City of Milwaukee

Department of Public Works
Milwaukee Water Works

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November 14, 2002

Alderman Michael D'Amato, Chair
Judiciary and Legislation Committee
City of Milwaukee
200 East Wells Street; Room 205

Dear Chairman D'Amato andCommittee Members:

SUBJECT: Communication from the Water Works Regarding File 020814

At the October 7, 2002 meeting, the Judiciary & Legislation Committee heard File 020814. This claim related to a water main break at 5322 N. 65th Street on April 25, 2002. Ms. Pat Klosiewski of the Water Works presented the following information to the Committee:

- The 8" water main serving this address had been installed in 1955.
- The main had broken seven times between 1987 and 2002.
- Three of the seven breaks had occurred within one year prior to the claim.
- The main was ranked #982 on the Main Replacement Index.

The Committee requested that the Water Works provide information regarding the replacement of water mains in the Water Main Capital Improvement Program. Specifically, the Committee was interested to hear why a main with a history of breaks such as this had not been replaced.

The short answer to this question is that there were 981 other water main segments that have been prioritized in worse need of replacement than this main.

The long answer is that Water Works employs three strategies to keep our distribution system functioning: preventive maintenance, emergency repairs, and water main replacements.

- In the **preventive maintenance** mode, inspections and routine maintenance are performed on hydrants, valves, etc. Any faults are identified and corrected. The objective is to maintain the system in good working condition and even extend the useful life of these facilities.

- In the **emergency repair** mode, water mains are repaired when they break. These repairs are performed 24 hours a day by City forces. Operating funds cover these costs. Typically, a repair focuses on 2 – 4 feet of pipe in the immediate area of the break. It costs approximately $3,400 to repair an 8" water main. An average of 781 water main breaks are repaired each year.

- In **the main replacement** mode, long lengths of pipe (typically blocks) of water main are replaced with new pipe. This work is carried out through the capital budget. Private contractors bid to do this work. It costs approximately $80,000 to replace one block of 8" water main. Water Works replaces an average of 100 blocks of main each year.

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Member, American Water Works Association, American Public Works Association
American Society of Civil Engineers, and Automatic Meter Reading Association.

How are water mains prioritized for replacement? A number of factors are included in this assessment. The primary factor is the rank of the segment of water main on the **Main Replacement Index**. The Main Replacement Index provides a numerical assessment of the break history of specific segments of water main based on the number of breaks per 100 ft segment of main. There are approximately 17,000 segments of main in the distribution system. The 1,555 segments with the greatest number of breaks per 100 feet are prioritized in the Main Replacement Index. The index includes mains with a history of 3.5 breaks per 100 feet down to those with 0.1 breaks per 100 feet. While recent break activity may seem a reasonable indication that a water main be nearing the end of its useful life, the main segments are evaluated by their entire history and compared to other water mains throughout the system.

Additional factors are evaluated and considered in establishing a priority for replacement. They include:

- **Water quality degradation** caused by the internal corrosion of the main (such as yellow water at a dead end),
- **Hydraulic inefficiency** (such as the main being too small to deliver needed flow to an area),
- **Coordination with paving**. (If a street in which the main lies is being paved, the main break history and condition are reviewed to assess whether replacement is prudent even though the history by itself may not dictate replacement.)
- **Coordination with construction**. (A main may need to be relocated to facilitate a construction project, such as to make way for a new bridge.)

All these factors are considered and in January a main replacement program is developed for the upcoming construction season. That program represents our best judgment of which mains should be replaced in that year, and includes a list of all the segments that are proposed for replacement that year. We focus on the identified list of mains in this program, in order, and contract out that work until all the capital funds have been committed. There is some flexibility in case an unexpected situation arises, and the program is updated on a regular basis as additional information becomes available.

In the case of the main on N. 65th Street, the combination of factors did not warrant replacement. If the main continues to experience breaks, it will be evaluated for consideration in future programs for replacement.

Water Works recognizes that water main breaks and the associated interruption of service is an inconvenience to our customers. We strive to effectively maintain nearly 2,000 miles of water mains through preventive maintenance, providing timely and competent service in response to water main breaks, and upgrading infrastructure through the main replacement program.

I trust that this information has helped to answers the questions of the Committee. Please let me know if I can be of any further assistance.

Very truly yours,

FOR Carrie M. Lewis, Superintendent
Milwaukee Water Works

CML:mwb
C: Mariano Schifalacqua, DPW Commissioner