

**Report to Congress for Future Water Resources Development (WRRDA 7001) Submission
Package**

Proposal Name: Construction of a Berm Around the Town of Westerly Wastewater Treatment Facility

Submission Date: 08/27/2019

Proposal ID Number: 34899111-e2d0-4862-ab10-7d7316340768

Purpose of Proposal: The project proposal consists of the construction of a berm around the Town of Westerly Wastewater Treatment Facility Plant located at 87 Margin Street, Westerly RI. The facility is located within the FEMA 100-year Flood Plain and is within close proximity to the Pawcatuck River. It currently serves approximately 5,615 homes & businesses (approximately 16,500 customers) in Westerly. The 99-year-old facility is the sole wastewater treatment facility for the Town. In 2010, the facility experienced catastrophic damage due to extreme flooding resulting from heavy rains. The river overflowed and flooded the basement and the primary clarifiers. The floods also caused extensive damage to generators and pumping stations. The total initial cost of damages was approximately \$300,000. We believe a berm is necessary to mitigate damage of the facility in the future resulting from flooding associated with climate change and sea level rise. With just 5 feet of sea level rise the plant's secondary clarifiers, chlorine contact tank, and operations building would be impacted. Construction of a berm would not only protect the facility now, but would also insure protection of our future investment in the wastewater treatment facility. Most importantly, the berm would also protect water quality for the area, as failure of the facility would result in the release of untreated wastewater into the Pawcatuck River and Little Narragansett Bay. New authorization is needed as this project relates directly to Section 2015-Flood Damage Reduction, of the USACE mission objectives. The Town seeks the assistance of the USACE on this project as the Town does not possess the technical expertise or the financial resources to mitigate flood damage to such a critical facility. Flooding of the facility adversely affects not only the local jurisdiction but a larger widespread regional area as well.

1. Administrative Details

Proposal Name: Construction of a Berm Around the Town of Westerly Wastewater Treatment Facility

by Agency: Town of Westerly RI

Locations: RI

POC Name:

POC Phone:

POC Email:

Date Submitted: 08/27/2019

Confirmation Number: 34899111-e2d0-4862-ab10-7d7316340768

Supporting Documents

File Name	Date Uploaded
RIIB WWTF Berm Support Letter (005).pdf	08/27/2019
SRICD Letter of Support WR-RDA7001.pdf	08/27/2019
RIIB WWTF Berm Support Letter (005).pdf	08/27/2019
WHC Letter of Support - DL-JL-2.pdf	08/27/2019
Westerly WWTF Flood Diagram 2017 (002).pdf	08/27/2019
SRICD Letter of Support WR-RDA7001.pdf	08/27/2019
RIDEM Westerly Study (003).pdf	08/27/2019

2. Provide the name of the primary sponsor and all non-Federal interests that have contributed or are expected to contribute toward the non-Federal share of the proposed feasibility study or modification.

Sponsor	Letter of Support
RI Infrastructure Bank(Primary)	RI Infrastructure Bank is committed to working with the Town of Westerly in obtaining the necessary Town Match required. Please see attached letter of support. The Town of Westerly RI has a designated capital fund for water_sewer improvements and has committed \$950,000 to address such system improvements during the 2019_2020 year.
Southern Rhode Island Conservation District	The Southern Rhode Island Conservation District is committed to partnering with the Town to assist in obtaining both the technical and financial resources necessary. Please see attached letter of support.

3. State if this proposal is for new feasibility study authority, a modification to an existing feasibility study authority, a modification to an existing USACE project authority, or a modification to an existing USACE Environmental Infrastructure Program authority. If it is a proposal for a modification to an existing study, project or program authority, provide the authorized water resources development feasibility study or project name.

New Feasibility Study Authority

4. Clearly articulate the specific project purpose(s) of the proposed study or modification. Demonstrate that the proposal is related to USACE mission and authorities and specifically address why additional or new authorization is needed.

The project proposal consists of the construction of a berm around the Town of Westerly Wastewater Treatment Facility Plant located at 87 Margin Street, Westerly RI. The facility is located within the FEMA 100-year Flood Plain and is within close proximity to the Pawcatuck River. It currently serves approximately 5,615 homes & businesses (approximately 16,500 customers) in Westerly. The 99-year-old facility is the sole wastewater treatment facility for the Town. In 2010, the facility experienced catastrophic damage due to extreme flooding resulting from heavy rains. The river overflowed and flooded the basement and the primary clarifiers. The floods also caused extensive damage to generators and pumping stations. The total initial cost of damages was approximately \$300,000. We believe a berm is necessary to mitigate damage of the facility in the future resulting from flooding associated with climate change and sea level rise. With just 5 feet of sea level rise the plant's secondary clarifiers, chlorine contact tank, and operations building would be impacted. Construction of a berm would not only protect the facility now, but would also insure protection of our future investment in the wastewater treatment facility. Most importantly, the berm would also protect water quality for the area, as failure of the facility would result in the release of untreated wastewater into the Pawcatuck River and Little Narragansett Bay. New authorization is needed as this project relates directly to Section 2015-Flood Damage Reduction, of the USACE mission objectives. The Town seeks the assistance of the USACE on this project as the Town does not possess the technical expertise or the financial resources to mitigate flood damage to such a critical facility. Flooding of the facility adversely affects not only the local jurisdiction but a larger widespread regional area as well.

5. To the extent practicable, provide an estimate of the total cost, and the Federal and non-Federal share of those costs, of the proposed study and, separately, an estimate of the cost of construction or modification.

	Federal	Non-Federal	Total
Study	\$100,000	\$100,000	\$200,000
Construction	\$1,429,000	\$571,000	\$2,000,000

Explanation (if necessary)

Study estimates are based on a 50% Federal _ 50% Non-Federal cost share basis. Construction estimates are based on a 65% Federal _ 35% Non-Federal cost share basis.

6. To the extent practicable, describe the anticipated monetary and nonmonetary benefits of the proposal including benefits to the protection of human life and property; improvement to transportation; the national economy; the environment; or the national security interests of the United States.

The benefits to constructing a berm to protect the Town's wastewater treatment facility are numerous and include the following:

- Protection of significant investment in necessary infrastructure by each Westbury taxpayer
- Provides mitigation to the various effects associated with climate change and sea level rise
- Ensures the preservation of water quality to both the local and regional areas.
- Actively protects both public and private property from contamination of untreated wastewater.
- Ensures the public health and safety of residents and visitors to the area.

In addition, economic vitality of the area continues and thrives, as such vital infrastructure remains operational on a continued basis and expanded as the need for capacity grows. The Town is committed to upgrading and expanding the facility and has identified over \$5.5 million worth of improvements, many of which are mandated by new state and federal requirements, and include: New Aeration Blowers, replacement mechanisms for AB mixers, water pumps, secondary clarifiers, IFAS replacement, pumping station upgrades, electrical upgrades and sodium hypochlorite storage improvements. The Town has a designated capital fund for water_sewer improvements and has committed \$950,000 to address such system improvements during the 2019_2020 year. We estimate the design and planning of the berm to be \$200,000 with construction costs estimated to be \$2 million.

7. Does local support exist? If 'Yes', describe the local support for the proposal.

Yes

Local Support Description

At the August 22, 2019 Resilient RHODY: Municipal Resilience Program Community Building Workshop 50 participants from all sectors in the community were unanimous in declaring that fortifying the Wastewater Treatment Facility is the highest priority resiliency project. Should the facility become flooded and then fail, untreated wastewater has the potential to flow into the Pawcatuck River and pollute Little Narragansett Bay (LNB) downstream of the site. LNB is a critical estuary supporting the largest patches of eelgrass in Rhode Island and pristine salt marshes on Barn Island. In the event that would happen, the Napatree Point Conservation Area in LNB would be severely impacted. Napatree has been designated a Globally Important Bird Area by the National Audubon Society. In addition, the facility was identified in the 2017 Implications of Climate Change for RI Wastewater Collection & Treatment Infrastructure Study produced by the RI Dept. of Environmental Management as needing barriers to protect the facility from flooding.

8. Does the primary sponsor named in (2.) above have the financial ability to provide for the required cost share?

Yes

Primary Sponsor Letter of Support

(This is as uploaded, a blank page will show if nothing was submitted)

RIIB WWTF Berm Support Letter (005).pdf

August 27, 2019

US Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742

Ladies and Gentlemen,

Rhode Island Infrastructure Bank is pleased to submit this letter in support of the Town of Westerly's WRRDA 7001 Proposal to construct a berm around the Town's Wastewater Treatment Facility Plant. The facility at 87 Margin Street is located in a 100-year FEMA Floodplain and experienced significant flood damage during the 2010 Floods.

The Town of Westerly was one of five communities chosen to participate in the Resilient Rhody Municipal Resilience Program led by the Infrastructure Bank and The Nature Conservancy. The program works with municipalities to identify local climate vulnerability and advance projects which prepare communities to both adapt and mitigate the effects of current and future flooding. The Town recently held a Community Resilience Building workshop attended by approximately 50 community leaders and addressing the long-term resiliency of the wastewater treatment plant was confirmed as a priority project. Additionally, the need to protect the facility from future flooding by implementing barriers was identified in the 2017 Implications of Climate Change for RI Wastewater Collection & Treatment Infrastructure study produced by Rhode Island Department of Environmental Management.

The Infrastructure Bank believes the completion of such a project is vital to the resilience of this coastal community and region. We are committed to working with the Town in obtaining the necessary Town Match funding required to incorporate infrastructure resiliency improvements to this critical Town facility.

We encourage you to favorably consider the proposal and believe that the project should be moved forward for study and eventual construction. We look forward to working with you in the future.

Sincerely,



Jeffrey R. Diehl
Executive Director and CEO
Rhode Island Infrastructure Bank

Additional Proposal Information

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SRICD Letter of Support WRRDA7001.pdf



PO Box 1636
Kingston, RI 02881
Building #50 URI East Farm
Phone: 401-500-0422
SRICD.info@gmail.com

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Gina T. Fuller
District Manager

Jacob Peterson
Agricultural Planner

US Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742

August 23, 2019

RE: Town of Westerly's WRRDA7001 Proposal

Ladies and Gentlemen,

The Southern Rhode Island Conservation District (SRICD) is pleased to submit this letter in support of the Town of Westerly's WRRDA7001 Proposal to construct a berm around the Town's Wastewater Treatment Facility Plant located at 87 Margin Street, Westerly RI. The facility is located in a 100 year FEMA Floodplain and experienced significant flood damage during the 2010 Floods.

SRICD and the Town recently partnered to participate in the Resilient Rhody: Municipal Resilience Program (MRP). The Resilient Rhody program is designed to help towns put plans into action to mitigate effects of natural hazards and make the Town more resilient to climate change, sea level rise and other natural hazards. We recently hosted a Community Resilience Building workshop with approximately 50 participants including town staff and other community partners to identify areas of vulnerability, review action items in our Hazard Mitigation Plan, and prioritize resiliency projects to put into action. All of the workshop groups identified strengthening the resiliency of the wastewater treatment plant as a priority project.

SRICD is committed to supporting the Town of Westerly's efforts to incorporate resiliency improvements to the Town's critical infrastructure. SRICD will continue to partner with the town to complete the MRP process and assist them to apply to the RI Infrastructure Bank and other funding sources to access the technical and financial resources needed to implement this project and others. SRICD believes the Town's proposal to construct a berm around the Town's Wastewater Treatment Facility Plant is worthy of study and eventual construction as part of the WRRDA7001 program.

Sincerely,

Gina T. Fuller
District Manager
Southern Rhode Island Conservation District

Additional Proposal Information

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RIIB WWTF Berm Support Letter (005).pdf

August 27, 2019

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Sincerely,



Jeffrey R. Diehl
Executive Director and CEO
Rhode Island Infrastructure Bank

Additional Proposal Information

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WHC Letter of Support - DL_JL-2.pdf



THE WATCH HILL CONSERVANCY
WATCH HILL, RHODE ISLAND

August 26, 2019

US Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742

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Deborah Lamm
Chairman and President
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Peter Paton, Ph.D.
Hope Leeson, M.S.
Bryan Oakley, Ph.D.
Keith Killingbeck, Ph.D.
Howard Ginsberg, Ph.D.

Dear Colleagues:

The Watch Hill Conservancy enthusiastically supports the Town of Westerly's WRRDA7001 Proposal to construct a berm around its Wastewater Treatment Facility Plant (87 Margin Street Westerly, RI).

The facility sits in a 100-year FEMA Floodplain and is extremely vulnerable to flooding and storm surge. The plant is on the banks of the Pawcatuck River; should it fail, wastewater will flow into the river and severely pollute Little Narragansett Bay (LNB) downstream of the site. LNB is a critical estuary that supports the largest patches of eelgrass in Rhode Island and pristine salt marshes on Barn Island. The Napatree Point Conservation Area in LNB, which The Watch Hill Conservancy manages, would be severely impacted. Napatree is home to many species of rare and endangered bird species and supports a large breeding population of horseshoe crabs whose eggs are the food source for migrating shorebirds. Napatree has been designated a Globally Important Bird Area by the National Audubon Society.

At a recent day-long workshop in the *Resilient Rhody: Municipal Resilience Program*, the 50 participants from all sectors in the community were unanimous in declaring that fortifying the Wastewater Treatment Facility is the highest priority project that must be addressed. We hope you will find the town's proposal compelling. It is critically important for the community and the estuarine ecosystems downstream of the site.

Sincerely,

Deborah Lamm
Chairman

Jocelyn Lahey
Executive Director

Map Document

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Westerly WWTF Flood Diagram 2017 (002).pdf



Legend

-  Treatment Plant
-  Pump Station
-  Approx. Parcel Boundary

COASTAL HAZARDS

-  Wave Transect
-  100-Year Flood Level
-  100-Year Flood Level Plus 1' SLR
-  100-Year Flood Level Plus 2' SLR
-  100-Year Flood Level Plus 3' SLR
-  100-Year Flood Level Plus 5' SLR

Other Non-Federal Sponsors Letter(s) of Support

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SRICD Letter of Support WRRDA7001.pdf



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Sincerely,

Gina T. Fuller
District Manager
Southern Rhode Island Conservation District

Additional Proposal Information

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RIDEM Westerly Study (003).pdf

Westerly Wastewater Treatment Facility - CLIMATE VULNERABILITY SUMMARY



Westerly WWTF is located at 87 Margin Street in Westerly. It treats an average of 2.5 million gallons of wastewater per day, serving approximately 16,500 customers in Westerly. Additional information is on the back of this summary.



TOP 3 HAZARD MODELING RESULTS

Coastal Flood Hazards

New Canal, Old Canal and Margin Street Pump Stations would be inundated by storm surge at the 100-year return period.

Coastal Flood Hazards

With 3 to 5 feet of SLR, the plant's secondary clarifiers, chlorine contact tank and operations building would be impacted during a 100-year storm.

Significant Wave Height for 100-year Event

5± feet approaching the site with reduced wave heights moving inland.



Legend

- Treatment Plant
- ▲ Pump Station
- Approx. Parcel Boundary

COASTAL HAZARDS

- Wave Transect
- 100-Year Flood Level
- 100-Year Flood Level Plus 1' SLR
- 100-Year Flood Level Plus 2' SLR
- 100-Year Flood Level Plus 3' SLR
- 100-Year Flood Level Plus 5' SLR



COMPLETED CLIMATE CHANGE ADAPTATION MEASURES

Recent climate change resiliency improvements include installing new generators and sealing low-elevation exterior building penetrations at the pump stations adjacent to the Pawcatuck River.

WESTERLY, RI - CLIMATE VULNERABILITY SUMMARY

FACILITY SUMMARY	
Owner	Town of Westerly
Operator	Suez
Facility Address	87 Margin Street Westerly, RI 02891
Contact Name	Scott Duerr, Superintendent
Phone	401.596.2847
Design Flow Capacity	3.5 MGD
Average Daily Flow	2.5 MGD
Receiving Water	Pawcatuck River
Extreme Weather Related SSO Events 2010 - 2014	3 out of 5 events or 60%

The Margin Street Pump Station has a pumping capacity greater than the capacity of the treatment facility's headworks. If all 3 pumps at the pump station are operating simultaneously, the grit chamber at the WWTF will overflow causing an SSO event.

Some of Westerly's pump stations are subject to inundation from both coastal and inland flooding. The riverine hazard assessment, however, does not include coverage of those locations because they are in the Coastal AE zone.

ADAPTIVE STRATEGIES (SEE REPORT FOR COMPLETE LIST)					
SYSTEM	Hardening	Relocating	Readily Repairable/ Replaceable	Redundancy	Mitigation Strategy
Secondary Clarifiers	B		B	B	Protect facility entrances with flood barriers. Replace sludge pumps with submersibles. Store replacement drive components on site. Pumps may be temporarily augmented.
Disinfection System (Chlorine Contact Tanks)	A	B			Elevate or relocate disinfection system components.
New Canal PS	A				Protect facility entrances with flood barriers and relocate building penetrations for louvers. Elevate back-up generator systems.
Old Canal PS	A				Protect facility entrances with flood barriers. Elevate back-up generator systems.
Margin Street PS	A				Protect facility entrances with flood barriers .

A = < \$50,000 B = \$50,000 to \$250,000 C = \$250,000 - \$1,000,000 D = > \$1,000,000