



# Town of Sunderland



**Municipal Vulnerability Preparedness (MVP) Program**

# MVP Resiliency Plan

**September 2020**

Facilitated by the  
Franklin Regional Council of Governments  
A State-Certified MVP Provider



# MVP Resiliency Plan

Including the Summary of Findings from the  
Community Resilience Building Workshop

October 2019

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# Town of Sunderland

## Community Resilience Building Workshop

### Summary of Findings

#### **Overview:**

Throughout Franklin County, Massachusetts, communities are experiencing more extreme weather events – especially heavy rains and flooding – along with higher temperatures and other climate-related conditions. These types of conditions are predicted to increase as a result of climate change.

In the face of these changes, municipalities have more of a sense of urgency to increase their resilience and adapt to extreme weather events and mounting natural hazards. Relatively recent events in Franklin County, such as Tropical Storms Irene and “Snow-tober,” have reinforced this urgency and compelled communities like the Town of Sunderland to proactively plan and mitigate potential risks. This type of planning will reduce the vulnerability of Sunderland’s people, infrastructure and natural resources, and will empower Sunderland’s officials and citizens to take steps to protect themselves and their community.

In 2019, with funding from the Massachusetts Executive Office of Energy and Environmental Affairs, the Franklin Regional Council of Governments (FRCOG) offered the Town of Sunderland technical assistance in completing their Community Resilience Building Workshop to achieve a designation as a Municipal Vulnerability Preparedness Community or “MVP” Community. As a State-certified MVP Provider, the FRCOG helped Sunderland engage in a community-driven process that brought together climate change information and local knowledge to conduct the workshop, whose central objectives were to:

- Define top local natural and climate-related hazards of concern;
- Identify existing and future strengths and vulnerabilities;
- Develop prioritized actions for the Community;
- Identify immediate opportunities to collaboratively advance actions to increase resilience.

This report summarizes the findings of the Town of Sunderland’s Community Resilience-Building Workshop.

# Community Resilience Building Workshop

## Summary of Findings

The Town of Sunderland, population 3,684, has conducted a number of planning projects in previous years, including its 2014 Hazard Mitigation Plan (currently being updated), which enabled the Town to identify high priority hazards as well as areas, infrastructure and populations vulnerable to a variety of hazards, and action items to potentially address hazards. Other recent Sunderland plans include: Town of Sunderland Open Space and Recreation Plan (2014-2021); Sunderland Master Plan Transportation and Circulation Chapter (2014); Town of Sunderland Housing Plan (2016); Sunderland Complete Streets Prioritization Plan (2017); and Sunderland ADA Transition Plan (2019).

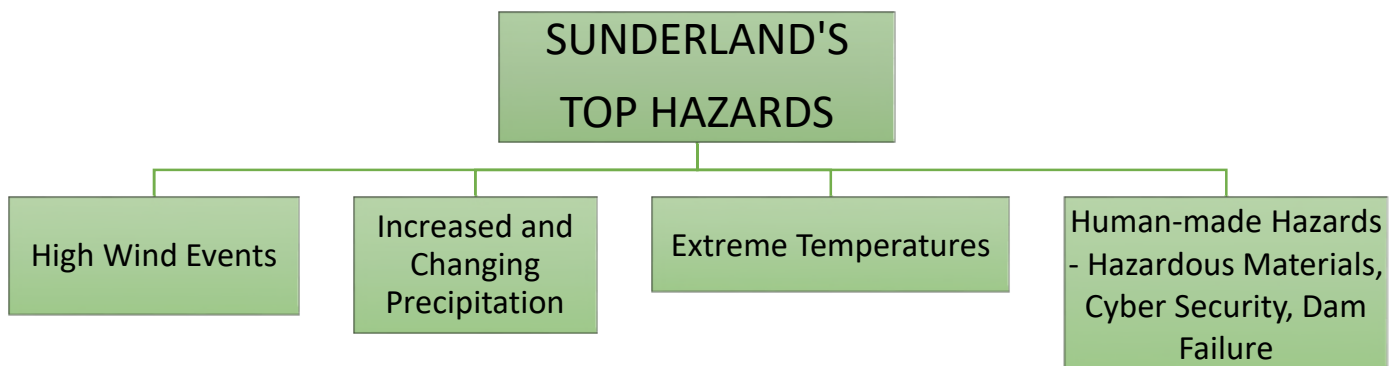
In spite of Sunderland's diligence in completing these planning efforts, there was still a need for the community to conduct a hazard assessment across scales – from individual buildings and bridges to rivers and landscapes, and across sectors – infrastructure, society and environment – looking specifically through the lens of climate change and its likely impacts.

Workshop participants considered climate change impacts most likely to impact Sunderland, including rising and extreme air temperatures, extreme weather events and increased precipitation, both in quantity and intensity.

The workshop was critical to enabling participants to think about and engage with people from different sectors. People representing emergency management, highway, police, fire, administration, planning, water supply, library, energy committee, historic commission, and interested residents came together to determine the most threatening hazards to the Town of Sunderland and to agree upon high priorities and actions to address them.

## Top Hazards

Workshop participants discussed a number of hazards that impact Sunderland, deliberating on how frequent, how intense and how widespread each hazard has been and could potentially be in the future. Hazards discussed included: dam failures, severe winter storms/ice storms, earthquakes, hurricanes, wind storms/microbursts, tornados, ice jams, floods, wild fires, landslides, droughts, human-made hazards and extreme temperatures. Top hazards identified by the participants are as follows:



## ***Areas of Concern***

### ***Infrastructure and Transportation:***

Limited access for emergency personnel when the Sunderland Route 116 Bridge is out; limited emergency access routes for residents; lack of backup power for the DPW, public buildings and the designated cooling shelter; prolonged power outages; reliance on cell and internet infrastructure for public emergency communication; un-maintained drainage ditches on private property; unmapped and/or failing culverts; fire pond in need of dredging.

***Facilities and businesses:*** Lack of identified shelters outside of the floodplain and dam inundation area; businesses, critical facilities, and farmland located within dam inundation area; lack of continuity of operations plan for dam failure event; economic impacts of flooding, drought, and power outages on farms.

***Public health:*** Impact of extreme temperatures on vulnerable populations; transportation of hazardous materials through town on roads and railroad; contamination of private wells and farmland from flooding; insect-borne diseases; high water table in southern Sunderland leading to flooded basements and mold/mildew issues.

***People:*** Effective emergency communications with large renter population; large student population without private transportation; non-English speaking residents without access to emergency information; people living in isolated neighborhoods without reliable communication pathways; elders throughout Town; private homes in the floodplain and/or wildland urban interface.

***Ecosystems and natural resources:*** Wildfire potential on Mt. Toby and more populated flat grasslands; beaver dams; floodplains throughout Town; steep topography and unstable slopes; insect borne diseases; impact of flooding, drought, and high wind to farmland and crops.

## ***Current Concerns & Challenges Presented by Hazards***

For many in Franklin County, Tropical Storm Irene in 2011 is a bellwether event, demonstrating the extent and severity of extreme weather and increased rain that is predicted to become more frequent in the coming years. Although Sunderland was not impacted nearly as severely as towns to the northwest, the damage and extreme impact from Irene was felt throughout the region.



*A 2009 "gustnado" destroyed tobacco barns in Sunderland along Route 47.*

Participants in the workshop discussed a number of hazards, both natural and human-made which have impacted the community in recent years. Short-term, acute weather events including severe wind events, changes in precipitation including more ice and rain in the winter and increased amounts of precipitation falling in a short period of time, extreme and erratic temperatures, and dam failure and other human-made hazards are of the most concern for participants.

A large portion of Sunderland's populated area lies within or adjacent to a broad, flat floodplain area of the Connecticut River. Workshop participants identified this area as prone to high wind events that can damage buildings and crops and result in power outages. High wind could also easily and quickly spread a wildfire across this area, a concern due to the number of people living in the lowland area of town.

Workshop participants expressed concern about heavy rain events and potential future flooding, particularly within the Connecticut River floodplain where a high water table already causes flooded basements and farm fields. Drainage channels, most on private land, have become disconnected and may not be maintained. Standing water, along with delayed fall frosts, also leads to greater risk to mosquito-borne diseases such as West Nile Virus and Eastern Equine Encephalitis (EEE). Changing precipitation patterns due to climate change were also a concern. More rain and ice in the winter will result in greater amounts of runoff from Mt. Toby and other high elevation areas in town; long, dry periods could result in drought and higher wildfire potential.

Temperature extremes, such as high heat and freezing temperatures were another top concern. Elderly and low income residents are particularly vulnerable to extreme temperatures and may lack air conditioning or safe ways to adequately heat their homes. Periods of extended high heat or extreme cold may strain the already vulnerable electrical grid in town. Participants noted that a plan for more resilient back-up power and air-conditioning is needed. The elementary school is the designated shelter, but does not have air-conditioning. Extreme heat can also contribute to poor air quality by trapping emitted pollutants close to the ground, impacting people with asthma and other respiratory diseases as well as young children and the elderly.

Participants also identified human-made hazards as a top concern, particularly dam failure, cyber security, and hazardous materials transported by rail or on the roads through the Town. All of the Town's critical facilities are within the high-hazard dam inundation area, as are many residences, businesses, and farms. Evacuation, emergency communications, and sheltering are all a concern in the event of a high hazard dam failure. A plan is needed for this and other hazards that may result in the closure or loss of the Route 116 bridge over the Connecticut River. Additionally, reliance of public emergency communication on cell and internet infrastructure is a vulnerability. Renters in town may not be signed up for Code Red to receive emergency notifications, and may also lack access to personal transportation options. The Town is also not yet equipped to communicate effectively with all non-English speaking residents.

## ***Specific Categories of Concerns and Challenges***

**Location of Critical Facilities and Limited Emergency Access Routes:** Participants raised several concerns with regard to the Town's critical facilities and evacuation options. The primary concern is with the loss or closure of the Sunderland Route 116 Bridge over the Connecticut River. When the Sunderland Bridge closes, all westward evacuation options are lost, including the closest access to I-91. The majority of residents must rely on Routes 47 and 116, as there are very few backroads throughout Sunderland that could be used during an emergency.



*Sunderland MVP workshop participants identifying and prioritizing top hazards.*

In addition, all of the Town's critical facilities, including Police, Fire, Highway, Town Offices, and shelters, are located within the high-hazard dam inundation area. The Town does not currently have a continuity of operations plan in the event that all facilities are unusable.

**Resident Turn-Over and Isolated Residents in Sunderland:** Participants raised concerns about the frequent turnover of residents in Town, which can make emergency preparedness and response especially challenging. There are four large apartment complexes in Town, including the Mt.

Toby Apartments and Cliffside Apartments. An additional 150 apartment units are under construction just off of Route 116 near the southern border of Town. Many of the renters are students at the University of Massachusetts, Amherst, which leads to frequent turnover of the rental units. Workshop participants were concerned that residents living in the apartment complexes for a short time may not have updated contact information in the Town's Code Red system, and may not have access to private transportation in the event of an evacuation order. Sunderland has a Memorandum of Understanding (MOU) with the PVTVA for evacuation purposes, but the agreement is in need of updating and could be supplemented with other possible transportation options. The Town is also not yet equipped to communicate effectively with all non-English speaking residents.

Elderly residents, isolated residents, and residents who are dependent on medical devices were also of concern to workshop participants. These residents may not have reliable access to information concerning emergencies or access to regular, reliable public transportation. Further, the Town may not have up to date information on where vulnerable populations are located, which may limit emergency evacuation or response efforts.

**Vulnerability of Communication Systems:** Workshop participants also discussed threats to communication systems, including cell phone and internet service. Power outages were noted to be a common event during storms, which can impact residents' ability to receive emergency information. Sunderland actively uses the CodeRed system to contact residents, but this system is not formally tested on a periodic basis.

The current COVID19 pandemic has only highlighted how important communication is during an emergency to provide reliable, accurate information to residents. Members of the Sunderland Emergency Preparedness Team (SEPT) felt that improved communications would help with future communicable disease emergencies.

**Sheltering:** Although Sunderland has identified the Sunderland Public Library and the Sunderland Elementary School as sheltering options for different natural hazards, workshop participants voiced concern that the facilities are vulnerable to flooding and are within the dam inundation area. In the past, the Town has worked with the Dean of Students at the University of Massachusetts, Amherst in order to develop an MOU to allow residents to shelter in campus buildings. However, this MOU has not been successfully executed. Participants discussed the need to begin identifying alternative sheltering options.

The elementary school serves as the Town's primary shelter and has a backup generator available for use. However the school's gym does not have air conditioning, which may complicate sheltering during warmer months.

**Energy Resilience:** The water department, fire department, police department, and wastewater treatment plant all have backup generators. However, workshop participants mentioned that some of these facilities may be in need of new generators, and could benefit from backup battery storage. Additionally, a procedure needs to be established for buildings such as the Highway Department and the Library for using the portable generator. Some of the apartment complexes and housing for migrant farm workers lack back-up power.

Outreach to farms also identified energy resilience as a key concern and need. Some farms have added, or would like to add, on-site renewable energy power sources, like solar PV and solar hot water. Solar-powered back-up battery storage was identified as a need to increase resilience to extended power outages that could be devastating to a farm business. Batteries powered by renewable energy could also allow for more flexible siting of greenhouses, which help protect crops from severe weather, but require a power source.

**Impacts of Flooding and Drought on Farms and Residences:** The flat low-lying area in Sunderland has drainage



*Farms in Sunderland play an important role in the community, providing local food, jobs, and agri-tourism.*



ditches on private property, which were established when the Town was first developed. Over time, many of these ditches have become overgrown and plugged and no longer properly drain the area. Standing water can lead to increased risk of mosquito-borne diseases such as West Nile Virus and Eastern Equine Encephalitis (EEE). In addition to issues with the drainage ditches, the naturally high water table and increased precipitation in recent years have caused farmers to lose arable land because their fields are become too wet. Basements in this area are also routinely flooded and private septic systems are vulnerable to failure. Mold and mildew resulting from the wetness in these buildings is a public health concern. Workshop participants mentioned that fixing these drainage issues cannot be a municipal led effort, as the majority of the ditches are located on privately-owned land.

Drought is also a problem for farms in Sunderland. Many farms in the Town are located to the east of Route 47, which limits their access to water from the Connecticut River. Irrigation is time consuming and adds hours to an already full workday. Smaller farms may lack irrigation equipment to make the task more efficient. Drought also places homes at risk in this area of town, where a wildfire could easily and quickly spread.

**Vulnerabilities related to wildfire:** Participants also voiced concerns with regard to the possibility of a wildfire outbreak and the Town's ability to manage a fire. Overall lack of maintained fire access roads to forested land in town is a concern. Large tracks of forestland around Sunderland Fire Tower on Ox Hill, Roaring Mountain, Middle Mountain Road, Cross Mountain Road, North Mountain Road, and Tower Road are not maintained. Some of these access roads are currently inaccessible to all but the most rugged off-road vehicles or completely impassible due to washouts. Wildland firefighting, as well as search and rescue operations, are severely impeded in these areas. Lack of water for firefighting purposes is also a concern. In the past, the Town Park pond was used for firefighting, but is now silted in due to nearby development.

Since the workshop in the Fall, a June 2020 wildfire in neighboring Leverett that consumed 66 acres demonstrated how even mild drought conditions can lead to serious wildfire conditions.

### ***Current Strengths and Assets***

Sunderland's emergency planning and response procedures are regularly reviewed and updated. The Town has taken a proactive approach to emergency preparedness, which was evident at the workshop as participants readily provided known vulnerabilities, but also strengths and actions to address these vulnerabilities. Participants sited several strengths and assets that help keep their community resilient in the face of climate change and other challenges. They include:



**Public water supply with backup power:** Sunderland has a total of seven public water supply wells, which serve 93% of the residents in town. Additionally, the water supply comes from a mix of groundwater and surface water resources. The Sunderland Water District also has two water storage tanks that can supply emergency back-up water supply to the apartment complexes in the event that well water is not available or cannot be used.

**Proactive emergency planning:** The Sunderland Emergency Preparedness Team is made up of members from a variety of Town departments, and meets periodically to review Town emergency procedures and plans. The SEPT is involved in long-term hazard mitigation planning, and members take part in regular trainings and exercises for hazardous material, evacuation, sheltering, and other incidents.

**Town sheltering and communication plans:** The Town's primary sheltering location, the Sunderland Elementary School, is large, has kitchen facilities and bathrooms, and is equipped with a generator. The Library is also a designated warming and cooling center, and is wired for a portable generator. The Town actively uses CodeRed to alert residents during emergencies. A large logo and link to sign enroll in CodeRed is promoted on the main page of Sunderland's website to encourage increased participation.

**Active community groups and volunteers:** Sunderland has active community members dedicated on improving the quality of life for residents in a variety of ways. Participants also said that informal neighborhood groups provide support to residents in the event of an emergency or severe weather.

**Diverse Natural Resources:** Workshop participants noted that there are many protected open spaces throughout the town. Sunderland is



*The solar array adjacent to the Sunderland Elementary School.*

home to the Mount Toby State Forest, which covers 755 acres, and many small farms that comprise 11% of the Town's land uses. Agriculture plays an important role in the culture and economy of the town, providing local food, jobs, and cultural activities and tourism. The Town is a designated Green Community, signifying that energy efficiency and renewable energy is important to Sunderland officials and residents. A solar PV array was installed and completed at the Elementary School in January 2017, and as of February 2020 the system has generated 1.15 GWh of electricity.<sup>1</sup>

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<sup>1</sup> Sunderland School Energy Online Dashboard.

<http://s38728.mini.alsoenergy.com/Dashboard/2a566973506447374343554b772b71413d>

## ***Top Recommendations to Improve Resilience***

Sunderland's top priority recommendations, shown below, address key vulnerabilities while building upon current strengths.



***Formalizing the emergency communication plan*** topped the list of highest priority recommendations, with first responders and other workshop participants agreeing that coming up with a plan for when internet service goes out is critical. Developing a backup or analog plan is essential to improving town-wide communications in the event of a hazard. In addition, participants emphasized the need to encourage, or require with rental leases, sign-up for Code Red. Improving the Town's ability to communicate to residents in multiple languages was also emphasized.

***Dredging the fire pond on Park Road*** is also a top priority recommendation, especially to increase Sunderland's capacity to fight a wildfire. Related to this recommendation is to improve and maintain fire access roads in forested areas.

***Continuing to track the elderly and vulnerable populations in town*** is a high priority recommendation. Workshop participants discussed gaining more information on elderly and vulnerable populations so that their needs can be considered and met during any emergency evacuations. This includes isolated residents, residents with medical or other special needs, and residents lacking transportation options.

***Developing an evacuation plan to account for a closure of the Sunderland Bridge*** is essential for the Town. Current evacuation options are limited if the bridge goes out or is closed; as previously discussed in this report, 50% of evacuation routes are cut off if residents and emergency personnel cannot cross the bridge. Once a plan is developed, the Town should coordinate with the South County EMS to run a practice drill. Workshop participants agreed that developing backup evacuation plans are critical to ensure the safety of all residents during severe storms or other hazards.

***Improving back-up power resources at critical Town facilities*** is considered a top priority recommendation. A procedure and maintenance plan is needed for the Town's portable

generators for use at the Highway Garage and Library. The Elementary School serves as the Town's primary sheltering location, and has a large solar array onsite. Workshop participants agreed that adding battery storage at the school would build resiliency into the Town's current sheltering plan. Reviewing other Town buildings for battery storage powered by renewable energy, such as solar or small-scale wind, is also a priority.

# Community Resilience Building Risk Matrix



**H-M-L** priority for action over the **Short** or **Long** term (and **Ongoing**)

**V** = Vulnerability **S** = Strength

## Top Priority Hazards

Features	Location	Ownership	V/S	Recommendations	High Wind	Precipitation	Extreme Temperatures	Human-made Hazards	Priority	Time
									H - M - L	Short Long Ongoing
<b>Infrastructural</b>										
Power grid / back-up power	Town-wide	Private	V/S	Power comes from multiple directions so it typically comes back on quickly if there is an outage. Provide public education on back-up power options for private property.	X	X	X	X	M	S
	Farms	Private	V/S	Assist farms with assessing and prioritizing energy resilience measures, including renewable energy powered battery storage, and identifying funding for implementation.	X	X	X	X	M	S
Route 116 Bridge	Sunderland Bridge (Route 116)	Town/State	V	Evacuation and emergency access relies on Route 116 bridge, however the bridge has been destroyed in the past during storms. Develop a plan and run an exercise with the South County EMS for a hazard event that results in a Route 116 bridge closure.	X	X		X	H	Ongoing
Elementary School	Off Old Amherst Road	Public	S/V	The Sunderland Elementary School is a designated shelter. The school has a back-up generator, but lacks air conditioning for sheltering during warmer weather. Equip the school with air conditioning in the gym and cafeteria; explore adding battery back-up at the Elementary School's solar PV array to improve energy resilience.	X	X	X	X	H	S
Public Water Supplies	Town-wide	Town	S	The water district has two generators at well sites and most of the Town is on the municipal water supply.	X	X		X		
Public Buildings	Town-wide	Town	V	The Water District, Fire Department, Police Department and wastewater treatment plant all have backup generators. The Highway Department and Library are equipped to use a portable generator. Evaluate public buildings for onsite power generation using renewable energy, such as solar or small-scale wind, coupled with battery storage to increase resiliency.	X	X	X	X	H	S
Communications with Residents	Town-wide	Town	S/V	Code Red is maintained but not tested. Additionally, the Town cannot see who is on the list. Continue to register residents and come up with solutions to increase participation, such as requiring renters to sign up as a part of their lease agreement.	X	X	X	X	H	Ongoing
Communications Infrastructure	Town-wide	Public / Private	V	Develop a backup communication strategy when cell and internet service is down. Explore agreements with the UMass radio station or other resources in nearby communities. Consider purchasing a communications trailer.	X	X	X	X	H	S

**Community Resilience Building Risk Matrix**



**H-M-L** priority for action over the **Short** or **Long** term (and **Ongoing**)

**V** = Vulnerability **S** = Strength

**Top Priority Hazards**

Features	Location	Ownership	V/S	Recommendations	High Wind	Precipitation	Extreme Temperatures	Human-made Hazards	Priority	Time
									H - M - L	Short Long Ongoing
Evacuation Options	Town-wide	Public / Private	V	Residents rely heavily on Route 47 + 116; there are few back roads or alternate travel routes. Evacuation agreements with PVTa are in place but need to be updated; agreements with other transit authorities and bus companies should be established. Continue working with MassDOT on a transportation plan.	X	X	X	X	M	Ongoing
Culverts	Town-wide	Town	V	Culverts should be mapped, assessed, and prioritized for maintenance or replacement, taking into consideration increased precipitation projections.		X		X	M	S / Ongoing
Railroad / Route 63 and Public Water Supply Aquifer	Northeast Corner of Town	Private / Public	V	Hazardous materials are transported through Sunderland on the railroad and State Route 63. A train derailment or spill from the roadway could seriously impact the aquifer that is used as the water supply for residents in this section of town. Develop a Standard Operating Procedure for responding to a spill in this area of town in order to protect the aquifer.				X	H	S
Fire pond	Park Road	Town	V	Sunderland's fire pond on Park Road needs to be dredged and maintained for firefighting purposes.	X	X	X	X	H	S / Ongoing
Wildland fire access	East / North of Route 116	Public / Private	S/V	Fire roads are not maintained and are lacking in many forested areas of town. Inventory and assess existing fire roads and identify improvements. Coordinate with landowners and foresters when harvests are being planned in order to improve fire access.	X	X	X	X	H	S
<b>Societal</b>										
Evacuation	Route 116; Route 47	Private	V	Residents without transportation may need help evacuating. Agreements with transit authorities and bus companies should be updated or established (see also Evacuation Options under Infrastructure)	X	X	X	X	H	S / Ongoing
Frequent resident turnover	Apartment complexes	Private	V	There are more renters (and a larger student population) in Town than in other areas of Franklin County. Apartment managers can send email blasts to residents as one form of communication. Efforts should be made to enroll renters in CodeRED at the time of leasing, and to update 911 information on any special needs to be considered during an emergency or evacuation. (see also Communications with Residents under Infrastructure)	X	X	X	X	H	Ongoing

**Community Resilience Building Risk Matrix**



**H-M-L** priority for action over the **Short** or **Long** term (and **Ongoing**)

**V** = Vulnerability **S** = Strength

**Top Priority Hazards**

Features	Location	Ownership	V/S	Recommendations	High Wind	Precipitation	Extreme Temperatures	Human-made Hazards	Priority	Time
									H - M - L	Short Long Ongoing
Sheltering	Elementary School; Library	Town	S/V	Sunderland does have sheltering options, but options for shelters outside of the dam inundation area should be evaluated. The Maple Ridge Community Church could be looked into further, and establishing agreements with surrounding communities on the same side of the Connecticut River.	X	X	X	X	M	Ongoing
Elderly, isolated, and residents with medical / special needs	Town-wide	Private	V	Promote the formation and maintenance of neighborhood groups. Continue to track vulnerable populations in Sunderland; encourage seniors to sign up with TRIAD.	X	X	X	X	H	Ongoing
Non-English speaking residents	Town-wide	Private	S/V	Continue providing emergency information in multiple languages. Work with UMass translation services or other resources to develop prepared messages in multiple languages that could be used in a variety of emergency situations.	X	X	X	X	H	S / Ongoing
<b>Environmental</b>										
Farms and prime farmland soils	Mainly along Route 47 and southwest section of town	Private	S/V	Farms are vulnerable to extreme weather, flooding, and drought, and many lie within the dam inundation area or floodplain. Assist farms with assessing and prioritizing climate resiliency options to protect crops and farm fields, and identify funding for implementation.	X	X	X	X	M	S
Large old trees	Town-wide	Private/Public	S/V	If downed, these trees can impact power lines, homes, and roads. Work with Eversource to identify high hazard trees.	X	X	X	X	M	Ongoing
Public trees	Town-wide	Public	S/V	Ensure that public trees are maintained to reduce the risk of downed limbs. Develop a tree planting plan for areas lacking public shade trees, and to replace aging trees that will need to be removed.	X	X	X		M	S / Ongoing
Properties in the floodplain	Floodplain	Private	V	As part of the update process to the FEMA floodplain maps, conduct education and outreach to property owners about NFIP flood insurance. Post information about NFIP on Sunderland's Town website.		X			M	S
Insect/animal borne diseases + pest control	Town-wide	N/A	V	Swamps and wetlands increase risk of disease. Consider joining the Pioneer Valley Mosquito Control District. Educate residents about how to be notified of planned spraying by the State, and how to opt-out of spraying.			X		M	S
Wildland urban interface	Town-wide	Private	V	Conduct public education and outreach to residents to better prepare them for a wildfire.		X	X		M	S
Drainage ditches	Town-wide	Private	S/V	Ditches on private property should be maintained. Continue engineering and hydraulic analysis of the ditch system and identify feasible options for maintenance. Reach out and educate landowners.		X			M	S



## Highest Priority Recommendations

- Develop a plan and run an exercise with the South County EMS for a hazard event that results in a Route 116 bridge closure.
- Equip the Sunderland Elementary School with air conditioning in the gym and cafeteria; explore adding battery back-up at the Elementary School's solar PV array to improve energy resilience.
- Evaluate public buildings for onsite power generation using renewable energy, such as solar or small-scale wind, coupled with battery storage to increase resiliency.
- Continue to register residents with the CodeRED emergency call system, and come up with solutions to increase participation, such as requiring renters to sign up as a part of their lease agreement / Efforts should be made to enroll renters in CodeRED at the time of leasing, and to update 911 information on any special needs to be considered during an emergency or evacuation.
- Develop a backup communication strategy when cell and internet service is down. Explore agreements with the UMass radio station or other resources in nearby communities. Consider purchasing a communications trailer.
- Develop a Standard Operating Procedure for responding to a hazardous material spill along the railroad or on Route 63 in order to protect the aquifer.
- Sunderland's fire pond on Park Road needs to be dredged and maintained for firefighting purposes.
- Inventory and assess existing fire roads and identify improvements. Coordinate with landowners and foresters when harvests are being planned in order to improve fire access.
- Residents without transportation may need help evacuating. Agreements with transit authorities and bus companies should be updated or established.
- Promote the formation and maintenance of neighborhood groups. Continue to track vulnerable populations in Sunderland; encourage seniors to sign up with TRIAD.
- Continue providing emergency information in multiple languages. Work with UMass translation services or other resources to develop prepared messages in multiple languages that could be used in a variety of emergency situations.

## *Moderate Priority Recommendations*

- Provide public education on back-up power options for private property.
- Assist farms with assessing and prioritizing energy resilience measures, including renewable energy powered battery storage, and identifying funding for implementation.
- Evacuation agreements with PVTA are in place but need to be updated; agreements with other transit authorities and bus companies should be established. Continue working with MassDOT on a transportation plan.
- Culverts should be mapped, assessed, and prioritized for maintenance or replacement, taking into consideration increased precipitation projections.
- Sunderland does have sheltering options, but options for shelters outside of the dam inundation area should be evaluated. The Maple Ridge Community Church could be looked into further, and establishing agreements with surrounding communities on the same side of the Connecticut River.
- Assist farms with assessing and prioritizing climate resiliency options to protect crops and farm fields, and identify funding for implementation.
- Work with Eversource to identify high hazard trees.
- Ensure that public trees are maintained to reduce the risk of downed limbs. Develop a tree planting plan for areas lacking public shade trees, and to replace aging trees that will need to be removed.
- As part of the update process to the FEMA floodplain maps, conduct education and outreach to property owners about NFIP flood insurance. Post information about NFIP on Sunderland's Town website.
- Consider joining the Pioneer Valley Mosquito Control District. Educate residents about how to be notified of planned spraying by the State, and how to opt-out of spraying.
- Conduct public education and outreach to residents to better prepare them for a wildfire.
- Ditches on private property should be maintained. Continue engineering and hydraulic analysis of the ditch system and identify feasible options for maintenance. Reach out and educate landowners.