19 Manchester

Community Overview

Manchester is a fully suburban community of over 59,000 residents covering about 27.3 square miles. Elevation ranges from about 80 to 500 feet above sea level. Manchester's land area drains westward to the Connecticut River Major Basin, via either the Hockanum River Regional Basin or the Connecticut Main Stem Regional Basin. Major waterways in Manchester include: Hockanum River, Bigelow, Birch Mountain, Hop, Lydall and Porter Brooks. Regionally significant transportation routes in Manchester include Interstates 84, 384 and 291, as well as state routes 44/6 and 83. The top industries in Manchester are educational services; healthcare and social assistance; professional, scientific, and management, and administrative and waste management services; retail trade; and warehousing. Manchester is also home to one of the largest regional retail concentrations in New England. The Buckland Hills area provides over 3 million square feet of retail and services anchored by The Shoppes at Buckland Hills, offering a variety of restaurants, an 18 screen movie theater, and over 300 hotel rooms. Historic resources include the Cheney Brothers National Historic Landmark District and the Main Street Historic District.

Manchester experiences periodic development and has regulations in place to control the impact of development in sensitive areas. Under current regulations, development is not allowed in a floodplain without undergoing technical review verifying that the development results in zero loss of flood storage capacity.

Critical Facilities

Critical Facilities throughout the Capitol Region are listed in Appendix B. In Manchester, these facilities are numerous and are each assigned a purpose. Several locations can act as emergency shelters or cooling centers, respectively.

Table 19-1: Critical Facilities, Manchester

Facility	Shelter	Cooling Center	Generator
Police Department		Lobby	X
Town Hall			
Senior Center	Backup	X	X
High School	X		X
Wastewater Treatment Plant			X
Facilities Management Building (EOC)			X
Department of Public Works Facility			X
Mary Cheney Library		X	
Whiton Branch Library		X	
Weiss Center		X	
Lincoln Center			
Fire Department #1			X
Fire Department #2			X
Fire Department #3			X
Fire Department #4			X
Fire Department #5			X

Facility	Shelter	Cooling Center	Generator
Fire Department #6			X
Fire Department #7			X
Public Works Fleet Garage			X
Police Maintenance Garage			X
Hillstown Rd Well House			
Dog Pound			
Fleet Five Bay Garage			X
Hillstown Rd Cemetery Storage			
Probate Court			
Sanitation Office			
2 Eversource Substations			

During extreme heat events, Mary Cheney Library, Whiton Branch Library, Manchester Senior Center, Manchester Police Department Lobby and Weiss Center can all be opened as public cooling centers. Many of the critical facilities have generators available for use on-site. The Manchester Senior Center is used as a backup shelter.

The town staff report that the facilities used for cooling centers and the facilities used for shelters are different, as these serve different needs. The town uses the shelters for when people have been displaced from their homes for a while, whereas cooling centers do not have people staying for prolonged periods of time.

Capabilities

Hazard mitigation is addressed specifically in Manchester's Plan of Conservation and Development.

Manchester owns and operates its own water company. The protection and management of significant forested watershed land and the multiple stratified-drift aquifers relied upon by the residents of Manchester are paramount. In addition, Manchester has significant open space with both active and passive recreation areas of regional importance.

Since 2008, Manchester Public Works has received Flood Plain Zone and Wetlands Permit approval for five projects including structural improvements to stormwater drainage infrastructure in Special Flood Hazard Areas (SFHA) that help mitigate flood risks. No new construction of primary residential or commercial structures has been permitted in the SFHA. The Planning and Zoning Commission and Inland Wetlands and Watercourses Agency have approved several minor structural renovations, installation of accessory structures, and site improvements in regulated areas in accordance with the flood hazard reduction and resource compensation standards outlined in the Zoning and Inland Wetlands and Watercourses Regulations. Manchester revised its Flood Plain Zone regulations in 2008 to meet National Flood Insurance Program standards. In accordance with these standards, encroachments in the floodway are prohibited and any reduction of water holding capacity in the SFHA caused by filling or construction must be compensated for elsewhere.

The Town addresses tree maintenance on an as-needed basis and does not currently have the capacity to proactively manage its trees. Eversource currently performs the majority of tree maintenance activities in Manchester, but only within their utility corridors.

Since the adoption of the 2019 HMP, Manchester has migrated to a new storm mix for road treatment that uses less sand and therefore reduces drainageway-clogging issues.

A previously breached dam has been removed in the last five years.

Since the 2019 HMP, the following actions have been incorporated as capabilities:

- Require Elevation Certificates for all new development permits in or near floodplains and filing them both in the building department and with land records.
- Conduct outreach to local small businesses with the aim of preventing the accidental release and pollution from chemicals stored and used at their facilities during or following natural hazard events.
- Participate in EMI courses or the seminars and annual conference held by the Connecticut Association of Flood Managers.

Capabilities to address natural hazards and the losses that they have caused, have increased since the last plan has been adopted.

Challenges

Challenges Overview

Manchester has faced pressing flooding concerns, including the year-and-a-half recovery of Ambassador Drive after it was washed out. Smaller incidents affected shoulders and private properties. Additionally, Charter Oak Park suffered significant damage, resulting in the loss of ball fields.

Stormwater infrastructure is also a concern of the town.

The town staff report that there have been many power outages during many of the recent storms.

Town staff are aware that there are some people who are more susceptible to heat events than others.

Town staff are worried about tree canopy issues which are two-fold. The tree damage over the past years has gotten worse and the town would like to maintain tree canopy to decrease heat islands in the middle of town.

The wastewater treatment facility has limited access due to a stream crossing. The road floods and is a location that washed out during one of the 2021 storms.

Hazard Losses

The economic losses faced by the community from natural hazards can be estimated by reviewing historic loss figures. Loss estimates are summarized below.

Average Annualized Losses

Average Annualized Loss (AAL) estimates are summarized below. Average Annualized Loss (AAL) figures are useful tools for comparison of the risks faced from different hazards with different likelihoods of occurring in a given time period. AAL estimates were prepared for each natural hazard which may impact Manchester. National Centers for Environmental Information (NCEI) data, from the last 20 years, was categorized by hazard and averaged based on the proportion of population within each town in the CRCOG Region. National Flood Insurance Program (NFIP) losses were calculated based on the 50 year span of the program. FEMA Public Assistance (PA) data from the past 11 years was categorized based

on hazard and used to compute AAL. United States Department of Agriculture (USDA) from the past 10 years was calculated to get AAL. Expected Annual Loss data from the National Risk Index (NRI) was downloaded and categorized to get AAL for the below hazards. Dam failure data was taken from the 2019-2024 CROCG Hazard Mitigation Plan (HMP) plan since no new dam failures have occurred in the past five years. The 2019 HMP Dam failures were sourced from the 2014 Connecticut Natural Hazard Mitigation Plan Update, with dam failure data supplemented by the National Performance of Dams Program and the Connecticut Department of Energy & Environmental Protection.

Table 19-2: Average Annualized Losses, Manchester

Hazard	Source	Average Annualized Losses (AAL)
Hurricanes/Tropical storms	NCEI	$153,452.17
	NRI	$2,517,695.71
	FEMA PA	$10,599.78
Tornados/High Winds	NCEI	$57,449.68
	NRI	$486,956.43
Winter Storms	NCEI	$45,510.42
	NRI	$36,870.75
	FEMA PA	$19,264.96
Flood	NCEI	$46,513.54
	NRI	$25,902.79
	NFIP	$2,461.25
Drought	NRI	$7,652.48
	USDA	$37,661.91
Extreme Heat	NRI	$67,956.13
Wildfire	NRI	$3,150.49
Earthquakes	NRI	$92,169.12
Dam Failure	HMP	$104.00

Losses Summary

A review of the above loss estimates demonstrates that the Town of Manchester has experienced significant expenses as a result of natural hazards and is at risk for additional losses if some of the less-frequent events were to occur. These actual and potential losses justify hazard mitigation actions to reduce losses in the future.

Mitigation Strategies and Actions

This HMCAP includes new goal statements that are aligned with *Resilient Connecticut* and the efforts of the GC3. The five new goals developed for this HMCAP were developed with cooperation from CIRCA in the *Resilient Connecticut* planning process, and are:

- Ensure that critical facilities are resilient, with special attention to shelters and cooling centers.
- Address risks associated with extreme heat events, especially as they interact with other hazards.

- Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.
- Reduce losses from other hazards.
- Invest in resilient corridors to ensure that people and services are accessible during floods and that development along corridors is resilient over the long term.

The previous goals of the 2019 HMP have been replaced and incorporated into these five new goals in accordance with the explanation in the Multijurisdictional document.

Noted Hazard Mitigation Needs

Over the course of Plan development, multiple hazard mitigation needs were noted:

- Town Staff wish to know the locations of repetitive loss properties.
- The town staff see a need to assess the town's stormwater infrastructure to identify choke points leading to flash flooding and so they can accommodate more of these intense storms and identify infrastructure improvements to address issues that have yet to be identified.
- The town should also identify general vulnerable areas regarding street flooding. Town staff note that there will likely be new areas flooding more in the future, not only the areas that have flooded in the past.
- The town has different watersheds and the storms hit the watersheds in different ways with different impacts. This should be reflected in the action related to road washouts. Potentially have watershed by watershed actions.
- The town should look at how to increase access to the Wastewater Treatment Facility to increase the resiliency of this site.
- The town should investigate providing pathways for people to manage their own trees on private properties.

Status of Previous Mitigation Strategies and Actions

The Town of Manchester reviewed the mitigation actions proposed in the 2019 HMP and determined the status of each. That information is included in the table below.

Table 19-3: Status of Previous Mitigation Strategies and Actions, Manchester

No.	Action	Notes	Status
1	Consider and document the labor resource needs and benefits of participation in the Sustainable CT program.	Town staff said that Manchester is a part of SCT and was certified Silver in 2022. Manchester also received the Climate Leader Designation from SCT in 2023.	Complete/ Retire
2	Require Elevation Certificates for all new development permits in or near floodplains and filing them both in the building department and with land records.	Town staff said that if development is near a floodplain, the planning department is already doing this, Town staff believe this is a capability. CIRCA staff previously noted that this is a requirement from FEMA.	Complete/ Retire

No.	Action	Notes	Status
3	Develop a prioritized list of flood prone roadways to be upgraded to reduce potential for access being blocked due to flooding.	Town staff would like to check in with Don Janelle on this who is the Deputy Emergency Manager. Town staff believe that this is in the Emergency Management plan. The town will check to see if this is complete. Town staff mentioned that the roads have been changing with the climate change impacts so more roads will need to be added to this list. If the town follow-up reveals that this list has already been developed, revise the action to "name" some roadways or keep this action as is since it's changing yearly.	Carry Forward with Revisions
4	Assess needs of the new EOC in the facilities management building to determine its resilience to natural hazards, and to identify needs to make it more resilient.	Town staff have worked on identifying needs in terms of facility and technology needed but have not done an assessment of the building proper. The town thinks this is still a need.	Carry Forward
5	Conduct outreach to local small businesses with the aim of preventing the accidental release and pollution from chemicals stored and used at their facilities during or following natural hazard events.	Town staff said the Deputy Emergency Manager has made a point to meet with business owners to prevent issues related to polluting. This is a capability.	Complete/ Retire
6	Coordinate with NEMO and CRCOG to share resources and gain technical support for hazard mitigation actions involving stormwater management and public outreach, which have parallel benefits related to MS4 stormwater permit compliance.	Town staff have done this and are comfortable retiring this action.	Complete/ Retire
7	Participate in EMI courses or the seminars and annual conference held by the Connecticut Association of Flood Managers.	Town staff are attending/participating regularly in EM courses. This is a capability.	Complete/ Retire
8	Address easement issues being worked through with regards to a bridge upgrade, and complete construction.	The town staff are unaware of any easement issue they have had with any bridges in the town, and are not sure which bridge this action is referring to. The town has done a couple of small bridge projects in the last 5 years. Could be related to Center Springs but the town doesn't think this is the case since Center Spring Bridge is only a pedestrian Bridge. Could also be related to Hartford Rd Bridge, since the town needed an easement but only for the side walk. Both bridge projects mentioned as possibilities by the town have been completed. The town staff do not think this action is still needed.	No Longer Needed/Retire

No.	Action	Notes	Status
9	Implement an educational system for property owners, including appropriate materials and means for information dissemination. (Include information on importance of properly maintaining private trees).	Town staff think this is ongoing. They have an intern working on this. Tree damage has been increasing in the town and the impacts on trees in storms are mostly private trees falling in right of ways. Town staff report that tree damage and tree management is still an active need for the town. Rewrite to include that this is ongoing concern for the town.	Carry Forward with Revisions
10	Contact the owners of Repetitive Loss Properties and nearby properties at risk to inquire about mitigation undertaken and suggest options for mitigating flooding in those areas. This should be accomplished with a letter directly mailed to each property owner.	CIRCA will check to see if Manchester has RLP. The town staff think this action should be kept in, as they believe there are some areas in town that are RLP and are more affected by climate change than others.	Carry Forward
11	Complete and add on to identification of private properties served by private wells and/or on-site septic systems located within known flood risk zones.	CIRCA has data on private wells if this has not been completed yet and could provide it to Manchester The town Health Department does have a list map of private wells but there is a data gap that prevents the data set from being comprehensive. The town staff would need to look at city water and sewer. They can do it through health department, but it might take a while. Manchester believes they have a list/map of private wells, but they have not done anything with it. Carry Forward with revisions to reflect some progress has happened but nothing has been done with the data yet.	Carry Forward with Revisions
12	Coordinate with CT SHPO to conduct historic resource surveys, focusing on areas within natural hazard risk zones (such as flood or wildfire hazard zones and areas near steep slopes), to support identification of vulnerable historic properties and preparation of resiliency plans across the state. This action leverages existing resources and best practices for protection of historic and cultural resources through an ongoing statewide initiative by CT SHPO.	CIRCA explained this is a top-down action and advised to revise "Acquire and review new SHPO layer and overlay with FEMA data." Town staff agree that this revised action would be appropriate.	Carry Forward with Revisions

No.	Action	Notes	Status
13	Work with CT DEEP to complete a formal validation of the Repetitive Loss Property list and update the mitigation status of each listed property.	Town staff think that Don Janelle, Deputy Emergency Manager, was the lead on this. Goes hand in hand with the RLP action above. Town will follow- up on this. Likely carry forward with revision	Carry Forward with Revisions
14	Conduct outreach to owners of properties identified as being served by private wells and/or on-site septic systems located within known flood risk zones to educate them about strategies for protecting their properties. Include materials and recommendations for appropriate remediation of private utilities that have been subjected to flooding, for health protection and promotion.	Town staff will follow up with the Health Department to see if this action has been completed. Likely hasn't since action 11 has not, and action 11 seems to be prerequisite for this action. Could combine with action 11. Progress on Action 11 would facilitate progress on Action 14.	Carry forward with revisions.

Active Mitigation Strategies and Actions

The Town proposed to initiate several new mitigation actions for the upcoming five years. Additionally, a number of actions from the previous planning period are being carried forward or replaced with revised actions. These are listed below.

Each of the following actions has been prioritized based on FEMA guidelines, listed from highest to lowest priority, and numbered.

Table 19-4: Active Mitigation Strategies and Actions, Manchester

Number	Hazard Mitigation and Climate Adaptation Actions	Hazard Mitigation and Climate Adaptation Goal	Type of Action	Responsible Department	Approx. Cost Range	Potential Funding Sources	Timeframe	Priority	Hazard(s)	EJ?	PERISTS Score	STAPLEE Score	PERSISTS x STAPLEE =
MC1	Assess needs of the new EOC in the facilities management building to determine its resilience to natural hazards, and to identify needs to make it more resilient.	Ensure that critical facilities are resilient, with special attention to shelters and cooling centers.	Preparedness & Emergency Response	Emergency Management	$50,000 - $100,000	DCRF; FEMA HMA; DEHMS and Other Preparedness Grants	07/2025 - 06/2026	Medium	All Hazards	Benefits an EJ tract	18	4	72
MC2	Acquire a generator for the town library.	Ensure that critical facilities are resilient, with special attention to shelters and cooling centers.	Preparedness & Emergency Response	Emergency Management	$100,000 - $500,000	FEMA HMA	7/2024-6/2025	High	All Hazards	Benefits an EJ tract	19	5	95
MC3	Ensure that transportation and transit options are available to bring people to cooling centers.	Address risks associated with extreme heat events, especially as they interact with other hazards.	Preparedness & Emergency Response	Emergency Management	$10,000 - $50,000	Transit; IIJA BBFP	07/2024 - 06/2026	High	Extreme Heat	Benefits an EJ tract	19	3	57
MC4	Consider options to increase access to the Waste Water Treatment Facility.	Invest in resilient corridors to ensure that people and services are accessible during floods and that development along corridors is resilient over the long term.	Water & Wastewater Utility Projects	Planning	$100,000 - $500,000	CWSRF; FEMA HMA	7/2025-6/2027	High	Riverine and Pluvial Floods	Serves an EJ tract	20	10	200
MC5	Conduct a town wide assessment of stream crossings to identify vulnerabilities and develop	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even	Structural Project	Public Works	$10,000 - $50,000	DCRF; Municipal CIP Budget	7/2024-6/2026	Medium	Riverine and Pluvial Floods	Benefits an EJ tract	19	6	114

Number	Hazard Mitigation and Climate Adaptation Actions	Hazard Mitigation and Climate Adaptation Goal	Type of Action	Responsible Department	Approx. Cost Range	Potential Funding Sources	Timeframe	Priority	Hazard(s)	EJ?	PERISTS Score	STAPLEE Score	PERSISTS x STAPLEE =
	a priority list for maintenance and upsizing.	as climate change increases frequency and severity of floods.											
MC6	Develop and update a prioritized list of flood prone roadways to be upgraded to reduce potential for access being blocked due to flooding.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Structural Project	Public Works	$0-$10,000	LOTCIP; IIJA AOP, BIP; Municipal CIP Budget	07/2026 - 06/2028	Medium	Riverine and Pluvial Floods	Benefits an EJ tract	19	8	152
MC7	Execute the DEEP Climate Resilience Fund (Town wide Flood Resilience Plan) project and apply for funds to pursue the recommendations.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Structural Project	Public Works	$50,000 - $100,000	DCRF	07/2024 - 06/2026	High	Riverine and Pluvial Floods	Benefits an EJ tract	20	6	120
MC8	Assess the town's stormwater infrastructure to identify choke points that lead to flash flooding. Pursue funding opportunities to address these areas.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Structural Project	Public Works	$50,000 - $100,000	DCRF; FEMA HMA; Municipal CIP Budget	7/2025-6/2027	High	Riverine and Pluvial Floods	Benefits an EJ tract	20	6	120
MC9	Implement an educational system for property owners, including appropriate materials and means for information dissemination. (Include information on importance of properly maintaining private trees) as this is an	Reduce losses from other hazards.	Education and Awareness	Office of Communication	$0-$10,000	Municipal Operating Budget	7/2026-6/2027	High	Hurricanes and Tropical Storms/ Tornadoes and High Winds/ Severe	Benefits an EJ tract	19	7	133

Number	Hazard Mitigation and Climate Adaptation Actions	Hazard Mitigation and Climate Adaptation Goal	Type of Action	Responsible Department	Approx. Cost Range	Potential Funding Sources	Timeframe	Priority	Hazard(s)	EJ?	PERISTS Score	STAPLEE Score	PERSISTS x STAPLEE =
	ongoing concern for the town.								Winter Storms				
MC10	Contact the owners of Repetitive Loss Properties and nearby properties at risk to inquire about mitigation undertaken and suggest options for mitigating flooding in those areas. This should be accomplished with a letter directly mailed to each property owner.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Property Protection	Planning	$0-$10,000	Municipal Operating Budget	01/2026 - 12/2026	High	Riverine and Pluvial Floods	No	19	7	133
MC11	Utilize existing mapping of private properties served by private wells (maintained by DPH) and/or on-site septic systems to characterize flood risks. Conduct outreach to owners of properties identified as being served by private wells and/or on-site septic systems located within known flood risk zones to educate them about strategies for protecting their properties.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Property Protection	Planning	$0-$10,000	Municipal Operating Budget	7/2026-6/2027	High	Riverine and Pluvial Floods	Benefits an EJ tract	20	8	160
MC12	Work with the Connecticut Institute for Resilience and Climate Adaptation (CIRCA) to develop an appropriate scope of work to address flooding and extreme heat concerns in Resilient Opportunity Areas (ROARs).	More than one goal.	More than one type	Public Works	$0-$10,000	CIRCA	07/2024 - 06/2027	Medium	Riverine and Pluvial Floods/ Extreme Heat	Benefits an EJ tract	19	5	95
MC13	Review the Connecticut Cultural Resource Information System	Reduce flood and erosion risks by reducing	Property Protection	Planning	$0-$10,000	SHPO; Municipal	01/2026 - 12/2026	Medium	Wildfires/Tornadoes	Benefits an	19	9	171

Number	Hazard Mitigation and Climate Adaptation Actions	Hazard Mitigation and Climate Adaptation Goal	Type of Action	Responsible Department	Approx. Cost Range	Potential Funding Sources	Timeframe	Priority	Hazard(s)	EJ?	PERISTS Score	STAPLEE Score	PERSISTS x STAPLEE =
	(ConnCRIS) to identify and understand historic and archaeological resources in areas of hazard risks found here: https://conncris.ct.gov.	vulnerabilities and consequences, even as climate change increases frequency and severity of floods.				Operating Budget			and High Winds/ Riverine and Pluvial Floods	EJ tract			
MC14	Work with CT DEEP to complete a formal validation of the Repetitive Loss Property list and update the mitigation status of each listed property.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Property Protection	Planning	$0-$10,000	Municipal Operating Budget	7/2026-6/2027	High	Riverine and Pluvial Floods	No	19	5	95
MC15	Update town website to include hazard mitigation and emergency preparedness tips for town residents, including sections corresponding to each hazard considered in this Plan Update.	More than one goal.	Education and Awareness	Office of Communication	$0-$10,000	Municipal Operating Budget	01/2025 - 12/2025	Medium	All Hazards	Benefits an EJ tract	18	7	126

Figure 19-1: CIRCA Environmental Justice Rank and Critical Facilities, Manchester

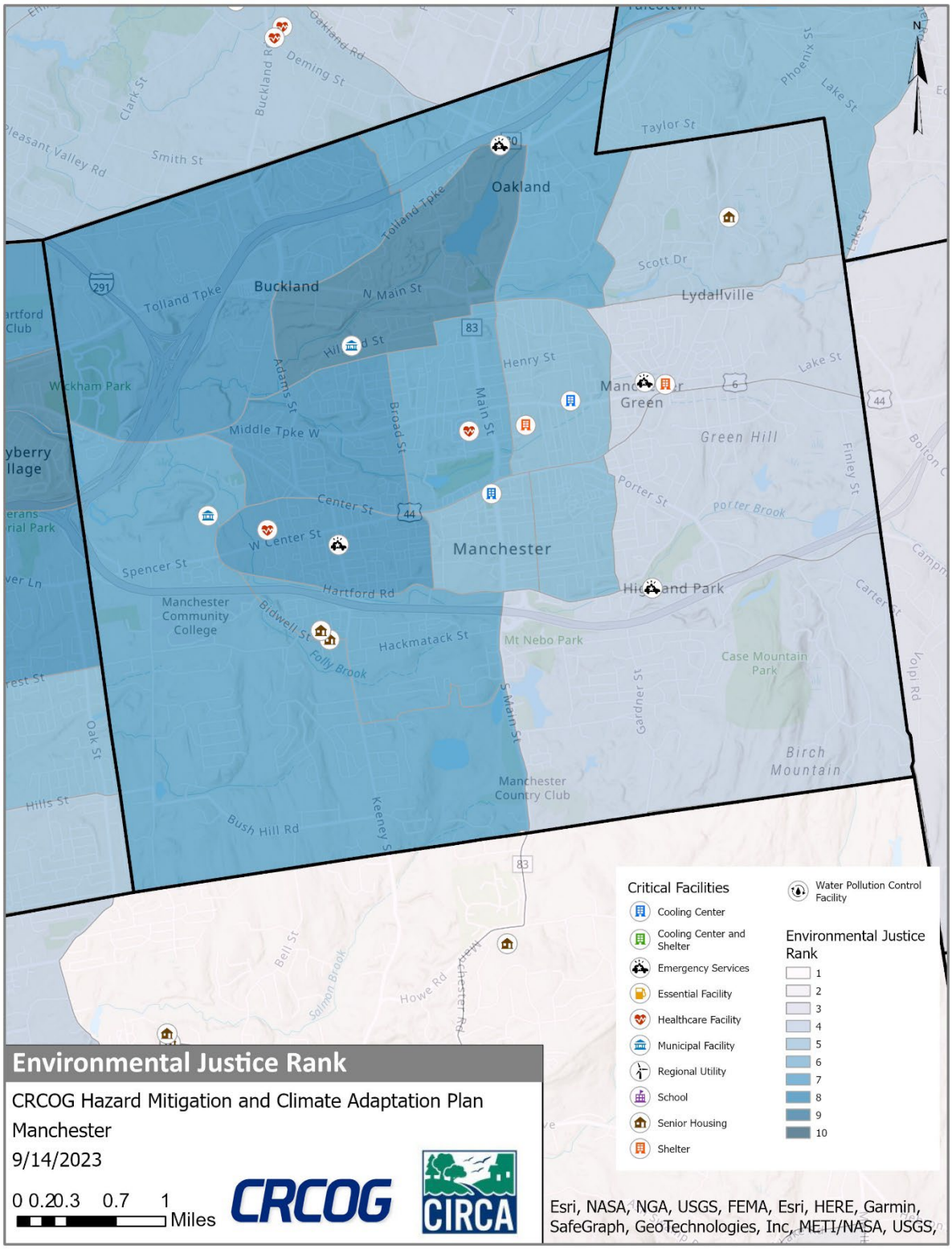

Figure 19-2: FEMA Flood Zones and Critical Facilities, Manchester

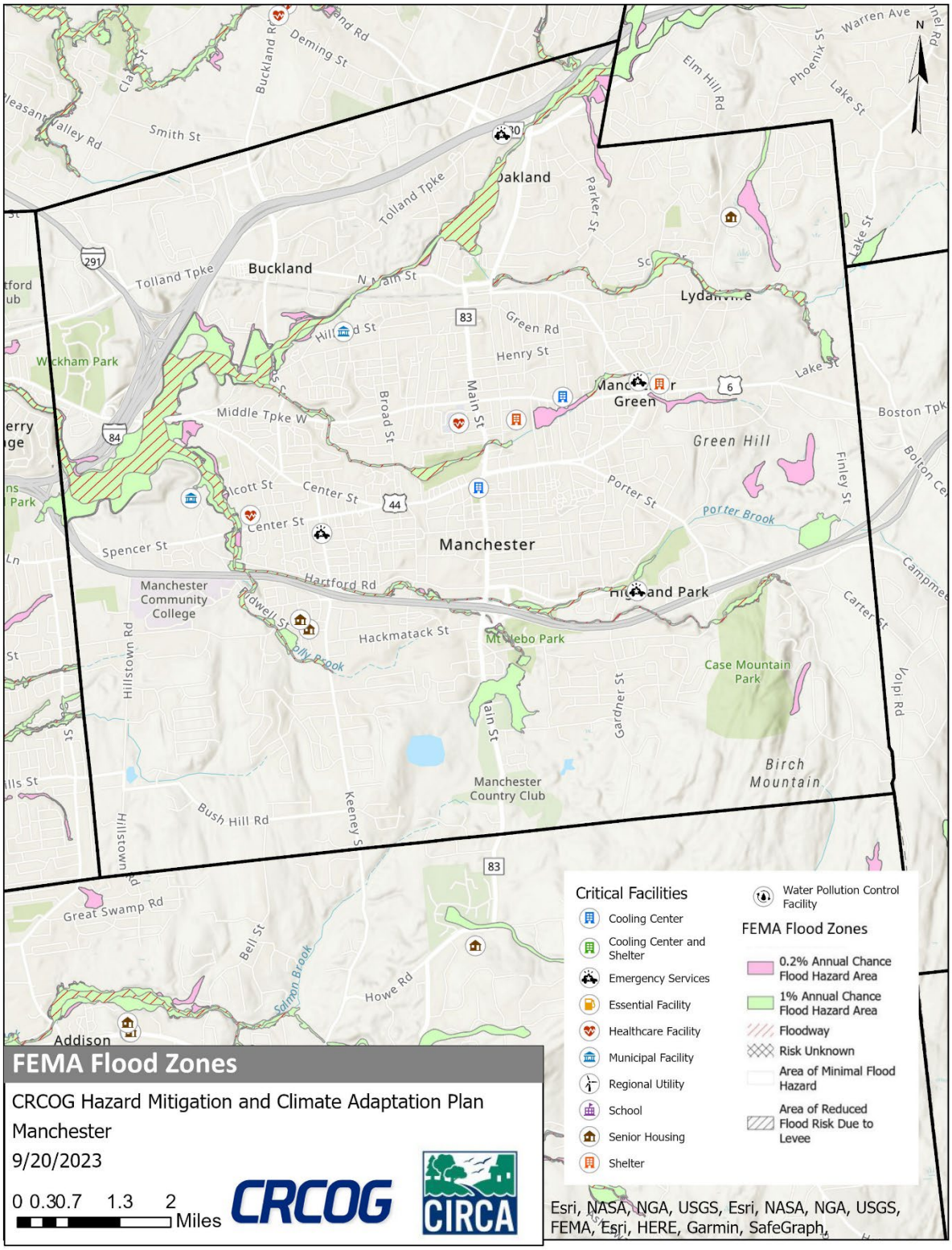

Figure 19-3: CIRCA Flood CCVI and Critical Facilities, Manchester

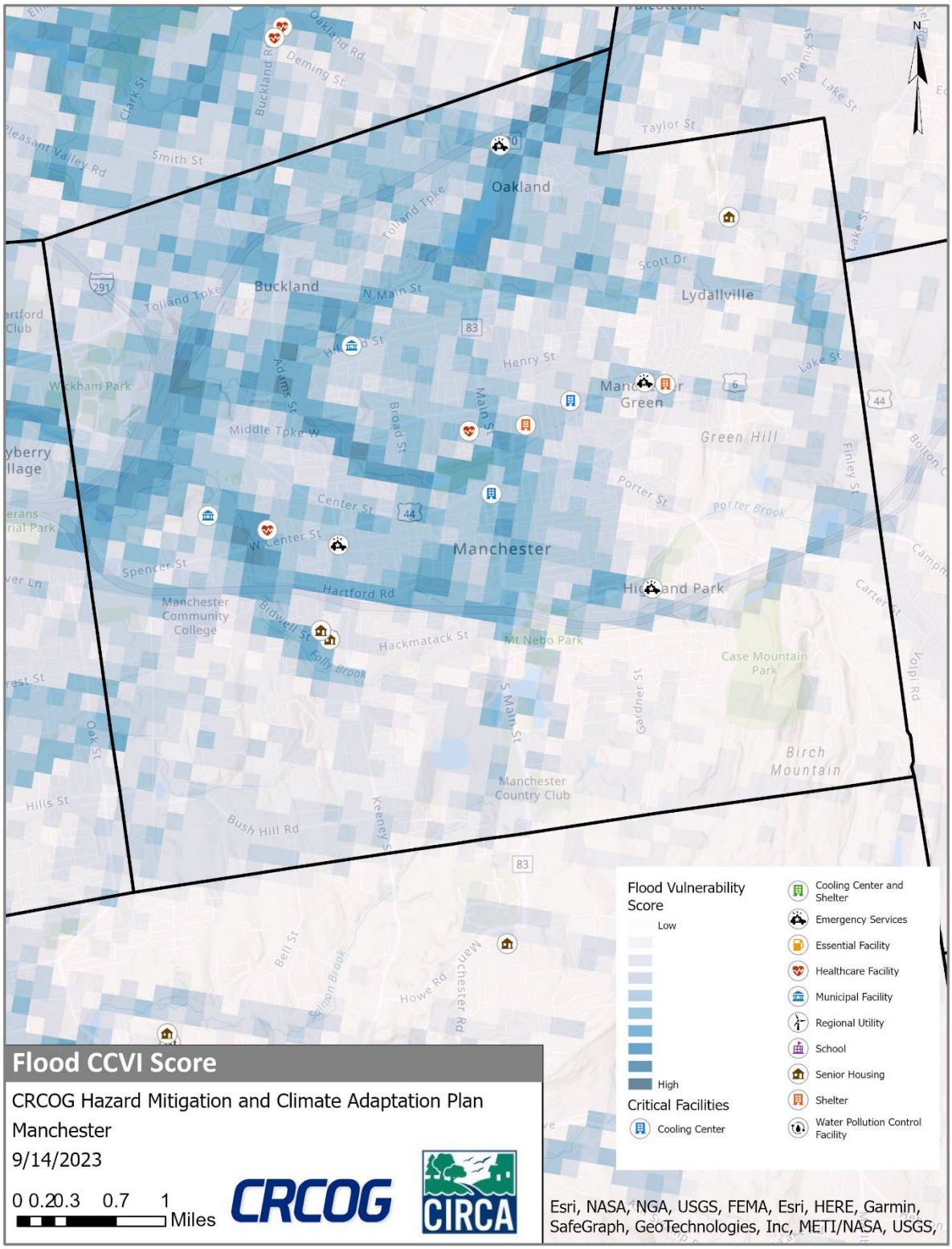

Figure 19-4: Dam Inundation Area and Critical Facilities, Manchester

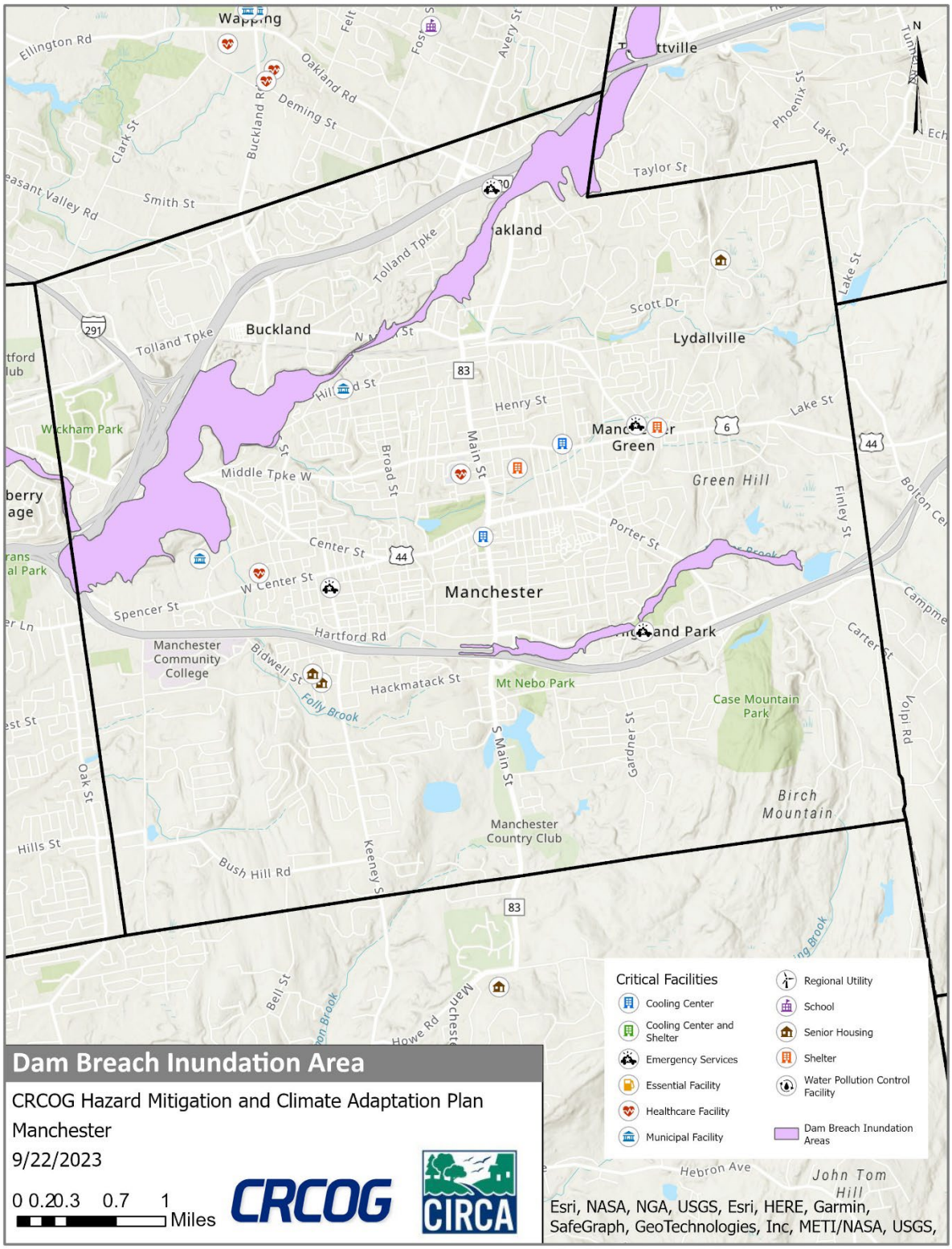

Figure 19-5: CIRCA Heat CCVI and Critical Facilities, Manchester