



7 Columbia

Community Overview

Columbia has an area of 21.9 square miles (13,995 acres). The 2020 Census population count was 5,272. Mainly rural with some agriculture, Columbia is about 10% developed. The Columbia Lake and Mono Pond areas are home to concentrations of the town's population. Although some of this population is seasonal, a growing portion of residents live there year-round. Columbia is made up of approximately 68% forested land; 10% is developed. Water bodies include Columbia Lake and Mono Pond. Columbia's elevation ranges from about 240 feet in the north/northeast section of town at the Willimantic River to about 770 feet at the peak of Post Hill in the southwest section.

No new development has occurred along the Hop River, which is the main vulnerable area in the town. Development/redevelopment is not increasing risk to natural hazards.

Critical Facilities

In Columbia, critical facilities and cultural resources include a fire department, resident state trooper's office, preschools, the school, elderly facilities, a library, Department of Public Works, a National Register historic district, group homes for individuals with special needs, a summer camp for youth, a commercial area along Route 6, a strip mall along Route 66, a telephone switch station, cell towers, an electrical substation, a defense sub-contractor facility, a hazardous material site, and two high potential loss dams.

Table 7-1: Critical Facilities, Columbia

Facility	Shelter	Cooling Center	Generator
Town Hall (and Resident State Trooper Office)		X	X
Volunteer Fire Association (EOC)			X
Horace W. Porter School	Primary		X
Saxton B. Little Public Library		X	
New Department of Public Works			X
Senior Center		X	In progress
4 Preschools			
3 Elderly Facilities			
7 group homes for individuals with special needs			
Summer camp for youth on Columbia Lake			
National Register Historic District			
Commercial area along Route 6			
Strip mall along Route 66 (toward Willimantic)			
Telephone switch station (Route 66)			
Two cell towers			
1 Eversource substation			
Defense sub-contractor facility off Route 66			
Hazardous material site on Lakeview Park West			
Two high potential loss dams.			

A During extreme heat events, Columbia Town Hall, Saxton B. Little Public Library and Beckish Senior Center can all be opened as public cooling centers. The town hall currently has a generator, and the town is in process of obtaining a generator for the Senior Center. The library does not have a generator.

New DPW building is being built but it is not in high-risk area.

Capabilities

Columbia's hazard mitigation capabilities include its flood hazard district regulations, debris management and plowing services, and public warning notifications. Hazard mitigation is addressed specifically in the community's Plan of Conservation and Development (POCD). The HMP document itself is cited. POCD actions specifically address natural hazards.

Columbia spends approximately \$500-\$700 per year to maintain, monitor, and conduct planning for the two dams it owns: the Columbia Lake Dam (class C) and the Fagan Dam (class BB). A relatively recent Columbia Lake Dam renovation cost \$200,000.

The Town has consistently participated in the NFIP since September 16, 1982. The Town's Flood Hazard District Regulations were most recently updated on June 1, 1989 and include elevation requirements and strict construction demands. Structures may be required to be constructed with certain materials, elevated, flood proofed, watertight or anchored. It must be shown that any activity in the 100-year flood plain will not alter flood levels.

The Town monitors water levels at its dry hydrants during droughts. When a source becomes limited or unavailable, tankers can be used during a fire to move water from another location.

Columbia contributes to regional shelter facilities and performs debris management through Public Works with the assistance of the local electrical utility when necessary. The Town has implemented a Reverse 9-1-1 system and the State building code has been updated and locally adopted.

Plowing services are provided through Public Works; that department also cleans catch-basins on an annual basis.

The Town notifies the public when severe thunderstorms are to occur and performs debris management through Public Works with the assistance of the local electrical utility when necessary. The Town's capability to mitigate thunderstorm damage is relatively limited to town-owned facilities and rights-of-way. The local electrical utility performed an intensive trimming program near electrical lines following the severe storms in 2011.

The Town uses a variety of regulatory, preparedness, and public information programs to mitigate the effect of wildfires, including the Open Burning Program, maintenance of dry hydrants and cisterns, and educational programs on fire safety. The Town has completed a study to determine where new dry hydrants or cisterns should be installed to improve overall fire protection capabilities. Cisterns are required in new developments.

Since adoption of the 2015 HMP, one culvert that was contributing to poor-drainage flooding was replaced with newer culvert. Several bridges have also been replaced in recent years, although hydraulic improvements were not necessarily implemented in all cases; nevertheless, replacement of those bridges is expected to have improved the Town's access and evacuation capabilities.

Columbia has secured permits from the USACE to install bypass culverts and perform culvert repairs and replacements on the Hop River. This project will get underway in the coming years.

Two new water cisterns, as well as a new dry hydrant at Mono Pond, have been added to Columbia since the previous HMP, improving the Town's capability for fighting wildfires.

An updated Emergency Action Plan (EAP) has been completed for the Columbia Lake Dam. The Town is hoping to lower its risk classification from Class C.

Columbia has implemented the Everbridge warning system; additionally, the school system has a hazard notification system and it can use to communicate with parents.

A map modernization effort by FEMA is currently underway for Tolland County, but its full extent, and how much of Columbia it will cover, is unknown.

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

- Assess vulnerable population disaster preparedness and emergency assistance protocol to identify opportunities for improvement.
- Distribute informational materials regarding emergency preparedness through social media and the Town magazine.

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 most significant recent event for the town of Columbia was the flooding caused by Ida in 2021, resulting in two road washouts. Pine Street was one of the affected areas, where an engineer's assessment revealed that the existing culvert was undersized and in poor condition, consisting of two deteriorating corrugated metal culverts. The engineering report noted, "The twin 60-inch diameter CMP are in poor condition, with significant section loss and deteriorated asphaltic coating." Additionally, Thompson Hill Road also experienced flooding, and though the cause is uncertain.

The flooding from the rain storms of 2023/2024 were also a concern for the town. The culvert at Thompson Hill Road is a problem and the town saw major damage from the rain event on 1/9/24.

Parker Bridge Rd is another area of concern for the town. The road is at or below the water table and floods. The town is unsure of how to remedy the flooding here.

The bridge on Latham Hill Road regularly floods which is a concern of the town staff.

The town is worried about the access to the Island Woods Subdivision (which is already referenced in action 2 of the table). The concern for road obstruction is trees falling, not flooding.

Town staff mentioned that the drainage infrastructure is a concern as it was designed for 25-year floods and with more intense and frequent rain events, the drainage systems are not adequate.

The town mentioned they would like an analysis of the inflow to Columbia Lake.

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 Columbia. 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 7-2: Average Annualized Losses, Columbia

Hazard	Source	Average Annualized Losses (AAL)
Hurricanes/Tropical storms	NCEI	\$13,548.14
	NRI	\$313,185.09
	FEMA PA	\$0.00
Tornados/High Winds	NCEI	\$5,072.17
	NRI	\$50,747.25
Winter Storms	NCEI	\$4,018.07
	NRI	\$25,276.63
	FEMA PA	\$3,192.44
Flood	NCEI	\$4,106.63
	NRI	\$11,081.87
	NFIP	\$587.33
Drought	NRI	\$2,663.60
	USDA	\$0.00
Extreme Heat	NRI	\$933.34
Wildfire	NRI	\$497.58
Earthquakes	NRI	\$6,886.73
Dam Failure	HMP	\$337.00

Other Hazard Costs

The Connecticut DEEP estimated the damage to the Columbia Lake Dam from the June 1982 flood to be \$20,000.

As necessary following severe storms, the Town hires a tree service to do major cleanups for approximately \$900 per day. Smaller cleanups are handled by Town staff within current budget allocations. \$3,366 was paid to a tree service for cleanup following Hurricane Irene.

The overall cost of property damage due to wildfires is believed to be minimal since vacant lands are typically affected. The Town typically spends less than \$1,000 each year to fight wildfires, with most of the costs attributed to food, equipment, and provisions for the volunteer firefighters.

Losses Summary

A review of the above loss estimates demonstrates that the Town of Columbia 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:

- Continue to work to upsize the culverts that were determined to be undersized.
- Conduct a study of Parker Bridge Rd to remedy the flooding in the area.
- Address the flooding on Latham Hill Road near the bridge.
- Consider alternative access/egress route to the Island Woods Subdivision.
- Conduct a town-wide study of the drainage infrastructure to determine areas of issue.
- Conduct an analysis of the inflow to Columbia Lake.

Status of Previous Mitigation Strategies and Actions

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

Table 7-3: Status of Previous Mitigation Strategies and Actions, Columbia

No.	Action	Notes	Status
4	Install bypass culverts and perform culvert repairs and replacements on the Hop River, as described in the permits granted by the USACE.	Town staff said the bridge on Hop River Road is being replaced now. Coventry is the lead town on the replacement. The project will start in Spring 2024. There will also be a dry hydrant added at the Hop River Bridge at the bridge for Columbia and Coventry. Revise to "Complete the bridge repair project on Hop River Road."	Carry Forward with Revisions
8	Progress through planning phase for drainage system upgrade at Parker Bridge Road. Road should be elevated with cross culverts to mitigate against flooding.	Town staff said this is an issue but nothing has been done. The road leading up to the bridge floods. The funding is an obstacle here. Might break this action up into more achievable action. The town's proposed temporary solution is to put road closure gates to block the road near the bridge, but it does not sound like they have implemented this yet.	Carry Forward with Revisions
9	Replace culvert pipe and perform basin retrofit, if necessary, at Macht Road.	This is on the town's list of culverts that need to be repaired but nothing has been completed yet. When replacing culverts, the Town does a hydraulic analysis on the culverts to see whether they need to be upsized or not. This culvert is near Cherry Valley Rd area. There is also a culvert on Edgarton Rd that is of concern and might need to be replaced. Include this culvert in an action or have a separate action for it.	Carry Forward with Revisions
10	Complete drainage upgrade on Hennequin Road: upgrade/retrofit all culverts on the west side of Hennequin Road, from Recreation Park to Lake Road.	Town staff said this is in progress.	Intent is complete/ Remove
2	Identify location for secondary access to Island Woods Subdivision and prepare and file map of proposed street in the office of the town clerk in accordance with CT General Statute Section 8-29.	Town staff said this is an ongoing concern, but the town has not yet come up with a solid solution. One of the previous properties being considered for secondary access has recently been sold and will be developed into a house instead. This could be a land locked area in a storm if a tree falls; one road provides access and if it was blocked off by a fallen tree, there would be hundreds of houses without emergency access. This is high priority for the town.	Carry Forward

No.	Action	Notes	Status
7	Review the LID Manual developed by the Northwest Hills Council of Governments and determine whether LID can be incorporated locally to increase rural resiliency.	Town staff said they would like to revisit this. LID is incorporated in subdivision regulations and Zoning regulations Town would like to look to continue to make regulatory adjustments so this action should be revised.	Carry Forward with Revisions
3	Assess vulnerable population disaster preparedness and emergency assistance protocol to identify opportunities for improvement.	Town staff is constantly updating the vulnerable population list via the senior center and social services. The town now has a full-time social worker who is charged with creating lists of people in need and that list is made available to Fire/Emergency management. This is an ongoing capability for the town.	Complete/ Capability/ Retire
11	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 Columbia has RLP. Town staff said the package store on Route 66 East might be the RLP referenced on the past FEMA list (which only listed one RL property for Columbia), as the parking lot has flooded from Hop River.	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 this is not a concern for the town. There is one business in town which is a pool service, Calypso Blue, but town staff are confident that they have their chemicals stored properly.	No Longer needed/R etire
12	Increase the annual-budget for preventative tree maintenance.	Town staff said the annual tree maintenance budget went from \$10,000 -\$100,000 in the last three years. Town is actively removing dead trees. Would like a new action related to tree management.	Complete/ Retire
14	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.	Revise to "Acquire SHPO point data and overlay with flood vulnerability layers and review." Town staff mentioned there are some members of town who are concerned about historic buildings. SHPO granted a CT Historical Preserve title for the mill site on Hop River. Another culvert is on hold because SHPO is doing an analysis related to historic resource significance.	Carry Forward with Revisions
13	Distribute informational materials regarding emergency preparedness through social media and the Town magazine.	Town staff lets residents know when an event is about to occur. Before a natural disaster, there is a warning banner on the website about what needs to be done. Have materials from Eversource that residents can pick up from the town hall. This is a capability.	Complete/ Capability/ Retire

No.	Action	Notes	Status
6	Participate in EMI courses or the seminars and annual conference held by the Connecticut Association of Flood Managers.	Town staff have not completed this but don't believe it is needed, as very few properties are in areas of flood risk.	No Longer Needed/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 started this before Covid but haven't completed any applications. However, they are still interested in getting certified from SCT.	Carry Forward

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 7-4: Active Mitigation Strategies and Actions, Columbia

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 =
CO1	Acquire a generator for the library or explore options for connecting the library to the town hall generator.	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; STEAP	07/2024 - 06/2025	High	All Hazards	No	19	5	95
CO2	Identify location for secondary access to Island Woods Subdivision and prepare and file map of proposed street in the office of the town clerk in accordance with CT General Statute Section 8-29.	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.	Preparedness & Emergency Response	Emergency Management	\$10,000 - \$50,000	STEAP; Municipal CIP Budget	07/2025 - 06/2026	Medium	All Hazards	No	17	4	68
CO3	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	No	19	3	57
CO4	Complete the bridge repair project on Hop River Road.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Structural Project	Public Works	>\$1M	LOTICIP; IIJA AOP, BIP; STEAP	07/2025 - 06/2027	High	Riverine and Pluvial Floods	No	19	4	76
CO5	Execute a feasibility study to evaluate flood risk reduction near/at Parker Bridge Road.	Reduce flood and erosion risks by reducing vulnerabilities and	Structural Project	Public Works	\$50,000 - \$100,000	DCRF; FEMA HMA	07/2025 - 06/2026	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 =
		consequences, even as climate change increases frequency and severity of floods.											
CO6	Address the flooding that regularly occurs at the bridge on Latham Hill Road.	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	07/2025 - 06/2026	High	Riverine and Pluvial Floods	No	18	6	108
CO7	Examine the possibility of enlarging the culvert on Thompson Hill Road.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Structural Project	Public Works	\$500,000 - \$1M	IIJA AOP; FEMA HMA; Municipal CIP Budget	07/2026 - 06/2028	High	Riverine and Pluvial Floods	No	18	4	72
CO8	Replace culvert pipe and perform basin retrofit, if necessary, at Macht Road.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Structural Project	Public Works	\$500,000 - \$1M	IIJA AOP; FEMA HMA; Municipal CIP Budget	07/2026 - 06/2028	Medium	Riverine and Pluvial Floods	No	18	4	72
CO9	Replace culvert pipe and perform basin retrofit, if necessary, at Edgarton Rd.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as climate change increases frequency and severity of floods.	Structural Project	Public Works	\$500,000 - \$1M	IIJA AOP; FEMA HMA; Municipal CIP Budget	07/2026 - 06/2028	Medium	Riverine and Pluvial Floods	No	18	4	72
CO10	Replace the two undersized corrugated metal culverts on Pine Street with a boxed culvert.	Reduce flood and erosion risks by reducing vulnerabilities and consequences, even as	Structural Project	Public Works	>\$1M	IIJA AOP; FEMA HMA; Municipal	07/2025 - 06/2027	High	Riverine and Pluvial Floods	No	19	4	76

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 =
		climate change increases frequency and severity of floods.				CIP Budget							
CO11	Complete an assessment of the Thompson Hill Rd culvert to determine if it is undersized.	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	IIJA AOP; FEMA HMA	07/2025 - 06/2026	Medium	Riverine and Pluvial Floods	No	18	6	108
CO12	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
CO13	Review and revise LID in subdivision regulations and zoning regulations as needed.	Reduce losses from other hazards.	Natural Resources Protection	Planning	\$0-\$10,000	Municipal Operating Budget	01/2025 - 12/2025	High	All Hazards	No	19	11	209
CO14	Ensure that options are available to help property owners make their water supply wells resilient to droughts, floods, and loss of capacity	Reduce losses from other hazards.	Water & Wastewater Utility Projects	Planning	\$0-\$10,000	DWSRF; FEMA HMA; STEAP	07/2024 - 06/2026	High	Riverine and Pluvial Floods/ Drought	No	19	10	190
CO15	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

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 =
CO16	Review the Connecticut Cultural Resource Information System (ConnCRIS) to identify and understand historic and archaeological resources in areas of hazard risks found here: https://conncris.ct.gov .	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	SHPO; Municipal Operating Budget	01/2026 - 12/2026	Medium	Wildfires /Tornadoes and High Winds/ Riverine and Pluvial Floods	No	18	9	162
CO17	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	Planning	\$0-\$10,000	Municipal Operating Budget	01/2025 - 12/2025	Medium	All Hazards	No	17	7	119
CO18	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.	More than one goal.	Natural Resources Protection	Planning	\$0-\$10,000	Municipal Operating Budget	07/2024 - 06/2025	Low	All Hazards	No	18	7	126

Figure 7-1: CIRCA Environmental Justice Rank and Critical Facilities, Columbia

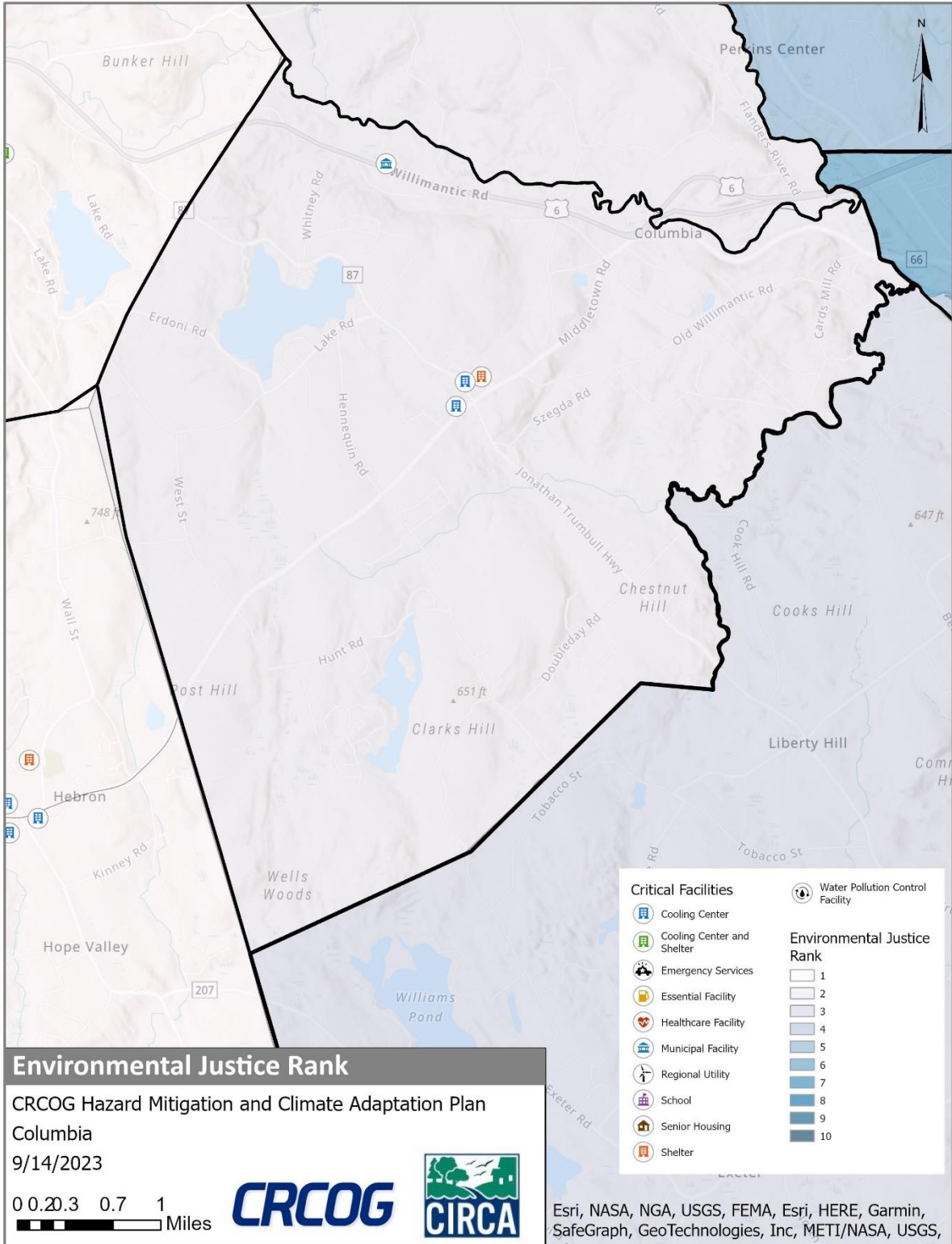


Figure 7-2: FEMA Flood Zones and Critical Facilities, Columbia

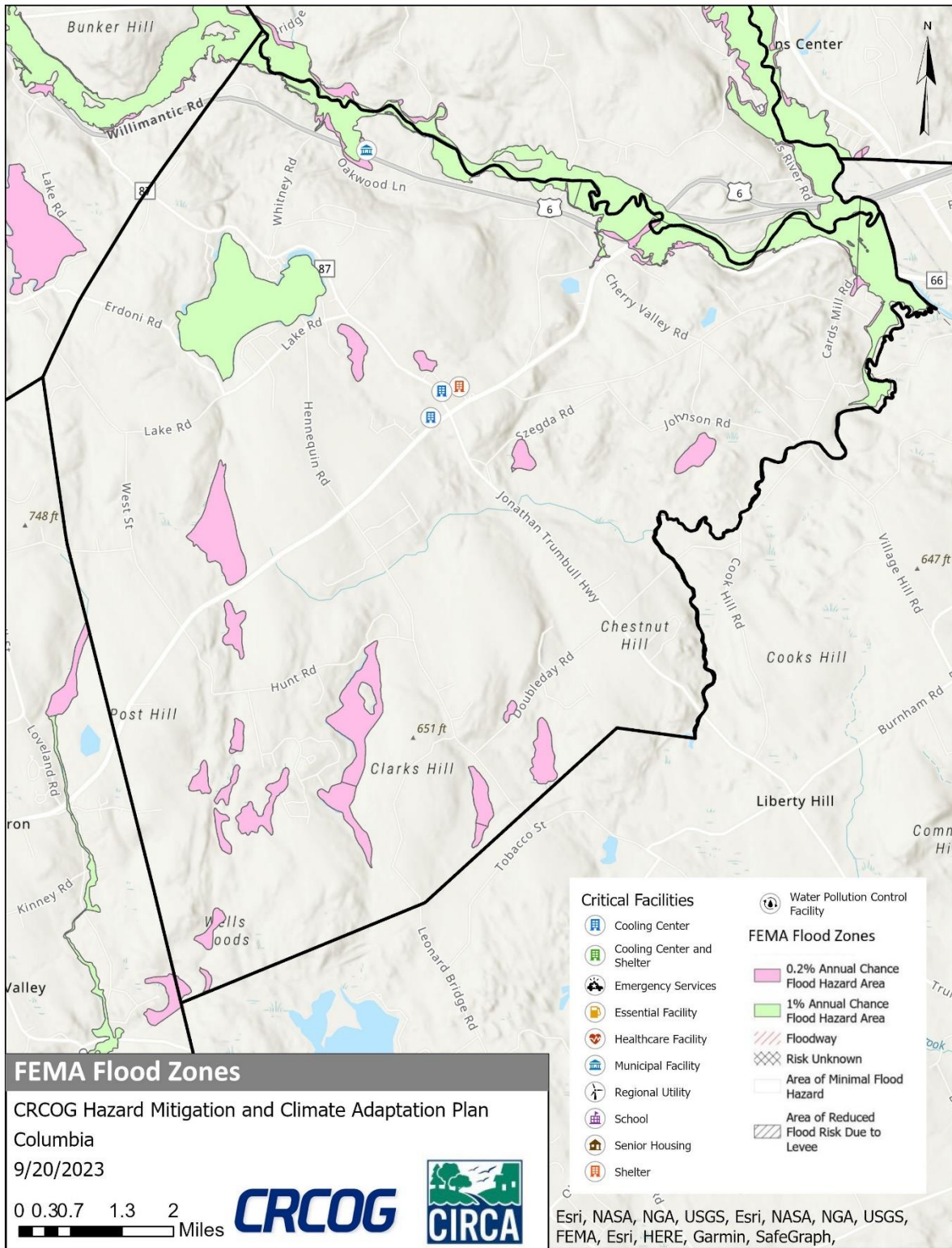


Figure 7-3: CIRCA Flood CCVI and Critical Facilities, Columbia

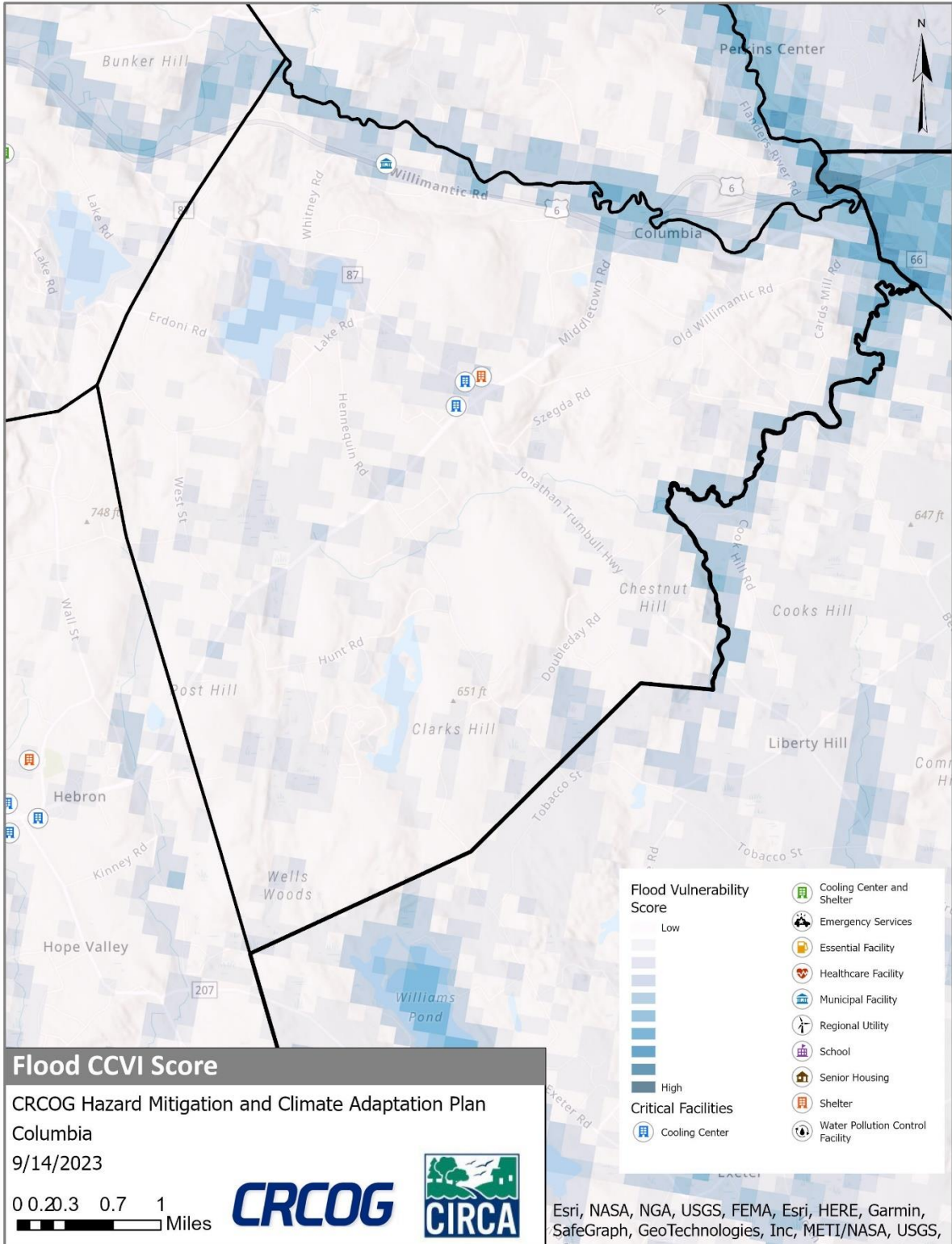


Figure 7-4: CIRCA Heat CCVI and Critical Facilities, Columbia

