

Clean Water State Revolving Fund Green Project Reserve



City of Greenleaf Wastewater Facility Project \$6,110,518

Categorical & Business Case GPR Documentation

- TREATED EFFLUENT LAND APPLICATION SYSTEM CONSTRUCTION (Water Efficiency). Business Case GPR per Section 4.5-8: *Land application in which feasible alternatives exist*; also (Water Efficiency) Categorical GPR per Section 2.2-8: *Replacement of existing agricultural irrigation system with more efficient agricultural irrigation system* (\$673,914).

The System includes the installation of ENERGY EFFICIENT MOTORS WITH VFDS (Energy Efficiency). GPR Categorical per Section 3.2-2: *Use of premium efficiency motors and VFD pumps in a new project* (\$240,165).

TREATMENT PROCESS

Summary

- The City of Greenleaf is constructing new wastewater facilities which include a 70-acre piece of land as the site of a new planned effluent reuse system. The system will recharge the aquifer with high quality effluent and assist in reclaiming unused land for crops.
- Loan amount = \$6,110,518¹
- GRP Costs = \$914,079; Green portion of loan = 15%

Background

- The City is constructing a complete wastewater collection, treatment, and reuse system to replace failing septic systems and community on-site subsurface wastewater disposal system.
- The failing septic systems have had a deleterious impact on the nitrate-priority, protected aquifer.
- The current systems also resulted in the discharge of nitrogen and phosphorus to a watershed identified as water-quality impaired for nutrients.

Results²

- Several wastewater disposal alternatives were evaluated in depth, including combining conventional activated sludge with surface water discharge, sequencing batch reactor and surface water discharge, covered lagoons with filtration and land discharge, and membrane bio-reactor with surface water discharge.
- The beneficial reuse option was not the lowest cost alternative, but was selected by the community for the high quality effluent produced, reliable operation, and positive environmental contribution. The effluent will be treated to Class B standards and reused on site to irrigate alfalfa or hybrid poplars during the critical TMDL period.

Benefits³

- Greenleaf is located in a nitrate priority, protected aquifer area, as designated by IDEQ. The oxidation ditch system will denitrify the effluent, and by recycling the high quality effluent water, the wastewater treatment system will have a positive impact on groundwater quality in the area.
- Discharge of nitrogen and phosphorus will be eliminated to a watershed identified as water-quality impaired for nutrients. Surface water quality will also improve as a result of the wastewater reuse project eliminating the sediment and nutrient loads currently being discharged into the West End Drain.
- The conversion of agricultural land to a highly managed agricultural reuse system also eliminates the discharge of sediment to surface waters, which currently impairs water quality in the lower Treasure Valley.
- The land application and reuse system will also enable the City to comply with the conditions of the City's NPDES discharge permit, and with anticipated future permit conditions.

Conclusion

- The treated effluent slow rate land application and reuse system was chosen over several other alternatives because the system was determined to be the most dependable, energy efficient, and low maintenance option.
- **GRP Costs Identified:**
 1. Effluent Reuse System = \$673,914
 2. Pumps, premium motors & VFDs (excluding reuse system) = \$240,165

Total \$914,079
- **GPR Justification⁴**
 1. Categorical & Business Case Justifications (Water Efficiency) per Section 2.2-8, p.8⁴: *Replacement of existing agricultural irrigation system with more efficient agricultural irrigation system* ; and Section 4.5-8, p. 13⁴: *land application in which feasible alternatives exist.*
 2. Categorical (Energy Efficiency) per Section 3.2-2 p.9: *Use of premium efficiency motors and VFD pumps in a new project.*

¹ FY11 SRF Loan Agreement

² Addendum No. 2 Greenleaf Wastewater Facilities Planning Study, May 2010, SPF Water Engineering and Civil Dynamics

³ Greenleaf Wastewater Treatment EID, August 2010, SPF Water Engineering and Civil Dynamics

⁴ Attachment 2. April 21, 2010 EPA Guidance for Determining Project Eligibility