

CHAPTER SEVEN: UTILITIES

7.0 Introduction

The Water Works Board of the City of Auburn (AWWB) is the primary potable water service provider for the City of Auburn (City) and Auburn University. There are also several areas in the City that are supplied potable water by other water service providers. Areas served by Loachapoka Water Authority (LWA) generally include certain sections in the outer northwest, west, and southwest regions of the City. The Beauregard Water Authority generally serves certain sections in the outer southeast regions of the City. Areas served by Opelika Utilities generally include certain sections in the outer northeast region of the City. The AWWB is connected to LWA in the western region of the City and can provide water to LWA in the event of an emergency. Wastewater collection and treatment services within the City are provided by the City of Auburn.



Electricity and Gas services within the City are primarily provided by Alabama Power Company and Alabama Gas Company. Some northwestern areas of the City receive power from the Tallapoosa River Electric Cooperative and some southern areas of the City receive power from Dixie Electric Cooperative. These electric and gas companies are private and are not affiliated with the City of Auburn.

7.1 Existing Water Facilities

The AWWB supplies potable water to approximately 60,000 residents through approximately 22,802 residential and commercial water accounts, 2,496 irrigation accounts. The AWWB water system is comprised of approximately 315 miles of water distribution mains. The primary source of the AWWB's water supply comes from the Lake Ogletree reservoir. Lake Ogletree is located on Chewacla Creek in the southeast region of the City. The 300 acre reservoir is supplied by runoff from a 33 square mile watershed that includes parts of the City of Auburn, the City of Opelika, and the Beauregard community and impounds up to 1.6 billion gallons of water. Currently, the AWWB is capable of pumping



Lake Ogletree Reservoir

approximately 8,300-gallons-per-minute (gpm) or approximately 12-million-gallons-per-day (MGD) of raw water from Lake Ogletree to the James Estes Water Treatment Plant (WTP) located approximately 2.5-miles northwest of the reservoir. The WTP is a conventional surface water treatment plant capable of producing up to 8.0 MGD of potable drinking water to serve the Auburn area. The AWWB also operates a groundwater supply well located in the southern region of the City. The well has a permitted capacity to supply approximately 1.3 MGD to the water system. The AWWB has an agreement with Opelika Utilities to purchase up to an additional 3.6 MGD of potable water at a contract rate and can purchase additional potable water as needed above 3.6 MGD at the advertised

wholesale rate. The current average daily water demand for the AWWB is 7.1 MGD and the historical peak utilization of the system is 12.3 MGD. The AWWB is currently in the planning process to increase the WPT capacity to 10 MGD and expand existing resources. The AWWB maintains six above ground storage tanks throughout the City and two below ground clearwells at the WTP, with a combined storage volume of approximately seven (7) million gallons. Options for future water supply sources to sustain growth in the City of Auburn are currently being evaluated by the AWWB's staff and an engineering consultant. Water supply options include a combination of additional surface water sources, groundwater sources, and purchasing of finished water from other water service providers.

7.2 Existing Wastewater Facilities

Wastewater in the City of Auburn is collected primarily by gravity service through approximately 350 miles of interceptor and collector mains, serving 19,627 residential and commercial customers. The City of Auburn currently owns and operates two Water Pollution Control Facilities (WPCF) that are used to treat and dispose of wastewater collected in the City.

The H. C. Morgan WPCF is located on Sandhill Road adjacent to Parkerson Mill Creek and collects wastewater by gravity service from areas of the City located in the Upper Chewacla Creek Watershed. Constructed in 1985, the H.C. Morgan WPCF has a design treatment capacity of 5.4 MGD and a peak hydraulic capacity of 16.4 MGD. The facility



H.C. Morgan Water Pollution Control Facility

was upgraded in 2005 to a treatment capacity of 9.0 MGD and a peak hydraulic capacity of 27 MGD and was most recently upgraded in 2013 to its current design treatment capacity of 11.25 MGD. In 2016, the average annual daily flow recorded was 7.6 MGD and the maximum daily flow recorded was 23.3 MGD.

The Northside WPCF is located at the terminus of Richland Road adjacent to Saugahatchee Creek and collects wastewater by gravity service from areas of the City located in the Upper Saugahatchee Creek Watershed. The Northside WPCF was constructed in 1985 with a design treatment capacity of 2.2 MGD and a peak hydraulic capacity of 4.6 MGD. In 2008, the Alabama Department of Environmental Management (ADEM) and the United States Environmental Protection Agency (EPA) adopted a Total Maximum Daily Load (TMDL) for Saugahatchee Creek which limits the discharge of total phosphorus from the Northside WPCF. Due to the implementation of the TMDL, along with the existing condition of the Northside WPCF and the limited existing treatment processes utilized at the Northside WPCF, the City determined that it was in its best interest to close the

Northside WPCF in the near term and begin diverting flow to the H.C. Morgan WPCF to utilize the available treatment capacity at that facility. The City will maintain its waste load allocation for Saugahatchee Creek to allow for the rehabilitation and re-opening of the Northside WPCF in the future, as needed. In preparation for this diversion of flow, the City completed construction of the S-5 Sewer Transfer System in February 2010. The S-5 Sewer Transfer System consists of approximately 7.2-miles of large diameter (24-inch to 42-inch) gravity sewer main, 4.4-miles of large diameter (16-inch to 24-inch) sewer force main, a 6.0-MGD transfer pump station at the Northside WPCF, and a 9.0 MGD pump station north of I-85 near Choctafaula Creek. The S-5 Sewer Transfer System connects the Northside WPCF to the H.C. Morgan WPCF and provides a conveyance system to allow for the diversion of wastewater. In accordance with the City's TMDL Implementation Plan which was submitted to and approved by ADEM in 2009, the City ceased discharge at the Northside WPCF in January 2013.

Plans for future wastewater treatment needed to sustain growth in the City of Auburn were evaluated in the Wastewater Treatment and Disposal Master Plan completed in 2005, the Saugahatchee TMDL Implementation Plan submitted to ADEM in July of 2009, and the H.C. Morgan and Northside WPCF Master Plans which were completed in 2010 and updated in 2015. The City has a total permitted treatment capacity of 13.45 MGD (11.25 MGD at the H.C. Morgan WPCF and 2.2 MGD at the Northside WPCF). Due to the mothballing of the Northside WPCF in 2013, the City currently has the 11.25 MGD of the H.C. Morgan WPCF available. Additional treatment capacity can be created in the future by upgrading and reopening the Northside WPCF or by the construction of another treatment facility on the north side of Auburn. The most recent capacity upgrades should provide adequate capacity to handle wastewater flow for the next 10 to 20 years.

The City is also actively investigating areas of the existing collection system that are in need of rehabilitation, capacity upgrades, or replacement to reduce costly inflow and infiltration (I/I) into the sewer system. The City has performed flow studies in the Northside WPCF and the H.C. Morgan WPCF sewer basins to identify areas that require rehabilitation. The City has completed numerous sanitary sewer rehabilitation projects since 2008 aimed at reduction I/I into the sewer system. The City implemented a long term sanitary sewer flow monitoring project in 2017 aimed at providing real time sanitary sewer flow data to allow staff to respond quickly and efficiently to I/I issues.

7.3 Analysis of Existing Conditions

As the City continues to grow, the AWWB and the City will seek ways to provide service in an economical way while continuing to provide a high level of customer service. In the 2016 Citizens' Survey, the City and the AWWB received high marks. Eighty-five (85) percent of residents surveyed were happy with their sanitary sewer service and eighty-two (82) percent of residents were satisfied with their water service. The AWWB and the City are proactively working to manage, repair and expand the water and sewer systems to meet regulatory requirements and to provide reliable service and necessary capacity in a timely manner.



Glenn Avenue Water Tank

7.3.1 Maintaining a Safe and Reliable Public Water System

The AWWB maintains a safe and reliable public water system through source water protection efforts including water quality testing within the Lake Ogletree watershed and the routine monitoring of Lake Ogletree, by providing appropriate water treatment to meet or exceed State and Federal water quality requirements prior to pumping finished water into the water distribution system, and by managing and testing the water distribution system to ensure continued regulatory compliance. Additionally, the AWWB maintains multiple water supplies for water supply redundancy, has installed emergency generators at all critical sites within the water system to provide a back-up power supply to minimize potential service disruptions and has installed redundant equipment where feasible to maintain system operations in the event of equipment failure.

7.3.2 Increased Treatment Capacity and Additional Water Sources

Water demands will continue to increase as the City of Auburn develops. From a water source and infrastructure standpoint, it is important for the Water Resource Management Department (WRM) and the AWWB to maximize the use of existing infrastructure and to complete necessary infrastructure upgrades in a timely manner.

The AWWB regularly updates water demand projections and evaluates necessary system upgrades. This master planning allows the AWWB to plan for, design and construct improvements in a timely and efficient manner. WRM and the AWWB use GIS tools and demand models to continually update projected demand for water service as well as the water distribution system itself. This information is valuable for all City departments to help regulate development and growth. As part of the demand evaluation process, WRM and the AWWB are working with the Planning Department to project new infrastructure demands based on data from the Auburn Interactive Growth Model (AIGM).

The AWWB's water supply should be sufficient to meet the City's current needs for at least the next 10 years. The AWWB will ~~need to~~ continue to evaluate and develop additional sources of water to meet the future needs of the growing Auburn community.

7.3.3 Promote Water Conservation

While the demand for water will increase with population growth, there are water conservation options that can be utilized or implemented to help conserve water. The AWWB currently identifies water accounts with high usage as water meters are read each month for billing. Customers with unusual water usage are notified by the AWWB of the high water usage and the AWWB provides assistance as needed to determine the reason for the high usage so that steps can be taken to correct the problem.

One of the challenges of implementing water conservation measures is the relationship between water usage and water revenue. Successful water conservation measures have a measureable downward effect on the water system's total water usage. This in turn decreases water revenue. The water system must continue to be operated and is in constant need of repair and rehabilitation, even without taking into account the need for system expansion to grow as the number of water users grows. Capital improvement projects for the water system are planned years in advance, and assumptions must be made about the anticipated revenue to pay for those projects. A consistent revenue stream is necessary for the water system, and increases in user fees are inevitable if water conservation measures are successful. Auburn's water supply is currently adequate, and some water conservation measures recommended by this plan are likely to be implemented in the long-term rather than immediately.

The AWWB revised its water rate structure from a declining block rate to a flat rate in 2009 so that increased water demand no longer results in a reduction in the cost per thousand gallons of water purchased. The flat rate block structure provides for an equivalent cost per thousand gallons. The AWWB will evaluate implementing additional rate structure modifications in the future to transition from a flat rate structure to an inverted block rate structure. An inverted block rate would incrementally increase the cost per thousand gallons of water as water usage increases. This increase in cost has the potential to affect the water usage patterns of the water customers.

Another potential option for improving water conservation would be to require master metered developments to sub-meter individual dwelling units. The AWWB currently has master metered residential developments typically associated with multifamily development like apartment complexes and condominiums. Master metered development means that one water meter serves multiple residential dwelling units. With this type of metering arrangement, the individual customers do not receive monthly water usage information and these customers are not aware of their actual water usage. The implementation of sub-meters for individual units could provide for more water use accountability and more efficient leak detection and could encourage a greater awareness of water usage and the associated costs.

An incentive program for water conservation could also be evaluated such as a rebate program to assist homeowners with replacing existing plumbing fixtures with new water efficient plumbing fixtures such as toilets, faucets, showerheads and appliances.

An incentive program could also be evaluated by the City and the AWWB to encourage customers to install rain sensors on irrigation systems and to plant native species and drought tolerant species. The City could also evaluate requiring rain sensors on all new irrigation systems to prevent irrigation systems from operating if soil conditions do not indicate a need for water or if it is raining. Incentive programs to promote the use of native plant species and drought resistant landscaping would reduce the need for irrigation. In addition, consideration could be given to discontinuing the installation of irrigation meters or to establishing higher irrigation rates to discourage wasteful watering practices. For the above programs to have any impact on water usage, citizens will need to be educated regarding the benefits of water conservation and of available incentives. This can be done by issuing press releases, mailing fact sheets with monthly utility bills, by educational classes or by providing information on the City or AWWB website. Every year, students in Lee County learn about the benefits of water conservation and clean water through the Lee County Water Festival. Similar outreach programs could be developed.

7.3.4 Maintain Existing Water Infrastructure

Existing water infrastructure must be properly maintained and upgraded as needed to meet current and future water demands. The existing WTP was constructed in phases beginning in 1954. The AWWB is currently evaluating adding two additional treatment filters to expand capacity from 8.0 million gallons per day ~~up~~ to a maximum of 10.0 million gallons per day.

The reconstruction of the Lake Ogletree Spillway is currently underway. The original Lake Ogletree Spillway was constructed in 1941 and is reaching the limits of its life. The reconstructed spillway will increase the water storage capacity in the lake by 50 million gallons and will be built in accordance with regionally accepted dam safety standards, which the State of Alabama has not yet adopted.



Lake Ogletree Spillway Construction

The existing water distribution system is in good condition with sufficient water storage capacity and appropriately sized water mains.

The AWWB operates and maintains six elevated water storage tanks with a combined capacity of 5.5 million gallons. Each tank is taken out of service, the interior is washed, and inspected every three years. During these inspections, any defects to the interior coating system is appropriately repaired. These triennial inspections help establish the schedules for major tank rehabilitation projects and ensures each tank is performing as desired.

Several water main replacement projects in the downtown area have been completed. These projects replaced aging water mains in this area and were performed in conjunction with the recent redevelopment of Toomer's Corner and several private downtown redevelopment projects. Rehabilitation of the water distribution system will be required in limited areas where redevelopment is planned in the near future. These rehabilitation projects will be coordinated as redevelopment occurs.

7.3.5 Work to Extend Water and Sewer Services to All Residents

Some residents living within the city limits of Auburn do not have access to public water or sewer services (see Maps 7.1 and 7.2 pages 9 & 10). In the short term, the AWWB and the City can develop an inventory of areas within the City that are not served by a public water system or by the City sewer system. Based on this inventory, the AWWB and the City can evaluate opportunities to expand service to residents that are not currently served by public water and sewer.

7.3.6 Fire Protection

The most efficient way for the Fire Division to fight fires is to utilize existing fire lines and hydrants. Fire protection within the City is excellent due to the water distribution system being constructed with adequate line sizes, looped water mains, appropriately placed elevated storage tanks and ample water supply.

One role of the Future Land Use Plan is to establish an optimal corporate boundary for the City for the year 2030. The City can take steps to make areas inside this boundary that are not currently in the City and that are recommended for more intense development more desirable for annexation. The City should work to provide a level of fire protection service that meets the current edition of the International Fire Code.

7.3.7 Maintaining a Safe and Reliable Sewer System / Evaluate and Develop Additional Sewer Capacity

The City of Auburn sewer system has ample capacity to meet the current sanitary sewer needs. The need for additional sanitary sewer capacity will increase as the City grows. The City completed a project in 2013 to increase the capacity of the H.C. Morgan WPCF from 9.0 million gallons a day (MGD) to 11.25 MGD. This additional capacity should be sufficient through the year 2030. Additional sanitary sewer capacity will be constructed as needed based on future growth. Over the past several years the City has completed several sanitary sewer upgrades in the downtown area. These projects were performed in conjunction with the recent development of Toomer's Corner and several private downtown redevelopment projects.

Upgrading facilities requires years of planning, design, and construction. Work on capital projects must be completed in advance to maintain adequate capacity and to meet demand and regulatory requirements. Projects are completed to take advantage of economies of scale and to complete projects in economical increments of construction. It is important for the City to utilize the Auburn Interactive Growth Model (AIGM) to update sewer demands based on projected population growth. The Water Resource Management Department should also continue mapping the current sewer infrastructure and modeling existing sewer capacity. By doing this, the City can target necessary improvements in areas with the greatest need.

7.3.8 Use the Future Land Use Plan to Plan New Infrastructure

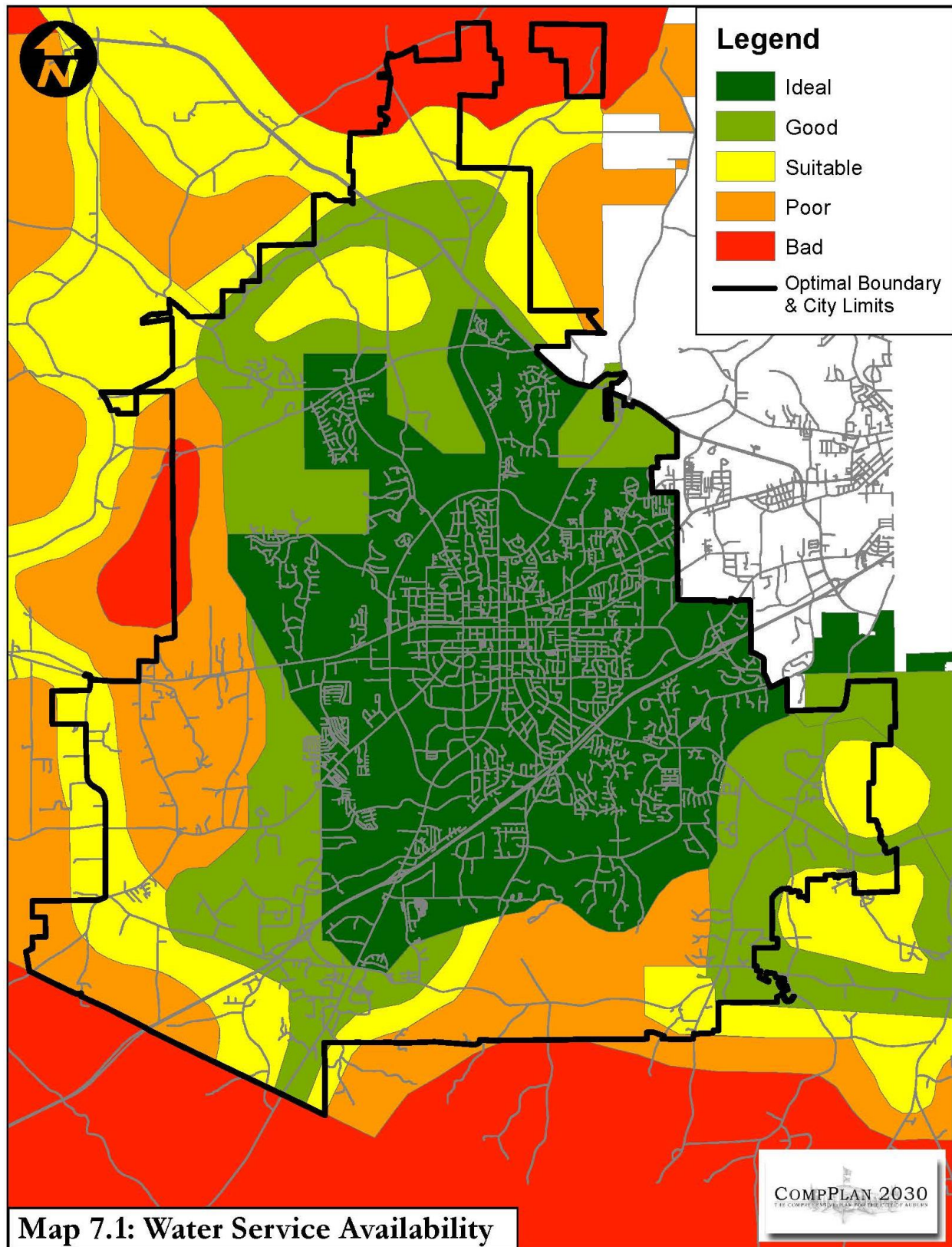
The Future Land Use Plan can help provide a reliable window into the future for development. Areas projected for higher intensity/density development will have an increased need for upgrades to sewer infrastructure than areas planned to remain rural. Infrastructure improvements in these areas will need to be master planned and constructed when needed.

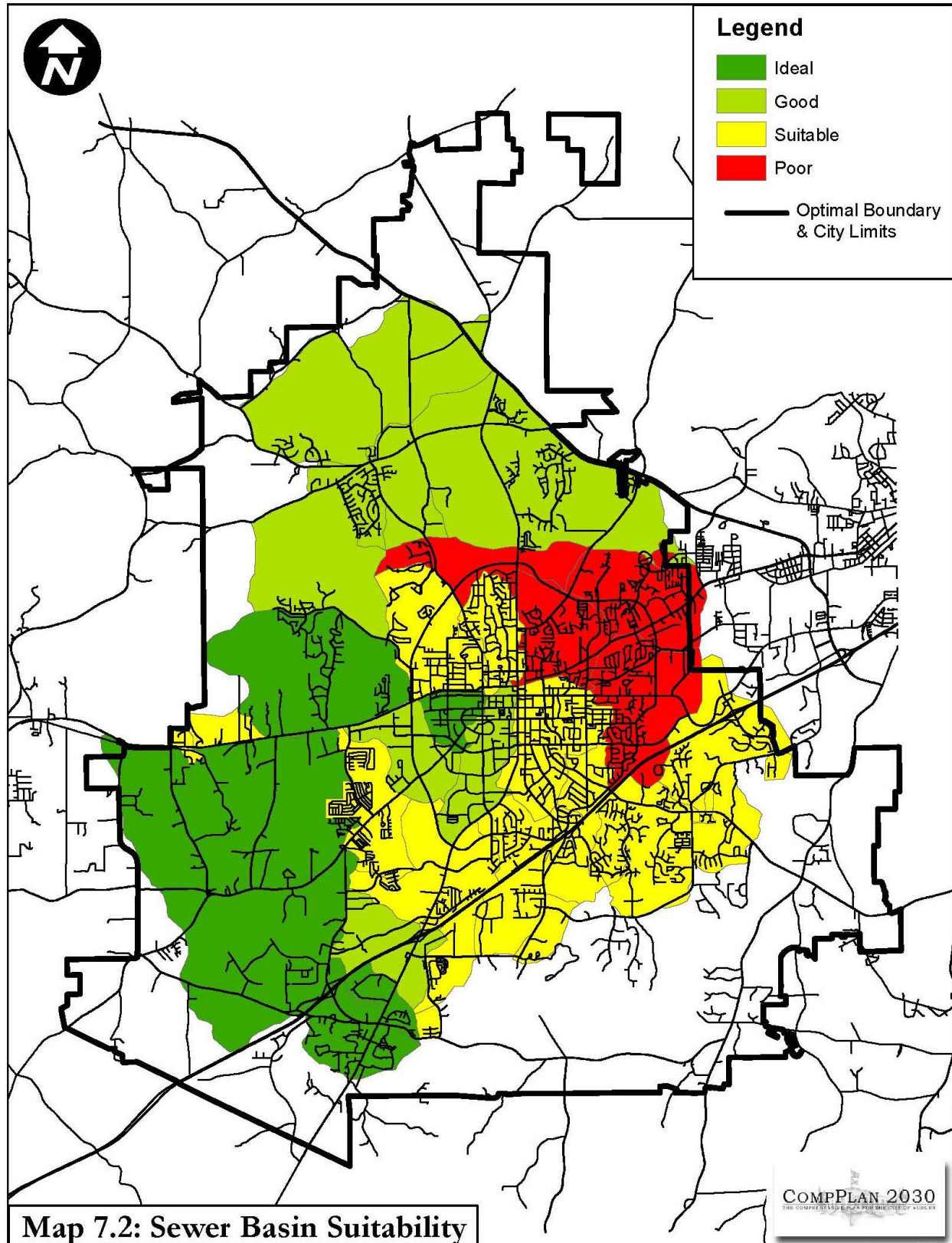
Downtown and the Opelika Road corridor are two areas with older infrastructure that the Future Land Use Plan encourages to transition to higher- intensity/density uses. As Map 7.2 demonstrates, these areas may require significant upgrades before much of the proposed higher intensity development can occur. Where appropriate capacity is lacking, it may be necessary to discourage more intense development through changes to zoning and land use recommendations. As discussed in previous sections, the WRM Department has been able to take advantage of the Toomer's Corner redevelopment project, as well as several private redevelopment projects, to upgrade water and sanitary sewer infrastructure in the downtown area in recent years.

For all new development, the City should continue to evaluate how much sewer capacity would be needed to serve the proposed development. If the project exceeds the current capacity available, then additional capacity will need to be provided or the project will not be able to proceed. The cost of sewer line extensions is generally borne by the project developer. If the proposed development is outside the city limits, the development must be annexed before sanitary sewer service is made available. Sanitary sewer service provided by the City is not available to properties located outside of the City limits.



Sewer Main Replacement Project on College Street





7.3.9 Evaluate Areas Within the City Not Served by Sewer

See Section 7.4.5 above.

7.3.10 On-Site Sewer Systems

Protecting Auburn's watersheds is a high priority for the City. A contaminated watershed affects public health, ecosystem health, and recreational opportunities.

On-site sewer systems should only be utilized in areas where public sewer service is not available and the locating of on-site sewer systems should be done to provide the maximum protection to adjacent watersheds. On-site sewer systems are currently regulated by the Alabama Department of Public Health. The City may elect to develop additional design and construction standards for the installation of on-site sewer systems and for the perpetual maintenance of on-site sewer systems.



Watershed Monitoring by the City of Auburn

7.5 Goals, Objectives, and Policies

U 1: Continue to provide a safe and reliable public water system to meet existing and projected future needs.

U 1.1: Continue to evaluate and develop additional water sources and water treatment capacity to meet projected growth needs.

U 1.1.1: Proceed with projects to maximize the use of the existing Lake Ogletree reservoir and increase the treatment capacity of the existing water treatment facility by 2020.

U 1.1.2: In cooperation with the Planning Department, regularly update projected water demands in conjunction with annual AIGM updates.

U 1.1.3: Work to identify new water supplies to meet the City's needs through 2030 and beyond.

U 1.1.4: Continue efforts to map the existing water system and model the existing water system capacity.

U 1.2: Promote water conservation as one means of reducing overall water consumption.

U 1.2.1: The Auburn Water Works Board should consider a transition to an inverted block rate structure by ~~2020~~ 2030. With an inverted block rate structure, the incremental cost of water increases as water consumption increases.

U 1.2.2: The AWWB may consider not offering irrigation meters in the future to promote less water usage.

U 1.2.3: Continue water loss control efforts to find and repair water leaks.

U 1.2.4: Encourage the sub-metering of multi-family developments to raise awareness of the water usage per residential unit and to promote water conservation.

U 1.2.5: Consider rebate programs to encourage the replacement of existing plumbing fixtures such as toilets, faucets, showerheads and appliances with newer, high-efficiency plumbing fixtures.

- U 1.2.6:** Continue to provide water conservation education programs for students and the general public.
- U 1.2.7:** Promote the use of drought-tolerant landscaping and native species to promote water conservation as well as promote the use of rain sensors on irrigation systems to reduce non-essential irrigation system use.
- U 1.2.8:** Develop a list of drought-tolerant landscaping, the benefits of such landscaping, and encourage its use.
- U 1.2.9:** Consider offering incentives to promote the use of drought-tolerant landscaping.
- U 1.3:** Maintain existing water infrastructure to protect existing capacity.
 - U 1.3.1:** Complete the replacement of the Lake Ogletree spillway by 2018.
 - U 1.3.2:** Proceed with rehabilitation of the existing water treatment plant by 2030 and expand the existing capacity of the water treatment plant to 10 MGD capacity by 2020 if possible.
 - U 1.3.3:** Identify locations on the future land use map that will require repairs or upgrades to water infrastructure to be developed in accordance with the map.
 - U 1.3.4:** Plan future investments to replace aging water infrastructure to maintain existing service and provide potential for additional growth.
- U 1.4:** Identify and work to extend public water to all City residents not currently served by public water sources.
 - U 1.4.1:** Develop an inventory of areas within the City that are not served by a public water system.
 - U 1.4.2:** Evaluate opportunities to extend public water to all City residents not currently served by a public water system.
- U 1.5:** Require adequate fire protection infrastructure in areas within the City's optimal boundary.

- U 1.5.1:** Work to provide fire protection at all locations within the City's optimal boundary in compliance with the International Fire Code as amended and adopted by the City from time to time.
- U 1.5.2:** Identify locations where fire protection issues exist or may affect future development.
- U 1.5.3:** Continue to require fire protection infrastructure to ensure adequate fire flows for high-density/intensity development.
- U 1.6:** Concentrate the construction of water infrastructure in areas identified for development in the Future Land Use Plan and encourage development in areas where adequate water service is present.
 - U 1.6.1:** Identify locations in the future land use plan where water infrastructure will require repairs or upgrades in order to be developed in accordance with the Future Land Use Plan.
 - U 1.6.2:** Intensification of uses and expansion of downtown as well as in north Auburn will require significant investment in the AWWB water system. These investments will require close coordination between with the City's Planning Department as to budgetary priorities, or changes to budgetary priorities and with changes to land use.
 - U 1.6.3:** As additional mapping and modeling of the water system is completed, encourage development in those areas with available capacity through appropriate changes to land use recommendations and zoning.
 - U 1.6.4:** As part of the development review process, continue to require developers to provide estimates of how much capacity would be required for the proposed development.
 - U 1.6.5:** Continue to require that extension of water lines to proposed development be paid for by the developer.
- U 2:** Continue to provide a safe and reliable public sewer system to meet existing and projected future needs.
 - U 2.1:** Continue to evaluate and develop additional sewer treatment capacity to meet projected growth needs.

- U 2.1.1:** Complete updates to the City's Waste Water Treatment Facility Master Plans in 2020 and proceed with planning, design, and construction of projects as identified in the 2020 Facility Master Plan update.
- U 2.1.2:** In cooperation with the Planning Department, regularly update projected sewer demands in conjunction with annual AIGM updates.
- U 2.1.3:** Continue efforts to map the existing sewer system and to model the existing sewer system capacity.
- U 2.2:** Concentrate the construction of sewer infrastructure in areas identified for development in the Future Land Use Plan and encourage development in areas where adequate sewer service is present.
 - U 2.2.1:** Identify locations in the future land use plan where sewer infrastructure will require repairs or upgrades in order to be developed in accordance with the Future Land Use Plan.
 - U 2.2.2:** Intensification of uses and expansion of downtown as well as in north Auburn will require significant investment in the sewer system. These investments will require close coordination with the City's Planning Department as to budgetary priorities, or changes to budgetary priorities and with changes to land use.
 - U 2.2.3:** As additional mapping and modeling of the sewer system are completed, encourage development in those areas with available capacity through appropriate changes to land use recommendations and zoning.
 - U 2.2.4:** As part of the development review process, continue to require developers to provide estimates of how much capacity would be required for the proposed development.
 - U 2.2.5:** Continue to require that extension of sewer lines to proposed development be paid for by the developer.
 - U 2.2.6:** Continue to require that extension of sewer lines only be granted upon annexation.
- U 2.4:** Evaluate unserved areas within the City and extend sewer to residents not currently served by municipal sewer when practical.

- U 2.4.1:** Develop an inventory of areas within the City that are not served by municipal sewer.
- U 2.4.2:** Evaluate opportunities to extend sewer to areas within the City that are not currently served by municipal sewer.
- U 2.5:** Work with operators of on-site sewer systems to ensure proper function and to protect water quality within the City's watersheds.
 - U 2.5.1:** Review the feasibility and desirability of implementing City requirements for onsite sewer systems.
 - U 2.5.2:** Consider designating areas of the City that are appropriate for onsite sewer systems.