CITY OF BOWIE STATEMENT
REGARDING THE CITY'S WATER & SEWER SYSTEM
DECEMBER 9, 2021

The City of Bowie is aware that some customers on its water & sewer system are experiencing a chronic problem with discolored water and has been working to resolve the issues.

The system serves approximately 7,900 customers in neighborhoods built by Levitt & Sons in the 1960s. Most customers are not experiencing the problem. Their water is clear, or discolored only when hydrant flushing has occurred nearby, or in the rare instances where there is a water main break.

The City's goal is to provide top quality drinking water to every customer on its system. The water currently meets or exceeds or all federal and state drinking water standards, however there are some who customers who experience discolored water on a regular basis and this is not acceptable.

The City is working to address the problems and to secure funds to pay for the repairs. "Rest assured that the areas experiencing regular problems are our top priority. We are developing plans and by the end of the fiscal year in June, we intend to award a contract to address the worst of the problem pipes" said City Manager Alfred Lott.

The pipe issues are caused by an aging water distribution system. Revitalizing the entire system will not be simple, quick, or inexpensive. The Water and Sewer infrastructure is more than 50 years old and the problems being experienced here are similar to those experienced in cities across the country.

In 2015 and 2016, the Public Works Department performed a detailed assessment of the system and determined that rust buildup of the cast iron pipes was causing flow problems and discoloration at various points throughout the system.

In late 2016, City Council received the report and directed staff to take immediate steps to begin addressing the problem.

These steps included:

- Collecting more data about the scope of the problem
- Identifying priority areas where the needs were greatest
- Establishing a user fee to help fund a revitalization of the system
- Working with state and federal partners to identify other funding sources
- Increasing the frequency of hydrant flushing program to twice a year to help keep lines clear

The first 12-year project to revitalize the entire Water & Sewer system is underway will cost $14.4 million to complete. It will address 7 miles of pipe. To replace the entire 90 miles of the system will likely cost more than $125 million and will take many years to complete.

More information about the Bowie Water & Sewer System and the Recapitalization Program can be found in the attached document. The next meeting of the Bowie City Council is on January 3, 2022. The Water & Sewer System Recapitalization Program will be on the agenda.

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Description of Bowie Water & Sewer System

- The system was built in the early 1960s.
- It is owned and operated by the City of Bowie.
- It serves almost 7,900 customers in neighborhoods built by Levitt and Sons. Other city neighborhoods are served by the Washington Suburban Sanitary Commission (WSSC).
- The system consists of
    - Water Treatment Plant
    - Wastewater Treatment Plant
    - 90 miles of water pipes and 85 miles of sewer lines
    - 9 wastewater pumping stations
    - 6 water wells and 3 storage tanks
- The system operates as an enterprise fund and was intended to be self-sustaining. It is separate from the City's general fund.

Problem

- Bowie's Water & Sewer System is aging.
- Cast iron pipes are deteriorating and corrosion (called tuberculation) inside the pipes is increasing.
- The tuberculation inside the pipes discolors the water and can cause flow/water pressure problems.
- More flow problems are likely if tuberculation is not addressed.
- Some pipes have deteriorated to the point that they must be replaced as soon as possible.
- Complaints about discolored water have risen over the last several years and are sometimes being reported when there is no direct and identifiable cause, such as when hydrant flushing is occurring or when a hydrant is used for firefighting or to fill up a water truck.
- Some customers are reporting chronic problems with the color of their water.

Solution

In 2015 and 2016, the City conducted flow testing and did an assessment of the water distribution system. Staff presented the results of their study to Council in late 2016. The conclusion was that problems of some sort existed on 40 miles (or 44%) of the pipes on the 90-mile system.

To address the problem, the City Council created the **Water Distribution System Recapitalization Program**, which was first authorized in the FY2018 Adopted Budget.

The FY 2018 Budget and the Six-year Capital Improvement Plan included $13.1 million for the project, which consisted of $5 million in borrowing and $8.1 million from the Water and Sewer Fund.

The first project is a 12-year water main recapitalization program and is addressing the most severe issues in 7.5 miles of pipe. It involves pipe replacement, pipe lining, and other strategies to improve the integrity of the pipes. Future long-term projects will focus on more miles of pipe in the 90-mile system.

A number of projects have been completed or are being implemented on the water distribution system, including water meter replacement program, hydraulic modeling, and the water main replacement projects listed below.

1. **Water Meter Replacement Program**

   All water meters on the system needed to be replaced. The new smart meters can be read by radio and provide more data to help identify potential problems. The project was estimated to take 7 years and will be completed in FY 2023, well ahead of schedule.

2. **Hydraulic Modeling**

   Hydraulic Modeling of the water main distribution system was completed in 2021, which projects current and future pipe conditions based on various data inputs, including flow test, C-factor test (which calculates the actual flow rate and friction loss), discolored water calls, etc. This modeling helps City staff to prioritize how the water main recapitalization program is carried out.

3. **Water Main Replacement Projects**

   In 2018, a water flow problem on Liana Place in the Long Ridge neighborhood was addressed by pipe bursting.

   In 2020, approximately 0.4 miles of pipes were replaced in the Heather Hills neighborhood.

   During 2021, all remaining pipes in Heather Hills have been replaced through pipe lining or open excavation.

To date, approximately 3 miles of the system's original 90 miles of pipes have been replaced. The next phase of design is currently under active planning and will go out to bid by spring 2021. The goal is to have a contract for the work awarded by the end of the current fiscal year in June 2022.

The City is approaching the pipe replacement issue in three different ways:

1. **Pipe lining**
   This involves inserting a new liner into existing pipe to isolate the rusting pipes from the water.
2. **Pipe bursting**
   This process does not involve digging up the pipe to replace it. Instead, the pipe is broken apart while it is in the ground and a new pipe is pulled into the existing space to replace it.
3. **Traditional pipe replacement,** which requires trenching and removing existing pipes and replacing them. It is the most time consuming and disruptive of the three approaches.

Cost

The initial recapitalization plan underway is now estimated to cost $14.4 million and will replace 7.5 miles of water distribution pipes during the first 12-year period. This plan focuses improvements on the worst parts of the system. Some of the work will paid for with borrowed funds.

The entire system is not experiencing tuberculation today, but it will continue to deteriorate over time. The full cost of replacing water mains in the years beyond this initial 12-year program will be approximately $125 million or one eighth of a billion dollars.

Fees
Beginning July 1, 2017, a new recapitalization fee of $22.75 per quarter was added to the bills of system customers. It is generating approximately $700,000 per year to be used exclusively for the pipe recapitalization project. The fee is slated to increase to $23.44 per quarter in 2023.

Other Funding Sources
Since 2017, the City has been working with federal and state partners to secure additional funding or loans for this project. No funds have been provided by the State or Federal government yet, but the City is hopeful that some funding for this project may be included in the federal appropriations bill now under consideration in Congress. The newly adopted infrastructure plan may eventually be another source of funding; however, until implementation plans are announced, and the program is rolled out, it will not be clear what the City may be eligible to receive. Other grant sources are being explored as well. Any additional funding received will allow additional miles of pipe to be replaced.

Next Steps
The City Council will discuss the Water Distribution Recapitalization Program at its Regular Meeting on January 3, 2022.