



# State Revolving Fund Loan Program

an Indiana Finance Authority Environmental Program

100 North Senate Avenue, Room 1275  
Indianapolis, Indiana 46204  
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## MEMORANDUM

TO: Project File, City of Evansville, Digester Rehab, SRF Project # WW14 21 83 14

FROM: Jack Fisher

DATE: December 18, 2014

RE: Green Project Reserve (GPR), Business Case

### Summary:

- The proposed project includes a jet mixing system for the digesters at the West WWTP. The existing system will be replaced with a new jet mixing system. The existing gas mixing system achieves approximately 40% volatile suspended solids (VSS) reduction. The proposed system will achieve 55% VSS reduction. The higher VSS reduction means less sludge is produced and more methane gas is produced. With less sludge production, the direct cost of sludge pumping, dewatering, hauling and disposal will be lowered. With more methane gas production, WWTP energy costs will be reduced as the methane gas supplies reciprocating engines that power the influent and effluent pumps.

Recycled materials such as ductile iron pipe will be used for the project. DI specified is made 90% of recycled materials and is the most used material of piping.

- The estimated Total Project Cost is \$12,857,000. The SRF Loan Amount will be \$31,594,000.
- Estimated GPR portion cost of loan associated with the installation of the jet mixing system and the ductile iron is **\$1,293,011**. This cost consists of **\$1,163,400** for construction and **\$129,611** for planning and design. This represents approximately 4.1% of the estimated loan amount.

### Conclusions

- The installation of the new jet mixing system will produce an annual savings of **\$35,911** or achieve an energy savings of 17%.
- Recycled steel does not require the refining of steel from iron ore, resulting in a significant savings in energy costs. According to USEPA, the energy intensity required to utilize recycled steel is 5.0 Million Btus/ton, while the energy intensity to utilize new materials is 19.0 Million Btus/ton. Assuming an energy cost of 10 cents per kWh, use of recycled steel equates to approximately **\$26,600** in energy savings over use of new materials.

