

Texas Water Development Board



North Fort Bend WA

DWSRF GREEN PROJECT RESERVE BUSINESS CASE EVALUATION

STATE FISCAL YEAR 2016 INTENDED USE PLAN

PROJECT NUMBER 73721

COMMITMENT DATE: February 18, 2016

DATE OF LOAN CLOSING: August 25, 2016

Green Estimate at closing is \$ 10,880,000

Subsidy awarded for Green components \$1,632,000

TEXAS WATER DEVELOPMENT BOARD

Green Project Reserve

Green Project Information Worksheets

Clean Water State Revolving Plan

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.

TWDB-0162
Revised 7/29/2014

NOTE: These worksheets should only be completed after the Intended Use Plan has been developed and the entity has been notified by the Texas Water Development Board that funding is available for the project and that the entity has been invited to submit an application for financial assistance.

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OVERVIEW

Background

The Federal Appropriation Law for the current fiscal year Clean Water and Drinking Water State Revolving Fund programs contains additional requirements. The Green Project Reserve (GPR) is included as part of these additional requirements. The GPR requires that not less than 20% of the funds made available from the capitalization grant shall be used by the State for projects to address green infrastructure, water or energy efficiency improvements, or other environmentally innovative activities. In a memo dated April 21, 2010, EPA outlined procedures for implementing these additional requirements. Attachment 2 of this memo provided guidance for determining GPR project eligibility and is available from the Texas Water Development Board as guidance form TWDB-0161.

TWDB GPR Procedures

The selection process for GPR projects involves an initial step in which potential GPR projects are listed in ranked order in the Intended Use Plan (IUP). Project GPR status in the IUP is based on preliminary "Green" information provided by the potential applicant on the Project Information Form (PIF) during the IUP solicitation phase. This is followed by a verification process in which the potential applicant is required to provide adequate documentation to verify the project or project components as either categorically or business case eligible for the GPR. The applicant will be required to provide complete information for approval prior to presentation to the Board for a funding commitment. In accordance with EPA instructions, all approved business cases will be made available to the public and posted on the TWDB website after a funding commitment is made.

To accomplish the above, TWDB staff is providing the attached GPR guidance and Green Project Information Worksheets to communities being considered for funding through the GPR. Information provided on these worksheets will be used by TWDB staff to verify GPR eligibility. TWDB staff may issue comments or request additional information depending on the type of "green" improvements proposed and the adequacy of information provided by the potential applicant on these worksheets. These worksheets will not be considered complete until all TWDB staff comments are addressed and any requested information is provided.

Program requirements for business case eligible GPR projects will be considered met only after the business case submittal is approved. The business case submittal will consist of the completed Green Project Information Worksheets with the applicant's business case and supporting documents attached. Program requirements for categorically eligible GPR projects will be considered met upon submittal of the completed Green Project Information Worksheets.

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Information on Completing Worksheets

Complete the following worksheets for projects being considered for the Green Project Reserve (GPR). Part II should be completed for projects or project components considered categorically eligible. Part III should be completed for projects or project components considered business case eligible.

The intent of these worksheets is not to require exhaustive responses or redundant information. Information provided on these forms may be concise but must be of sufficient detail such that the GPR eligibility is clearly demonstrated. Information requested on these forms already provided to the TWDB during the Intended Use Plan (IUP) project solicitation period in the form of a detailed business case may be included by reference.

Many of the worksheets following require a detailed description of the proposed improvements. This description should accomplish various goals. The overall rationale and justification of the project or proposed improvements being considered for the GPR should be clearly demonstrated and the proposed improvements should be sufficiently described such that it is clear that the proposed GPR improvements will achieve the anticipated benefits and savings. Furthermore, certain types of GPR projects may require a more detailed analysis than others to adequately justify GPR eligibility. Although the space provided for responses is limited, additional pages should be attached as necessary.

For questions or additional information on completing worksheets, please contact:

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Additional Guidance for Common GPR Projects

The purpose of this Texas Water Development Board GPR guidance is to provide additional information and clarification for certain types of GPR projects described in EPA's GPR guidance document titled *Attachment 2, 2010 Clean Water and Drinking Water State Revolving Fund 20% Green Project Reserve: Guidance for Determining Project Eligibility* (TWDB-0161), see link below. Information provided herein should be considered supplemental and is intended to support TWDB-0161 guidance by emphasizing and further describing specific requirements for certain types of GPR projects. For project types not specifically described herein, EPA GPR guidance (TWDB-0161) should be used to evaluate GPR eligibility.

<http://www.twdb.texas.gov/financial/instructions/doc/TWDB-0161.pdf>

Green Infrastructure

Green infrastructure includes a wide array of practices at multiple scales that manage wet weather and that maintains and restores natural hydrology by infiltrating, evapotranspiring and harvesting and using stormwater. On a regional scale, green infrastructure is the preservation and restoration of natural landscape features, such as forests, floodplains and wetlands, coupled with the policies such as infill and redevelopment that reduce overall imperviousness in a watershed. On the local scale, green infrastructure consists of site- and neighborhood-specific practices, such as bioretention, trees, green roofs, permeable pavements and cisterns.

Green infrastructure guidance can be found in Part A, Section 1 of the EPA GPR guidance (TWDB-0161).

Water Efficiency

EPA's WaterSense program defines water efficiency as the use of improved technologies and practices to deliver equal or better services with less water. Water efficiency encompasses conservation and reuse efforts, as well as water loss reduction and prevention, to protect water resources. A few common types of water efficiency improvements eligible for the Clean Water SRF GPR are further described below.

Reuse / Reclaimed Water

Reuse or reclaimed water projects that replace potable sources with non-potable may be categorically eligible for the GPR under the water efficiency category. Part A, Section 2.2-6 of the EPA GPR guidance addresses recycling and water reuse projects. The extra treatment cost, pumping and distribution pipes associated with the water reuse count towards the eligible costs. Golf course irrigation with reuse water is an eligible activity.

Energy Efficiency

Energy efficiency is the use of improved technologies and practices to reduce the energy consumption of water quality projects, use energy in a more efficient way, and/or produce/utilize renewable energy. Part A, Section 3.0 of the EPA GPR guidance (TWDB-0161) addresses energy efficiency GPR requirements for the Clean Water SRF program. Energy efficiency benefits and savings must be clearly identifiable and a substantial part of the rationale or justification for the project and not simply incidental. A few common types of energy efficiency projects eligible for the GPR are further describe below.

Renewable Energy

Renewable energy projects, such as wind, solar, geothermal and micro-hydroelectric and biogas combined heat and power systems (CHP) that provide power to a POTW are considered categorically eligible for the GPR. These projects are described in EPA GPR guidance (TWDB-0161) Part A, Section 3.2-1.

System or Unit Process Improvements

According to Part A, Section 3.2-2 of the EPA GPR guidance, projects may be categorically eligible for the GPR if the project achieves a 20% reduction in energy consumption. The following criteria apply:

- 1) Calculation of reduction in energy consumption is based on the system or unit process. A unit process is a portion of the wastewater system such as the collection system, pumping stations, aeration system, or solids handling, etc. In the Clean Water SRF program, a system or unit process approach is used to evaluate energy reduction as opposed to an individual component approach.
- 2) The energy used by the existing system should be based on name plate data when the system was first installed, recognizing that the old system may be currently operating at a lower overall efficiency than at the time of installation.
- 3) A project that achieves less than a 20% reduction in energy efficiency may still be eligible for the GPR but must be justified using a business case.
- 4) Any energy efficiency projects requiring a business case must demonstrate that the project is cost effective. An evaluation must identify energy savings and payback on capital and operation and maintenance costs that does not exceed the useful life of the asset.
- 5) New publicly owned treatment works or capacity expansion projects are expected to be designed to maximize energy efficiency and are expected to select high efficiency premium motors where cost effective, therefore, these types of projects are not eligible for the GPR.

Lift Station Elimination

Lift station elimination projects may be eligible for the GPR under the energy efficiency category. Part A, Section 3.0 of the EPA GPR guidance addresses energy efficiency GPR requirements for the Clean Water SRF program. Lift station elimination projects may be eligible for the GPR based on the following:

- 1) According to Section 3.2-2, the project may be categorical if it achieves a 20% reduction in energy consumption. Calculation of reduction in energy consumption is based on the system or unit process. A unit process is a portion of the wastewater system such as the collection system, pumping stations, aeration system, or solids handling, etc. Therefore, for a lift station elimination project to be considered as categorically eligible, it would have to account for at least 20% of all energy consumed by lift stations in the system.
- 2) Section 3.5-3 lists pump station elimination projects as an example of a project requiring a business case to justify GPR eligibility. To be eligible under this option the business case must demonstrate that the project is cost effective. An evaluation must identify energy savings and payback on capital and operation and maintenance costs that does not exceed the useful life of the asset.

Inflow/infiltration

Inflow/infiltration (I/I) projects may be eligible for the GPR under the energy efficiency category. Part A, Section 3.0 of the EPA GPR guidance addresses energy efficiency GPR requirements for the Clean Water SRF program. Sections 3.5-4 and 3.5-5 specifically lists I/I projects as examples of projects that require a business case to justify GPR eligibility. The following applies:

- 1) According to Section 3.5-4, I/I correction projects that save energy from pumping and reduced treatment costs and are demonstrated to be cost effective are eligible for the GPR. These projects cannot add new structural capacity.
- 2) According to Section 3.5-5, I/I correction projects where excessive groundwater infiltration is contaminating the influent requiring otherwise unnecessary treatment processes (i.e. arsenic laden groundwater) and are demonstrated to be cost effective are eligible for the GPR.

Environmentally Innovative

Environmentally innovative projects include those that demonstrate new and/or innovative approaches to delivering services or managing water resources in a more sustainable way. These types of projects are described in EPA GPR guidance (TWDB-0161) Part A, Section 4.0.

Construction of US Green Building Council LEED certified buildings is considered categorically eligible for the GPR. All building costs are eligible and any level of certification is acceptable.

Decentralized wastewater treatment solutions to existing deficient or failing onsite wastewater system may be eligible for the GPR. Refer to EPA guidance (TWDB-0161) Part A, Section 4.2-6 for requirements.

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PART I – GREEN PROJECT INFORMATION

General Project Information

Applicant: The North Fort Bend Water Authority Project #: 11118

Project Name: Grand Lakes Reclaimed Water System

Contact Name: Lindsay Kovar

Contact Phone and e-mail: 713-488-8253, lkovar@browngay.com

Brief Overall Project Description:

The Grand Lakes Reclaimed Water System will treat the effluent from the Grand Lakes Regional Wastewater Treatment Plant to Type I Standards and distribute the water throughout Grand Lakes MUDs 1, 2 and 4 for irrigation of green spaces and to maintain levels in the amenity lakes throughout the MUDs. This system will supply 0.59 million gallons of water per day through approximately 52,000 linear feet of purple pipe. The planning phase has been completed, and all land is secured. The detailed design phase and construction will begin once funding is secured.

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Check all that apply and complete applicable worksheets:

Categorically Eligible

- Green Infrastructure \$ _____
 Water Efficiency \$ 10,880,000 _____
 Energy Efficiency \$ _____
 Environmentally Innovative \$ _____

Business Case Eligible

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

Total Requested Green Amount \$ 10,880,000 _____

Total Requested Funding Amount \$ 10,880,000 _____

Type of Funding Requested:

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

Completed by:

Name: Lindsay Kovar _____

Title: Project Manager _____

Signature:  _____

Date: 9/22/15 _____

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PART II - CATEGORICALLY ELIGIBLE

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

Green Infrastructure	Part A, Section 1.2
Water Efficiency	Part A, Section 2.2
Energy Efficiency	Part A, Section 3.2
Environmentally Innovative	Part A, Section 4.2

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 categorically eligible projects. Refer to **Information on Completing Worksheets** for additional information.

1.0 Green Infrastructure

Certain green infrastructure improvements are considered categorically eligible for the GPR according to EPA GPR guidance (TWDB-0161) Part A, Section 1.2. List categorically eligible green infrastructure contained within the project in the table below. Also provide a detailed description of the categorically eligible green infrastructure improvements. The detailed description should provide sufficient detail that clearly demonstrates that the proposed improvements are consistent with EPA GPR guidance (TWDB-0161).

Green Infrastructure Description	Project / Component Cost
Reuse system that includes tertiary treatment, pressure facilities, and purple pipe system	10,880,000
Total:	10,880,000

Detailed Description (attach additional pages if necessary):

The North Fort Bend Water Authority (Authority) is seeking funding for the Grand Lakes Reclaimed Water System. This reuse system will replace 0.59 million gallons per day (MGD) of potable water with reuse water from the Grand Lakes MUD 4 Wastewater Treatment Plant (WWTP) (WQ0013245001) in order to provide a cost effective and sustainable solution for green space irrigation and amenity lake level maintenance. The Grand Lakes MUD 4 WWTP serves Grand Lakes MUDs 1, 2, and 4 which are built out and have a current population of approximately 8,430 and will have an estimated 2030 population of 8,450. The majority of the funding requested for this project will cover the cost of tertiary treatment at the WWTP and the reuse waterlines that will deliver the reuse water to various locations throughout the 3 MUDs. There is also an amount included in the total cost that includes reimbursement to the Community Association for a retrofit of their irrigation equipment.

The proposed disk filter that will be added as tertiary treatment to the WWTP will treat the effluent to Type I Standards. Once the effluent has been treated, it will be discharge to the desired amenity lakes and irrigation heads through approximately 52,000 linear feet of purple pipe. The planning phase has been completed, and all land is secured. The detailed design phase and construction will begin once funding is secured. Please see the attached maps of the proposed reuse system and WWTP improvements. The Authority will own the tertiary treatment system, reuse pipe system, and reuse water and the Grand Lakes MUD Operator will operate and provide maintenance for the facilities.

2.0 Water Efficiency

Certain water efficiency improvements may be considered categorically eligible for the GPR. Refer to EPA and TWDB GPR guidance for a complete list and description of categorically eligible GPR Projects. One such common type of water efficiency project is effluent reuse to replace potable water use. For this type of project, complete section below.

2.1 - Wastewater Effluent Reuse

Briefly describe existing wastewater treatment and disposal system:

The current WWTP is permitted for 0.9 MGD and is currently discharging effluent to the Grand Lakes Water Control Improvement District and ultimately to the San Jacinto River Basin.

Provide a detailed description of proposed effluent reuse facilities including any additional treatment and distribution improvements. Individually list, describe and provide costs for components such as treatment units, pumping facilities and distribution lines. Description should identify reuse users and quantify potable water saved (attach additional pages if necessary):

The proposed on-site reuse system will take the effluent from the chlorine contact basin and gravity it through the disk filter. From there, the water will be pumped in to ground storage tank(s) (GST) that will store the reuse water until there is a need for it within the system. When amenity lake levels drop or an irrigation event begins, the booster pumps located downstream of the GST(s) will turn on and pump the required amount of water through the system. Additional hydrotank(s) are proposed downstream of the GST pumps in order to provide pressure throughout the reclaimed water system. The system will supply Grand Lakes MUDs 1, 2, and 4 with approximately 0.59 MGD of reuse water.

The treatment unit, pumping facilities, and distribution line costs are as follows:

Vertical Turbine Booster Pumps: 3 @ \$50,000 each

Ground Storage Tanks: 2 @ \$450,000

Cloth Media Disk Filter: 1 @ \$320,000

Transfer Pump System: \$111,000

Chlorination system: \$44,000

Reclaimed water distribution system: \$3,491,000

2.2 – Other Water Efficiency Improvements

Complete this section for water efficiency improvements other than wastewater effluent reuse. Provide reference to the applicable sections of the EPA GPR guidance (TWDB-0161) that demonstrate GPR eligibility. Provide a detailed description of the proposed water efficiency improvements of sufficient detail that clearly demonstrates that the proposed improvements are consistent with EPA GPR guidance (TWDB-0161).

Guidance Reference:

N/A

Detailed Description (attach additional pages if necessary):

N/A

3.2 - Energy Reduction of 20%

Provide a detailed description of the proposed project that result in a 20% reduction in energy consumption. Describe operation of the existing system and provide sufficient information establishing the base energy demand. Describe the proposed improvements providing sufficient detail to demonstrate that the proposed efficiencies will be achievable. Quantify all energy and financial savings. Attach supporting calculations.

Energy efficiency improvements to be considered for categorical eligibility should provide reference to completed planning material such as energy assessments, energy audits, optimization studies and design level project information.

Reference Completed Planning/Design Material:

<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____
<input type="checkbox"/>	_____

Detailed Description (attach additional pages if necessary):

3.3 – Other Energy Efficiency Improvements

Complete this section for energy efficiency improvements other than those listed above. Provide reference to the applicable sections of the EPA GPR guidance (TWDB-0161) that demonstrate GPR eligibility. Provide a detailed description of the proposed energy efficiency improvements of sufficient detail that clearly demonstrates that the proposed improvements are consistent with EPA GPR guidance (TWDB-0161).

Guidance Reference:

Detailed Description (attach additional pages if necessary):

4.0 Environmentally Innovative

Certain environmentally innovative improvements may be considered categorically eligible for the GPR. Refer to EPA and TWDB GPR guidance for a complete list and description of categorically eligible GPR Projects.

Provide reference to applicable EPA GPR guidance (TWDB-0161) sections that demonstrates GPR eligibility and provide a detailed description of the proposed environmentally innovative project or project components.

Guidance Reference:

Detailed Description (attach additional pages if necessary):

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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 A, Section 1.4 and 1.5
Water Efficiency	Part A, Section 2.4 and 2.5
Energy Efficiency	Part A, Section 3.4 and 3.5
Environmentally Innovative	Part A, 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 **Information on Completing Worksheets** for additional information.

1.0 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:

Business Case (attach additional pages if necessary):