Municipal Vulnerability Preparedness Program and Nature Based Solutions
June 9, 2020

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Education

SCHEDULE

THURSDAY, OCTOBER 23

6 am-6:45 am
Networking Breakfast with Exhibitors

6:30 am-7:45 am
CONCURRENT SESSIONS

- Impact of Emerging Technologies on Engineering Business
  Paul Doherty, the digt group

- Trends in Recruitment & Retention — The Next Generation of Engineers
  Katy MacDonald, ExecSource; Christopher Staloich, Chartwell Capital Solutions

- Climate-Smart Engineering & Approaches to Disaster Risk
  Stephen Long, The Nature Conservancy

- Case Study — Infrastructure Funding and Other Innovations in Asset Management
  Mike Baker, David Evans and Associates, Inc.

7 am-6 am
"Wake Up" with ACEC/PAC:
Thank You For ACEC/PAC Major Donors
By invitation only, R.S.V.P. required
More information on page 19.
Transportation Infrastructure
Water Infrastructure
Green Infrastructure Projects (MGL Ch 21, Sec 26A)

Wastewater systems
Water reuse
Low impact development
Conservation of natural landscape features that naturally filter and remove silt and pollution
Land acquisition and restoration
Mitigation of risks of flooding and erosion

*May be stand-alone and shall also be used to complement built water management infrastructure technologies such as pipes, dikes and treatment facilities.*
Goals:
• Reduce the Commonwealth’s vulnerability to the impacts of climate change.

Who:
• business leaders, planners, engineers, architects, and energy and environmental organizations

Strategy:
• Legislative: Funding and Policy
• Executive: Implementation
• Coalition: Growth
• Public Education & Outreach

Messaging:
• Enhance Safety
• Avoid Costs
• Employ Nature-Based Solutions
• Advance Social Equity and Fairness
Adaptation Outcomes

• Resilient MA Clearinghouse: Science & Data

• Statewide Integrated Hazard Mitigation and Climate Adaptation Plan

• Municipal Vulnerability Preparedness Program
TNC and ACEC Collaboration AND Adaptation History

- **2008**: Global Warming Solutions Act
- **2011**: Blizzards
- **2013**: Dam & Seawall
- **2015**: Water Infra.
- **2016**: Climate Change Strategy EO 569
- **2017**: Municipal Vulnerability Preparedness Program
- **2018**: Bond: Codifies MVP and Plan

**Events:**
- Global Warming Solutions Act
- Blizzards
- Dam & Seawall
- Water Infra.
- Climate Change Strategy EO 569
- Municipal Vulnerability Preparedness Program
- Bond: Codifies MVP and Plan

**Bond Dates:**
- Environmental Bond 2014
- Environmental Bond 2018

**Other Events:**
- Coastal Storms
- State Hazard Mitigation & Climate Adaptation Plan
Works in Progress

• Coastal Restoration/Living Shorelines: Five-State NOAA Project

• Greenworks Legislation: Municipal Loan and Grant Programs

• Natural Climate Solutions: Carbon Sequestration/Storage
Executive Office of Energy and Environmental Affairs
Municipal Vulnerability Preparedness Program Yearly Progress Report
July 1, 2019-June 30, 2020 Reporting Period

Date: Click here to enter text.
Municipality: Click here to enter text.
Local MVP Contact Name: Click here to enter text.

2. Has your Core Team reconvened since your Listening Session? If so, describe the process and any revisions or updates your team made to the original MVP Report. Please list your MVP Core Team members and note any new members.

Projects that **protect, restore, and/or manage** an existing ecological system or mimic natural processes to **protect public health** and **clean water**, to **increase natural hazard resilience**, and to **sequester carbon**.
Top Hazards

1. Freshwater flooding
   Extreme precipitation and precipitation-induced flooding, ice jams, dam failures

2. Severe winter storms
   Snow/Ice storms, Nor'easters

3. Average/Extreme temperatures
   Extreme heat, extreme cold, average higher temperatures
Top Vulnerabilities

1. Stormwater Management
2. Emergency Management & Preparedness
3. Water Use/Supply
4. Natural Resources
5. Public Health & Safety

- Driver
- Impact
- Power
- Wastewater Treatment & Septic Systems
- Tree & Forest Management
- Watershed Management
- Local Economy
Top Priority Actions

1. Emergency Management & Preparedness
2. Stormwater Management
3. Data & Maps
4. Regulations, Zoning, & Policy
5. Power

- Driver
- Impact

- Tree & Forest Management
- Natural Resources
- Watershed Management
- Public Health & Safety
- Water Use/Supply
Municipal Vulnerability Preparedness (MVP) Program

Community Resilience Building Process:

- 82% of municipalities (287) enrolled in planning grant program as of Feb 5 2020.
- 54 NBS funded for $16 million.
- 65 projects funded for $14 million focused on hydrology or watershed management.

Total Awards: $28M+ to date
MVP CORE PRINCIPLES

1. Furthering a community identified priority action to **address climate change impacts**.

2. Utilizing **best available climate change data for a proactive solution**. Data from local-level climate change vulnerability studies may also be used.

3. Committing to **monitoring** project success and **maintaining** the project into the future.
MVP CORE PRINCIPLES

4. Employing nature-based solutions.

Why NBS?
Projects that **restore**, **protect**, and/or **manage** natural systems and/or mimic natural processes to address hazards like flooding, erosion, drought, and heat islands in ways that are **cost-effective**, **low maintenance**, and **multi-beneficial** for public health, safety, and well-being.

From - *Conserving Land* - to - *Restoration* and green *stormwater management* - And anything in between!
Example Action Grant Projects

Nature-Based Flood Protection, Water Quality, and Water Infiltration Techniques

**Millbury**

Armory Village
Green Infrastructure Project
FY19 Grant Award: $1,000,000

Designing **green infrastructure** to reduce heat island effects, improve water quality, and minimize the quantity of water impacting the Blackstone River.
5. Achieving **broad** and multiple community benefits.

6. **Involving Environmental Justice Populations in meaningful decision-making**, as defined and outlined in the 2017 EEA EJ Policy, and giving special consideration to Climate Vulnerable Populations.
Example Action Grant Projects
Redesigns and Retrofits

**Boston**

Moakley Park - Resilience
Preliminary Design, Technical Analysis, and Pre-Permitting
FY19 Grant Award: $1,500,000

Retrofitting a major waterfront park into a legacy park that uses nature-based solutions to address climate vulnerabilities while providing important access to recreation for residents.
Population of top 10 counties for disasters: 81% minority

10 counties most vulnerable to natural disasters and pandemics

<table>
<thead>
<tr>
<th>County</th>
<th>Minority population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brooks County, Texas</td>
<td>94%</td>
</tr>
<tr>
<td>Dimmit County, Texas</td>
<td>91%</td>
</tr>
<tr>
<td>Duval County, Texas</td>
<td>91%</td>
</tr>
<tr>
<td>Luna County, N.M.</td>
<td>70%</td>
</tr>
<tr>
<td>Zavala County, Texas</td>
<td>95%</td>
</tr>
<tr>
<td>Cibola County, N.M.</td>
<td>80%</td>
</tr>
<tr>
<td>Presidio County, Texas</td>
<td>86%</td>
</tr>
<tr>
<td>Imperial County, Calif.</td>
<td>89%</td>
</tr>
<tr>
<td>Evangeline Parish, La.</td>
<td>33%</td>
</tr>
<tr>
<td>Culberson County, Texas</td>
<td>76%</td>
</tr>
</tbody>
</table>

A New Orleans orphanage abandoned after Hurricane Katrina remains empty 15 years later. Communities of color are vulnerable to the effects of climate change.

Impervious Surfaces in Holyoke

Why the City is looking at impervious surfaces and why they matter

City of Holyoke and Milone & MacBroom | May 22, 2020

Impervious Surface Mitigation Plan
7. Utilizing regional solutions toward **regional** benefit.

8. Pursuing approaches from which other MVP communities and the state can **learn**.
Mill River Restoration, South Eastern Massachusetts, USA

- Hopewell Dam, 2012
- Whittenton Dam, 2013
- West Britannia Dam, 2018

Fish Ladder at Morey’s Street, 2013
River Herring in Lake Sabattia, 2018
Thank You

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