

**Community Resilience Building Risk Matrix**



Municipal Vulnerability Preparedness (MVP)  
CommunityResilienceBuilding.org

**MANCHESTER-BY-THE-SEA June 2018**

**Top Priority Hazards**

**H-M-L** priority for action over the **S**hort or **L**ong term (and **O**ngoing)  
**V** = Vulnerability **S** = Strength

Features	Location	Ownership	V or S	Coastal Flooding: Sea Level Rise, Storm Surge, Coastal Erosion	Inland Flooding: Intense Precipitation, Erosion	Severe Weather - Extreme Temps & High Wind: hurricanes, nor'easters, blizzards, thunderstorms	Drought & Extreme High Temperature	Priority	Time
								H - M - L	Short Long Ongoing
<b>Infrastructural</b>									
Manchester Town Hall, Police, Emergency Operations, Dispatch, Harbormaster	10 Central Street	Town	V	Evaluate and implement flood proofing; move vulnerable assets 3-feet above base flood level (BFE); flood proof doors, openings; elevate electrical, mechanical and communications systems; upgrade generator and relocate to higher ground.				H	O/S
				Evaluate long-range possibilities to include relocation or sea level rise/storm surge barrier in Manchester Harbor to protect multiple assets.				H	L
Sawmill Brook Central Street Bridge, Central Pond, upstream culverts and bridges	Central Street	Town	V	Complete evaluations of hydrology, hydraulic restriction and deteriorating condition of bridge; then move forward with design, permitting and implementation. Implement Sawmill Brook restoration at Central Pond to preserve flood storage, improve habitat value and provide flood mitigation for adjacent properties.				H	O
				Design, permit, and implement the seven other Sawmill Brook projects already identified to reduce flooding and restore the Brook, working from downstream up the watershed.				H	O
Wastewater Treatment System (WWTP)	12 Church Street	Town	V	Given the WWTP is in the FEMA 100-year flood zone, evaluate options: relocating, joining SESD, building a Harbor barrier, or protecting in place, i.e., building a floodwall and elevating; evaluate condition and location of pump stations and onsite WWTP in other areas of town.				H	O/L
Manchester Harbor		Town, Private, State, Federal	S/V	Increase Manchester Harbor's resilience: protecting docks and piers, reinforcing seawalls in the more densely developed Inner Harbor; restoring natural areas; developing and implementing stormwater outfall retrofits to improve water quality and reducing sedimentation.				H	O/L
Downtown Businesses		Private	V	Study effects of hardening: where seawalls and raised roads are needed and where softening - green infrastructure - may help; with this understanding, update zoning for more green infrastructure incentives; encourage relocation of utilities from basements and lower elevations.			Encourage stormwater reuse; promote native plantings that do not require irrigation.	H	O/L
Downtown Stormwater System		Town	V	Retrofit as needed while promoting green stormwater infrastructure to reduce runoff and impervious surfaces; create more stormwater storage.			Encourage stormwater reuse; promote native plantings including trees that do not require irrigation.	H	O/L
Fire Station	12 School Street	Town	S/V	Evaluate options and then flood proof; upgrade and relocate generator to higher ground; repair brook abutment; evaluate what conditions would require relocation.			Determine alternative water sources options.	M	O/L

Drinking Water: Gravelly Pond, Round Pond, Lincoln Street Well	Chebacco Road, Hamilton; 40 Lincoln Street	Town	S/V	Conduct leak detection and maintain water mains; remove prohibited non-water supply activities from Zone A and Zone 1 when feasible.		Implement alternatives to municipal water use for irrigation; have water use restrictions in place with enforcement during droughts.	M	O/L
Roadways with Flood Risk		Town/State	V	Educate the public on evacuation routes; assess vulnerable roadways at risk of flooding to determine possible improvements: reinforcement, culvert sizing and elevation, e.g., how to keep Beach Street and Route 127 open; consider what happens if a road needs to be abandoned.		Conduct tree work to reduce storm damage.	H	O/L
MBTA - commuter rail	South Manchester	State	S/V	Encourage State to examine options for a more resilient commuter rail: elevate rails, move out of the coastal area, have alternatives such as a water taxi and bus system.			M	L
Utilities: National Grid, Verizon switching stations		Private	V	Conduct tree work to reduce storm damage; harden electrical systems to reduce power outages; plan for redundancy; explore feasibility of a micro/smart grid			H	O/L
Gas Stations and fuel storage tanks		Private	V	Evaluate fuel tank locations and elevate at least 3-feet above BFE; conduct toxics use reduction and business emergency preparedness planning to reduce risk.			M	S
<b>Societal</b>								
Emergency Preparedness		Town	V	Enhance Emergency Preparedness by assuring the Town has enough back-up generators; encouraging the Town-wide use of Reverse 911; conducting more resident emergency preparedness education including location of shelters; assuring seniors can be evacuated; ensuring radio emergency communications are compatible with other systems.			H	S/O
Schools		Town/Private	S/V	None of the schools are at a high priority of flooding. Schools a strength because an important communication vehicle; environmental education including climate literacy should be in all school curricula.			M	O
Tucks Point Rotunda	12 Tucks Point Rd	Town/Public	V	Plan for the resilience of Tuck's Point rotunda, a "cultural icon".			M	O
<b>Environmental</b>								
Manchester Harbor		Town/Public	S/V	Expand use of helical anchors and conservation moorings to protect eelgrass.			M	O
Singing Beach	199A Beach Street	Town/Public	S/V	Monitor and evaluate sustainability options including shoreline protection and restoration, protect water and wastewater disposal for the bathhouse; evaluate parking lot green infrastructure options.			M	L
Beaches and salt marsh systems		Public/Private	S/V	Evaluate vulnerability to inform long-term policy.	Understand beach erosion and landward migration.		M	L
Parks and Open Space: woodlands and wetlands		Public/Private	S/V	Protect Town's parks, undeveloped land and conservation area; manage tree canopy; increase flood storage.		Assure adequate water for fighting wild fires.	M	O
Sawmill Brook		Public/Private	S/V	Refine and implement projects in the Sawmill Brook watershed that were identified through comprehensive watershed planning to improve flood storage, increase culvert capacity and mitigate flooding.			H	O
Brooks and Wetlands		Public/Private	S/V	Update zoning and regulations to improve protection, conservation and restoration of these natural resources; incentivize increased floodwater storage capacity and green infrastructure.			M	O
Essex Country Club	153 School Street	Private	S/V	Encourage protection, increased flood storage and buffers along brooks.		Examine water use restrictions during droughts.	L	O

Drinking Water: Gravelly Pond, Round Pond, Lincoln Street Well	Cebacco Road, Hamilton; 40 Lincoln Street	Town	S/V	Develop and implement a groundwater and surface water supply protection plan including working with other towns for land protection, conservation easements and well-head protection; encourage drought tolerant plants.	H	O
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