

**Metropolitan Domestic Water Improvement District
Board of Directors Meeting**

May 9, 2010

Meter Replacement Program for the Metro Hub Service Area

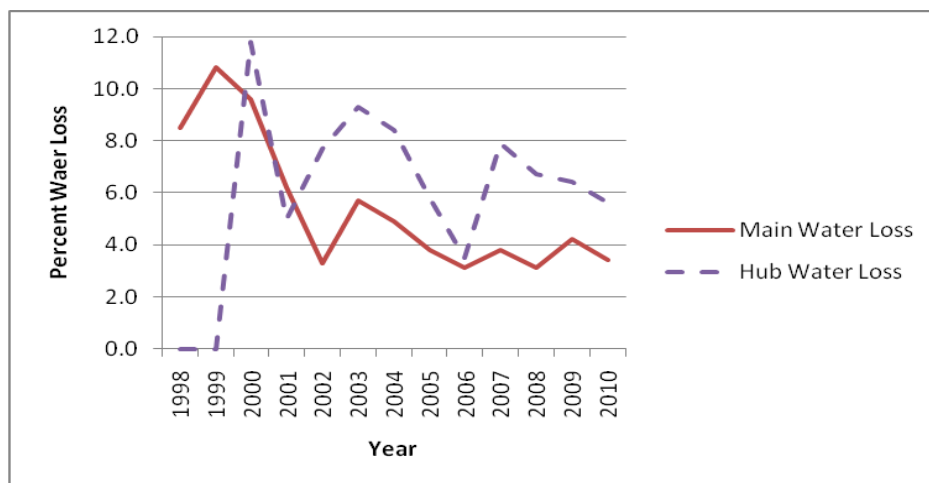
Synopsis

The Board of Directors is requested to consider options for a meter replacement program for the Metro Hub service area.

Background

The District acquired the Hub Water Company in 2000. The water system was 95% built-out at the time of purchase, and comprises roughly 1600 residential customers. Since the acquisition, considerable monies have been attributed to capital upgrades, which include main-line replacements, three new wells (one of which was non-productive), two arsenic treatment systems and a new reservoir (complementing the original). One area of several that still requires attention is the condition of the customer meters. While some meters have been upgraded to be more accurate, the majority of the meters are original or outdated.

A full fledged meter replacement program had shown its cost effectiveness with Metro-Main's meter replacement program, which was implemented in 1999. Over the ensuing eight years, virtually all residential meters have been replaced. With the replacement of the old, high usage meters, immediate results of more accurate readings were obtained. Subsequently, many customers had to be educated about meters when they received higher water bills and learned that meters under read, not over read, with age. Also, the District's water losses in 1990 were close to exceeding 10%, which is the standard required by ADWR. As can be seen on the following figure, water losses have reduced dramatically since the program's inception; today Metro-Main's water losses are less than 5%. The figure contrasts what has occurred in the Metro-Hub service area.



Issues

Residential meters become inaccurate over time, especially at low flow rates; low flow rates for 5/8 x 3/4" meters are considered to be .25 gallons per minute or less. Through extensive research conducted previously at Metro-Main, approximately 11% of total flow through residential meters is used at the low flow rate. Additional meter research from Metro-Main had determined that residential meters are considered effective up to 1.49 million gallons; meters accumulating more than 1.49 million gallons are considered to be cost-effective candidates for replacement.

Metro-Hub customers have historically consumed more water per capita compared to Metro-Main; average water usage is 13,000 vs. 9,000 gal per month per customer, respectively. Additionally, the rate shock in 2000 did not take hold, as expected. Customer bills became substantially higher (when compared to the previous Hub Water Company rates) but the conservation of water had never fully materialized.

Since 2000, the average water loss has been close to 7%, with a maximum water loss of 12% in 2000. The trend-line continues on a downward track; however, year to year water losses indicate variances which can be more easily controlled by a meter replacement program. Assuming the average of 7% mean water losses can be controlled to 4% after a replacement program, present year revenue recoveries of \$1.3 million would represent \$39,000 per year. This figure is included in the attached payback calculations.

Present meter reading consists of an average of 3 man-days per month or 288 man-hours per year. When vehicle time is included, the annual meter reading cost is presently \$12,960 per year. An automatic meter reading (AMR) system would reduce the reading time to 96 man-hours per year; the AMR meters are read via drive-by technology. This equates to 2 additional days per month (or 192 man-hours per year) a meter reader could be productive in other field work as needed. The meter reading savings is calculated at \$8,683. Also mentionable, is the risk reduction related to reduction in travel times.

The attached payback sheet considers four options: two options with straight read meters and the other two options with AMR, also calculated with either in-house or outside services considered for meter installation. Payback is 1.1 to 6.2 years. Ideally, the preferred configuration would be an AMR system installed by outside sources. Existing staff commitments are understandably saturated.

Since the District is embarking on AMR/AMI (AMI – Automatic Meter Infrastructure) opportunities at Metro- Southwest and because those existing meters will be replaced by outside sources, the District may be able to time the Metro-Hub replacement to economize on installation costs. Additionally, as the effort to provide uniform meter reading capabilities is incorporated, staff sees the merits of the AMR technology to save time, utilize meter readers free time effectively and use the newly realized time to address other pressing issues.

The advantage of the AMR/AMI option is the opportunity to install a fixed network in the future if the District would so choose. The AMR/AMI option is the preference for Metro Southwest;

meter reading will be communicated to a fixed network system, which provides meter reading over a server or web-site. It can also complement drive-by meter reading. AMR/AMI also provides data-logging, which is essential in determining high water bills and identifying when leaks are associated with high bills.

For an additional \$22.35 per meter, this feature can be installed and have the attributes of the above. Additionally, the meters would not require modification to complement a fixed network infrastructure in the Metro-Hub service area, if so chosen in the future. A 2nd payback tabulation is attached for AMR/AMI.

Staff Recommendation

It is recommended that the Board discuss with staff the different options as outlined in the attachments that are available for a Metro-Hub meter replacement program. Staff recommends that the Board approves a meter replacement program for the Metro-Hub system to be incorporated in the Fiscal Year 2011-2012 budget.

Suggested Motion

I move to approve a meter replacement program for the Metro-Hub system at a cost not to exceed _____ and appropriate funding for this through the District's Capital funding for Fiscal Year 2011-2012.

Respectfully submitted,

Christopher W. Hill,
Deputy Manager

I concur with the above-noted recommendation.

Respectfully submitted,

Mark R. Stratton, P.E.
General Manager