

## 9.0

## WATER DISTRIBUTION/TREATMENT SYSTEM CIP

Included in the Spotsylvania County Utilities Department Capital Improvements Plan (CIP) are the highest priority water capital projects required to enable the Spotsylvania County water treatment, storage, and distribution systems to meet build-out demands. The CIP projects are recommended for implementation within 5 years. Other projects are recommended for implementation beyond the next 5 years, as water flows increase. Projects were included in the CIP based on:

- System storage requirements
- Operational improvements
- Coordination with VDOT roadway construction projects
- Coordination with adjacent projects

### 9.1 American Central Tank

Water Project 5, construction of an American Central Tank, is needed to meet system capacity and operating flexibility requirements within the American Central Pressure Zone. The project includes construction of a 200,000-gallon elevated storage facility within the Fawn Lake Subdivision at the intersection of Long Street Drive and the American Central Water Line. The ground elevation at this location is 410 feet. The construction of a 200,000-gallon tank will enable build-out of the proposed Fawn Lake Development, and provide adequate fire storage at any residential dwelling density. In addition, the tank will stabilize normal operating pressures within the subdivision. Spotsylvania County is currently conducting a Disinfection By Product (DBP) evaluation and study. Prior to construction of an elevated storage facility in this area, the result of the DBP study should be carefully examined. Alternative construction methods such as baffles or internal water circulation may be recommended at this location to minimize detention times. The estimated capital cost for this project is \$1,110,000.

### 9.2 Five Mile Fork Tank

Water Project 6, construction of a Five Mile Fork Tank, is needed to meet system capacity and operating flexibility requirements within the Five Mile Fork Pressure Zone. The project includes construction of a 1.0 Mgal elevated storage tank near the intersection of Route 674 (Chancellor Road) and Route 627 (Gordon Road). The ground elevation at this location is approximately 360 feet, among the highest locations within the pressure zone. A tank overflow elevation of 472 feet would provide a minimum operating pressure of 45 psi throughout the zone and would dampen the current pressure variations seen when the Ni WTP begins pumping operations. In addition, the tank will provide a consistent operating pressure of 45-65 psi, as well as expanded fire flow storage. The estimated capital cost for this project is \$2,370,000.

### 9.3 Leavells Road Water Main

Water Project 17, construction of a Leavells Road water main, should be coordinated with VDOT planning of an adjacent roadway construction project. VDOT is purchasing right-of-way for the project and is expected to begin design and construction in 2002. The project includes

construction of approximately 8,400 feet of 24-inch main along Route 639 (Leavells Road) from Battlefield Elementary School to Route 208 (Courthouse Road) to parallel an existing 16-inch main. The existing 16-inch main is undersized for current demand conditions, and therefore sees high velocities and high head losses, reducing the overall capability of the system to supply water to the southern parts of the Battlefield Zone. In addition to increasing water supply capabilities, this main will help the north-to-south distribution system for the overall County, and through Projects 18 and 19 will provide additional water supply to Gayle Estate/Massaponax Land Co. Property subdivision, and the Thornburg Development District. The estimated capital cost of this project is approximately \$2,480,000.

#### 9.4 Chancellor Elementary School Water Main

Water Project 7, construction of a water main near the Chancellor Elementary School area, is needed to meet the fire capacity and improve water service to the elementary school and the surrounding area. The project includes construction of approximately 3,700 feet of 16-inch distribution main to connect the existing piping on Route 3 to the existing Route 627 storage tank. The main begins near the Zion Baptist Church from Route 3 heading south, crosses Route 610 (Old Plank Road) and continues south circling south around Stansbury Court to the connection on Route 627 (Gordon Road). This project begins the north-south connection from the Route 3 corridor to the southern Five Mile Fork area. The estimated capital cost for this project is \$1,040,000.

#### 9.5 Route 3 to Salem Church Water Main

Water Project 8, construction of a water main along Route 3, should be coordinated with VDOT planning of an adjacent roadway construction project. VDOT is currently surveying and beginning alignment and utility relocation design for a roadway project along Route 3. The recommended location of the Outer Connector was proposed in June 2001 and a final decision will be made in the fall of 2001. The roadway construction schedule is undetermined at this time, but it is expected that several large construction projects along Route 3 will be complete by 2006.

The project includes construction of 10,600 feet of 24-inch water distribution main along the Route 3 corridor from Route 639 (Salem Church Road) to Route 620 (Harrison Road). This project replaces existing 8-inch and 12-inch pipes on the Route 3 corridor, and provides a new interconnection to the existing piping farther west on Route 3 (near Harrison Road). The existing mains are undersized, and therefore experience high head loss, high velocity, and limit flow capacity. The proposed project will provide for greater connectivity, higher flow volumes, and greater looping throughout the Five Mile Fork Zone. The estimated capital cost for this project is \$3,040,000.

#### 9.6 Additional Water Projects

The additional water projects detailed in Section 8 of the 2002 Water/Sewer Master Plan revisions are not included in the 5-year CIP. However, these projects will be needed as the surrounding regions grow. It is recommended that these projects be added to the CIP when

conditions are favorable for their construction or when they are required to meet the water storage, fire flow, fire pressure, or operating flexibility requirements. Cost information for these individual projects is included with the project description in Section 8.