

# Texas Water Development Board



City of De Leon

**DWSRF GREEN PROJECT RESERVE BUSINESS CASE EVALUATION**

**STATE FISCAL YEAR 2013 INTENDED USE PLAN**

**PROJECT NUMBER 62553**

COMMITMENT DATE: November 21, 2013

DATE OF LOAN CLOSING: June 26, 2014

GREEN ESTIMATE AT CLOSING: \$1,337,307

Subsidy awarded for Green components, (if any): \$191,250

September 17, 2013

Mr. Rob Duncan  
City of DeLeon  
P.O. Box 318  
DeLeon, TX 76444-0318

Re: **SFY 2014 Drinking Water State Revolving Fund  
Funding Determination Letter #62553**

Dear Mr. Duncan:

On September 16, 2013, a funding determination letter was sent to the City of DeLeon (City) regarding its Drinking Water State Revolving Fund (DWSRF) project #10117. In the letter, funding for disadvantaged and green subsidies in the form of loan forgiveness, and loan funding for the remainder of the project were presented to the City. Based on a subsequent review of the application and materials submitted for the State Fiscal Year 2014 Intended Use Plan, we apologize as there was an error in the amounts listed in yesterday's letter.

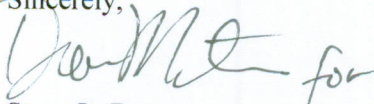
Applications received by the Texas Water Development Board are reviewed by staff and determined to either be administratively complete or incomplete. Administratively complete applications are then reviewed by our program staff to ensure the requested project amount matches the amount in the Intended Use Plan. In reviewing the City's application, program staff did not verify the amount listed in the Intended Use Plan. In making the funding determination, the disadvantaged and green subsidy amounts were erroneously based on the City's application as opposed to the amended amount published in the State Fiscal Year 2014 Intended Use Plan. That amount was listed as \$1,275,000 for the construction phase.

The actual funding determination for the City's project is listed below. The total amount being offered is \$1,338,750.

- Disadvantaged Communities Funding – 50% loan forgiveness (\$637,500)
- Green Subsidy – 15% loan forgiveness on green component costs (\$191,250)
- Mainstream Loan – approximately \$510,000 (Note: This amount will be associated with a 2.25% loan origination fee.)

We would like to apologize for any confusion this may have caused and we look forward to working with you in the DWSRF program.

Sincerely,



Stacy L. Barna  
Director of Program Development  
Program and Policy Development

SB:rf

# Green Project Reserve

---

## Green Project Information Worksheets

**Drinking Water State Revolving Fund  
Intended Use Plan**

The Federal Appropriation Law for the current fiscal year Clean Water and Drinking Water State Revolving Fund programs contains the Green Project Reserve (GPR) requirement. The following Green Project Information Worksheets have been developed to assist TWDB Staff in verifying eligibility of potential GPR projects.

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

**PART I – GREEN PROJECT INFORMATION SUMMARY**

Check all that apply and complete applicable worksheets:

Categorically Eligible

- Green Infrastructure \$ \_\_\_\_\_
- Water Efficiency \$ \_\_\_\_\_
- Energy Efficiency \$ \_\_\_\_\_
- Environmentally Innovative \$ \_\_\_\_\_

Business Case Eligible

- Green Infrastructure \$ \_\_\_\_\_
- X Water Efficiency \$ 1,510,949
- Energy Efficiency \$ \_\_\_\_\_
- Environmentally Innovative \$ \_\_\_\_\_

Total Requested Green Amount \$ 1,510,949

Total Requested Funding Amount \$ 1,510,949

Type of Funding Requested:

- X PAD (Planning, Acquisition, Design)
- x C (Construction)

Completed by:

Name: Scott Hay, P.E.

Title: Project Engineer

Signature: *Scott D. Hay, P.E.*

Date: 8-30-12

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

**PART III - BUSINESS CASE ELIGIBLE**

Complete this worksheet for projects being considered for the Green Project Reserve (GPR) as business case eligible. Business case eligible projects or project components are described in the following sections of the EPA GPR guidance (TWDB-0161):

Green Infrastructure	Part B, Section 1.4
Water Efficiency	Part B, Section 2.4 and 2.5
Energy Efficiency	Part B, Section 3.4 and 3.5
Environmentally Innovative	Part B, Section 4.4 and 4.5

Information provided on this worksheet should be of sufficient detail and should clearly demonstrate that the proposed improvements are consistent with EPA and TWDB GPR guidance for business case eligible projects. Refer to **Error! Reference source not found.** for additional information.

**Section 1 - General Project Information**

Applicant: City of De Leon PIF #: 9619

Project Name: Water System Improvements

Contact Name: Scott D. Hay, P.E.

Contact Phone and e-mail: 325-698-5560 scott.hay@e-ht.com

Total Project Cost: \$1,510,949 Green Amount: \$ 1,510,949  
(Business Case Eligible)

**Brief Overall Project Description:**

The proposed project will replace portions of the water distribution system that are dilapidated and/ or under-sized and leaking. The replacement of these lines will eliminate leakage in those areas, thus reducing water loss and decrease pump run times for the City. This project will replace 17,600 linear feet of 8" through 2" cast iron water line with C-900 PVC pipe. These replacements have been selected from the water lines with the most repairs and the most recorded water loss.

## Section 2 – Green Infrastructure

Certain green infrastructure 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. Provide reference to the applicable sections of the EPA GPR guidance (TWDB-0161) that demonstrate GPR eligibility. Provide a detailed description of the proposed green infrastructure improvements of sufficient detail that clearly demonstrates that the proposed improvements are consistent with EPA GPR guidance (TWDB-0161).

### Guidance Reference:

The proposed improvements are consistent with EPA GPR guidance:

2.4-3: Efficient water use by reducing the amount of water treated and transported.

2.4-4: Addressing where water losses are occurring in the system by replacing aging infrastructure.

2.5-2: Distribution pipe replacement or rehabilitation to reduce water loss and prevent water main breaks.

### Detailed Description (attach additional pages if necessary):

The proposed project will include the installation of new water lines to eliminate leaks and reduce water loss. The green component includes saving water that is currently lost due to leaking system; saving electrical energy by elimination pumping of water lost; and replacing piping to eliminate sources of contaminants migrating into water supply. Green components include water efficiency, enhanced water conservation and increased energy efficiency.

Green amount associated with green infrastructure (business case eligible):           \$ 1,510,949            
(Attach a detailed cost estimate if necessary)

### 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](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:

x TWDB Water Loss Audit 2010 (attached )

\_\_\_\_\_  
 \_\_\_\_\_

#### 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
4,250	Cast Iron	60+	8"	8"	C-900 PVC
8,150	Cast Iron	60+	6"	6"	C-900 PVC
4,550	Cast Iron	60+	4"	4"	C-900 PVC
650	Cast Iron	60+	2"	4"	C-900 PVC

Percent of distribution lines being replaced: 11.1% (estimated 25% of leakage will be eliminated with the addition of the proposed water lines) \_\_\_\_\_

Number of breaks/leaks/repairs recorded in past 24 months for areas being replaced: 100 \_\_\_\_\_

Estimated water loss from pipe being replaced (provide calculations on following page): 7,354.10kgal / year \_\_\_\_\_

Estimated annual water savings (provide calculations on following page): 2,451.36kgal / year \_\_\_\_\_

Estimated annual cost savings (provide calculations on following page): \$18,922.34 / year \_\_\_\_\_

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 City proposes to replace dilapidated cast iron water lines that are over 60 years old. The lines have been repaired many times. Each time a line is repaired a larger section has to be installed because it becomes difficult to place a repair coupling on the old pipe because it is so brittle. The City has identified the water lines with the most need of replacement. Usually one identifies the water lines with the most need of replacement by recording the number of leaks and the severity of the leaks. The cast iron water lines have a tendency to split when they become brittle. It usually begins with a pin hole leak until the surface is so weak that the pin hole become bigger and then splits.

The City is proposing to replace approximately 17,600 linear feet of cast iron pipe with C-900 PVC pipe. PVC pipe has been evaluated against other material pipe which includes ductile iron pipe and HDPE pipe. PVC pipe has a better Life Cycle Cost than ductile iron. HDPE has a better Life Cycle Cost that PVC but is not commonly used in a urban area. HDPE is best used where there are long stretches of pipe to be laid and normally in one direction with not many tees and connections. If installed and bedded correctly, PVC can outlast most piping systems. Another reason to recommend PVC over most material pipe is that is easy to handle and it does not corrode over a long period of time.

Most all of the pipe in this project is being installed along City streets and the unit cost of laying it will be at a premium because of all the potential problems that may exists. Existing utility lines will have to located and well as the streets and alleys trenched and repaired.

Green amount associated with water line replacement: \$ 1,510,949



Calculations (for page 12):

Estimated Water Loss: (from attached 2010 TWDB Water Audit form)

Total System: 30 miles

Project Total Pipe: 3.33 miles

% of Total System: 3.33 miles / 30 miles = 11.1 %

Based on the in-line metering that was accomplished to locate the leaks in the system, it is estimated that 25% of the system leakage is occurring in the project area. Therefore:

Total Real Losses: (from attached Audit report line #31): 9,805.47kgal / year

Estimated water loss from pipe being replaced:

$9,805.47 \text{kgal / year} \times 25 \% = 2451.36 \text{kgal / year}$  (water loss eliminated through proposed project)

$9,805.47 \text{kgal / year} - 2451.36 \text{kgal / year} = 7,354.10 \text{kgal / year}$  (projected annual water loss)

Estimated annual water savings:

$2451.36 \text{kgal / year} \times \$6.80 / \text{kgal}$  (from report) = \$16,669.25 / year

Savings over funding period (30 years):  $\$16,669.25 \times 30 \text{ years} = \$500,077.44$

TEXAS WATER DEVELOPMENT BOARD

P.O. BOX 13231, CAPITOL STATION

AUSTIN, TX 78711-3231

WATER AUDIT REPORTING FORM 2010

If further assistance is needed, contact Mark Mathis at [Mark.Mathis@twdb.state.tx.us](mailto:Mark.Mathis@twdb.state.tx.us) or 512.463.0987.

A. Water Utility General Information

1. Water Utility Name: CITY OF DE LEON

2. Contact:

2a. Name Karen Wilkerson

2b. Telephone # (254)-893-2065

2c. Email Address kwilkerson@cityofdeleon.org

3. Reporting Period: From 1/1/2010 To 12/31/2010

4. Source Water Utilization, percentage: Surface Water 100.00 % Ground Water 0.00 %

5. Population Served:

5a. Retail Population Served 2,335

5b. Wholesale Population Served 0

Assessment  
Scale

6. Utility's Length of Main Lines, miles 30.00 5

7. Number of Wholesale Connections Served 0

8. Number of Retail Service Connections Served 1,026

9. Service Connection Density 34.20  
(Number of retail service connections/Miles of main lines)

10. Average Yearly System Operating Pressure (psi) 70.00 5

11. Volume Units of Measure: G

B. System Input Volume

12. Water Volume from own Sources 0.00 5

13. Production Meter Accuracy (enter percentage) 0.00 % 4

14. Corrected Input Volume 0.00

15. Wholesale Water Imported 76,949,319.00 5

16. Wholesale Water Exported	<u>0.00</u>	<u>5</u>
<b>17. System Input Volume</b> (Corrected input volume, plus imported water, minus exported water)	<u>76,949,319.00</u>	
<b>C. Authorized Consumption</b>		Assessment Scale
18. Billed Metered	<u>63,249,700.00</u>	<u>5</u>
19. Billed Unmetered	<u>513,500.00</u>	<u>5</u>
20. Unbilled Metered	<u>303,100.00</u>	<u>5</u>
21. Unbilled Unmetered	<u>961,866.49</u>	<u>1</u>
<b>22. Total Authorized Consumption</b>	<u>65,028,166.49</u>	
<b>D. Water Losses</b>		
<b>23. Water Losses</b> (Line 17 minus Line 22)	<u>11,921,152.51</u>	
<b>E. Apparent Losses</b>		
24. Average Customer Meter Accuracy (Enter percentage)	<u>98.00 %</u>	<u>3</u>
25. Customer Meter Accuracy Loss	<u>1,290,810.20</u>	
26. Systematic Data Handling Discrepancy	<u>632,497.00</u>	<u>1</u>
27. Unauthorized Consumption	<u>192,373.30</u>	<u>1</u>
<b>28. Total Apparent Losses</b>	<u>2,115,680.50</u>	
<b>F. Real Losses</b>		
29. Reported Breaks and Leaks (Estimated volume of leaks & breaks repaired during the audit period)	<u>2,053,742.00</u>	<u>3</u>
30. Unreported Loss (Includes all unknown water loss)	<u>7,751,730.01</u>	<u>3</u>
<b>31. Total Real Losses</b> (Line 29, plus Line 30)	<u>9,805,472.01</u>	
32. Water Losses (Apparent + Real) (Line 28 plus Line 31) = Line 23	<u>11,921,152.51</u>	
33. Non-revenue Water (Water Losses + Unbilled Authorized Consumption)	<u>13,186,119.00</u>	

(Line 32, plus Line 20, plus Line 21)

**G. Technical Performance Indicator for Apparent Loss**

34. Apparent Losses Normalized 5.65  
 (Apparent Loss Volume/# of Retail Service Connections/365)

**H. Technical Performance Indicators for Real Loss**

35. Real Loss Volume (Line 31) 9,805,472.01

36. Unavoidable Annual Real Losses, volume (calculated) 8,071,245.00

37. Infrastructure Leakage Index (calculated) 1.21486  
 (Equals real loss volume divided by unavoidable annual real losses)

38. Real Losses Normalized 26.18  
 (Real Loss Volume/# of Service Connections/365)  
 (This indicator applies if service connection density is greater than 32/mile)

39. Real Losses Normalized 895.48  
 (Real Loss Volume/Miles of Main Lines/365)  
 (This indicator applies if service connection density is less than 32/mile)

**I. Financial Performance Indicators**

Assessment  
Scale

40. Total Apparent Losses (Line 28) 2,115,680.50

41. Retail Price of Water \$0.01690 5

42. Cost of Apparent Losses \$35,755.00  
 (Apparent loss volume multiplied by retail cost of water, Line 40 x Line 41)

43. Total Real Losses (Line 31) 9,805,472.01

44. Variable Production Cost of Water\* \$0.00690 4  
 (\*Note: in case of water shortage, real losses might be valued at the retail price of water instead of the variable production cost.)

45. Cost of Real Losses \$67,657.76  
 (Real Loss multiplied by variable production cost of water, Line 43 x Line 44)

**46. Total Assessment Scale** 65

**47. Total Cost Impact of Apparent and Real Losses** \$103,412.76