

Chapter 6

Utilities and Infrastructure

Although the City of Pikeville continues to grow, infrastructure improvements have been able to keep up with the pace of expansion and meet the increased needs of residents, businesses, manufacturing and services. The aggressive approach of the City of Pikeville Commission to understand, appreciate and anticipate the water and wastewater needs of the City's residents, businesses and visitors has enabled Pikeville to accommodate its rapid growth without difficulty.

Drinking Water System: The water system in the City of Pikeville serves more than 3,000 customers. Wholesale customers include Southern, Sandy Valley and Mountain Water Districts. The City is able to provide water to existing customers, and has the capacity to produce more but lacks the infrastructure system to efficiently distribute any more at this time. The state of the existing potable water system is extremely good. The capacity of the plant is sufficient to meet the current demand, and the reserve capacity with a couple of additions is satisfactory. The City of Pikeville's raw water treatment plant was constructed in 1986. The plant treats raw water withdrawn from the Levisa Fork. The major treatment units include flocculation, plate settling, gravity filtration, and chlorination. This facility has a rated capacity of six (6) million gallons per day (MGD). The City has 19 ground storage tanks in the distribution system, ranging in size from 30,000 to 1,000,000 gallons. Since the last comprehensive plan one 100,000 gallon storage tank has been added (Quail Ridge) and plans for two additional 500,000 tanks (Island Creek and South Mayo Trail) have been postponed until needed. The total storage capacity of the City's water system is more than 4 million gallons including the treatment plant clearwell and is sufficient at this time. The City has 15 pump stations, all in adequate working condition at this time. The Toler Creek Pump Station has been relocated to allow it to become functional. The system now has a full telemetry system for remote monitoring and operation allowing for real time monitoring, improved

safety, and immediate response as necessary to any problems anywhere in the system. Service has been extended along North Mayo Trail, and PVC piping was replaced with more durable ductile iron in eleven line replacement projects throughout the system.

Since the last Comprehensive Plan in 2005 the following improvements to the drinking water system have been completed:

- Installation of a comprehensive telemetry system to enable remote monitoring and operation
- Installation of additional sludge press and discharge line
- Installation of 100,000 storage tank at Quail Ridge
- Relocation of the Toler Creek Pump Station
- Extension of service along North Mayo Trail
- Eleven line replacement projects replacing PVC with ductile iron piping (Quail Ridge, South Mayo Trail, Scott Avenue, Town Mountain Road, Chloe Road, Walters Road, Kati Street/ Cedar Gap, Foxcroft Subdivision, Harold's Branch)

Future Needs: The following projects have been identified as necessary to improve the drinking water system in the City of Pikeville:

- Radio Read Meter Upgrades and Replacement (3,000 Units) and Meter Read Equipment and Software
- By-Pass Road – Layne Branch Interconnect including water line and service line installation and installation of two hydrants
- Three Line Replacements:
 - Walters Road/ Melissa Lane line replacement including water lines, service lines and ten hydrants
 - Scott's Avenue line replacement including water line and service lines, installation of six new hydrants and removal of four existing hydrants
 - South Mayo Trail line replacement including water lines, service lines, installation of six new hydrants and removal of four existing hydrants
- Water Treatment Plant Upgrade including two high service pumps, sludge dewatering equipment and installation, and line upgrades to ductile iron for one mile
- Smith Hill 500,000 Tank Replacement including tank, valve and vault installation, installation of two new hydrants and removal of two existing hydrants, and removal and demolition of the existing tank
- Marion Branch Potable Water Supply Project including installation of nearly water lines and two new hydrants, removal of four existing hydrants and addition of a 500,000 storage tank, and all infrastructure to the site
- Marion Branch Potable Water Distribution Project including installation of water and service lines and 30 hydrants

- Toler Creek Pump Station Rehabilitation including water line installation, and new pumps and controls
- Thompson Road Upgrade including replacements of water and service lines and installation of four hydrants
- Two US Route 23 Transmission Replacement projects to Walters Toyota and from Cowpen to the Floyd County line including installation of water and service lines and six hydrants

These projects are estimated at this time to cost a minimum of \$11.6 million, but exact costs cannot be determined until the time of construction as equipment, material and labor costs are subject to change, and the scope of work may be altered.

Sanitary Sewer System:

Current Status: The collection system includes 10 pump stations and one siphon. Since the last comprehensive plan one pump station has been fully rehabilitated (Cedar Creek) and plans for a complete rehabilitation of the pump station and river crossing at the Plant Influent Station (No. 7) is in process, with \$1 million in funding in place to date. In addition, the infiltration and inflow (I & I) regulations have been revised to reduce infiltration and inflow, and improvements are noted on the north side and in downtown areas of the City. A \$400,000 project to address infiltration and inflow in the Peach Orchard area is currently being readied for implementation. Sewer lines were extended to include 22 additional residences in the Cedar Gap subdivision as well.

Sewerage is treated at the City's 2 MGD Extended Aeration Plant which was completed in 1991. This plant currently treats approximately .75 MGD and operates at 50% capacity. Since 2005 the treatment plant has had a number of upgrades:

- Addition of a grit removal system
- Headworks modifications including installation of a self-cleaning bar screen
- Septic dumping station upgrade to allow measurement of inflow
- Installation of back-up generators for the wastewater treatment plant and Pump Station No. 7
- Replacement of severely damaged corroded air lines
- Application of corrosion resistance to reduce corrosion of clarifiers and metal parts

However, despite these improvements, there is a need for a complete overhaul of the wastewater treatment plant and system which is currently in the planning and financing stages. Increased demand for sewer and wastewater treatment has occurred since the last Comprehensive Plan with the increased residential usage at the University of Pikeville and through the local correctional facility.

Future Needs: The following projects have been identified as necessary to improve the wastewater removal and treatment system for the City of Pikeville:

- Wastewater Treatment Plant Upgrade including replacement of headworks, overhaul of Surge Basin, MBR Basins and Post Aeration and Recycle Water Basins, upgrades to Disinfection System, Plant Drain, and Digested and Waste Sludge Pumps, and overhaul of the Sludge Holding Basins and Solids Handling Building
- Thompson Road Pump Station Relocation including new lift station
- Sewer Rehabilitation Projects:
 - 7th Street Sewer Rehabilitation Project
 - Middle Bowles Sewer Rehabilitation Project
- Sewer Extension Projects:
 - Cedar Creek Sewer Extension Project
 - Yorkwood Forest Sewer Extension Project
 - Buckley Creek Sewer Extension Project
 - Blairtown Pressure Sewer Extension Project
 - Broad Bottom Sewer Extension Project
- Walters Pump Station Rehabilitation Project including new pump station and odor control system
- Cowpen Ozone Injector Project

The Waste Water Treatment Project is projected to cost a minimum of \$18 million at this time. The remaining projects have been projected at costing between \$100,000 and \$550,000 each, for a total of \$4.2 million. Again, exact costs cannot be determined until the time of construction as equipment, material and labor costs are subject to change, and the scope of work may be altered.

Natural Gas System:

Current Status: The City obtains natural gas from multiple suppliers to meet the demand of the City. Since the last comprehensive plan several improvements to the gas system have been achieved:

- Replacement of deteriorating section of aging steel line with high density polyethylene (HDPE) pipe on Chloe Road has been completed. Similar improvements and replacement of steel lines on South Mayo Drive is scheduled for later this year.
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- Completion of gas main along Cassady Boulevard to create a closed loop
- Extension of service to several areas has been investigated with varying results:
 - Expanded service to 77 residences in the Cedar Creek subdivision is currently working
 - Expansion of service to six residences in the Foxcroft area was determined to not be possible at this time
 - Expansion to 22 residences in the Quail Ridge Subdivision is being considered, although they currently have access to service through a private supplier

Improvements to reduce leakage have occurred since 2005 through replacement of old meters with electronic meters, and the installation of addition meters where needed. At this time leakage rates for the City of Pikeville system is below industry standards. The City has also continued to use a gas broker to enable it to purchase supplies when the market price is low. This system will continue, and consideration of competitive pricing for storage and maintenance of gas supplies are ongoing.

Future Needs: The following projects have been identified as necessary to improve the wastewater removal and treatment system for the City of Pikeville:

- Two Interconnections:
 - Thompson Road Interconnect
 - Wastewater Treatment Plant Interconnect
- Three Line Replacement Projects:
 - Chloe Road Replacement
 - US Route 23 Replacement
 - Polly Addition Replacement
 - By-Pass Road Replacement
- Purchase of Ten Mobile Meters for gas loss detection and monitoring

These projects are estimated at this time to cost approximately \$2.5 million, but exact costs cannot be determined until the time of construction as equipment, material and labor costs are subject to change, and the scope of work may be altered.

Utility concerns in general:

Current Status: The City has continued to work with prospective investors to provide the necessary infrastructure to support the demands of residents, businesses, institutions and manufacturing in the area. Utilities management also enhances the quality of life on a daily basis. Since the last comprehensive plan, the City of Pikeville has enacted regulations ensuring that all utility services installed for new residential subdivisions are

underground. Burial of existing utility lines is considered on a case by case basis but is often prohibitively expensive.

Future Needs: Seven projects have been identified related to storm sewer efficiency, solid waste management and city parks, as follows:

- Storm Sewer System Projects:
 - Headwall Drain Protection Project
 - Pikeville Pond Flood Pump Upgrade
- Pikeville Transfer Station Solid Waste Compactor Replacement
- City Parks Projects:
 - City Park Irrigation Project
 - Hambley Complex New Locker Room Facility Construction and Renovated Parking Facilities
 - Hambley Field Drainage Rehabilitation including Storm Drain Replacement
 - City Swimming Pool Renovations including replacement of liner, pump and filtering systems and site renovations

At this time, these projects have been calculated at \$278,000 for the storm sewer projects, \$550,000 for the solid waste compactor replacement, and more than \$880,000 for the City parks renovations. Again, these projected costs are only estimates and are expected to change with changing costs in equipment, materials and labor. The scopes of work may be altered as needed to fit existing funding availability.

Utilities and Infrastructure Goals and Objectives:

Goal: The City of Pikeville will contract with Utilities Management Group to provide comprehensive and affordable water, sewer, and gas services using modern, high-functioning, well-maintained and safe equipment and infrastructure throughout the City, and support UMG projects to maintain these infrastructure systems.

➤ *Water Projects:*

- 13 projects projected at \$12.5 million, including:
 - Radio meter replacement of approximately 3,000 units
 - Improved interconnection at By-Pass Rd. and Layne Branch
 - 6 line and hydrant replacements at Melissa Lane, Scotts Ave., South Mayo Trail, Thompson Rd. and two sections of US 23, Ratliff's Creek to Walter's Toyota and Cowpen Creek to the Floyd County line.
 - Smith Hill tank, line & hydrant replacement
 - 2-phase project at Marion's Branch to include installation of new tank and water distribution system

- Toler Creek pump station upgrade
- Water Treatment Plant upgrade including 2 replacement pumps and one mile of new lines

➤ ***Wastewater Projects:***

- 10 projects projected at \$4 million, including:
 - Thompson Rd. pump station relocation
 - 2 sewer rehabilitation projects at Seventh St. and Middle Bowles
 - 5 sewer extension projects at Cedar Gap, Yorkwood Forest, Buckley Creek, Blairtown and Broad Bottom
 - Walters pump station rehabilitation project
 - Cowpen ozone injection facility installation
- Wastewater Treatment Plant Upgrades to install a Bio-Membrane Reactor System including pumps, odor control, aeration, blower and dewatering equipment and electrical upgrades, projected at \$18.5 million

➤ ***Gas Projects:***

- 7 projects projected at \$2.5 million including:
 - 2 new interconnections at Thompson Rd. and the Wastewater Treatment Plant
 - 4 line replacement projects at Chloe Rd., Us 23 at Lanks Br., Polley Addition, and By-Pass Road
 - Purchase of 10 mobile meters to detect gas loss (leaks)

➤ ***Storm, Solid Waste & Parks Projects:***

- 7 projects projected at \$1.8 million including:
 - Headwall drain protection project
 - Pikeville City Lake pump upgrades
 - New compactor for the Solid Waste Transfer Station
 - Installation of irrigation system for City Park
 - New locker room for Hambley Athletic Complex
 - Hambley Field storm drain replacement
 - Pikeville City Pool upgrades including pool liner replacement, pump/filtering system replacement & site improvements