



## 33 Vernon

### Community Overview

The Town of Vernon is a fully suburban community that encompasses 18.4 square miles of land and has a population of approximately 30,215. Elevation ranges from about 150 feet in the west to over 800 feet in the east. Vernon’s lies primarily within the Hockanum River Watershed, however, the southeastern corner of town drains to the Willimantic River. Major watercourses include the Hockanum and Tankerhoosen Rivers, as well as Clarks and Railroad Brooks. Vernon is bisected by Interstate 84 which travels east-west. Other major thoroughfares include state routes 30, 31, 74 and 83. Strong business sectors include retail, professional, medical, commercial-industrial, and agricultural and horticultural enterprises.

There has been a significant amount of development and re-development in Vernon in the last five years. The main economic corridors are Routes 83 & 30 which have seen a significant amount of private development. Apartments and commercial development have been developed from the 200 block to the 800 block on Route 83. Some open space and vacant land have been acquired and developed and this development has included steps for flood mitigation, including the grading of the parcels to allow water flow back to the river. While some development/redevelopment will occur in areas of flood risk, strict adherence to state and local flood regulations and the state building code will reduce overall risks.

### Critical Facilities

In Vernon critical facilities include the Bolton Road Senior Center, Town Hall Annex, Parks and Recreation Facility at Henry Park, the Communications Tower, Rockville Public Library, Fire Stations, Police Department, Rockville General Hospital, and a Regional Dialysis Center.

**Table 33-1: Critical Facilities, Vernon**

Facility	Shelter	Cooling Center	Generator
Bolton Road Senior Center	X	X	X
Town Hall Annex			X
Parks and Recreation Facility			X
Vernon Center Middle School	Primary		X
Rockville High School	Secondary		X
Communications Tower			X
Rockville Public Library		X	
Fire Stations			
Police Department			
Rockville General Hospital			
Regional Dialysis Center			

During extreme heat events, Rockville Public Library and Vernon Senior Center on Bolton Rd can both be opened as public cooling centers. The senior center has a generator but the library does not.

Vernon Center Middle School is Vernon’s primary emergency shelter has a generator capable of powering most of the building; this is a regional shelter that provides mass care and qualifies for American Red Cross approval.

Over the past 5 years, the town has upgraded the Communications Tower. The tower sits in the same location and is of regional significance. This tower provides regional emergency communications for fire and EMS.

### Capabilities

Hazard mitigation is incorporated, to some degree, as a specific element in Vernon’s Plan of Conservation and Development (POCD). POCD actions specifically address natural hazards. In 2013, the Town incorporated low impact development (LID) requirements into its Zoning Regulations to aid in reducing its vulnerability to flooding. The Town has not permitted any new development in the flood plain since 2008. Redevelopment projects in flood plains adhere to strict regulations.

Vernon has a tree warden and conducts tree maintenance annually, along with Eversource.

Since adoption of the 2014-2019 Capitol Region Natural Hazards Mitigation Plan Update (“2014 HMP”), Vernon has built redundancy into its IT systems.

The redevelopment project at Amerbelle Mill Complex included relocation of an onsite dam, which is believed to have alleviated flooding problems on the site. The Talcottville Mill redevelopment included a bank stabilization project.

Vernon has continued to expand its public water system, and the majority of the Town is now on public water with hydrants. The Connecticut Water Company (CWC) recently added hydrants on South Street, High Street, and Merline Road.

The Town has actively worked to address tree maintenance issues in recent years. The Town owns a bucket truck and a 72-foot four-by-four lift truck. Since the 2014 HMP, the Town purchased a grappling hook for debris cleanup.

A map modernization effort by FEMA is currently underway for Tolland County.

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

- 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.
- The local weather service has been a tremendous asset to the town. Vernon is one of the few municipalities that has invested in Hyper Local Weather Forecasting. This has helped the town to alert the public (tornado warning to flooding), prepare for storms, and schedule town events.

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

## Challenges

### Challenges Overview

The town faced wind damage and prolonged power outages from T.S. Isaias, primarily due to coordination challenges with Eversource utility workers. The East St section endured 3-4 days without power, with downed utility poles and failing transformers. Flooding was not a significant issue during this event, but the storm caused substantial infrastructure damage from numerous fallen trees.

The summer storms of 2021 impacted Vernon significantly, leading to a reevaluation of the town's flood vulnerability priorities. The most affected areas included East St, stretching from the Northeast School to the cemetery, West Street, Skinner Rd area, Hockanum Bld, Route 83, Welles Street, and Main Street. Overbrook Road is also a concern related primarily to stormwater concerns. Windsorville Road, including the regional water pollution control facility and regional animal control facility, were also concerns related to road overtopping and stormwater flooding. These storms, exacerbated by saturated ground from earlier rainfall, resulted in a significant volume of stormwater runoff, necessitating a critical focus on addressing flood vulnerabilities.

Vernon staff continue to address the welfare of the town's vulnerable populations, encompassing the elderly, special needs individuals, and young children. The town has several daycares serving not only Vernon but also neighboring communities.

A notable concern in downtown Vernon is the clustering of critical facilities within close proximity. The hospital, court system, and board of education are all situated within a single city block. While flooding has not posed a significant threat to these facilities thus far, the concentration of vital public services in such close quarters raises potential risks. The town has taken steps to address potential risks. For example, the town has established a redundant IT network and cloud-based systems for accessing and securing vital information.

A pressing concern for Vernon pertains to the sewer infrastructure in the downtown area, which is an aging system. Recognizing the need for maintenance and upgrades, the town did an extensive lining program on the sewer mains in the Rockville Section, in which they cleaned out the pipes and installed a liner in the pipes. The project has been a great success and the town plans on expanding this effort to additional areas of the sewer system.

There are 26 registered dams in Town; none of which are a major concern.

### 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 Vernon. 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 CROCG 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 33-2: Average Annualized Losses, Vernon**

Hazard	Source	Average Annualized Losses (AAL)
Hurricanes/Tropical storms	NCEI	\$77,647.37
	NRI	\$1,381,434.35
	FEMA PA	\$15,481.14
Tornados/High Winds	NCEI	\$29,069.75
	NRI	\$248,009.65
Winter Storms	NCEI	\$23,028.44
	NRI	\$116,965.28
	FEMA PA	\$17,083.22
Flood	NCEI	\$23,536.02
	NRI	\$86,234.06
	NFIP	\$4,704.65
Drought	NRI	\$4,449.08
	USDA	\$0.00
Extreme Heat	NRI	\$4,845.20
Wildfire	NRI	\$1,409.93
Earthquakes	NRI	\$44,480.97
Dam Failure	HMP	\$1,793.00

#### Losses Summary

A review of the above loss estimates demonstrates that the community 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, specific hazard mitigation needs were noted.

- Continue to work with Eversource to ensure timely tree removal and decrease power outages during storm events.
- Enhance stormwater management systems to mitigate flooding in vulnerable areas, conduct regular maintenance of drainage infrastructure to ensure its effectiveness.
- Invest in flood-resistant infrastructure for critical facilities clustered in downtown Vernon.
- Update and maintain a comprehensive registry of vulnerable residents to assist in evacuation and assistance efforts during emergencies.
- Collaborate with local businesses to help ensure they have robust disaster plans in place, including evacuation procedures and staff training.
- Continue the sewer lining program to address aging infrastructure throughout the town.

Status of Previous Mitigation Strategies and Actions

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

**Table 33-3: Status of Previous Mitigation Strategies and Actions, Vernon**

No.	Action	Notes	Status
2	Develop a scope of work and a request for proposals to study improvements to the Manchester Flats area, around Route 83 and Welles and Main Streets, to alleviate flooding issues.	This area is still very much a concern for the Town. Town staff reported that in recent years there have been multiple 100-year storms (particularly the summer of 2021) which have resulted in flooding in this area. There has been also been a significant amount of private sector development in this area on both sides of the river. There were some losses involved with new property owner in the areas around the bank, including loss of equipment. The work of the private development on both sides of the river has mitigated some of the flooding and risks in the area. On the side of the river where the Golf Land golf course used to be, actions were taken by developers to mitigate flooding. This is redevelopment with an eye on maintaining flood capacity that was there while developing some previously-open space. There are still some stormwater choke points. Repeated storms have resulted in flooding in this area. Vernon Public Works has done what they can to update and maintain stormwater systems but the system gets overwhelmed easily. A lot of land in this area is privately owned, which makes it more complicated to implement flood mitigation strategies. In the recent July 2023 storms this area did not experience much flooding. The town would like to carry this forward.	Carry Forward with revisions to reflect redevelopment. Also, the town would like this to say the Vernon - Manchester Flats.
3	Develop a scope of work and a request for proposals to study improvements to Frederick Road to alleviate flooding issues.	Town staff said they were unaware of flooding on Frederick Rd and this is not one of their priority flooding areas. The Frederick Rd does back up to the Tankerhoosen River and causes some localized flooding. Town staff would like to revise this action to focus on their priority areas for flooding, which include: <ul style="list-style-type: none"> <li>- East St from the Northeast School to the cemetery</li> <li>- Overbrook Road</li> <li>- Windsorville Road (includes regional water treatment facility and regional animal control facility)</li> <li>West Street</li> </ul>	Carry Forward with Revisions to reflect the other priority areas.

No.	Action	Notes	Status
8	Review water level monitoring systems that can provide real-time data and alerts to inform critical decision making to identify those appropriate for the Town. Explore grant funding options.	Town staff said there has been some discussion of having an alert system in place, specifically, flow monitoring or water level monitoring. Replacing culverts and stormwater infrastructure and sewers became more of a priority for the Town, so this action has not yet been achieved. Town is still interested. Town staff suggested that perhaps CRCOG could take the lead on this project for multiple towns in the region, and Vernon could be a pilot area.	Carry Forward with revisions to note that this might be better suited as a regional project with CRCOG as the leader
4	Complete upgrades to the generators at the Town Hall Annex and Parks & Recreation Facility	<p>The town has made progress on generators, including installing a new generator at the Parks &amp; Rec Facility and the Fox Hill Radio Tower. This tower provides regional emergency communications for fire and EMS, and is a critical asset for the region. There are also up-to-date generators at other locations: senior center, middle school. Generators meet operational and planning needs for the shelter and the other buildings.</p> <p>Town staff said the town is currently looking to upgrade the generator at the Police Department and the generators at the fire stations, which all date back to 70s and 80s. Town is seeking grants for these upgrades. The new police accountability law that was passed requires police departments to be accredited, which includes building requirements.</p>	Revise to Fire Department and Police Departments.
13	Pursue grants to purchase portable generators and modify buildings for hook-up.	Town staff said they have enough portable generators. The current needs are being met with what they have.	Complete/Remove

No.	Action	Notes	Status
9	<p>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.</p>	<p>Town staff has gone above and beyond the wording of this action and has done more than mailing letters. Town regularly proactively sends Public Works out to floodprone properties, and the town gives out sandbags free of charge at Public Works. In some cases when the Town knows there is a higher risk for flooding, the town will drop off pallets of sandbags for property owners.</p> <p>Town staff also report that the Town is taking steps to address the causes of some of the flooding experienced in RL area. On Overbrook Road, the town is doing internal engineering to redirect some of the flow that is causing some of the back-up along the storm water management system. Town staff also express a regional concern, as water from neighboring towns is reportedly flowing into the waterways in Vernon and contributing to the burden on the waterways/systems. For example, town staff report that increased development in South Windsor and Ellington has increased flooding in the Skinner Rd area and Hockanum Boulevard.</p> <p>This action will be carried forward according to FEMA requirements since Vernon has RLP. A new action will be added to capture the regional water flow concern.</p>	<p>Carry Forward but add another action for the regional action to address the flooding</p>
12	<p>Work with CT DEEP to complete a formal validation of the Repetitive Loss Property list and update the mitigation status of each listed property.</p>	<p>Town staff said this has not been completed.</p>	<p>Carry Forward</p>
6	<p>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.</p>	<p>Town staff said they still need help with MS4 and would like to keep this action.</p>	<p>Carry Forward</p>
5	<p>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.</p>	<p>Town staff said they maintain hazardous materials as required. The town staff believe they mitigated most of this and started a program to inspect businesses which has given them a handle on the quantities and types of materials that are stored.</p> <p>This is a capability.</p>	<p>Capability/Remove</p>
7	<p>Participate in EMI courses or the seminars and annual conference held by the Connecticut Association of Flood Managers.</p>	<p>Town staff said they participate in training regularly. This is a capability.</p>	<p>Capability/Remove</p>



No.	Action	Notes	Status
10	Evaluate the costs and benefits of joining the FEMA Community Rating System.	Town staff said this is still on their to-do list.	Carry Forward
11	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.	Town staff reported that they are aware of their historical resources along flood zones and are comfortable retiring this action.	Complete/ Retire
1	Enter the Sustainable CT program through Registration and review actions that can be undertaken to pursue Certification. Make progress with the actions related to hazard mitigation.	Town staff said this has been a priority and a significant accomplishment, and Vernon's success has reportedly motivated neighboring towns to do the same. The town has been Silver Certified since 2019 and was recertified in 2022. The town is continuing to push forward.	Complete/ Retire

## 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 33-4: Active Mitigation Strategies and Actions, Vernon**

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	PERSISTIS x STAPLEE =
VN1	Complete upgrades to the generators at the Police and Fire Departments.	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	07/2024 - 06/2027	High	All Hazards	No	19	4	76
VN2	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	07/2024 - 06/2025	High	All Hazards	No	19	5	95
VN3	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
VN4	Undertake a study in the Vernon -Manchester Flats area, around Route 83 and Welles and Main Streets, that identifies potential redevelopment opportunities and other improvements to alleviate flooding issues.	More than one goal.	Structural Project	Public Works	\$50,000 - \$100,000	DCRF; FEMA HMA	07/2025 - 06/2027	High	Riverine and Pluvial Floods	No	19	6	114
VN5	Develop a scope of work and a request for proposals to study improvements to; East St from the Northeast School to the cemetery,	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as	Structural Project	Public Works	\$50,000 - \$100,000	DCRF; FEMA HMA; CWSRF	07/2025 - 06/2028	High	Riverine and Pluvial Floods	No	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)	EI?	PERISTS Score	STAPLEE Score	PERISTS x STAPLEE =
	Overbrook Road, Windsorville Road (includes regional water treatment facility and regional animal control facility), and West Street to alleviate flooding issues.	climate change increases frequency and severity of floods.											
VN6	Work with CRCOG to explore the feasibility of installing a water level monitoring systems that can provide real-time data and alerts to inform critical decision making, with Vernon as a pilot case for the region.	More than one goal.	Water & Wastewater Utility Projects	Public Works	\$50,000 - \$100,000	STEAP; CRCOG; FEMA HMA	07/2024 - 06/2026	Medium	Riverine and Pluvial Floods	No	18	6	108
VN7	Work with CRCOG and neighboring towns to address the regional concern of the influx of water from neighboring towns into Vernon's waterways, contributing to increased flooding in areas such as Skinner Rd and Hockanum Boulevard.	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; CRCOG	07/2024 - 06/2026	High	Riverine and Pluvial Floods	No	19	4	76
VN8	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 and Development	\$0-\$10,000	Municipal Operating Budget	01/2026 - 12/2026	High	Riverine and Pluvial Floods	No	19	7	133
VN9	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	Property Protection	Planning and Development	\$0-\$10,000	Municipal Operating Budget	01/2025 - 12/2025	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)	EJ?	PERISTS Score	STAPLEE Score	PERISTS x STAPLEE =
		increases frequency and severity of floods.											
VN10	Coordinate with CLEAR/NEMO 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.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Prevention	Public Works	\$0-\$10,000	Municipal Operating Budget	01/2026 - 12/2026	Medium	Riverine and Pluvial Floods	No	18	7	126
VN11	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
VN12	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
VN13	Evaluate the costs and benefits of joining the FEMA Community Rating System.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Preparedness & emergency response	Public Works	\$0-\$10,000	Municipal Operating Budget	01/2026 - 12/2026	Low	Riverine and Pluvial Floods	No	17	3	51
VN14	Update town website to include hazard mitigation and emergency preparedness tips for town residents, including sections	More than one goal.	Education and Awareness	Planning and Development	\$0-\$10,000	Municipal Operating Budget	01/2025 - 12/2025	Medium	All Hazards	No	17	7	119

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	PERISTS x STAPLEE =
	corresponding to each hazard considered in this Plan Update.												

Figure 33-1: CIRCA Environmental Justice Rank and Critical Facilities, Vernon

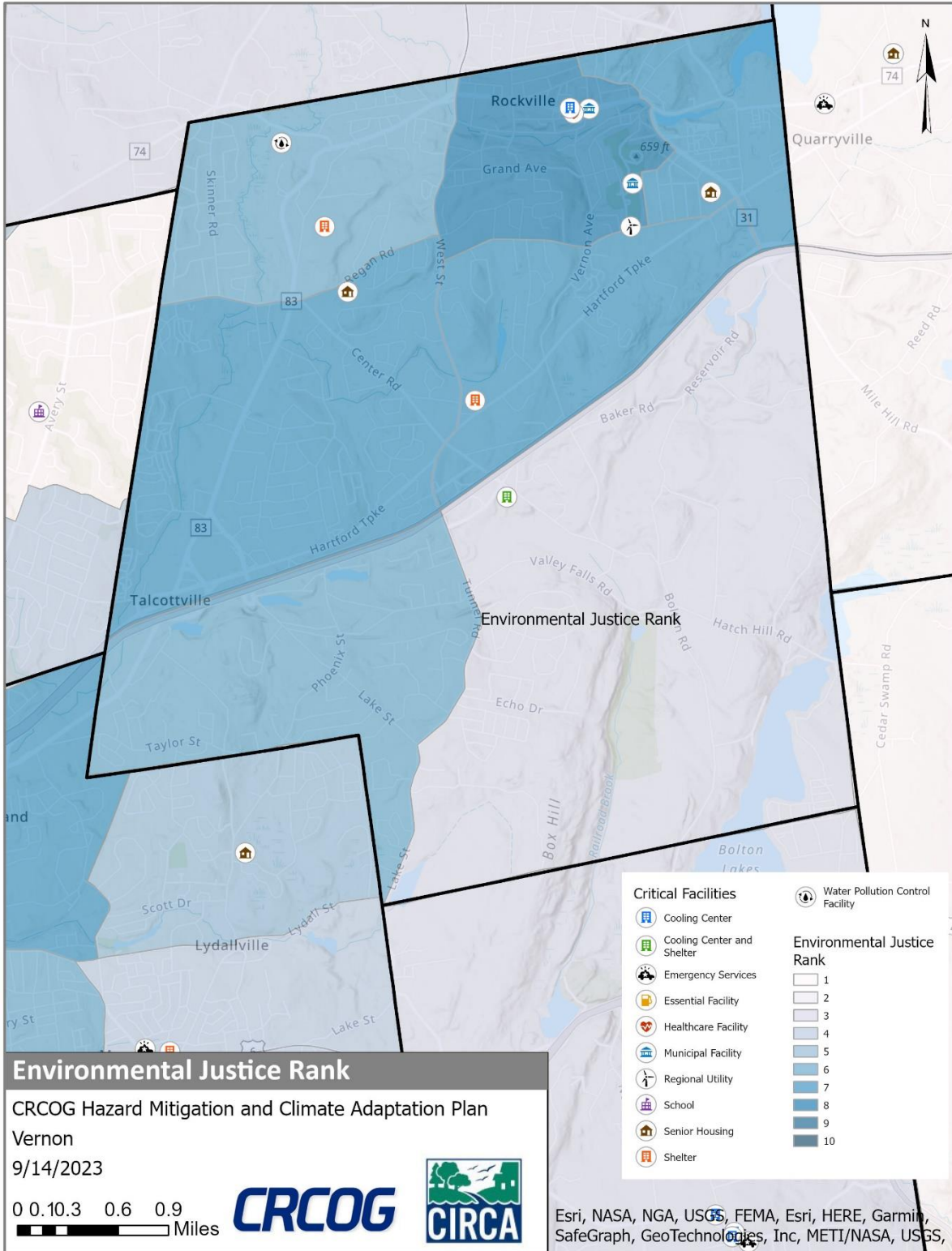


Figure 33-2: FEMA Flood Zones and Critical Facilities, Vernon

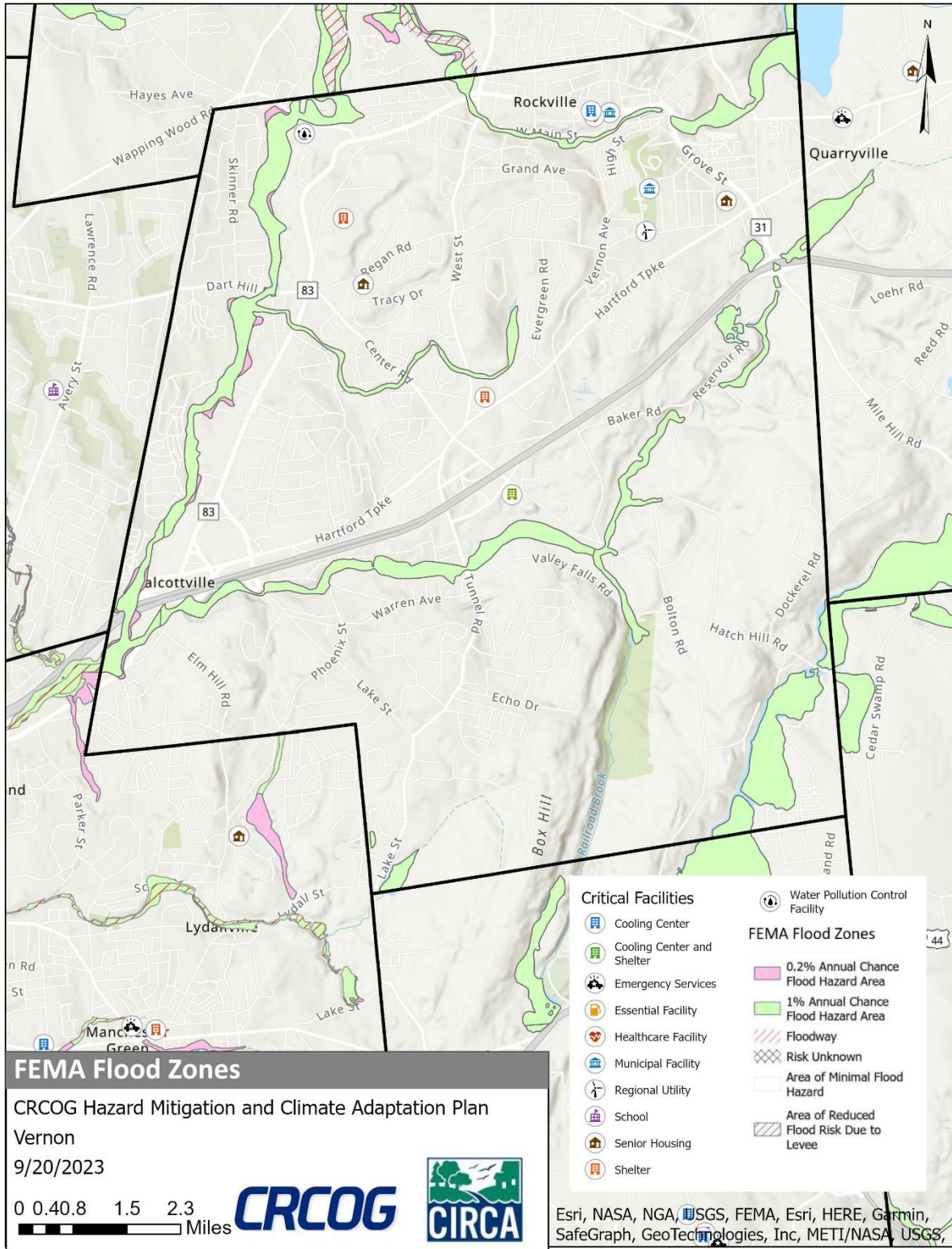


Figure 33-3: CIRCA Flood CCVI and Critical Facilities, Vernon

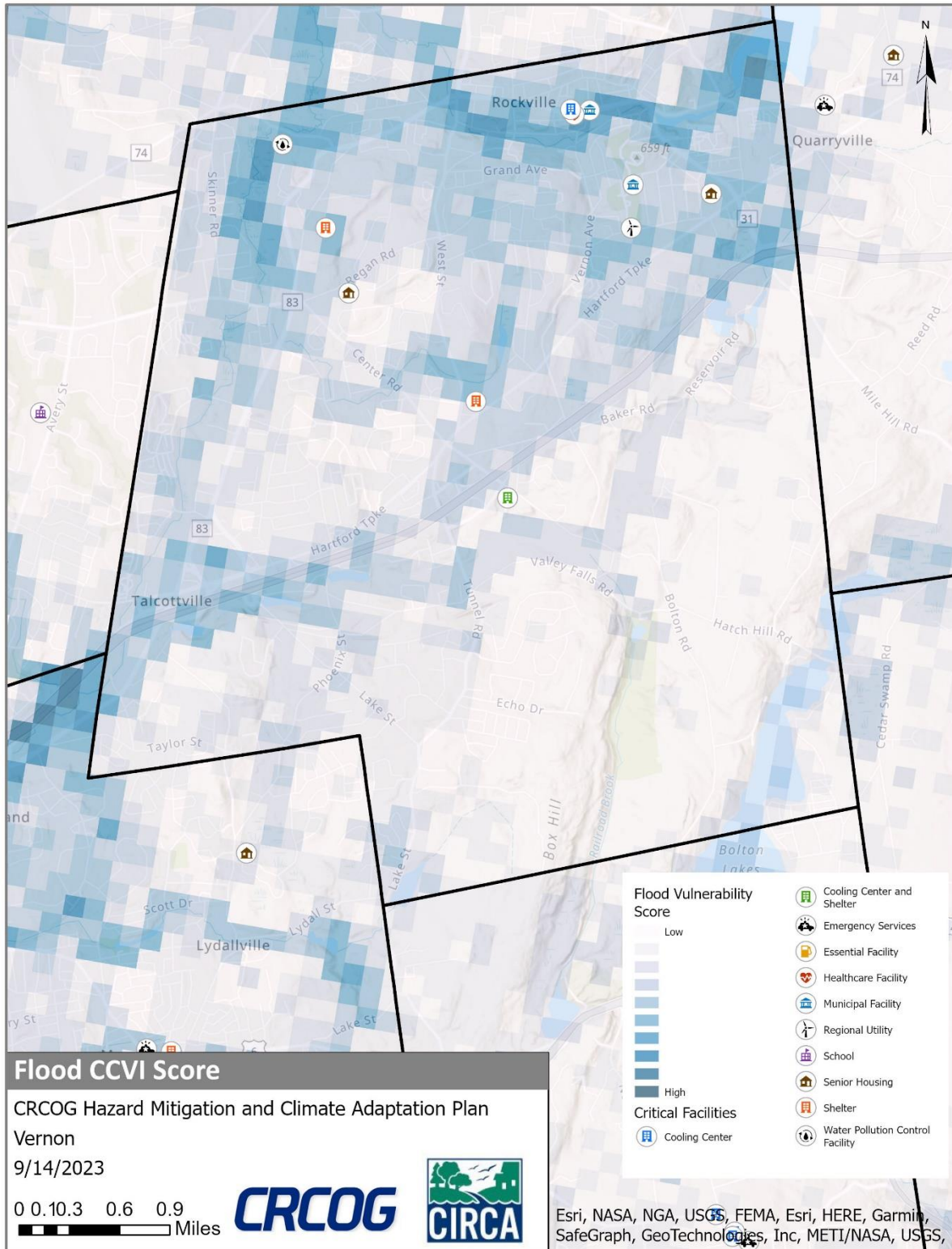




Figure 33-4: Dam Inundation Area and Critical Facilities, Vernon

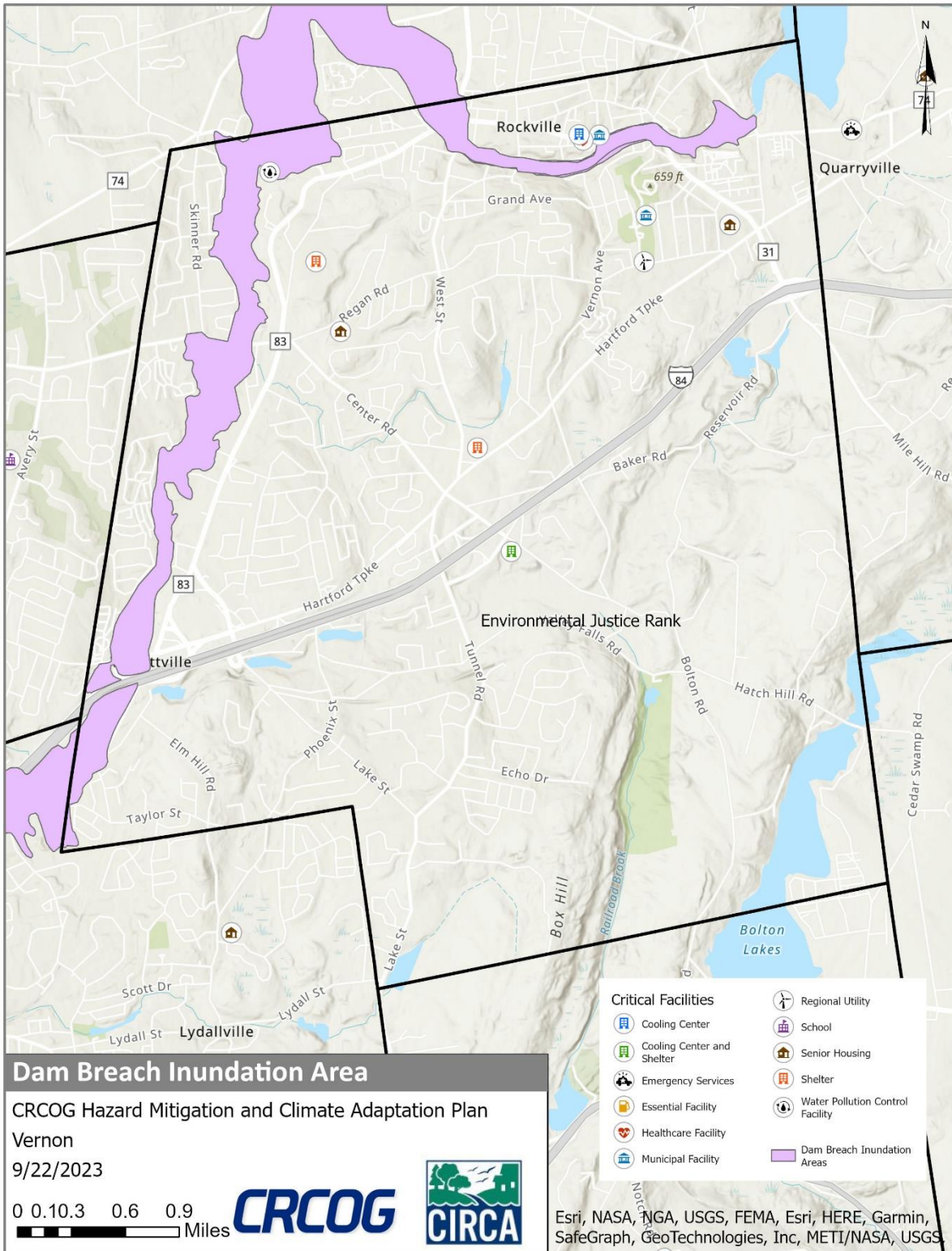


Figure 33-5: CIRCA Heat CCVI and Critical Facilities, Vernon

