



Valley Water Supply Corporation

DWSRF GREEN PROJECT RESERVE BUSINESS CASE EVALUATION

STATE FISCAL YEAR 2013 INTENDED USE PLAN

PROJECT NUMBER 62584

COMMITMENT DATE: January 31, 2013

DATE OF LOAN CLOSING: March 19, 2013

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 \$ 1,115,036
- Energy Efficiency \$ _____
- Environmentally Innovative \$ _____

Total Requested Green Amount \$ 1,115,036

Total Requested Funding Amount \$ 1,115,036

Type of Funding Requested:

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

Completed by:

Name: Scott Hay, P.E.

Title: Project Engineer

Signature: *Scott J. Hay P.E.*

Date: 8-30-'12

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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: Valley WSC PIF #: 9595

Project Name: Water System Improvement

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

Contact Phone and e-mail: 325-698-5560, Scott.Hay@e-ht.com

Total Project Cost: \$1,115,036.00 Green Amount: \$1,115,036.00
(Business Case Eligible)

Brief Overall Project Description:

Due to line losses, only 33% of the water purchased from the City of Spur is being delivered and billed to the WSC customers. The estimated total cost of apparent and real losses is \$32,388.29 per year. In order to restore the aging infrastructure to its proper function, the WSC severely needs funding to help address the aging and inefficient distribution system. The project will consist of providing and installing 56,000 lf of 2", 4,500 lf of 2.5" and 28,000 lf of 3" SDR-11 HDPE waterline. Installing the HDPE waterline will provide "jointless" pipe throughout this portion of the system which shall greatly reduce the water loss to a minimum to save water and greatly reduce the amount the WSC currently pays for its water, of which savings are passed on to WSC customers.

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): \$ 1,115,036.00
(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

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
56,000	PVC	30	2	2	SDR-11 HDPE
28,000	PVC	30	3	3	SDR-11 HDPE
4,500	PVC	30	2.5	2.5	SDR-11 HDPE

Percent of distribution lines being replaced: 36.2% (estimated 60% of leakage in this targeted water line) _____

Number of breaks/leaks/repairs recorded in past 24 months for areas being replaced: 40 _____

Estimated water loss from pipe being replaced (provide calculations on following page): 3,942.12 kgal / year (40% decrease) _____

Estimated annual water savings (provide calculations on following page): 5,913.23 kgal / 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 proposed improvements will include replacement of the existing 2", 2.5" and 3" PVC schedule 40 pipes that were installed in 1974. A past project in 2008 installed 42,650 lf of 4" SDR-11 HDPE waterline. The new pipe replaced old glue joint coupling pipe in a section of the system (8 miles out of 50 miles) that feeds or "loops" a majority of the system. After this project was finished, it enabled the WSC to better evaluate where the majority of the leaks were coming from. Using in-line meters, the proposed project was identified as the section most in need of repair with the highest water savings. The inline meters were not used all of the time but were used to help indicate where there were leaks along this 12 mile portion of the system. Over 20 leaks were repaired along these water lines in the last year. This section of the system is in a low area of the system and experiences the highest pressure. Additionally, this part of the system is located in an area where the soil is the least stable. Some of the water lines are located in low-lying areas. The instability caused by soil becoming saturated during even small rain events then drying out again exposes the pipeline to constantly shifting conditions. Some of the glue fittings fail and cause leakage. This described portion of the system is proposed to be replaced with 3", 2.5" and 2" SDR-11 HDPE jointless pipes. The existing portion of the system theoretically has 4,425 chances of having a leak (88,500 LF / 20' joints) verse a portion of the system that will have welded joints every 1,000ft/roll.

Green amount associated with water line replacement: \$1,115,036.00

Calculations (for page 12):

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

Total System: 55 miles- 8 miles (previously replaced) = 47 miles

Project Total Pipe: 17 miles

% of Total System: 17 miles / 47 miles = 36.2%

Based on the in-line metering that was accomplished to locate the leaks in the system, it is estimated that 60% of the system leakage is occurring in the project area. Therefore:

Total Real Losses: (from attached Audit report line #31): 9,855.38 kgal / year

Estimated water loss from pipe being replaced:

$9,855.38 \text{ kgal / year} \times 60 \% = 5,913.23 \text{ kgal / year}$ (water loss eliminated through proposed project)

$9,855.38 \text{ kgal / year} - 5,913.23 \text{ kgal / year} = 3,942.12 \text{ kgal / year}$ (projected annual water loss)

Estimated annual water savings:

$5,913.23 \text{ kgal / year} \times \$3.20 / \text{kgal}$ (from report) = \$18,922.34 / year

Savings over funding period (30 years): $\$18,922.34 \times 30 \text{ years} = \$ 567,670.20$

Note: Water rate is going up to \$3.50/1000 gallon starting in August 2012

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 or 512.463.0987.

A. Water Utility General Information

1. Water Utility Name:	<u>VALLEY WSC</u>			
2. Contact:				
2a. Name	<u>Becky Hodges</u>			
2b. Telephone #	<u>(806)-269-8000</u>			
2c. Email Address	<u>hodgesb@pattonsprings.net</u>			
3. Reporting Period:	From	<u>1/1/2010</u>	To	<u>12/31/2010</u>
4. Source Water Utilization, percentage:	Surface Water	<u>100.00</u> %	Ground Water	<u>0.00</u> %
5. Population Served:				
5a. Retail Population Served		<u>270</u>		
5b. Wholesale Population Served		<u>0</u>		
				Assessment Scale
6. Utility's Length of Main Lines, miles		<u>55.00</u>		<u>2</u>
7. Number of Wholesale Connections Served		<u>0</u>		
8. Number of Retail Service Connections Served		<u>270</u>		
9. Service Connection Density (Number of retail service connections/Miles of main lines)		<u>4.91</u>		
10. Average Yearly System Operating Pressure (psi)		<u>55.00</u>		<u>1</u>
11. Volume Units of Measure:		<u>KG</u>		

B. System Input Volume

12. Water Volume from own Sources	<u>0.00</u>	<u>0</u>
13. Production Meter Accuracy (enter percentage)	<u>0.00</u> %	<u>0</u>
14. Corrected Input Volume	<u>0.00</u>	
15. Wholesale Water Imported	<u>14,908.00</u>	<u>4</u>

16. Wholesale Water Exported	<u>0.00</u>	<u>0</u>
17. System Input Volume (Corrected input volume, plus imported water, minus exported water)	<u>14,908.00</u>	
C. Authorized Consumption		Assessment Scale
18. Billed Metered	<u>4,729.00</u>	<u>2</u>
19. Billed Unmetered	<u>0.00</u>	<u>0</u>
20. Unbilled Metered	<u>0.00</u>	<u>0</u>
21. Unbilled Unmetered	<u>186.35</u>	<u>0</u>
22. Total Authorized Consumption	<u>4,915.35</u>	
D. Water Losses		
23. Water Losses (Line 17 minus Line 22)	<u>9,992.65</u>	
E. Apparent Losses		
24. Average Customer Meter Accuracy (Enter percentage)	<u>0.00 %</u>	<u>1</u>
25. Customer Meter Accuracy Loss	<u>0.00</u>	
26. Systematic Data Handling Discrepancy	<u>100.00</u>	<u>1</u>
27. Unauthorized Consumption	<u>37.27</u>	<u>0</u>
28. Total Apparent Losses	<u>137.27</u>	
F. Real Losses		
29. Reported Breaks and Leaks (Estimated volume of leaks & breaks repaired during the audit period)	<u>3,000.00</u>	<u>2</u>
30. Unreported Loss (Includes all unknown water loss)	<u>6,855.38</u>	<u>0</u>
31. Total Real Losses (Line 29, plus Line 30)	<u>9,855.38</u>	
32. Water Losses (Apparent + Real) (Line 28 plus Line 31) = Line 23	<u>9,992.65</u>	
33. Non-revenue Water (Water Losses + Unbilled Authorized Consumption)	<u>10,179.00</u>	

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

G. Technical Performance Indicator for Apparent Loss

34. Apparent Losses Normalized 0.00
(Apparent Loss Volume/# of Retail Service Connections/365)

H. Technical Performance Indicators for Real Loss

35. Real Loss Volume (Line 31) 9,855.38

36. Unavoidable Annual Real Losses, volume (calculated) 6,775.31

37. Infrastructure Leakage Index (calculated) 1.45460
(Equals real loss volume divided by unavoidable annual real losses)

38. Real Losses Normalized 0.10
(Real Loss Volume/# of Service Connections/365)
(This indicator applies if service connection density is greater than 32/mile)

39. Real Losses Normalized 0.49
(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) 137.27

41. Retail Price of Water \$6.20000 2

42. Cost of Apparent Losses \$851.07
(Apparent loss volume multiplied by retail cost of water, Line 40 x Line 41)

43. Total Real Losses (Line 31) 9,855.38

44. Variable Production Cost of Water* \$3.20000 1
(*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 \$31,537.22
(Real Loss multiplied by variable production cost of water, Line 43 x Line 44)

46. Total Assessment Scale 16

47. Total Cost Impact of Apparent and Real Losses \$32,388.29

