

Water and Sewer Services

To better understand the environment within which the City of Salisbury provides water and sewer services, it is first useful to review the status of the City's utility capacities and operations. This Chapter of the Comprehensive Plan, therefore, begins with an overview of the City's water and sewer systems, describes existing service areas, and reviews changing conditions that are driving current policies concerning the growth of the City's utility systems. The section concludes with an assessment of the relationship between the future expansion of these utilities and the growth management objectives of this Comprehensive Plan.

This section is organized under the following major headings:

- Water and Sewer Treatment Plant Capacities
- Water and Sewer Service Areas
- Water and Sewer Extension Policies
- Water and Sewer Extensions as Related to Growth Management



WATER AND SEWER TREATMENT PLANT CAPACITIES

Capacity of the City's Water Treatment Plant/Expansion Plans

Salisbury's potable water treatment plant, originally built in 1950 and expanded in 1964 and 1970, has a current treatment capacity of 12 million gallons per day (MGD). Raw water for the system comes from a water intake and pump station located some six miles north of Salisbury on the Yadkin River just above its confluence with the South Yadkin. The City has two raw water reservoirs located at Ellis Crossroads with a combined holding capacity of 29 million gallons. A preliminary engineering report, completed in 1996, outlined improvements, which would allow the water treatment plant capacity to upgrade to 18 MGD, as needed.

Despite the recent drop in demand for potable water (See below), state and local officials feel that the long-term trend is toward increasing demands for potable water in the region. For this reason, the City, with encouragement from the State, has decided to proceed with the proposed upgrade. Construction will take two years, followed by one year of system tests, before the additional water will be available.

Recent drop in demand for potable water

Due to the loss of several significant industrial customers in 1999, plans for a water treatment plant capacity upgrade were temporarily postponed. (As noted above, they are now back on track.) Several statistics from the 1999 water treatment plant records confirmed a reduced demand for potable water as a result of these several plant closings:

Daily average demand. The daily average demand for water in 1997 and 1998 was 8.0 MGD. In 1999, the daily average demand was closer to 7.5 MGD.

Daily maximum demand. The daily maximum demand for 1998 was 10 MGD, compared to a daily maximum in 1999 of 9.1 MGD.

Monthly flow totals. Monthly flow totals for April and May of 1999 were 212.6 MG and 221.3 MG, respectively. These numbers represent a drop of 21.8 and 27.5 MG, respectively, from the monthly totals for the same periods in 1998.

All of these figures point to a decrease in demand for water of roughly 10% since the plant closings took place.

Prospects for increased demand for potable water

The Carolina Power and Light Company (CP&L) recently announced its intentions to build a power generating facility on U.S. 70 west of Salisbury. When operational, this facility will require an estimated 7 million gallons of water per day. CP&L officials have been discussing their water needs with both the City of Salisbury and Rowan County. On December 1, 2000 the City and Rowan County adopted a joint resolution involving a cooperative arrangement where the City would provide potable water to customers in western and southern Rowan County, including the new CP&L and ENTERGY facilities.

In addition to the CP&L proposal, there have also been discussions between the City of Salisbury and the Town of China Grove regarding the possibility of China Grove becoming a water system customer. Currently, the Town of China Grove receives a portion of its water from the Town of Landis. City and County officials have also met with officials from China Grove, Landis and Kannapolis who are interested in being served by Salisbury's system. A comprehensive agreement is being developed to provide and distribute potable to the southern part of the County.

CAPACITIES OF THE CITY'S WASTEWATER TREATMENT PLANTS

The City of Salisbury has two wastewater treatment plants with a combined capacity of 12.5 MGD. The combined average daily volume used in 1999 was about 7.3 MGD, for excess capacity of somewhat over 5 MGD. More detailed information on each plant follows.

Town Creek Wastewater Treatment Plant

The Town Creek Wastewater Treatment Plant, located in East Spencer, west of I-85, was built in the 1930's and upgraded during 1969, 1989, 1997 and 2000. The plant has an approved permit limit of 5 MGD. The average flow during 1999 was 2.46 MGD. Treated effluent from the

plant, which had previously emptied into Town Creek, now discharges directly into the Yadkin River.

Grant Creek Wastewater Treatment Plant

The Grant Creek Wastewater Treatment Plant was built in the early 1960's and expanded in the late 1980's. The plant has an approved permit limit of 7.5 MGD. The average flow during 1999 was 4.76 MGD. The treated effluent outfall from the plant, which had previously discharged into Grant Creek, now empties directly into the Yadkin River.

Future Plans For Wastewater Treatment.

Much of the equipment used in the City's wastewater treatment plants is now over 30 years old. Through careful maintenance, the City has been able to keep this equipment in working order, despite its age. A Preliminary Engineering Report (PER), completed in 1999, recommended upgrades necessary to keep the equipment operational for another 10 to 15 years. However, the planning, permitting, design and construction sequence for new plant construction can take many years, so the City has already begun planning for a new wastewater treatment plant. Preliminary cost estimates have indicated that a new 20-MGD wastewater treatment plant with nutrient removal capability could cost about \$65 million in 1999 dollars. Current plans call for moving ahead on some components of a plant upgrade to remedy problems with some of the older equipment. Such components would eventually become part of a totally new facility.



WATER AND SEWER SERVICE AREAS

Existing Service Areas

The geographical areas to which the City of Salisbury provides water and sewer services may be described in terms of two categories:

retail customers- the City bills and receives payment directly from each household or business

bulk customers- the City bills and receives payment from another local government, which, in turn, bills individual households and businesses.

The retail utility service area is comprised of the City of Salisbury, the Town of Spencer, the Town of Granite Quarry, the Town of Rockwell, and areas along three principal roadway corridors: U.S. 70 to the northwest, U.S. 52 to the southeast, and U.S. 29 to the southwest. Bulk customer service areas include the Town of East Spencer to the northeast, China Grove and Landis to the southwest, and Rowan County to the northeast. Each of these areas will now be described in greater detail.

U.S. 70 West corridor

The U.S. 70 corridor (Statesville Boulevard) outside the City limits receives water services only. That portion of U.S. 70 from the Salisbury City limits to a booster pump station located near Highway 801 is within the City's retail customer water service area. From Highway 801 further to the northwest, however, the City provides water service only as a bulk commodity. The ridgeline at the Hurley School Road generally serves as

a limiting factor in extending sewer service beyond that point to the west. This was reflected in the new extraterritorial jurisdiction map approved in 1999 by City Council. (As outlined in the joint resolution with Rowan County, the City will assume ownership of Rowan County's water line and wastewater treatment plant. As noted above in the discussion of treatment plant capacities, the U.S. 70 west corridor is also the location of the proposed new CP&L and ENTERGY power facilities.)

U.S. 29 South corridor

The City provides both water and sewer services south along U.S. 29 to a point near the Pillowtex manufacturing facility. The Towns of China Grove and Landis are currently not water customers of the City, but discussions to this effect have taken place. Also, as noted above in the discussion of treatment plant capacities, Rowan County has expressed an interest in facilitating the provision of water to these communities in southern Rowan. Rowan County is also interested in working with the City to provide service to the I-85/U.S. 29 corridor to promote economic development.

Both China Grove and Landis are bulk customers of the City of Salisbury for sewer service. These two towns maintain their own wastewater collection systems and deliver the sewage to an outfall near the intersection of U.S. 29 and Corriher Road. From that location, the City pipes the raw sewage to the Grant Creek Wastewater Treatment Plant.

U.S. 52 South corridor

The Towns of Granite Quarry and Rockwell are retail customers of the City of Salisbury for both water and sewer services. Currently, the Town of Rockwell receives its raw water from a well system. By late-2001, however, the City of Salisbury will have completed construction of a new water supply line south along U.S. 52 between Granite Quarry and Rockwell. Upon completion of the new line, the existing well system will be abandoned.

U.S. 29 North corridor

In the past year, the Town of Spencer and the City of Salisbury reached an agreement on the consolidation of the Town's utility system with Salisbury's. On October 1, 2000, residents and business owners in the Town of Spencer became retail water and sewer customers of the City of Salisbury. Prior to that time, the Town had been a bulk customer of Salisbury's utility systems. The Town of East Spencer is a bulk customer of the City of Salisbury for both water and sewer services. East Spencer maintains its own water distribution and sewage collection systems.

Future Water and Sewer Service Areas

It has been clear for many years that Salisbury's long-term prospects for growth are primarily to the west and southwest of the City. To the northeast, for example, Salisbury's urban growth has been contained by the communities of Spencer and East Spencer, as well as the Yadkin River. To the southeast, quarries and rock formations have historically limited growth in that direction. As a result, areas to the west and southwest of Salisbury have become increasingly more important as the City continues to grow. Based upon this reality, as well as the influences of topography on gravity fed sewage lines, the most probable geography

for future water and sewer services encompasses a sweeping area to the west and southwest of the City.

Several reference points which help define the limits of the City's future water and sewer service area include:

- (1) down Old Concord Road to its intersection with East Ritchie Road
- (2) out NC 150 West to its intersection with Airport Road
- (3) down U.S. 29 South to its intersection with Webb Road
- (4) out Sherrills Ford Road to its intersection with Neel Road
- (5) out U.S. 70 West to a point just east of its intersection with Kempley Road.

(Also see water and sewer service area maps.)

WATER AND SEWER EXTENSION POLICIES

The City of Salisbury has a written set of policies, adopted by City Council, which govern decisions regarding the extension of the City's water and sewer services to new geographic areas, households and businesses. The policies are amended from time to time to reflect changes in the City's growth policies as well as the economics of the utilities system. An example of such changes may be found by comparing the City's 1988 Water and Sewer Extension Policies with those adopted a decade later in 1998.

In 1988, the City of Salisbury was employing water and sewer extension policies as both an economic development tool and a growth management tool. Economically, there was a need to promote growth, as there were only about 200 new water and sewer connections coming on line each year. At the same time, the City's water and sewer extension policies employed cost participation incentives to promote growth in specific areas of the City's planning jurisdiction.

The 1988 policies encouraged new growth and development in a designated *primary growth area* by participating in the costs of water and sewer line extensions at 50 percent of the cost. The same policies encouraged development in a *secondary growth area* by participating in the costs of utility line extensions there by 25 percent of the cost. Conversely, to discourage new growth and development from occurring in the *rural* area, the City provided no funding for participation in utilities extensions to projects within the "rural" area.

Significantly, the City's policies in 1988 also allowed for financial participation in the placement of water and sewer lines internal to a subdivision or other development.

By 1998, the City's emphasis on water and sewer extension policies had shifted from economic development and growth management to retail customer base expansions and utilities system growth. Several factors led to this shift. First, by the late 1990's, Salisbury was experiencing significant growth and development, with over 800 water and sewer connections per year. Second, new standards for water and sewer treatment capabilities were being promulgated by State and Federal government regulators, setting the stage for expensive new treatment plant improvements in the future. This created pressure for a larger customer base over which to spread the costs of such improvements.

Third, as an independent enterprise fund of the City government, more emphasis was being placed on growing the system and its revenues.

Thus, the City's current water and sewer extension policies, first adopted in 1998, have four stated primary objectives:

- (1) Promote complementary economic development
- (2) Ensure economic feasibility
- (3) Provide consistent treatment throughout service area for all projects
- (4) Provide flexibility in decision-making

A key provision of the City's current water and sewer extension policies is the use of an economic feasibility test for new projects to arrive at a payback to the City of less than 10 years. This cost-benefit analysis is then employed to establish and require the percent participation by the developer in the cost of the utilities extensions. In no event may the developer's participation be less than 50 percent, as compensation for the City's risk. In addition, the City's current policy is not to pay for any part of the costs of water and sewer lines internal to a development.



Of note, the City's current water and sewer extension policies do not include any references to *primary* or *secondary growth areas*. Thus, they are in large measure blind to geographical growth area preferences, favoring instead locational preferences as just one factor controlling economic feasibility and payback.

Thus, in 1988, the City's water and sewer extensions policies were viewed primarily as a growth management tool and a means to encourage economic growth in or near the City. The City's current water and sewer extensions policies, adopted in 1998, place primary emphasis on the water and sewer systems operating as a business-like enterprise. Consistency with the policies of the Comprehensive Plan is one of several other lesser objectives; it is primarily seen as an adjunct to the primary business-weighted objective.

Significantly, the water and sewer extension policies of this comprehensive plan call for the City to place greater emphasis on the use of water and sewer as a development management tool. This may require greater emphasis on targeted growth areas, as well as financial incentives, such as greater City participation in the costs of water and sewer services for developments that are particularly consistent with the City's growth policies.*

*Such City financial participation may have to come from funds other than the water and sewer fund (such as the general fund) so as to avoid compromising the enterprise-based approach to managing the City's water and sewer services as a separate financial entity.

WATER AND SEWER EXTENSIONS AS RELATED TO GROWTH MANAGEMENT

Two Perspectives on Current Excess Capacity for Water Production and Wastewater Treatment

There are fundamentally two different perspectives on the current levels of excess capacity in the water production and wastewater treatment systems of the City of Salisbury. Events of the recent past regarding the loss of several large customers of the City's water system have caused concern regarding the financial balance sheet of the City's water and sewer utilities. The first perspective therefore holds that the excess capacities are a problem to be remedied as soon as possible, to reduce

the system costs that must be spread over the City's existing customer base. Foremost among these concerns is the impact of higher utility fees on the individual ratepayer in Salisbury. City officials are mindful of the need to hold water and sewer rates down so as not to raise the ire of property owners and voters, particularly those on fixed incomes. A related concern revolves around the need to upgrade treatment capabilities in accordance with the new, higher standards being promulgated by State and Federal authorities on municipal treatment systems; there is a strong desire to grow the customer base and spread future system improvement costs over a larger number of ratepayers.

The second perspective holds that the current surplus capacity for potable water production should be viewed as a windfall and strategic reserve for Salisbury's prosperity in the 21st century. This perspective makes note of the unfortunate experiences of some urbanized areas, particularly in the piedmont region of North Carolina, with repeated water shortages. The Town of Chapel Hill, for example, has had potable water shortages dating back at least 25 years. More recently, the City of Greensboro received considerable notoriety over its potable water shortfalls of the past few years. Currently, China Grove, Landis, and Kannapolis are all experiencing water shortages. Some water resource specialists have forecast that the coming "water crisis in the South" will have a far greater impact on the economy of the region, and the lives of people who live here, than the energy crisis of the mid-1970s. Those communities that have the foresight to conserve and protect sizeable water reserves and excess sewage treatment capacity will be in the driver's seat when it comes to future, long-term, positive economic development.

Thus, while the first perspective views declines in the customer base and demand for potable water as a situation in need of immediate correction, the second perspective holds that a good amount of excess capacity in municipal treatment capacity puts the City in a favorable position for long term growth. Depending upon which perspective is taken has a lot to do with how the City views its need to grow its customer base. Under the first perspective, the City is motivated to aggressively seek new customers, with very little regard as to how those new customers fit in with other growth management objectives of the City. Under the second perspective, the City can be more selective as to the customers it elects to serve, and whether those customers fit into a pattern of development supportive of a long-range vision for the City. Obviously this Comprehensive Plan, which advocates effective growth management, favors the second perspective.

Municipal Control of Water and Sewer Vs. a Regional Authority

The City of Salisbury has been approached, from time to time, with the suggestion that it give up sole ownership of its utilities systems in favor of establishing a regional water and sewer authority. The board of such an authority, for example, might include representatives from the City of Salisbury as well as from other local governments in Rowan County. This plan holds that it would not be in the City's best interest to pursue such an arrangement. An explanation follows.

The City of Salisbury is fortunate to have the ownership and control of its own water and sewer utilities. Such control allows the City to employ its utilities to achieve multiple objectives, including a large measure of control over its own destiny as a community. It is a generally accepted



planning principle that the provision of infrastructure, particularly centralized water and sewer services, is a major determinant in the density, timing and location of new development in an urbanizing area. In fact, the "big three" infrastructure improvements of *water, sewer, and roads* normally have a much greater influence over growth and development than the regulatory authority imposed by a zoning ordinance and/or subdivision regulations. Oftentimes, the extension of water and sewer services outward from an existing town or community can be the definitive action in predicting where the next wave of development is going to occur. As such, water and sewer service extensions can be quite effective as a growth management tool of local communities like Salisbury.

In contrast, when centralized water and sewer facilities are owned and operated by authorities independent of the municipal government, there is no built-in incentive to consider the full implications of extension decisions. That is, such authorities are inclined to focus solely upon the cost/profitability of providing services to a particular area or development; meanwhile they have little reason to be concerned about inefficient development patterns caused by narrowly focused utility decisions. In other words, while a new development might provide a favorable expansion to the customer base and revenue stream for the authority, it might also cause inefficiencies in the provision of law enforcement, fire protection, refuse collection, school bus routes, street cleaning, and other government services. Such decisions might also result in an uglier, more traffic congested city-- factors that a water and sewer authority is typically less concerned about.

In some respects, the shift in emphasis of Salisbury's water and sewer extension policies from 1988 to 1998 is representative of a shift away from a municipal water and sewer system, fully integrated with other government services, toward an "in-house" water and sewer authority, functioning more like an independent business. It remains to be seen how this change in City policy concerning water and sewer services will affect development patterns within the City's planning jurisdiction and, ultimately, the capability of the City to provide other municipal services to newly developing areas on a cost effective basis.

Water and Sewer Services and the Growth Strategy Map

The *Growth Strategy Map*, discussed elsewhere in this Plan, identifies areas within the City's planning jurisdiction where development is to be encouraged, as well as other areas where development should not occur—where natural and cultural resources should be conserved. The Chapter also includes recommendations for employing water and sewer services, as well as other infrastructure, as an important growth management tool in support of the Comprehensive Plan.

Water and Sewer Policies of the Comprehensive Plan

Policy WS.1: The City shall employ water and sewer line extensions as a growth management tool to direct new development to land that is suited for such development, and which encourages a compact neighborhood or village-like community.

Policy WS.2: The City may consider incentive-based participation in the cost of providing water and sewer services to development

projects which are particularly supportive of the City's growth management objectives.

Policy WS.3: The City may participate in the extension of water and sewer services to properties located inside the primary and secondary growth areas. Exceptions to this policy (regarding extensions to properties outside these areas) may include the provision of services to other local governments, cooperative agreements on major economic development projects, and matters concerning imminent public health problems.

Policy WS.4: Water and sewer lines shall generally not be extended to areas that would encourage inappropriate development in environmentally sensitive areas, or in hazardous areas, such as floodplains.

Policy WS.5: The City of Salisbury shall maintain independent ownership and control over its water and sewer utilities; the City shall not subvert its growth management interests to a regional water and sewer authority.

Policy WS.6: Centralized water and sewer services should be concentrated within targeted service areas, where development densities would make the provision of services economically efficient, or where industrial development is to be encouraged.

Policy WS.7: Centralized sewer services shall generally avoid large, uninterrupted expanses of the planning area used primarily for agriculture and to protect farmland from development pressures brought about by such sewers.

Policy WS.8: Major extensions of water and sewer services that could result in scattered, non-directed development and costly provision of other urban services shall be discouraged.

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