

QUALIFIED INFRASTRUCTURE IMPROVEMENT PLAN

AND

WATER LOSS REDUCTION PLAN

OF

FARMDALE WATER DISTRICT

Date: February 2023 Draft

Qualified Infrastructure Improvement Plan
And
Water Loss Reduction Plan Outline

1. Statement of Purpose and Plan Structure
2. Assess the Current Water Loss Problem
 - A. Determine the cost and severity of Water Losses over the last two (2) years
 - B. Determine the accuracy of water loss calculations
 - 1) Are fire department uses reasonable?
 - 2) Are flushing values calculated accurately?
 - 3) Are Purchase and Sales water volumes based on the same time frame?
3. Assess the Current Water Distribution System Lines
 - A. Determine age of lines by road and those that exceed useful life
 - B. Determine type of line material by road
 - C. Identify repair history by road
4. Assess Current Customer and Zone Meters
 - A. Identify service lines by road supplied by each zone meter
 - B. Determine the age of each customer meter and zone meter
 - C. Determine the dates of accuracy tests on each of these meters
 - D. Identify the customers supplied by each zone meter
5. Identify Current Equipment Available to Detect Leaks
 - A. Determine age and condition of current leak detection equipment
 - B. Explore available equipment with Kentucky Rural Water Association
6. Assess Repair Equipment and Supplies
 - A. Evaluate work orders in the last two years for location, type of pipe, repair time, number of personnel required, type of equipment used, and required contract services, for each break or repair need
 - B. Evaluate the condition, age and useful life of all repair equipment
 - C. Set standard work conditions for hiring contractors including safety concerns and owned equipment limitations

7. Develop Methods of Data Collection and Analysis to Identify Potential Leak Areas and Rank Leak Areas by Severity
 - A. Develop spreadsheets or a data base for master and zone meter readings by time period
 - B. Develop average flows, peak and low flow values for each master and zone meter
 - C. Look for spikes in flow rates by area
 - D. Code zone identity into the water service billing system by customer
 - E. Produce water service billing reports by zone and compare these to zone flows for the same time periods
 - F. Identify zones with large variances between sales and zone flows
8. Assess Adequacy of Cut off Valves Both for Making Repairs and Isolation of Potential Leaks
9. Analyze Storage Tank Information
 - A. Determine the age and condition of storage tanks
 - B. Develop an inspection and maintenance schedule on tanks
 - C. Develop a historic record on tank drain and refill times and look for variances
 - D. Inspect tanks on a specific schedule to identify wet areas from overflows
 - E. Determine the age and condition of the SCADA system for tank monitoring
10. Assess Pump Station Condition
 - A. Determine the age and useful life of pumps, motors and other components of the stations
 - B. Develop a condition check list and inspection schedule for each pump station
 - C. Determine the age and condition of the SCADA system which monitors each pump station
 - D. Develop historic records on pressure levels and pump run times to look for variances in normal values
11. Assess Customer Meters
 - A. Develop a system of recording age and a schedule for replacement of all customer meters
 - B. Develop a schedule and method for testing all customer meters on a 10-year rotational basis

12. Based on the Data Gathered in the Previous Steps, Develop a Long-Range Infrastructure Improvement Plan for Each Component of the Water Delivery System

- A. Leak Detection Equipment
- B. Line Replacement
- C. Replace Customer Meters
- D. Replacement or addition of zone meters
- E. Replacement or addition of cut off valves
- F. Repair equipment replacement
- G. Storage tank improvements and major maintenance