



37 Windsor

Community Overview

Windsor is a suburban community with a land area of 30 square miles and an estimated population of about 29,492 (2020 Census). Elevation ranges from about 32 feet on the eastern side to about 200 feet in the western edge. Windsor primarily lies within the Connecticut River Mainstem Watershed, with its southeast area falling within the Farmington River Watershed. The Town also encompasses several sub-regional drainage basins. The Connecticut River flows the length of the eastern Town boundary. The Farmington River runs from west to east and joins the Connecticut River in Windsor. Other watercourses in Town include Deckers, Meadow, Mill, Phelps, and Rainbow Brooks.

Interstates 91 and 291 run through and intersect in Windsor. In addition, the highway connector between Interstate 91 and Bradley International Airport (Route 20) runs along the northern boundary of Windsor. An active railroad parallels Route 91, running north-south through Windsor. An Amtrak commuter rail line and the Hartford Line commuter rail each stop in the Town. Other major transportation routes through town include state routes 75, 159, 178, 187, 218 and 305.

Windsor is a growing center of employment within the region, and as such, experiences an increase in daytime population. According to the Connecticut Department of Labor, the average annual employment for 2020 was 26,244 jobs. Power generation, aerospace, insurance, computer aided design and manufacturing software development, medical technology, financial services, manufacturing of computer components, electronics, machine tools, adhesives, measuring devices, automotive parts, air movement equipment, and shade-grown tobacco are the principal industries. The largest employers include the new Amazon logistics center, Dollar Tree, Hartford Life, VOYA, GE/Alstom Power, CIGNA, the Town of Windsor, Walgreens, Eversource, Waste Management, and Konica Minolta.

Windsor is experiencing development, with a particular focus on the Western part of town. Warehouses have been a notable part of this growth, with numerous warehouse developments near the airport, along Route 91, and in the western region. Additionally, a new warehouse was recently constructed on Baker Hollow Rd. The town is also witnessing apartment developments in two distinct areas. Windsor has received applications for redevelopment, such as the transformation of the old strip mall at 144 Broad St into apartments near the train station. Transit-Oriented Development (TOD) is gaining traction, supported by town incentives. Town officials also note that East Windsor has regulations about what can be built within terrace escarpment along the Scantic River. This approach could be employed in Windsor. It's important to note that the town ordinance restricts any new structures within 100-year floodplains and therefore, development/redevelopment is not increasing risk to natural hazards.

Critical Facilities

In Windsor critical facilities include the Town Hall, Ambulance Facility, four Fire Stations, one police station, one fire/EM station the DPW facility, a Wastewater Treatment Plant and three pump stations, the train station, the LP Wilson Community Center and Senior Center, one high school, one middle school, four elementary schools, the CREC Academy of Aerospace and Engineering, Loomis Chaffee boarding school, River Street School, Windsor Animal Shelter, and two privately owned Senior Housing facilities.

The Town Hall houses the Emergency Operations Center (EOC) and has an emergency generator. The Public Safety Complex houses both a fire station and the police station. The LP Wilson Community Center and Senior Center (the Center) is the designated emergency shelter. Sheltering equipment is stored onsite at the Center. The Windsor Animal Shelter can be used to shelter animals during an emergency.

Table 37-1: Critical Facilities, Windsor

Facility	Shelter	Cooling Center	Generator
Town Hall (EOC)			X
Ambulance Facility			X
4 Fire Stations			X
Police Station			
Fire/EMS Station			
DPW Facility			X
Wastewater Treatment Plant			X
3 Pump Stations			X
Train Station			
LP Wilson Community Center	X		X
High School			Partial
Middle School			
4 Elementary Schools			
Academy of Aerospace & Engineering			X
Loomis Chaffee (boarding school)			X
CREC River Street School			Partial
Windsor Animal Shelter	Animals		X
2 Senior Housing Facilities			X
1 Eversource Substation			
1 Eversource Area Work Center			

Capabilities

Hazard mitigation is incorporated into Windsor's Plan of Conservation and Development (POCD). POCD actions specifically address natural hazards. Since 2008, there have been no changes in land use or housing development in the special flood hazard area or that would affect the Town's vulnerability to natural hazards.

Windsor uses the Everbridge Reverse 9-1-1 system to alert residents of hazardous conditions.

Improvements were made in both 2007 and 2011 to address the area adjacent to Meadow Brook in the southern end of town. In 2007, the town replaced the culvert beneath the roadway, which improved the hydraulic capacity of the brook in the area. In 2011, slope stabilization work on the upstream banks of the channel was completed to reduce the potential for erosion that could impact the hydraulic capacity of the channel, and help maintain long term functionality of the improvements completed in 2007. Improvements to Batchelder Road, Pleasant Street, and River Street have decreased the risk of isolation during a flood.

Ordinances in place that relate to hazard mitigation include Stormwater Management, Erosion and Sediment Control, and Zoning Regulations that require stormwater management and erosion and sediment control. Regulations also require power lines be buried at new developments.

The Fire Department is completely volunteer, and has a good system in place to recruit and train volunteers. The DPW is responsible for, and fully capable of completing, tree removal. GIS work relevant to hazard mitigation is performed in-house.

The restrooms and showers at the emergency shelter were upgraded to better meet sheltering needs.

Windsor was updating the Town website at the time of plan development to include information on emergency preparedness; the website will include instructions on preparing an “emergency kit.”

Since the 2019 HMP, no new actions have been incorporated as capabilities thus, capabilities to address natural hazards and the losses that they have caused, have not increased since the last plan has been adopted.

Challenges

Challenges Overview

Challenges the community faces regarding responding to natural disasters include areas within town that may become inaccessible due to flooding, the need for emergency generators at locations that provide life safety services to parts of the community, and the difficulty of retrieving real time data regarding the status of upstream dams to anticipate flooding impacts.

Areas at risk of flooding include Batchelder Road, Pleasant Street, and River Street.

There are no dry hydrants in Town.

The Town has noticed areas of erodible soils along the Farmington River which are more susceptible to more intense storms. These areas have housing.

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 Windsor. 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 37-2: Average Annualized Losses, Windsor

Hazard	Source	Average Annualized Losses (AAL)
Hurricanes/Tropical storms	NCEI	\$75,789.38
	NRI	\$1,006,177.12
	FEMA PA	\$0.00
Tornados/High Winds	NCEI	\$28,374.16
	NRI	\$277,416.22
Winter Storms	NCEI	\$22,477.41
	NRI	\$16,382.23
	FEMA PA	\$14,147.25
Flood	NCEI	\$22,972.84
	NRI	\$63,470.47
	NFIP	\$2,244.73
Drought	NRI	\$193,250.98
	USDA	\$39,339.83
Extreme Heat	NRI	\$33,829.46
Wildfire	NRI	\$1,326.67
Earthquakes	NRI	\$71,814.31
Dam Failure	HMP	\$52.00

Losses Summary

A review of the above loss estimates demonstrates that the Town of Windsor 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.

Status of Previous Mitigation Strategies and Actions

The Town of Windsor reviewed the mitigation actions proposed in the 2019 Capitol Region Natural Hazards Mitigation Plan Update and determined the status of each. That information is included in the table below.

Table 37-3: Status of Previous Mitigation Strategies and Actions, Windsor

No.	Action	Notes	Status
17	Perform a flood risk assessment of the Mill, Meadow, and Deckers Brooks watersheds. Consider flood extents from the 1984, 2003, and 2005 events.	The Town Engineer said they are unaware if anything has been done on this. CIRCA suggested that this action was developed by someone who had been around.	Carry Forward
18	Develop and implement maintenance plan for River Street retaining wall.	The Town Engineer said that there were some roadway projects suggested on River St which did not go forward. She believes this was not done. There was no major project, but town is unsure if maintenance has been added. Suzanne will check in with PW.	Carry Forward
4	Identify, prioritize and implement local road improvements on an annual basis.	The Town Engineer said there is continuing maintenance on some watercourse that silt up from erodible soils. She is not aware of any road improvement.	Carry Forward
11	Develop and implement maintenance plan for all identified stormwater facilities.	The Town Engineer said to her knowledge this has not been completed. Maintenance in problem areas is done but she are unsure if maintenance is ensured in all facilities. Town has an unwritten plan but CIRCA will check back and see if it's still needed.	Carry Forward
10	Work with MDC to identify potential hazard mitigation actions for MDC facilities, and list those actions in the next HMP Update.	The Town Engineer said that they recently got GIS information on stormwater facilities. Upgrades are in works on a main along the river. There is some work planned by MDC but staff were not sure about what this was exactly.	Complete/Retire
9	Review and revise, as necessary, zoning regulations to ensure developers maintain stormwater retention capacity in compliance with MS4 zoning requirements.	The Town Engineer said they have done this and regulations ensure development is in line with MS4.	Complete/Retire
6	Coordinate with NEMO and CROG 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.	The Town Engineer said they are compliant with MS4.	Complete/Retire

No.	Action	Notes	Status
14	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.	The Town Engineer said this has not been done. CIRCA explained that this action is required if there are RLP.	Carry Forward
16	Work with CT DEEP to complete a formal validation of the Repetitive Loss Property list and update the mitigation status of each listed property.	This will be carried forward since Windsor has RLP.	Carry Forward
1	Require "Inspection & Maintenance Agreement" recorded on land records for private developments.	The Town Engineer said they have done this, and town does require this. One of the requirements before development, is an ENS, and INN included in stormwater permit.	Complete/Retire
7	Increase sheltering capacity by identifying additional shelter facilities. Consider looking at new shelter at 330 Windsor Ave.	The Town Engineer said this is a community building but she does not know what it is used for.	Carry Forward
8	Increase training for hazard response, e.g. National Incident Management System (NIMS). Include fire, police, EOC and schools.	This question is better answered by the EMD	Carry Forward
12	Identify and develop a secondary emergency operations center.	This question is better answered by the EMD	Carry Forward
2	Conduct outreach on ongoing maintenance with respect to flooding, wind, freezing and other hazards. Use town web page for information in addition to social media.	The Town Engineer is unsure of what has been done. Town does have a web and social media presence but would like to check in on.	Replace in favor of new action covering all hazards
3	Replace the Town's emergency services communications system.	This question is better answered by the EMD	Complete
15	Complete an analysis of costs and benefits of joining the FEMA Community Rating System.	CIRCA told Windsor about the CRS program. There is only one town in the region that is in FEMA CRS program. CIRCA advised that this might not be a good fit for Windsor. The Town Engineer is okay removing this action.	No Longer Needed/Retire
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.	The Town Engineer said that they don't think Windsor has a lot of businesses in the flood plains, and there might be one business	No Longer Needed/Retire
13	Participate in EMI courses or the seminars and annual conference held by the Connecticut Association of Flood Managers.	The Town Engineer is new to town so she has not had the ability to attend courses but is interested in doing so.	Carry Forward/Check with EMD about this

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 37-3: Status of Previous Mitigation Strategies and Actions, Windsor

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 =
WD1	Increase sheltering capacity by identifying additional shelter facilities. Consider looking at new shelter at 330 Windsor Ave.	Ensure that critical facilities are resilient, with special attention to shelters and cooling centers.	Preparedness & emergency response	Emergency Management	>\$1M	STEAP; FEMA HMA; Municipal CIP Budget	6/2026	High	All Hazards	No	19	3	57
WD2	Identify and develop a secondary emergency operations center.	Ensure that critical facilities are resilient, with special attention to shelters and cooling centers.	Preparedness & emergency response	Emergency Management	>\$1M	STEAP; FEMA HMA; Municipal CIP Budget	6/2026	Low	All Hazards	No	18	2	36
WD3	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; IJJA BBFP	07/2024 - 06/2026	High	Extreme Heat	No	19	3	57
WD4	Perform a flood risk assessment of the Mill, Meadow, and Deckers Brooks watersheds. Consider flood extents from the 1984, 2003, and 2005 events.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Water & Wastewater Utility Projects	Public Works	\$50,000 - \$100,000	DCRF; FEMA HMA	07/2026 - 06/2028	Medium	Riverine and Pluvial Floods	No	18	6	108
WD5	Develop and implement maintenance plan for River Street retaining wall.	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	Municipal Operating Budget; Municipal CIP Budget	07/2025 - 06/2027	Medium	Riverine and Pluvial Floods	No	18	6	108

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)	EI?	PERISTS Score	STAPLEE Score	PERISTS x STAPLEE =
WD6	Identify, prioritize and implement local road improvements on an annual basis.	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.	Structural Project	Public Works	\$500,000 - \$1M	LOTICIP; STEAP; Municipal CIP Budget	01/2025 and annually during this month	Low	All Hazards	No	18	3	54
WD7	Develop and implement maintenance plan for all identified stormwater facilities.	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	Municipal Operating Budget	07/2025 - 06/2027	Medium	All Hazards	No	18	6	108
WD8	Conduct a town wide assessment of stream crossings to identify vulnerabilities and develop a priority list for maintenance and upsizing.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Structural Project	Public Works	\$10,000 - \$50,000	DCRF; Municipal CIP Budget	07/2025 - 06/2027	Medium	Riverine and Pluvial Floods	No	18	6	108
WD9	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	No	18	7	126
WD10	Contact the owners of Repetitive Loss Properties and nearby properties at risk to inquire about mitigation undertaken and suggest options for mitigating flooding	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Property Protection	Community Development	\$0-\$10,000	Municipal Operating Budget	01/2026 - 12/2026	High	Riverine and Pluvial Floods	No	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)	EI?	PERISTS Score	STAPLEE Score	PERISTS x STAPLEE =
	in those areas. This should be accomplished with a letter directly mailed to each property owner.												
WD11	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	01/2025 - 12/2025	High	Riverine and Pluvial Floods	No	19	7	133
WD12	Increase training for hazard response, e.g. National Incident Management System (NIMS). Include fire, police, EOC and schools.	More than one goal.	Education and Awareness	Emergency Management	\$0-\$10,000	Municipal Operating Budget	07/2024 - 06/2025	Medium	All Hazards	No	17	7	119
WD13	Participate in EMI and DEMHS courses or the seminars and annual conference held by CIRCA and the Connecticut Association of Flood Managers.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Education and Awareness	Floodplain Manager	\$0-\$10,000	Municipal Operating Budget	01/2025 and annually during this month	High	All Hazards	No	18	6	108
WD14	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	Community Development	\$0-\$10,000	Municipal Operating Budget	01/2025 - 12/2025	Medium	All Hazards	No	17	7	119

Figure 37-1: CIRCA Environmental Justice Rank and Critical Facilities, Windsor

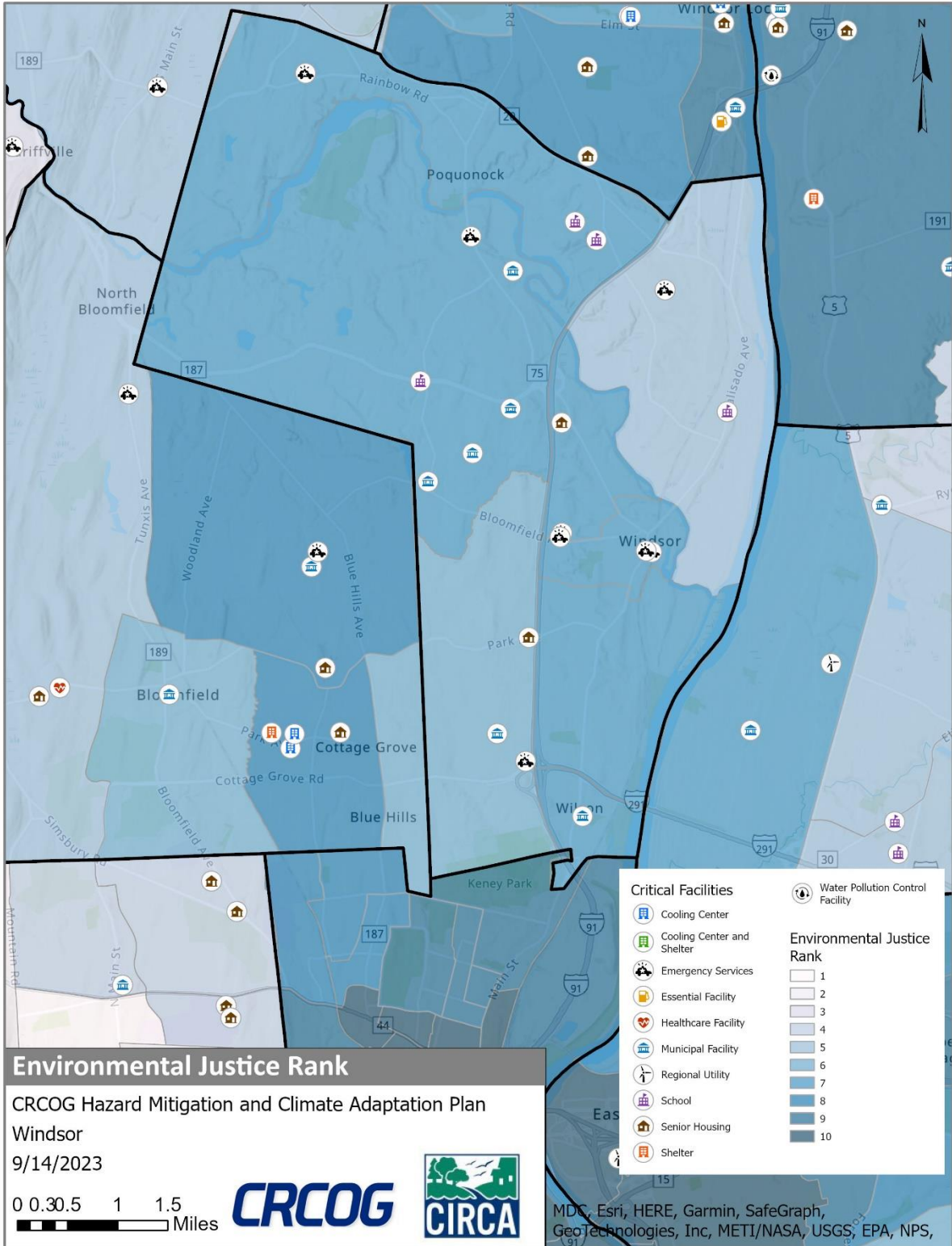


Figure 37-2: FEMA Flood Zones and Critical Facilities, Windsor

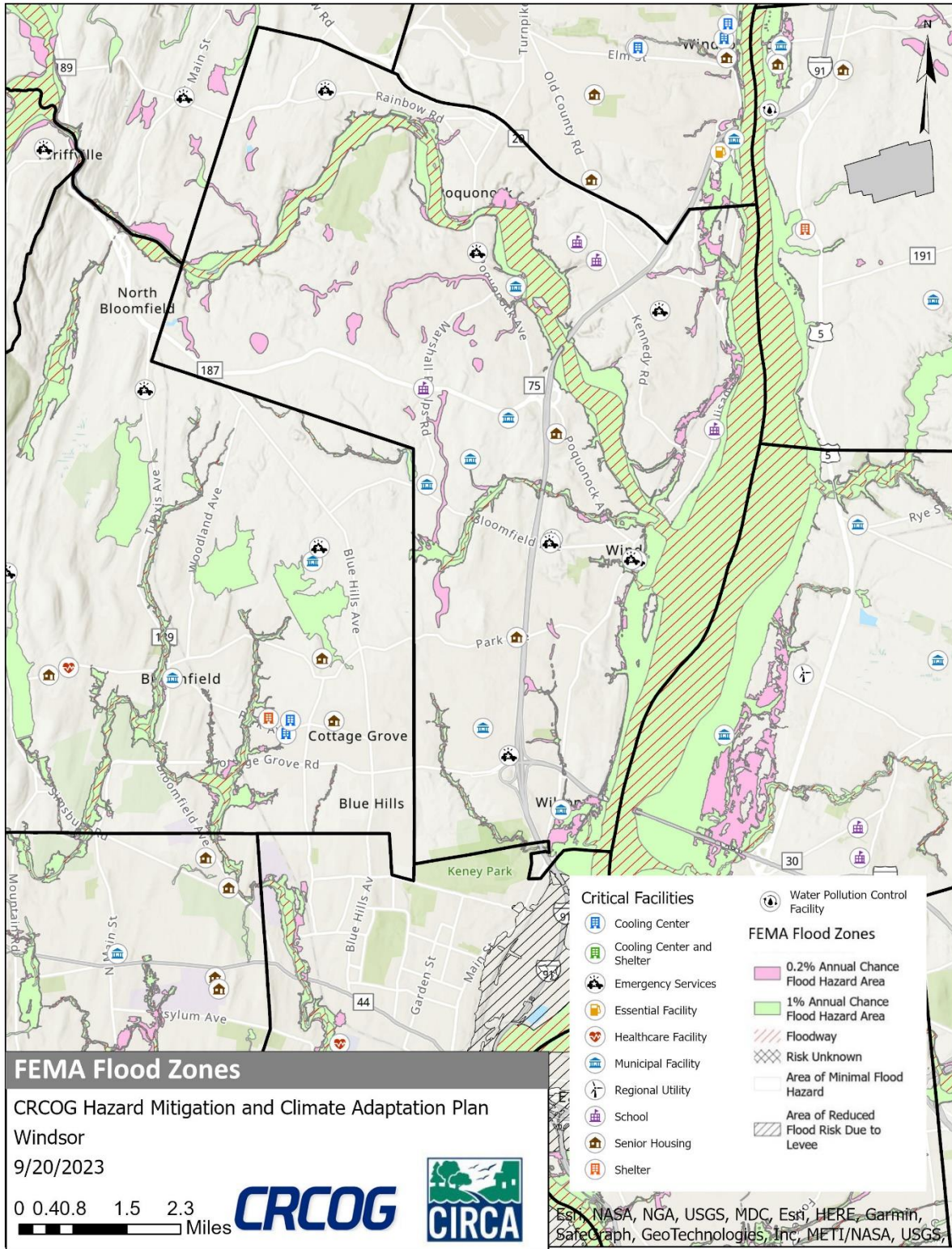


Figure 37-3: CIRCA Flood CCVI and Critical Facilities, Windsor

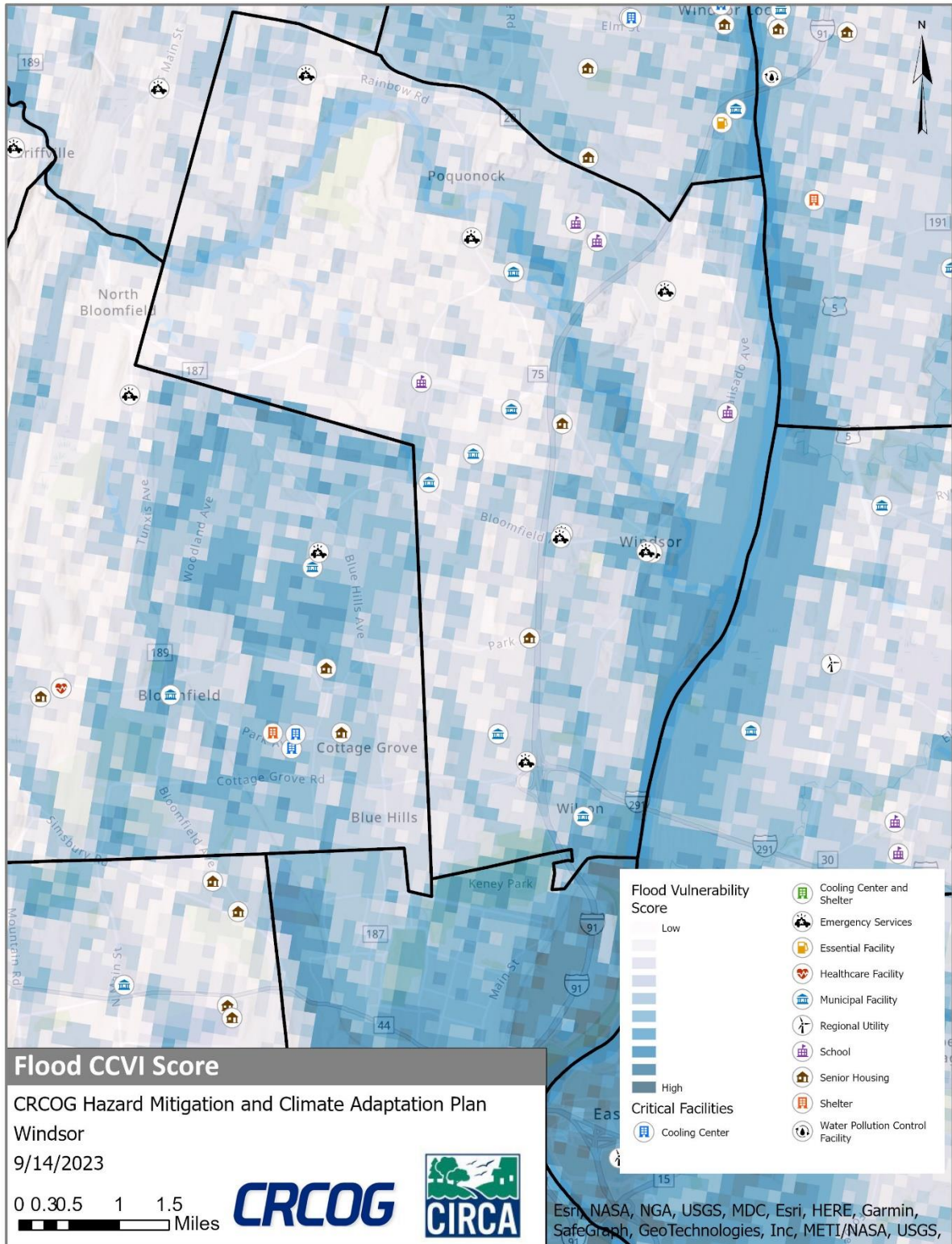


Figure 37-4: Dam Inundation Area and Critical Facilities, Windsor

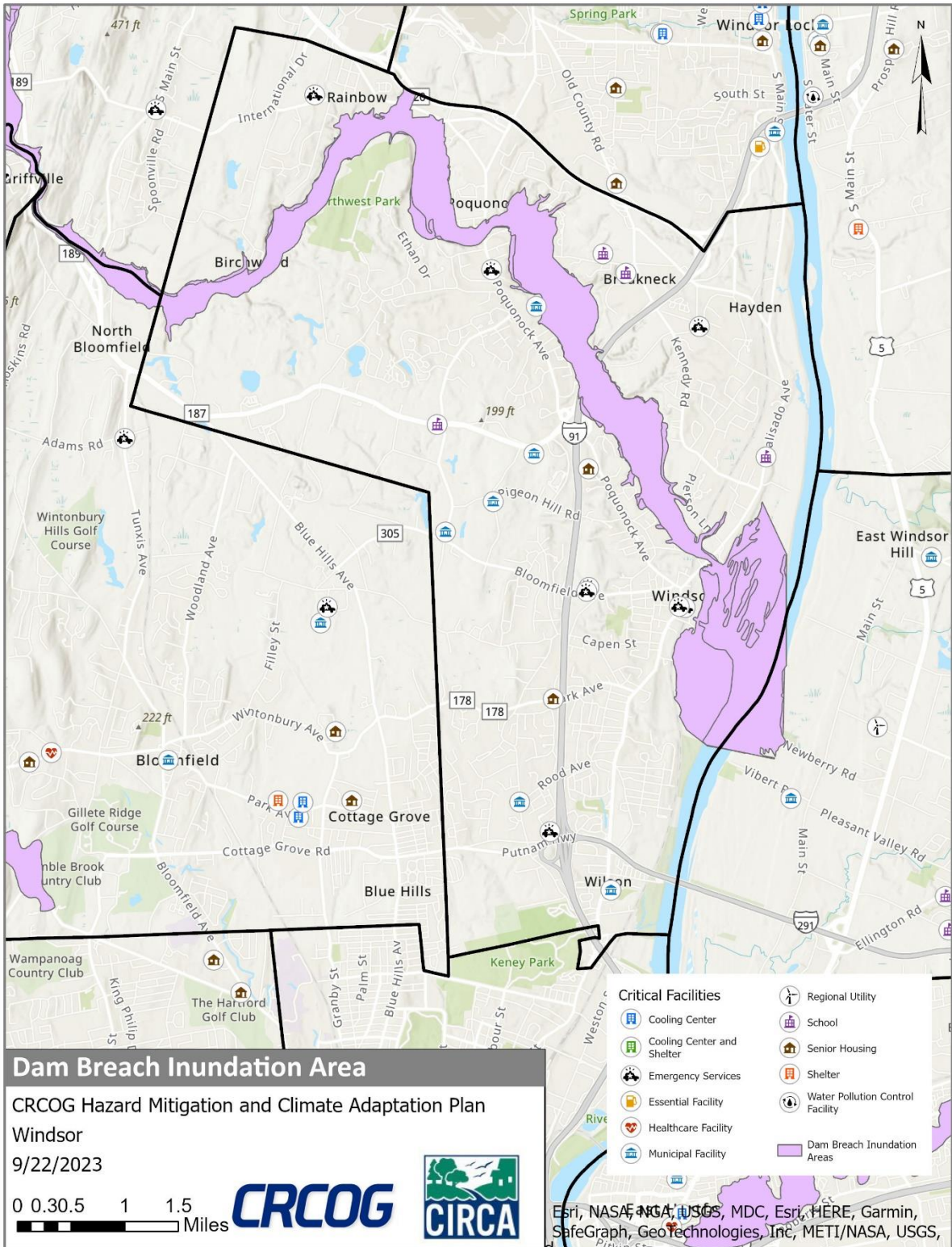


Figure 37-5: CIRCA Heat CCVI and Critical Facilities, Windsor

