

FROM	NAME & TITLE	Rudolph S. Chow, P.E. Director	CITY of BALTIMORE <i>MEMO</i>	
	AGENCY NAME & ADDRESS	Department of Public Works 600 Abel Wolman Municipal Building		
	SUBJECT	City Council Resolution 19-0156R		

September 20, 2019

TO:

Land Use Committee

INTRODUCTION

I am herein reporting on City Council Resolution 19-0156R introduced by President Scott and Council Members Henry, Dorsey, Bullock, Stokes, Cohen, Sneed, Burnett, Clarke, McCray, Reisinger, Middleton, Pinkett, Schleifer, and Costello.

PURPOSE

The purpose of the Resolution is to invite representatives from the Departments of Public Works, Health, Recreation and Parks, Housing and Community Development, Housing Authority of Baltimore City, and the Baltimore City Public School System to discuss protocols in place for and best practices to provide assistance to Baltimore City residents in the event they lose water.

BRIEF HISTORY

Baltimore's water and wastewater systems grew out of a need to combat the devastating effects of water borne diseases in the late 1800s and the emerging field of sanitary engineering, the prerequisite for improving public health. Today, Baltimore has a regional water and wastewater system that serves nearly two million people living and working in Baltimore and the surrounding counties. This metropolitan system is built on a foundation of extensive planning and foresight, which is why the region enjoys an abundant water supply and high quality treatment systems.

The City's existing infrastructure, especially the underground piping systems, has aged far beyond the life expectancy for which the components were designed and installed and is beginning to fail due to years of deferred maintenance. The average age of the City's large water mains is 75 years, and many of these pipes are approaching 100 years of service. Water main breaks, particularly large diameter mains, take extensive work, coordination, and time to repair. For example, the recent Howard Street water main break was able to be isolated to keep surrounding customers in water, but took 6 weeks to complete repairs, which included around the clock shifts. It required extensive coordination with MTA, CSX, BGE, City DOT, and MOEM; and disrupted traffic patterns and interfered with Light Rail service. Smaller water main breaks can be just as impactful, particularly when customers lose water service. The 2017 winter season of severely cold temperatures resulted in 360 water main breaks just in November and December. Repair crews worked around the clock to respond to the breaks and restore water service as quickly as possible, under very difficult working conditions.

A long-range proactive approach is essential to counteract the escalating system deterioration and reduce break events to a minimal level. This requires an unprecedented level of capital investment to repair or replace the infrastructure system to ensure the most productive life cycle for these valuable assets. As a result, the Department developed the following processes:

- IPF – The Integrated Planning Framework (“IPF”) is an iterative process that evaluates projects, both for mandated and infrastructure renewal, against 20 criteria on a scale of least favorable to most favorable to capture the financial, social, and environmental data, as well as the Department’s ability to implement the projects. Data-based scores are projected utilizing future conditions by computer models, and converted to a 0 to 10 scale. By following this process, the IPF front-loads the most beneficial projects in a prioritized list for water, wastewater and stormwater capital projects.
- OAM – Managing critical and aging infrastructure requires strategic planning over the life cycle of these expensive physical assets if residents are to receive a desired level of service at the most appropriate cost and with an acceptable level of risk. The Department’s Office of Asset Management (OAM) focuses on getting the most value from each asset and ensuring that financial resources are effectively targeted to optimize the efficiency and reliability of each utility. OAM developed a framework and methodology to assess condition and criticality, identify system redundancies or risk mitigation factors, and determine an overall asset level risk score. This methodology is being applied in a consistent way across various water, wastewater and stormwater asset classes to inform proactive maintenance and capital investment decisions.
- CIP – The City manages a large capital improvement program (CIP) that requires coordination of multiple funding sources and mechanisms, including revenue bonds, State Revolving Loan funds, grants, County Transportation loans, cash on hand, and other sources. The Department actively manages the financial plans for each utility to ensure that all operating and capital needs are fully funded while complying with all legal and policy-driven coverage and reserve metrics. The prioritizing work performed under the IPF is used to inform the decisions for the annual CIP project selections. To address concerns about water main breaks, the Department has dedicated CIP funding to repair at least 15 miles of water mains per year since 2015.

POE HOMES

Beginning on Monday June 17, 2019 the Department’s Utility Maintenance Division (UMD) executed a planned water main shut down in order to replace an inoperable 6” hydrant valve near the intersection of N. Schroeder and W. Lexington Streets. This repair took longer than anticipated due to difficulties in completing a valve closure necessary to stop water flowing into the work area. Valves turned off for another water main break further complicated the work. Due to the age of the infrastructure, a series of leaks occurred, requiring pipe replacements and other repairs on infrastructure that dated back to the turn of the 20th Century, resulting in a significant water outage

in West Baltimore, affecting the Poe Homes Public Housing Complex located just west of downtown and managed by the Housing Authority of Baltimore City (HABC). During the course of these events, which extended into the early morning hours of Sunday, June 23, repairs were completed and the work of restoring water pressure to the Poes Homes complex began. Water pressure was complicated due to low-flow toilets in the individual units which were continuously running, preventing the water pressure from stabilizing. Once HABC began replacing the toilets, pressure in the complex was gradually restored.

The Department of Public Works is very appreciative of the great cooperation and collaboration with HABC, Health, Police, the Mayor's Office and the many Council members and volunteers who helped distribute water to residents. In addition to HABC and others who helped make sure water was available, Public Works alone distributed over 1,700 gallons of drinking water and arranged for port-a-potty units to be delivered to the site.

At the conclusion of the repairs, the Department completed an assessment of the water systems serving the area. The assessment included all the water mains, as well as valves, fire hydrants, and other related fixtures. All but one of the mains were at lower than acceptable water pressure. The Department has already begun to replace, upsize, clean and re-line the existing water mains in the vicinity of the Poe Homes Complex. The work will be completed in mid-November and is being done in phases in such a way as to minimize disruptions of water service (please see attachment). The work impacts:

- Saratoga Street, between Schroeder Street and Freemont Avenue
- Lexington Street, between Schroeder Street and Freemont Avenue
- North Amity Street, between Saratoga Street and Lexington Street
- Fremont Avenue, between Mulberry Street and Baltimore Street

Residents receive utility work notices in advance of any work that may temporarily impact their property. The notices include names and contact information for DPW project managers. The installation of above-ground, temporary water bypass lines is standard procedure whenever existing water mains are being replaced or serviced. Any water service interruption will be kept to a short time frame in order to minimize inconvenience to our customers. Once completed, water flow and pressure will be improved and increased pipe sizing will be able to accommodate future improvements in the area.

FISCAL IMPACT

Deferred maintenance of water infrastructure is a national problem. EPA's most recent Drinking Water and Clean Water Needs Surveys identified more than \$655 billion of water and wastewater infrastructure investment is needed over the next 20 years just to maintain the status quo. The American Water Works Association estimates that drinking water systems will need to spend \$1 trillion over the next 25 years just to upgrade and expand their buried water infrastructure. The Association of Municipal Water Agencies and the National Association of Clean Water Agencies

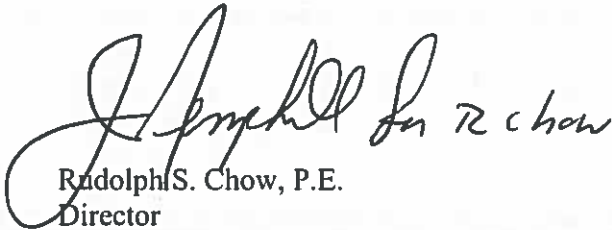
project water and wastewater utilities could spend a similar amount over 40 years just to adapt to extreme droughts, more frequent and intense storms, and rising sea levels.

The cost to rehabilitate or replace 15 miles of water mains per year is approximately \$30 million. The work that is underway to repair, replace or upsize water infrastructure in the vicinity of the Poe Homes complex is estimated to cost \$750,000.00.

AGENCY/DEPARTMENT POSITION

The Department of Public Works Will attend the hearing on this resolution to provide more detailed information and to answer any questions the Council Committee may have on City Council Resolution 19-0156R.

Should the Committee have any questions prior to the hearing, please do not hesitate to contact Ms. Marcia Collins at 410-396-1960, or via email at Marcia.Collins@baltimorecity.gov.



Rudolph S. Chow, P.E.
Director

RSC:MMC

Attachment