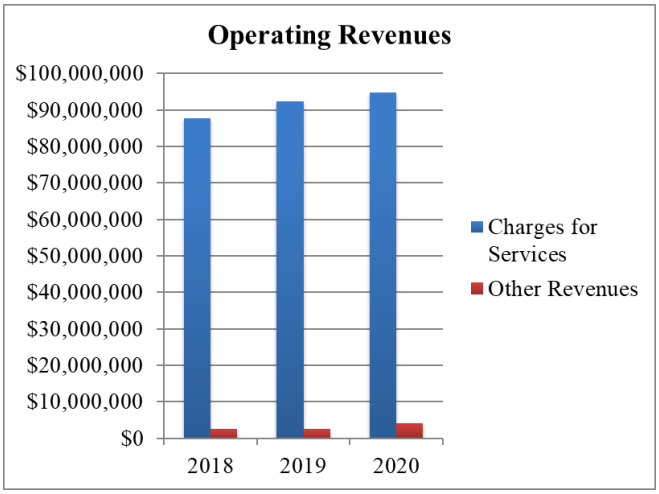
During fiscal year 2020, total assets and deferred outflows increased by $45 million or 5.5%, with approximately $43 million represented by an increase in capital assets of $43 million, which is largely due to the increase in capital expenditures for facilities during 2020. Total liabilities increased by $5 million or 2%. The increase in total liabilities is mostly due to the change in the fair value of the interest rate swap and the recognition of increases in net pension liability. Net position increased overall by $40 million or 7.3%, as a result in the increase in net investments in capital assets by $44 million, increase in unrestricted by $12 million and decrease in restricted for capital projects by $16 million. The net position restricted for capital projects decreased due to the draw down of a construction account used for allocated projects related to the Bonds of 2019.

During fiscal year 2019, total assets and deferred outflows increased by $53.0 million or 6.9%, which was due to increases in cash and cash equivalents of $7.8 million, investments of $6.5 million, restricted cash and cash equivalents of $17.1 million, and capital assets of $17.5 million. These increases were funded by the issuance of the Bonds of 2019 of $30.0 million combined with a positive change in net position of $34.1 million.

Accounts receivable, net of allowance, for 2020 decreased by $3 million from 2019. Accounts receivable at June 30, 2019 were increased by $2 million from 2018. These changes are mainly due to the timing of customer payments as of June 30th.

1. Operating Revenues

Revenues from operations fall into two general categories: (1) charges for services, which includes: water and wastewater volume, availability fees, customer charges, surface water treatment plant charges, tap fees, sod sales and (2) other revenues, which includes: timber sales, engineering fees and miscellaneous fees. GSWSA has three classes of water and wastewater customers: wholesale,



residential and commercial. The provided chart depicts GSWSA revenues for the last three fiscal years.

In 2020, GSWSA increased retail water and wastewater rates by 2.2% and 2.1%, respectively. Wholesale and contract water and wastewater rates were increased by various percentages as specified by contract. In 2019, GSWSA did not increase retail water and wastewater rates. Other rates that increased were the wholesale operating water rates by 1.7% and wholesale capital charges by various percentages as specified by contract.

2. Operating Expenses

GSWSA operates and maintains both a potable water treatment and distribution system and a wastewater collection and treatment system. The water production occurs at its two 45 million gallon per day surface water treatment plants. GSWSA has backup wells to use for peak management. The wastewater system includes thirteen wastewater treatment plants that range in size from 3,750 gallons per day to 22.4 million gallons per day.

In 2020, total operating expenses increased $7.6 million from fiscal year 2019, and operating revenues increased by $4 million. Operating expenses for water and wastewater operations for the last three years are listed below:

	2020	%	2019	%	Variance	2018	%	Variance
Personnel Costs	$31,424,502	34.1%	$28,665,584	34.0%	$2,758,918	$28,293,175	33.9%	$372,409
Contractual Services	$19,056,084	20.7%	$16,878,565	20.0%	$2,177,519	$16,945,277	20.3%	($66,712)
Supplies and Materials	$10,748,940	11.7%	$9,773,624	11.6%	$975,316	$9,365,521	11.2%	$408,103
Depreciation and Amortization	$29,681,913	32.2%	$27,993,822	33.2%	$1,688,091	$27,776,741	33.2%	$217,081
Other	$1,153,195	1.3%	$1,102,953	1.3%	$50,242	$1,172,613	1.4%	($69,660)
Total Operating Expenses	**$92,064,634**	**100.0%**	**$84,414,548**	**100.0%**	**$7,650,086**	**$83,553,327**	**100.0%**	**$861,221**

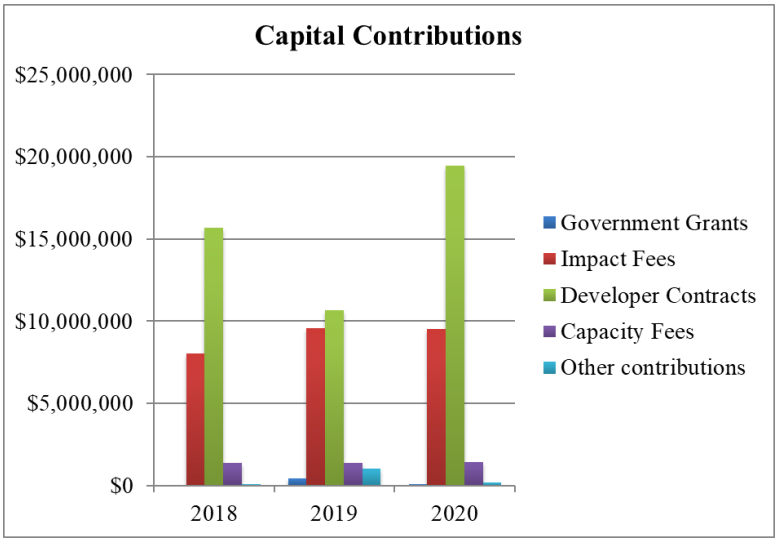
Personnel costs increased $2.8 million or 9.6% from 2019 to 2020. GSWSA granted an average 3.5% merit increase during 2020. The overall increase in personnel costs was mainly a result of the merit increase, an increase in insurance premiums, an increase in the employer retirement contribution rate to the South Carolina Retirement System, recognition of GSWSA's portion of the state's pension expense, as well as the recognition of GSWSA's portion of postemployment benefit expense for the year. Contractual services were up by $2.2 million due to an increase in water and wastewater facility maintenance costs. Supplies and materials increased by $975,316 or 10% as the result of the increase in costs for water and wastewater facility supplies, as well as treatment supplies. Depreciation was up $1.5 million or 6% due to the addition of assets during fiscal year 2020. Other expenses are down by $50,242 due to an increase in costs associated with wastewater damage claims and longevity awards. Diligent monitoring of these expenses and sound management has continued to keep our expenses under budgeted projections.

Personnel costs increased $372,409 or 1.3% from 2018 to 2019. GSWSA granted an average 4% merit increase during 2019. The overall increase in personnel costs was mainly a result of the merit increase, an increase in insurance premiums, an increase in the employer retirement contribution rate to the South Carolina Retirement System, recognition of GSWSA's portion of the state's pension expense, as well as the recognition of GSWSA's portion of postemployment benefit expense for the year. Contractual services were down by $66,712 due to a decrease in water and wastewater facility maintenance costs. Supplies and materials increased by $408,103 or 4.4% as the result of treatment supplies. Depreciation was up $217,081 or 0.8% due to the addition of assets during fiscal year 2019. Other expenses are down by $69,660 due to a decrease in costs associated with wastewater damage claims and longevity awards. Diligent monitoring of these expenses and sound management has continued to keep our expenses under budgeted projections.

3. Capital Contributions

GSWSA collects water and wastewater capacity fees in order to ensure that current customers do not bear the burden of growth. These fees are paid by new customers and represent the cost of water and/or wastewater capacity on the new account based on a residential equivalent unit. Most of these fees are paid in blocks of capacity purchased by residential and commercial real estate developers and wholesale customers. Prior to GASB 34 implementation, the money and system assets received were recorded as direct contributions to the equity. GASB 34 defines these fees as non-operating revenues and requires reporting the amounts through the Statement of Activities. GSWSA restricts the use of capacity fee revenue to capital investments in its system. GSWSA also received some additions to its collection and distribution systems from developers.

The following chart depicts the capacity fee revenue activity.

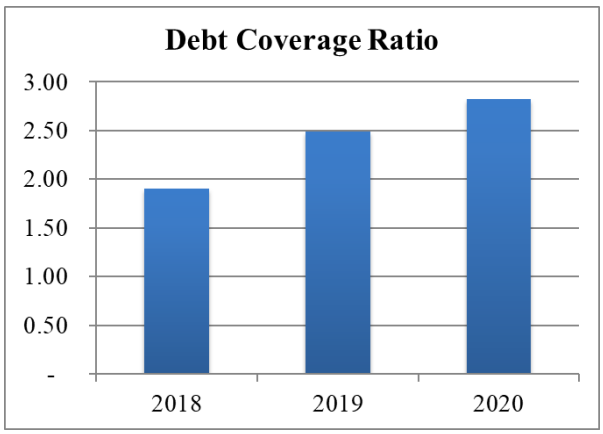


Overall, capital contributions increased $7.5 million, or 32.7% during fiscal year 2020. Developer contributions increased $9 million from 2019. Development of the local area has grown as a result of the demand for single family homes and commercial development. Government grants were $103,298 for 2020 as compared to $440,557 for 2019. The increase in government grants was due to receiving funds in 2020 from the SC Emergency Management Division for public assistance associated with Hurricanes Florence and Dorian. Impact fees were approximately $9.5 million for 2020 compared to $9.6 million for 2019. Other contributions decreased by $852,091 during 2020, due to less insurance reimbursements being received for hurricane damages. Capacity fees also slightly decreased $59,921 from 2019.

During fiscal year 2019, capital contributions decreased $2.1 million, or 8.3% during fiscal year 2019. Developer contributions decreased $5 million from 2018. Development of the local area has grown

as a result of the demand for single family homes and commercial development, although not as many developer assets were deeded over to GSWSA during fiscal year 2019. Government grants were $440,557 for 2019 as compared to $46,468 for 2018. The increase in government grants was due to receiving funds in 2019 from the SC Emergency Management Division for public assistance associated with Hurricane Florence. Impact fees were approximately $9.6 million for 2019 compared to $8 million for 2018. Other contributions increased by $964,234 due to receiving insurance payments for Hurricane Florence, SCDOT and Horry County reimbursements for large highway projects during 2019. Capacity fees also slightly increased $33,336 from 2018.

4. Debt Coverage



In the Bond Resolution, GSWSA covenants and agrees that it will, at all times, prescribe and maintain and thereafter collect rates and charges for the services and facilities furnished by GSWSA, together with other income, that will yield annual Net Earnings in the fiscal year equal to at least one hundred ten percent (110%) of the sum of the annual debt service payments. Net earnings for debt service are defined as gross revenue including customer impact fees, less operating expenses adjusted for depreciation. The rate covenant in the Bond Resolution obligates GSWSA to review rates at least once a year and to revise such rates and charges as necessary to meet the coverage test. Revenue bond debt service coverage for fiscal years 2020, 2019 and 2018 were 282%, 249% and 190%, respectively.

5. Capital Assets and Long-Term Debt

Capital assets increased by $43 million during 2020. While all of these system improvements below added to the value of GSWSA's capital assets, the net additions to capital assets in FY 2020 was approximately $73 million and the depreciation of capital assets was $28 million. Some of the largest additions to capital assets in 2020 included:

Rural Sewer	$8,112,179
Rural Water	$5,817,792
Glenn's Bay Road Widening	$5,187,352
Bull Creek Alum Sludge Dewatering	$4,470,630
WWTP Renewal and Replacement	$2,416,880
MBSWTP Inclined Plates	$1,264,810
Transmission Improvements	$1,107,627
ASR Improvements	$1,095,455
Transmission Renewal & Replacement	$1,052,721

Capital assets increased by $17.5 million during 2019. While all of these system improvements below added to the value of GSWSA's capital assets, the net additions to capital assets in FY 2019 was

approximately $46 million and the depreciation of capital assets was $28 million. Some of the largest additions to capital assets in 2019 included:

Rural Sewer	$5,773,674
Rural Water	$4,304,439
MBSWTP Ozone System Improvements	$3,791,768
Schwartz WWTP Clarifier	$2,915,807
Transmission Renewal and Replacement	$2,759,515
Transmission Improvement	$1,289,852
WWTP Renewal and Replacement	$1,032,204

Developer contributions to capital assets were $10.7 million. Disposals for 2019 were $2,277,270.

In May of 2019, GSWSA obtained a State Revolving loan for the South Wastewater Transmission System Upgrade. As of June 30, 2020, the draws on this loan and recorded debt was $9,085,191. During 2019, GSWSA also issued the Bonds of 2019 in the amount of $30,000,000. The bond proceeds were used to fund various capital projects.

6. Rates and Charges

Raftelis Financial Consultants, Inc, (Raftelis) a nationally recognized consulting firm specializing in rates in the water and wastewater industry was engaged to access the reasonableness, affordability and competitiveness of GSWSA's current and historical rates and charges. The following is from the Raftelis report.

I. Executive Summary

A. Background of the Study

Grand Strand Water and Sewer Authority (GSWSA), a regional utility serving Horry County and surrounding counties along the South Carolina coast, is focused on serving their growing service area by providing the most affordable water and sewer rates possible. Working with Raftelis in 2005 and again in 2015, GSWSA has facilitated detailed studies to assess affordability, comparing typical residential water and wastewater bills to local and national benchmarks. In conjunction with the creation of their 2040 Strategic Business Plan, GSWSA is interested in updating the 2015 benchmarking study to gain a more precise understanding of their rate affordability to date, with respect to 1) local peer utilities' rates, 2) nationwide utility rate increases, and 3) Consumer Price Index increases.

B. Objectives of the Study

The major tasks in this study include the following:

- Analysis of peer utilities' rates from the local area;
- A nationwide survey of utility rates and charges as comparison points for GSWSA; and
- An affordability analysis that considers GSWSA's rates with respect to CPI increases and median household income (MHI).

Raftelis has worked with GSWSA staff to compile historical rate and customer billing information for GSWSA and other local utilities in the Grand Strand and Low Country region. Raftelis analyzed data collected from utilities across the country as part of our biennial rate survey, completed in partnership with the American Water Works Association (AWWA), to assess GSWSA's rate affordability. The major findings of our analysis include the following:

- From fiscal year (FY) 2008 through FY 2018, GSWSA's water bill for a typical resident experienced an annualized increase of 1.42%, from $19.10 in 2008 to $21.99 in 2018. This increase was below the average annualized increase[1] observed for the typical residential water bill from our national survey group (5.75%, from $24.28 in FY 2008 to $42.45 in FY 2018).[2]
- From FY 2008 through FY 2018, GSWSA's wastewater bill for a typical resident experienced an annualized increase of 1.85%, from $22.90 in FY 2008 to $27.50 in FY 2018. This increase was below the average annualized increase observed for the typical residential wastewater bill from our national survey group (5.09%, from $31.47 in FY 2008 to $51.70 in FY 2018).
- The combined water and wastewater bill for a typical GSWSA residential customer is below the average bill for typical residential customers of other local utilities and it represents the most affordable of any of the utilities included in the local comparison group.
- GSWSA impact fees are the lowest among the local comparison group, providing the GSWSA with a competitive position within the Low Country region in terms of economic development and affordable housing.
- Based on residential affordability guidelines, the annual water and wastewater bill for the typical residential customer of the GSWSA in FY 2020 indicates a low financial burden when measured as a percentage of Horry County median household income.
- Raftelis has provided separate water and wastewater benchmark rate adjustment forecasts based on historical national inflation rates and utility rate adjustments of the national survey groups. These benchmarks are tailored to provide a range of exceptional, favorable, and unfavorable rate adjustments and impacts for GSWSA's typical residential customer.
- The Consumer Price Index (CPI) increases for consumers in the Southeast region, analyzed on a biennial basis to correspond to national rate data, experienced an annualized increase of 2.66% from FY 2008 to FY 2018. The typical residential water and wastewater customer of the GSWSA experienced an annualized combined bill increase of 1.79% from FY 2008 through FY 2018. Annual rate adjustments and customer impacts within, at, or below inflation fall within our "exceptional" benchmark category.
- As of the publication of their *2035 Strategic Business Plan*, GSWSA anticipated annualized water and wastewater utility bill increases during the next 10 years of approximately 1.66% and

[1] For the purposes of this report, the term "annualized adjustments" represent the annual compounded increases to the typical residential customer's bill between the first year and final year of the period being considered.

[2] Raftelis analyzed data from our biennial AWWA rate survey corresponding to the previous ten years' surveys. Rate surveys were published in 2008, 2010, 2012, 2014, 2016, and 2019. Although the most recent AWWA rate survey was published in 2019, rather than in 2018, and some utilities have reflected fiscal year 2019 rate increases in their results, 2019 survey results are assumed to correspond to fiscal year 2018 benchmarks for the purpose of estimating 10-year annualized rate increases. Note that not all utilities represented in the 2019 survey raised rates between 2016 and 2019.

approximately 1.5% during the next 20 years, both of which fall well within our exceptional benchmark range.

- As of the publication of their 2035 Strategic Business Plan, GSWSA anticipates annualized adjustments of 1.92% over the next 10 years and 1.83% over the next 20 years to its combined water and wastewater impact fees.

These findings are discussed in more detail in the following sections of this report.

II. Service Area Overview

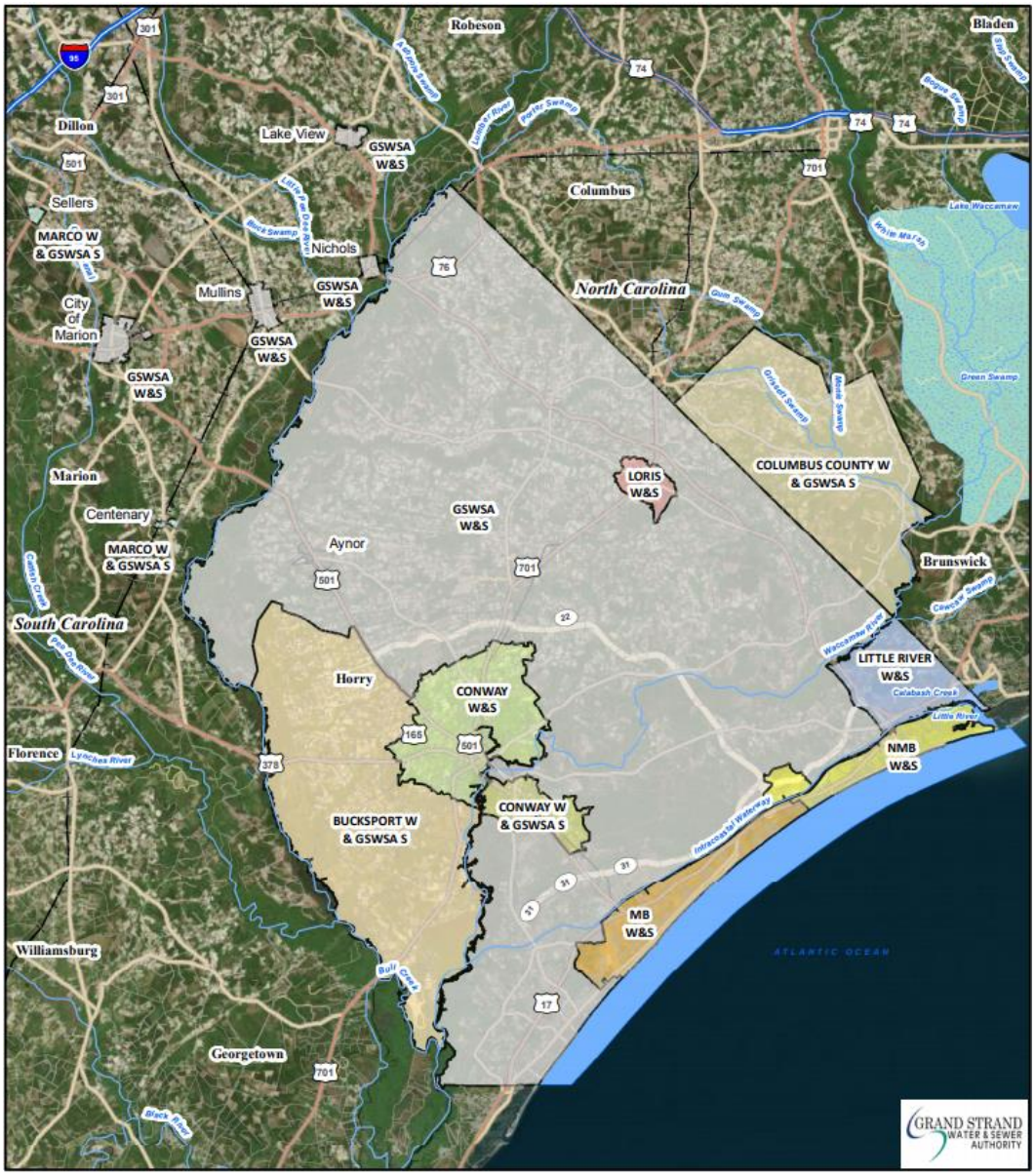
GSWSA is a Special Purpose District. It was created pursuant to provisions of Act 337 enacted during the 1971 Session of the General Assembly of the State of South Carolina as a body politic and corporate. The principal functions of GSWSA are to acquire supplies of fresh water capable of being used for industrial and domestic purposes, to distribute such water for industrial and domestic use within its service area and to build, acquire, construct, operate and maintain such sewerage treatment and collection facilities as GSWSA deems necessary. The direct service area of GSWSA is presently defined to include all of the geographic areas of Horry County except for those areas included within an incorporated municipality which owns and operates a water and/or sewer system, within the service area of Little River Water and Sewerage Company, Inc. and within the areas immediately adjacent to the Bucksport Water System, Inc. water service area. It is located in the northeastern portion of the State of South Carolina.

Currently the City of Conway, City of Myrtle Beach, City of North Myrtle Beach (supplemental wastewater), and the City of Loris are wholesale customers of GSWSA for water and wastewater services. GSWSA also provides wholesale water and wastewater services to Little River and supplements water and wastewater to Georgetown County Water and Sewer District. Pursuant to agreements with the City of Marion, City of Mullins, Town of Aynor, Town of Lake View, Town of Nichols, and Town of Surfside Beach the Authority now directly provides water and wastewater services to retail customers within those municipalities. GSWSA provides retail wastewater services to Centenary and Town of Sellers and back up wholesale water to Bucksport Water System. GSWSA's existing service area is shown in Figure 1.

In North Carolina, GSWSA serves Tabor City back up wholesale water along with limited retail wastewater and Columbus County limited retail wastewater through contractual agreements.

Figure 1: GSWSA's Current Service Area

Service area as of March 2020, provided by GSWSA



The annual budget serves as the foundation for GSWSA's financial planning and control. The Board of Directors is required to hold a public hearing on the proposed budget and adopt a final budget no later than June 30 of each year. GSWSA implements a rolling two-year budget.

To serve their growing customer base, which currently includes over 100,000 retail accounts, GSWSA operates several water and wastewater treatment plants. GSWSA's largest water plant is the 45 million gallon per day (MGD) Bull Creek Regional Water Treatment Plant (BCWTP), which provides treated surface water to GSWSA retail customers as well as the City of Conway, the Town of Little River, the Georgetown Water and Sewer District, the Town of Tabor City, and the Town of Loris. The surface water treated at the BCWTP is drawn from Bull Creek, which is an arm of the Great Pee Dee and Little Pee Dee rivers. The GSWSA also operates the 45 MGD Myrtle Beach Surface Water Treatment Plant (MBWTP) which provides treated surface water to the City of Myrtle Beach and the City of North Myrtle Beach. Both these facilities were acquired from the City of Myrtle Beach in 2006.

GSWSA operates seven wastewater treatment plants with a combined treatment capacity of approximately 36.3 MGD. The Schwartz South Strand Regional Wastewater Treatment Plant (SWWTP) (19.35 MGD), the Vereen North Strand Wastewater Treatment Plant (VWWTP) (7.0 MGD), and the Conway Wastewater Treatment Plant (CWWTP) (4.0 MGD) provide the majority of wastewater

treatment. The remaining four facilities, which include the Longs Wastewater Treatment Plant (Longs WWTP) (0.2 MGD), the Bucksport Wastewater Treatment Plant (BWWTP) (5 MGD), the Floyds Wastewater Treatment Plant (FWWTP) (0.015 MGD), and the Loris Wastewater Treatment Plant (Loris WWTP) (0.7 MGD), are small package plants for their respective local areas.
In the last 30 years Horry County has experienced significant growth as the Grand Strand and Low Country region of South Carolina offers a favorable economy and attractive residential lifestyles and communities. Horry County has become a major retirement area and is home to a robust tourism industry. Growth and development in this popular tourism and retirement areas should continue over the next 20 years.

III. Rate History

Over the past 35 years, GSWSA and other utilities have experienced significant financial challenges in providing water and wastewater services to meet increased demand and environmental regulatory requirements. Since the Environmental Protection Agency (EPA) founding in 1970, there has been an increased focus on ensuring that water and wastewater is treated to appropriate levels to protect water quality. However, beginning in 1987, the federal grant programs that provided much of the utility funding up to that point were phased out at a time when water and wastewater utilities were faced with significant capital investments to meet increasingly stringent environmental regulations and pressure to extend utility services to new areas. As a result, most utilities have been forced to increase utility rates at levels that have generally exceeded inflationary increases. The most significant factors requiring these utility rate increases include:

- Replacing aging facilities and infrastructure;
- Expanding facilities to meet new growth and/or extending service to areas previously served by wells and/or septic tanks;
- Regulatory mandates to improve treatment standards; and
- Increasing service levels and system reliability to meet customer demands and expectations.

To demonstrate how effectively GSWSA has addressed these factors, this section discusses GSWSA's history of rate adjustments and the impact of these annual rate adjustments on residential customers during the ten-year period from 2008 through 2018. This historical rate performance is then compared with the historical rate performance of a national survey group of similar utilities from 2008 through 2018.[3] In addition, the fiscal year 2020 typical monthly residential bill and impact fees for GSWSA's customers are compared with those of utilities in the Grand Strand and Low Country region of South Carolina. Finally, the affordability of GSWSA's current water and wastewater rates in relation to the financial capabilities of the residential population of Horry County is evaluated.

[3] Raftelis analyzed data from our biennial AWWA rate survey corresponding to the previous ten years' surveys. Rate surveys were published in 2008, 2010, 2012, 2014, 2016, and 2019. Although the most recent AWWA rate survey was published in 2019, rather than in 2018, and some utilities have reflected fiscal year 2019 rate increases in their results, 2019 survey results are assumed to correspond to fiscal year 2018 benchmarks for the purpose of estimating 10-year annualized rate increases. Note that not all utilities represented in the 2019 survey raised rates between 2016 and 2019.

A. Historical Utility Rates and National Survey Comparison

Despite the regulatory requirements and unprecedented growth and development occurring in its service area over the past 20 years, GSWSA has managed to expand its facilities, service area, and customer base while providing quality utility services and maintaining minimal financial impacts for customers.

GSWSA asked Raftelis to assess its recent rate history in comparison to that of other water and wastewater utilities from across the country. To provide this assessment, Raftelis analyzed water and wastewater rate survey information from the *Raftelis Biennial Water and Wastewater Rate Survey*[4] corresponding to the past decade.[5] The survey data includes information from 643 water utilities and 447 sewer utilities. To determine the annual impact on residential customers, water and wastewater bills were calculated based on water consumption of 1,000 cubic feet per month, or 7,480 gallons per month. This level of demand is similar to the 8,000 gallons per month used to create GSWSA's historical bill survey, to which the national survey data was compared.

Since federal grant programs were phased out beginning in 1987, most utilities in the United States have experienced annual water and wastewater bill increases that generally exceeded annual inflationary increases. From FY 2008 to FY 2018, the average annual compound increase in water bills for the typical residential customer in the national survey group was 5.75% for water utilities. By contrast, the annual compound increase in water bills for the typical residential customer of the GSWSA during that same period was 1.42%. For wastewater, the average annual increase in residential wastewater bills for the national survey group of wastewater utilities was 5.09%. By contrast, the annual compound increase in wastewater bills for the typical residential customer of the GSWSA during was 1.85%. These GSWSA annualized bill increases fall below both the national survey averages and the annualized South Region CPI inflation rate of 2.66% from FY 2008 to FY 2018.[6] From a benchmarking perspective, Raftelis considers GSWSA's modest annualized rate increases to be exceptional for customers, as discussed in the final section of this report.

Table 1 compares the impact of average annual increases in water and wastewater bills for typical residential customers in our national survey group with the typical GSWSA residential customer from FY 2008 through FY 2018.

[4] Beginning in 2008, Raftelis has teamed with the American Water Works Association (AWWA) to develop the biennial Water and Wastewater Rate Survey.

[5] Raftelis analyzed data from our biennial AWWA rate survey corresponding to the previous ten years' surveys. Rate surveys were published in 2008, 2010, 2012, 2014, 2016, and 2019. Although the most recent AWWA rate survey was published in 2019, rather than in 2018, and some utilities have reflected fiscal year 2019 rate increases in their results, 2019 survey results are assumed to correspond to fiscal year 2018 benchmarks for the purpose of estimating 10-year annualized rate increases. Note that not all utilities represented in the 2019 survey raised rates between 2016 and 2019.

[6] CPI increases for the South Region of the U.S. were obtained from the Bureau of Labor Statistics website: https://www.bls.gov/cpi/regional-resources.htm.

Table 1: GSWSA Customer Bill Increases Compared to CPI and National Rate Survey Data

Period: FY 2008- FY 2018	Water	Wastewater
GSWSA (1)	**1.42%**	**1.85%**
South Region CPI (2)	2.66%	2.66%
National Rate Survey (1)	5.75%	5.09%

(1) Represents the annual compounded increases to the typical residential customer's respective water and wastewater bills between the first year and final year of the period.
(2) Represents the annualized inflationary increase for all consumers in the South Region of the U.S. Data was obtained from the Bureau of Labor Statistics website: https://www.bls.gov/cpi/regional-resources.htm.

B. Comparison of GSWSA Bills with Other Local Utility Bills

Although GSWSA has managed to keep its combined rate adjustments below or consistent with inflation increases during the previous ten years, this does not address the competitiveness of the typical monthly water and wastewater bills for residential customers of the GSWSA with similar customers of other local utilities in the Grand Strand and Low Country region. To determine the regional competitiveness of GSWSA rates, Raftelis has developed a comparison of the typical monthly bill for a GSWSA residential customer with those of neighboring local utilities. This comparison, developed based on GSWSA staff research and corroborated by Raftelis' independent review, assumes bills are calculated with fiscal year 2020 rates.

Table 2 presents the monthly water and wastewater bills for residential customers of GSWSA and eight other utilities located in the Low Country region. The typical residential bill is calculated based on 8,000 gallons of water consumption. GSWSA's typical residential combined water and wastewater bill represents the most affordable water and wastewater utility services of any of the Low Country utilities included in the local comparison group.

Table 2: FY 2020 Rate Comparison with Other Local Utilities, assuming a Typical Bill for a Customer Using 8,000 gal./month

Local Utility	Water Bill	Sewer Bill	W&S Bill
Charleston – Outside City	$53.15	$141.80	$194.95
Charleston – Inside-City	$30.20	$103.51	$133.71
North Myrtle Beach – Outside-City	$58.54	$60.20	$118.74
Mount Pleasant	$49.44	$68.74	$117.91
Conway – Outside-City	$51.58	$62.88	$114.46
Myrtle Beach – Outside-City	$43.14	$69.11	$112.25
Average	$37.19	$58.90	$95.33
Beaufort Jasper	$37.15	$57.00	$94.15
LRWSC	$33.00	$38.94	$68.76
Georgetown	$28.23	$39.68	$62.73
North Myrtle Beach – Inside-City	$29.27	$30.10	$59.37
Conway – Inside-City	$25.79	$31.44	$57.23
Myrtle Beach – Inside-City	$21.53	$34.52	$56.05
GSWSA	**$22.48**	**$28.07**	**$48.95**

C. Impact Fee Local Utility Comparison

Impact fees are established as one-time charges assessed against new development to recover costs associated with additional system capacity needed to serve the new development. Impact fees can affect a community's economic development efforts, as the cost of impact fees may be passed on to homeowners. A comparison of GSWSA's water and wastewater impact fees to those of neighboring utilities provides a benchmark for economic development and affordable housing in the region. As demonstrated in Table 4, the current GSWSA impact fees are significantly below the local comparison group average for combined water and wastewater impact fees. In addition, based on historical impact fee information, the annualized adjustments to GSWSA impact fees over the past 10 years resemble those for user rates and charges. As a result, GSWSA's modest increases in impact fees are assumed to have provided an incentive for economic development and affordable housing.

Table 3: GSWSA Impact Fee Annualized Increases

Period: FY 2008- FY 2018	Water	Wastewater
GSWSA One-Time Impact Fees	**1.41%**	**1.45%**
GSWSA Monthly Rates (1)	1.42%	1.85%
South Region CPI (2)	2.66%	2.66%

(1) Represents the annual compounded increases to the typical residential customer's respective water and wastewater bills between the first year and final year of the period.
(2) Represents the annualized inflationary increase for all consumers in the South Region of the U.S. Data was obtained from the Bureau of Labor Statistics website: https://www.bls.gov/cpi/regional-resources.htm.

Table 4: Impact Fee Comparison with Other Local Utilities

Local Utility	Water Impact Fee	Sewer Impact Fee	Total Impact Fees
Mount Pleasant	$2,770.00	$4,950.00	$7,720.00
Charleston	$3,401.00	$3,870.00	$7,271.00
North Myrtle Beach	$3,355.00	$2,816.00	$6,171.00
Beaufort Jasper	$1,440.00	$3,402.00	$4,842.00
Myrtle Beach – Outside-City	$1,701.00	$2,321.00	$4,022.00
Average	**$1,614.25**	**$2,328.00**	**$3,942.25**
LRWSC	$750.00	$2,950.00	$3,700.00
Myrtle Beach – Inside-City	$1,134.00	$1,547.00	$2,681.00
Georgetown	$1,240.00	$1,130.00	$2,370.00
Georgetown Wacc Neck	$990.00	$1,250.00	$2,240.00
Conway – Inside-City	$1,000.00	$1,200.00	$2,200.00
Conway – Outside-City	$1,000.00	$1,200.00	$2,200.00
GSWSA	**$590.00**	**$1,300.00**	**$1,890.00**

Affordability

GSWSA's water and wastewater rates are very competitive relative to other utilities in the Low Country region. However, it is also important to evaluate the affordability of the water and wastewater rates in relation to the financial capabilities of the residential population of Horry County. Based on the EPA's residential affordability indicator outlined in the EPA's 1997 publication #EPA832-B-97-044[7], "Combined Sewer Overflow Guidance for Financial Capability Assessment and Schedule Development," customer bills that fall below the thresholds outlined in Table 5 are considered affordable.

Table 5: Residential Affordability Thresholds

Financial Burden	Residential Bill as a Percentage of MHI
Low	<2%
Medium	2% to 4%
High	>4%

Based on 2017 American Community Survey data from the United States Census Bureau, MHI for the typical resident of Horry County was $46,475. Raftelis escalated the 2017 MHI by the South Region Urban CPI annualized inflation rate for the period from December 2018 through December 2019, which provides an estimated MHI in 2020 of $47,962. Using the EPA's residential affordability

[7] The EPA and other guidelines often consider water and wastewater bills independently and identify a 2.0% of MHI threshold for each. Therefore, when considering the combined water and wastewater bill for a utility, Raftelis uses a combined 4.0% of MHI threshold.

guidelines, an annual water and wastewater bill of $587.40 for the typical residential customer in FY 2020 indicates a low financial burden (1.22%) when measured as a percentage of estimated 2020 MHI.

Table 6: Residential Affordability Burden of Utility Rates

Residential Affordability	
Horry County MHI (estimated for 2020)a	$47,962
Typical Residential Water Bill	$269.76
Typical Residential Sewer Bill	$336.84
Typical Residential Combined Bill (Annual)b	$587.40
Residential Combined Bill as a Percentage of MHI	1.22%
EPA Affordability Threshold - Combined	4.00%

(a) Data from the Census American Community Survey (ACS) 5-Year Estimates Program (factfinder.census.gov), escalated based on annualized South region CPI increases from 2018 to 2019.
(b) Based on a residential customer with a typical monthly consumption of 8,000 gallons.

VI. BENCHMARKS FOR RATE ADJUSTMENTS

Over the past decade, GSWSA has managed to expand its facilities, service area, and customer base while maintaining a program of water and wastewater rates adjustments that have been comparable to the CPI. Furthermore, the GSWSA program of rate adjustments from 2008 to 2018 has easily outperformed the annualized rate increases of our national survey groups during this same period.

However, continued growth and development in Horry County present financial challenges as GSWSA must continue to provide additional capacity and extend infrastructure to a growing service area and customer base. As part of its continued objective to meet the demands of a growing customer base while seeking to maintain exceptional to favorable financial impacts on its customers, the GSWSA has requested that Raftelis provide appropriate water and wastewater industry rate adjustment benchmarks or targets, that it may use to assess its rate and financial performance in the coming years.

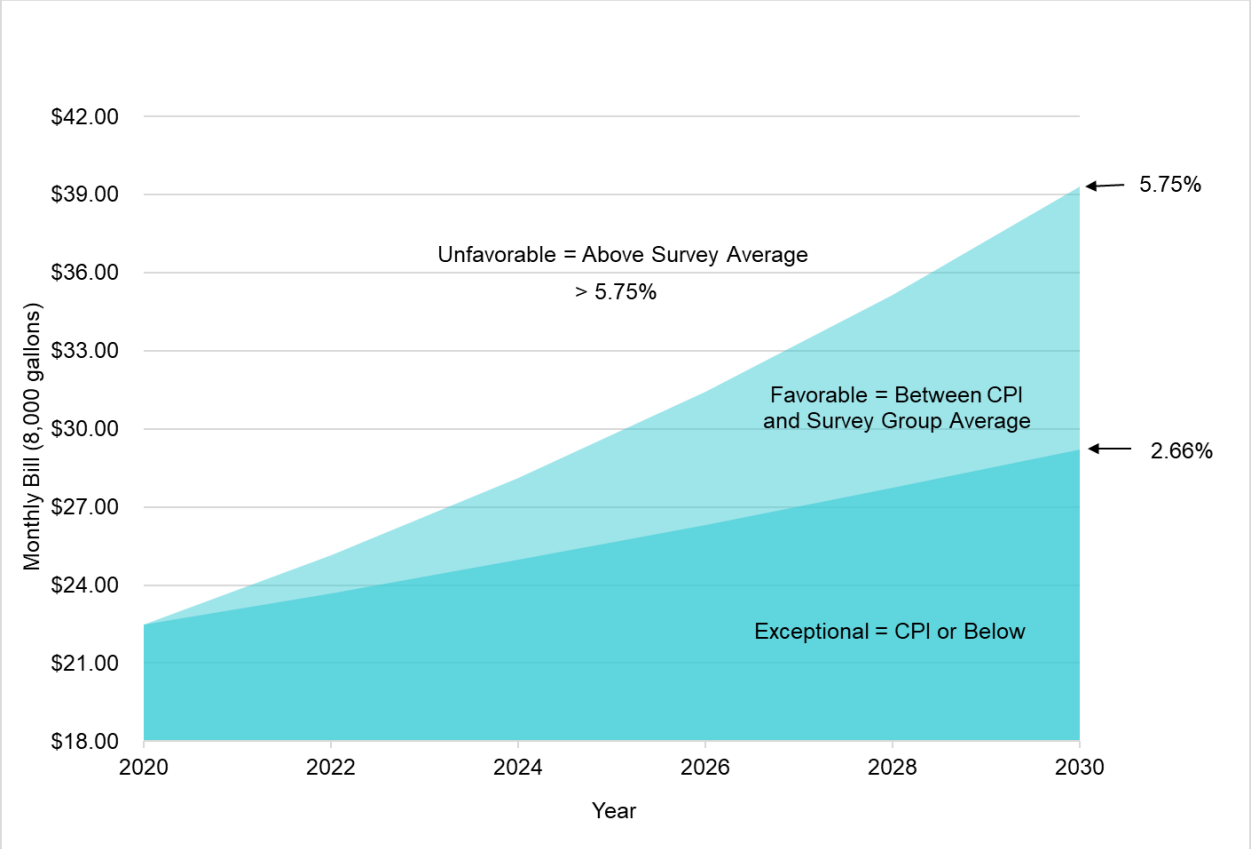
The utility industry has joined the benchmarking movement later than most industry groups. However, the utility industry is undergoing major changes due to deregulation that could potentially increase competition. Also, as environmental regulations become stricter, utilities must increase capital expenditures to achieve compliance. Furthermore, customers and other stakeholders are demanding that utilities maintain affordable rates and charges. These factors have created pressure

for utilities to decrease costs. Continuous improvement and benchmarking have, therefore, become increasingly important.

Raftelis has forecasted a benchmark range of rate adjustments based on the historical data provided by GSWSA staff and our biennial rate survey. Separate water and wastewater rate benchmarks are provided, and each is tailored to provide a range of exceptional, favorable, and unfavorable rate adjustments and impacts for GSWSA's typical residential customer.

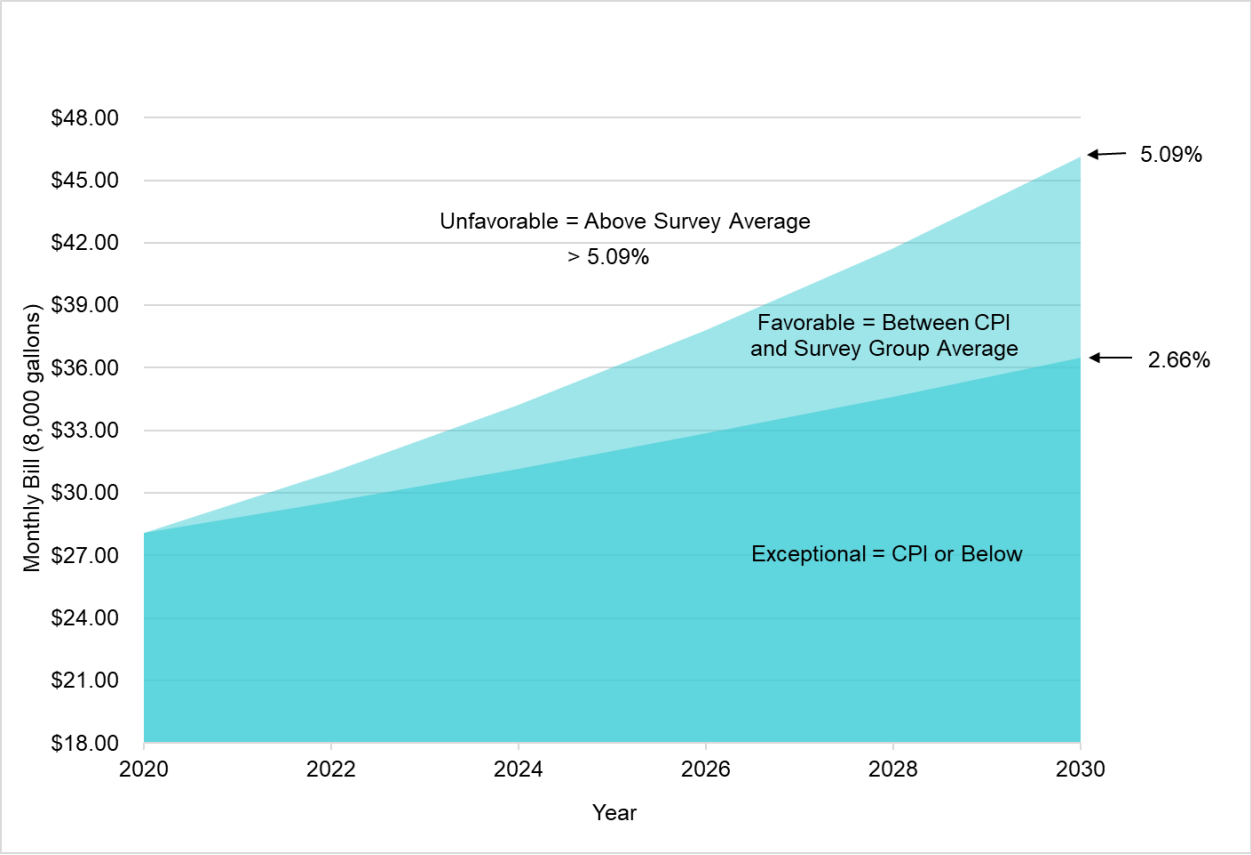
For water, the benchmark ranges were developed with GSWSA's typical monthly residential bill of $22.48 serving as the basis for our forecast. The exceptional benchmark threshold of 2.66% corresponds to increases in customer bills that are equal to or below the forecasted rate of inflation for the South Region. The favorable benchmark range corresponds to increases in customer bills that are above the rate of inflation yet below or equal to the average rate adjustments anticipated for water utilities throughout the country of 5.75%, based on national survey data. The unfavorable benchmark range corresponds to increases in customer bills that are above the average rate adjustments anticipated for water utilities throughout the country, based on national survey data. Figure 2 presents the benchmark ranges for water bill impacts anticipated for the typical residential GSWSA customer.

Figure 2: GSWSA Water Rate Impact Benchmarks



For wastewater, the benchmark categories and ranges were developed based on the same methodology and assumptions as the water benchmarks, with the typical monthly residential bill of $28.07 (including 8,000 gallons of consumption) in FY 2020 serving as the basis of our forecast. The exceptional benchmark threshold of 2.66% corresponds to increases in customer bills that are equal to or below the forecasted rate of inflation for the South Region. The favorable benchmark range corresponds to increases in customer bills that are above the rate of inflation yet below or equal to the average rate adjustments anticipated for wastewater utilities throughout the country of 5.09%, based on national survey data. The unfavorable benchmark range corresponds to increases in customer bills that are above the average rate adjustments anticipated for wastewater utilities throughout the country, based on national survey data. Figure 3 presents the benchmark ranges for wastewater bill impacts anticipated for the typical residential GSWSA customer.

Figure 3: GSWSA Wastewater Rate Impact Benchmarks



As of the publication of their 2035 Strategic Business Plan in 2015, GSWSA's most significant financial challenge was providing the capital investment to meet the utility needs of a rapidly growing service area in Horry, Marion, and Columbus counties. As of the date of this 2015 report, GSWSA predicted that significant capital improvements for the water utility (approximately $635 million) and the wastewater utility (approximately $456 million) would be necessary to meet increasing growth and demand while maintaining regulatory compliance.

As part of their 2035 Strategic Business Plan, GSWSA had developed a program of water and wastewater rate and impact fee adjustments to address its significant capital investments over the next 20 years. GSWSA anticipated that the combined water and wastewater bills for the typical residential customer (using 8,000 gallons per month) would increase from its FY 2015 level of $44.76 to $52.79 by FY 2025, and to $60.31 by FY 2035. These increases translate into annualized increases of 1.66% for FY 2015-2025 and 1.5% for FY 2015-2035, both of which fell within the exceptional benchmark range identified in Raftelis' 2015 benchmarking study. Similarly, to address the growth and expansion-related portion of water and wastewater capital improvements, GSWSA anticipated annualized adjustments of 1.92% and 1.83% to its combined water and wastewater impact fees for FY 2015-2025 and FY 2015-2035, respectively.

Although the benchmark ranges presented above were forecast based on historical information from FY 2008 through FY 2018, Raftelis believes the benchmark categories and ranges will prove useful to GSWSA over the coming years as it continues its efforts to maintain affordable rates.

VII. FUTURE PLANS

A. Economic Outlook

Horry County's economy has shown continued growth in tourism, along with improvements in real estate and residential development. The county leads all 46 counties in the state in tourism, having the highest amount of visitor spending, lodging rentals and tourism related taxes and employment. Strong growth in tourism-related jobs has allowed the county's unemployment rate to continue to improve. Retail sales for local businesses in Horry County had a historical high in 2019, reaching higher amounts than since before the economic slow-down in 2008. Horry County continues to be a major retirement area with more recent growth in real estate values and sales. Forty percent of the state's second homes are located within the county.

Tourism has grown to become the county's largest employer. The county has also become a major retirement community and is considered to be one of the top places for retirees to live. Tourism continues to grow with many major attractions complimenting the miles of beachfront known as the Grand Strand. Nearly 90 golf courses are operating within the county with an estimated 3.2 million rounds played annually expanding the summer tourism season well into the spring and fall. Retail shopping has become another major attraction for the area. The county has specialty and tourist shopping at Barefoot Landing and Broadway at the Beach as well as two shopping malls, Myrtle Beach Mall and Coastal Grand Mall. During the height of the tourism season, over 450,000 visitors are here daily in addition to the 354,000 permanent residents. The tourism industry now employs approximately 70 percent of the working population of the county.

Long constrained by its lack of major roads and transportation, the county has recently added and upgraded its highway system. The Conway By-pass was completed in 2001 and the north-south connector known as the Carolina Bays Parkway opened in 2002 and has continue to expand to the southern portion of the County with the most recent section opening in 2019. Additionally, both Highways 501, 544, and 707 have been upgraded as well as many other road improvements to help bring visitors to and around the Grand Strand. Also, interstate connector I-73 which is planned to begin in Michigan and terminate in Myrtle Beach is in the early funding and planning stages. In total, over $1.5 billion has been spent improving the road network with another $592 million planned during the next 8 years.

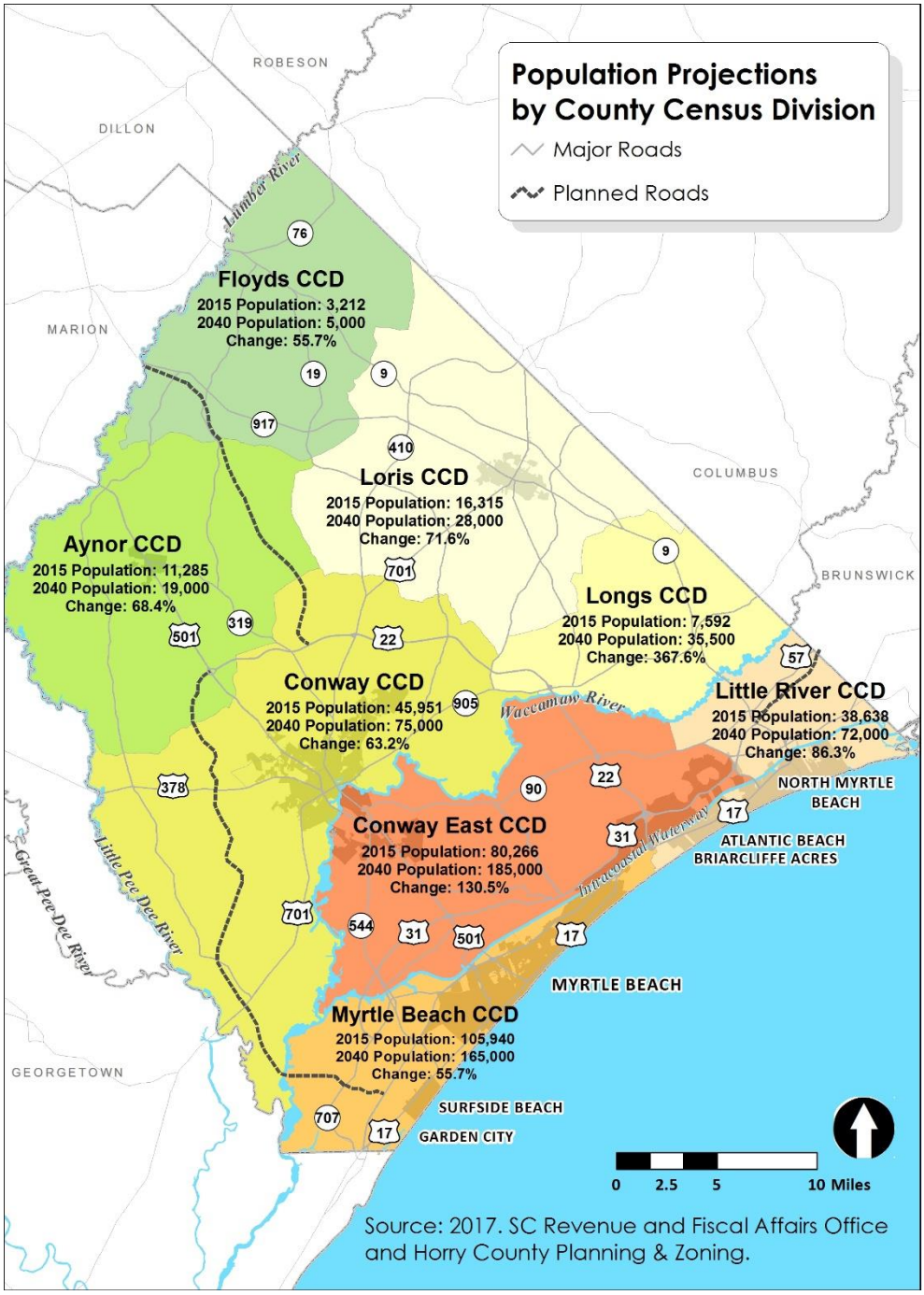
The county's industrial base is also growing though at a more modest rate than the tourism industry. The county has several industrial parks including the Atlantic Center, the Loris Industrial Park, the Cool Springs Industrial Park and an aviation park located adjacent to the Myrtle Beach International Jetport. A marine park is in the final construction stages in the Bucksport community. The park should be able to take advantage of the Intra-Coastal Waterway and its proximity to the port of Georgetown.

In March 2020 the national and local economy was significantly impacted by the COVID-19 pandemic. Through Executive Orders by Governor Henry McMaster, the local tourism industry including all short-term rentals, entertainment establishments, retail and non-essential service establishments, and restaurants were temporarily shutdown to try to slow the spread of COVID-19, also known as the coronavirus. All public beach and waterway/river accesses were also closed to slow the spread and enforce social distancing guidelines. Over 9,600 people in Horry County filed for unemployment benefits for the week ending March 28, 2020 leading the number of claims in South Carolina. The full economic impact of the pandemic crisis will not be fully realized until the end of 2021. With vaccinations available to everyone, the spread of the virus has slowed significantly; and the economy has rebounded and regained momentum quickly.

The county's growth has continued to improve, with economic indicators reinforcing continued residential and commercial development. The GSWSA service area remains strong in part due to its diversity, led by tourism, in light of the recent pandemic. The demand for services will continue to grow proportionately with the overall growth of the county's tourism industry and permanent resident population once the economy stabilizes following the recent shutdowns. The challenge for GSWSA is to meet the increasing demand for water and wastewater service in a responsive and affordable manner while maintaining the environment and natural resources that attract visitors and residents alike to the area.

B. Population and Growth Projections

Water and wastewater capacity requirements are based on the population and growth projections for Horry County as identified by the Horry County Planning Comprehensive Plan, Imagine 2040 and SC Revenue and Fiscal Affairs Office. The County's population projections are categorized by eight (8) County Census Divisions. The population projections for 2040 and percent increases are shown on the following map.



The population projections through the year 2040 are shown in the following table.

HORRY COUNTY POPULATION PROJECTIONS By County Census Divisions											
County Census Divisions	**1970**	**1980**	**1990**	**2000**	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**2040**
Aynor	5,634	7,190	6,786	8,909	10,052	11,285	12,524	13,900	15,426	17,120	19,000
Conway	18,665	23,868	26,648	33,575	39,715	45,951	50,681	55,899	61,653	68,000	75,000
Conway East	3,419	8,546	17,408	31,639	65,364	80,266	94,855	112,095	132,469	156,547	185,000
Floyds	3,420	3,771	2,943	3,195	3,301	3,212	3,509	3,834	4,189	4,576	5,000
Little River	4,960	8,781	17,833	26,315	33,652	38,638	43,760	49,561	56,131	63,572	72,000
Longs	2,788	3,299	3,338	5,625	6,645	7,592	10,335	14,070	19,155	26,077	35,500
Loris	9,895	11,137	11,189	13,785	15,878	16,315	18,176	20,250	22,560	25,133	28,000
Myrtle Beach	21,211	34,827	57,908	73,587	94,684	105,940	115,756	126,482	138,202	151,008	165,000
Horry County Total	**69,992**	**101,419**	**144,053**	**196,630**	**269,291**	**309,199**	**349,598**	**396,091**	**449,785**	**512,033**	**584,500**

Source Notes:
Actual population numbers from U.S. Census 1970, 1980, 1990, 2000, and 2010.
Population projections for County totals for 2015 and 2040 provided by Horry County Planning & Zoning, Imagine 2040 Plan.
Population projections for intermediate years from interpolation.
Projections based on linear regression using forecast formula that considers time.
*Some previous projections included some figures adjusted by the State Data Center.

C. Water Flow Projections and Capacity Requirements

To determine water flow and capacity requirements, the population projections for the county are divided into service areas based on facilities needed to provide services. Previous flow data for water is correlated to known populations from the census data. Future flows and capacity requirements are projected based on both population growth projections and providing service to the existing unserved population base.

Water Flow Projections and Capacity Requirements											
		2019 Peak Month ADF	2019 Peak Day	2025 Peak Month ADF	2025 Peak Day	2030 Peak Month ADF	2030 Peak Day	2035 Peak Month ADF	2035 Peak Day	2040 Peak Month ADF	2040 Peak Day
South Strand	Retail	14,832,500	17,818,600	16,498,522	19,437,862	18,028,958	21,240,957	19,701,359	23,211,310	21,528,896	25,364,437
	GCWSD	811,000	955,500	902,093	1,062,808	985,773	1,161,397	1,077,216	1,269,130	1,177,140	1,386,857
	Subtotal	15,643,500	18,774,100	17,400,616	20,500,671	19,014,731	22,402,353	20,778,575	24,480,440	22,706,036	26,751,294
Southeast 501	Retail	5,215,000	6,144,100	6,373,493	7,508,981	7,533,213	8,875,313	8,903,955	10,490,263	10,524,116	12,399,069
	Conway	490,000	577,300	598,852	705,542	707,819	833,922	836,613	985,662	988,843	1,165,013
	Subtotal	5,705,000	6,721,400	6,972,345	8,214,523	8,241,032	9,709,236	9,740,568	11,475,926	11,512,959	13,564,083
NE 501	Retail	7,075,500	7,845,900	8,647,297	10,187,880	10,220,757	12,041,664	12,080,524	14,232,763	14,278,693	16,822,553
	Conway	1,960,000	2,309,200	2,395,407	2,822,167	2,831,275	3,335,688	3,346,453	3,942,649	3,955,372	4,660,053
	Subtotal	9,035,500	10,155,100	11,042,704	13,010,048	13,052,032	15,377,353	15,426,976	18,175,412	18,234,065	21,482,606
North Hwy 90	Retail	2,781,000	3,276,500	3,398,789	4,004,310	4,017,232	4,732,933	4,748,207	5,594,137	5,612,189	6,612,044
	NMB	1,150,000	1,354,900	1,405,468	1,655,864	1,661,207	1,957,164	1,963,480	2,313,289	2,320,754	2,734,215
	Subtotal	3,931,000	4,631,400	4,804,257	5,660,173	5,678,439	6,690,097	6,711,687	7,907,426	7,932,943	9,346,259
Little River	LRWSC	2,931,000	3,453,200	3,403,043	4,009,321	3,853,988	4,540,606	4,364,690	5,142,293	4,943,066	5,823,711
Longs	Retail	1,350,000	1,590,500	1,954,356	2,302,540	2,660,084	3,133,999	3,620,654	4,265,702	4,928,090	5,806,068
Conway	Retail	1,790,000	2,108,900	2,013,460	2,372,174	2,220,844	2,616,505	2,449,589	2,886,002	2,701,893	3,183,257
	Conway	3,220,000	3,793,700	3,621,979	4,267,263	3,995,038	4,706,786	4,406,523	5,191,579	4,860,389	5,726,305
	Subtotal	5,010,000	5,902,600	5,635,439	6,639,437	6,215,883	7,323,291	6,856,111	8,077,581	7,562,282	8,909,562
Loris	Retail	1,308,000	1,541,000	1,488,686	1,753,907	1,658,184	1,953,602	1,846,980	2,176,034	2,057,271	2,423,790
	Loris	335,000	394,700	355,609	418,964	373,749	440,335	392,814	462,797	412,851	486,404
	Subtotal	1,643,000	1,935,700	1,844,295	2,172,871	2,031,933	2,393,937	2,239,794	2,638,830	2,470,123	2,910,194
Aynor	Retail	502,000	591,400	569,001	670,373	631,618	744,146	701,126	826,037	778,283	916,940
G.S./Floyds	Retail	49,000	57,700	54,504	64,214	59,560	70,171	65,085	76,680	71,122	83,793
NMB	NMB	6,980,000	8,223,500	8,132,641	9,581,534	9,237,300	10,882,997	10,492,006	12,361,239	11,917,139	14,040,270
MB	MB	18,727,000	22,063,400	20,830,462	24,541,571	22,762,736	26,818,095	24,874,253	29,305,795	27,181,637	32,024,258
Marion		1,100,000	1,400,000	1,133,415	1,246,757	1,162,035	1,278,239	1,191,378	1,310,516	1,221,462	1,343,608
Mullins		820,000	1,000,000	844,910	929,401	866,245	952,869	888,118	976,930	910,544	1,001,599
Nichols		45,000	50,000	46,367	51,004	47,538	52,292	48,738	53,612	49,969	54,966
Lakeview		92,000	120,000	94,795	104,274	97,188	106,907	99,643	109,607	102,159	112,375
Total Retail		**36,960,000**	**43,544,600**	**43,117,596**	**50,633,678**	**49,203,456**	**57,799,598**	**56,345,354**	**66,209,592**	**64,764,688**	**76,124,499**
Total Contract		**36,604,000**	**43,125,400**	**41,645,554**	**49,065,034**	**46,408,886**	**54,676,991**	**51,754,046**	**60,974,433**	**57,757,192**	**68,047,086**
Total		**73,564,000**	**86,670,000**	**84,763,150**	**99,698,711**	**95,612,342**	**112,476,588**	**108,099,400**	**127,184,025**	**122,521,881**	**144,171,586**

D. Water Capital Improvement Plan Summary

The water plan is based on providing facilities to meet the peak daily flow of over 144 MGD, which is the projected water demand for all of Horry County and portions of Marion and Dillon counties in the GSWSA service area in 2040. The plan anticipates acquiring Bucksport Water Systems as a wholesale water customer because of the high fluoride content in its well water supply.

The plan is for GSWSA to continue to serve as both a wholesale and retail provider of water services. Projected wholesale water customers are:

- City of Myrtle Beach
- City of North Myrtle Beach
- City of Conway
- Town of Loris
- Little River Water and Sewerage Company
- Bucksport Water Systems
- Georgetown County Water and Sewer District
- Tabor City

Since GSWSA will be providing wholesale service in these areas, capital improvements internal to these utilities are not considered in the CIP. If any utility decides to merge with GSWSA, the plan will be revised accordingly.

The City of Marion was merged with GSWSA in 2010 and the Town of Mullins in 2012. Both of these systems have excess capacity for water and wastewater beyond anticipated growth to 2040 and are not considered to impact the CIP. The Town of Nichols has one (1) well with a capacity of 0.57 MGD and a 100,000 gallon elevated storage tank. Plans are to connect the Nichols system to Horry County's Grand Strand Regional system to assist in future growth and fire flow with rural water line extensions in the Northwestern areas of Horry County.

a. Water Plants

The capacity for the Bull Creek Water Plant and the Myrtle Beach Water Plant is 45 MGD each for a combined plant capacity of 90 MGD. Current peak day summer demands are approximately 39.7 MGD for Bull Creek which occurred in June 2019 and 28.2 MGD for Myrtle Beach which occurred in July 2019. While the excess plant capacity for Myrtle Beach will allow deferring plant expansion to the very latter part of the planning period, the plant capacity for Bull Creek has reached the 80% capacity threshold, or 36 MGD, as determined by SCDHEC to begin the preliminary stages of design for a plant expansion or additional sources to offset the flow demands. Additional sources could potentially include ASR wells, Blend wells, or a new surface water treatment plant.

1. Myrtle Beach Water Plant

Plans are to expand the Myrtle Beach Water Plant by 15 MGD to 60 MGD if necessary. The plant uses a conventional water treatment process of coagulation, flocculation, sedimentation, filtration, and disinfection. The plant also uses ozone as part of its intermediate treatment process. Plans are to expand the plant using similar or compatible technology. Sludge by-products from the process are

currently dewatered on site and hauled to GSWSA's land application site and turf farm in Bucksport. This will continue with the expanded plant.

2. Bull Creek Water Plant

Based on current peak day demand, flow projections, and injection demands to support the ASR well program, expansion of the plant or an additional source would be required by 2024. The plant will be expanded in the very early years of the planning period by 15 MGD to 60 MGD, and major transmission system upgrades will also be required with this expansion. The plant uses a conventional water treatment process of coagulation, flocculation, sedimentation, filtration, and disinfection. However, this plant is unique in that flocculation and sedimentation occur in a patented up flow clarification process and are directly followed by Greenleaf filters eliminating the usual piping arrangement. Plans are to expand the plant using an updated version of this process. Sludge by-products are either dewatered and land applied or applied in liquid form to the approved sites of Yauhannah Tree Farm or at the Bucksport turf farm.

3. New Socastee Water Plant

To meet the current flow projections in the 2040 plan and continue to support the injection demands of the ASR program, plans are to build a new 20 MGD water treatment plant by 2028 to be located in the Socastee area at the GSWSA Turf Farm located on Bay Road. The new plant will serve the higher demand service areas of the south strand, Socastee, and portions of the Hwy 501 corridor, mainly the Carolina Forest area. The plant will also provide service for the injection demands in this service area for existing and proposed ASR wells as this program continues to expand by 1 MGD annually. The source for the new plant will be the Waccamaw River near the confluence with the Atlantic Intracoastal Waterway. The plant will use a conventional water treatment process of coagulation, flocculation, sedimentation, filtration, and disinfection. Ozone disinfection will also be used in the treatment process. The sludge by-products from the treatment process are intended to be dewatered on site and hauled to GSWSA's land application site and turf farm in Bucksport.

b. Transmission Piping and Pumping Improvements

Transmission piping will primarily be line extensions to those remote areas where service is not currently available and line size upgrades for growth in those areas where service is now available. Specific line extensions are listed below along with estimated costs. Plans are also included to upgrade existing water pumping stations and adding new pumping stations to meet pressure requirements as service demands increase.

c. Ground and Elevated Storage Reservoirs

Storage reservoirs are planned to be located throughout the service area to meet fire flow requirements and meet the peak demand from diurnal flow patterns. Reservoirs are planned to provide storage equivalent to 50 percent of maximum daily usage.

d. Rural Water Program

The plan includes continuation of the rural water program installing an estimated 300 miles of rural water lines at a cost of $40,000,000. The program is based on customer density requirements of the program of 3 customers per mile while limiting the program to the installation of 20 miles per year.

e. Aquifer Storage and Recovery (ASR) Wells

A unique component of GSWSA's water system and future plans is the use of ASR wells drilled into the McQueen Branch and Charleston Aquifers. Currently GSWSA has 18.5 MGD of ASR capacity available or under development. The plan projects an additional 20 MGD for a total ASR capacity of 38.5 MGD. The goal is to have a supply of water stored that is equivalent to 70% of Bull Creek's average monthly peak demand. This stored water will be utilized to shave diurnal peak flow over a 5 month recovery cycle and have water available for emergencies should the plant or a major transmission line become unavailable for service.

f. Renewal and Replacement

Plans are made to include sufficient funding to replace equipment and facilities in need of repair or upgrade. The plan and goal is to keep the water system completely up to date with funds set aside for future system upgrades.

g. Contingency

A 20-year plan cannot be expected to be completely accurate and will be updated every five years. Because of inherent difficulties in accurately estimating future projects and the difficulty in predicting accurately what future needs may be, a fund is planned to ensure that sufficient revenue is available to meet future contingencies in the water system.

The following is a list of water projects and costs projected for the Capital Improvement Plan for 2040.

2040 Water Capital Improvement Plan			
Water Treatment Plants		**Capacity (MGD)**	**Estimated Cost ($)**
New Socastee Water Plant		20	100,000,000
Myrtle Beach Expansion		60	60,000,000
Bull Creek Expansion		60	60,000,000
Subtotal			220,000,000
Transmission Piping Improvements	**Length (ft)**	**Size (in)**	**Estimated Cost**
Hwy 701 to Hwy 544	28,800	48	23,500,000
International Drive to North Booster PS	45,000	36	16,000,000
North Booster PS to Little River	25,000	36	6,250,000
Holmestown Road to Garden City Tank	13,000	20	2,600,000
Aynor/Galivants Ferry	21,000	10	840,000
Western Horry County Transmission	20,000	16	1,600,000
Hwy 9 to Green Sea	28,000	12	1,120,000
Subtotal			51,910,000
Pumping Improvements		**Size (Hp)**	**Estimated Cost**
Perry Road Pump Station Rehabilitation		3 @ 700	8,000,000
Central/Peachtree Pump Station		3 @ 300	7,000,000
Conway Pumping Improvements		3 @ 300	7,000,000
Western Horry Pumping Improvements		3 @ 300	7,000,000
International Drive Pump Station		3 @ 200	8,500,000
Oak Street Pump Station		2 @ 50	500,000
Aynor/Galivants Ferry		2 @ 15	350,000
Subtotal			38,350,000
Elevated/Ground Storage		**Size (MG)**	**Estimated Cost**
Hwy 90 Elevated Tank		0.5	1,750,000
Galivants Ferry Elevated Tank		0.5	1,750,000
Green Sea Elevated Tank		0.5	1,750,000
River Oaks Elevated Storage Tank		0.5	1,750,000
South Strand Elevated Storage Tank		0.5	1,750,000
Forestbrook Elevated Storage Tank		0.5	1,750,000
International Elevated Storage Tank		0.5	1,750,000
Hwy 9 Elevated Storage Tank		0.5	1,750,000
Ground Storage - South, Conway, Perry		12.5	7,000,000
Ground Storage - Central/Peachtree		5	3,000,000
Subtotal			24,000,000
Rural Water Program	**Length (mi)**	**Size (in)**	**Estimated Cost**
Subtotal	300	6 to 12	40,000,000
System Relocations and Improvements			**Estimated Cost**
Pipeline Relocations/Improvements			40,000,000
Developer Extension Improvements			7,000,000
Water Taps			40,000,000
Subtotal			87,000,000
Blend Well Improvements		**Size (MGD)**	**Estimated Cost**
Socastee		1	500,000
Hwy 501		1	500,000
Peachtree		1	500,000
Western Horry County		1	500,000
Subtotal			2,000,000
ASR		**Size (MGD)**	**Estimated Cost**
Ten Oaks		1	500,000
Carolina Pines		1	500,000
Braves		1	500,000
Pirateland		1	500,000
International		1	500,000
Burgess		1	500,000
McDowell		1	500,000
Forestbrook		1	500,000
Prince Creek		1	500,000
River Oaks School		1	500,000
Hwy 9		1	500,000
Surfside		1	500,000
Hwy 501		1	500,000
Garden City		1	500,000
Jackson Bluff		1	500,000
Little River		1	500,000
Hwy 17 Bypass South		1	500,000
River Oaks		1	500,000
Holmestown		1	500,000
Hwy 707 Socastee		1	500,000
Subtotal			10,000,000
Advanced Meter Reading			**Estimated Cost**
Subtotal			20,000,000
Renewal/Replacement			**Estimated Cost**
Subtotal			65,000,000
Contingency			**Estimated Cost**
Subtotal			83,739,000
Water System Capital Improvements			**Estimated Cost**
Grand Total			**$641,999,000**

E. Water Capital Improvement Financing Plan

A key component of the CIP is developing a financing plan to ensure that funding is available to construct the projects and also to determine how the costs will affect customers' rates and charges. The water plan projects spending $641,999,000 for capital improvements over the 20-year planning period.

GSWSA currently has approximately $84.7 million in debt and $71.4 million in cash reserves for capital spending. Future capital funds will be from the following sources:

- Wholesale customers' monthly capital charges
- Bulk customers' monthly capital charges
- Retail customers' monthly availability and Safe Water charges
- Rural customers' monthly rural water charges
- New customers' impact fees

Based on the projected revenues along with the additional debt issuances totaling $298 million, GSWSA will be able to implement the capital improvement plan of $642 million with only minor increases in current capital charges.

Water Capital Financing Plan						
	2020	2025	2030	2035	2040	2020-2040
Beginning Fund Balance	$ 71,427,980	$ 88,703,740	$ 98,796,030	$ 131,153,050	$ 182,578,100	$ 71,427,980
Water Revenues						
Availability	$ 15,679,010	$ 18,461,960	$ 21,302,670	$ 23,964,470	$ 27,457,420	$ 448,520,370
Demand	293,380	448,630	520,090	602,930	698,960	10,996,840
Rural water Base	614,390	738,150	855,720	992,020	1,150,020	18,237,120
Bulk Availability	209,480	221,040	255,060	286,930	328,750	5,410,270
MB/Bull Creek Capital	6,594,980	7,312,500	8,073,590	8,913,890	9,841,660	170,818,690
Impact Fees	3,230,480	4,819,910	6,247,550	7,752,670	9,874,380	134,324,570
Water Tap Revenues	2,303,950	2,932,890	3,400,020	3,941,560	4,569,350	72,417,050
Grants/Special Fees	17,830	16,970	19,680	22,810	26,450	3,433,370
Investment Income	2,012,440	693,600	765,790	845,500	933,500	16,854,050
New debt	2,836,380	47,458,330	7,000,000	20,000,000	20,000,000	313,313,400
Total	$ 33,792,320	$ 83,103,980	$ 48,440,170	$ 67,322,780	$ 74,880,490	$ 1,194,325,730
Water Expenses						
CIP	$ 20,746,980	$ 45,904,920	$ 29,217,000	$ 44,290,330	$ 38,130,330	$ 641,999,000
Capital Outlay	2,297,240	2,647,390	2,922,930	3,227,160	3,563,040	60,723,700
Debt Service	8,531,360	18,633,480	20,118,410	18,082,920	22,373,530	364,643,500
Total	$ 31,575,580	$ 67,185,790	$ 52,258,340	$ 65,600,410	$ 64,066,900	$ 1,067,366,200
Transfer to Operating	$ 923,850	$ 17,180	$ -	$ -	$ -	$ 4,995,840
Increase in Fund Balance	$ 1,292,890	$ 15,901,010	$ (3,818,170)	$ 1,722,370	$ 10,813,590	$ 121,963,710
Ending Fund Balance	$ 72,720,870	$ 104,604,750	$ 94,977,860	$ 132,875,420	$ 193,391,690	$ 193,391,690
Debt Service						
Principal	$ 4,981,470	$ 12,815,730	$ 15,473,540	$ 13,829,170	$ 18,113,380	$ 275,853,130
Interest	3,549,900	5,817,750	4,644,870	4,253,750	4,260,150	88,790,370
Principal Balance 6/30	**$ 84,688,630**	**$151,355,460**	**$ 83,336,050**	**$ 67,792,230**	**$42,154,630**	**$ 42,154,630**

F. Wastewater Flow Projections and Capacity Requirements

To determine wastewater flow and capacity requirements, the population projections for the county are divided into service areas based on facilities needed to provide services. Previous flow data for wastewater is correlated to known populations from the census data. Future flows and capacity requirements are projected based on both population growth projections and providing service to the existing unserved population base.

Wastewater Flow Projections and Capacity Requirements						
		2019 Peak Month ADF	**2025 Peak Month ADF**	**2030 Peak Month ADF**	**2035 Peak Month ADF**	**2040 Peak Month ADF**
South Strand	Retail	8,710,000	9,688,328	10,587,037	11,569,111	**12,642,284**
	GCWSD	159,000	176,859	193,265	211,193	**230,783**
	MB AFB	534,300	637,982	739,596	857,395	**993,955**
	Subtotal	9,403,300	10,503,170	11,519,898	12,637,698	**13,867,023**
Southeast 501	Retail	3,060,000	3,739,768	4,420,255	5,224,564	**6,175,224**
Northeast 501	Retail	4,314,400	5,272,828	6,232,271	7,366,294	**8,706,663**
North Hwy 90	Retail	1,630,000	1,992,099	2,354,580	2,783,019	**3,289,417**
	NMB	1,437,000	1,756,224	2,075,787	2,453,496	**2,899,934**
	Subtotal	3,067,000	3,748,323	4,430,367	5,236,516	**6,189,351**
Little River	LRWSC	1,511,000	1,754,349	1,986,822	2,250,101	**2,548,267**
Longs	Retail	567,000	820,830	1,117,235	1,203,580	**1,296,597**
MB	MB	14,200,000	15,794,978	17,260,151	18,861,237	**20,610,843**
Bucksport	Retail	140,000	162,357	183,692	196,916	**211,091**
Conway	Retail	308,000	346,450	382,134	409,643	**439,132**
	Conway	3,634,000	4,087,662	4,508,686	4,833,256	**5,181,190**
	Subtotal	3,942,000	4,434,112	4,890,820	5,242,899	**5,620,323**
Aynor	Retail	220,000	249,363	276,805	298,197	**321,243**
Loris	Retail	20,000	22,763	25,354	28,241	**29,535**
	Loris	645,000	684,680	719,606	756,313	**790,965**
	Subtotal	665,000	707,443	744,961	784,555	**820,501**
G.S./Floyds	Retail	10,300	11,457	12,520	13,681	**14,950**
Marion		2,700,000	2,782,019	2,852,269	2,924,292	**2,998,134**
Mullins		1,700,000	1,751,642	1,795,873	1,841,221	**1,887,714**
Nichols		30,000	30,911	31,692	32,492	**33,313**
Lakeview		640,000	659,442	676,093	693,166	**710,669**
Total Retail		**24,049,700**	**27,530,257**	**30,947,811**	**34,584,417**	**38,755,967**
Total Contract		**22,120,300**	**24,892,736**	**27,483,914**	**30,222,991**	**33,255,939**
Total		**46,170,000**	**52,422,993**	**58,431,725**	**64,807,408**	**72,011,906**

G. Wastewater Capital Improvement Plan Summary

The wastewater plan is based on providing facilities to meet the peak monthly average daily flow of 72 MGD, which is the projected 2040 wastewater demand for Horry County and service areas within Marion and Dillon counties. The City of North Myrtle Beach will be provided wholesale service from GSWSA's Vereen WWTP to supplement the capacity from the two city owned facilities. GSWSA and North Myrtle Beach have a wholesale contract in place for GSWSA to provide capacity to meet the city's future capacity requirements. Should GSWSA reach an agreement with the City of North Myrtle Beach to acquire the City's two wastewater plants, it will not affect the wastewater CIP since the plants are not projected to be expanded regardless of ownership.

The plan is based on GSWSA continuing to provide wholesale and retail wastewater services. Projected wholesale wastewater customers are:

- City of Myrtle Beach
- City of North Myrtle Beach
- City of Conway
- Little River Water and Sewerage Company
- Georgetown County Water and Sewer District
- Tabor City

Since GSWSA will be providing wholesale service in these areas, capital improvements internal to these utilities are not considered in the wastewater plan. If any utilities decide to merge with GSWSA, the plan will be revised accordingly. City of Marion wastewater system merged with GSWSA in May 2010. The Marion facility has excess capacity expected to be adequate to accommodate growth to 2040. The system has significant inflow which will be reduced through renewal and replacement projects. The Town of Nichols system merged with GSWSA in September 2010. The Nichols facility has

excess capacity expected to be adequate to accommodate growth to 2040. The City of Mullins wastewater system merged with GSWSA in October 2012. The Mullins facility has adequate capacity to accommodate growth to 2040. The Town of Lake View wastewater system merged with GSWSA in December 2011. The Lake View facility was expanded in 2014 by an additional flow of 0.070 MGD. Currently the Lake View facility has two discharge permits that if they remain in effect will provide ample capacity to accommodate growth to 2040.

a. Wastewater Plants

Future wastewater plant improvements will involve consolidation or elimination of some facilities, construction of a new treatment plant, and upgrades and expansions of all other plants.

1. Bucksport Regional WWTP

Bucksport Regional WWTP is an advanced secondary treatment process plant with nitrogen removal and filtration that assures the high levels of treatment needed for land application. The 2040 capacity is expected to be 15 MGD. Flows to this facility will come from a combination of diversions from Carolina Forest, the south strand, and the areas of Conway and western Horry County. Plants now serving these areas will not be expandable to handle all the increasing flows because of their restricted discharge limits. The land application system at Tip Top provides an excellent disposal site which does not discharge into or increase any loadings to the rivers. New transmission force mains are being constructed to send flows from Carolina Forest, Conway and western Horry County to the Bucksport WWTP.

2. Myrtle Beach WWTP

Myrtle Beach WWTP has a current capacity of 22.4 MGD which includes advanced treatment levels. There will not be a need to expand the plant in the planning period to 2040 based on expected population growth. The 50-acre oxidation pond which was a major cause of odor at the facility was removed from routine influent flow service. The pond will be used for effluent storage which will reduce the peaks and allow the full 22 MGD to be transported through the existing 36 inch pipeline to Schwartz WWTP.

3. Schwartz South Strand Regional WWTP

The Schwartz WWTP has a current capacity of 19.4 MGD. The 2040 capacity is expected to be 22.4 MGD. Improvements to the plant include more efficient flow distribution to the various treatment trains as well as addition of an aeration basin for treatment. Treated effluent will continue to combine with Myrtle Beach effluent and be discharged through the existing common outfall line into the Waccamaw River. Effluent quality will be upgraded to meet more stringent levels through the addition of treatment basins and clarifiers. Additional influent flows will be diverted to the Bucksport Regional WWTP.

4. Vereen North Strand Regional WWTP

Vereen North Strand Regional WWTP in Wampee is presently permitted at 7.0 MGD with 2040 flows expected to reach 10.0 MGD. Due to the current UOD capacity 9.5 MGD will be discharged to the Atlantic Intracoastal Waterway and the remaining 0.5 MGD will be discharged into the existing

Carolina Bays system. The Vereen WWTP now serves Little River, a portion of North Myrtle Beach, Wampee, and the Northern sections of Carolina Forest. The 2040 capacity is expected to be 12 MGD.

5. Conway WWTP

The Conway WWTP is permitted at 4.0 MGD, and due to the effluent limitations at the discharge into the slow moving, low flow Waccamaw, the plant cannot be expanded for additional capacity. Flows above 4.0 MGD will be diverted through a new pipeline to the Bucksport Regional WWTP.

6. Loris WWTP

The Loris WWTP will remain at 0.7 MGD. To accommodate growth in the City and the Green Sea-Floyds area, a new pump station and force main has recently been installed to divert flows down Highway 701 to the Conway area.

7. Green Sea-Floyds WWTP

The Green Sea-Floyds WWTP has been expanded to 15,250 GPD. This expansion included minor plant modifications and added filters. The land application site was expanded to accommodate the additional flows. As the flows increase in the area, a force main will be constructed to connect to the Loris WWTP, and the Green Sea WWTP will be decommissioned.

8. Longs WWTP

The Longs WWTP is currently being expanded to 3 MGD capacity to provide service to the Longs and Wampee area of Hwy 905. The plant will be able to accommodate the current flows as well as the 2040 projected flows for this service area. The plant will utilize the existing discharge permit meeting Ultimate Oxygen Demand (UOD) limits.

b. Effluent Disposal

In 1999, DHEC, the Waccamaw COG, and all the major wastewater dischargers in the Waccamaw region agreed to an allocation of waste loads for discharge of treated wastewater into the Waccamaw River and AIWW. The waste loads were developed through a long-term study and mathematical model of the receiving waters in the region. These waste loads were issued for the southern and northern portions of the Waccamaw and AIWW and are expressed as pounds of Ultimate Oxygen Demand (UOD) per day. The UOD is the amount of oxygen demanding substances that can be assimilated by the waters at critical low flow periods and still maintain the levels of oxygen established by regulations for maintaining healthy coastal rivers with naturally low levels of oxygen. The following table shows the waste loads determined by DHEC and agreed upon by the dischargers.

DHEC UOD Allocation			
WW Discharge	**Pre 1999 Allocation UOD pounds/day**	**Current Allocation UOD pounds/day**	**% Reduction**
South Strand			
GSWSA Schwartz	7,871	3,201.9	59.3
GSWSA Myrtle Beach	13,507	4,107.9	69.6
GCWSD	2,842	1,332.2	53.1
Total	**24,220**	**8,642**	**64.3**
North Strand			
GSWSA	481	517	(7.50)
Conway			
GSWSA	1873	303	83.8
Bucksport			
GSWSA	226	84	62.8

The following table shows GSWSA plus North Myrtle Beach's 20-year effluent disposal plan.

2040 Wastewater Effluent Disposal						
Region	**Plant**	**UOD lbs/day**	**Capacity MGD**	**River Discharge**	**Land Disposal**	**Treatment Level #**
Southeast		7,394				
	Schwartz	3,202	22.4	22.4	5	1
	Myrtle Beach	4,192	22.4	22.4		1
	Bucksport Regional	0	15	0	15	1
Northeast*		1,860				
	Vereen^	1,017	12	9	3	2
	NMB Cresent Beach	330	2.9	2.9		2
	NMB Ocean Drive	512	4.5	4.5		2
	Longs	222	3	3		2
West		503				
	Conway	303	4	4		2
	Loris	200	1.2	1.2		2
Marion		3,943				
	Marion	3,413	6	6		1
	Mullins	530	2.75	2.75		1
Dillon		36				
	Lake View	36	0.27	0.25	0.27	4
Total		**13,957**	**96.42**	**78.4**	**23.27**	

* Northeast UOD is sum of 1638 to ICWW at NMB and 222 to Waccamaw at Longs
# Treatment level 1 = advanced secondary
# Treatment Level 2 = advanced secondary with filtration
# Treatment Level 3 = advanced secondary with nitrogen removal and filtration
# Treatment Level 4 = secondary followed with filtration
^ Vereen can divert 2.5 MGD from River to Carolina Bays
Southeast UOD allocation shared between Schwartz & Myrtle Beach
Northeast UOD allocation shared between GSWSA Vereen and 2 NMB Discharges
West UOD allocations are established for individual discharges at Conway and Loris

c. Biosolids Disposal

Wastewater treatment produces solids that are rich in natural fertilizers and agricultural reuse of these treated biosolids, provides a beneficial option for disposal. GSWSA treats 90% of all biosolids generated through the composting process. The remaining 10% is treated as Class B digested biosolids. These treated biosolids are applied to GSWSA farms to various crops to optimize the agronomic nutrient uptake for each specific crop. Crops include pine trees, Coastal Bermuda hay, Centipede sod, 419 Bermuda sod, corn, soybeans, wheat, and sorghum. GSWSA has been treating and reusing biosolids to grow sod at the High Tech Turf Farm in Socastee for 32 years. The sod and

agricultural crops are marketed locally and sales revenue offsets a significant part of the cost of solids treatment.

The projected annual biosolids production for 2040 is over 8,700 dry metric tons (2,205 pounds/DMT). At an average of 30 pounds of plant available nitrogen per DMT, this makes over 260,000 pounds of nitrogen (PAN) available for reuse and recycling. GSWSA will expand current programs so that all future bio-solids generation will continue to be reused.

DMT/YR Biosolids Generated By Plant					
	2020	**2025**	**2030**	**2035**	**2040**
Schwartz	1,737	1,961	2,214	2,500	2,822
Myrtle Beach	1,662	1,911	2,198	2,527	2,906
Bucksport Regional	575	604	634	665	699
Vereen	729	875	1,050	1,259	1,511
Conway	326	375	432	496	571
Nichols	1	1	1	1	1
Green Sea Floyds	0.25	0.24	0.25	0.26	0.27
Lake View	7.5	7.9	8.3	8.7	9.2
Loris	15	17	18	20	22
Mullins	108	114	119	125	131
Marion	94	99	104	109	114
Totals	**5,255**	**5,964**	**6,777**	**7,712**	**8,788**

The Myrtle Beach WWTP generates about 33% of the total biosolids production, and a regional composting facility was constructed at the Bucksport Regional WWTP so that all of the Myrtle Beach biosolids and those from Vereen, Conway, Marion, and Schwartz WWTPs are composted for land application on GSWSA farms. The Schwartz WWTP generates 32% of the total biosolids. Nearly all Schwartz biosolids are currently digested and transported to the Bucksport Compost Facility. Loris, Nichols, and Lake View biosolids are held in treatment lagoons for several years and removed as needed. These are applied to agricultural sites. Marketing of forest, turf, and other agricultural products raised with biosolids will continue to help keep disposal costs down.

Biosolids Disposal Plan DMT/Year					
	2020	2025	2030	2035	2040
Composted for Farms	4,729	5,367	6,100	6,941	7,909
Digested for Farms	525	596	678	771	879
Total DMT	**5,255**	**5,964**	**6,777**	**7,712**	**8,788**

Biosolids Disposal Plan lbs PAN/Year					
	2020	2025	2030	2035	2040
Composted for Farms	89,856	101,976	115,891	131,880	150,269
Digested for Farms	16,815	19,083	21,687	24,679	28,121
Total Lbs	**106,671**	**121,060**	**137,579**	**156,560**	**178,389**

d. Transmission Piping and Pumping Improvements

Transmission piping will primarily be line extensions to those remote areas where service is not currently available and line size upgrades for growth in areas where service is now available. Specific line extensions are listed below along with estimated costs. Additionally, lines are planned to interconnect with the City of Myrtle Beach's wastewater system from the Market Commons area to the Schwartz WWTP. Plans also include major lines from the City of Conway WWTP and Hwy 544 to the Bucksport WWTP. Pump stations are planned for upgrades and additions as wastewater flow requirements increase.

e. Rural Wastewater Program

The plan includes continuation of the rural wastewater program installing an estimated 300 miles of rural wastewater lines at a cost of $40,000,000. Additionally, the plan calls for installing 6,000 single or small service grinder pump stations at a cost of $30,000,000. The program projects rural customer density requirement at 1 customer for every 1,760 L/F of line extension.

f. Renewal and Replacement

Plans are made to include sufficient funding to replace equipment and facilities in need of repair or upgrade. The goal is to keep the wastewater system completely up to date with funds set aside for future system upgrades.

g. Contingency

A 20-year plan cannot be expected to be completely accurate and will be updated every five years. Because of inherent difficulties in accurately estimating future projects and also the difficulty in predicting accurately what future needs may be, a fund is planned to ensure that sufficient revenue is available to meet future contingencies in the wastewater system. The following is a list of wastewater projects and costs projected for the Capital Improvement Plan.

2040 Wastewater Capital Improvement Plan			
Wastewater Treatment Plants		**Capacity (MGD)**	**Estimated Cost ($)**
Bucksport Composting Facility Expansion			4,000,000
Bucksport Regional Expansion Phase 1 (5 MGD Upgrade)		10	28,750,000
Bucksport Regional Expansion Phase 2 (5 MGD Upgrade)		15	30,000,000
Schwartz Expansion (5 MGD Upgrade)		22.4	15,900,000
Vereen Expansion (5 MGD Upgrade)		12	15,000,000
Longs Expansion (3 MGD Upgrade)		3	22,000,000
Tip Top Tree Farm Effluent Disposal Improvements			3,000,000
Land Application Improvements			7,000,000
Subtotal			125,650,000
Transmission Piping Improvements	**Length (ft)**	**Size (in)**	**Estimated Cost**
Hwy 544 to Hwy 707	25,000	36	1,200,000
Hwy 701 to Hwy 544 Conversion	29,000	36	1,500,000
Garden City Connector to New 36 to Hwy 707	11,000	20	2,200,000
Hwy 31 to Vereen WWTP	19,000	14	1,425,000
Conway WWTP to Bucksville Road	40,000	20	8,000,000
Hwy 9/Green Sea to Loris	60,000	12	3,000,000
Pee Dee to City of Marion	47,500	12	3,562,500
Subtotal			20,887,500
Pumping Improvements		**Size (Hp)**	**Estimated Cost**
Conway to Bucksport Pump Station		2 @ 100	500,000
Hwy 90/Hwy 31 Pump Station		2 @ 75	500,000
Hwy 544/Peachtree Pump Station		3 @ 125	1,000,000
Hwy 17 By-Pass to Hwy 707 Pump Station		3 @ 200	2,000,000
Pee Dee to City of Marion Pump Station		2 @ 75	500,000
City of Conway Contract Upgrades			1,000,000
Subtotal			5,500,000
Rural Sewer Program	**Length (mi)**	**Size (in)**	**Estimated Cost**
Rural sewer lines	300	6 to 12	40,000,000
Single Service Pumping Station	6,000		30,000,000
Marion sewer lines	50	6 to 12	10,000,000
Subtotal			80,000,000
System Relocations and Improvements			**Estimated Cost**
Pipeline Relocation/Improvements			40,000,000
Collection System Slip-Lining			6,000,000
Sewer Taps			10,000,000
Subtotal			56,000,000
Renewal/Replacement			**Estimated Cost**
Subtotal			100,000,000
Contingency			**Estimated Cost**
Subtotal			58,205,625
Wastewater System Capital Improvements			**Estimated Cost**
Grand Total			**$446,243,125**

H. Wastewater Capital Improvement Financing Plan

A key component of the CIP is developing a financing plan to ensure that funding is available to construct the projects and also to determine how the costs will affect customers' rates and charges. The wastewater CIP projects spending $446,243,125 for capital improvements over the 20-year planning period. GSWSA currently has approximately $97 million in debt and $66.5 million in cash reserves for capital spending. Future capital funds will be from the following sources:

- Wholesale customers' monthly capital charges
- Bulk customers' monthly capital charges
- Retail customers' monthly availability and wastewater improvement charges
- Rural customers' monthly rural wastewater charges
- New customers' impact fees
- SRF loans and revenue bonds

The CIP plan includes the issuance of $139 million in new debt and minor increases to capital charges in order to implement the $446 million in capital improvements.

Wastewater Capital Financing Plan						
	2020	**2025**	**2030**	**2035**	**2040**	**2020-2040**
Beginning Fund Balance	$66,568,780	$73,148,070	$167,058,690	$271,139,080	$420,673,350	$ 66,568,780
Wastewater Revenues						
Availability	$ 14,632,620	$ 17,302,570	$ 19,990,490	$ 22,505,500	$ 25,812,370	$ 420,566,610
Demand	480,970	622,890	722,100	837,110	970,440	15,339,840
Rural Sewer Base	1,345,470	1,664,860	1,930,030	2,237,430	2,593,800	41,063,650
Bulk Capital	746,070	906,110	1,126,540	1,364,800	1,684,470	24,194,430
Contract Capital	3,122,270	2,949,170	3,418,900	3,963,440	4,594,710	73,307,810
Impact Fees	6,058,860	9,231,540	11,840,380	14,606,140	18,462,560	253,921,680
Investment Income	2,012,440	693,600	765,790	845,500	933,500	16,827,380
Tap Fees	1,705,250	2,730,720	3,165,660	3,669,870	4,254,380	66,934,430
Grants/Special Fees	263,430	537,880	623,550	722,860	837,990	16,761,530
New Debt	12,642,430	9,583,330	5,000,000	5,300,000	10,000,000	139,041,090
Total	$ 43,009,810	$ 46,222,670	$ 48,583,440	$ 56,052,650	$ 70,144,220	$1,067,958,450
Water Expenses						
CIP	$ 31,558,340	$ 15,318,800	$ 27,662,110	$ 24,582,940	$ 23,795,450	$ 446,243,130
Capital Outlay	2,364,840	2,178,340	2,405,060	2,655,380	2,931,760	50,791,120
Debt Service	11,331,710	8,924,640	8,886,150	6,045,970	8,010,720	176,417,490
Total	$ 45,254,890	$ 26,421,780	$ 38,953,320	$ 33,284,290	$ 34,737,930	$ 673,451,740
Transfer to Operating	$ 923,850	$ 17,180	$ -	$ -	$ -	$ 4,995,840
Change in Fund Balance	$ (3,168,930)	$ 19,783,710	$ 9,630,120	$ 22,768,360	$ 35,406,290	$389,510,870
Ending Fund Balance	$ 63,399,850	$ 92,931,780	$176,688,810	$293,907,440	$456,079,640	$456,079,650
Debt Service						
Principal	$ 8,013,870	$ 5,717,800	$ 6,574,510	$ 4,380,840	$ 6,222,110	$124,137,060
Interest	3,317,850	3,206,840	2,311,640	1,665,130	1,788,620	52,280,440
Principal Balance 6/30	**$96,902,370**	**$92,650,900**	**$54,691,240**	**$34,498,280**	**$25,147,950**	**$25,147,950**

I. Support Facilities Capital Improvement Plan

1. Office, Maintenance and Inventory Facilities

As the service area and number of employees continue to grow, existing facilities will need to be upgraded and new facilities constructed. The main Administrative office off Jackson Bluff Road will be expanded to include new office and storage space. The existing Operations Building located behind the Administrative office will become storage space, and a new Operations Building will be constructed directly adjacent to the existing Building. The new Operations Building will house the field operations staff, portions of the plant operations staff, and a new 24-hour call center for customer service. The Operations compound for Field Operations Division will be expanded to include additional workshop space as well as shed storage space as needed.

The Marion Administrative office and Field Operations Center within the City of Marion will continue to provide quality customer service in the Marion and Dillon counties but will be expanded as needed to maintain a high level of service to all customers.

J. Financial Plans

1. Expense Projections

The financial plan to meet future service needs is based on separating costs and revenues into two distinct categories: Capital and Operating. The capital costs and revenue recovery are presented in detail within the Capital Improvement Plan.

The basis for the operational financial plan is segregating operating costs into service categories in order to more appropriately charge costs on the basis of service provided. For instance, a retail customer is charged based on a differing rate structure than a wholesale customer because an additional level of service is provided. A complex rate-making model has been developed to allocate operating costs into service categories that translate into customer rates.

The goal of the financial plan is to meet customer service needs while holding operating cost increases to levels below inflationary indexes. This will be accomplished by increasing operating

efficiencies through a more productive work force and using the most cost-effective technology available in the industry. Debt levels will be reduced by minor increases in impact fees and increase in monthly capital charges for wastewater service reflecting the costs associated with more stringent regulatory requirements. GSWSA's goal is to maintain the lowest rates of any water or wastewater utility operating on the coast of South Carolina and to keep rate increases below the index for inflation.

Forecasting costs are difficult at best because many of the factors affecting costs are unknown. Inflation and increases in regulatory requirements in particular could have a dramatic effect on costs and therefore the rates customers are charged. However, recognizing the potential effect of these factors, cost projections are made in 5-year increments to evaluate what customer rates and charges may be in the future. The projections are made based on a combination of business growth with minor inflationary adjustments. The major "assumption" is therefore that the economic and regulatory environment during the next 20 years will be similar to the past 5 years. If not, the projections can be adjusted accordingly.

The expenses are based on actual figures for Fiscal Year 2020 and proposed budgets for 2021 through 2023. Future projections are based on factors indicated above.

Projected Operating Expenses					
Expenses	**2020**	**2025**	**2030**	**2035**	**2040**
1 Personnel Costs	$32,902,330	$35,643,010	$40,315,870	$47,729,210	**$59,287,030**
2 Contractual Services	14,656,290	18,759,060	24,010,330	30,731,590	**39,334,360**
3 Supplies and Materials	12,755,180	16,325,770	20,895,870	26,745,300	**34,232,180**
4 Business and Travel Expenses	241,860	246,700	251,630	256,660	**261,800**
5 Other Expenses	1,099,550	1,340,340	1,633,870	1,991,680	**2,427,850**
6 Total	**$61,655,210**	**$72,314,880**	**$87,107,570**	**$107,454,440**	**$135,543,220**

Fiscal Year 2020 is based on actual expenditures, prior to year-end adjustments
1 Based on 4% salary increase plus additional employees at 40% service growth
2,3 Based on 3% inflationary increases plus service growth
4,5 Based on 2% inflationary increases

Interest Expense	$6,867,750	$9,024,590	$6,956,510	$5,918,880	$6,048,770

2. Revenue and Rate Projections

Revenue projections are determined from allocating the projected expenses into the known revenue categories and adjusting the rates as required ensuring that expenses are covered. The following table uses known revenues from Fiscal Year 2020 and projects the revenues and corresponding rates through the year 2040. As seen from the tables below, the projections for a retail customer's monthly rates will increase from $48.95 in 2020 to $60.82 in 2040, an average annual increase of 1.10 percent.

Projected Operating Revenues					
	2020	2025	2030	2035	2040
Water Revenues					
1 Fire Flow Availability	$112,510	$129,500	$151,730	$174,300	**$204,210**
2 Volume	9,201,400	10,590,860	12,408,870	14,253,900	**16,700,710**
3 Excess Volume Charge	1,071,120	1,232,870	1,444,500	1,659,280	**1,944,110**
4 Bulk-Volume	17,140	21,290	25,960	31,640	**38,570**
5 Bull Creek Revenues	9,961,450	12,121,370	14,775,880	18,011,720	**21,956,190**
6 Fire Flow Tap Fees	87,580	114,840	150,590	197,470	**258,950**
7 Engineering/Inspections	121,400	159,190	208,740	273,730	**358,940**
8 Other Revenue	1,878,820	2,463,700	3,230,660	4,236,370	**5,555,150**
Total Water Revenue	$22,451,420	$26,833,620	$32,396,930	$38,838,410	**$47,016,830**
Sewer Revenues					
9 Volume	$12,522,040	$14,371,740	$16,838,790	$19,342,470	**$22,662,790**
10 Excess Volume Charge	1,326,530	1,522,480	1,783,830	2,049,060	**2,400,800**
11 Service Line Maintenance Charge	2,322,530	3,767,740	6,112,240	9,915,620	**16,085,690**
12 Bulk Operating	1,251,410	1,563,220	1,952,720	2,439,270	**3,047,050**
13 Contract Operating	7,522,570	9,396,940	11,738,340	14,663,140	**18,316,700**
14 Engineering/Inspections	369,930	485,080	636,090	834,110	**1,093,770**
15 Sod Sales	440,820	578,050	758,000	993,970	**1,303,390**
16 Septage Grease	350,210	459,230	602,190	789,650	**1,035,470**
17 Other Revenue	122,930	161,200	211,390	277,190	**363,480**
Total Sewer Revenues	$26,228,970	$32,305,680	$40,633,590	$51,304,480	**$66,309,140**
General Revenues					
18 Customer Charges	$1,942,200	$2,600,020	$3,048,190	$3,496,150	**$4,094,520**
19 Turn on/ Turn Off	669,990	896,910	1,051,520	1,206,050	**1,412,470**
20 Late Payments/Liens	851,130	1,139,400	1,335,800	1,532,110	**1,794,330**
21 Investment Income	2,748,800	3,034,900	3,699,520	4,084,570	**4,509,700**
22 Gain on Disposal of Fixed Assets	2,210	25,000	25,000	25,000	**25,000**
23 Reimb from Cap Projects	4,912,790	5,977,160	7,272,130	8,847,660	**10,764,530**
Total General Revenues	$11,127,120	$13,673,390	$16,432,160	$19,191,540	**$22,600,550**
Total Operating Revenues	$58,807,510	$72,812,690	$89,462,680	$109,334,430	**$135,926,520**
Total Operating Expenses	61,655,210	72,314,880	87,107,570	107,454,440	**135,543,220**
Operating Income	$(1,847,700)	$497,810	$2,355,110	$1,879,990	**$383,300**
Transfer from Water & WW Capital	$1,847,700	$34,360	$-	$-	**$-**
Net Operating Income	$ -	$532,170	$2,355,110	$1,879,990	**$383,000**
Retail Service					
Customer	$1.60	$1.94	$2.06	$2.14	**$2.27**
Water Availability	10.00	10.55	11.30	11.80	**12.55**
Water volume	10.88	11.34	12.04	12.52	**13.29**
Total Water	$22.48	$23.83	$25.40	$26.46	**$28.11**
Sewer Availability	$9.75	$10.35	$11.10	$11.60	**$12.35**
Sewer Volume	16.72	17.38	18.44	19.19	**20.36**
Total Sewer	$26.47	$27.73	$29.54	$30.79	**$32.71**
Total	**$48.95**	**$51.56**	**$54.94**	**$57.25**	**$60.82**

Fiscal Year 2020 Revenues are actual revenues / 1,2,3,4,5,9,10,18,19,20 - Based on growth plus 2% rate increase / 12,13 - Based on growth plus 2.5% rate increase / 14,15,16,17 - Based on growth plus 2.5% rate increase / 6,7,8 - Based on growth plus 3.5% rate increase / 11 - Based on growth plus 8% increase / 21 - Based on factored flows as a combination of retail and contract / 22 - Based on growth / 23 - Based on 4.5% increase per year (Personnel Costs)

K. Organizational and Human Resources Plan

The organizational plan currently in place is anticipated to continue to serve as the basic framework for providing efficient delivery of products and services to customers. However, the organization will continue its flexible approach and adjust according to the needs of customers, the strengths and weaknesses of its employees, and improving technology and business practices.

A major goal of the organization is the development of its employees to meet future needs. As such, emphasis will be placed on hiring the most qualified applicant, and employee training and development. However, as the needs of the organization indicate, qualified employees from other organizations may be hired to complement the existing staff and to broaden the organizations perspective of practices within the water and wastewater utility industry.

Several employees in top level and key middle management positions could be retiring within a five to ten year time horizon. A major focus during the next several years will be succession planning to ensure that each management position has at least one employee, qualified and capable of assuming the role when a vacancy occurs. This effort is currently underway with several employees identified for additional education and training.

1. Administration Division

The Administration Division will remain relatively stable and will not grow at a pace proportionate to the general customer base as the operating divisions. Some employees may be added in Human Resources as the number of overall employees increase. The Customer Service Departments will also increase by several employees as the number of customers increase and with the implementation of a 24-hour call center to provide round the clock customer care. The Billing & Collections Department will add a few employees as the customer base increases to keep up with the demands of each billing cycle. Fleet Services may increase in employees as the number of vehicles and equipment service requirements increase.

2. Accounting and Finance Division

This division should grow at a pace substantially less than the overall customer base. Accounting and Finance will continue to remain stable in its growth. Enhanced technology and other innovative programs will continually be analyzed to maintain as small and efficient staff as possible.

3. Engineering and Construction Division

The Engineering Departments of this division, such as Design, New Services, and Property/ROW Acquisition, for the most part will remain stable and will not increase with the overall increase in customer base. Design services will be outsourced to consulting engineers as needed when capital improvement schedules exceed resources within the organization.

The Inspections Department will increase by several employees in response to new construction projects and line locate requests as well as developments and new customers added to the system over the 20-year period. The Support Services/Dispatch Department will also see a slight increase in

employees in correlation with customer growth and dispatch calls to maintain a high level of customer service and meet customer expectations.

The Construction & Taps Department is expected to grow by several employees as well as the system continues to expand and with the addition of customer connections.

4. Plant Operations Division

This division has several departments that will grow very little and some that will grow at nearly the rate of customer increase. The Environmental Coordination and Compliance Department is stable and is not expected to increase. The water treatment staff will not increase due to increased flows but will increase with the expansion of both the Myrtle Beach SWTP and the Bull Creek SWTP as well as the construction of a new water plant in Socastee.

Likewise the wastewater treatment staff will increase to staff the expansions of several of the wastewater treatment plant expansions. Agricultural Operations will increase slightly, specifically due to the increase in sludge production and disposal needs. This is due to the fact that the labor required for biosolids transport and disposal is proportional to the production rate, a greater proportion of the biosolids are produced at more distant facilities, which impacts average transport times. The treatment facilities maintenance staff will increase due to the fact that with expansions there will be more equipment maintenance needs, along with aging facilities maintenance demands.

5. Field Operations Division

This division has several departments that will grow very little and some that will grow at or slightly above the rate of customer growth. The Repairs Department should grow much less than the customer growth.

The Meter Reading department will continue to grow at the rate of customer growth; however, with the application and installation of Advance Meter Infrastructure (AMI) technology, this group will decrease initially and grow at a rate much less than customer growth.

Water Transmission and Distribution should grow slightly less than customer growth. With the addition of producing water during summer months through ASR to shave peak, and with the addition of facilities from growth and expansion, aging ASR and water line, flushing of rural lines, increase in service line maintenance agreement and more stringent regulatory requirements additional staff will be needed.

Wastewater collection and transmission staff will increase slightly more than the rate of customer growth. Rural sewer systems require more frequent service per customer than traditional gravity sewer systems, and projected expansion of the rural system will increase staff proportionately. Increased maintenance of aging facilities, more stringent regulatory requirements, and expansion of the customer service line maintenance program will also contribute to increases in maintenance staff.

6. Technology Division

The Information Technology and Geographic Information Systems Departments should grow at a pace substantially less than the overall customer base. The Operational Technology Department will continue to remain stable in its growth, but new employees will likely be added in order to meet the growing electrical and instrumentation demands of the systems.