CITY OF MOUNTAIN VIEW

MEMORANDUM

Public Works Department

DATE: February 14, 2014

TO: Michael A. Fuller, Public Works Director

FROM: Gregg A. Hosfeldt, Assistant Public Works Director

SUBJECT: Water Meter Replacement Plan

The purpose of this memo is to provide background information on the City's water meter reading program and request an increase of $200,000 in the annual Water System Improvement Capital Improvement Project to fund replacement of meters based on anticipated meter life.

BACKGROUND

The Public Services Division/Utilities Section is responsible for reading and maintaining the City's inventory of 17,630 water meters. The majority of the meters are 3/4" and 1" serving single- and multi-family residential customers (15,480 meters). Other meter sizes include 1.5" and 2", used mainly for commercial/industrial and multi-family customers, and irrigation services (1,871 meters), and 3" to 8" (279 meters) serving large apartment complexes and commercial/industrial accounts.

Approximately 73 percent of the City's water meters are more than 15 years old. The American Water Works Association (AWWA) indicates the optimal operating life of a meter is 15 years. While meters function beyond this time frame, they gradually under-record water use, reducing water sales revenue and increasing the amount of "lost" or unaccounted for water. Based on manufacturer testing and AWWA research, water consumption is underreported by 2 percent to 5 percent in meters 20 to 30 years old.

METER READING PROCESS

The City collects water use data by manually reading each meter and entering the readings into a handheld computer for transmittal to the City's billing system, a process that has been in place since the mid-1990s. Meters are grouped into 90 routes which are generally based on distinct areas or neighborhoods. A limited number of routes, containing approximately 650 of the largest commercial/industrial meters, are read

monthly; the remaining routes are read every two months. Meter reading tasks consume approximately 1.0 FTE.

All meters installed since 2007 (approximately 27 percent of the City's inventory) are equipped with transmitters which allow reading by driving by the meters, and do not require staff to exit vehicles or perform data entry. As meters are gradually replaced throughout the City (by route), the need for manual reading is reduced. When all remaining old meters have been replaced, all routes will be read in approximately seven days per month, reducing meter reading obligations to approximately 0.4 FTE. These meters are also capable of providing data collection via WiFi or cellular technology (eliminating the need for drive-by reading) with no additional changes to the meter. There would be additional costs for installing communication hardware at various locations, but staff has not fully analyzed the costs and benefits of implementing remote-read technology.

BENEFITS OF METER REPLACEMENT

There are numerous benefits to replacing the remaining old meters in the City's inventory.

- The replacements will reduce the amount of unaccounted for or "lost" water. In Fiscal Year 2012-13, the City's unaccounted for water (water purchases less water sales and other known uses) was approximately 7 percent. Although AWWA standards indicate unaccounted for water should be 10 percent or less, it is likely our lost water percentage will decrease as new meters are installed.

- Increasing the number of units sold will spread operating and capital costs over a larger base, reducing per-unit water rates.

- The new meters will have transmitters that allow staff to drive by the meter and collect readings using a laptop computer. The meters will also be capable of providing data collection via WiFi or cellular technology (eliminating the need for drive-by reading) with no additional changes to the meter.

- Use of remote-read meters will allow the City to provide detailed and timely water-consumption information to utility customers through a third-party software package. Water Conservation staff is currently managing a pilot project through the City's Innovation Labs Program.

- Vehicle use and fuel consumption will be reduced, decreasing production of greenhouse gases.

- Decreasing the time required to collect readings will facilitate monthly billing, increasing the amount of interest generated for the Water Fund.

- Replacing old meters will ensure the City meets AWWA recommendations for water meter service life.

REPLACEMENT TIMING AND CAPITAL IMPROVEMENT FUNDING

The value of the City's meter inventory (based on current replacement costs) is approximately $5,000,000. The annual Water System Improvement CIP includes funding of $100,000 for meter replacements, an amount adequate to replace only 2 percent of the inventory, resulting in a 50-year replacement cycle.

The requested increase includes the cost of the meters, meter appurtenances, and sales tax. The total annual funding of $300,000 will be adequate to replace meters on a 20-year cycle. Although the AWWA indicates the optimal life of a meter is 15 years, testing of the City's old meters indicates that a 20-year operating life is a reasonable expectation and meter accuracy does not significantly decrease before 20 years.

Accelerated Replacement Option

Staff reviewed the potential savings from replacing old meters on an accelerated basis to reduce meter reading obligations. Because the meter reading staffing needs will be reduced by only 0.6 FTE after all meters are replaced (from current staffing of approximately 1.0 FTE to future staffing of 0.4 FTE), we do not anticipate being able to reduce staffing when replacements are complete. The anticipated labor savings of 0.6 FTE will increase resources available for ongoing water system maintenance, and will allow Public Services to address maintenance needs on the expanding recycled water system using current staffing. Additionally, adopting a 20-year replacement cycle will allow the City to establish a consistent and sustainable level of annual meter replacements, eliminating the need to fund periodic and costly City-wide replacement projects.

GAH/7/PSD
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