

Municipal Vulnerability Preparedness Program Action Grant Case Study

Municipality: Hampden and East Longmeadow

Project Title: Hampden and East Longmeadow's Infrastructure Assessment, Identification of Nature-Based Solutions and Public Outreach and Planning

Award Year (FY): FY22 / FY 23

Grant Award: \$ 389,092.00

Match: \$ 131,965.00

Match Source: In-Kind

One or Two Year Project: Two

Municipal Department Leading Project: Town of Hampden Town Administrator's Office

Project Website URL: website: rebrand.ly/HampdenEastLongmeadowMVP

Community Overview:

- What is the population size of your community and where is it located?

Hampden: 4,991

East Longmeadow: 16,296

- Do you have any [Environmental Justice](#) or other Climate Vulnerable communities? (Think about both those who live and work in your town.)

Hampden and East Longmeadow have populations at risk from climate change impacts. These include the elderly and chronically ill who are threatened by extreme temperatures, storm events, and flooding. Excessive heat contributes to increased deaths within these populations, especially if people lack access to AC due to economic constraints or power outages. Flooding in both communities threatens transportation routes and emergency response access and times.

- Other unique traits of your municipality like who the top employers are, geography, history, etc.

Project Description and Goals:

- Where was the project located?
 - Town-wide in both communities
- What climate change impacts did the project address?
 - Flooding due to increased precipitation in storm events
 - Nature-based solutions using the Commonwealth's Climate Resilient Design Standard Tool

- Loss of pollinators from extreme temperatures: opportunities to incorporate native plantings for both stormwater BMPs for flood control and water quality protection and to support pollinator colonies.
 - Nature-based BMPs, low impact development strategies that the public can apply to address localized flooding.
- What were the specific goals and tasks of the project as stated in your application?

Assess the built and natural systems that transport and manage flow of water from storm events, expand knowledge of the natural and built infrastructure in both communities.

Identify, prioritize, and implement nature-based solutions to protect the community and the environment from increasing flooding events associated with climate change impacts.

Identify immediate opportunities (low hanging fruit) for a community to implement nature-based solutions using local forces or incidental contract work.

Identify locations to enhance best management practices with native plant plantings that attract and maintain pollinators.

Prioritize next steps: consider the severity of the threat and impacts on public safety, environment, water quality, economic activities, and more: estimate project costs; introduce funding strategies including grant eligibility; and solicit public participation in the process.

Solicit the concerns and priorities of the next generation. Incorporate the participation of students from the Towns of Hampden, East Longmeadow, and Girls Inc. of the Valley in a modified MVP Planning process.

Inform on Environmental Justice concerns through the students who represent communities with both urban and rural land use. Students will provide an online record of their concerns through individual recorded presentations and the Summary of Findings, including Risk Matrix, developed at their CRB workshop.

East Longmeadow's MVP Priorities

- Roadway Accessibility
 - Increased Rainfall
 - Infrastructure Overwhelmed by Stormwater Flows

- Water Quality
 - Identify Problem Locations
 - Utilize Green Infrastructure
 - Slow Down and Filtrate Stormwater

Hampden's MVP Priorities

- Roadway accessibility
 - Due to increased rainfall/ snow, existing infrastructure including bridges, culverts, and county drainage are overwhelmed by stormwater flows.
 - Highway Superintendent stated, "We don't know where all the problems are until they pop up."
- Water quality
 - Identify problem locations and utilize green infrastructure to slow down and filtrate stormwater.
- Did your project meet the goals set forth in your application in terms of:
 - Employing nature-based solutions - Yes
 - Improving equitable outcomes for and fostering strong partnerships with EJ and other Climate Vulnerable Populations - Yes
 - Providing regional benefits - Yes
 - Implementing the public involvement and community engagement plan set forth in your application - Yes
 - Finishing the project on time -Yes

Results and Deliverables:

- Describe, and quantify (where possible) project results (e.g. square footage of habitat restored or created, increase in tree canopy coverage, etc.). Report on the metrics outlined in your application.
 - Educated Town officials, staff and local residents on the importance of having resilient infrastructure and the types of green solutions that can be implemented on a local level to improve resiliency with the community.
 - Developed Pollinator Habitat Low Impact Designs / Green Infrastructure (LID-GI) solutions that can easily be implemented by Town forces and private citizens for many different types and sizes of projects.
 - Developed 20 conceptual LID-GI infrastructure designs at specific locations (10 in each Town) along with cost estimates and a capital implementation plan (CIP) for implementation by each town.

- Completed site inspections and stormwater infrastructure assessments at 61 high-risk culvert locations townwide (32 locations in Hampden and 29 locations in East Longmeadow).
 - Developed 20 conceptual culvert / stormwater infrastructure resiliency improvement designs at 20 high priority locations townwide (10 in each Town) along with cost estimates and a capital implementation plan (CIP) for implementation by each town.
 - Trained Town Department of Public Works and Highway Department staff on how to perform all necessary future culvert inspections and assessments utilizing the North Atlantic Aquatic Connectivity Collaborative (NAACC) methodologies followed by this project.
 - Established a Project Clearinghouse and Public Informational Web Site to house all project deliverables created by the project.
- Provide a brief summary of project deliverables with web links, if available.

When Hampden and East Longmeadow's MVP program was initiated, the project team developed and launched an interactive website that would host all project deliverables and supporting material. Throughout the life of the program, the website has been updated with reports, GIS maps and photos, and public meeting materials and recordings which the public could easily access and download. The website, which was created using ArcGIS StoryMaps, allowed the project team to imbed forms through which the public could submit their written feedback. These feedback forms were used to gather public feedback on each community's strengths and vulnerabilities as they relate to climate change, and separately, on the top 10 culvert and top 10 GI-LID project concepts proposed for each community.

Project Web Site Hyperlink: <https://arcg.is/14vyGW0>

Project Deliverables

Following is a list of all final deliverables from the FY 2022/ FY 2023 MVP Action Grant Project available for download on the project web site.

Task 1: Pollinator Habitat Site Selection

Sub-task 1.1 Research and Analysis:

- *Task 1.1 Site Visits.pdf*

Sub-task 1.2 Site Visit and Draft Conceptual Design (Hampden Site 1):

- *Task 1.2 Plant List Hampden Site 1 - Laughing Brook.pdf*

Sub-task 1.3 Site Visit and Draft Conceptual Design (Hampden Site 2):

- *Task 1.3 Plant List Hampden Site 2 - Glendale Road.pdf*

Sub-task 1.4 Site Visit and Draft Conceptual Design (East Longmeadow Site 1):

- *Task 1.4 Plant List East Longmeadow Site 1 - Center Field.pdf*

Sub-task 1.5 Site Visit and Draft Conceptual Design (East Longmeadow Site 2):

- *Task 1.5 Plant List East Longmeadow Site 2 - Heritage Park.pdf*

Task 2: Student MVP Planning (Girls Inc. / Mass Audubon)

Sub-task 2.1 Workshop Preparations Kick-off Meeting and Planning

- *Task 2.1 - 2.3 Student MVP Workshop Deliverables.pdf*

Sub-task 2.2 Develop Workshop Materials, Roles and Responsibilities

- (combined with Task 2.1 - 2.3 file listed above)

Sub-task 2.3 Prepare for Workshop and Presentations

- (combined with Task 2.1 - 2.3 file listed above)

Sub-task 2.4 Workshop Materials & Workshop Sub-task 2.5 Final Report and Video Production

- *Task 2.4 - 2.5 Student Workshop Report.pdf*

Sub-task 2.5 Final Report and Video Production

- *Task 2.4 - 2.5 Student Workshop Video.mp4*

Sub-task 2.6 Draft Public Presentation

- *Task 2.6 Student Workshop Summary Presentation.pdf*

Task 3: 1st BMP & LID Workshops (E. Longmeadow)

Sub-task 3.1 Workshop development (agenda, public notices, LID examples & presentation tools)

- *Task 3 BMP-LID Workshop.pdf*

Sub-task 3.2 Workshop (One workshop in E. Longmeadow)

- (combined with Task 3 file listed above)

Task 4: Preliminary Resiliency Study Findings & Recommendations

Sub-task 4.1 Task Planning, Coordination and Management

- *Task 4.1 Task Planning.pdf*

Sub-task 4.2 Gather available historical information & GIS mapping

- *4.2, 4.4 & 4.5 Hampden_Culvert Inspection & Reports.pdf*

Sub-task 4.3 Meetings (kick-off, review of findings/recommendations, etc.)

- *Task 4.3 Meetings.pdf*

Sub-task 4.4 Perform culvert and bridge field inspections

- *4.2, 4.4 & 4.5 E. Longmeadow_Culvert Inspections & Reports.pdf*

Sub-task 4.5 Prepare assessment reports, org./catalog field info./photos

- (see above - 4.2, 4.4 & 4.5 have been combined by Town)

Sub-task 4.6 Identify potential nature-based solutions/locations

- *Task 4.6 Nature Based Solutions Report & 10+LID Recommendations_Rev1_2022-05-24.pdf*

Sub-task 4.7 Prepare Draft Assessment & Recommendations Report

- *Task 4.7a Hampden Draft Assessment & Report.pdf*
- *Task 4.7b East Long Meadow Draft Assessment & Report.pdf*

Task 5: Culvert Inspection & Assessment Training for Town Staff

Sub-task 5.1 Organize/Plan/Schedule NAACC Culvert Inspection Training & Prepare GI/LID Components

- *Task 5.1 - 5.2 Culvert Training for Town Staff Deliverables.PDF*

Sub-task 5.2 NAACC Culvert Assessment Training (LTAP / Baystate Roads)

- (combined file listed above)

Task 6: FY22 Project Clearinghouse and Public Informational Web Site including WikiMaps & Project Reporting

Sub-task 6.1 Creation, Setup & administration of project web site

- *Task 6.1 Hampden-EL Project Web Site.pdf*

Sub-task 6.2 Create and Manage WikiMaps for Hampden & E. Longmeadow (in addition to and linked from project web site)

- *Task 6.2 WikiMaps for Hampden-EL.pdf*

Task 7: Roadside Pollinator Habitats - Design

Sub-task 7.1 Four (4) Final Conceptual Site Specific Designs from Task 2 including Implementation Planning.

- *Task 7.1 DRAFT Hampden LID Designs.pdf*
- *Task 7.1 DRAFT E. Longmeadow LID Designs.pdf*

Sub-task 7.1b Fall or Spring BMP & LID Workshop at Local Nursery

- *Task 7.1b Pollinator Workshop Spring 2023.pdf*

Sub-task 7.3 Final Reporting & LID/GI Informational Brochures

- *Task 7.3a Hampden GI-LID Brochure_hi-res.pdf*
- *Task 7.3b E. Longmeadow GI-LID Brochure_hi-res.pdf*

Task 8: FY23 Project Clearinghouse and Public Informational Web Site including WikiMaps

Sub-task 8.1 Administration / Updates of project public informational clearinghouse web site

- *Task 8.1 Hampden-EL Project Web Site.pdf*

Sub-task 8.2 WikiMaps management, extractions, final reporting tables and GIS maps

- *Task 8.2 WikiMaps for Hampden-EL.pdf*

Task 9: Final Resiliency Study Findings & Recommendations

Sub-task 9.1 Task Planning, Coordination and Management

- *Task 9.1 2022-11-09 FY23 Planning Mtg & Minutes.pdf*

Sub-task 9.2 Prelim. & Final report review/comment resolution meetings

- *Task 9.2 Prelim Report Comments.pdf*

Sub-task 9.3 Prioritize projects per assessment. Apply MVP RMAT standards

- *Task 9.3 Hampden LID Priority Recommendations Memo.pdf*
- *Task 9.3 E. Longmeadow LID Priority Recommendations Memo.pdf*

Sub-task 9.4 Identify Top 10 locations for each community's preliminary culvert designs

- *Task 9.4a Hampden Culvert Priority Recommendations Memo.pdf*
- *Task 9.4b E. Longmeadow Culvert Priority Recommendations Memo.pdf*

Sub-task 9.5 Develop 10 concept culvert designs per community (20 total)

- *Task 9.5a Hampden Comments Top 10 Culverts.pdf*
- *Task 9.5b Hampden & EL Final Top 10 Culverts.pdf*

Sub-task 9.6 Develop 10 concept GI/LID designs per community (20 total)

- *Task 9.6a Hampden Comments - Top 10 LID Locations.pdf*
- *Task 9.6b Hampden & EL Final Top 10 LID Locations.pdf*

Sub-task 9.7 Cost estimating for 40 concepts listed above

- *Task 9.7a Hampden Top 10 Culverts & GI-LID Estimates.pdf*
- *Task 9.7b E. Longmeadow Top 10 Culverts & GI-LID Estimates.pdf*

Sub-task 9.8 Capital improvement plan for each Town's Top 10 culvert and GI/LID projects

- *Task 9.8a Hampden Top 10 Culverts & GI-LID CIPs.pdf*
- *Task 9.8b E. Longmeadow Top 10 Culverts & GI-LID CIPs.pdf*

Sub-task 9.9 Final Resiliency Study Findings & Recommendations

- *Task 9.9a Hampden Final Resiliency Study.pdf*
- *Task 9.9b E. Longmeadow Final Resiliency Study.pdf*

Task 10: Watershed Assessment Findings, Public Review and Comment Meetings

Sub-task 10.1 Meeting preparations, agendas, PowerPoint, handouts

- *Task 10.1 Hampden Meeting Notice, Agenda & Presentation.pdf*
- *Task 10.1 EL Meeting Notice, Agenda & Presentation.pdf*

Sub-task 10.2 E. Longmeadow Public Informational Meeting

- *Task 10.2 EL Final Public Info Meeting.pdf*

Sub-task 10.3 Hampden Public Informational Meeting

- *Task 10.3 Hampden Final Public Info Meeting.pdf*

Task 11: FY 23 Monthly Reporting & Project Case Study

Sub-task 11 Project Case Study

- *Task 11 Project Case Study.pdf*

Lessons Learned:

- What lessons were learned as a result of the project? Focus on both the technical matter of the project and process-oriented lessons learned.
- What is the best way for other communities to learn from your project/process?
 - The project website and Hampden's Highway Department or East Longmeadow's Department of Public Works are resources to other communities addressing similar challenges.
 - Communities can use the Culvert Assessment Form developed for this project and incorporates the Commonwealth's Climate Resilient Design Standard Tool.
 - Communities and stakeholders can review the Top 10 prioritized culverts and GI/LID recommendations in consideration of solutions for their local issues. The

concept designs include estimated costs; thus, communities can consider local affordability.

- Several pollinator planting plans are available for various site conditions. Communities can consider these plans with respect to maintenance of public properties. They can share these plans with residents and businesses for their own consideration.

Partners and Other Support:

Following is a list of all project partners and their roles in supporting/assisting in the project.

- Town of Hampden
Local Project Lead
- Town of East Longmeadow
Local Project Co-Lead
- Mass Audubon, Laughing Brook
Technical assistance in identifying opportunities for Laughing Brook Sanctuary to provide climate change resilience through nature-based solutions.
- Baystate Roads
Provided NAACC Culvert Assessment Training including GI/LID installation, operations, and maintenance.
- Graziano Gardens
Hosted Pollinator Garden and Native Plantings Workshop.
- Girls Inc of the Valley
Contributed to the development and participated in a full day climate change and resiliency workshop with students from East Longmeadow, Hampden, and Wilbraham.
- DCR Holyoke Heritage State Park
Hosted Climate Change and Resiliency Workshop and provided staff to participate in training and presentations.
- Veolia
Provided equipment and staff to educate student participants in the workshop about the connection between resiliency and stormwater management.
- CN Wood
Provided equipment and staff to educate student participants in the workshop about the connection between resiliency and stormwater management.

Project Photos:

Tasks 1 & 7 - Pollinator Habitat LID-GI Designs



Task 2 – EJ Student MVP Planning at Holyoke Heritage State Park with Girls, Inc. and Mass Audubon



Task 3 – Community BMP & LID Workshops



Task 4 - Townwide Infrastructure Resiliency Study / Culvert Inspections and Assessment Reports

[illegible]

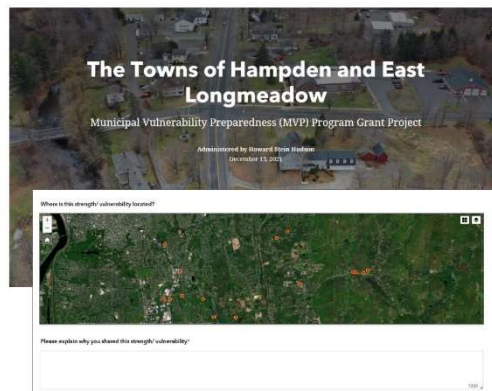
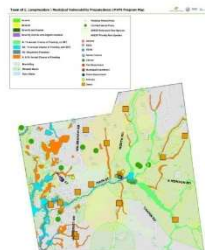
Task 5 - NAACC Culvert Inspection & Assessment Training for Town Staff



Tasks 6 & 8 - Project Clearinghouse and Public Informational Web Site

Project Website - rebrand.ly/HampdenEastLongmeadowMVP

- GIS maps
- Interactive feedback map
- Project reports
- Photos



Task 9 - Final Resiliency Study Findings & Recommendations



Hampden/East Longmeadow - MVP Action Grant Road-Stream Crossing Assessment Town of East Longmeadow

Prepared for
Town of East Longmeadow
Prepared by
Howard Stein Hudson
May 2023



Hampden/East Longmeadow - MVP Action Grant Road-Stream Crossing Assessment Town of Hampden

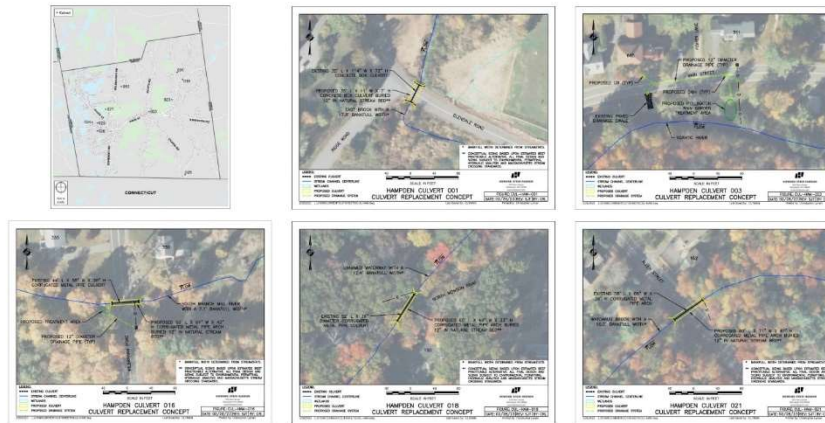
Prepared for
Town of Hampden
Prepared by
Howard Stein Hudson
May 2023



Task 9 - Example Conceptual Culvert Replacement Designs

Hampden Top 10 Culvert Priority Replacement Concepts

Engineers + Planners



Task 9 - Example Conceptual Low Impact Design / Green Infrastructure (LID-GI) Solutions

East Longmeadow Top 10 GI-LID Concepts

Engineers + Planners



Task 10 - Watershed Assessment Findings, Public Review and Comment Meetings

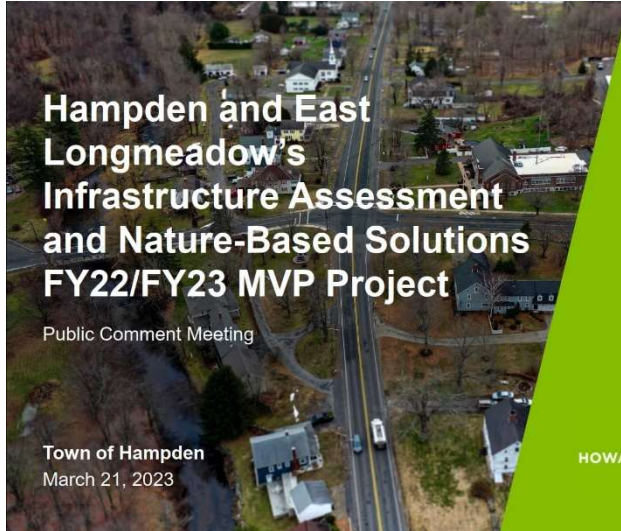
Town of East Longmeadow Infrastructure Assessment and Nature-Based Solutions Project Public Comment Meeting

Learn how the Town is turning Climate Change priorities into actionable projects and building community resilience!

March 21, 2023
4:00 PM
East Longmeadow Council on Aging
328 N Main St, #2, East Longmeadow, MA 01028
Zoom: <https://virtualmeeting.link/mvp-project-concepts>

The Town of East Longmeadow is holding a hybrid public meeting (online and in-person) to present the Top 10 project concepts designed through the Municipal Vulnerability Preparedness Program. The project team will give a short presentation followed by a public comment session on the Top 10 project concepts.



For more information, contact:
Taylor Miller – tmiller@hshassoc.com



Hampden and East Longmeadow's Infrastructure Assessment and Nature-Based Solutions FY22/FY23 MVP Project

Public Comment Meeting

Town of Hampden
March 21, 2023



HOWARD STEIN HUDSON
Engineers + Planners