

## **Green Business Case**

### **City of Scobey, Montana – Cross-Country Water Main Replacement Project**

#### **Green Reserve Project Description**

The project being approved can be generally described as the replacement of approximately 4,400 feet of 8-inch PVC water main, including valves, fire hydrants, fittings, service lines, service connections, appurtenances, and surface restoration.

#### **Documents submitted and reviewed by the State:**

The city's 2011 Cross-Country Water Main Replacement Project Design Report, prepared by Great West Engineering, recommends replacement of the cross-country water main that runs from the water supply wells to the city. The design report references a 2000 water system analysis and a 1984 leakage study. The project plans and specification were also reviewed. The proposed 2011 Cross-Country Water Main Replacement project is recommended as a means to reduce system leakage and improve system reliability.

#### **List of eligible Green Project Reserve components:**

1. Identify the component(s) - See project description
2. Total project cost = \$324,000
3. Total 2011 DWSRF Loan/Grant Request = \$324,000
4. Total project cost eligible for Green Project Reserve = \$324,000 (100%)

#### **Green Reserve Project – Categorical Project:**

This project is not considered categorically green as defined by the USEPA guidance documents.

#### **Green Reserve Project – Business Case Evaluation:**

“As stated in the USEPA March 2, 2009 Memorandum, for traditional projects that are not categorically green, for the project, or components of the project, to be counted towards the 20% requirement, the State project files must contain documentation that a clear business case for the project (or portion) investment includes achievement of identifiable and substantial benefits that qualify as Green Project benefits. The documentation should reference to a preliminary engineering or other planning document that makes clear that the basis upon which the project (or portion) was undertaken included identifiable and substantial benefits qualifying for the Green Project Reserve. The March 12, 2009 USEPA webcast slides 20 and 21 state that two components, the technical component and financial component, must be provided in the Business Case.”

#### **Green Project Reserve Type:**

This project fits in the water efficiency and energy efficiency type.

#### **Technical Component Evaluation:**

The existing Scobey water system includes two supply wells, one backup well, one pump station (with two pumps) and two water storage tanks. The distribution network consists of approximately 60,000 feet of mostly of 6-inch to 8-inch cast iron pipe installed in 1919. There is also some asbestos-cement pipe (AC) and polyvinyl chloride (PVC).

Inspection of replaced pipe has shown areas of corrosion. A leak study was performed in 1984 finding that leakage and non-metered use lead to just over 40% of the water pumped to the city as being unaccounted for. It is estimated that this unaccounted for water is primarily the result of old, leaking water mains.

The City of Scobey has been very active in trying to maintaining their water distribution system to provide a high degree of water service to the citizens of Scobey. Over the past few years, however, critical sections of water distribution system have deteriorated to a condition that can no longer provide reliable service to the City. The largest section of failing water line is the 8-inch transmission main that runs from the pump house cross-country to the intersection of Golf Course Road and First Avenue West and then on to the intersection of First Street and First Avenue West. Despite numerous repairs made to this section of line over the past few years, it has continued to accumulate breaks causing significant losses of water from the system and temporarily disrupting service to several residences. The condition of the line has become so poor that the City of Scobey recently put the line completely out of service. This shut down, however leaves the City very exposed as they are now operating by means of only one main transmission line that is responsible for feeding water from the wells to the entire City. Replacement of the cross-country section of 8-inch transmission main and the section of line that runs down First Avenue has become an urgent replacement situation for the City of Scobey. The line must be replaced in order to reduce water leakage and to provide a reliable supply of water to the City's citizens.

According to the design report, the 8-inch cross-country water main is over 90 years old. This pipe is cast iron with lead joints and is believed to be a major source of the system leakage. Reducing the leakage will conserve water and reduce pumping costs. The 8-inch cast iron main taken out of service will be replaced with 8-inch PVC main resulting in a slight reduction in friction loss and therefore improved overall system efficiency.

#### **Financial Component Evaluation:**

City records show that between July 2010 and July 2011 there were seven leaks on First Avenue. The cost to repair these leaks was approximately \$13,000 with an estimated water loss of 14,000 gallons. The city is unable to determine the water loss from the cross-country transmission as the main was shut down due to excessive breaks. However main but estimate the water loss Scobey water system relies on two groundwater wells and one pumping station to provide water to the residence of Scobey. Decreasing the "lost water" will reduce the electrical pumping power consumption and its associated cost. Reducing the operation and maintenance costs for the sections of pipe replace would also be expected.

#### **Green Reserve Project – Evaluation Conclusion:**

The need to replace an aging and leaking water main was the primary driver behind this project. Reducing the overall system leakage will also reduce the energy required to pump and treat water for Scobey's system. Based on the pipe replacement selection criteria, the SRF program will consider 100% of the total project eligibly for the "green" component.