

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY**

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**INTEROFFICE COMMUNICATION**

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TO: Clifford Heckathorn, Chief  
Revolving Loan and Operator Certification Section  
Field Operations Division, Water Bureau

FROM: Richard Benzie, P.E.  
Drinking Water and Environmental Health Section  
Lansing Operations Division, Water Bureau

DATE: September 23, 2009

SUBJECT: Village of Lawton - Project No. 7283-01  
Qualification for Green Project Reserve Funding

The purpose of this memo is to document the basis for determining that the Village of Lawton, DWRF Project No. 7283-01, qualifies for the green project reserve funding under the ARRA. Among other things, this project will replace 6,470 feet of 2-inch, 6-inch, and 8-inch unlined cast iron water mains that are 50 or more years old and will install new meters throughout the distribution system. The following information was used to make this determination.

The village calculated that they lose 26.7% of the water delivered to their system through leaks by comparing the volume of water metered as it enters their system to the volume of water passing through customer meters. System losses in excess of 15% are generally considered unacceptable in the waterworks industry. Without conducting a comprehensive leak detection program, it is difficult to assign unaccounted water losses to specific areas of the distribution system. However, there is little doubt that leakage is greatest in older, unlined cast iron piping. Although Lawton is only replacing approximately 10% of their total pipe inventory, they will be replacing some of the most antiquated cast iron piping that is subject to the most frequent and catastrophic failures and the highest percentage of leaks. It is very likely that more than half of the city's water losses are occurring where cast iron pipe is still in use. It is also likely that catastrophic failures and on-going leakage will only increase if this aging piping is not replaced. Replacement of these targeted mains should decrease the city's lost water to an extent much greater than the percentage of the city's total pipe inventory they represent. To maximize the anticipated improvement in water conservation and energy efficiency, the new mains will be cement-lined ductile iron pipe and have an improved C factor of 120 as compared to the existing unlined cast iron with C factors likely ranging from 80 to 90.

The new meters to be installed in Lawton will update an antiquated system that is undoubtedly under reporting water use, as old meters always slow down and register lower volumes as they age. The new meter system will hold customers accountable for the full amount of water being used. The new meter system will also save the village effort and energy by being more efficient and by allowing for more rapid identification and isolation of breaks and major leaks, reducing water losses.

The costs that qualify for green project reserve will be determined after bids are received and the amount of the loan established. At that point, the percentage of this loan that is provided by the ARRA can be applied to the total amount spent on this portion of the project to determine the green project reserve.

REB:DLR  
cc: Mr. Wood Chooi, P.E., Water Bureau, Kalamazoo District