

4.0 PROPOSED IMPROVEMENTS

Several improvements are recommended to address hydraulic deficiencies, aging infrastructure, and maintenance concerns. These are prioritized based on the apparent need at this time. Cost estimates are provided in Section 5 and the financial impact to the budget and water rates is addressed in Section 6. Figure 4-1, at the end of this Section, illustrates these improvements.

The highest priority projects are focused on upgrading the hydraulic capacity to the east side of the District. Beyond that, the District will have an ongoing need to replace failing glue-joint PVC. The anticipated timeline for these projects are based on hydraulic priority, but repeated breaks in segments of glue-joint pipe may change that priority. With adequate annual rate adjustments, these projects could be funded through an accumulated capital improvement account.

4.1 0 to 5 Year Improvements

1. Construct 1 mile of 4" along K-4 Hwy, from Keene-Eskridge Road to Sunnyside Road, replacing under-sized existing 2" glue-joint PVC waterline.
2. Construct 1½ miles of 4" along Keene-Eskridge Road, replacing the under-sized existing 1½" glue-joint PVC pipeline, between South Boundary Road and K-4 Hwy.

4.2 5 to 10 Year Improvements

1. Construct 1 mile of 3", replacing the existing 2" glue-joint PVC, along Warren Road, west of Maple Hill.
2. Construct 1½ miles of 4" along Blazing Star Road from the standpipe to Keene-Eskridge Road, with two-thirds being cross-country. This will allow for the abandonment of the existing 3" glue-joint PVC pipe.

4.3 10 to 15 Year Improvements

1. Construct 1½ miles of 4" along K-4 Hwy, replacing the existing 2" glue-joint PVC, from Sunnyside Road to Gladden Road.
2. Replace existing 1½" glue-joint PVC with 3" for a segment of 3900' along ~~2nd~~ Street, from Keene-Eskridge Road to Sunnyside Road.

3. The radio-read meters recently installed will be near the end of their service life in about 15 years. These could be replaced over a 2-year period beginning in 2033 or 2034.
4. Replace 1¼ miles of 2" glue-joint PVC and 3" cast iron with new 4" along Buffalo Mound Road, north of I-70.

4.4 15 to 20 Year Improvements

1. Construct 2 miles of 3" along Keene-Eskridge Road, from Blazing Star Road to just north of 21 Street, replacing existing 2" glue-joint PVC.
2. Construct 2 miles of 6" along Windy Hill Road, replacing existing 3" cast iron, north of the standpipe.
3. Replace 2200' of 2" glue joint pipe with 3" on the north side of I-70, either side of Hwy 30.
4. The District should budget for one or two more miles of glue-joint PVC pipe replacement, as the maintenance needs dictate, likely with 3" or 4" pipe.

4.5 Performance of Improved System

All facets of the District's facilities are strengthened by these projects. Additional improvements may be needed over this 20-year period, relative to localized growth. Figures 4-2 and 4-3 illustrate the modeled minimum service pressures based on those projected demands and the improvements constructed as of those years. A few low pressures are modeled but those are all on small pipelines where local growth may require the replacement of 1½" and smaller lines.

4.6 Lead Service Line Replacement

Although not necessarily a specific future improvement, a potential increase in the operational cost for the District will come through the impending Lead Service Line Replacement legislation. Promulgated by the EPA, and meant to reduce the health threat posed by lead pipeline, all water systems will be required to develop an inventory to identify the materials of service lines connected to the public water distribution system. Per KDHE guidance, the inventory must meet the following requirements:

1. All water systems must develop an initial inventory by October 16, 2024 and submit it to KDHE.
2. The inventory must include all service lines connected to the public water supply distribution system regardless of ownership status (the inventory should include both the portion of the service line owned by the water system and the customer-owned portion of the service line). The inventory must be made available for public review.
3. A water system must report any information on lead and galvanized iron or steel that it has identified when conducting the inventory of service lines in its distribution system for the initial inventory.
4. The water system must also review the following sources of information to identify service line materials for the initial inventory. The water system may use other sources of information not listed if approved by the State.
 - a. All construction and plumbing codes, permits, and existing records or other documentation which indicates the service line materials used to connect structures to the distribution system.
 - b. All water system records, including distribution system maps and drawings, historical records on each service connection, meter installation records, historical capital improvement or master plans, and standard operating procedures.
 - c. All inspections and records of the distribution system that indicate the material composition of the service connections that connect a structure to the distribution system.
 - d. Any resource, information, or identification method provided or required by the State to assess service line materials.
5. Each service line must be categorized in the following manner:
 - a. ‘‘Lead’’ where the service line is made of lead.

- b. “Galvanized Requiring Replacement” where a galvanized service line is or was at any time downstream of a lead service line or is currently downstream of a “Lead Status Unknown” service line. If the water system is unable to demonstrate that the galvanized service line was never downstream of a lead service line, it must presume there was an upstream lead service line. For the initial inventory, KDHE advises the system to inventory any sources of lead including pigtails, goosenecks and lead service lines.
 - c. “Non-lead” where the service line is determined through an evidence- based record, method, or technique not to be lead or galvanized requiring replacement. The water system will classify the actual material of the service line (i.e., plastic or copper) as an alternative to classifying it as “Non- lead.”
 - d. “Lead Status Unknown” where the service line material is not known to be lead, galvanized requiring replacement, or a non-lead service line, such as where there is no documented evidence supporting material classification. The water system may classify the line as “Unknown” as an alternative to classifying it as “Lead Status Unknown,” however, all requirements that apply to “Lead Status Unknown” service lines must also apply to those classified as “Unknown.” Water systems may elect to provide more information regarding their unknown lines as long as the inventory clearly distinguishes unknown service lines from those where the material has been verified through records or inspection.
6. Water systems shall identify and track service line materials in the inventory form as they are encountered in the course of its normal operations (e.g., checking service line materials when reading water meters or performing maintenance activities). Dates of any new replacements shall also be tracked in the inventory.
 7. Water systems must update the inventory based on all applicable sources described in these requirements and any lead service line replacements or service line material inspections that may have been conducted. The water system may use other sources of information if approved by the State. Water systems must submit the updated inventory to the State. The inventory updates must be reflected in the publicly accessible inventory when submitted to the State.

Based on these requirements, the following action items should be considered:

| <u>Item</u> | <u>Timeframe</u> |
|--|------------------|
| Incorporate customer account data into Excel spreadsheet form | Early 2023 |
| Research age of homes to eliminate risk of lead in newer homes | Early 2023 |

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|---|-------------|
| Prepare form letter explaining the new regulation and risk of lead | Early 2023 |
| Mail form letter to all patrons, with postcard survey to be returned | Mid 2023 |
| Populate KDHE-standard spreadsheet with survey information received | Late 2023 |
| Investigate the oldest District service lines for possible presence of lead | Late 2023 |
| Send second mass-mailing and return postcard | early 2024 |
| Assist residents in identifying their service lines | 2023-24 |
| Complete inventory due to KDHE | October '24 |

After the inventory phase is completed, and likely to begin in 2025, increased testing will be required. Some of those provisions include:

1. 20% of schools and daycares must be sampled annually. Testing is required if schools request.
2. If the 90th percentile level (top 10%) of samples is > 15 ppb, RWD must fully replace at least 3% of lead service lines every year until the 90th is < 15 ppb. If the top 10% is between 10 – 15 ppb, KDHE shall be consulted to assist RWD in developing a replacement plan. No action needed if the top 10% are under 10 ppb.
3. If individuals have >15 ppb, the lead line needs to be replaced (at the cost of the homeowner). If customer refuses to replace the line, after 2 attempts by the District, RWD is to notify local public health officials.
4. If a customer replaces their lead service line, they can force the RWD to replace their portion of the service line within 45 days, if it is lead.
5. If applicable, galvanized service lines downstream of lead service lines must also be replaced. Additional public education is required through the annual Consumer Confidence Reports.

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