



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 Monticello, Wastewater System Improvements, SRF Project # WW14 04 91 01

FROM: Jack Fisher

DATE: December 17, 2015

RE: Green Project Reserve (GPR), Business Case

Summary:

- The proposed project will address the city's Combined Sewer Overflow (CSO) Long Term Control Plan which involves increasing the peak flow of the wastewater treatment plant (WWTP) from its current 2.4 million gallons per day (MGD) to at least 3.6 MGD. Flows and loading projections indicate an increase in the average daily capacity of its current 1.1 MGD to 1.6 MGD will be required in order to reliably treat current and anticipated future flows and loadings.
- WWTP improvements include: constructing an influent screening structure with a mechanical fine screen in the new Headworks Building; constructing a submersible raw sewage pump station; relocating CSO #105 to the raw sewage pumping station for future connection to a Wet Weather Treatment Facility; installing a grit removal system in the new grit building; expanding the WWTP to a 1.6 MGD biological nutrient removal (BNR) treatment system; installing three positive displacement blowers; constructing a 45-ft diameter secondary clarifier; constructing a return activated sludge pumping station; installing two waste activated sludge pumps in the pre-anoxic tank; installing two new cloth membrane tertiary filters; constructing two new in-pipe ultraviolet disinfection units; installing a new non-potable water system; installing a phosphorus removal system consisting of aluminum sulfate; constructing an operations building; installing a 800 KW diesel powered stand-by generator; and installing a supervisory control and data acquisition (SCADA) system.
- The estimated Total Project Cost is \$12,717,350.
- Estimated State Revolving Fund Loan Amount is **\$12,717,350**.
- Estimated GPR portion cost of loan associated with the WWTP improvements is **\$2,334,600** for construction (i.e., \$2,000,000 for BNR, \$34,600 for recycled ductile iron and \$300,000 for UV disinfection) and **\$111,000** for planning and design costs for a total cost of **\$2,445,600**. This represents 19.2% of the estimated loan amount.
- GPR cost under the category of **Environmentally Innovative** is **\$2,405,450**.
- GPR cost under the category of **Energy Efficiency** is **\$40,150**.



Conclusions

- The BNR treatment system will achieve biological phosphorus removal with 12 gallons per day (gpd) of aluminum sulfate and reduce chemical costs by 90% as opposed to a projected 120 gpd of aluminum sulfate. The annual cost savings is estimated at \$39,683. This biological phosphorus removal system would qualify under the category of Environmentally Innovative.
- The proposed BNR process is considered to be Environmentally Innovative, since it has the potential in demonstrating its effectiveness for both biological phosphorus removal and denitrification.
- The proposed project will replace the existing disinfection system (chlorination and dechlorination) with ultraviolet (UV) disinfection. The existing disinfection system will use a projected 4,350 lbs of chlorine gas and 3,834 lbs of sulfur dioxide as opposed to 0 lbs of chemicals for the UV disinfection system. The estimated annual savings between the use of chemicals and operation and maintenance cost for the UV system will be \$7,154. This system would then qualify under the category of being Environmentally Innovative.
- Ductile iron (DI) will be used extensively for the pipe work on this project. All ductile iron shall contain a minimum of 90% post-consumer recycled material content that will save an estimated one time energy cost of \$34,600. This qualifies the use of DI under the category of Energy Efficiency.