EBC Program Series with MassDEP Leadership:
Update from Commissioner Marty Suuberg
& the Southeast Region Leadership Team
Welcome

Daniel K. Moon

President & Executive Director
Environmental Business Council
Welcome to Civil & Environmental Consultants

Jonathan D. Kitchen, PG, LSP
Principal
Civil & Environmental Consultants

Environmental Business Council of New England
Energy Environment Economy
Thank you to our Host

Civil & Environmental Consultants, Inc.
Thank you to our Co-Hosts
EBC Committees & Chapters

Climate Change and Air Committee
Dam Management Committee
Energy Resources Committee
Infrastructure Committee
Ocean and Coastal Resources Committee
Site Remediation and Redevelopment Committee
Solid Waste Management Committee
Water Resources Committee
Ascending Professionals Committee

Connecticut Chapter
New Hampshire Chapter
Rhode Island Chapter
EBC Membership Benefits

Programs

Access

Networking
Upcoming Programs

Oct 2 – New Hampshire Energy Update
Oct 3 – Member Orientation & Committee Wine Tasting
Oct 10 – Update from the Rhode Island DEM Section Chiefs
Oct 17 – Connecticut Solid Waste Update
Oct 18 – Dam Removal in the Northeast
Oct 23 – Leadership Series - MassDEP Regional Teams: Northeast
Oct 24 – New Hampshire Offshore Wind Update
Oct 30 – Update from the CT DEEP Environmental Quality Team
Nov 5 – Water Resources Program: PFAS in Drinking Water
Nov 6 – Leadership Series - MassDEP Regional Teams: Western
Jan 9 – Leadership Series – MassDEP Headquarters
Final Notes

1. Presentations will be posted to “ebcne.org”
   – Link to location of presentations in follow-up email

2. Get involved in EBC Chapters and Committees
   – Join Leadership Teams
   – Join email listserv for each EBC Committee and Chapter
     • Email request to ebc@ebcne.org

3. Finally: Ask questions during presentations
   – Don’t hesitate to interrupt the speaker

4. Audience Introduction
Welcome to Program Introduction and Overview – What You Will Learn

John F. Shea, Esq.

Program Chair & Moderator

Shareholder, Mackie Shea PC
Keynote Address: Review of MassDEP Programs and Priorities

Martin Suuberg

Commissioner

MassDEP
Update from the MassDEP Southeast Region Leadership Team

- Millie Garcia-Serrano, Director, Southeast Region
- Gerard Martin, Bureau of Waste Site Cleanup
- Seth Pickering, Bureau of Air and Waste
- Jennifer Viveiros, Bureau of Administrative Services
- David Johnston, Bureau of Water Resources
EBC Leadership Series: MassDEP Southeast Regional Program

5 Top Critical Issues: "From the Regional Director’s Desk"

Millie Garcia-Serrano, Regional Director
SERO Leadership Team’s Agenda Topics

- Top 5 Critical Issues: “From the RD’s Desk”  
  Millie Garcia-Serrano, Regional Director

- Addressing PFAS through a Collaborative Approach  
  Gerard Martin, Deputy Regional Director, BWSC

- Local Zoning and DEP Enforcement  
  Seth Pickering, Deputy Regional Director, BAW

- Building and Retaining a Sustainable Workforce  
  Jen Viveiros, Deputy Regional Director, BAS

- Integrating Resiliency Planning into the Pilgrim Nuclear Station Facility Closure  
  David Johnston, Deputy Regional Director, BWR
Critical Issue #1: *Moving Government Forward through Transformational Leadership*\(^{(1)}\)

Customers Expect “First-Class, Transparent & Efficient Service”

- Permitting, Technical Review & Approvals, Records Request, Determinations (Upward Increases in FY19)

DEP’s Regulatory/Operational Business Model is Changing

- More Complex/Multifaceted Project Scenarios, Change in Science, Booming Economy -> Increase in Service Demands
- Competitive Market for Qualified/Diversified Workforce w/ Experience/Expertise in Current Environmental Disciplines

SERO’s Responsiveness Strategy is People, Process & Tech-based

- Pursuing Strategic Hiring (8 % Increase in FY19) & Internships
- Blending our Siloed 4-Generational Workforce into 1 “Well-Greased” High Performing Team/ Toastmasters
- Instilling Cross-Programmatic Approaches & Visual Management Board Project (FY20 PFAS Pilot)
- Maximizing Use of Available Technology (EIPAS)

SERO’s Staffing Trends & FY19 Workload Universe: “By the Numbers”

**SERO Staffing FY17-FY19**

- BAW: 0, 20, 40, 60, 80, 100
- BWR: 0, 20, 40, 60, 80, 100
- BWSC: 0, 20, 40, 60, 80, 100
- Operations: 0, 20, 40, 60, 80, 100
- Total: 0, 20, 40, 60, 80, 100

- Sep-17: blue
- Sep-18: green
- Sep-19: orange

**BWSC Universe FY19**

- Open Sites: 800
- Closed Sites: 11,800
- Brownfield Sites: 220
- ER Response: 350

**BWR Universe FY19**

- WWTF GWDP: 188
- WWTF SWDP: 25
- SOC/SDA: 55
- 401 WQC: 15
- NOI: 182
- Chapter 91 Permit: 133
- PWS-Comm: 288
- PWS/Non-Comm: 56

**BAW Universe FY19**

- Active Landfills: 7
- Inactive Landfills: 187
- Transfer Stations: 61
- Waste-to-Energy: 1
- Landfill Solar: 42
- Air Emission Sources: 832
- Air Operating Permits: 25
- ERP: 121
- LQG: 162
- S/YSOG: 982
- UST: 982
Critical Issue #2: Delivering on Agency Mission/Core Program Goals & Capitalizing on Opportunities

Compliance & Enforcement

- LLE
  - FY18: 271
  - FY19: 251
- HLE
  - FY18: 51
  - FY19: 66

Penalty Dollars
- FY18: $139,756
- FY19: $272,068

Inspections
- FY18: 1622
- FY19: 1555

Pre-Permitting
- FY18:
  - Pre-Permitting: 52
  - MEPA ENF: 46
- FY19:
  - Pre-Permitting: 64
  - MEPA ENF: 49

Opportunities
- Former Brayton Point Power Plant Station, Somerset
- Landfill / Transfer Station, Provincetown
Energy-Environment Nexus Opportunities

- **Provincetown Landfill/Transfer Station to Eversource Battery Storage Project, Outer Cape Community, P’town, Truro, Wellfleet**
  - Landfill Closed in 1995, solar array (.153 MW) 2014
  - Proposed 25 MW/38 li-ion Battery Energy Storage System
    - Improve Grid Ops, Reduce Energy Cost, Back-Up Power Reliability (Storm/Peaks), < Enviro Impact
  - **DEP Programs Involved**: Solid Waste, Air, (MEPA?)

- **Former Brayton Point Power Plant Station to Brayton Point LLC’s Commerce Center, Somerset**
  - 2017 - Power Production Ceased
  - 2018 - Site Acquired, asbestos abated in 3 of 4 chimneys, chimneys & 2 cooling towers demolished
  - 2019 - Site grading/ prep began for reuse as logistical port and offshore wind support center (300 Acres of Waterfront Property, Deep Water Port)
  - **DEP Programs Involved**: Asbestos, Solid Waste, NPDES/SWPP, Air, 21E/Brownfields, Wetlands & Waterways, (MEPA Filing Required)
Critical Issue #4: Responding to Emergency Declarations - Tornadoes

Severe Weather Events Trigger DEP Support (e.g., Nor’esters 2018)

7/23/19 (noon): Rare tornado touchdown in S. Yarmouth, 2nd touchdown in Harwich, both Cat. EF-1, 110 mph max wind speed, produced by a long-lived supercell thunderstorm

Significant destruction leaving 50,000 residents affected by 3 pm
  - Rt. 28 nearly impassible due to over 150 downed trees and live wires
  - Roof of Cape Sands Motel ripped and blown off

7/23/19: Commissioner Suuberg issues Barnstable Co. Tornado/Wind Damage Severe Weather ED for Harwich, Yarmouth plus Dennis & Chatham

MEMA’s State of Emergency Ops Center Activated w Multiple Agency Support

- DEP Cross-Bureau Assistance to Locals’ Response / Recovery
  - Solid Waste: Assist with identification of temporary debris management sites (wood waste)
  - Asbestos: Assist Motel contractor with management of scattered ACM, issuance of Emergency Waiver (stabilize/cleanup), review NTWP for Asbestos Abatement, debris cleanup assistance
  - Drinking Water Program: Ensure local sources were not impacted
  - Wetlands: Verify potential impacts of asbestos in nearby marsh
  - ER/Boston: Facilitate initial communication with MEMA
Critical Issue #5: Safeguarding Public Health through DEP’s PFAS Action Plan

A YEAR IN REVIEW

- PFAS: Emerging Contaminants of National & Significant Concern
  - Class of man-made highly fluorinated compounds used since 1950 to manufacture stain/water resistant non-stick products & used in fire-fighting foam
  - Biopersistent /toxic to human health & environment

- EPA’s UCMR3 program initiated in 2012; sampling from 2013-15; data reported in 2016 & summarized/published in 2017

- PWS Initial Testing Identified PFOS and PFOA in the Mary Dunn & Maher Wells (Hyannis) above EPA’s 2016 Provisional Health Advisories of 70 ppt (Σ of 2)

- Subsequent testing of additional 5 PFAS showed detection above DEP’s 2018 ORSG of 70 ppt for Σ of 5 PFAS

- CERCLA/21E Site Investigations & Source Discovery Revealed Barnstable Municipal Airport, Barnstable Fire Rescue & Training Academy, Bourne Rotary and JBCC Fire Training Area as Release Sites

- PFAS DW Program Corrective Actions:
  - Wellhead Treatment (GAC), Blending, Water Purchase, Interconnections, Well Shut Off, Risk Communication through Public Notices and Meetings

- PFAS 21E Program Actions:
  - Federal & Private Sector-lead investigations and cleanups, filtration systems, bottled water provision when necessary, Public Meetings for CERCLA/PIP sites
Known Source of PFAS

- Joint Base Cape Cod
- Barnstable Fire Training Academy
- Otis Rotary – Truck Rollovers
- Barnstable Airport

PFAS Impacted Public Water Supplies
PFAS Impacted Public/Private Water Supplies
PFAS Impacted Private Water Supplies

Known Source of PFAS
PFAS Impacted Public/ Private Water Supplies

Known Source of PFAS

Potential Sources
Known Source of PFAS

- Joint Base Cape Cod
- Truck Rollovers
- Barnstable Fire Training Academy
- Neponset Valley Tech Park
- Plymouth Airport
- Barnstable Airport
- Martha’s Vineyard Airport
- Nantucket Airport

PFAS Impacted Public Water Supplies
- Otis Rotary – Truck Rollovers

PFAS Impacted Public/Private Water Supplies

PFAS Impacted Private Water Supplies

PFAS not detected

Potential Sources
What is Changing and What to Expect from MassDEP?

- MassDEP has Proposed a Groundwater Cleanup Standard (GW-1) of 20 ppt (sum of 6 PFAS), 4/19/19
- Public Comments received under review, final GW-1 standard expected Fall 2019
- DRAFT DW Standard to be proposed late Fall 2019, developed in consideration of comments received on MCP standards (also revised ORSG)
- Expect for MassDEP to:
  - Continue Working with PW Suppliers by:
    - Preparing for likely lower DW guideline/standard
    - Communicating with consumers
    - Encouraging voluntary short-term actions
    - Helping with implementing of long-term treatment
    - Targeted sampling strategy
  - Continue Working with 21E Respondents and LSPs during/after Promulgation of PFAS Cleanup Standards
  - Remain Committed to Keeping up with Latest PFAS news/research/info sharing forums...Stay tuned!
Addressing PFAS Through a Collaborative Approach

Bureau of Waste Site Cleanup

Gerard Martin, Deputy Regional Director
What Are PFAS?

Poly- and perfluoroalkyl substances are a family of compounds that are extremely stable, persistent, soluble and some are very toxic.

Common Uses of PFAS:
- Textile treatments
- Paper coatings
- Car and ski waxes
- Hairsprays
- Manufacturing
- Aqueous Film-Forming Foam (AFFF)
What is the source of drinking water?

63 SERO towns have nearly 80%+ municipal water service (blue)
- 57 primarily groundwater supplies
- 5 primarily surface water supplies

6 SERO towns have a mix of municipal water & private drinking water wells (green)

16 SERO towns primarily have private drinking water wells (yellow)
PFAS and the Massachusetts Contingency Plan

- Notification Requirements: There are currently no RQs or RCs for PFAS
  - 2-hour notification condition for any oil or hazardous material that poses (or could pose) an Imminent Hazard exists

- PFAS considered a hazardous material subject to the MCP
  - MassDEP prepared a Fact Sheet regarding when/how to sample and analyze for PFAS at disposal sites regulated under the MCP

  www.mass.gov/lists/site-cleanup-fact-sheets#pfas-sampling-and-analysis-

- MassDEP may issue a NOR to initiate IRAs or site assessment for a release of PFAS to the environment

- In the absence of MCP Method 1 Standards for PFAS, these compounds must be addressed using a site specific risk assessment approach
Development of PFAS Standards

- **Waste Site Cleanup Program**
  - Drafted revisions to the MCP, including new standards for PFAS, which include a Groundwater Category GW-1 Standard of 20 ng/L (ppt) for $\Sigma$ 6 PFAS
    - PFOA, PFOS, PFNA, PFHxS, PFHpA and PFDA
  - MassDEP solicited written and oral public comment on these proposals
    - 5 public hearings held between May 20 - 29, 2019.
    - Public comment period ended July 19, 2019
    - MassDEP currently addressing the comments
    - PFAS portion of the proposed regulations scheduled to be published in December

- **Drinking Water Program**
  - Process to revise the ORSG and develop/promulgate a drinking water standard has been initiated
What Is MassDEP Doing? Bringing Releases into Waste Site Cleanup

- **Site/Source Discovery**
  Conduct “windshield” inspections of commercial properties in area and issue Requests for Information (RFIs) and Notices of Responsibility (NORs)

- **Sampling Private Wells**
  near known PFAS-contaminated public wells or near suspected sources (PRP-lead or MassDEP)

- **Issue NOR**
PFAS Sites in SERO

- Joint Base Cape Cod (Flight Lines/Fire Training Areas, Tanker Trucks Roll-Over Site, Otis Rotary)
  - Request for PFAS Sampling as part of 5-year review

- Barnstable County Fire and Rescue Training Academy
  - UCMR-3

- Barnstable Municipal Airport
  - UCMR-3
PFAS Sites in SERO
Martha’s Vineyard Airport

LSP conducted sampling in response to MassDEP’s PFAS under MCP June 2018

Sampling Fact Sheet
– 40 point-of-entry treatment systems installed on wells with PFAS greater than 20 ng/L as IRA
PFAS Sites in SERO
Based on findings at the Martha’s Vineyard Airport
MassDEP issued RFIs to comparable airports
PFAS Sites in SERO
Canton Neponset Wells

Wells impacted with PFAS ($\Sigma$ 6) at concentrations ranging from 8 to 30 ng/L

- Wells have GAC for discolored water - and it is removing PFAS
- Sentinel wells have significant concentrations of PFAS
- MassDEP issued eight RFIs in attempt to identify sources
PFAS Sites in SERO

Water Department notified MassDEP after sampling for PFAS and BWSC initiating site/source discovery efforts at:

- Town of Easton Public Water Supply Wells
  - Sampled one well as part of new source approval
  - Sampled two other wells in same Zone II
  - The three wells contain PFAS ranging from 17 to 51 ng/L

- Braintree and Randolph/Holbrook Reservoir
  - Sampled to obtain data for proposed treatment plant
  - Shared reservoir will PFAS ranging from 23.5 to 29.2 ng/L

- Mansfield Public Water Supply Wells
  - Seven wells sampled with PFAS ranging from 8 to 30 ng/L

- Other municipalities???
More Information Online
https://www.mass.gov/info-details/per-and-polyfluoroalkyl-substances-pfas

TABLE OF CONTENTS

- What are PFAS and why are they a problem?
- PFAS detected in drinking water supplies in Massachusetts
- Health advisories and downloadable fact sheets
- Development of a PFAS Drinking Water Standard (MCL)
- Laboratories and testing for PFAS
- Bottled water and home water filters
- PFAS and Waste Sites
- Take-back program for legacy firefighting foam
- PFAS in Wastewater Residuals
- Links to additional information
Local Zoning & MassDEP Enforcement

Bureau of Air and Waste
Seth Pickering, Deputy Regional Director
SERO BAW Challenges

Local Zoning and Enforcement

- Municipalities in Massachusetts control ALL zoning
- All zoning is LOCAL by municipality
- Siting of facilities by Cities and Towns can lead to Complaints to MassDEP
- Facilities with and without a MassDEP Plan Approval
- Most Complaints can be handled on the local level
- Industrial Facilities, Solid Waste Facilities and Wind Turbines have been sources of Noise Complaints to MassDEP
Local Zoning and Enforcement

- City Government
  - City Council with Mayor or City Manager
  - Zoning Ordinance

- Town Government
  - Town Council with a Mayor or Town Manager
  - Town Meeting with a Town Manager or Town Administrator with a Board of Selectmen
    - Representative Town Meeting
    - Open Town Meeting
  - Zoning Bylaws

- All Zoning Ordinances and Bylaws must conform to MGL, Part 1, Title VII, Chapter 40A

- All Zoning Ordinances or Bylaws require a two-thirds majority vote of the applicable voting body
Local Zoning
Things to Look For

- Zoning Ordinances or Bylaws
  - Online at municipalities websites
    - Town of Middleborough/Division 1: Bylaws/Part II: General Legislation/Zoning
    - [https://ecode360.com/30717733](https://ecode360.com/30717733)
  - 1.1 PURPOSE - These Bylaws are enacted to promote the general welfare of the Town of Middleborough, to protect the health and safety of its inhabitants, to encourage the most appropriate use of land throughout the Town and to increase the amenities of the Town, all as authorized by, but not limited by, the provisions of the Zoning Act, Massachusetts General Laws (MGL) Chapter 40A as amended and Section 2A of 1975 Mass Acts 808.
Local Zoning
Things to Look For

Find the Applicable Zoning Section - PLEASE READ IT

- Section 2.0 Districts
- 2.1 ESTABLISHMENT - For the purposes of these Bylaws, the Town of Middleborough is hereby divided into the following types of districts.
  - Residence A (RA)
  - Residence B (RB)
  - Residence Rural (RR)
  - Business (B)
  - Industrial (I)
  - General Use (GU)
  - General Use A (GUA)
  - General Use X (GUX)
  - Commercial Development (CD)
Local Zoning
Things to Look For

- **Zoning Table of Use** - Identifies Land Use Process
  - Special Permit
    - ZBA
    - Planning Board
    - Board of Selectmen
  - As-of-Right = **NO** Special Permit
  - Prohibited
- **Zoning Map** - Permitted Land Uses
  - Are there Sensitive Receptors nearby?
    - Residential Area
    - Schools
  - These scenarios can lead to complaints if new facilities are sited near Sensitive Receptors
Complaints
Sound/Noise

Sound - MassDEP Permitted Facilities
- Predictive sound modeling
- Should be conservative
- Do not underestimate sound/noise impacts
- Use existing representative facility sound data if possible

Lessons Learned
- Once there are sound complaints they almost always NEVER end
- Developers/Clients should anticipate that
- May not be worth taking a chance
- Find the RIGHT SITE
Complaints
Sound/Noise

- Criteria that MassDEP uses to evaluate noise impacts at both the property line and the nearest occupied residence or other sensitive receptors:
  - MassDEP measures noise levels at the complainant's location and at other nearby locations that may be affected
  - If the noise level at a sensitive receptor's location is more than 10 dB(A) above ambient, MassDEP requires the noise source to mitigate its impact
  - MassDEP welcomes the opportunity to work with local officials to determine these impacts
Complaints
Odor/Visible Emissions

Odor /Visible Emissions

► Seek similar facilities
► Observe actual operations, if possible
► Be aware of prevailing winds at proposed site
► If there is residential zoning nearby look at potential impacts
► Lessons Learned
  ▪ Once there are odor complaints they almost always NEVER end AND it raises questions with residents about what other exposures may be
  ▪ Toxics analysis, stack testing with follow up modeling are what people usually want performed
  ▪ Find the RIGHT SITE
Complaints

- Municipalities have regulatory authority to enforce MassDEP nuisance/air pollution regulations
  - 310 CMR 7.09 Dust, Odor, Construction Demo
  - 310 CMR 7.10 Noise
  - Pursuant to 310 CMR 7.52 Enforcement Provisions

- MassDEP will work with local code enforcement officials on how to make determinations in response to complaints
  - Sound Meter Instruction and Loan
  - Guidance on Local Public Heath Regulations
  - Always looking to partner with local officials and facilities to mitigate complaint issues

MassDEP SERO
(508) 946-2714
Environmental Strike Force
617-556-1000
1-888-846-5283
esf.hotline@mass.gov
Building & Retaining a Sustainable Workforce

Bureau of Administrative Services
Jennifer Viveiros, Deputy Regional Director
New Teammates

- Professional Engineer
- MA Certified Asbestos Project Monitor & Inspector
- Coastal Geologist
- Hydrogeologist
- Former Conservation Commission Agents
- Professional Wetlands Scientist
- Experienced 21E Auditor
- Certified Grade 4 Drinking Water Distribution & Treatment Operator
- Solid Waste Engineer
- Multi-Media Inspector
Commitment to Public Service: Emergency Management Assistance Compact

- State to State mutual aid system
- All 50 states, DC, Puerto Rico, Guam & U.S. Virgin Islands
- Save lives, protect property, minimize damage to the environment, meet human needs, lessen economic impact on state responding and/or recovering from disaster
- Responding to request for mutual aid by matching properly trained staff to specific needs
- Over half of MassDEP EMAC-ready staff are SERO employees
  - Incident Command Training
  - Drinking water
  - Wastewater
  - ER/EMS
  - Asbestos
The Right Tools for the Job

- Vehicles
- Charging Stations
- PPE
- Field Equipment
- Training
Filling the Gaps

- Retirements- backfill vacant positions
- Identify areas of critical need
- Post-retirement contracts
- Knowledge transfer/mentoring
- Successful intern program
- Discarding outdated practices & embracing the use of technology
Looking Ahead to 2020

- Lease
- Hiring
- Modernization
Integrating Resiliency Planning into the Pilgrim Nuclear Station Facility Closure

Bureau of Water Resources
David Johnston, Deputy Regional Director
Pilgrim Nuclear Electricity Generation Facility Closure

- Located on Cape Cod Bay in Plymouth, Massachusetts
- Began operating in 1972
- Constructed approximately 20’ or less above sea level
- Uses Cape Cod Bay water “Once-Through” for cooling
- Ceased operating on May 31, 2019
- Entering Decommissioning after 47 years of operation
Resiliency Concerns

- Same basic design as Fukushima - Boiling Water Reactor
- 47 years of spent nuclear fuel remains onsite
- Yucca Mountain Nuclear Waste Repository *not approved yet*
- Current Independent Spent Fuel Storage Installation (IFSFI) elevation
- Climate Change and Sea Level Rise

- 680 megawatts of carbon-free electricity
- Powers approximately 600,000 homes
- Employed approximately 600 people
- Owned by Boston Edison from 1972 to 1999, until electricity deregulation
- Owned by Entergy from 1999 to 2019, until License Transfer to Holtec
- Massachusetts is contesting the NRC License Transfer Decision
Post Closure Decommissioning Options and Cost

- NRC’s “SAFSTOR” allows 60 years to decommission
- “Rapid Decommissioning” may be completed in 8 years
- The Nuclear Decommissioning Trust (NDT) is $1.03 billion
- Entergy proposed SAFSTOR, estimated costs far exceed NDT
- Holtec proposed Rapid Decommissioning, estimated under NDT
Decommissioning Work Efforts Underway

- Nuclear fuel has been removed from reactor to Spent Fuel Pool
- Zirc Fire hazard reduced - Slower moving events allow more response time
- Agreement with Plymouth for 2.5 year continued Emergency Planning Zone
- Agreement reached to relocate Independent Spent Fuel Storage Installation
- Increasing ISFSI from 25’ above sea level to 75’ - 700’ from shoreline
- System 100 Multi-Purpose Canisters (Dry Casks) for “temporary” storage
Dry Cask Storage System

- System 100 Multi-Purpose Canisters (Dry Casks) for “temporary” storage
- High Ductility Carbon Steel, Concrete & Steel, coated to resist corrosion
- Approximately 17’-18’ high and 8’ wide
- Loaded weight is approximately 360,000 pounds or 180 tons
- 40 to 100-year design life Temporary Storage System
- Robust enough to withstand a fuel laden plane strike with no release
Long-term Spent Fuel Storage and Property Reuse

- Rapid Decommissioning goal of 2.5 – 3 years to complete storage assembly
- New 70’X100’ Independent Spent Fuel Storage Installation - 300’ from roadway
- Designed for 70 Dry Casks and will house 61 Dry Casks
- Must be over-packed or transferred for transport for permanent storage
- Goal to release property for unrestricted reuse exempt ISFSI
Thank you!
Networking Break
Introducing - Municipal Vulnerability Preparedness Program

Courtney Rocha

Southeast Regional Climate Coordinator
Municipal Vulnerability Preparedness Program
MA EOEEA
Municipal Vulnerability Preparedness Program

Courtney Rocha
MVP Coordinator, Southeast Region
MA Executive Office of Energy and Environmental Affairs
<table>
<thead>
<tr>
<th>Changes in precipitation</th>
<th>Rising temperatures</th>
<th>Sea level rise</th>
<th>Extreme weather</th>
</tr>
</thead>
<tbody>
<tr>
<td>18% increase in consecutive dry days</td>
<td>10.8°F increase in average annual temperature</td>
<td>4-10.5 feet along the MA coast</td>
<td>Increase in frequency and magnitude</td>
</tr>
<tr>
<td>57% increase in days with &gt;1 in. rainfall</td>
<td>42% decrease in days/year with min. temperatures &lt; 32°F</td>
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<tr>
<td>7.3 inches additional annual rainfall</td>
<td>1,280% increase in 90-degree days/year</td>
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Executive Order 569 - 2016

- Comprehensive approach to reduce GHG emissions to combat climate change and prepare for the impacts of climate change
  - State Adaptation Plan
  - Climate Coordinators
  - Agency Vulnerability Assessments
  - Municipal Support

Environmental Bond - 2018

- $2.4 billion bond bill with focus on climate change resiliency
- Over $200 million authorized for climate change adaptation
- Codifies EO 569, including the MVP Program
Massachusetts State Hazard Mitigation and Climate Adaptation Plan (SHMCAP) - September 2018

- Acknowledges that climate change is already worsening natural hazards, integrating information and planning elements for 14 natural hazards that affect the Commonwealth.

- Uses best scientific data and projections to assess risk and vulnerability.

- Evaluates the Commonwealth’s existing capabilities to implement agency-specific and statewide activities to reduce risk and increase resilience.
SHMCAP Key Risk Assessment Findings and Actions

14 hazards

Over $9.1M in damages/year, 2007-2014

On average, 6 events/year, 2009-2018

200+ critical facilities in tornado hazard zones

108 actions, including:

- Develop climate change design standards
- Maintain and enhance climate change projections
- Incorporate climate effects into capital planning functions
- Create MA Coastal Flood Risk Model

Inland flooding
Drought
Landslide
Coastal flooding
Coastal erosion
Tsunami
Extreme temperatures
Wildfire
Invasive species
Hurricanes/Tropical storms
Severe winter storms / Nor'easters
Tornadoes
Other severe weather
Earthquakes
SHMCAP Implementation

Leading by example  ResilientMA Action Team (RMAT)

State and local partnerships  Municipal Vulnerability Preparedness Program (MVP)
Municipal Vulnerability Preparedness (MVP) Program

A state and local partnership to build resilience to climate change by building capacity to respond to climate effects at the local level and pilot innovative adaptation practice.

Across the Commonwealth, cities and towns need financial and technical resources to prepare their residents, businesses, and aging infrastructure:

- 12,000+ culverts and small bridges needing replacement
- 1,100 municipally-owned coastal structures
- 300 high-hazard dams
- 96% DHCD housing developments to see 5.4° increase in max temperature by 2070
MVP Principles

A community-led, accessible process that

- Employs local knowledge and buy-in
- Utilizes partnerships and leverages existing efforts
- Is based in best available climate projections and data
- Incorporates principles of nature-based solutions
- Demonstrates pilot potential and is proactive
- Reaches and responds to risks faced by EJ communities and vulnerable populations

Why nature-based?
Where appropriate, nature-based solutions can be more cost-effective, protect water quality and quantity, sustain lands that provide food and recreation opportunities, reduce erosion, and minimize temperature increases associated with developed areas and climate change.
MVP Grants

MVP Planning Grant
- $15,000 – $100,000 per plan, completed by 6/30/2020
- Some expanded scopes
- $1M available

MVP Action Grant
- Open to MVP communities
- $25,000 – $2M per project, completed by 6/30/2020
- $10M available annually

https://www.mass.go/municipal-vulnerability-preparedness-mvp-program
MVP Resources

COMMUNITY RESILIENCE BUILDING WORKSHOP(S)

- Define and characterize hazards using latest science and data
- Identify existing and future community vulnerabilities and strengths
- Develop and prioritize community adaptation actions
- Identify opportunities to take action
- Receive MVP designation

MVP Planning Grant

MVP Action Grant

Implement priority adaptation actions identified through planning process
MVP Resources
Three Years of MVP

MVP Designations
71% of the Commonwealth
249 communities

Action Grant Projects
FY 18: 37
FY 19: 36
FY 20: Released Sept. 2019

Total Awards
$17M+ in planning and action grants to date
MVP Regions

- Northeast: Michelle Rowden – DEP Lawrence
  michelle.rowden@mass.gov
- Greater CT River Valley: Carolyn Meklenburg – EEA Boston
  carolyn.meklenburg@mass.gov
- Greater Boston: Courtney Rocha – DEP Lakeville
  courtney.rocha@mass.gov
- Southeast: Regional Coordinator: (to be filled)
- Central: Regional Coordinator: (to be filled)
- Berkshires & Hilltowns: Regional Coordinator: (to be filled)
- Southeast: Regional Coordinator: (to be filled)
- Greater CT River Valley: Regional Coordinator: (to be filled)
- Central: Regional Coordinator: (to be filled)
- Greater Boston: Regional Coordinator: (to be filled)
- Northeast: Regional Coordinator: (to be filled) – Springfield
- Greater CT River Valley: Regional Coordinator: (to be filled) – DEP Worcester
- Berkshires & Hilltowns: Regional Coordinator: (to be filled) – Pittsfield
Berkshires & Hilltowns

Regional Coordinator (based in Pittsfield): (To be filled)

FY19 Planning Grants:
- Becket
- Blandford
- Chesterfield
- Cummington
- Goshen
- Great Barrington
- Lenox
- Williamsburg
- Windsor
- Worthington

FY19 Action Grants:
- Pittsfield
Greater Connecticut River Valley

Regional Coordinator (based in Springfield): (To be filled)

FY19 Planning Grants:
- Agawam
- Athol
- Barre
- East Longmeadow
- Gardner
- Greenfield
- Hadley
- Leverett
- Orange
- Royalston
- South Hadley
- Sunderland
- Templeton
- Wendell
- West Springfield
- Whateley

FY19 Action Grants:
- Belchertown
- Deerfield
- Northampton
- Southwick
- Springfield
Central

Regional Coordinator (based in Worcester): (To be filled)

FY19 Planning Grants:
- Ashland
- Ayer
- Bellingham
- Douglas
- Dudley
- Fitchburg
- Franklin
- Groton
- Holliston
- Hopkinton
- Lancaster
- Leominster
- Medway
- Northborough
- Paxton
- Rutland
- Shirley
- Southborough
- Westborough

FY19 Action Grants:
- Devens
- Millbury
- Spencer
- Uxbridge
Northeast
Regional Coordinator (based in Lawrence): Michelle Rowden - michelle.rowden@mass.gov

FY19 Planning Grants:
- Bedford
- Danvers
- Groveland
- Hamilton
- Lynnfield
- Maynard
- Merrimac
- Middleton
- Pepperell
- Saugus
- Tewksbury
- Tyngsborough

- Wakefield
- West Newbury
- Westford

FY19 Action Grants:
- Concord
- Essex, Ipswich
- Salem
- Salisbury
- Woburn
Greater Boston

Regional Coordinator (based in Boston):
Carolyn Meklenburg – carolyn.meklenburg@mass.gov

FY19 Planning Grants:
- Avon
- Belmont
- Dover
- Malden
- Milton
- Needham
- Norfolk
- Norwell
- Plainville
- Stoughton
- Watertown
- Wellesley
- Weston
- Westwood
- Winchester

FY19 Action Grants:
- Boston
- Brockton
- Cambridge
- Dedham
- Medford
- Scituate, Cohasset
- Walpole
- Wrentham
Southeast

Regional Coordinator (based in Lakeville):
Courtney Rocha – courtney.rocha@mass.gov

FY19 Planning Grants:
- Aquinnah
- Attleboro
- Dartmouth
- Dennis
- Dighton
- Fairhaven
- Halifax
- Hanson
- Harwich
- Marshfield
- Mashpee
- Middleborough
- Plymouth
- Plympton
- Seekonk
- Somerset
- Taunton

FY19 Action Grants:
- Duxbury
- Edgartown
- Falmouth
- Mattapoisett
- Nantucket
- Oak Bluffs
- Rehoboth
- Sandwich
- Westport
MVP Action Grants: Project Types

- Detailed Vulnerability and Risk Assessment*
- Community Outreach and Education
- Local Bylaws, Ordinances, Plans, and Other Management Measures**
- Redesigns and Retrofits***
- Nature-Based Flood Protection, Drought Mitigation, Water Quality, and Water Infiltration Techniques
- Nature-Based, Infrastructure and Technology Solutions to Reduce Vulnerability to Extreme Heat and Poor Air Quality

* Most common project type
** Second-most common project type
*** Third-most common project type
Nature-Based Solutions to Reduce Vulnerability to other Climate Change Impacts

Ecological Restoration and Habitat Management to Increase Resiliency

NEW IN 2019

- Energy Resilience
- Chemical Safety
- Land Acquisition for Resilience
- Anticipated: Subsidized Low-Income Housing Resilience Strategies
+ Expanded eligibility of project location
Nature-Based Solutions

- Southwick: Stream crossing replacement with upstream nature-based flood mitigation measures
- Northampton: Detaining, retaining, treating stormwater with green infrastructure
- Millbury: Green infrastructure in downtown revitalization
- Essex, Ipswich, Newbury (Regional): Sedimentation study
- Concord: Reforestation and municipal tree resilience
- Falmouth: River restoration
- Oak Bluffs: Beach nourishment

MVP Projects using Nature-Based Solutions
MVP Planning Grant/Designated Communities (2017-2019)
MVP Regional Designation
Example Action Grant Projects

Land Acquisition for Resilience

**Mattapoisett**

Purchased 120 acres of forest, streams, freshwater wetlands and coastal salt marsh as conservation land to prevent development in vulnerable areas.
Utilizing green infrastructure like stormwater planters, bioretention bump outs, rain gardens, and other measures like porous pavers and pervious pavement to reduce heat island effects and stormwater runoff into the Blackstone River.
Example Action Grant Projects
Local Bylaws, Ordinances, Plans, and Other Management Measures
Redesigns and Retrofits

**Boston**

Developing its first ever resilient building code so that development in the future floodplain is prepared for at least three feet of sea level rise, the likely scenario by late century.

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.
Example Action Grant Projects

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

Belchertown

Designing and permitting for a replacement water storage tank that would increase storage capacity and resiliency to drought, and completing a feasibility/concept design of a rainwater harvesting system at Belchertown High School to irrigate the athletic fields.
Salisbury

Increasing the resilience of the neighborhood of Ring’s Island by raising its access/egress roads and by improving tidal flushing through culvert replacements
Next Steps: Climate Change & the Commonwealth

Bill S.10:
An Act for Climate Change Adaptation Infrastructure Investments in the Commonwealth

- Building on success of existing programs like MVP: Proposed new source of revenue for loans, grants, and technical assistance to municipalities and regional partnerships for priority adaptation projects
  - Proposed deeds excise increase → est. $137M annually ($1B in ten years)
  - Recurring, long-term revenue stream for multi-year project feasibility
Details and Timeline – Planning Grant

- Approximately $1 million to award, up-front payment model
- RFR release: Late September 2019
- Applications due: Rolling until mid-January 2020 - see RFR for details (moving away from paper applications)
- Award announcement: Rolling
- Projects start: Anticipated January 2020
- Projects end: June 30, 2020
Details and Timeline – Action Grants

- Approximately $10 million to award
- RFR release: Late September 2019
- Applications due: Early to mid-November - see RFR for details (moving away from paper applications)
- Award announcement: Anticipated January 2020
- Projects start: Anticipated January 2020
- Projects end: June 30, 2020 OR June 30, 2021
- Fully reimbursable model (as tasks are completed and invoiced for)
- 25% match – cash or in-kind (could be federal or private foundation grants, but not other state grants)
Courtney.Rocha@mass.gov
https://www.mass.gov/municipal-vulnerability-preparedness-program
RMAT: Resilient MA Action Team

Responsible for the State Hazard Mitigation and Climate Adaptation Plan (SHMCAP) implementation, monitoring, and maintenance, with representatives from each Secretariat and key state agencies

- RMAT Technical Advisor (Aug 2019–2021)

First year initiatives
- Statewide resilience standards and guidance
- Resilient capital planning evaluation tool
- Action tracker

+ Templates for municipalities
Please Fill out the Program Survey

On a scale of 0-10, how likely are you to recommend this program to a colleague?

Will Not Recommend ----------------------------------------------- Will Definitely Recommend

0  1  2  3  4  5  6  7  8  9  10

General comments or suggestions on how program could be improved:

Suggestions for future EBC Program topics:

Name & Email (optional):

Environmental Business Council of New England
Energy  Environment  Economy
Moderated Discussion

Moderator: John Shea, Mackie Shea

Panelists:

• Millie Garcia-Serrano, Director
• Gerard Martin, Bureau of Waste Site Cleanup
• Seth Pickering, Bureau of Air and Waste
• Jennifer Viveiros, Bureau of Admin. Services
• David Johnston, Bureau of Water Resources

Environmental Business Council of New England
Energy Environment Economy