Texas Water Development Board

City of New Deal

DWSRF GREEN PROJECT RESERVE BUSINESS CASE EVALUATION

STATE FISCAL YEAR 2017 INTENDED USE PLAN

PROJECT NUMBER 62570

COMMITMENT DATE: July 6, 2017

DATE OF LOAN CLOSING: December 5, 2017

Green Estimate at closing is $ 658,709

Subsidy awarded for Green components $98,800

Part H 93

TEXAS WATER DEVELOPMENT BOARD
DRINKING WATER STATE REVOLVING FUND (DWSRF)
GREEN PROJECT INFORMATION WORKSHEETS

PART I – GREEN PROJECT INFORMATION SUMMARY

General Project Information

Applicant: City of New Deal Project #: 62570

Project Name: Transmission Line Replacement and Standpipe

Contact Name: Fred Curnutt

Contact Phone and e-mail: 806-794-1100 fred.curnutt@e-ht.com

Brief Overall Project Description:

The City's well field is approximately 3.3 miles from the elevated water storage tank. A six inch line provides the water from the well field to the elevated storage tank/distribution system. The transmission line has had multiple leaks each year which disrupts service, requires maintenance, results in considerable water loss, and introduces potential safety issues. This project will reduce water loss and result in a reduction in energy consumption.

The project is to replace the deteriorated 6 inch AC line from the well field 3.3 miles north of the city with new 8 inch C-900 PVC or HDPE.

TEXAS WATER DEVELOPMENT BOARD
DRINKING WATER STATE REVOLVING FUND (DWSRF)
GREEN PROJECT INFORMATION WORKSHEETS

Check all that apply and complete applicable worksheets:

Categorically Eligible

- ☐ Green Infrastructure $ _____
- ☐ Water Efficiency $ _____
- ☐ Energy Efficiency $ _____
- ☐ Environmentally Innovative $ _____

Business Case Eligible

- ☐ Green Infrastructure $ _____
- ☒ Water Efficiency $ 715,380.00
- ☐ Energy Efficiency $ _____
- ☐ Environmentally Innovative $ _____

Total Requested Green Amount $ 715,380.00

Total Requested Funding Amount $ 950,000.00

Type of Funding Requested:

- ☐ PAD (Planning, Acquisition, Design)
- ☒ C (Construction)

Completed by:

Name: Fred Curnutt, P.E. Title: Project Engineer

Signature: Fred Curnutt Date: February 6, 2017

Section 3 – Water Efficiency

Certain water efficiency improvements may be considered business case eligible for the GPR. Refer to EPA and TWDB GPR guidance for a complete list and description of business case eligible GPR Projects. For all water efficiency business case eligible projects Section 3.1 must be completed. A common water efficiency project that may be considered business case eligible is water line replacements to address water loss. For this type of project complete Section 3.2 of the worksheet. For any other water efficiency improvement being considered for business case eligibility, complete Section 3.3.

Section 3.1 - System and Water Loss Information

Section 3.1 is required for all water efficiency business case eligible projects. Attach a copy of most recent Water Audit, if available. Otherwise, complete and attach Water Audit Worksheet or provide water audit data in a similar format. Additional information on water loss and water audits as well as a copy of the Water Audit Worksheet is available at:
http://www.twdb.state.tx.us/assistance/conservation/Municipal/Water_Audit/wald.asp

Reference and attach water loss audit and/or any other completed planning or engineering studies:

☐ _____
☐ _____
☐ _____

Section 3.2 - Water Line Replacement

Proposed pipe to be replaced:

Length (LF)	Existing Pipe			Proposed Pipe	
	Material	Age (yr)	Dia. (in)	Dia. (in)	Material
18,000	Asbestos Cement	50	6	8	C-900 PVC or HDPE

Percent of distribution lines being replaced: 0% all transmission line

Number of breaks/leaks/repairs recorded in past 24 months for areas being replaced: 14

Estimated water loss from pipe being replaced (provide calculations on following page): 2,100,000 gallons

Estimated annual water savings (provide calculations on following page): 2,000,000 gallons

Estimated annual cost savings (provide calculations on following page): $4,680.00

Provide detailed description of the propose improvements and provide supporting calculations. Description should include a description of the methodology used to select pipes for replacement (attach additional pages if necessary):

The new pipeline will reduce the water loss due to leaks thus conserving the precious commodity as well as preventing the loss of electrical energy which would have been used to pump the leaked water. The City has lost between 500,000 to 4,000,000 gallons per year due to leaks in this section of transmission line. The new line (HDPE welded joints) will reduce the transmission line loss to essentially 0 gallons per year from leaks. Thus the energy avoidance to pump 4,000,000 gallons of water would be approximately 150 hours of a 50 hp pump operation. In addition to correcting the deteriorated pipe and preventing the loss of associated water, the new pipeline will considerably reduce the friction loss incurred during the pumping process compared to the existing line. It will take approximately 18,000 LF of pipe to replace the deteriorated line.

The existing pumps are 500 gpm pumps which have a developed head of 130 psi in the 18,000 LF of the existing line. The new line will reduce the head in the line to 30 psi at 500 gpm. Thus the new reduction in pumping horse power would be equivalent to 34.3 horsepower (500 gpm in existing 18,00 ft. pipeline would require 44.6 HP while 500 gpm in new 18,000 ft. pipeline would require 10.3 HP). This would reduce the pumping cost for the well field pump station approximately 76 percent.
Water loss from leaks in transmission line have been between - 750,000 to 4,000,000 gallons per year over the last 5 years (average approximately 2,100,000 gallons/year).

Cost avoidance not pumping 4,000,000 gallons 150 hours at 37,000 kW-hr($0.19/kWH) = $1,055.00. The amount of water pumped from the groundwater was 23,835,000 gallons - 795 hours of pump operation. The cost avoidance is illustrated for 795 hours of pump operation. The total cost avoidance will be based on 4,000,000 gallons per year. These costs do not include the man hours required to inspect and repair the line.

Cost with old line pumping (795 hours/year at 37,000 kW-hr ($0.19/kWH) = $5,589.00), less with new line pumping (795 hours/year at 8,500 KW-hr ($0.19/kWH) = $1,284.00) = 4,305.00 cost avoidance.

Total power cost avoidance ($1,055.00 + $5,589.00 - $1,284.00) = $5,360/yr.

Total cost of lost water ($1.00 x 4,000) = $4,000/yr.

Total cost avoidance = $9,360/yr for 4,000,000 gallons.

Total cost avoidance = $4,680/yr for 2,000,000 gallons loss avoidance.