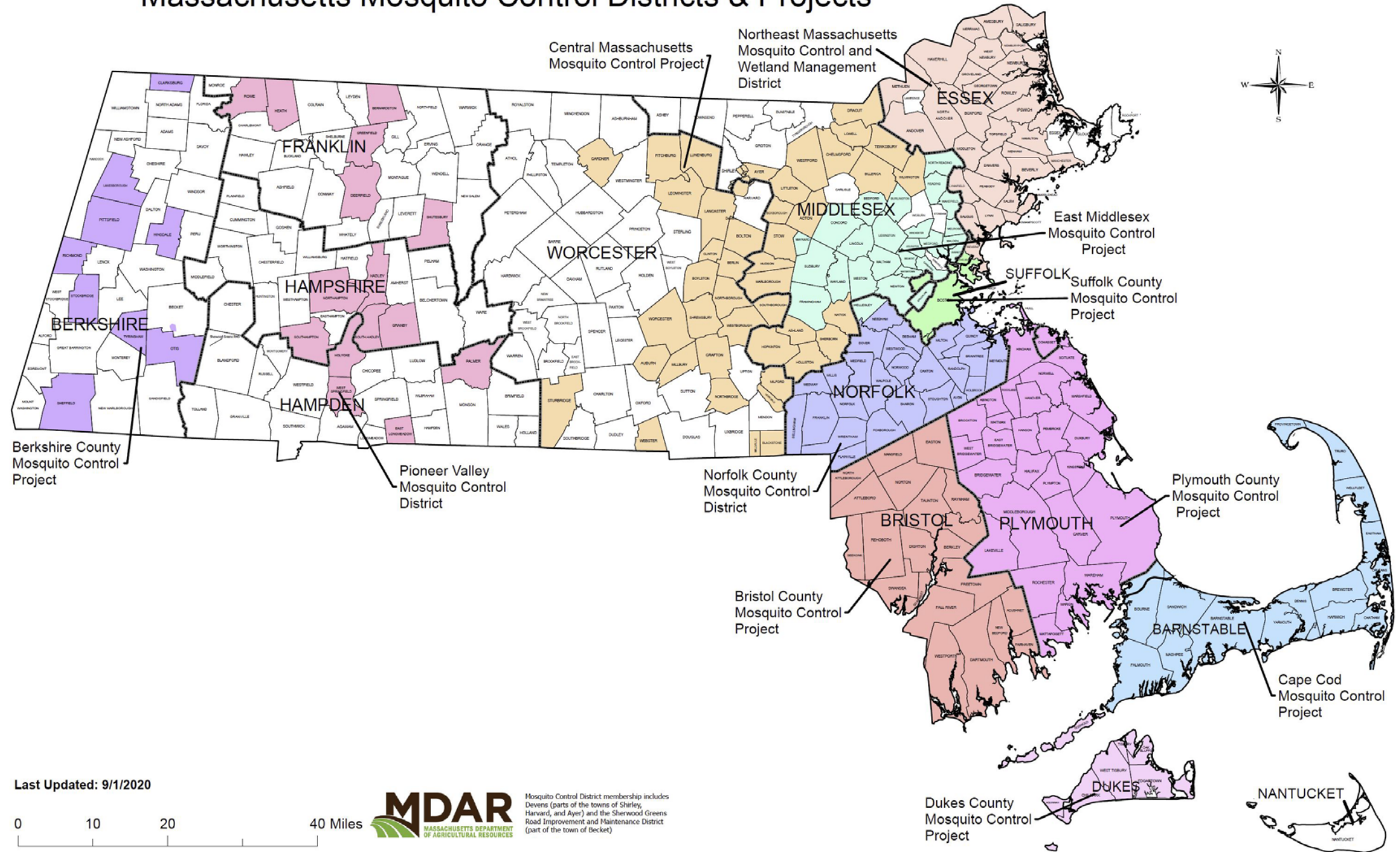


Massachusetts Mosquito Control Districts & Projects



MA Mosquito Control Projects: Who are we?

The first organized Mosquito Control Project in Massachusetts was established through legislation in 1930

- Total Number of Employees: 105
 - 38 Employees with Pesticide Core License
 - 59 Employees with Core and Specialty Pesticide License
 - 99 Employees that Attended a Credited Training Course in 2019
 - 41 Employees with Postsecondary Degrees* (1 AS, 6 BA, 20 BS, 10 MS, 1 MBA, 2 MPH, 1 PhD)
 - Superintendent/Acting Superintendent Average Years of Experience: > 20 years
-
- Total Number of Commissioners: 46
 - 37 Commissioners with Postsecondary Degrees* (3 BA, 10 BS, 11 MS, 1 MBA, 1 MPA, 5 MPH, 3 PhD, 1 ScD, 1 JD, 1 MD)

*** This does not include the many certificates and professional licenses both civilian and military.**



PESP Gold Level Members since 1997

List of Services

Larviciding

- Ground
 - Hand
 - Backpack
 - Truck
- Aerial
 - Helicopter
 - Fixed Wing
- Catch Basin

Adulticide

- Vector Control
- Municipal/BOH Request
- School Request
- Residential Request
- High Trap Counts
- Barrier Treatments

Water Management

- Manual
- Mechanized
- Culvert Cleaning

Surveillance

- Larval
- Adult
- Arbovirus Testing

Education & Outreach

- School Programs
- Health Fairs
- Senior Centers
- Farmer's Markets
- Social Media
- Traditional Media
- Website
- Beekeeper Associations
- Fact Sheets/handouts

Source Reduction

- Tire Recycling
- Town-Wide Cleanups
- Homeowner Education

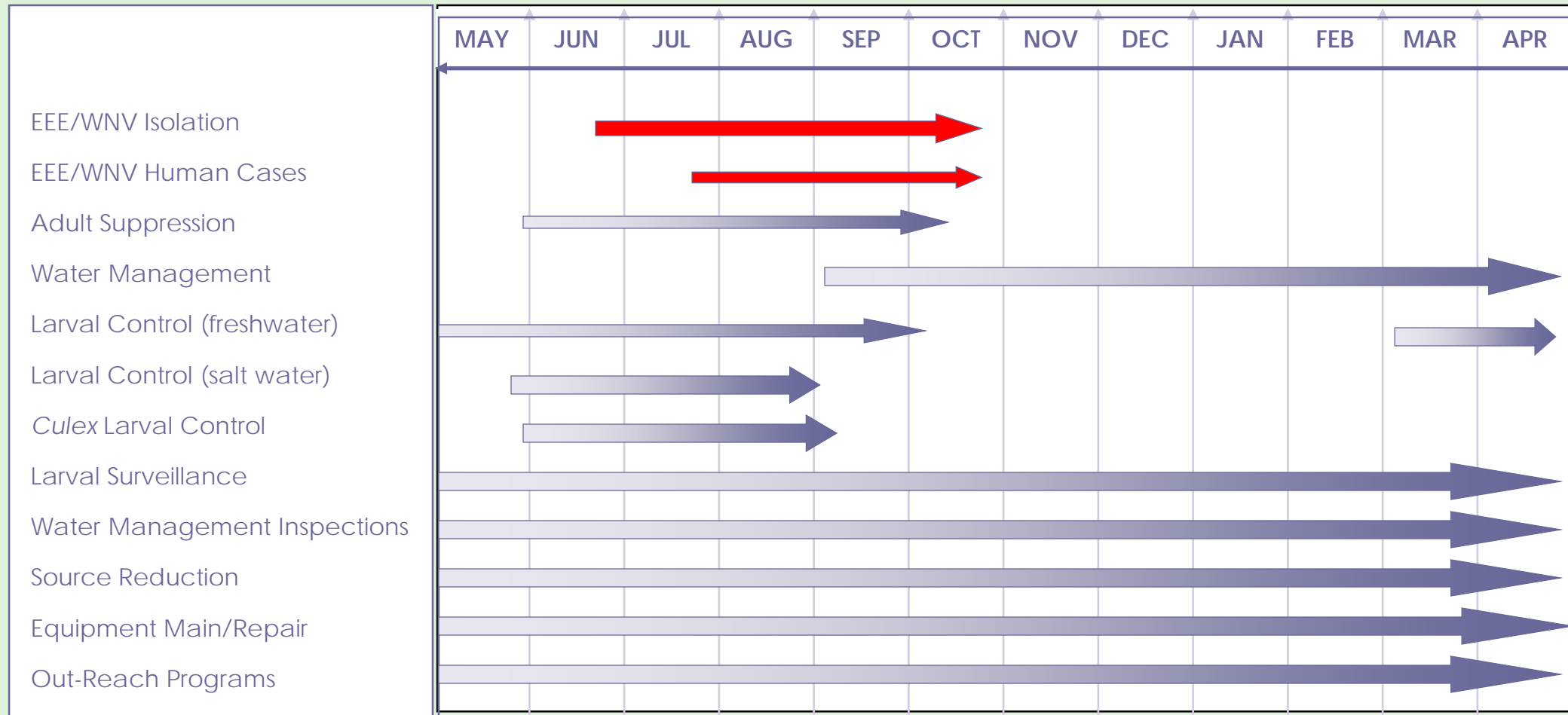
GIS

- Pesticide Applications
- ULV Tracking
- Exclusion locations
- Service Request
- Water Management Planning
- Map Potential Habitat
- Aerial Spray Mapping

Beaver Mitigation

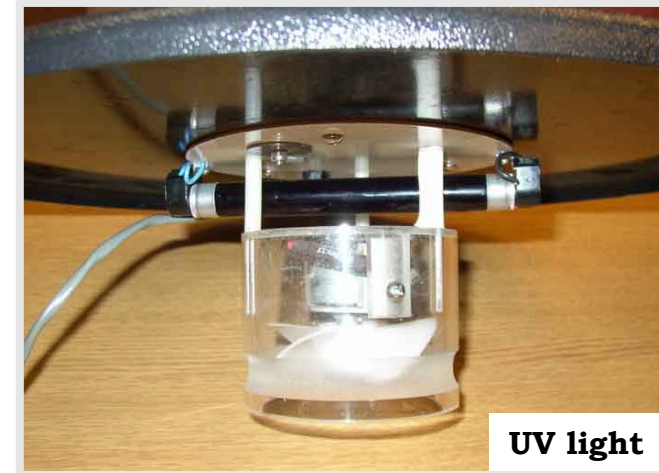
- Notifications
- Education
- Data

Seasonal Mosquito Control Timeline



Surveillance

The Cornerstone to Intergraded Mosquito Management



Surveillance

[illegible]

Species	Active period	Eastern Equine Encephalitis	West Nile virus	Jamestown Canyon	Other
<i>Aedes abserratus</i>	April-August			x	
<i>Aedes albopictus</i>	May-October	x	x		Chikungunya (CHIKv), Dengue (DENV), <i>Dirofilaria immitis</i> (DI), Zika (ZIKv)
<i>Aedes canadensis</i>	May-October	x	x	x	Cache Valley (CVV), Highlands J (HJV), LaCrosse (LACv)
<i>Aedes cantator</i>	May-October	x	x	x	CVV, HJV
<i>Aedes cinereus</i>	May-October	x	x	x	CVV, HJV
<i>Aedes excrucians</i>	April-August			x	
<i>Aedes sollicitans</i>	May-October	x	x	x	CVV
<i>Aedes sticticus</i>	April-August	x	x	x	CVV, Trivittatus (TVT)
<i>Aedes taeniorhynchus</i>	May-October	x	x	x	CVV
<i>Aedes triseriatus</i>	May-October	x	x	x	CVV, HJV
<i>Aedes trivittatus</i>	May-October	x	x	x	CVV, TVT, Potosi (POTv), DI
<i>Aedes vexans</i>	May-October	x	x	x	Japanese Encephalitis (JEV), TVT, Western Equine Encephalitis (WEV), HJV
<i>Anopheles punctipennis</i>	May-October	x	x	x	CVV, HJV,TVT
<i>Anopheles quadrimaculatus</i>	May-October	x	x		CVV, HJV, Yellow Fever
<i>Anopheles walkerii</i>	May-October	x	x		CVV, HJV
<i>Coquellettidia perturbans</i>	June-October	x	x	x	CVV, Flanders (FLV), HJV,TVT
<i>Culex pipiens</i>	May-October	x	x		St Louis Encephalitis (SLV), WEV, CHIKv, FLV, HJV
<i>Culex restuans</i>	May-October	x	x	x	FLV, HJV
<i>Culex salinarius</i>	May-October	x	x		FLV, HJV
<i>Culex territans</i>	May-October	x			
<i>Culiseta melanura</i>	May-October	x	x		CVV, FLV, HJV, WEV
<i>Culiseta morsitans</i>	May-October	x	x	x	HJV
<i>Psorophora ferox</i>	May-October	x	x	x	CVV, HJV, JCV, TVT

Surveillance Guidance Documents

- Mosquito Generic Environmental Impact Report (GEIR) (1998, 2010)
- MDAR/ NHESP MOU (annual update)
- MDPH Vector Control Plan (annual update)
- SRMCB Vector Control Plan
- CDC guidelines

Larvicide Program

To reduce the emergence of adult mosquitoes in areas where mosquito larvae are present and targeted to specific water source.

- Control the larval and pupal stages
 - No control measures for the egg stage
- Use biorational pesticides
- Rely on GIS photos and wetland layers
- Database for larvicide requests
- Reliable Pesticide Record
 - Record time and date
 - Wet or dry
 - Larvae present or not
 - Product name and EPA Reg. #
 - Calculate application rate based on product



Larviciding

	Berkshire MCP	Bristol MCP	Cape Cod MCP	Central Mass MCP	East Middlesex MCP	Norfolk MCD	N.E Mass MC&WMD	Pioneer Valley MCD*	Plymouth MCP	Suffolk MCP
Ground	✓	✓	✓	✓	✓	✓	✓		✓	✓
Aerial		✓		✓	✓	✓	✓		✓	✓
Catch Basin	✓	✓	✓	✓	✓	✓	✓		✓	✓

*Larviciding services to be offered as capacity grows.

Larviciding Guidance Documents

- Mosquito GEIR (1998, 2010)
- EPA Pesticide Label
- Pesticides approved by MA Pesticide Bureau
- EPA application guidelines
- MA Pesticide Regulations 333 CMR 13.00 & 14.00
- MA Pesticide Exclusion Regulations
- MDAR/ NHESP MOU (annual update)
- National Pollutant Discharge Elimination System (NPDES) permit (annual report)
- Special Use permit with US Fish and Wildlife Service (annual report)
- MDPH Vector Control Plan (annual update)
- SRMCB Vector Control Plan
- OSHA guidelines

Mosquito Adulticides

- Pesticides designed to travel as an aerosol through the air
- Small droplets remain airborne for a period of time necessary to come in contact with a mosquito
- Droplets are created through Ultra Low Volume (ULV) sprayers
- Pyrethroids used in MA
- Low application rate ~1.0 oz/acre
- Made between Dusk and Dawn
 - Targets mosquitoes' feeding period
 - Atmospheric stability
 - Reduces non-target effects



Adulticiding

	Berkshire MCP	Bristol MCP	Cape Cod MCP	Central Mass MCP	East Middlesex MCP	Norfolk MCD	N.E Mass MC&WMD	Pioneer Valley MCD*	Plymouth MCP	Suffolk MCP
Vector Control	✓	✓	✓	✓	✓	✓	✓		✓	✓
Residential Request	✓	✓		✓		✓	✓		✓	
Municipal/ BOH/School Request	✓	✓		✓		✓	✓		✓	
High Trap Counts	✓	✓		✓	✓	✓	✓		✓	✓

*Adulticiding services to be offered as capacity grows

Adulticiding Guidance Documents

- Mosquito GEIR (1998, 2010)
- EPA Pesticide Label
- Pesticides approved by MA Pesticide Bureau
- EPA application guidelines
- MA Pesticide Regulations 333 CMR 13.00 & 14.00
- MA Pesticide Exclusion Regulations
- MDAR/ NHESP MOU (annual update)
- MDPH Vector Control Plan (annual update)
- SRMCB Vector Control Plan
- SRMCB regulations- Pollinator Protection
- OSHA guidelines

Water management

Our goal is to remove debris, silt and vegetation from drainage ditches throughout our service area to improve water flow, thus eliminating standing water conducive to larval development.

- Performed by hand or mechanized (with excavator)
- We use erosion control materials and re-seed to stabilize banks and work area
- Saltmarsh restoration



Water Management

	Berkshire MCP	Bristol MCP	Cape Cod MCP	Central Mass MCP	East Middlesex MCP	Norfolk MCD	N.E Mass MC&WMD	Pioneer Valley MCD*	Plymouth MCP	Suffolk MCP
Manual	✓	✓	✓	✓	✓	✓	✓		✓	✓
Mechanized		✓	✓	✓	✓	✓	✓		✓	✓

*Water Management services to be offered as capacity grows

Water Management Guidance Documents

- Mosquito GEIR (1998, 2010)
- Mosquito BMP for Freshwater Mosquito Control (2008)
- Open Marsh Water Management Standards (2010)
- Army Corp Federal permit
- EPA guidance and regulations
- MDAR/ NHESP MOU (annual update)
- DEP and local Conservation Commission guidance
- OSHA guidelines

Beaver Mitigation

- DEP guidance and regulations
- MassWildlife guidance and regulations
- Conservation Commission guidance and regulations
- OSHA guidelines

Source Reduction



Backyard Breeding Sites:
Clogged Gutters, Trash Barrels, Empty Flower Pots, Buckets, Animal
Water Troughs and anything that can hold water

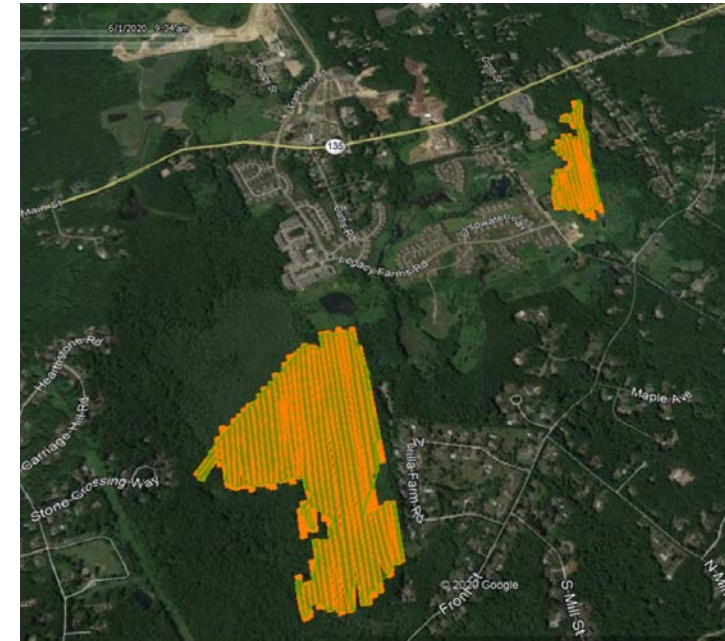
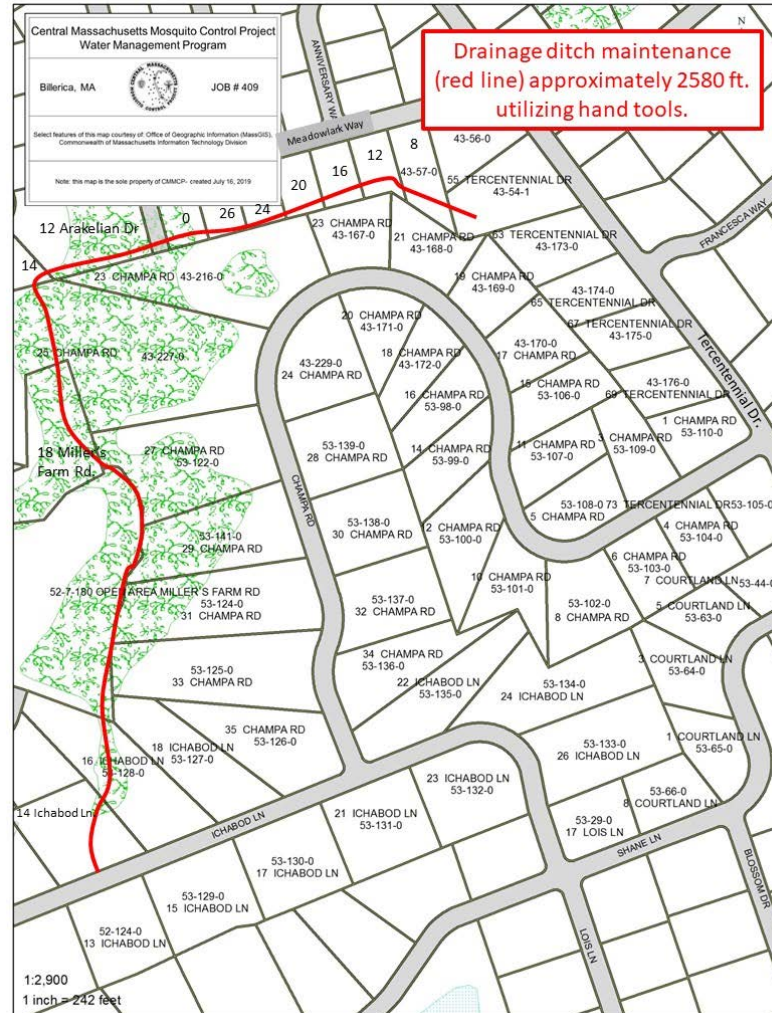
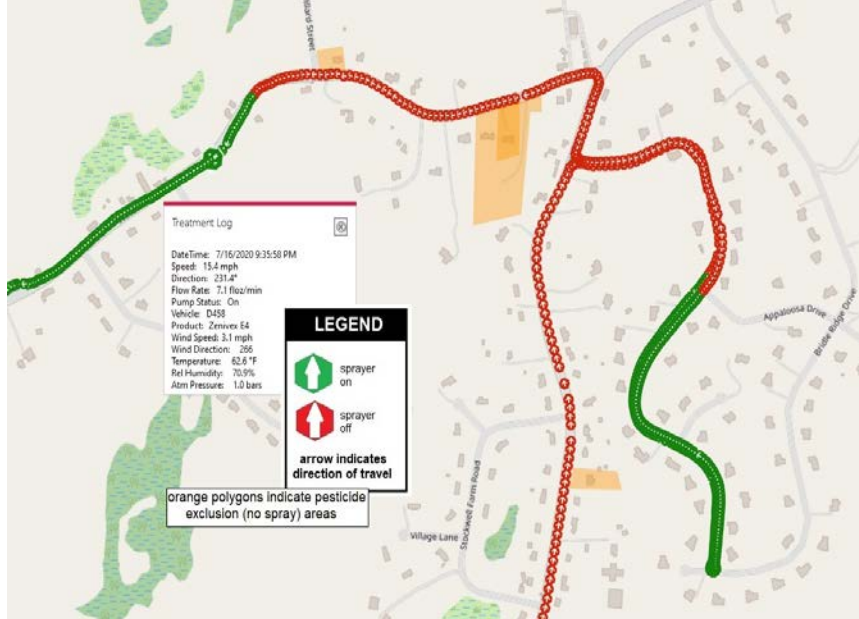
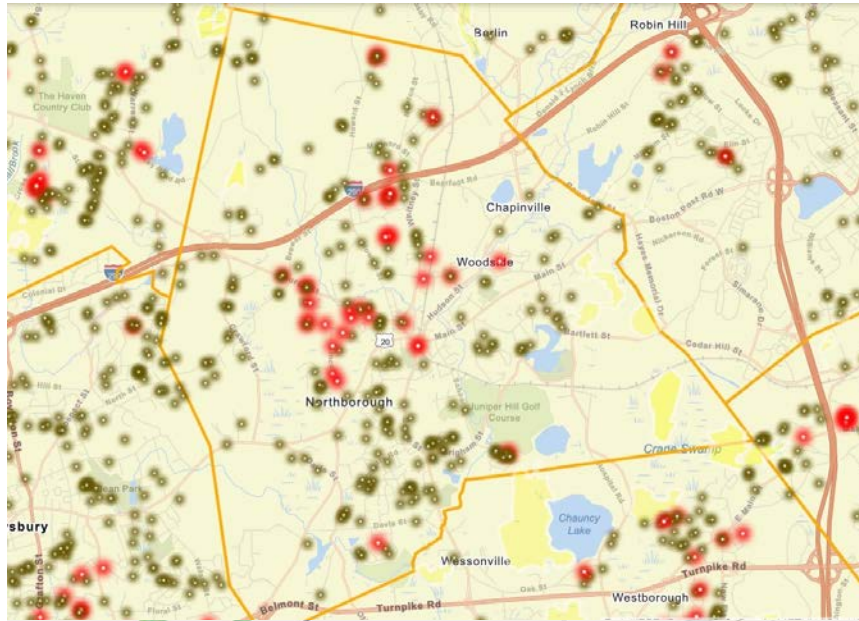
Source Reduction

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Source Reduction Guidance Documents

- DEP Solid waste guidelines
- CDC guidelines
- Academic protocols for invasive species
- OSHA guidelines

GIS Mapping



GIS Mapping

	Berkshire MCP	Bristol MCP	Cape Cod MCP	Central Mass MCP	East Middlesex MCP	Norfolk MCD	N.E Mass MC&WMD	Pioneer Valley MCD	Plymouth MCP	Suffolk MCP
Pesticide Applications	✓	✓	✓	✓	✓	✓	✓		✓	✓
Exclusion Locations	✓	✓	✓	✓		✓	✓		✓	
Service Requests	✓	✓	✓	✓		✓			✓	
Water Mgmt.		✓	✓	✓		✓			✓	

Education & Outreach

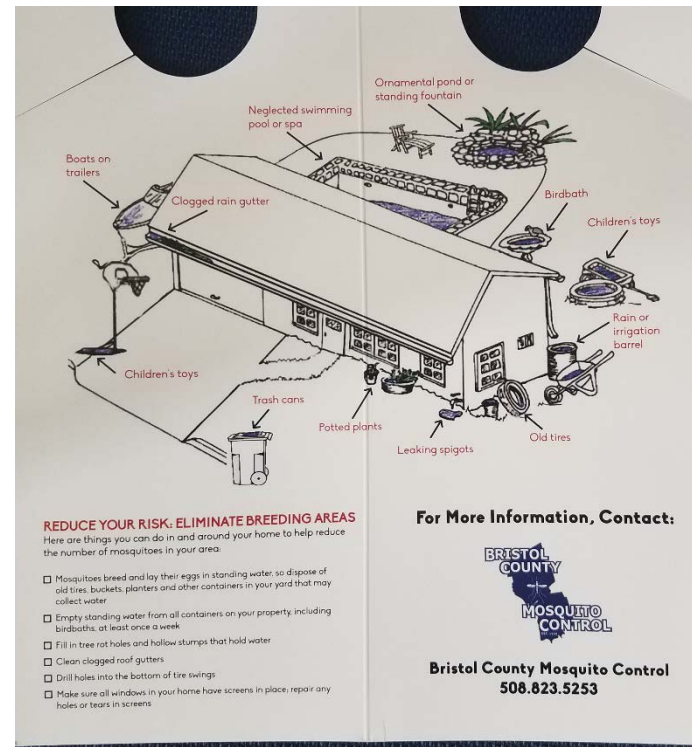
- Social media
- Health events
- Farmer's markets
- Libraries
- Schools



- Personal Protection
- How to avoid mosquito bites!

5 D's of Protection

- **D**usk
- **D**awn
- **D**ress
- **D**EET
- **D**rain



Education & Outreach

[illegible]

References

- State Reclamation and Mosquito Control Board
<https://www.mass.gov/state-reclamation-and-mosquito-control-board-srmcb>
- MA Department of Public Health
www.mass.gov/mosquito-borne-diseases
- Center for Disease Control and Prevention
<https://www.cdc.gov/mosquitoes/index.html>
- American Mosquito Control Association
www.mosquito.org