

Grantee: Rhode Island

Grant: B-10-DF-44-0001

January 1, 2018 thru March 31, 2018 Performance Report



Grant Number:

B-10-DF-44-0001

Obligation Date:**Award Date:**

11/10/2010

Grantee Name:

Rhode Island

Contract End Date:**Review by HUD:**

Submitted - Await for Review

Grant Award Amount:

\$8,935,237.00

Grant Status:

Active

QPR Contact:

Laura Sullivan

LOCCS Authorized Amount:

\$8,935,237.00

Estimated PI/RL Funds:**Total Budget:**

\$8,935,237.00

Disasters:

Declaration Number

FEMA-1894-RI

Narratives

Disaster Damage:

The flooding that occurred between March 12th and 30th 2010 (FEMA declaration DR-1894) was the worst in over 100 years in the State of Rhode Island, and was unprecedented in scale, ubiquity, and overall impact to the State. The disaster was caused by exceptionally heavy spring rainfall along the Northeast coast. Fully 16.32 inches of rain accumulated in Rhode Island in March, eclipsing the previous record of precipitation by more than an inch; more than 8.6 inches of rainfall over March 28-30th This downpour had two major effects on Rhode Island's physical geography:

- 1.) the Blackstone, Pawtuxet, Woonasquatucket, Pawcatuck and other rivers reached record heights and overflowed. The Pawtuxet crested at 20.79 feet, 11 inches above the 9 feet flood level.
- 2.) The month of rain had led to super-saturation of permeable surfaces, which led to not only a lessening of the effectiveness of watersheds and other river-flood mitigating features, but also to the pooling of non-river waters in low topographies and the seepage of ground waters into basements and foundations. The March 2010 disaster was widespread and delocalized, as flood damage occurred around multiple rivers and low-altitude points.

The flooding itself led to in excess of \$200 million dollars of damage, as conservatively estimated by the Governor's office, to Rhode Island infrastructure, homes and businesses. Multiple utility substations, including a major substation in Westerly, Rhode Island, were flooded, and more than 10,000 households lost power for multi-day periods. Sections of forty major arterial roads and highways were closed, with many incurring significant structural damage; sections of I-95 were shutdown for three days, restricting north-south movement in the State. Numerous bridges, dams and wastewater treatment plants were damaged to the point of requiring replacement or major structural repairs.

Several hundred Rhode Islanders were evacuated during the flood; over 25,000 applied for FEMA Individual Assistance related to disaster needs. Displaced and affected homeowners were disproportionately comprised of low income individuals (39%), according to the Preliminary Damage Assessment. Total damage to homes and individual property is estimated to have exceeded \$100 million.

Perhaps hardest hit were businesses in Rhode Island. Total disaster damage to businesses exceeded \$70 million. Most affected were areas around the Pawtuxet River, where the Natick business district and commercial corridor in West Warwick was submerged under 10 feet of water. More than 3,000 businesses statewide applied for SBA disaster assistance loans. Intensifying these effects, especially in the business sector, was the already weakened Rhode Island economy. Rhode Island was hit particularly hard by the recession; unemployment at the time of the flood was 12.5%, almost 3.0 points above the national level, and the State budget deficit exceeded \$220 million. Both the damage from the flood, and the temporary and long term stasis and confusion the flood caused, have exacerbated the State's economic situation.

Recovery Needs:

Rhode Island is committed to a two tier Recovery Planning strategy, as reflected in the eligible activities under this Action Plan; Short Term strategies, to identify and address needs resultant from flood damage, and Long-Term strategies, to implement mitigation improvements and projects to lessen the destruction from similar disasters in the future. OHCD hopes to use CDBG-DR as the non-federal match to leverage funding for disaster recovery projects conducted by the US Army Corps of Engineers (USACE), RIEMA, and other state entities.

Short and Long Term Recovery Strategies



Short term strategies are focused on 'making whole' effected individuals, businesses and municipalities. 'Short Term' projects funded or leveraged through CDBG-DR funds will include financial assistance to businesses which lost crucial assets or operating revenue as a result of the flood; assistance to individuals with eligible unmet need; repairs, rehabilitation and debris removal programs for effected private property; and assistance to municipalities for repairs to damaged infrastructure and the provision of public services necessary as a result of the flood.

Long term strategies are focused on improving Rhode Island's ability to cope with future disasters, and attempting to mitigate long term negative impacts through the strategic awarding of funds. Chief among these initiatives are the installation of hazard mitigation factors in conjunction with rehabilitation of infrastructure and residences affected by the March 2010 flood, and the use of CDBG-DR funds for leveraging the buyout of flood-zone properties by other state programs. In awarding funds, the CDBG-DR steering committee will also consider negative consequences that can manifest and increase in the long term, if specific disaster needs are not met.

Leveraging Strategy

OHCD believes that coordination of all Disaster Recovery programs in the state is necessary to achieve the best possible result. OCHD has coordinated with RIEMA, to confer on joint funding of both Public Assistance (10% match requirement) and Hazard Mitigation projects (25% match requirement), and the USACE, to discuss match funding for large scale regional hazard mitigation projects. When Economic Development Agency monies, as mentioned in the Supplemental Appropriations Act-2010, become available, OHCD will incorporate this resource into the overall joint-funding strategy.

Fifteen municipalities and multiple state agencies have submitted applications. These 15 municipalities include the 5 most severely effected cities, and total damage and need among these municipalities is estimated to account for more than two thirds of the state total. The eligible activities and allocation amounts this Action Plan articulates were informed by these responses, as well as disaster and assistance data received from RIEMA, FEMA, SBA and HUD.

Public Comment:

The Rhode Island OHCD will post a draft action plan for the use of the funds, and any substantial amendment to the plan as described above, on the website for a period of not less than (7) calendar days; public comments will be accepted during this time.

Adequate notification will be given to local and regional Planning Commissions and units of local government, and a Notice of Posting for public comments will be published in the following media, in both English and Spanish:

The Providence Journal
75 Fountain Street
Providence RI, 02902

Providence en Español or
45 Meadow View Blvd.
North Providence, RI 02904
(online only)

Nuevos Horizontes or
34 Sherwood Avenue
North Providence, RI 02911
(print only)

America News en Español
570 Broad Street, Suite 302
Providence, RI 02907

All comments will be reviewed and incorporated into the draft plan for submission to HUD.

E-mail your comments to Laura.Sullivan@doa.ri.gov or mail your comments to:

Laura Sullivan, CDBG-DR Program Manager
Office of Housing and Community Development
One Capitol Hill, 3rd Floor
Providence, RI 02908

Overall	This Report Period	To Date
Total Projected Budget from All Sources	N/A	\$8,614,528.00
Total Budget	\$0.00	\$8,614,528.00
Total Obligated	\$294,760.53	\$8,609,288.53
Total Funds Drawdown	\$490,719.60	\$7,897,886.33
Program Funds Drawdown	\$490,719.60	\$7,897,886.33
Program Income Drawdown	\$0.00	\$0.00
Program Income Received	\$0.00	\$0.00
Total Funds Expended	\$490,719.60	\$7,897,886.43
Most Impacted and Distressed Expended	\$0.00	\$0.00
Match Contributed	\$165,923.00	\$7,719,238.07



Progress Toward Required Numeric Targets

Requirement	Target	Actual
Overall Benefit Percentage (Projected)		92.53%
Overall Benefit Percentage (Actual)		96.65%
Minimum Non-Federal Match	\$0.00	\$7,719,238.07
Limit on Public Services	\$1,340,285.55	\$0.00
Limit on Admin/Planning	\$1,787,047.40	\$1,056,321.97
Limit on State Admin	\$446,761.85	\$406,180.84
Most Impacted and Distressed Threshold (Projected)	\$0.00	\$0.00

Overall Progress Narrative:

This quarter, one activity was monitored and two were closed out. OHCD executed a contract for the RIDOT Culvert Study (activity #33), so additional funds were obligated. The State continues to provide a significant amount of technical assistance to grantees on an ongoing basis via telephone and email. OHCD has continued to work closely with West Warwick to move its project forward in a timely manner.

The Technical Review Committee met in February to consider applications submitted for the balance of Floods funding. OHCD received one request for supplemental funding, and a new activity request. Funds were tentatively awarded to the Town of Bristol for new activity Tanyard Brook Phase 2a culvert upgrades. In the next quarter, OHCD will update the paper and DRGR Action Plan as necessary to reflect this new activity. This public infrastructure improvement project does not trigger a Substantial Amendment to the State's 2010 Floods Action Plan.

Project Summary

Project #, Project Title	This Report Period	To Date	
	Program Funds Drawdown	Project Funds Budgeted	Program Funds Drawdown
1, Administration	\$0.00	\$446,761.00	\$406,180.84
2, Public Facilities and Improvements	\$386,236.32	\$5,239,653.77	\$4,718,632.45
3, Housing Rehabilitation	\$0.00	\$294,472.08	\$294,472.08
4, Economic Recovery	\$0.00	\$1,509,051.64	\$1,509,051.64
5, Property Acquisition	\$0.00	\$319,408.19	\$319,408.19
6, Planning	\$104,483.28	\$1,125,890.32	\$650,141.13



Activities

Project # / Title: 1 / Administration

Grantee Activity Number: 1a
Activity Title: State Administration

Activity Category:

Administration

Project Number:

1

Projected Start Date:

03/29/2010

Benefit Type:

()

National Objective:

N/A

Activity Status:

Under Way

Project Title:

Administration

Projected End Date:

09/30/2019

Completed Activity Actual End Date:

Responsible Organization:

State of Rhode Island2

Overall	Jan 1 thru Mar 31, 2018	To Date
Total Projected Budget from All Sources	N/A	\$431,761.00
Total Budget	\$0.00	\$431,761.00
Total Obligated	\$0.00	\$431,761.00
Total Funds Drawdown	\$0.00	\$391,180.84
Program Funds Drawdown	\$0.00	\$391,180.84
Program Income Drawdown	\$0.00	\$0.00
Program Income Received	\$0.00	\$0.00
Total Funds Expended	\$0.00	\$391,180.84
State of Rhode Island1	\$0.00	\$0.00
State of Rhode Island2	\$0.00	\$391,180.84
Most Impacted and Distressed Expended	\$0.00	\$0.00
Match Contributed	\$0.00	\$0.00

Activity Description:

Activities were varied and related to the disasters which occurred in March, 2010. Activities range from infrastructure improvements, business assistance, residential rehabilitation and planning.

Budget increased by \$88,141 as a result of the transfer of activity delivery costs previously budgeted as local administration (Activity 1b) to non-admin activities, per guidance provided by HUD during June 2014 monitoring visit.
 June 2015: Budget increased by \$44,319.44 as a result of the transfer of activity delivery costs previously budgeted as local administration (Activity 1b) to non-admin activities, per guidance provided by HUD during June 2014 monitoring visit.
 November 2015: Budget increased by \$7,540 as a result of the transfer of activity delivery costs previously budgeted as local administration (Activity 1b) to non-admin activities, per guidance provided by HUD during June 2014 monitoring visit.



Location Description:

State offices are located at One Capitol Hill - 3rd Floor, Providence, Rhode Island. Local programs will be administered through local Town offices.
Disaster declaration was statewide. Activities funded are distributed throughout the State.

Activity Progress Narrative:

This quarter, one activity was monitored and two were closed out. The Technical Review Committee met in February to consider applications submitted for the balance of Floods funding. OHCD received one request for supplemental funding, and a new activity request. Funds were tentatively awarded to the Town of Bristol for new activity Tanyard Brook Phase 2a culvert upgrades. In the next quarter, OHCD will update the paper and DRGR Action Plan as necessary to reflect this new activity. This public infrastructure improvement project does not trigger a Substantial Amendment to the State's 2010 Floods Action Plan.

The State continues to provide a significant amount of technical assistance to grantees on an ongoing basis via telephone and email. OHCD has continued to work closely with West Warwick to move its project forward in a timely manner.

Accomplishments Performance Measures

No Accomplishments Performance Measures

Beneficiaries Performance Measures

No Beneficiaries Performance Measures found.

Activity Locations

No Activity Locations found.

Other Funding Sources Budgeted - Detail

No Other Match Funding Sources Found

Other Funding Sources

Amount

No Other Funding Sources Found

Total Other Funding Sources

Project # / Title: 2 / Public Facilities and Improvements

Grantee Activity Number: 14

Activity Title: Johnston, Pump Stations

Activity Category:

Rehabilitation/reconstruction of a public improvement

Activity Status:

Under Way

Project Number:

2

Project Title:

Public Facilities and Improvements

Projected Start Date:

Projected End Date:



09/07/2011

03/31/2018

Benefit Type:

Completed Activity Actual End Date:

Area ()

02/16/2018

National Objective:

Responsible Organization:

Low/Mod

Town of Johnston

Overall	Jan 1 thru Mar 31, 2018	To Date
Total Projected Budget from All Sources	N/A	\$431,902.00
Total Budget	\$0.00	\$431,902.00
Total Obligated	(\$7.00)	\$431,895.00
Total Funds Drawdown	\$386,236.32	\$431,895.00
Program Funds Drawdown	\$386,236.32	\$431,895.00
Program Income Drawdown	\$0.00	\$0.00
Program Income Received	\$0.00	\$0.00
Total Funds Expended	\$386,236.32	\$431,895.00
Town of Johnston	\$386,236.32	\$431,895.00
Most Impacted and Distressed Expended	\$0.00	\$0.00
Match Contributed	\$165,923.00	\$165,923.00

Activity Description:

Two Johnston sewer pump stations were inundated during the March 2010 Floods. The Town originally received CDBG-DR funds for a feasibility study to evaluate options such as floodproofing, elevating, or relocating the pump stations. The Town completed the study of the sewer pump stations and selected an alternative to implement.

The selected alternative is to relocate two sewer pump stations out of the 100 year floodplain and re-route nearby sewer pipes. The Town requested CDBG-DR funds to implement the selected alternative. OHCD approved the request, and after discussions with the Town, amended the original activity scope and budget to include implementation. This activity now includes relocation of two sewer pump stations and re-routing of sewer pipes.

The projected end date has been extended. FEMA has issued new advisory flood maps with changes to base flood elevation that affect the design of this project. The Town has requested an extension as a result of the new base flood elevations.

June 2015: Budget increased by \$12,565 to include ADCs.

November 2015: Projected end date extended. Project delayed due to changes to FEMA flood maps in the service area and issues obtaining easements. The Town has now obtained the necessary easements.

Location Description:

River Drive and South Bennett Drive (AKA Lafazia Drive), Johnston, RI.

Activity Progress Narrative:

This activity is closed out effective 2/16/2018, with the balance of funds deobligated.

Accomplishments Performance Measures

	This Report Period	Cumulative Actual Total / Expected
	Total	Total
# of Linear feet of Public	1840	1840/1840



Beneficiaries Performance Measures

No Beneficiaries Performance Measures found.

Activity Locations

No Activity Locations found.

Other Funding Sources Budgeted - Detail

No Other Match Funding Sources Found

Other Funding Sources

Amount

No Other Funding Sources Found

Total Other Funding Sources



Grantee Activity Number: 31

Activity Title: Shippee Avenue Green Infrastructure

Activity Category:

Rehabilitation/reconstruction of a public improvement

Activity Status:

Planned

Project Number:

2

Project Title:

Public Facilities and Improvements

Projected Start Date:

01/01/2017

Projected End Date:

12/31/2018

Benefit Type:

Area ()

Completed Activity Actual End Date:

National Objective:

Low/Mod

Responsible Organization:

Town of West Warwick

Overall	Jan 1 thru Mar 31, 2018	To Date
Total Projected Budget from All Sources	N/A	\$200,305.32
Total Budget	\$0.00	\$200,305.32
Total Obligated	\$0.00	\$200,305.32
Total Funds Drawdown	\$0.00	\$0.00
Program Funds Drawdown	\$0.00	\$0.00
Program Income Drawdown	\$0.00	\$0.00
Program Income Received	\$0.00	\$0.00
Total Funds Expended	\$0.00	\$0.00
State of Rhode Island ²	\$0.00	\$0.00
Town of West Warwick	\$0.00	\$0.00
Most Impacted and Distressed Expended	\$0.00	\$0.00
Match Contributed	\$0.00	\$0.00

Activity Description:

Stormwater green infrastructure improvements to reduce the peak stormwater flow rate and runoff volume downhill of Shippee Avenue. Planned improvements include a bioretention basin, a linear bioretention basin on a roadway bump out, and a subsurface sidewalk storage system.

The area of Shippee Avenue and south to Washington Street had major flooding issues during the 2010 Floods. Streets, homes, and businesses all sustained damage due to flood waters. Fire Dept. records show a minimum of ten water/flood calls in this neighborhood during the 2010 Flood event.

Location Description:

Shippee Avenue neighborhood in West Warwick. Green infrastructure improvements to be installed along Shippee Ave and nearby streets to the north (uphill), to benefit Shippee Ave and nearby streets to the south (downhill).

Activity Progress Narrative:

Procurement was initiated this quarter, with bids due early in April.



Accomplishments Performance Measures

No Accomplishments Performance Measures

Beneficiaries Performance Measures

No Beneficiaries Performance Measures found.

Activity Locations

No Activity Locations found.

Other Funding Sources Budgeted - Detail

No Other Match Funding Sources Found

Other Funding Sources

Amount

No Other Funding Sources Found

Total Other Funding Sources

Project # / Title: 6 / Planning

Grantee Activity Number: 24

Activity Title: Johnston, Starr St. Flood Mitigation Study

Activity Category:

Planning

Project Number:

6

Projected Start Date:

08/01/2011

Benefit Type:

Area ()

National Objective:

N/A

Activity Status:

Under Way

Project Title:

Planning

Projected End Date:

12/31/2015

Completed Activity Actual End Date:

02/16/2018

Responsible Organization:

Town of Johnston

Overall

Total Projected Budget from All Sources

Jan 1 thru Mar 31, 2018

N/A

To Date

\$15,605.00

Total Budget

\$0.00

\$15,605.00

Total Obligated

\$0.00

\$15,605.00

Total Funds Drawdown

\$0.00

\$15,605.00

Program Funds Drawdown

\$0.00

\$15,605.00



Program Income Drawdown	\$0.00	\$0.00
Program Income Received	\$0.00	\$0.00
Total Funds Expended	\$0.00	\$15,605.00
Town of Johnston	\$0.00	\$15,605.00
Most Impacted and Distressed Expended	\$0.00	\$0.00
Match Contributed	\$0.00	\$0.00

Activity Description:

The purpose of the project was to conduct a flood mitigation feasibility study of an unnamed brook/wetland area between Venice Avenue and Starr Street. This area experienced significant flooding and road closures during the 2010 Floods. Changes to the flow conveyance of stormwater required permission (easements) from private property owners. The study assessed the legal, logistical, and environmental feasibility of flood mitigation measures in this area. As a result of this study, municipal flood mitigation measures in this area were deemed infeasible.

This activity is linked to canceled Activity #7, Johnston, Starr Street Drainage. Activity 7 was canceled and this activity as a result of the Town's determination Activity #7 was infeasible, due to the outcome of the environmental review and preliminary feasibility study.

OHCD expects to close out this activity in the next quarter.

Location Description:

Census Tract - 125, Block Group 2 (3052 total people; 1580 (51.8%) LMI).

Area bounded by Mill Street to the south, Venice Avenue to the west, Delucia Street to the east and Water Street to the north.

The project includes a segment of an unnamed brook which is tributary to Simmons Brook downstream to the Mill Street bridge. The Starr Street area is a mixed residential/industrial neighborhood that is typical of the development in the area.

Activity Progress Narrative:

This activity is closed out effective 2/16/2018.

Accomplishments Performance Measures

	This Report Period	Cumulative Actual Total / Expected
	Total	Total
# of Plans or Planning Products	1	1/1

Beneficiaries Performance Measures

No Beneficiaries Performance Measures found.

Activity Locations

No Activity Locations found.



Other Funding Sources Budgeted - Detail

No Other Match Funding Sources Found

Other Funding Sources

Amount

No Other Funding Sources Found

Total Other Funding Sources



Grantee Activity Number: 29

Activity Title: CRMC, Pawtuxet Watershed Modelling

Activity Category:

Planning

Activity Status:

Under Way

Project Number:

6

Project Title:

Planning

Projected Start Date:

11/01/2015

Projected End Date:

12/31/2017

Benefit Type:

Area ()

Completed Activity Actual End Date:

12/15/2017

National Objective:

N/A

Responsible Organization:

State of Rhode Island, Coastal Resources Management

Overall	Jan 1 thru Mar 31, 2018	To Date
Total Projected Budget from All Sources	N/A	\$175,059.00
Total Budget	\$0.00	\$175,059.00
Total Obligated	(\$5,232.47)	\$169,826.53
Total Funds Drawdown	\$0.00	\$169,826.53
Program Funds Drawdown	\$0.00	\$169,826.53
Program Income Drawdown	\$0.00	\$0.00
Program Income Received	\$0.00	\$0.00
Total Funds Expended	\$0.00	\$169,826.63
State of Rhode Island, Coastal Resources Management	\$0.00	\$169,826.63
Most Impacted and Distressed Expended	\$0.00	\$0.00
Match Contributed	\$0.00	\$0.00

Activity Description:

Flooding is currently ranked as one of RI's most devastating natural hazards, as demonstrated in the State's Hazard Mitigation Plan. During the 2010 Floods, inland and riverine flooding closed Interstate 95, shut down critical facilities, including major wastewater treatment facilities and electricity substations, and inundated residences and businesses.

CRMC and URI Ocean Engineering Dept. will develop an operational, spatially distributed hydrological/ hydraulic model for the Pawtuxet watershed and river, which include the river structure and geometry, to allow an analysis of the historical behavior of the watershedriver system. The model and analysis will include the Scituate Reservoir. The model will map the flood extent, continuously, for the river floodplain during the past events and for specific scenarios (e.g., 25yr event). This tool will then be used for recommendations with regard to mitigation and planning of flooding. The project will be a stepping stone for a real time forecasting tool, which not only predicts the stage levels at selected locations, but also the areas that are predicted to be inundated.

The planning product will be a GIS based map of the flood extent in the Pawtuxet River and Watershed for multiple storm/precipitation scenarios.

December 2015: The scope has been expanded to include analysis of the effect of river structures such as gates and dams on flood regulation. Dams and other hydraulic structures will be modeled. The budget has been increased from \$149,970 to \$175,059 to cover the increased scope.

Location Description:

Pawtuxet watershed and river, including the Scituate Reservoir. Primarily in Kent and Providence Counties.



Activity Progress Narrative:

Balance deobligated and activity closed out effective 12/15/2017.

Accomplishments Performance Measures

	This Report Period Total	Cumulative Actual Total / Expected Total
# of Plans or Planning Products	0	1/1

Beneficiaries Performance Measures

No Beneficiaries Performance Measures found.

Activity Locations

No Activity Locations found.

Other Funding Sources Budgeted - Detail

No Other Match Funding Sources Found

Other Funding Sources	Amount
No Other Funding Sources Found	
Total Other Funding Sources	



Grantee Activity Number:	30
Activity Title:	URI, Scituate Reservoir Mit Model Recovery Plan

Activity Category:

Planning

Project Number:

6

Projected Start Date:

09/01/2016

Benefit Type:

Area ()

National Objective:

N/A

Activity Status:

Planned

Project Title:

Planning

Projected End Date:

12/31/2018

Completed Activity Actual End Date:

Responsible Organization:

State of Rhode Island2

Overall	Jan 1 thru Mar 31, 2018	To Date
Total Projected Budget from All Sources	N/A	\$275,000.00
Total Budget	\$0.00	\$275,000.00
Total Obligated	\$0.00	\$275,000.00
Total Funds Drawdown	\$104,483.28	\$104,483.28
Program Funds Drawdown	\$104,483.28	\$104,483.28
Program Income Drawdown	\$0.00	\$0.00
Program Income Received	\$0.00	\$0.00
Total Funds Expended	\$104,483.28	\$104,483.28
State of Rhode Island2	\$0.00	\$0.00
University of Rhode Island	\$104,483.28	\$104,483.28
Most Impacted and Distressed Expended	\$0.00	\$0.00
Match Contributed	\$0.00	\$0.00

Activity Description:

Disaster recovery planning includes floodplain management measures through mapping, zoning/building code ordinance revisions, floodplain ordinances, drainage basin studies directly related to impacts of the disaster, infrastructure and engineering studies necessary for disaster recovery and mitigation, and updating building requirements. All planning activities must address needs/impacts resulting from the March 2010 disaster.

Funds may be used to develop new floodplain maps and to update and improve existing maps.

Disaster recovery planning activities must provide long-term utility.

August 2016: Funds have been awarded to the University of Rhode Island for the Scituate Reservoir Mitigation Modeling Project. This study will investigate the concept of retrofitting the Scituate Reservoir spillway at the Gainer Dam to determine if it is feasible to release water prior to large storm events to create storage capacity within the Reservoir and reduce downstream flooding along the Pawtuxet River. This study involves developing and/or integrating models of 1) Scituate Reservoir impacts on drinking water supply, and 2) downstream Pawtuxet River flooding. Spillway management at the Gainer Dam has the potential to negatively impact water supply, or safe yield. Therefore, this study is designed to identify opportunities for downstream flood mitigation via spillway management without adverse impacts on safe yield. The final report will include sections on data, technical information on the safe yield simulation model, safe yield analysis, scenario selection, and analysis of spillway management alternatives.

January 2017: Budget adjusted from \$274,242 to \$275,000 to match the contract amount. The original DRGR



amount was limited by pending minor budget adjustments to other activities in DRGR.

Location Description:

Rhode Island communities/watersheds that experienced significant flood impacts during the 2010 Floods, such as damages to residential and commercial structures, infrastructure, natural resources, or public assets.
August 2016: The Scituate Reservoir and Pawtuxet River watershed, located in Providence and Kent counties.

Activity Progress Narrative:

Data/Model Acquisition, initial model development and model verification on EXCEL and OASIS has been completed. We calibrated operational model with added inflow derived empirically, using QPPQ method based on USGS methodology, back flow method based on mass balance. As a part of continuing effort in developing inflow for ungagged watershed we have used new approach (integrated watershed model) to calibrating watershed model. Reservoir outflow, elevation and over-spillway of 1971-2016 have been collected from Providence water supply board and demand, inflow, outflow, landuse impacts and spillway scenarios are developed. Scenarios are developed to emulate flood and drought. NFIP data has been collected from FEMA and RIEMA webpage. Spillway engineering design and cost information is yet to be received and discussed with PWSB. A Steering Committee meeting is scheduled for April, and additional meetings to be held as the project progresses.

Accomplishments Performance Measures

No Accomplishments Performance Measures

Beneficiaries Performance Measures

No Beneficiaries Performance Measures found.

Activity Locations

No Activity Locations found.

Other Funding Sources Budgeted - Detail

No Other Match Funding Sources Found

Other Funding Sources

Amount

No Other Funding Sources Found

Total Other Funding Sources



Grantee Activity Number: 33

Activity Title: Culvert Assessment and Resiliency Study

Activity Category:

Planning

Activity Status:

Planned

Project Number:

6

Project Title:

Planning

Projected Start Date:

01/01/2018

Projected End Date:

09/30/2019

Benefit Type:

Area ()

Completed Activity Actual End Date:

National Objective:

N/A

Responsible Organization:

State of Rhode Island2

Overall	Jan 1 thru Mar 31, 2018	To Date
Total Projected Budget from All Sources	N/A	\$300,000.00
Total Budget	\$0.00	\$300,000.00
Total Obligated	\$300,000.00	\$300,000.00
Total Funds Drawdown	\$0.00	\$0.00
Program Funds Drawdown	\$0.00	\$0.00
Program Income Drawdown	\$0.00	\$0.00
Program Income Received	\$0.00	\$0.00
Total Funds Expended	\$0.00	\$0.00
State of Rhode Island2	\$0.00	\$0.00
Most Impacted and Distressed Expended	\$0.00	\$0.00
Match Contributed	\$0.00	\$0.00

Activity Description:

Development of a technical manual and completion of a pilot study to assess the present and future extreme flood vulnerability of roadway crossing structures. The project aims to complete the following objectives:

1. Create a technical manual for state and municipal use containing methods for assessing flood risk vulnerability associated with culvert structures in Rhode Island which is consistent with RI Stormwater Manual. The result will be a prioritization of RIDOT/municipal management actions that address significant threats to the safety of the state transportation network imposed by adverse climatic events. The methods to be described in this technical manual are as follows:

- Collection of relevant bridge/culvert structural, site, and other data
- Evaluation of Existing Hydraulic Capacity
- Evaluation of Existing Streamflow Conditions
- Evaluation of Flooding Impact Potential
- Evaluation of Geomorphic Vulnerability
- Evaluation of Aquatic Organism Passage
- Future Climate Assessment
- Potential Disruption of Local Services or Emergency Response Routes
- Development of Ranking System for Structure Prioritization

2. Apply recommendations in the technical manual and complete a pilot study in the Woonasquatucket River watershed, and provide a list of structures that are a priority for replacement due to the factors in Objective 1.

In March of 2010, flooding damage to state and town roads was documented throughout the state. A majority of



these damages were in the vicinity of undersized culverts. Without technical guidance on culvert risk assessment available, many of these culverts were repaired and/or replaced in-kind, without considering flood mitigation strategies. A technical guide on culvert risk assessment will result in future culvert investments that mitigate flood risk and increase the resiliency of state and local transportation assets.

Location Description:

Statewide, with pilot application in Woonasquatucket watershed (primarily Providence County).

Activity Progress Narrative:

This quarter, OHCD signed a contract with RIDOT. Procurement of consultant Fuss & O'Neill was completed. A kickoff meeting with Fuss & O'Neill occurred on March 15, and the consultant is in the process of putting together outlines for each section of the manual and gathering sources. RIDOT has established a schedule for bi-weekly project progress calls. A Stakeholder meeting has been scheduled for end of May with staff representation from DEM, CRMC, RIEMA, municipal DPW's, and the League of Cities and Towns.

Accomplishments Performance Measures

No Accomplishments Performance Measures

Beneficiaries Performance Measures

No Beneficiaries Performance Measures found.

Activity Locations

No Activity Locations found.

Other Funding Sources Budgeted - Detail

No Other Match Funding Sources Found

Other Funding Sources	Amount
No Other Funding Sources Found	
Total Other Funding Sources	

Monitoring, Audit, and Technical Assistance

Event Type	This Report Period	To Date
Monitoring, Audits, and Technical Assistance	1	19
Monitoring Visits	1	16
Audit Visits	0	0
Technical Assistance Visits	0	1
Monitoring/Technical Assistance Visits	0	2
Report/Letter Issued	1	17

