

## **Petersburg Water System Improvements Water Distribution Improvements, Well Field and Water Treatment Plant Improvements**

### **Summary**

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The proposed project consists of the following improvements.

- Water Distribution Improvements – Replacement of approximately 12,100 feet of old 2-inch galvanized mains with new 4-inch or 6-inch PVC water mains.
- Well Field and Water Treatment Plant Improvements – Replace 2-inch valve, replace back wash and filter valves, replace electrical system at the well field and water treatment plant, install standby generator at the well field, and remove high service pumps at the water treatment plant. Install a phosphate feed system to assist with the lead issue.
- Loan Amount = \$1,445,000.00
- **The total GPR portion of the total project cost is \$646,093 (\$589,593 for construction, based on bids, and \$56,500 for engineering and design), which is 44.7% of the project cost. This falls into the water efficiency GPR category.**

### **Background**

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The City currently experiences leaks with 2-inch galvanized water mains that were constructed over 60 years ago. This project consists of replacing aging water mains in the distribution system. The proposed water mains would likely be polyvinyl chloride (PVC). New fire hydrants will be installed on the new mains. New services lines will also be installed from the new mains to the meters. After installation, flushing and disinfection of the new mains, the existing mains will be abandoned in place. A new standby generator will be installed at the well field and the electrical systems will be replaced at both the well field and the water treatment plant. The back wash and filters valves at the water treatment plant will be replaced and the old high service pumps that are no longer being used will be removed. It would not be cost effective to replace all the distribution and service lines that could be causing the lead issue that the City currently is experiencing. Therefore, this project will consist of installing a phosphate feed system at the existing treatment plant to assist with this issue. The phosphate will be used as a corrosion inhibitor that will apply a protective film to evenly coat the lines and inhibit the lead from leaching out into the system. Replacing a portion of the 2-inch galvanized mains and the service

lines along these mains will also help with the lead problem. These improvements are required to insure that the City of Petersburg will be able to provide customers of its water system with a safe reliable service in the years to come.

### **Water Efficiency**

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- According to the PER, Petersburg lost an average of 125,000 GPD or 45.6 MG annually of water due to leaks.
- By replacing the 2-inch water mains, it is estimated that the City could conserve 3 % of this water loss or 1.4 MG annually.

### **Conclusion**

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- The proposed project will reduce water loss and provide a more efficient water system for the City of Petersburg.
- As stated earlier, the City will conserve approximately 1.4 MG of water annually. This results in an annual savings of \$2,100 based on \$1.50 per 1,000 gallons.
- The GPR components are 44 % of the total project cost as broken out in the following table.

<b><u>Project Component</u></b>	<b><u>Total Cost</u></b>	<b><u>GPR Amount</u></b>	<b><u>% of Total Project Cost</u></b>
Construction Cost Distribution Improvements	\$584,000.00	\$589,593.90	40.8
Construction Cost Well Field and WTP Improvements	\$594,000.00	\$0.00	0
Engineering Planning and Design	\$114,000.00	\$56,500.00	3.9
Inspection	\$25,000.00	\$0.00	0
Legal, Financial and Bond Issuance Costs	\$128,000.00	\$0.00	0
<b>Total</b>	<b>\$1,445,000.00</b>	<b>\$640,500.00</b>	<b>44.3</b>