

## **BASIN 27 & JACOBS CREEK / LEWIS BRANCH INTERCEPTOR, CITY OF NEW ALBANY**

### **Summary**

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- The Basin 27 and Jacobs Creek/Lewis Branch Interceptor Improvement projects will allow for the replacement of two existing interceptor sewers. The Basin 27 interceptor is located within Basins 27 and 14 and outfalls into the Basin 14 lift station. The Jacobs Creek/Lewis Branch interceptor is located within Basin 36 of New Albany's sanitary sewer system.
- The proposed projects include the installation of approximately 8,392 feet of sewer line.
- The estimated SRF Loan amount is \$7,400,000.
- **The GPR Energy Efficiency amount for this project is approximately \$1,200,400 based on the PER cost estimates: \$946,400 for construction and \$254,000 for planning and design.** The GPR amount for this project equates to approximately 16% of the total loan amount. All GPR costs for this project fit into the Energy Efficiency category.
- The total GPR amount for all projects under this SRF Loan is \$5,061,646.70, or 68% of the total loan amount.

### **Background**

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- The presence of I/I in the City's collection system has resulted in higher energy costs associated with pumping and treating the additional flow.
- The existing Basin 27 Interceptor and Jacobs Creek/Lewis Branch Interceptors do not have sufficient capacity to accept and convey existing flows without surcharging and/or SSOs.
- Additional flows to be added in the future will only serve to exacerbate existing capacity and SSOs problems. Therefore, improvements are recommended to overcome the capacity deficit to reduce the risk of future SSOs.

### **Energy Efficiency Discussion**

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- I/I removed by the proposed project was calculated based on the methods established in the Robert E. Lee Flow Monitoring Analysis memo prepared by Clark Dietz, Inc. This document was prepared in January 2009 and in accordance with formulas and procedures included in the City's Consent Decree and Memorandum of Understanding for quantifying I/I removal resulting from capital improvements to the sewer system.
- Using the flow monitoring analysis noted above, statistical analysis of rainfall events, the anticipated reduction of I/I resulting from the proposed project is estimated to be 42.8 million gallons per year or 1.0 million gallons per day per rainfall event.
- The reduction in I/I would lead to cost savings at the wastewater treatment plant due to a reduction in the flows to be treated. The estimated cost savings is \$38,354 per year based on an operation and maintenance cost of \$0.90/1000 gal. Of this cost savings, approximately 25% are attributed to energy savings, or approximately \$9,600. In addition to the energy savings at the plant, there would be energy savings in the collection system since less flow would need to be pumped.
- The 42.8 million gallons per year of I/I removed is equivalent to an average daily flow of 117,000 gpd. Treatment capacity at the WWTP being utilized by the current I/I entering the system comes

at a cost to the City that will be mitigated as a part of this project. Treatment capacity is estimated to be valued at \$15 per gallon of average flow.

- The table below summarizes the Present Worth Costs associated with the proposed project and an alternative solution of treating the I/I flow and expanded plant capacity. The analysis shows that the proposed project is cost effective.
- The payback period is 32 years which is less than the useful life of the new sewers.

<b>COST EFFECTIVE ANALYSIS</b>		
	Basin 27/Jacobs Creek Interceptor Projects	Alternative-Treat I/I Flows and Expand WWTP Capacity
Capital Cost	\$1,200,400	\$1,755,000
Annual Energy Costs Associated with I/I Treatment	-\$38,000	\$0
Present Worth of Energy Costs (3%, 20 Years)	-\$573,000	\$0
Total Present Worth Cost	\$627,400	\$1,755,000

**Conclusion**

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- The proposed project will result in annual energy cost savings of \$9,600 associated with wastewater treatment.
- The proposed project will immediately result in creating capacity at the WWTP valued at \$1,755,000.
- The proposed project is cost effective.
- The payback period is 32 years which is less than the expected life for the new sewers.
- The proposed project is effective in that it provides for the elimination of SSOs and a present worth cost that is equivalent to 36% of the alternative present worth cost.

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Reference Material – Green Project Reserve Sustainability Incentive Business Case, Amended Capacity Assurance Plan System Improvements, Basin 27 & Jacobs Creek/Lewis Branch Interceptor Improvements, City of New Albany, Indiana, dated December 2010, prepared by Clark Dietz, Inc.