

Clean Water State Revolving Fund Green Project Reserve

- Preliminary -



City of Jerome Wastewater System Upgrade Project

SRF Loan #WW1403

\$1,750,000

Preliminary Green Project Reserve Justification

Categorical GPR Documentation

UPGRADE WASTEWATER LIFT STATIONS AND INSTALL NEW ENERGY-EFFICIENT PREMIUM PUMPS. (Energy Efficiency) Categorical per GPR 3.2-2: *projects that achieve a 20% reduction in energy consumption* (\$721,000).

LIFT STATION UPGRADES/ PREMIUM PUMPS¹ (PRELIMINARY)

Summary

- The City of Jerome plans to upgrade ten (10) lift stations as part of an overall renovation of the City's wastewater collection system. An integral part of the lift station upgrades will be the replacement of standard efficiency pumps with premium energy-efficient models and VFDs to conserve energy and enhance the operability of the collection system.
- Total Loan amount = \$1,750,000
- Estimated Categorical energy efficient (green) portion of loan = 41% (\$721,000.)
- Annual Energy savings > 20%

Background

- The City of Jerome's wastewater collection system has deficiencies that have led to numerous sanitary sewer overflows and permit violations, documented in correspondence from the Environmental Protection Agency.
- Sewage overflows and violations represent a threat to public health, groundwater and surface water. Violations of discharge limits for fecal coliform, BOD, suspended solids, phosphorus, pH, residual chlorine, and dissolved oxygen have been documented.
- The existing wastewater collection system has ten (10) sewage lift stations which require upgrading. The stations are often overloaded at peak hourly flows and occasionally surcharge.

Results

- Approximately ten (10) existing wastewater lift stations will be upgraded. Six of the stations will receive pumps with premium energy-efficient motors and VFDs.²
- Premium efficiency motors save on average 3-7% over standard efficiency motors.
- The use of premium energy-efficiency motors and VFDs will result in substantial power savings; actual savings will be calculated and reported in the interim Green Project Reserve Technical Memorandum at the time of submission of the contract documents.

Energy Efficiency Improvements

- The efficiency of the standard efficiency motors will be compared to the specified premium efficient motors.
- The annual power savings will be derived by calculating power use for both the existing standard efficiency motors and for the upgraded premium efficiency motors. The results will be depicted in a Table.
- The 20% reduction in energy consumption will be calculated by dividing the existing power consumption by the calculated future power consumption.
- The annual cost savings will be calculated by multiplying the power savings by the cost per KwH/yr.

Conclusion

- It is estimated (preliminary basis), that by using premium efficiency motors and VFDs in the lift station renovations, the City will reduce their power needs by over 20% per year and realize corresponding annual power savings in energy and costs.

- **GPR Costs:**

Equipment Name	Cost
Lift Station Upgrades	\$721,000

- **GPR Justification:** Categorically GPR-eligible (Energy Efficiency) per Section 3.2-2³: *"projects that achieve a 20% reduction in energy consumption."*

¹ NOTE: Preliminary - analysis will be completed when project has been awarded and actual pump & motor schedules are available

² City Engineer email correspondence 5/16/2014

³ Attachment 2. April 2011 EPA Guidance for Determining Project Eligibility.