Master Planning for Success
2008 Water System Master Plan

- 2008 Distribution System consisted of approximately 527,790 LF (Approx. 100 miles) of water mains varying from 2”-18” in diameter.
- A hydraulic model was built from an old Kentucky pipe schematic and historic data for the previous five years and projections for the next ten years using Haestad Methods WaterCAD software.
- The system was evaluated based on Average Daily Demand (ADD), Maximum Daily Demand (MDD) and Instantaneous Demand (ID).
2008 Water System Master Plan

• Additional Factors to Consider
  • Purchase of Crowfield distribution system from CWS and the impact of additional interconnections between systems.
  • Purchase of The Oaks distribution system from CWS and the impact of additional interconnections between systems.
  • Anticipated growth on the eastern side of the City.
2008 Water System Master Plan

- Per the SC State Drinking Water Regulation: R.61-58.4C “Sizing – Where fire flows are provided, tanks shall be sized to provide two (2) hours of supply for a combined flow of peak hour domestic plus fire flow; or, the storage capacity (or equivalent capacity) shall equal one half (1/2) the maximum daily consumption, whichever is greater. *Either requirement may be reduced when the source and treatment facilities have sufficient capacity with auxiliary power to supplement peak demands of the system.*”

- The model revealed storage capacity was sufficient per R.61-58.4 C for fire flow plus peak hour demand but was 0.25MG short of the Maximum Daily Consumption; however, the water plant had capacity to supplement peak demands of the system. *Say OK!*
2008 Water System Master Plan

• Recommendations
  
  • Near Term (1-2 yrs)
    • Install 10” interconnect between 18” DIP and 10” C900 along Hwy 176 before the existing 1MG elevated tank. (Road crossing 2009)
    • Install a second supply (master meter) to provide redundancy and improve system hydraulics. Estimated cost $190,340.00
  
  • Future (2-18 yrs)
    • Loop 10” water main around the eastern perimeter of the City. Estimated cost $1,279,500.00. (Development – 2016)
    • Add additional storage (1 MG) in the next 5-7 years.
2012 Santee Cooper Engineering Study

- Upgrade water treatment plant capacity from 23.7 MGD to 30 MGD.
- Install new raw water pump station with room for additional pumps to 36 MGD.
- Loop Goose Creek distribution system to alleviate tank fluctuations / recovery times.
2013 Water System Master Plan Update

• 2013 Distribution System consisted of approximately 664,265 LF (Approx. 126 miles) of water mains varying from 2”-18” in diameter.

• A hydraulic model was built from the old WaterCAD model and historic data for the previous year and projections for 2017, 2022 & 2032 using Bentley WaterGEMS software.

• The system was evaluated based on Average Daily Demand (ADD), Maximum Daily Demand (MDD) and Maximum Hour Demand (MHD).
The model revealed:

• system pressures fluctuating from 55 psi to 85 psi and maximum velocities < 5 ft/sec.
• The ½ MG tank experienced excessive turnover and a recovery time in excess of 24 hours.
• The 1 MG tank will be hydraulically locked out for a period while the ½ MG tank refills.
• Storage capacity was deficient.
• Transmission piping between tanks was undersized.
• Approximately 3,000 LF of distribution piping is undersized.
• Without identified improvements, 2032 would see system pressures <25 psi and velocities > 12ft/sec.
2013 Water System Master Plan Update

• Recommendations
  • Near Term (1-2 yrs)
    • Install a second supply (master meter) to provide redundancy and improve system hydraulics. Estimated cost $190,340.00
    • Install a parallel 24” DIP water main between the existing tanks. (2017)
    • Loop Adler Drive / Vango Drive
  • Future (2-18 yrs)
    • Continue to upgrade Master Plan every 5-7 years to ensure the system continues to meet the needs of the City as it grows.