

TOWN OF NORTH BRANFORD

2023 SCRCOG HAZARD MITIGATION PLAN

UPDATE ANNEX

JANUARY 2023



Town of North Branford
909 Foxon Road
North Branford, Connecticut 06471
<https://www.townofnorthbranfordct.com>

North Branford Annex
2023 SCRCOG Mitigation Plan Update

Table of Contents

Table of Contents.....	1
Table of Figures	2
Table of Tables.....	2
1. Municipality Profile.....	4
1.1 Demographics	4
1.2 Geography and Water.....	5
1.3 Transportation	5
1.4 Land Use and Development.....	6
2. Hazard Profiles.....	8
2.1 Critical Facilities.....	8
2.2 Vulnerable Assets.....	12
2.3 Historic Disasters.....	13
2.3.1 Federally Declared Events	13
2.3.2 National Centers for Environmental Information	15
2.3.3 Drought Occurrences	16
2.3.4 Wildland Urban Interface (WUI).....	18
3. Risk Analysis	19
3.1 Vulnerable Assets: Exposure Analysis.....	19
3.2 Hazard Losses	20
3.2.1 Federal Assistance	20
3.2.2. National Centers for Environmental Information (NCEI)	21
3.3 HAZUS-MH Analysis.....	21
3.3.1 Earthquake	21
3.3.2 Hurricane	22
3.3.3. Riverine Flood.....	24
3.4 Annualized Losses	30
3.5 Problem Statements	31

North Branford Annex

2023 SCRCOG Mitigation Plan Update

4. Capabilities	34
4.1 Summary of Local Findings.....	34
4.1.1 Planning and Regulatory Capabilities.....	34
4.1.2 Administrative and Technical Capabilities	35
4.1.3 Financial Capabilities	36
4.1.4 Education and Outreach Capabilities	37
4.2 Safe Growth Survey.....	37
4.3 NFIP Participation and Compliance.....	41
4.3.1 Improvement Opportunities	44
5. Mitigation Actions.....	47

Table of Figures

Figure 1. Land Use.....	7
Figure 2. North Branford FEMA Flood Zones and Critical Facilities.....	11
Figure 3. North Branford FEMA Flood Zones and Historic Resources.....	12
Figure 4. United States Drought Monitor (USDM) Drought Intensity for New Haven County from 2015 through 2021.	16
Figure 5. Standardized Precipitation Index (SPI) for New Haven County from 2015 through 2021.	17
Figure 6. North Branford WUI and Critical Facilities.....	18
Figure 7. Federal Funds Received by Category.	20

Table of Tables

Table 1. Critical Facilities in the Town of North Branford.....	8
Table 2. North Branford Repetitive and Severe Repetitive Flood Loss Summary.....	13
Table 3. FEMA and USDA Disaster Declarations for New Haven County.....	14
Table 4. NCEI Events Between 2017 and 2021	15
Table 5. Town of North Branford Vulnerable Assets Exposure Analysis.	19
Table 6. Federal Funds Received from Disaster Declarations.....	20
Table 7. Number of Buildings Damaged from the East Haddam Earthquake Scenario for the Town of North Branford.....	22
Table 8. Total Building Related Economic Loss from the East Haddam Earthquake Scenario for the Town of North Branford.	22

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Table 9. Other Earthquake Impacts from the East Haddam Earthquake Scenario for the Town of North Branford.....	22
Table 10. Number of Buildings Damaged from the Probabilistic Hurricane Scenario for the Town of North Branford.....	23
Table 11. Total Building Related Economic Loss from the Probabilistic Hurricane Scenario for the Town of North Branford.....	23
Table 12. Other Hurricane Impacts from the Probabilistic Hurricane Scenario for the Town of North Branford.....	24
Table 13. Annualized Riverine Flood Loss Estimates for the Town of North Branford.....	25
Table 14. 10-percent-annual-chance Riverine Flood Loss Estimates for the Town of North Branford.....	26
Table 15. 4-percent-annual-chance Riverine Flood Loss Estimates for the Town of North Branford.....	26
Table 16. 2-percent-annual-chance Riverine Flood Loss Estimates for the Town of North Branford.....	27
Table 17. 1-percent-annual-chance Riverine Flood Loss Estimates for the Town of North Branford.....	28
Table 18. 0.2-percent-annual-chance Riverine Flood Loss Estimates for the Town of North Branford.....	29
Table 19. Expanded 1-percent-annual-chance Riverine Flood Loss Estimates for the Town of North Branford.....	30
Table 20. Annualized Loss Estimates for the Town of North Branford.....	31
Table 21. North Branford Problem Statements.....	32
Table 22. Safe Growth Survey Results, Town of North Branford.....	38
Table 23. NFIP Participation and Compliance, Town of North Branford.....	42
Table 24. Status of Previous Mitigation Actions – Town of North Branford.....	47
Table 25. Updated Mitigation Actions (2023-2028) – Town of North Branford.....	49

North Branford Annex

2023 SCRCOG Mitigation Plan Update

This municipality Annex includes details regarding North Branford not included in the main body of the 2023 SCRCOG Mitigation Plan Update. The municipality annexes were developed to assist municipalities with the process of implementing and maintaining their portion of the 2023 SCRCOG Mitigation Plan Update. The Annex includes a Municipality Profile, Risk Analysis, Capability Assessment, and Mitigation Actions.

1. Municipality Profile

North Branford, an early mill and farming community, was originally part of Branford and was purchased in 1638 for “twelve coats made in the English fashion.”¹ The largely oriented agricultural town was due to fertile fields and the reliance continues to present day, though not as prevalent.² North Branford was incorporated in 1831 and is located just to the east of the City of New Haven and west of Guilford, in the central portion of the South Central Region.³ The Totoket Historical Society was founded in North Branford in 1958 and contains a wealth of historical artifacts, documents and photographs.⁴ The New Haven Trap Rock Company began operations in North Branford in 1914. The quarry is located at the southern end of Totoket Mountain is one of the largest quarries in New England.⁵ The Town has a low population density (<1000 per square miles), with a broad variety of business and industrial facilities, along with a strong agricultural focus. North Branford has a Town Manager-Council form of government.⁶

1.1 Demographics

North Branford has a current population of 14,191. There are 5,855 housing units in North Branford of which 78.1% are owner-occupied, 13.1% are renter-occupied and 8.8% remain vacant. As of 2019, the unemployment rate is at 3.2% (down from a peak of 8.0% in 2010). 2.5% of North Branford residents live below poverty level and 8,320 people are in the annual labor force. The town has the second lowest poverty rate in the region. 34.0% of residents have a bachelor’s degree or higher, which is up by 6.2% since 2000. The median household income in North Branford is \$90,461.⁷

¹ Gregan, Janet S. “North Branford and Northford 1950-1981.” (2001). Images of America. Arcadia Publishing.

² “Town of North Branford Plan of Conservation and Development” (2009). North Branford, Connecticut.

³ “About Us.” (2016). Town of North Branford Connecticut.

⁴ “Totoket Historical Society.” (2017). Totoket Historical Society.

⁵ “Town of North Branford Plan of Conservation and Development.” (2009). North Branford, Connecticut.

⁶ “Government.” (2016). Town of North Branford Connecticut.

⁷ “South Central Region, CT: Demographic & Socioeconomic Trends.” (2021). South Central Regional Council of Governments.

North Branford Annex

2023 SCRCOG Mitigation Plan Update

1.2 Geography and Water

With approximately 26.6 square miles, North Branford is bounded by Wallingford and Durham to the north, North Haven and East Haven to the west, Branford in the south, and Guilford to the east.⁸

Totoket Mountain, part of the Metacomet Ridge, dominates much of North Branford (26.7 square miles). In 1920's the New Haven Water Company bought land in North Branford with the purpose of developing a reservoir, known as Lake Gaillard, which began in 1926. The Lake is now a major source of water for the South Central Regional Water Authority (who is the successor of the New Haven Water Company). North Branford is part of the Water District with about 5,000 residents served by the public water supply.⁹ Lake Gaillard, a 1.5-mile-long reservoir and the lake watershed itself makes up approximately 1/3rd of the town land, and serves over 500,000 customers.¹⁰ The southern end of North Branford is mostly suburban surrounded by farmland, with business and industrial uses along Route 80.¹¹ The town is unique in that it has retained much of its agricultural landscape despite its proximity to New Haven.

The Regional Water Authority (RWA) properties comprise over one third of the town's land area totaling about 6,000 acres, including 5,710 acres surrounding Lake Gaillard. Much of the land surrounding the lake is regulated and public use is restricted. Due to the RWA properties, there is a lacking north-south connection to the east side of the lake which has caused a "C" shaped development pattern in the rest of the community.¹²

North Branford has adapted strict regulation in the Farm River corridor and has developed a Stormwater Management Plan. It was recently awarded a National Water Quality Initiative Grant from the U.S. Department of Agriculture (USDA) to conduct a watershed study for the Farm River. There is also a proposed installation of a fishway at the Pages Millpond Dam due to the efforts of Trout Unlimited and other conservation partners. This would allow migratory fish to move from the Long Island Sound, the site of the former North Branford Dam in Northford.¹³

1.3 Transportation

The main roads through North Branford are Routes 17, 22, 80, and 139. As of 2019, 91% of residents drove alone as a means of transportation, while 3.9% carpooled, and only 0.4% used public transportation. 83.0% of the population commute to a different municipality for work, an increase from

⁸ "Town of North Branford Plan of Conservation and Development: 2019-2029" (2019). North Branford, Connecticut.

⁹ "Town of North Branford Plan of Conservation and Development" (2009). North Branford, Connecticut.

¹⁰ "About Us." (2016). South Central Connecticut Regional Water Authority.

¹¹ "Welcome to North Branford, CT." (2016). Town of North Branford Connecticut.

¹² "Town of North Branford Plan of Conservation and Development: 2019-2029" (2019). North Branford, Connecticut.

¹³ "Town of North Branford Plan of Conservation and Development: 2019-2029" (2019). North Branford, Connecticut.

North Branford Annex

2023 SCRCOG Mitigation Plan Update

66.8% in 2000. This is likely due to the town's low population and proximity to New Haven, alongside its widely unavailable public transit network.¹⁴

In town, there are just over 81 miles of roadways. The Town has received two \$750,000 Local Transportation Capital Improvement Program Grants (LOTCIP) to support rehabilitation of Twin Lakes Road and reconstruction of Woods Hill Road. The traffic volume is highest in the Route 80 corridor and at the intersection of Foxon Road and Branford Road (Route 139) with almost 19,800 vehicles per day. Route 80 was widened in 2013 to accommodate additional traffic. However, there is limited transit, bicycle, and pedestrian infrastructure.¹⁵

1.4 Land Use and Development

North Branford, a Town with strong agricultural roots, has largely transformed into a residential Town, and a bedroom community for New Haven. However, Tilcon occupies a sizable tract of land for trap rock production.¹⁶ Lake Gaillard, a man-made reservoir built in the central portion of the Town, is the major water supply source for the South Central Connecticut Regional Water Authority (SCCRWA).¹⁷ North Branford states, in the Municipal POCD Review table of the South Central Region: Plan of Conservation and Development 2018-2023, that they wish to "encourage development in line with market trends, protect natural resources and open space, and improve the transportation network."¹⁸ Since the last mitigation plan, the old Town Hall at 1599 Foxon Road has been removed and is currently designated as open space.

A section of the Algonquin Gas Transmission Company natural gas pipeline bisects the lower portion of Town from east to west.¹⁹

Even still, about half of North Branford's land area is open space, farms, or RWA lands with over 1,000 acres in farmland alone. Residential uses, which are primarily single family homes, are the second largest category with over 36% of the land use. Less than 4% of North Branford's land area is vacant. The North Branford Land Conservation Trust (NBLCT) owns 276 acres of the land area (1.7%) and has parted with the town to maintain existing open space properties.²⁰

¹⁴ "South Central Region, CT: Demographic & Socioeconomic Trends." (2021). South Central Regional Council of Governments.

¹⁵ "Town of North Branford Plan of Conservation and Development: 2019-2029" (2019). North Branford, Connecticut.

¹⁶ "Plan of Conservation and Development: South Central Region." (2009). South Central Regional Council of Governments.

¹⁷ "Utility by Town List." (2014). State of Connecticut.

¹⁸ "South Central Region: Plan of Conservation & Development 2018-2023 DRAFT Update." (2018). South Central Regional Council of Governments. Pg. 71.

¹⁹ "Utility by Town List." (2014). State of Connecticut.

²⁰ "Town of North Branford Plan of Conservation and Development: 2019-2029" (2019). North Branford, Connecticut.

North Branford Annex
2023 SCRCOG Mitigation Plan Update

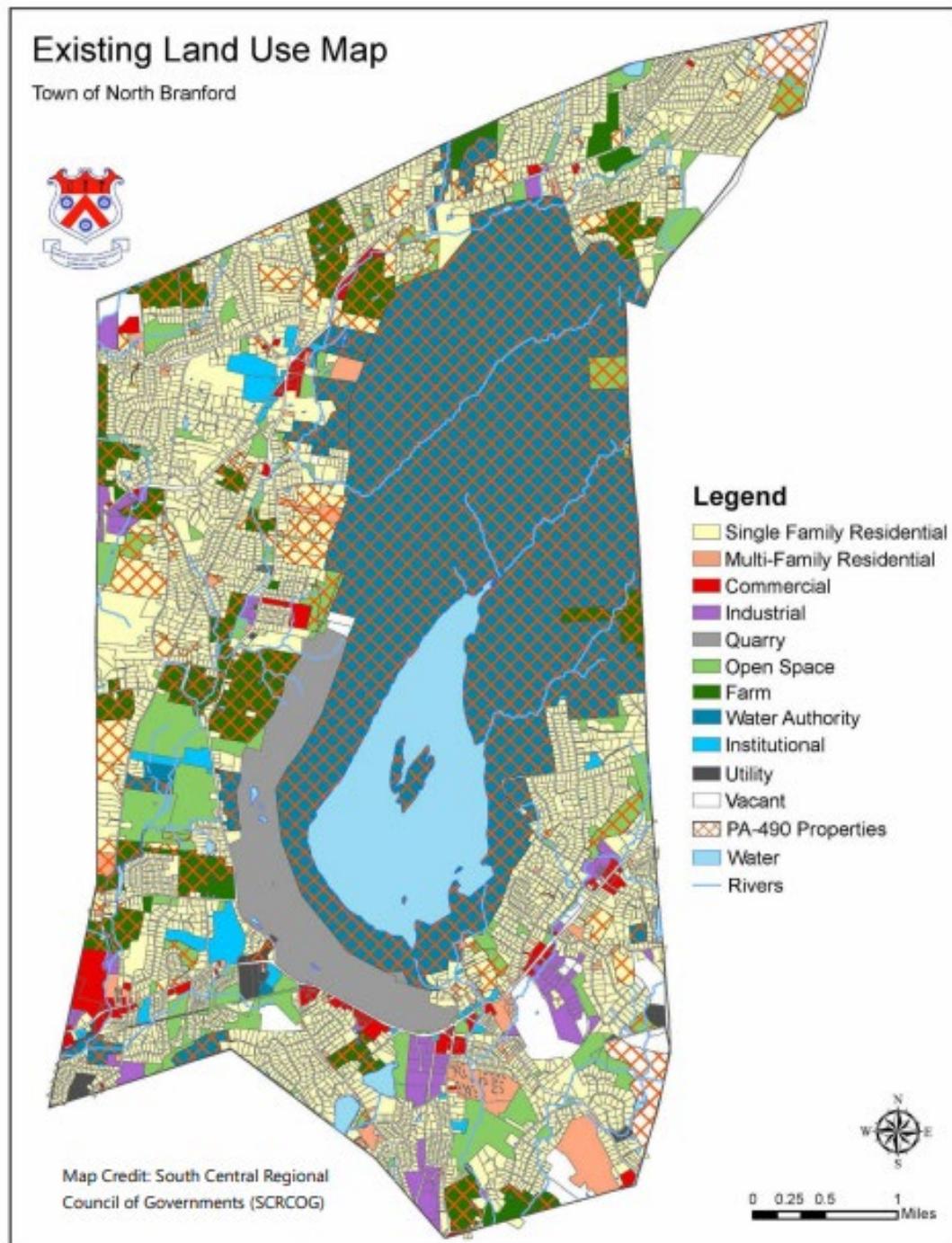


Figure 1. Land Use.

North Branford Annex

2023 SCRCOG Mitigation Plan Update

2. Hazard Profiles

2.1 Critical Facilities

There are 16 critical facilities in the Town, as seen in Table 1, plus five wastewater pump stations. There is one designated shelter in Town: the North Branford Intermediate School on Foxon Road.

Table 1. Critical Facilities in the Town of North Branford.

Facility	Location	Emergency Power Supply?	Shelter?	In Floodplain or Coastal Flood Hazard Area?	In Surge Zones ²¹ ?
Emergency Services					
Fire Station #1	1531 Foxon Road	Yes	No	No	No
Fire Station #2	1370 Middletown Ave	Yes	No	No	No
Fire Station #3	1958 Middletown Ave	Yes	No	No	No
Ambulance Station (#4)	1351 Middletown Ave	Yes	No	No	No
Police Department/EOC	260 Forest Road	Yes	No	No	No
Municipal Facilities					
NB Intermediate School	654 Foxon Road	Yes	Yes	No	No
NB High School	49 Caputo Road	No	No	No	No
Jerome Harrison School	335 Foxon Road	No	No	No	No

²¹ Based on spatial analysis using storm surge results from the Sea, Lake and Overland Surges from Hurricanes (SLOSH) model.

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Facility	Location	Emergency Power Supply?	Shelter?	In Floodplain or Coastal Flood Hazard Area?	In Surge Zones ²¹ ?
Totoket Valley School	1388 Middletown Ave	No	No	No	No
Stanley Williams Community/Senior Center	1332 Middletown Ave	No	No	No	No
Public Works	290 Forest road	Yes	No	No	No
NB Town Hall	909 Foxon Road	No	No	No	No
Water and Wastewater					
Branford Road PS (sewer)	Branford Road	Yes	No	No	No
Twin Lakes Rd PS (sewer)	213 Twin Lakes Road	Yes	No	No	No
Mansfield Drive PS (sewer)	Mansfield Drive	Yes	No	No	No
Reeds Gap Rd PS (sewer)	Reeds Gap Road	Yes	No	No	No
White Hollow Rd PS (sewer)	White Hollow Road	Yes	No	No	No
Lake Gaillard Filtration Plant	725 Foxon Road	Yes	No	No	No
Health Care and Senior Living Facilities					
Evergreen Woods Lifecare	88 Notch Hill Road	Yes	No	No	No
NB Elderly Housing	167 Branford Road	No	No	No	No

North Branford Annex
2023 SCRCOG Mitigation Plan Update

Facility	Location	Emergency Power Supply?	Shelter?	In Floodplain or Coastal Flood Hazard Area?	In Surge Zones ²¹ ?
Mobile Home Park	224 Foxon Road	No	No	Yes	No

North Branford Annex

2023 SCRCOG Mitigation Plan Update

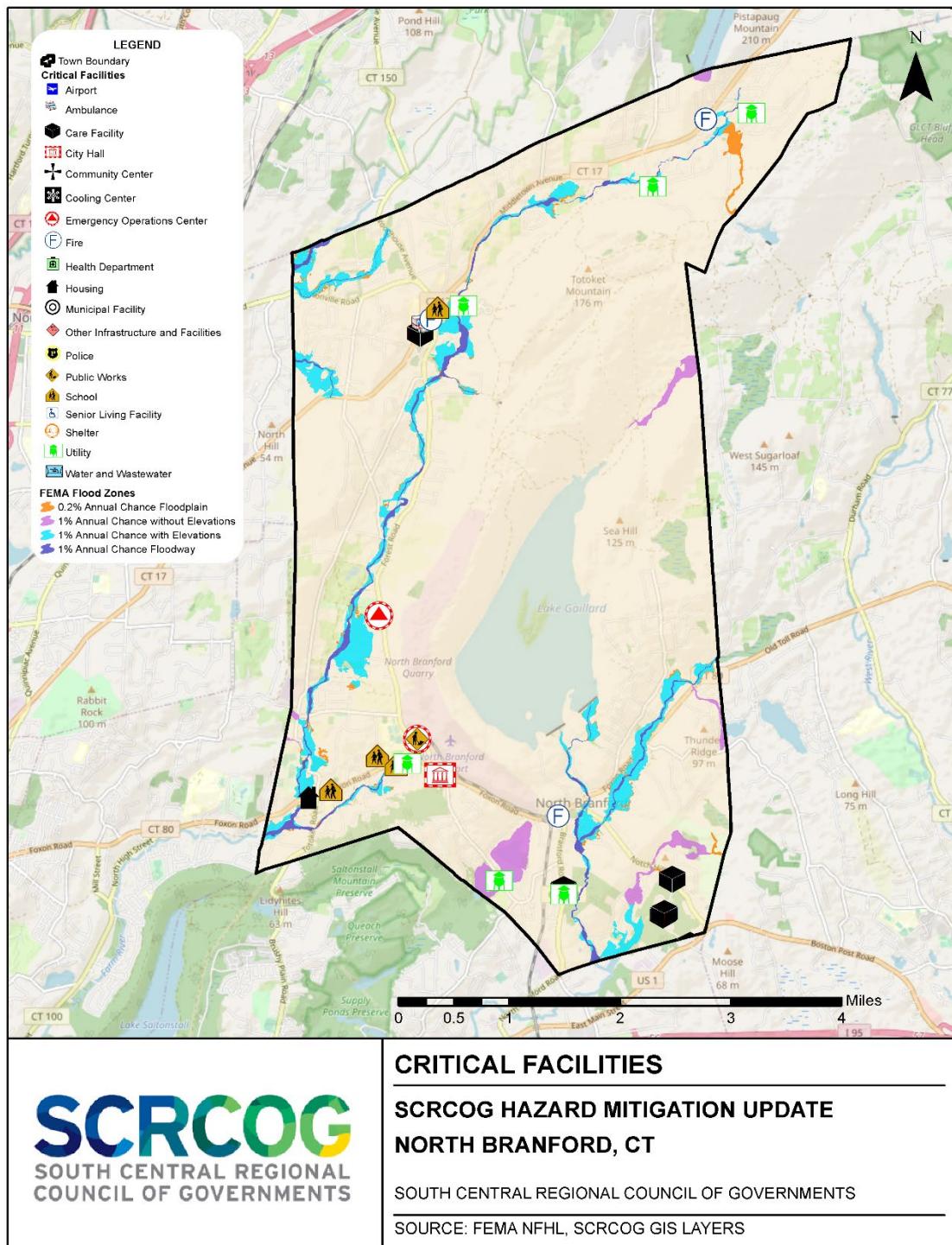


Figure 2. North Branford FEMA Flood Zones and Critical Facilities.

North Branford Annex

2023 SCRCOG Mitigation Plan Update

2.2 Vulnerable Assets

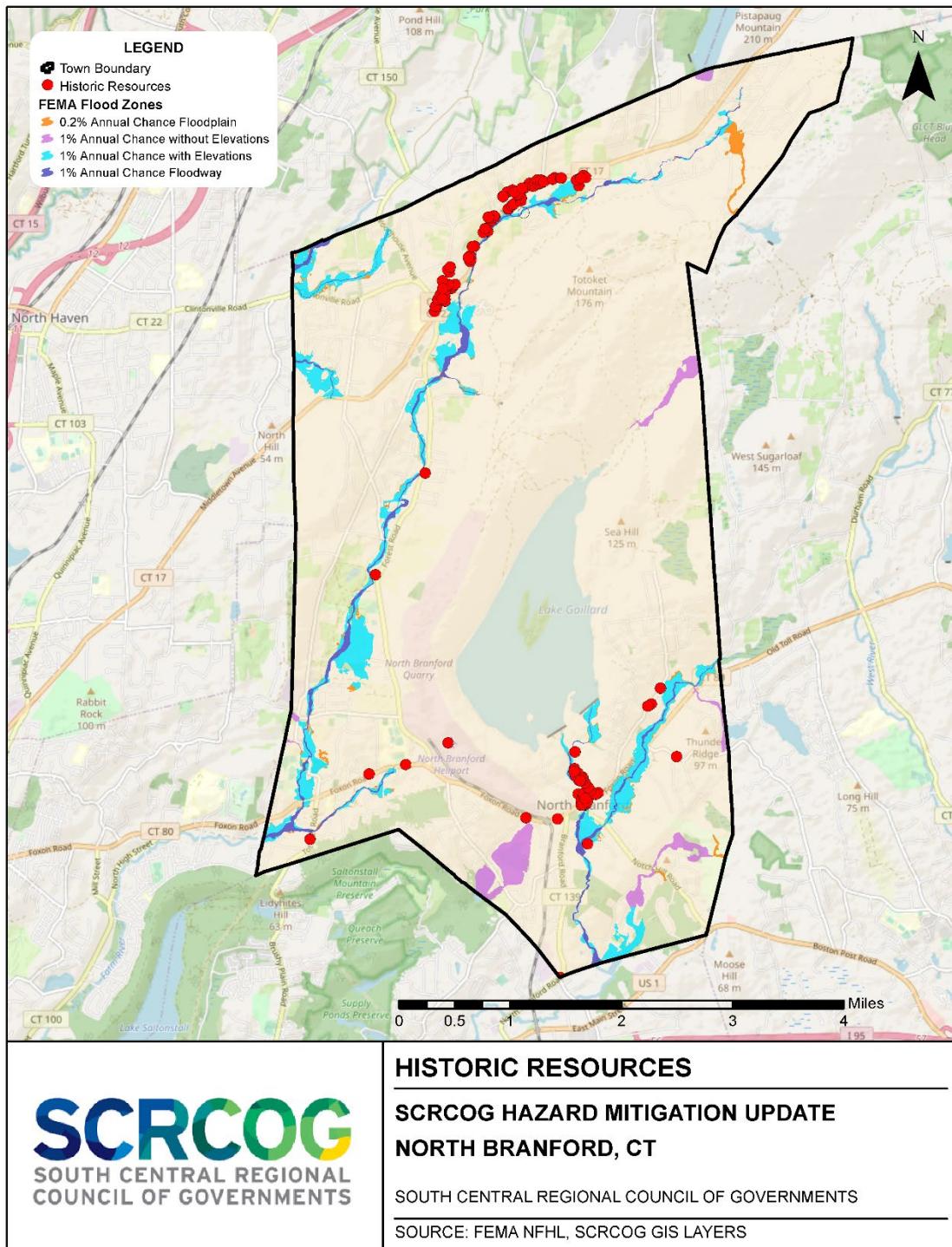


Figure 3. North Branford FEMA Flood Zones and Historic Resources.

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Historic Resources

The historic resources shown in Figure 2 are properties in the Town of North Branford designated as National Historic Landmarks or properties listed on the National Register of Historic Places, the State Register of Historic Places or local historic districts/local historic properties.

Repetitive Loss and Severe Repetitive Loss Properties

In addition to the spatial analysis conducted above, summary information for repetitive flood loss and severe repetitive flood loss properties within the Town of North Branford also provides an indication of vulnerable assets, especially with regard to properties insured under the National Flood Insurance Program that have experienced repeated flooding (Table 2).²²

Table 2. North Branford Repetitive and Severe Repetitive Flood Loss Summary.

	Number of Losses	Number of Properties	Building Payments	Contents Payments	Total Payments
Repetitive Loss (RL)	22	9	\$245,849	\$119,219	\$365,068
Severe Repetitive Loss	0	0	\$0	\$0	\$0

The majority of the RL properties are single-family homes. One is a residential condominium unit and one is a dental clinic. As of December 31, 2012, the Town of North Branford had a total of 68 claims totaling \$457,504 in losses for all NFIP-insured structures. As of July 31, 2017, the last update, that number had not changed. Since 2017, and as of March 31, 2022, the Town has had a total of 76 flood claims totaling \$526,705.

2.3 Historic Disasters

2.3.1 Federally Declared Events

Over the past two decades alone, six historic disaster events have occurred that have shaped how disaster response and recovery is handled across the United States. These events include Hurricanes Katrina, Sandy, Irma, Maria, and Harvey, along with the California wildfires in 2017. While not all of these events directly impacted the SCRCOG region, or the State of Connecticut, hazard mitigation planning has been driven by these catastrophic events.

²² Based on information provided by the Federal Emergency Management Agency current as of 12/31/2012.

North Branford Annex

2023 SCRCOG Mitigation Plan Update

The first federal act of relief occurred in 1803 following a destructive fire in Portsmouth, New Hampshire where Congress provided relief in the form of suspended bond payments. Over a century and a half later in 1979 the Federal Emergency Management Agency (FEMA) was created and tasked with nationwide emergency management. However, emergency and disaster declarations for the State of Connecticut have been made since 1954. These have included hurricanes, blizzards, severe wind and rainstorms, and tornadoes.

Since 2016, specifically for New Haven County, there have been three FEMA Disaster Declarations (DR), and two Emergency Declarations (EM) (Table 3). These are in addition to the COVID-19 DR and EM that were declared in March 2020. FEMA declarations are made when it is determined that federal assistance is needed to supplement State and Tribal efforts in the wake of an event.

In addition to the FEMA declarations, the United States Department of Agriculture (USDA) declared eight agriculturally related disasters in the same time frame; two of which were also declared by FEMA. These USDA declarations make emergency loans available to agricultural producers in the designated counties.

Table 3. FEMA and USDA Disaster Declarations for New Haven County.

Event	Disaster	Date of Event	Date Declared
FEMA Disaster Declarations for New Haven County			
Severe Storms, Tornadoes, and Straightline Winds	DR-4385-CT	May 15, 2018	August 20, 2018
Tropical Storm (T.S.) Isaias*	DR-4580-CT EM-3535-CT	August 4, 2020	January 12, 2021
Hurricane Henri	EM-3564-CT	August 21-24, 2021	August 22, 2021
Hurricane Ida*	DR-4629-CT	September 1-2, 2021	October 30, 2021
USDA Declared Disasters for New Haven County			
Frost and Freeze	S4048	February 12, 2016	September 21, 2016
Drought	S4055	August 2, 2016	September 28, 2016
Excessive Rainfall	S4478	August 1, 2018	March 20, 2019
Drought	S4814	September 22, 2020	October 14, 2020

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Event	Disaster	Date of Event	Date Declared
Drought	S4825	September 29, 2020	October 15, 2020
Tropical Storm Elsa	S5069	July 9, 2021	August 30, 2021

* Indicates FEMA declaration that was also made by USDA

In New Haven County, the May 2018 storms (DR-4385) caused \$8,187,833 worth of damage, with federal assistance totaling \$6,213,312. Tropical Storm Isaias (DR-4580) resulted in \$4,656,424 worth of damage and a federal assistance totaling \$3,915,143. For reference, Hurricane Sandy resulted in over \$14 million of damage. Public assistance (PA) was requested by most communities in the region.

In addition, Individual Assistance (IA) housing assistance for owners and renters was distributed in the wake of Hurricane Ida (DR-4629). Homeowners throughout the region received \$570,033 in assistance and renters received \$37,112.

2.3.2 National Centers for Environmental Information

The NOAA National Centers for Environmental Information (NCEI) maintains a storm events database that documents significant weather events and their impacts including injuries and loss of life, and economic impacts and property damage. Event types in this database generally include severe storm events such as hurricanes, thunderstorm, or windstorms, hail events, snow and freezing events, and several types of flood events such as flash or coastal floods.

Between 2017 and 2021 the SCRCOG region experienced 70 different events including floods, hail, high wind storms, and tornadoes (Table 4). Property damage throughout the region for these 70 events was estimated to be \$1,054,500. Losses specific to the Town of North Branford are discussed in Section 3.2.

Table 4. NCEI Events Between 2017 and 2021.

Event Type	Number of Events
Flash Flood	25
Flood	1
Hail	2
Thunderstorm Wind	39

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Event Type	Number of Events
Tornado	3
Total	70

2.3.3 Drought Occurrences

The United States Drought Monitor (USDM) is a nation-wide map depicting which areas throughout the U.S are in drought, and the intensity of that drought. The USDM is developed via data synthesis and observations from drought experts and local observers. The chart seen in Figure 4 is a graphical representation of the drought periods in New Haven County from 2015 to the end of 2021. The dark orange and red areas indicate a more severe drought period. Most recently, New Haven County has experienced an extreme drought (D3) in 2016 into 2017, with a severe drought (D2) in 2020.

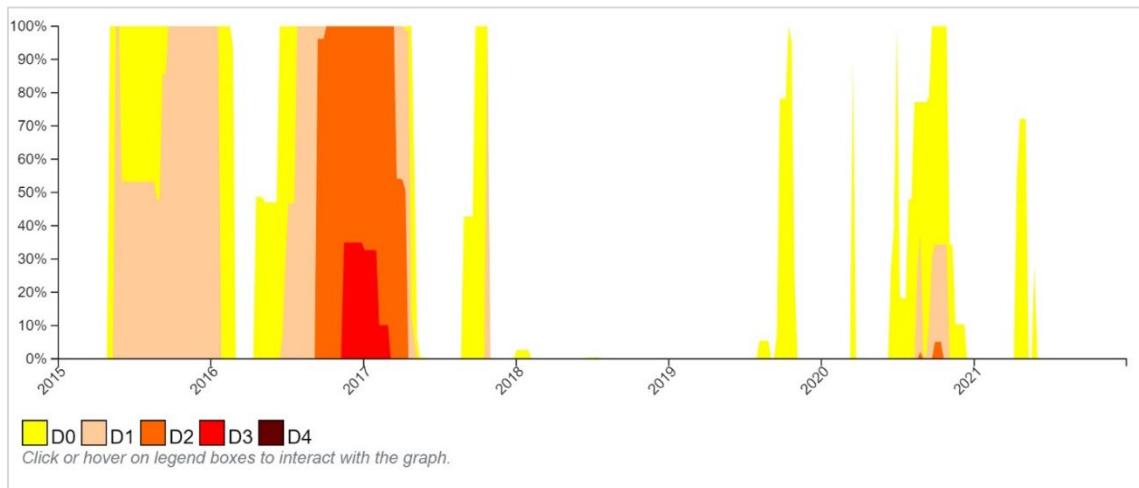


Figure 4. United States Drought Monitor (USDM) Drought Intensity for New Haven County from 2015 through 2021.

Another tool used to characterize drought conditions is the Standardized Precipitation Index (SPI). This index identifies drought areas based on the deviation of recent precipitation levels in comparison to the long-term average. Ultimately, if rainfall levels have been “lower than normal” or “wetter than normal” in a certain timeframe, the SPI represents these highs and lows at a national scale. The chart seen in Figure 5 shows the SPI for New Haven County from 2015 to the end of 2021. In comparison to the USDM, the fluctuations in drought periods are relatively synonymous, however, the SPI indicated a more severe period of drought between 2015 and 2017 than the USDM. This is because the USDM is based on

North Branford Annex

2023 SCRCOG Mitigation Plan Update

several other factors aside from just precipitation, hence why the USDM is typically used to determine local drought measures and needs. The blue areas on the chart are the periods of time that were wetter than usual with higher precipitation.

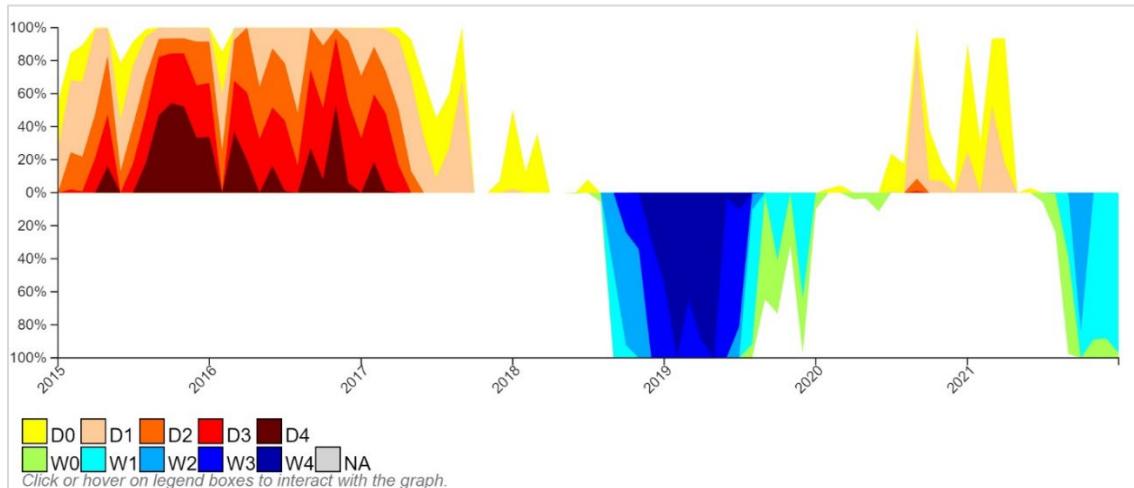


Figure 5. Standardized Precipitation Index (SPI) for New Haven County from 2015 through 2021.

The impacts of drought vary throughout the SCRCOG region and are often felt over a longer period of time and are related to social, ecological, and economic concerns. The 2016 drought, the most extreme in recent years, resulted in mandated water conservation measures, and required some water utilities in the region, to make necessary water management changes. In addition, eight farm operations received assistance from the United States Department of Agriculture in the wake of the event in the amount of \$78,590.

The severe drought in 2020 also impacted the region in various ways. At a statewide level, drinking water reservoirs were at 67% of capacity and 83.5% of normal. With decreased precipitation, and drinking water reservoir levels low, the Connecticut Interagency Drought Workgroup placed New Haven County in a Stage 1 drought per the State Drought Plan. Specifically, the Northeast Regional Climate Center identified the City of New Haven as having one of the highest rainfall deficits in the State at - 11.09 inches average rainfall. During the 2020 drought, private wells were reportedly drying up, there were reports of livestock farms needing water, and water utilities throughout the region and state were experiencing reduced supply.

On October 15, 2020 the USDA identified New Haven County as a contiguous disaster county, making farm operators eligible to be considered for assistance from Farm Service Agency (FSA). Three farms in the region received assistance as a result of the drought in the amount of \$17,982.

North Branford Annex

2023 SCRCOG Mitigation Plan Update

2.3.4 Wildland Urban Interface (WUI)

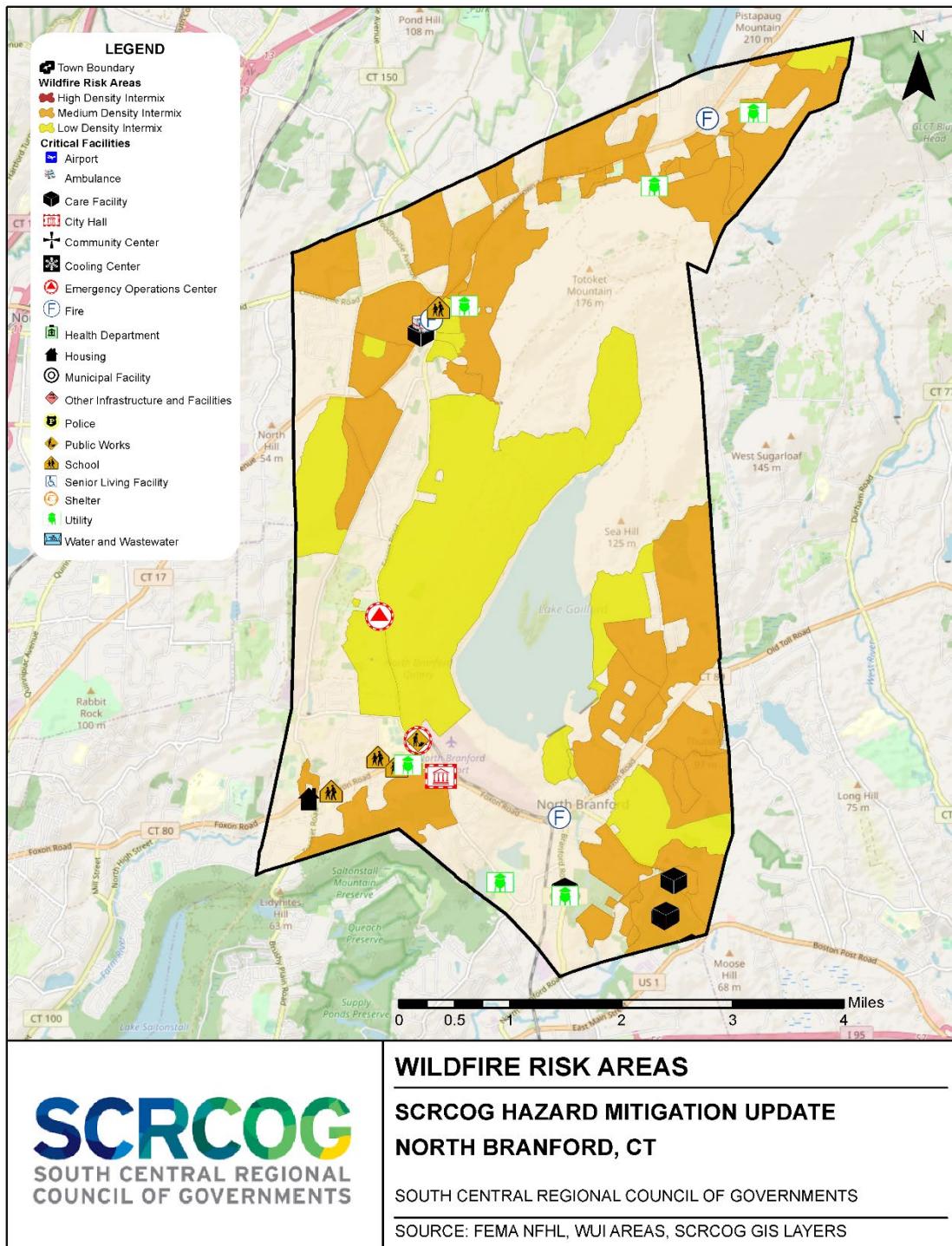


Figure 6. North Branford WUI and Critical Facilities.

North Branford Annex

2023 SCRCOG Mitigation Plan Update

3. Risk Analysis

3.1 Vulnerable Assets: Exposure Analysis

Vulnerable assets were identified by intersecting GIS-based asset inventories with known hazard boundaries to determine the numbers of parcels, critical facilities, and historic assets. This results in an estimation of vulnerable assets for the entire region, by hazard as shown in Table 5. Drought exposure was estimated using the Connecticut DPH assumed private well data develop in 2021. The wildfire hazard boundary was defined by those parcels within the wildland-urban interface and intermix *and* that were also assumed to be served by a private well. The assumed presence of a private well indicates a lack of public water supply, and potentially reduced firefighting capacity. The estimated value of at risk assets is based on the Town's latest property tax values. Scenarios are cumulative, i.e., the 0.2% annual chance estimates also include the values and numbers of the 1% annual chance event.

Table 5. Town of North Branford Vulnerable Assets Exposure Analysis.

Hazard	At-Risk Parcels		At-Risk Facilities		At-Risk Historic Assets	
	Value	Number	Value	Number	Value	Number
Hurricane/Tropical Storm	\$1,266,394,596	5,760	\$92,180,690	16	\$29,117,410	79
Severe Thunderstorm	\$1,266,394,596	5,760	\$92,180,690	16	\$29,117,410	79
Severe Winter Storm	\$1,266,394,596	5,760	\$92,180,690	16	\$29,117,410	79
Tornado	\$1,266,394,596	5,760	\$92,180,690	16	\$29,117,410	79
Drought	\$620,899,895	2,930	\$2,003,900	3	\$7,889,340	35
Flood						
1% Annual Chance	\$218,869,870	831	\$22,504,730	4	\$3,272,660	15
0.2% Annual Chance	\$229,545,010	867	\$22,504,730	4	\$3,272,660	15
Earthquakes	\$1,266,394,596	5,760	\$92,162,590	23	\$29,117,410	79
Wildfire	\$778,701,124	3,310	-	-	\$7,889,340	35

North Branford Annex

2023 SCRCOG Mitigation Plan Update

3.2 Hazard Losses

3.2.1 Federal Assistance

Of the five natural hazard emergency and disaster declarations, the Town received FEMA PA funds in the wake of two events: T.S. Isaias and the COVID-19 Pandemic (Table 6).

Table 6. Federal Funds Received from Disaster Declarations.

Event	Disaster	Assistance Type	Federal Funding Received	Total Project Need (Damages)
Tropical Storm (T.S.) Isaias	DR-4580-CT EM-3535-CT	PA	\$4,783	\$6,278
Covid-19	DR-4500-CT EM-3439-CT	PA	\$33,700	\$33,700

Funds received by the Town for both events were primarily distributed for protective measures, with just about 1% of the \$38,484 received going to state management and coordination (Figure 7).

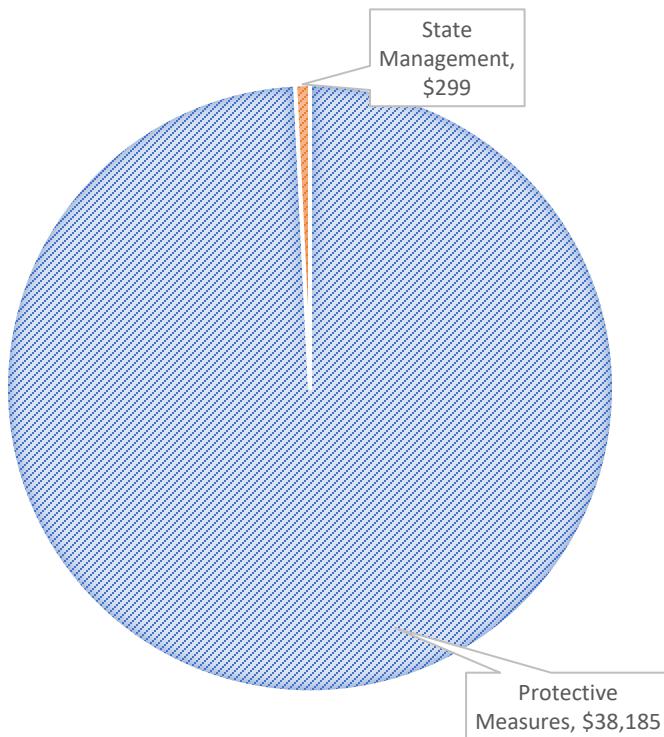


Figure 7. Federal Funds Received by Category.

North Branford Annex

2023 SCRCOG Mitigation Plan Update

3.2.2. National Centers for Environmental Information (NCEI)

The NCEI documentation has identified one event for the town of North Branford since 2017 which was a thunderstorm and wind event. This event resulted in a reported \$15,000 in property damage. The reports identified numerous large, uprooted trees on Virginia Road.

3.3 HAZUS-MH Analysis

Hazus-MH (Hazus) v5.1 was used to complete the earthquake, hurricane wind, and both riverine and coastal flood analyses for vulnerability and loss estimates for the 2023 plan update. The Hazus software was developed by FEMA and the National Institute of Building Sciences. For the earthquake module, the U.S. Census tracts are the smallest extent in which the model runs; for the hurricane and flood modules, U.S. Census blocks were used. Multi-frequency depth grids were used for the riverine flood analysis, but only the 100-year coastal depth grid was available and used for analysis. Hazus was also used to calculate Storm Surge using the National Hurricane Center's (NHC) Sea, Lake, and Overland Surges from Hurricanes (SLOSH) Maximum of the Maximum Envelope of Waters (MEOWs) (MOM) depth grid.

3.3.1 Earthquake

The earthquake analysis was run based on the largest earthquake in Connecticut history, which occurred in East Haddam on May 16, 1791. Specific parameters include:

- Longitude of epicenter: -72.40
- Latitude of epicenter: 41.50
- Depth: 10.00 km.
- Magnitude: 6.40
- Attenuation function: CEUS 2008

After the earthquake analysis was performed, two tables for each municipality were created based off the tables for the 2018 update: Numbers of Buildings Damaged and anticipated extent of damage (Table 7) and Total Building-Related Economic Loss (Table 8) which includes the total economic loss by general occupancy type. An additional table was also created: Other Earthquake Impacts (Table 9) which includes information related to debris generated, number of displaced households, and the number of individuals who need to seek temporary shelter. Including this table allows these impacts to be compared across different hazards.

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Table 7. Number of Buildings Damaged from the East Haddam Earthquake Scenario for the Town of North Branford.

North Branford	Slight	Moderate	Extensive	Complete	Total Damaged Buildings	Total Buildings	Percentage of Damaged Buildings
2022 Count	1,241	545	169	58	2,013	5,390	37%

Table 8. Total Building Related Economic Loss from the East Haddam Earthquake Scenario for the Town of North Branford.

North Branford	Residential	Commercial	Industrial	Others	Total
2022 Losses	\$65,894,178	\$37,849,750	\$27,894,343	\$9,605,219	\$141,243,490

Table 9. Other Earthquake Impacts from the East Haddam Earthquake Scenario for the Town of North Branford.

North Branford	Debris Generated (Tons)	Households Displaced	Individuals Seeking Temporary Shelter
2022 Results	41	102	50

3.3.2 Hurricane

Hazus uses historical hurricane tracks and computer modeling to identify the probable tracks of a range of hurricane events and then assigns potential wind gusts that result. Widespread extreme thunderstorm wind events, such as those associated with well-developed squall lines, may have wind gusts of a similar magnitude to those of the 50- or 100-year hurricane wind event. A 1000-year event is the rough equivalent of a strong Category 1 or low-end Category 2 hurricane (or weak to mid-strength EF-1 tornado) with 3-second wind gusts of up to around 95 mph. In terms of probability, the 1000-year event has a 0.01% chance of happening in any given year.

For the hurricane hazard, three tables for the Town of North Branford were created based off the tables for the 2018 update: Numbers of Buildings Damaged and anticipated level of damage (Table 10), Building-Related Economic Loss (Table 11), and Other Hurricane Impacts (Table 12) which includes information related to debris generated, number of displaced households, and the number of

North Branford Annex

2023 SCRCOG Mitigation Plan Update

individuals who need to seek temporary shelter. These tables broke down the values for the seven hurricane return periods (10-, 20-, 50-, 100-, 200-, 500-, and 1,000-year).

Table 10. Number of Buildings Damaged from the Probabilistic Hurricane Scenario for the Town of North Branford.

North Branford	Return Period	Minor	Moderate	Severe	Destruction	Total
2022 Results	10-year	0	0	0	0	0
	20-year	3	0	0	0	3
	50-year	42	3	0	0	44
	100-year	207	20	0	0	227
	200-year	449	54	1	0	504
	500-year	1,088	218	14	6	1,327
	1,000-year	1,363	333	30	14	1,741

Table 11. Total Building Related Economic Loss from the Probabilistic Hurricane Scenario for the Town of North Branford.

North Branford	Return Period	Minor	Moderate	Severe	Destruction	Total
2022 Results	10-year	\$0	\$0	\$0	\$0	\$0
	20-year	\$4,684	\$133	\$0	\$0	\$4,817
	50-year	\$79,509	\$4,495	\$131	\$0	\$84,136
	100-year	\$406,050	\$33,260	\$769	\$7	\$440,085
	200-year	\$889,606	\$95,940	\$2,903	\$490	\$988,939
	500-year	\$2,172,024	\$412,649	\$28,810	\$12,176	\$2,625,659
	1,000-year	\$2,727,057	\$637,001	\$60,728	\$28,547	\$3,453,333

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Table 12. Other Hurricane Impacts from the Probabilistic Hurricane Scenario for the Town of North Branford.

North Branford	Return Period	Debris Generated (Tons)	Households Displaced	Individuals Seeking Temporary Shelter
2022 Results	10-year	0	0	0
	20-year	0	0	0
	50-year	185	0	0
	100-year	7,457	3	1
	200-year	9,747	9	4
	500-year	20,552	40	19
	1,000-year	29,311	60	29

3.3.3. Riverine Flood

Floods are often described in terms of annual percentage chance of occurrence. Floodplains have been delineated by FEMA to reflect the 1- and 0.2-percent-annual-chance flood events previously known as 100-year and 500-year floods, respectively. The area that has a 1 percent chance annually to flood each year is delineated as a Special Flood Hazard Area (SFHA) for the purposes of the National Flood Insurance Program (NFIP). The 0.2-percent-annual-chance floodplain indicates areas of moderate flood hazard.

Hazus-MH v5.1 was used to complete the riverine flood analysis for vulnerability and loss estimates for this plan. The Hazus software was developed by FEMA and the National Institute of Building Sciences. The flood loss estimation methodology consists of two modules that carry out basic analytical processes: flood hazard analysis and flood loss estimation analysis. The flood hazard analysis module uses characteristics, such as frequency, discharge, and ground elevation to estimate flood depth, flood elevation and flow velocity. The flood loss estimation module calculates physical damage and economic loss from the results of the hazard analysis.

A Hazus Level 2 analysis was performed for the Town of North Branford with user-provided depth grids. The flood model was used to run a multi-frequency depth grid scenario which included the following return periods: 10- percent (10 year), 4-percent (25 year), 2-percent (50 year), 1-percent (100 year), as well as the 0.2-percent (500 year). The average annualized losses (AAL) for flood were calculated using

North Branford Annex

2023 SCRCOG Mitigation Plan Update

this multi-frequency scenario. For analysis purposes, the U.S. Census blocks are the smallest extent in which the model runs. Hazus generates economic loss estimates based on direct building damages and business interruption.

Table 13 shows the annualized losses for the riverine flood scenario.

Table 13. Annualized Riverine Flood Loss Estimates for the Town of North Branford.

North Branford	2022 Results				
	Residential	Commercial	Industrial	Other	Total
Direct					
Building	\$716,000	\$137,000	\$155,000	\$11,000	\$1,019,000
Contents	\$305,000	\$513,000	\$355,000	\$62,000	\$1,235,000
Inventory	\$0	\$9,000	\$33,000	\$2,000	\$44,000
Subtotal	\$1,021,000	\$659,000	\$543,000	\$75,000	\$2,298,000
Business Interruption					
Income	\$0	\$365,000	\$11,000	\$12,000	\$388,000
Relocation	\$199,000	\$59,000	\$12,000	\$3,000	\$273,000
Rental Income	\$50,000	\$41,000	\$1,000	\$0	\$92,000
Wage	\$0	\$422,000	\$12,000	\$181,000	\$615,000
Subtotal	\$249,000	\$887,000	\$36,000	\$196,000	\$1,368,000
Total	\$1,270,000	\$1,546,000	\$579,000	\$271,000	\$3,666,000

Table 14 to Table 18 contain the riverine flood loss estimates for each percent-annual-chance depth grid included in the multi-frequency hazard scenario.

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Table 14. 10-percent-annual-chance Riverine Flood Loss Estimates for the Town of North Branford.

North Branford	2022 Results				
	Residential	Commercial	Industrial	Other	Total
Direct					
Building	\$5,738,000	\$1,243,000	\$1,252,000	\$109,000	\$8,342,000
Contents	\$2,461,000	\$4,315,000	\$2,761,000	\$524,000	\$10,061,000
Inventory	\$0	\$85,000	\$272,000	\$27,000	\$384,000
Subtotal	\$8,199,000	\$5,643,000	\$4,285,000	\$660,000	\$18,787,000
Business Interruption					
Income	\$0	\$3,177,000	\$96,000	\$158,000	\$3,431,000
Relocation	\$1,643,000	\$514,000	\$108,000	\$31,000	\$2,296,000
Rental Income	\$495,000	\$388,000	\$17,000	\$2,000	\$902,000
Wage	\$0	\$3,628,000	\$128,000	\$1,504,000	\$5,260,000
Subtotal	\$2,138,000	\$7,707,000	\$349,000	\$1,695,000	\$11,889,000
Total	\$10,337,000	\$13,350,000	\$4,634,000	\$2,355,000	\$30,676,000

Table 15. 4-percent-annual-chance Riverine Flood Loss Estimates for the Town of North Branford.

North Branford	2022 Results				
	Residential	Commercial	Industrial	Other	Total
Direct					
Building	\$6,934,000	\$1,457,000	\$1,525,000	\$133,000	\$10,049,000
Contents	\$2,975,000	\$5,050,000	\$3,380,000	\$625,000	\$12,030,000
Inventory	\$0	\$99,000	\$320,000	\$33,000	\$452,000

North Branford Annex

2023 SCRCOG Mitigation Plan Update

North Branford	2022 Results				
	Residential	Commercial	Industrial	Other	Total
Subtotal	\$9,909,000	\$6,606,000	\$5,225,000	\$791,000	\$22,531,000
Business Interruption					
Income	\$0	\$3,666,000	\$119,000	\$178,000	\$3,963,000
Relocation	\$1,940,000	\$595,000	\$128,000	\$36,000	\$2,699,000
Rental Income	\$582,000	\$445,000	\$21,000	\$2,000	\$1,050,000
Wage	\$0	\$4,224,000	\$151,000	\$1,835,000	\$6,210,000
Subtotal	\$2,522,000	\$8,930,000	\$419,000	\$2,051,000	\$13,922,000
Total	\$12,431,000	\$15,536,000	\$5,644,000	\$2,842,000	\$36,453,000

Table 16. 2-percent-annual-chance Riverine Flood Loss Estimates for the Town of North Branford.

North Branford	2022 Results				
	Residential	Commercial	Industrial	Other	Total
Direct					
Building	\$8,020,000	\$1,657,000	\$1,777,000	\$153,000	\$11,607,000
Contents	\$3,473,000	\$5,778,000	\$4,014,000	\$721,000	\$13,986,000
Inventory	\$0	\$105,000	\$388,000	\$40,000	\$533,000
Subtotal	\$11,493,000	\$7,540,000	\$6,179,000	\$914,000	\$26,126,000
Business Interruption					
Income	\$0	\$4,252,000	\$161,000	\$198,000	\$4,611,000
Relocation	\$2,198,000	\$688,000	\$154,000	\$29,000	\$3,069,000
Rental Income	\$674,000	\$512,000	\$26,000	\$2,000	\$1,214,000
Wage	\$0	\$4,950,000	\$181,000	\$2,006,000	\$7,137,000

North Branford Annex

2023 SCRCOG Mitigation Plan Update

North Branford	2022 Results				
	Residential	Commercial	Industrial	Other	Total
Subtotal	\$2,872,000	\$10,402,000	\$522,000	\$2,235,000	\$16,031,000
Total	\$14,365,000	\$17,942,000	\$6,701,000	\$3,149,000	\$42,157,000

Table 17. 1-percent-annual-chance Riverine Flood Loss Estimates for the Town of North Branford.

North Branford	2022 Results				
	Residential	Commercial	Industrial	Other	Total
Direct					
Building	\$9,326,000	\$1,928,000	\$2,171,000	\$182,000	\$13,607,000
Contents	\$4,042,000	\$6,598,000	\$4,860,000	\$822,000	\$16,322,000
Inventory	\$0	\$119,000	\$463,000	\$44,000	\$626,000
Subtotal	\$13,368,000	\$8,645,000	\$7,494,000	\$1,048,000	\$30,555,000
Business Interruption					
Income	\$0	\$4,677,000	\$195,000	\$219,000	\$5,091,000
Relocation	\$2,437,000	\$747,000	\$174,000	\$31,000	\$3,389,000
Rental Income	\$752,000	\$551,000	\$31,000	\$2,000	\$1,336,000
Wage	\$0	\$5,427,000	\$205,000	\$2,198,000	\$7,830,000
Subtotal	\$3,189,000	\$11,402,000	\$605,000	\$2,450,000	\$17,646,000
Total	\$16,557,000	\$20,047,000	\$8,099,000	\$3,498,000	\$48,201,000

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Table 18. 0.2-percent-annual-chance Riverine Flood Loss Estimates for the Town of North Branford.

North Branford	2022 Results				
	Residential	Commercial	Industrial	Other	Total
Direct					
Building	\$11,663,000	\$2,312,000	\$2,590,000	\$223,000	\$16,788,000
Contents	\$5,093,000	\$7,799,000	\$5,891,000	\$1,044,000	\$19,827,000
Inventory	\$0	\$134,000	\$552,000	\$51,000	\$737,000
Subtotal	\$16,756,000	\$10,245,000	\$9,033,000	\$1,318,000	\$37,352,000
Business Interruption					
Income	\$0	\$5,301,000	\$219,000	\$270,000	\$5,790,000
Relocation	\$2,840,000	\$825,000	\$197,000	\$35,000	\$3,897,000
Rental Income	\$887,000	\$609,000	\$35,000	\$2,000	\$1,533,000
Wage	\$0	\$6,184,000	\$234,000	\$2,523,000	\$8,941,000
Subtotal	\$3,727,000	\$12,919,000	\$685,000	\$2,830,000	\$20,161,000
Total	\$20,483,000	\$23,164,000	\$9,718,000	\$4,148,000	\$57,513,000

In addition to the multi-frequency analysis, an expanded Level 2 single-frequency 1-percent -annual-chance flood (100-year) scenario was run for SCRCOG to include all the areas outside the multi-frequency scenario footprint. This is to better capture flood losses and to better compare these losses with other communities.

Table 19 shows the expanded 1-percent-annual-chance losses for the Town of North Branford riverine flood scenario.

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Table 19. Expanded 1-percent-annual-chance Riverine Flood Loss Estimates for the Town of North Branford.

North Branford	2022 Results				
	Residential	Commercial	Industrial	Other	Total
Direct					
Building	\$10,026,000	\$2,021,000	\$2,260,000	\$184,000	\$14,491,000
Contents	\$4,270,000	\$6,834,000	\$5,025,000	\$848,000	\$16,977,000
Inventory	\$0	\$123,000	\$475,000	\$44,000	\$642,000
Subtotal	\$14,296,000	\$8,978,000	\$7,760,000	\$1,076,000	\$32,110,000
Business Interruption					
Income	\$0	\$5,723,000	\$214,000	\$272,000	\$6,209,000
Relocation	\$3,163,000	\$952,000	\$204,000	\$40,000	\$4,359,000
Rental Income	\$967,000	\$693,000	\$35,000	\$2,000	\$1,697,000
Wage	\$0	\$6,396,000	\$230,000	\$2,396,000	\$9,022,000
Subtotal	\$4,130,000	\$13,764,000	\$683,000	\$2,710,000	\$21,287,000
Total	\$18,426,000	\$22,742,000	\$8,443,000	\$3,786,000	\$53,397,000

3.4 Annualized Losses

Annualized loss estimates (Table 20) have been developed for each hazard discussed in the regional hazard profiles. These estimates have been derived from a number of sources, including:

- Historic FEMA PA funds received by the community
- Historic FEMA IA funds received by property owners and renters
- Historic NFIP claims made within the community
- Connecticut State 2019 Hazard Mitigation Plan estimates
- HAZUS-MH modeling results performed for the region
- HAZUS-MH results from the Connecticut State 2019 Hazard Mitigation Plan

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Table 20. Annualized Loss Estimates for the Town of North Branford.

Hazard	Source or Method	Losses in North Branford	Years of Record	Annualized or Annual Loss
Coastal Erosion	Refer to Multi-Jurisdiction document	NA	---	NA
Dam Failure	CT HMP NPD	\$531	1	\$531
Drought	USDA	\$370,484	10	\$37,048
	CT HMP NCEI	\$256	1	\$256
Earthquake	FEMA P-366	\$25,598	1	\$25,598
Extreme Heat	None Available	\$0	10	\$0
Flood	PA	\$0	10	\$0
	NFIP	\$490,304	44	\$11,143
	IA (Sandy and Ida)	\$500	10	\$50
Hurricanes	FEMA PA	\$29,563	10	\$2,956
Severe Thunderstorm	NCEI direct calculation	\$15,000	10	\$1,500
	CT HMP NCEI	\$832	1	\$832
Severe Winter Storm	FEMA PA	\$411,077	10	\$41,108
	CT HMP NCEI	\$2,819	1	\$2,819
Tornado	FEMA PA	\$0	10	\$0
	NCEI direct calculation	\$0	10	\$0
	CT HMP NCEI	\$133,432	1	\$133,432
Wildfire	CT HMP NFIC	\$24,245	1	\$24,245

3.5 Problem Statements

Problem statements were developed upon the completion and review of all risk assessment tasks. These statements are designed to briefly summarize the key hazard risks and vulnerabilities to the municipality based on potential impacts and losses from future events. They are among the issues of greatest

North Branford Annex

2023 SCRCOG Mitigation Plan Update

concern and were used to assist in the identification and analysis of potential mitigation actions. These problem statements will be reviewed and revised as needed during future plan updates to reflect the most current information resulting from the risk assessment.

Table 21. North Branford Problem Statements.

Problem Area	Description
Primary Hazards of Concern	
Trees	Tree-related hazards are a big concern during hurricane/tropical storm and severe winter storm events, particularly downing electrical lines, and when falling and blocking roads that isolate many rural areas throughout town and pose life/safety threat due to no emergency access. This is a specific concern for schools / school bus routes. There is a big concern over diseased trees. Public Works removes trees that are dead. United Illuminating does an excellent job removing trees and limbs from power lines.
Inland/riverine flooding	Inland/riverine flooding is the greatest concern. Much of the town is a public water supply watershed, and the South Central CT Regional Water Authority owns 1/3 of the land surrounding, and especially north, of Lake Gaillard (a major reservoir). Older, pre-FIRM structures are occasionally impacted by minor flooding following heavy rains. The Farm River has been overwhelmed by storms in recent years, and erosion is reportedly occurring.
Geographic Areas of Concern	
Foxon Road @ Farm River	As noted above, the Farm River has been overwhelmed by storms in recent years, and erosion is reportedly occurring. Foxon Road @ Farm River is at risk to flash flooding after heavy rains (5-6 inches) which has caused minor damage in past. Attributed to possible debris blockage issue for culvert under roadway. Potential solutions/mitigation actions: upstream impoundment and/or additional floodplain storage/stream restoration, which would alleviate flooding in this area.
Harrison Road/ Lea Road/ Circle Drive @ Branford River and Munger Brook	Harrison Road/ Lea Road/ Circle Drive @ Branford River and Munger Brook – flooding results from upstream spillway at Lake Gaillard Dam, which affects homes every 10-20 years (mostly garage, some basement flooding).

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Problem Area	Description
	All homes are pre-FIRM, constructed in 1950s-1960s. Dam has undergone some recent improvements.
Foxon Road @ Munger Brook	Foxon Road @ Munger Brook – occasional flooding along roadway between Fowler Road and W. Pond Road (south of Giant Oak Shopping Center).
Valley Road @ Notch Hill Brook	Valley Road @ Notch Hill Brook (including Hemlock Drive, Crossfield Road, Norwill Drive) – susceptible to occasional flooding.
Residential areas along Walnut Lane	Residential areas along Walnut Lane, between Reeds Gap Road and Lanes Pond Road – occasional nuisance flooding and ponding along roadways from Farm River, requiring debris clean up.
Vulnerable Community Assets	
Town Hall	Town Hall not equipped with generator or quick-connects for backup generator power. EOC has been relocated back to Police Station.
Evergreen Woods	Evergreen Woods – senior living center @ 88 Notch Hill Road. 240 units on large campus setting, resulting in high concentration of senior citizens that may have special needs before, during or after major disaster events. Hospital is on generator but not residential housing units. 2 critical facilities are within proximity to a significant hazard dam. Further study is necessary to determine if a dam failure could potentially impact either or both facilities.
Mobile Home Park	Mobile Home Park (224 Foxon Road) – twenty units that are in the floodplain.
Intermediate School	Intermediate School is the regional shelter – it has a generator; however, building is full of glass and generator powers the glass filled part of the building.

North Branford Annex

2023 SCRCOG Mitigation Plan Update

4. Capabilities

The Town of North Branford is a rural, sparsely developed community with limited capabilities and resources to support the implementation of hazard mitigation actions. This jurisdictional annex provides some additional documentation on the existing local authorities, policies, programs, and resources to support mitigation and the Town's ability to enhance or build upon these existing capabilities. This includes more detailed information on the updated capability findings for the community as highlighted in Chapter 6 (Capability Assessment), as well as the identification of some specific opportunities to expand and improve local mitigation capabilities for consideration as potential new actions for Chapter 7 (Mitigation Strategy).

4.1 Summary of Local Findings

4.1.1 Planning and Regulatory Capabilities

Planning and regulatory capabilities include the local plans, policies, codes, and ordinances that are relevant to reducing the potential impacts of hazards. The following planning and regulatory capabilities are currently in place for North Branford:

- Comprehensive/Master Plan (Plan of Conservation and Development)
- Capital Improvements Plan
- Local Emergency Operations Plan
- Stormwater Management Plan
- Disaster Recovery Plan
- Building Codes Adequately Enforced
- Zoning Ordinance Adequately Enforced
- Land Use Planning
- Zoning Ordinance
- Subdivision Ordinance
- Natural Hazard Specific Ordinance
- Acquisition of Land for Open Space & Recreation

Given their direct relevance and significance to long-term hazard risk reduction, all current versions of formally adopted POCDs for participating jurisdictions were reviewed during the plan update process to ensure general consistency and integration as appropriate. Content from the Town of North Branford's POCD that is particularly relevant to this hazard mitigation plan is detailed below and hereby incorporated by reference. Additional information on how adequately the POCD and related planning tools are being used for hazard mitigation purposes can be found under the Safe Growth Survey section of this annex (see Section 4.2).

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Town of North Branford Plan of Conservation and Development (2019-2029)

- An overarching priority goal for the plan as summarized in Chapter 3 is to “protect, connect, and enhance open spaces and natural areas” which includes numerous objectives and strategies linked to preserving the community’s watersheds and waterways. (p. 19)
- The plan includes a map showing wetlands in addition to FEMA-mapped flood zones and areas of steep slopes. (p. 25)
- A key objective in Chapter 3 is to “reduce stormwater runoff and non-point-source pollution to preserve and improve water quality.” Recommended strategies include establishing and implementing regulations to protect the watershed, include requirement to consider low impact development in design, stormwater maintenance policies, appropriate land uses and lesser development coverage especially adjacent to the Farm River. (p. 29) The POCD encourages the use stormwater management best practices in several other strategies as well.
- The plan recommends the consideration of a minimum building area for any cluster developments within zoning regulations to be exclusive of wetlands and steep slopes. (p. 32)
- A key objective for the plan is to “improve sustainability and resiliency at town buildings,” established in support of the goal to maintain high quality town facilities and infrastructure in Chapter 6. (p. 56)

Fortunately, as evidenced above, the Town of North Branford has some other important mitigation capabilities in place that work in conjunction with the POCD to reduce hazard risk. This includes the adoption and enforcement of building codes and land use and development ordinances/regulations that support mitigation by ensuring new or substantially improved development projects meet specific standards for public safety and protection from natural hazards. The Town’s Zoning Regulations are routinely updated as required and were last revised in December 2021, and Zoning and Building Permits are required for all new construction. The Town tracks new development in flood hazard areas and enforces protective regulations that go beyond minimum NFIP standards such as a 200 foot buffer along the Farm River. The administration and enforcement of these codes and development regulations are considered among the most effective and cost-beneficial measures to protect people and future development from the impact of natural hazard events. Some additional information on how effectively these regulatory tools and methods are being used for hazard mitigation purposes can be found in the Safe Growth Survey and NFIP Participation and Compliance sections of this annex. Some specific opportunities to enhance these tools are identified at the end of this Capabilities annex.

4.1.2 Administrative and Technical Capabilities

Administrative and technical capabilities include the local human resources and their skills/tools that can be used to support mitigation activities. The following administrative and technical capabilities are in place for North Branford:

North Branford Annex

2023 SCRCOG Mitigation Plan Update

- Planning Commission
- Maintenance Programs to Reduce Risk
- Mutual Aid Agreements
- Chief Building Official
- Floodplain Manager
- Emergency Manager
- Community Planner
- Civil Engineer
- GIS Coordinator
- Warning Systems
- Hazard Data

The Town of North Branford maintains administrative and technical capabilities across many departments under the general supervision of the Town Manager, the chief executive officer of the town. The Town Manager is responsible for policy implementation and administration, appointing Town staff, the development and execution of the annual operating and capital budget, directing municipal operations, and communications with the Town Council, various boards and commissions, and Town staff. Key departments as it relates to hazard mitigation and long-term risk reduction to natural hazards include the Planning and Zoning, Engineering, Building, and Public Works Departments. Town staff are supported by other community members who are appointed to local boards and commissions which goes a long way in supporting local administrative capabilities and technical expertise. Relevant examples include the Conservation and Inland Wetlands & Watercourses Agency, Economic Development Commission, Planning & Zoning Commission, and the Permanent Project Building Committee.

Although Town staff indicated that current administrative and technical capabilities are adequate for implementing routine day-to-day activities, their capacity to implement and track hazard mitigation projects between plan updates is limited. Most departments are staffed by only one or several individuals with busy workloads and the inability to take additional tasks on beyond their core responsibilities. Coordination across departments is strong though, especially when it comes to emergency preparedness and response (EOC Activations); however, these capabilities are stretched during and after larger hazard events. It was also noted that the Town relies heavily on the United Illuminating Company (UI) and Wallingford Electric Division in support of power restoration, tree clean-up and preventative maintenance, and related activities but there is room for improvement with routine coordination and communication.

4.1.3 Financial Capabilities

Financial capabilities include the fiscal resources the community has access to for helping to fund the implementation of hazard mitigation projects and related risk reduction activities. The following financial capabilities are in place for North Branford:

North Branford Annex

2023 SCRCOG Mitigation Plan Update

- Capital improvement project funding
- Fees for water, sewer, gas, or electric services
- Community Development Block Grant
- Federal Funding
- State Funding

The Town of North Branford has limited financial capabilities due to its size and relatively small income-generating tax base. With no special fees or other local capabilities to raise funds, the community is more reliant on external grant funding and debt financing mechanisms. However, the lack of local funding is a major constraint as many outside funding sources have local cost-share (cash match) requirement that the Town is unable to meet. This lack of financial resources combined with limited administrative resources are impediments to the implementation of structural hazard mitigation projects and the more costly risk reduction activities.

The Town's Finance Department is responsible for the development of the Town's Annual Budget and Capital Improvements Plan (CIP) documents. The former is more focused on maintaining the delivery of municipal services and achieve key community goals. Per the Town's Adopted Annual Budget for 2022-2023, the expenditure side of the budget has been trimmed to "skeletal" levels and beyond. The Town's CIP addresses the critical repairs and improvements necessary for the preservation of the Town's infrastructure and capital assets in the short-term and for the foreseeable future. Minimal funding is made available for hazard mitigation measures outside of some drainage and culvert improvements to reduce the impacts of stormwater and flooding along local roadways.

4.1.4 Education and Outreach Capabilities

Education and outreach capabilities include the local programs and methods already in place that can be used to support mitigation activities. The following education and outreach capabilities are in place for North Branford:

- Public Education Program
- Website
- Email Listserv
- CodeRed
- Social Media
- Citizen Preparedness Classes

4.2 Safe Growth Survey

As introduced and described in Chapter 6 (Capability Assessment), the Safe Growth Survey was used again during the plan update process to help evaluate the extent to which the Town of North Branford is

North Branford Annex

2023 SCRCOG Mitigation Plan Update

positioned to grow safely relative to its natural hazards. The survey covered six topic areas including the following:

- Land Use
- Transportation
- Environmental Management
- Public Safety
- Zoning Ordinance
- Subdivision Regulations
- Capital Improvement Program and Infrastructure Policies

The results of the Safe Growth Survey are summarized in Table 22. This includes describing how strongly current Town staff agrees or disagrees with 25 statements as they relate to existing plans, policies, and programs for guiding future community growth and development, according to the following scale:

1=Strongly Disagree 2=Somewhat Disagree 3=Neutral 4=Somewhat Agree 5=Strongly Agree

Survey results provide some helpful information on how effective existing planning mechanisms are currently being used to address hazard mitigation and long-term risk reduction. The results were also incorporated into the analysis of possible new mitigation actions for the Town of North Branford to consider in terms improving or expanding upon its planning and regulatory capabilities to reduce the effects of natural hazards, including but not limited to the vulnerabilities identified in the risk assessment.

Table 22. Safe Growth Survey Results, Town of North Branford.

COMPREHENSIVE/MASTER PLAN (i.e., Plan of Conservation and Development)					
Land Use					
1. The comprehensive/master plan includes a future land use map that clearly identifies natural hazard areas.	1	2	3	4	5
2. Current land use policies discourage development and/or redevelopment within natural hazard areas.	1	2	3	4	5
3. The comprehensive/master plan provides adequate space for expected future growth in areas located outside of natural hazard areas.	1	2	3	4	5

North Branford Annex

2023 SCRCOG Mitigation Plan Update

COMPREHENSIVE/MASTER PLAN (i.e., Plan of Conservation and Development)						
Transportation						
4. The transportation element limits access to natural hazard areas.	1	2	3	4	5	
5. Transportation policy is used to guide future growth and development to safe locations.	1	2	3	4	5	
6. Transportation systems are designed to function under disaster conditions (e.g., evacuation, mobility for fire/rescue apparatus, etc.).	1	2	3	4	5	
Environmental Management						
7. Environmental features that serve to protect development from hazards (e.g., wetlands, riparian buffers, etc.) are identified and mapped.	1	2	3	4	5	
8. Environmental policies encourage the preservation and restoration of protective ecosystems.	1	2	3	4	5	
9. Environmental policies provide incentives to development that is located outside of protective ecosystems.	1	2	3	4	5	
Public Safety						
10. The goals and policies of the comprehensive/master plan are related to and consistent with those in the hazard mitigation plan.	1	2	3	4	5	
11. Public safety is explicitly included in the comprehensive/master plan's growth and development policies.	1	2	3	4	5	

North Branford Annex

2023 SCRCOG Mitigation Plan Update

COMPREHENSIVE/MASTER PLAN (i.e., Plan of Conservation and Development)						
12. The monitoring and implementation section of the comprehensive/master plan covers safe growth objectives.	1	2	3	4	5	
ZONING BYLAWS						
13. The zoning bylaws conform to the comprehensive/master plan in terms of discouraging development and/or redevelopment within natural hazard areas.	1	2	3	4	5	
14. The bylaws contain natural hazard overlay zones that set conditions for land use within such zones.	1	2	3	4	5	
15. Rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use.	1	2	3	4	5	
16. The bylaws prohibit development within, or filling of, wetlands, floodways, and floodplains.	1	2	3	4	5	
SUBDIVISION REGULATIONS						
17. The subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas.	1	2	3	4	5	
18. The regulations provide for conservation subdivisions or cluster subdivisions to conserve environmental resources.	1	2	3	4	5	
19. The regulations allow density transfers where hazard areas exist.	1	2	3	4	5	
CAPITAL IMPROVEMENT PROGRAM AND INFRASTRUCTURE POLICIES						
20. The capital improvement program limits expenditures on projects that would encourage development and/or redevelopment in areas vulnerable to natural hazards.	1	2	3	4	5	

North Branford Annex

2023 SCRCOG Mitigation Plan Update

COMPREHENSIVE/MASTER PLAN (i.e., Plan of Conservation and Development)						
21. Infrastructure policies limit the extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards.	1 2 3 4 5					
22. The capital improvements program provides funding for hazard mitigation projects identified in the hazard mitigation plan.	1 2 3 4 5					
OTHER						
23. Small area or corridor plans recognize the need to avoid or mitigate natural hazards.	1 2 3 4 5					
24. The building code contains provisions to strengthen or elevate new or substantially improved construction to withstand hazard forces.	1 2 3 4 5					
25. Economic development and/or redevelopment strategies include provisions for mitigating natural hazards or otherwise enhancing social and economic resiliency to hazards.	1 2 3 4 5					

4.3 NFIP Participation and Compliance

The Town of North Branford has actively participated in the National Flood Insurance Program (NFIP) since 1978. The current effective Flood Insurance Rate Map (FIRM) is dated May 16, 2017. As of August 31, 2022, there are a total of 71 NFIP policies in force. The total annual premium is \$74,062 for a total of \$21,327,300 in coverage. A total of 76 claims amounting to approximately \$526,705 have been paid to NFIP policyholders in North Branford since joining the program.²³ More information on NFIP-insured structures, including those that have been repetitively damaged by floods, is provided in Chapter 5 (Risk Analysis).

²³ FEMA NFIP, HUDEX Report, Policy and Loss Data by Community: <https://nfipservices.floodsmart.gov//reports-flood-insurance-data>

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Table 23 describes the Town of North Branford's participation and continued compliance in accordance with NFIP requirements and as specified in FEMA's 2022 Local Mitigation Planning Policy Guide.²⁴

Table 23. NFIP Participation and Compliance, Town of North Branford.

REQUIRED INFORMATION	RESPONSE
Adoption of NFIP minimum floodplain management criteria via local regulation.	Adopted via Flood Damage Prevention Ordinance, Chapter 148, Ordinance #166, Adopted by Town Council 10/16/1990, Effective: 11/16/1990, Amendment noted in Ordinance where applicable. Also adopted via Zoning Regulations, adopted effective September 2, 1977, Amended 1/5/78, Effective to 12/15/21, Section 33, Streambelt Protection District; and Subdivision Regulations, Effective Date 8/1/1962, Amended to 4/30/2010, Article III-General, 303 & 307.
Adoption of the latest effective Flood Insurance Rate Map (FIRM), if applicable.	Adopted via the above cited regulations. Latest effective FIRM is dated 5/16/2017.
Implementation and enforcement of local floodplain management regulations to regulate and permit development in SFHAs.	During the permitting process, the Floodplain Administrator reviews all projects and provides comments, when necessary, for all Wetlands, Subdivision, and Zoning/Site Plan applications. After the permitting process for larger projects, and for all smaller projects, a Zoning Application and Building Application are filed with the Land Use Department. The Floodplain Administrator coordinates submittal of a Permit Application for Development in Flood Hazard Area by the Applicant.
Appointment of a designee or agency to implement the addressed commitments and requirements of the NFIP.	Victor Benni, Town Engineer
Description of how participants implement the substantial improvement/substantial damage	Substantial improvements are tracked during the Building Permit process through the review &

²⁴ Local Mitigation Planning Policy Guide. FEMA. April 2022. P. 26.

North Branford Annex

2023 SCRCOG Mitigation Plan Update

REQUIRED INFORMATION	RESPONSE
provisions of their floodplain management regulations after an event.	approval process of the Application for Development in Flood Hazard Area. Following a flood event, substantial damage provisions are implemented same process, as Building Permits and flood permits are still required.

North Branford's local floodplain management regulations and building code enforcement procedures include the following requirements that exceed minimum NFIP standards:

- Require freeboard (elevation requirements higher than the base flood)
- Require soil tests or engineered foundations
- Require compensatory storage for new developments
- Prohibit or enforce higher standards for critical facilities subject to flood hazards
- Provision for cumulative substantial damage/improvement requirements

The Town of North Branford's higher regulatory standards include substantial Improvement provisions that consider cumulative cost over a 5-year time frame. New construction and substantial improvement of any residential structure shall have at least the lowest floor, including basement elevated at least one foot above the base flood elevation. The one-foot freeboard also applies to commercial, industrial, or nonresidential structures, with the option for non-residential structures to be floodproofed in lieu of the one-foot freeboard.

In addition, the 2019-2029 Plan of Conservation and Development supports more stringent regulations in the Farm River corridor, which include a Streambelt Protection Zone, and a larger upland review area. The Farm River Watershed Management Plan (adopted in August 2021) incorporates a portion of the Plan to Management Recommendations (Section 3.2.7) and includes incorporating Vegetated Buffers (Section 3.2.7), areas adjacent to streams, ponds, lakes, and wetlands to protect stream banks from erosion and reduce flooding.

Lastly, the North Branford Department of Public Works makes a dedicated effort every year to cleaning all of the catch basin sumps through the use of a jet/vac truck which is owned and operated by the municipality. The Town maintains a Disaster Preparedness section on its website under the Emergency Management Department; context includes information on how to Be Prepared in Case of an Emergency. The Town also maintains a Stormwater Permit Requirement section on its website under the Planning & Zoning Department; context includes permitting requirements for projects proposing to disturb more than one acre of land.

Town staff haven't identified any specific impediments to running and effective floodplain management program in North Branford, and no compliance issues were identified by FEMA in its last Community

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Assistance Visit in 2012. The Town of North Branford does not participate in the Community Rating System (CRS), and currently does not consider CRS participation a viable option based on its limited administrative capabilities and the low number of NFIP policies currently in force.

Additional information on each jurisdiction's floodplain management program and participation in the NFIP is provided in Chapter 6 (Capability Assessment).

4.3.1 Improvement Opportunities

Despite the limitations and constraints faced by the Town of North Branford when it comes to current hazard mitigation capabilities, it can expand and improve on the capabilities described in Chapter 6 (Capability Assessment) and this annex. The Town is aware of each it's strengths and weaknesses in terms of mitigating risk. Specific opportunities to address existing gaps or limitations in local capabilities to reduce risk have been identified for each capability type and are further described below. Each of these opportunities were then considered by the Town during the plan update process as potential new mitigation actions to be included in the updated Mitigation Strategy.

Planning and Regulatory Capabilities

- Assess all relevant regulations and the Town's permit review process to identify improvements to better address natural hazards, climate change, and projected future conditions (including extreme heat, heavy downpour events, etc.). This includes the incorporation of nature-based Solutions into existing rules and regulations where most appropriate.
- Increase the integration of hazard mitigation and climate resiliency into the Town's existing CIP planning and project lists. Examples include (1) making resilience a key objective/priority for the Town's strategic, operational, and fiscal policies for municipal infrastructure and asset management; and (2) developing methods to help ensure the Town limits expenditures on projects or infrastructure improvements that would encourage development and/or redevelopment in areas vulnerable to natural hazards.
- Be opportunistic with addressing hazard mitigation and resilience through future amendments and implementation of the Town's updated POCD, especially as it relates to non-flooding hazards. This includes updating infrastructure policies to promote a more resilient transportation network as well as environmental policies that can reduce risk and/or provide incentives to infrastructure and development that is located outside of hazard areas or protective ecosystems.

Administrative and Technical Capabilities

- Increase current staff capacity to pursue and implement hazard mitigation, climate adaptation, and other community resilience building activities through additional hires as necessary. Higher

North Branford Annex

2023 SCRCOG Mitigation Plan Update

staffing levels for some key departments (i.e., Planning and Zoning, Engineering) would help enhance the daily provision of services to the community but also help them take on additional tasks beyond their core responsibilities. Additional staff to support routine maintenance activities as well as post-disaster response and recovery efforts would also be helpful for the Public Works Department.

- Build internal staff capacity to identify and pursue external sources of grant funding for mitigation projects through increased opportunities for training/professional development and the ability to invest more time on grant writing, grants management, and related administrative tasks. Consider the designation or hiring of a dedicated resource development / grants administrator for the Town.
- Improve communication and coordination with UI on preventative maintenance activities for hazard trees as well as post-disaster clean-up and power restoration operations.

Financial Capabilities

- Maximize opportunities through the Town's budgeting and CIP process to help fund priority hazard mitigation and climate adaptation projects, especially when a local cost-share increases the Town's chances for a grant award.
- Continue to build and support the capacity of local staff and volunteers to identify and pursue funding made available through external funding programs, particularly those routinely made available to smaller communities through recurring state-level grant programs.
- Continue to coordinate with SCRCOG and neighboring communities in the region as it relates to positioning the Town to pursue and capture future grant funding for regional hazard risk reduction projects.

Education and Outreach Capabilities

- Increase use of the Town's website to support low-cost public education and outreach initiatives on building community resilience to hazards as well as individual mitigation actions for homeowners, business owners, etc.
- Expand opportunities for public/private partnerships to support public education and community outreach initiatives related to hazard awareness and risk reduction efforts.
- Identify and seek to address any unmet needs related to targeted outreach and education for the community's more vulnerable populations (i.e., environmental justice communities, residents with special needs, property owners in high risk hazard areas, those who are homebound, etc.).
- Consider expanding the Emergency Manager's citizen preparedness classes to address individual hazard mitigation topics (such as risk awareness, recommended individual preparedness/mitigation activities, the availability of flood insurance, etc.).

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Possible New Actions Related to NFIP Participation and Compliance

- Coordinate with the State NFIP Coordinator on possible updates or revisions to local floodplain management regulations based on CT DEEP's most current Model Floodplain Management Regulations (which are routinely being updated as needed).
- Update the Engineering Department's floodplain section on the Town Website to include a description of the Town's involvement in the NFIP, FIRM's, Flood Insurance Fact Sheets, and the importance of Drainage System Maintenance.
- Sponsor a periodic NFIP workshop for local surveyors and builders.
- Develop a local Post-Disaster Substantial Damage Plan to assist with implementing substantial damage provisions of the NFIP, the State Building Code, and local floodplain regulations (guidance available).

North Branford Annex

2023 SCRCOG Mitigation Plan Update

5. Mitigation Actions

Mitigation actions are projects or activities identified to reduce current and future vulnerabilities identified through the process of developing this 2023 SCRCOG Mitigation Plan Update. The first table in this section identifies the status of the mitigation actions included in the 2016 version of this plan. Besides current status, actions brought forward to this 2023 plan are identified in the Keep for Plan Update? column. The second table includes all the actions, and their essential details, for this 2023 SCRCOG Mitigation Plan Update. The actions are also listed in the Mitigation Action Tracker (a Google Sheet spreadsheet) maintained by SCRCOG. These actions were prioritized by the Municipality according to the criteria detailed in the main body of the plan.

Table 24. Status of Previous Mitigation Actions – Town of North Branford.

Action #	Action Title	Action Description	Current Status	Status Description/Explanation	Keep for Plan Update?
1	Installation of Generator at Police Station	Installation of Replacement Stand-by Generator at North Branford Police Station.	Partially Completed / In Progress	Pending. Included in New Police Station Design.	YES (see Action #1)
2	Installation of Generator at Firehouse #1	Installation of Replacement Stand-by Generator at Company #1 Firehouse.	Completed	Generator installed; work complete.	NO (see explanation at left)
3	Tree Removal	Removal of trees alongside roads and power lines.	Partially Completed / In Progress	Some removal of dead/diseased trees has been completed by Town. Utility companies continue to remove hazardous trees affecting overhead utilities.	YES (see Action #2)
4	Farm River Flood Control Project	Construction of Farm River Flood Controls. Building a dam behind police station would help East Haven and North Branford –	Partially Completed / In Progress	Draft Farm River Watershed Management Plan awaiting final review/approval from State.	YES (see Action #3)

North Branford Annex
2023 SCRCOG Mitigation Plan Update

Action #	Action Title	Action Description	Current Status	Status Description/Explanation	Keep for Plan Update?
		consideration should be given to a reduced project scope			
5	Public Education and Outreach	Increase public awareness regarding the potential for flooding, the areas to be affected, the need for and availability of flood insurance.	Partially Completed / In Progress	The Town will continue to add information to the Town Website and will continue to use social media platforms for the purpose of increasing public awareness.	YES (see Action #4)
6	Removal or Elevation of Structures	Remove or elevate existing structures in flood prone areas.	Partially Completed / In Progress	The Town will continue to educate neighborhoods and individual homeowners as to potential options and funding sources available to remove or elevate structures in flood prone areas.	YES (see Action #5)
7	Culvert replacement at Arthur Road	Upgrade / Replace existing undersized culverts.	Delayed	Lack of funding; the Town is currently considering distributing a portion ARPA funds to town infrastructure projects.	YES (see Action #6)
8	Upgrade bridge at Harrison Road	Upgrade / Replace existing bridge structure.	Delayed	Lack of funding; the Town is currently considering distributing a portion ARPA funds to town infrastructure projects.	YES (see Action #7)
9	Elevate Route 80/West Pond Road Intersection	Elevate West Pond Road Extension in vicinity of Route 80.	Delayed	Funding and coordination with State DOT paving cycle are continued cause for delay. Consideration will be taken in the Town Feasibility Study for sewer extension through the Route 80 corridor.	YES (see Action #8)
10	Add CERT Team	Development and training of a CERT team.	Delayed	Lack of funding to help educate people about disaster preparedness for hazards that may impact the area and	YES (see Action #9)

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Action #	Action Title	Action Description	Current Status	Status Description/Explanation	Keep for Plan Update?
				train them basic disaster response skills.	
11	Open Space Acquisition	Open space acquisition.	Delayed	Lack of funding causes delay for potential property acquisitions. Opens Space areas continue to be incorporated into appropriately zoned Residential Subdivision Applications and certain Wetland Applications	YES (see Action #10)

Table 25. Updated Mitigation Actions (2023-2028) – Town of North Branford.

Action #	Action Title	Action Description	Estimated Cost	Potential Funding Source	Lead Department	Implementation Schedule	Priority
1	Installation of Generator at New Police Station	Installation of stand-by generator at the new North Branford Police Station (included in design).	\$75,000	FEMA/ DEEP	Emergency Operations / Police Department	2023	High
2	Tree Removal	Removal of trees alongside roads and power lines.	\$50,000	State of CT / Utilities / Local	DPW with State of CT / Utilities	Annual / Recurring Action	High
3	Farm River Restoration and Flood Control	Implement Restoration Concepts along the Farm River as proposed in Sections 4.1, 3, 5-6, 8 & 10 of the Farm River Watershed Management Plan.	\$1,500,000 - 3,000,000	DEEP / NRCS / Town	NRCS / DEEP / FEMA	Undetermined (still TBD)	Medium
4	Public Education and Outreach	Increase public awareness regarding the potential for	\$40,000	FEMA HMA (BRIC /	Engineering Department	July 2023-June 2028	Medium

North Branford Annex
2023 SCRCOG Mitigation Plan Update

Action #	Action Title	Action Description	Estimated Cost	Potential Funding Source	Lead Department	Implementation Schedule	Priority
		flooding, the areas to be affected, the need for and availability of flood insurance.		HMGP / FMA); CIRCA MRG; Municipal Operating Budget			
5	Removal or Elevation of Structures	Remove or elevate existing structures in flood prone areas.	\$50,000 - \$500,000	FEMA HMA (BRIC / HMGP / FMA); Municipal CIP Budget	Engineering Department	Undetermined (still TBD)	Medium
6	Culverts / Headwalls Replacement at Arthur Road	Upgrade existing undersized culverts and replace headwalls.	\$250,000 - 500,000	EPA 319; CT DOT; CIRCA MRG	Engineering Department	August 2022 - November 2024	Medium
7	Upgrade Bridge at Harrison Road	Upgrade / Replace existing bridge structure.	\$500,000 - 750,000	IJIA/BIP; CT DOT; CT DEEP; LOTCIP; Municipal CIP Budget	Engineering Department	TBD	Medium
8	Elevate Route 80 / West Pond Road Intersection	Elevate West Pond Road Extension in vicinity of Route 80.	\$200,000	CT DOT; CIRCA MRG; DEEP Climate Resilience	Engineering Department	August 2022- December 2025	Medium

North Branford Annex
2023 SCRCOG Mitigation Plan Update

Action #	Action Title	Action Description	Estimated Cost	Potential Funding Source	Lead Department	Implementation Schedule	Priority
				Fund; LOTCIP; Municipal CIP Budget			
9	Add CERT Team	Development and training of a Community Emergency Response Team (CERT).	\$10,000	FEMA HSGP, EMPG	Emergency Management	July 2023-July 2024	Medium
10	Open Space Acquisition	Open space acquisition.	\$50,000 - 500,000	CT DEEP; Municipal CIP Budget	Town Manager	Undetermined (still TBD)	Low
11	Update culverts at Clear Lake Manor Road	Upgrade / replace existing cross culverts	\$100,000 - 150,000	EPA 319; CT DOT; CIRCA MRG	Engineering Department	TBD	Low
12	Ciro Road at Munger Brook Flood Analysis	Flood analysis to determine benefit, elevate road, and upgrade culvert crossing	\$250,000 - 500,000	CT DOT; DEEP Climate Resilience Fund; CIRCA MRG; Municipal CIP Budget	Engineering Department	TBD	Low
13	Circle/Harrison/Lea Flood Analysis	Flood analysis in the vicinity of the Branford River & Munger Brook confluence to identify potential culvert upgrades	\$50,000 - 100,000	CT DOT; DEEP Climate Resilience Fund;	Engineering Department	TBD	Low

North Branford Annex
2023 SCRCOG Mitigation Plan Update

Action #	Action Title	Action Description	Estimated Cost	Potential Funding Source	Lead Department	Implementation Schedule	Priority
				CIRCA MRG; Municipal CIP Budget			
14	Crossfield Drive Flood Analysis	Flood analysis in the vicinity of Crossfield Drive / Notch Hill Brook to identify potential culvert upgrades	\$50,000 - 100,000	CT DOT; DEEP Climate Resilience Fund; CIRCA MRG; Municipal CIP Budget	Engineering Department	TBD	Low
15	Regional Farm River Watershed Coalition / Coordinator	Establish a formal organization to implement goals, objectives, and actions of the Farm River Watershed Management Plan.	\$100,000	DEEP Climate Resilience Fund; CIRCA MRG; Municipal CIP Budget	Engineering Department	October 2023 - October 2024	Medium
16	Convert Overhead to Underground Utilities	Town wide effort to identify viable locations & implement conversions to alleviate damage caused by ice & winds storms, thunderstorms, and hurricanes	TBD	State of CT; Municipal CIP Budget; Utilities	Engineering Department / Town Manager	TBD	Low

North Branford Annex
2023 SCRCOG Mitigation Plan Update

Action #	Action Title	Action Description	Estimated Cost	Potential Funding Source	Lead Department	Implementation Schedule	Priority
17	Regulatory Review for Resilience Enhancements	Assess all relevant regulations and the Town's permit review process to identify improvements to better address natural hazards, climate change, and projected future conditions (including extreme heat, heavy downpour events, etc.). This includes the incorporation of nature-based Solutions into existing rules and regulations where most appropriate.	Municipal Operating Budget / Staff Time	N/A	Planning & Zoning Department / Town Planner	2023-2028	Low
18	Integrate Resiliency into the POCD	Be opportunistic with addressing hazard mitigation and resilience through future amendments and implementation of the Town's updated POCD, especially as it relates to non-flooding hazards. This includes updating infrastructure policies to promote a more resilient transportation network as well as environmental policies that can reduce risk and/or provide incentives to infrastructure and development that is located outside of hazard areas or protective ecosystems.	Municipal Operating Budget / Staff Time	SCRCOG / State of CT	Planning & Zoning Department / Town Planner	2023-2028	Low

North Branford Annex
2023 SCRCOG Mitigation Plan Update

Action #	Action Title	Action Description	Estimated Cost	Potential Funding Source	Lead Department	Implementation Schedule	Priority
19	Build Capacity for Pursuing External Grant Funding	Build internal staff capacity to identify and pursue external sources of grant funding for mitigation projects through increased opportunities for training/professional development and the ability to invest more time on grant writing, grants management, and related administrative tasks. Consider the designation or hiring of a dedicated resource development / grants administrator for the Town.	\$65,000 - 150,000	Municipal Operating Budget	Town Manager / Planning & Zoning Department	2023-2028	Low
20	Improve Communication and Coordination with UI and WED	Improve communication and coordination with UI and Wallingford Electric Division on preventative maintenance activities for hazard trees as well as post-disaster clean-up and power restoration operations.	N/A	Municipal Operating Budget	Public Works / Director of Public Works / Tree Warden	2023-2028	Medium
21	Leverage Municipal CIP Budget for Hazard Mitigation and Climate Adaptation Projects	Maximize opportunities through the Town's budgeting and CIP process to help fund priority hazard mitigation and climate adaptation projects, especially when a local cost-share increases	N/A	Municipal Operating Budget	Finance Department / Town Manager	2023-2028	Medium

North Branford Annex
2023 SCRCOG Mitigation Plan Update

Action #	Action Title	Action Description	Estimated Cost	Potential Funding Source	Lead Department	Implementation Schedule	Priority
		the Town's chances for a grant award.					
22	Build Capacity for Pursuing External Grant Funding	Continue to build and support the capacity of local staff and volunteers to identify and pursue funding made available through external funding programs, particularly those routinely made available to smaller communities through recurring state-level grant programs.	N/A	Municipal Operating Budget / Staff Time	Town Manager / Planning & Zoning Department	2023-2028	Low
23	Coordinate with SCRCOG on Mitigation Funding Opportunities	Continue to coordinate with SCRCOG and neighboring communities in the region as it relates to positioning the Town to pursue and capture future grant funding for regional hazard risk reduction projects.	N/A	Municipal Operating Budget / Staff Time	Town Manager / Planning & Zoning Department	2023-2028	Medium
24	Improve Town Website for Resilience Education and Outreach	Increase use of the Town's website to support low-cost public education and outreach initiatives on building community resilience to hazards as well as individual mitigation actions for homeowners, business owners, etc.	N/A	Municipal Operating Budget / Staff Time	Emergency Management, Building & Engineering Departments	2023-2028	Medium

North Branford Annex

2023 SCRCOG Mitigation Plan Update

Action #	Action Title	Action Description	Estimated Cost	Potential Funding Source	Lead Department	Implementation Schedule	Priority
25	Outreach and Education for Vulnerable Populations	Identify and seek to address any unmet needs related to targeted outreach and education for the community's more vulnerable populations (i.e., environmental justice communities, residents with special needs, property owners in high risk hazard areas, those who are homebound, etc.).	N/A	CIRCA MRG; DEEP Climate Resilience Fund; Municipal Operating Budget / Staff Time	Emergency Management Department	2023-2028	Low
26	Update Floodplain Management Regulations	Coordinate with the State NFIP Coordinator on possible updates or revisions to local floodplain management regulations based on CT DEEP's most current Model Floodplain Management Regulations (which are routinely being updated as needed).	N/A	Municipal Operating Budget / Staff Time	Engineering Department	2023-2028	Medium
27	Update Flood Information Website	Update the Engineering Department's floodplain section on the Town Website to include a description of the Town's involvement in the NFIP, FIRM's, Flood Insurance Fact Sheets, and the importance of Drainage System Maintenance.	N/A	Municipal Operating Budget / Staff Time	Engineering Department / Town Engineer	August 2023 - August 2024	Low

North Branford Annex
2023 SCRCOG Mitigation Plan Update

Action #	Action Title	Action Description	Estimated Cost	Potential Funding Source	Lead Department	Implementation Schedule	Priority
28	Watershed Resilience Potential	Work with CIRCA to determine whether the public water supply watershed resilience opportunity area identified by Resilient Connecticut should be scoped for project development.	N/A	Municipal Operating Budget / Staff Time	Planning & Zoning Department	2023-2028	Low
29	Routes 22 & 17 Intersection / Bypass	Construction of a traffic bypass around the Rt 17 & Rt 22 intersection in Northford Center. Maintain traffic control and regional safety in event of a vehicular accident or downed trees and/or wires due to a natural hazard event	TBD	CT DOT; LOTCIP; Municipal CIP Budget	Planning & Zoning Department	2023-2028	Low