Western Connecticut Council of Governments Multi-Jurisdiction Hazard Mitigation Plan Update 2026-2031

Municipal Annex
for
Town of Newtown

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Draft: October 2026

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RESILIENT
Land & Water

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1.0 INTRODUCTION

1.1 Purpose of Annex

The purpose of this Hazard Mitigation Plan (HMP) annex is to provide a community-specific hazard risk assessment, capability analysis, and evaluation and prioritization of hazard mitigation measures and projects. Background information and the regional effects of pertinent natural hazards are discussed in the main body of the Western Connecticut Council of Governments (WestCOG) Multi-Jurisdictional Hazard Mitigation Plan. This annex is designed to supplement the information presented in the Multi-Jurisdictional HMP with more specific detail for the Town of Newtown and is not to be considered a standalone document.

The primary goal of this HMP, including this Municipal Annex, is to identify natural hazard risks and mitigation opportunities in order to reduce the loss of or damage to life, property, infrastructure, and natural, cultural, and economic resources. This includes the reduction of public and private damage costs. Limiting losses of life and damage to property will also reduce the social, emotional, and economic disruption associated with a natural disaster.

2.0 COMMUNITY PROFILE

2.1 Geography

2.1.1 Physical Setting

Incorporated in 1711, the Town of Newtown is located in southern Litchfield County and is home to a population of 27,560 (2010 U.S. Census). Newtown is bordered by the municipalities of Southbury and Bridgewater to the north, Oxford to the east, Monroe to the southeast, Easton and Redding to the south, and by Bethel and Brookfield to the west. Refer to Figure 2-1 for a map showing the regional location of Newtown.

Newtown is settled at the foothills of the Berkshire Mountains and is also bordered by the Housatonic River to the northeast. There are numerous other streams flowing in town, including the Pootatuck River, Pond Brook, and Limekiln Brook.

Several main routes traverse the town, including Interstate 84, U.S. Routes 6 and 302, and Connecticut routes 25 and 34. With the town covering 38,644 acres, or 60.38 square miles, Newtown is the fifth largest town by area in the state. The town includes the Borough, Sandy Hook, Hawleyville, Botsford, and Dodgingtown "neighborhoods".

The Center for Land Use Education and Research (CLEAR) has developed a statewide land cover dataset derived from the 2023 Annual National Land Cover Dataset (NLCD). Areas identified as developed open space are maintained grasses such as residential and commercial lawns or golf courses. The majority of the developed cover is concentrated along major transit corridors in town, with the developed open space density radiating from this developed area. The land cover, by percent of total land, for Newtown is shown in Table 2-1.

Table 2-1: Land Cover by Area

Land Cover Type	Percent Total Land Area
Forest	66%
Agriculture	4%
Developed Open Space	20%
Developed	7%

Source: University of Connecticut Center for Land Use Education and Research (CLEAR)

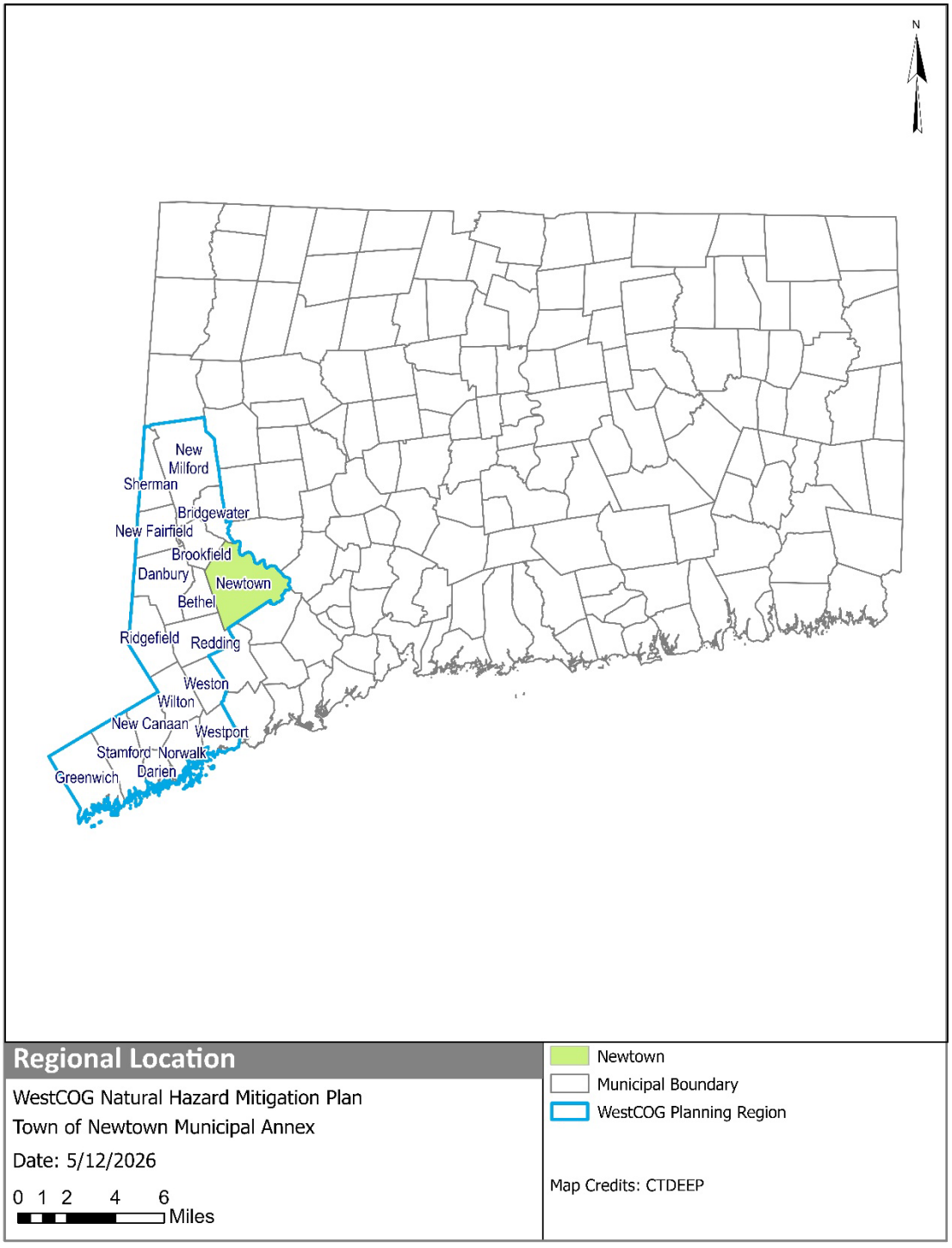

Figure 2-1: Location Map

2.1.2 Land Use

According to the 2025 Plan of Conservation and Development (POCD), "Newtown spans approximately 58 square miles (37,110 acres). The predominant land use in Newtown is residential housing, which represents approximately half of the land area. Parks, Open Space, and Agricultural Land (based on prime farmland soil) comprise the second largest land use. Civic/ Institutional land is approximately 10% of the land, and transportation infrastructure, including roads and highways, occupies about 6% of the land area. Commercial and Industrial uses account for less than 5% of land area." The Town of Newtown has a diverse inventory of land use types, including agricultural, commercial, civic/institutional, open space/parks, residential, transportation, and vacant areas.

2.1.3 Climate and Climate Change

Current Conditions

Over the course of the year, the temperature in Newtown typically varies from 20°F to 82°F and is rarely below 5°F or above 89°F. The warm season lasts from June 1 to September 16, with an average daily high temperature above 72°F. The hottest month of the year is July, with an average high of 81°F and a low of 63°F. The cold season lasts from December 3 to March 12, with an average daily high temperature below 44°F. The coldest month of the year is January, with an average low of 21°F and high of 35°F.

Precipitation falls throughout the year in Newtown. The wetter season lasts from May 4 to August 19, with a greater than 29% chance of a given day being a wet day. The chance of a wet day peaks at 36% on May 30. The smallest chance of a wet day is 22% on January 29.

The most rain falls during the month of October with an average total accumulation of 3.7 inches. The least rain falls in January, with an average total accumulation of 1.8 inches.

The snowy period of the year lasts from November 6 to April 13, with a sliding 31-day liquid-equivalent snowfall of at least 1.0 inches. The most snow falls during January, with an average snowfall of 10.0 inches.

Climate data was sourced from Weather Spark based on analysis of the years 1980 to 2016.

Climate Change

Climate change projections for Connecticut were sourced from the 2019 Connecticut Physical Climate Science Assessment Report, developed by the University of Connecticut (UConn) Atmospheric Sciences Group and commissioned by the Connecticut Institute for Resilience and Climate Adaptation (CIRCA) with funding from the Department of Energy and Environmental Protection (DEEP). All projections are based on the IPCC high CO_2 emission scenario (RCP8.5).

Temperature

Annual temperatures have been increasing throughout Connecticut and are projected to continue to do so in the future. By mid-century, the average annual temperature is projected to increase by 5°F. Seasonal average temperatures are also expected to rise, with the greatest increase (6°F) experienced in summer (June to August). The number of nights when the temperature remains above 68°F will quadruple from 10 days per year to more than 40, and the number of extremely hot days will increase from more than 4 per year to 48 per year.

Precipitation

Rainfall data in "Technical Paper No. 40" by the U.S. Weather Bureau (now the National Weather Service) (Hershfield, 1961) dates from the years 1938 through 1958. According to these data, the 24-hour rainfall amount for a 50% annual-chance storm in Fairfield County is 3.3 inches.

The continued increase in precipitation only heightens the need for hazard mitigation planning as the occurrence of floods may change in accordance with the greater precipitation.

The Northeast Regional Climate Center (NRCC) has partnered with the Natural Resources Conservation Service (NRCS) to provide a consistent, current regional analysis of rainfall extremes (http://precip.eas.cornell.edu/). In 2020, this dataset listed the 24-hour rainfall amount for a 50% annual-chance storm in Newtown as 3.42 inches.

The NOAA Atlas 14, released on September 30, 2015, puts the 24-hour rainfall amount for a 50% annual-chance annual storm in Newtown at 3.57 inches.

These precipitation amounts and more details are summarized in Table 2-2, below.

Table 2-2: 24-Hour Rainfall Amounts by Annual-Chance Occurrence

Source	24-Hour Rainfall Amount (inches) by Annual-Chance Occurrence		
	50%	4%	1%
Technical Paper No. 40	3.3	5.7	7.2
NRCC	3.42	6.36	8.97
NOAA Atlas 14	3.57	6.85	8.80

Annual precipitation has been increasing statewide and is projected to continue to increase. By mid-century, annual precipitation is projected to increase by 8.5%, with the greatest increase (13.4%) occurring in the winter months. Extreme precipitation events are projected to increase in both frequency and magnitude. Based on this increase and the precipitation figures above, by 2050, Newtown can expect the 24-hour rainfall amount for a 50% annual-chance storm to be around 3.7 to 3.9 inches or greater.

Impervious surfaces and infrastructure in town have increased over time as well, leading to increased runoff and peak discharge.

Despite overall increases in precipitation, drought risk is projected to rise, especially during summer, due to shifting precipitation patterns and rising potential evapotranspiration (plants taking up more water in hotter temperatures and longer growing seasons).

2.1.4 Drainage Basins and Hydrology

Newtown is divided among eight subregional drainage basins, including: Aspetuck River, Deep Brook, Halfway River, Housatonic River, Limekiln Brook, Pequonnock River, Pond Brook, and Pootatuck River.

Most of these basins have a FEMA-defined Special Flood Hazard Aa along the primary watercourse. Such areas consist of 1% annual chance storm floodplains without elevations, 1%

annual chance storm floodplains with elevations, and 0.2% annual chance floodplains. Refer to section 3 for more details regarding SFHAs.

Aspetuck River

Part of the headwaters of the Aspetuck River lie within Huntington State Park in southeastern Bethel, with the watershed covering a total of 0.67 square miles. The Aspetuck River flows generally south through Newtown and Redding, and Easton before reaching its confluence with the Saugatuck River in Weston. The total area of the Aspetuck River watershed is approximately 23 square miles.

Deep Brook

The Deep Brook basin covers an area of 5.35 square miles and is completely encompassed by Newtown's borders. The headwaters of Deep Brook are at Castle Hill Road, traversing through Dickson Town Park, and under a railroad line and Wasserman's Way. Roughly 3/4 of the eastern stretch of the stream is lined with 1% annual chance floodplains, as well as floodway along the eastern half of the brook until its confluence with the Pootatuck River.

Halfway River

The Halfway River drainage basin covers approximately 10.68 square miles and is split between Newtown and the Town of Monroe to the south. The River is a tributary of the Housatonic River and flows through the Stevenson part of Newtown. There are narrow stretches of 1% annual chance floodplain along the eastern part of the river, with floodway developing as the Halfway joins the Housatonic.

Housatonic River

The Housatonic River drains an area of 1,948 square miles from Pittsfield, Massachusetts, to Milford, Connecticut, where it empties into Long Island Sound. The river flows 134 miles from its upper reach to the sound, with 1,234 square miles of its drainage area in Connecticut. After crossing into Connecticut, the river creates the border for several towns as it flows south through the northwestern part of the state. Once into the lower Housatonic Valley region, the river breaks to the southeast, flowing through New Milford and cutting between Bridgewater, Southbury, Newtown, and into Long Island Sound. Many of the sub-regional drainages in these towns flow into the Housatonic River along with small tributaries that flow directly into the river, which make up the Housatonic sub-regional drainage basin. The main channel of the Housatonic is lined with 1% annual chance storm floodplains that extend on either side of the river, with areas that further extend making up the 0.2% annual chance floodplains.

Limekiln Brook

The Limekiln Brook watershed covers a total of 8.77 square miles. The brook has its headwaters in western Newtown just south of the Dodgingtown area. The brook flows generally northwest into Bethel and is conveyed beneath Route 302 and Rockwell Road prior to reaching the confluence with Dibbles Brook just upstream of Plumtrees Road.

Dibbles Brook is a major tributary of Limekiln Brook and has its headwaters in northeastern Newtown just west of Old Hawleyville Road. This headwater area drains south beneath Route 6 and is conveyed generally south beneath Walnut Hill Road, Plumtrees Road, and Rockwell Road prior to reaching the confluence with Limekiln Brook.

The combined stream continues to flow generally west and northwest, and is conveyed beneath Plumtrees Road and Walnut Hill Road before reaching its confluence with East Swamp Brook, downstream of Meckauer Park and Shelter Rock Road, near the Danbury boundary. Limekiln Brook continues to flow north into Danbury, where it drains into the Still River. In total, Limekiln Brook drains a total area of 8.77 square miles in Bethel, Brookfield, Danbury, and Newtown.

Pequonnock River

The Pequonnock River begins just south of Newtown in Neighboring Monroe. The river flows in a southerly direction through Trumbull and Bridgeport before flowing into the Long Island Sound. Only a very small portion of this basin is located in southern Newtown.

Pond Brook

Pond Brook has its headwaters near Whisconier Road in southern Brookfield. The brook flows generally southeast into Hawleyville, where it turns to flow generally northeast to its confluence with the Housatonic River at Lake Lillinonah. A small area (0.38 square miles) of northeastern Bethel, to the east of Old Hawleyville Road, drains into unnamed tributaries to Pond Brook. The total area of the Pond Brook watershed is approximately 13.9 square miles in Bethel, Brookfield, and Newtown.

Pootatuck River

The Pootatuck River basin covers 20.78 square miles, with the majority of the basin within Newtown's boundaries. The Pootatuck is a large tributary of the Housatonic and flows from southwest Newtown to the northeast confluence with the Housatonic. Almost the entire river has a floodway designation, with the exception of small headwater areas, which are located in the Town of Monroe.

2.2 Society, Culture, and Government

2.2.1 Population and Demographic Setting

According to the 2020 U.S. Census, Newtown had a population of 27,173 with 472 persons per square mile. The Connecticut State Department of Public Health estimates Newtown's 2026 population at 27,593. The American Community Survey (ACS) projects a population decline, with estimates putting the population at only 16,376 in 2030.

One important aspect of natural hazard mitigation planning is to identify a community's demographic trends in relation to natural hazards. The FEMA National Risk Index (NRI) (Version 1.20) explores and illustrates the relationships among social vulnerability, community resilience, expected annual losses from natural hazards, and risk from those hazards. The NRI has four ratings built into the dataset:

1. Risk Index (A composite of the following three variables)

2. Expected Annual Loss
3. Social Vulnerability
4. Community Resilience

The social vulnerability incorporated into the NRI uses data from the United States Census Bureau's Community Resilience Estimate (CRE) dataset. This ten variable dataset represents the socioeconomic factors that are expected to contribute most to a community's ability to prepare for, withstand, and recover from a natural hazard event (Figure 2-2). The data used in the CRE from the 1-year American Community Survey and Population Estimates Program.

The Town of Newtown has very low to relatively low social vulnerability (Figure 2-3).

Figure 2-2 Community Resilience Estimates Vulnerability Components (Source: US Census Bureau)

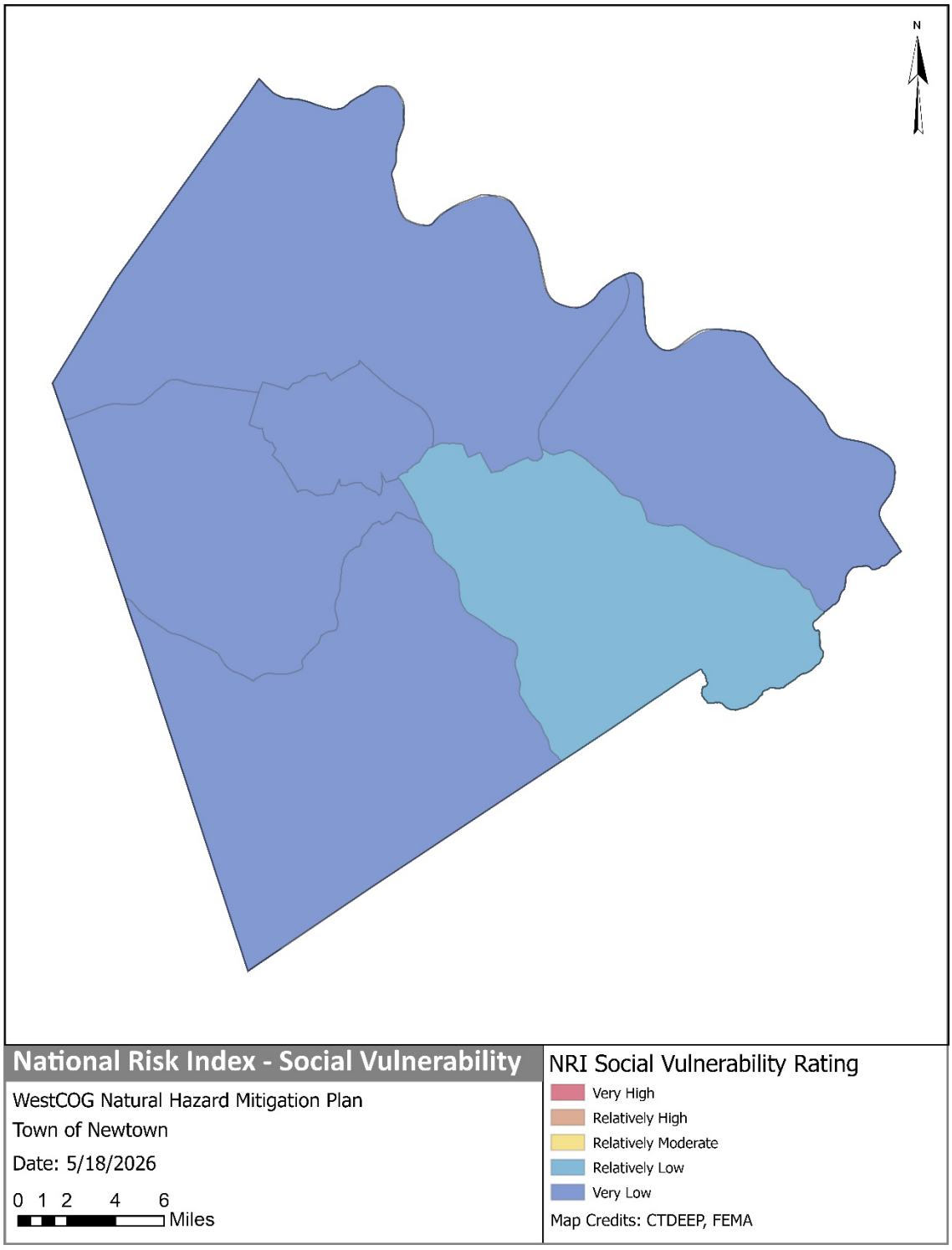

Figure 2-3 FEMA National Risk Index Social Vulnerability

2.2.2 Development Trends

The 2025 Newtown POCD notes that in recent years, several multi-family housing communities have been developed, with the adoption of special development districts to foster economic development in town. Residential development trends in town continue to be cyclical and are related to surrounding trends and economic fluctuations. Since 2007, the town has seen one of the busiest single-family construction years in 2019. In addition to this large rise of single-family homes, the town has also seen a rise in condominium/townhouse style housing with approximately 100 units constructed in 2019 and another estimated 400 to be developed within the next five to ten years.

Despite the uptick in multi-family residential development, sufficient space exists for most of this development to occur outside areas of risk to natural hazards. Coupled with the substantial freeboard requirements for flood zones (discussed in section 3.1.2) and other community capabilities, vulnerabilities are not increasing over time.

2.2.3 Governmental Structure

Newtown operates under a Charter adopted in 1961 and most recently revised in 2008. The Charter retains a limited Town Meeting form of government with an elected Board of Selectmen (three selectmen) supervising the administration of Town affairs. The First Selectman acts as the town's Chief Executive and Administrative Officer, and a twelve-member Legislative Council acts as the legislative body. Financial matters are supervised by a Board of Finance and an appointed Finance Director.

In addition to the Board of Selectmen and the Town Meeting, there are boards, commissions, and committees providing input and direction to Town administrators. Also, Town departments provide municipal services and day-to-day administration. Many of these commissions and departments play a role in hazard mitigation, including the Planning and Zoning Commission, Conservation Commission, Inland Wetlands Commission, Building Department, Land Use Office, Fire Department, Emergency Management Services, and Highway Department.

Drainage complaints are typically routed through the Land Use Department. These complaints are usually received via phone, fax, mail, or email and are recorded in a logbook. The complaints are investigated as necessary until remediation surrounding the individual complaint is concluded.

2.2.4 Historic and Cultural Resources

Historic and cultural resources include sites, structures, and objects that are significant in history, architecture, archaeology, engineering, and culture. Protection of these resources grows economies and enhances community character, and following a natural disaster, they can help to reinforce neighborhood connections and reestablish a sense of community and normalcy. Consideration of these resources in this HMP is critical.

Historic preservation planning helps protect historic properties and cultural resources from demolition or alteration. **Hazard mitigation planning** helps protect life and property from damage caused by natural and manmade hazards. **Integrating** these two planning processes helps create safe and sustainable historic communities.
- Paraphrased from FEMA Report 386-6

Historic resources in Newtown are primarily concentrated within the Borough of Newtown Historic District and the Hattertown Historic District. Resources also include sites associated with Rochambeau's Army encampments, the John Glover House, Fairfield Hills Hospital, and other sites around Town. See Figure 2-4 for a map of historic resources in the community.

Analysis of the State Historic Preservation Office (SHPO) database of historic resources shows that some of these resources are exposed to natural hazards, as shown in Table 2-3.

Table 2-3: Number of Historic Assets (by parcel) Exposed to Different Hazards in Newtown

Hazard	Count	Value
Dam Failure	40	$5,333,160
Earthquake	208	$173,995,854
Flooding	-	
1% Annual	29	$29,283,424
0.2% Annual	68	$91,963,555
Hurricane/Tropical Storm	325	
Sea Level Rise	0	
Thunderstorm	208	$173,995,854
Tornado	208	$173,995,854
Winter Storm	208	$173,995,854
Wildfire		
Intermix	72	$39,321,679
Interface	15	$19,629,110

Historic buildings and structures may be particularly susceptible to natural hazards because they were built prior to the establishment of more recent construction standards. Additionally, some of the structural integrity of these resources may have been degraded over the decades or centuries since their original construction. Structural retrofits and hazard mitigation methods may be challenging or restricted in cases where alteration of a resource will also diminish its cultural or historical aesthetic and value. Finally, miscommunications or lack of knowledge may lead to historic resources being damaged during the disaster recovery process.

Steps to incorporate historical and cultural preservation into hazard mitigation planning include:

- Inventory and survey historic and cultural resources
- Implement appropriate mitigation measures for those resources
- Take steps to move portable resources, such as artwork or documents, to safe locations prior to the occurrence of a hazard, if possible
- Consider these resources in emergency operations plans to prevent accidental damages during recovery efforts

Specific actions to mitigate natural hazard risks to historic resources were identified in the 2021 plan and are no longer current actions for the 2026-2031 update.

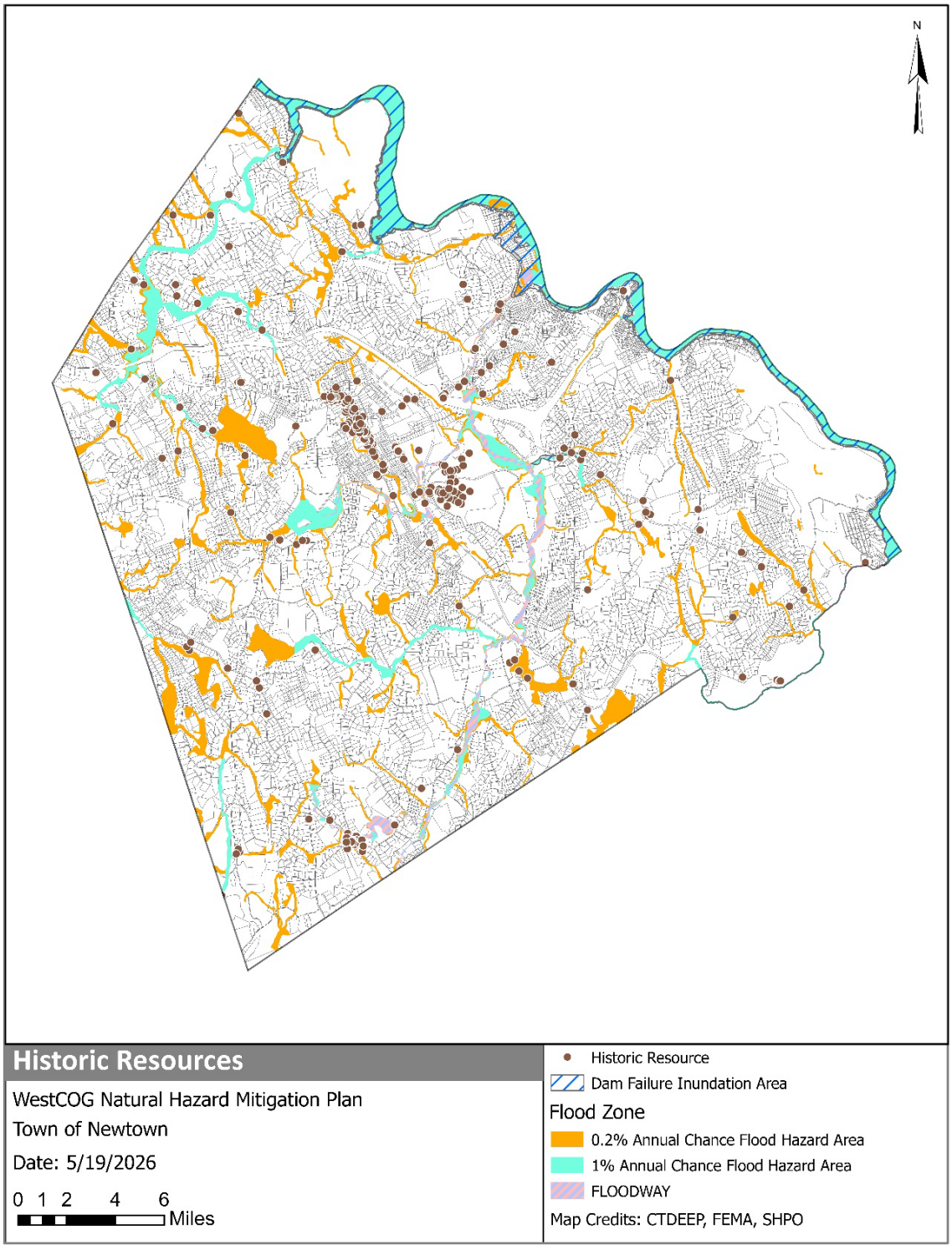

Figure 2-4: Historic Resources

2.3 Infrastructure

2.3.1 Transportation

Major transportation routes through Newtown are Interstate 84 and Route 6 running east-west, Route 302 running southwest to northeast, Route 25 running west to east, then turning south at Newtown center, and Route 34 running northwest to southeast.

There is no public transportation available in Newtown.

2.3.2 Utilities

Newtown is served by Aquarion Water Company, a number of other community water systems, and numerous non-community public water systems. Most residents and businesses outside of the Route 25 corridor and the town center rely on private wells.

Newtown sends its wastewater to the City of Danbury's Water Pollution Control Plant.

Eversource Energy is the primary electrical and natural gas utility in town.

2.4 Planning and Regulatory Capabilities

2.4.1 Review of Existing Local Plans

The Town of Newtown has a number of plans that are relevant to hazard mitigation. These are noted here:

- **Plan of Conservation and Development (POCD):** Newtown's most recent POCD was adopted in 2025. It addresses natural hazard concerns within the community and includes strategies that will mitigate risks from those hazards as the community continues to develop.
- **Stormwater Management:** Newtown maintains a Stormwater Management Plan. This document has been updated to comply with the requirements of the US EPA 2017 updated *General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems* (MS4 General Permit).
- **Capital Improvement Plan (CIP):** Newtown maintains a CIP that is updated annually and lays out capital investments for a five-year period. The CIP often includes road, drainage, and other infrastructure improvement projects relevant to hazard mitigation.
- **Economic Development Plan:** Newtown is included within the Western Connecticut Comprehensive Economic Development Strategy (CEDS) of 2023, developed by WestCOG. The plan aligns with the COG's other efforts to promote climate sustainability and resiliency in the region. The Town also developed the Newtown *Strategic Plan for Economic Development* in 2011, which was updated in 2023.
- **Emergency Operations Plan (EOP):** Newtown's EOP is reviewed annually and updated as needed. Dam failure Emergency Action Plans (EAPs) for dams with failure inundation zones that may impact Newtown, and for which EAPs are available, are on file locally.
- **Watershed Management Plan:** Watershed Management Plans have been developed for the Saugatuck-Aspetuck River Watershed and the Still River Watershed. The Saugatuck River Watershed Based Plan was developed by the former South Western Regional Planning Agency (SWRPA) in 2012, while the Still River Watershed Management Plan was developed by the Housatonic Valley Association with support from the Still River Partners in 2019. These plans are focused on water quality but can help the community

mitigate inland flood risks by incorporating watershed management best practices into its planning efforts.

- **Open Space:** Newtown does not maintain a stand-alone Open Space Plan; instead, open space planning is incorporated into the community's POCD.

2.4.1 Review of Regulatory Structures

Newtown regulates development through a number of regulations, codes, and ordinances. These are summarized below. More detailed information about how these regulations relate to specific natural hazards is described in Section 3.

- **Building Code:** Newtown enforces the Connecticut State Building Code locally.
- **Zoning Regulations:** Adopted in 2008, amended through February 2024.
- **Inland Wetlands and Watercourses Regulations:** Most recently updated in November 2012.
- **Subdivision Regulations:** Most recently updated in July 2013. Include provisions promoting control of stormwater runoff, installation of firefighting water sources, burial of utilities, and use of Low Impact Development techniques and Green Infrastructure.

2.5 Emergency Services, Critical Facilities, Sheltering, and Evacuation

The Town considers its police, fire, governmental, schools, and major transportation arteries to be its most important critical facilities since these are needed to ensure that emergencies are addressed while day-to-day management of Newtown continues. The Town also considers various infrastructure and facilities (such as water and sewer pump stations) to be critical facilities

Critical facilities are listed in Table 2-4 and are depicted on Figure 2-5.

Sheltering Capabilities

Emergency shelters are an important subset of critical facilities, as they are needed in many emergency situations. There are three designated shelters in the town that are also considered critical facilities: The Emergency Operations Center on Primrose Street, the Newtown Middle School on Queen Street, and the Newtown High School on Berkshire Road. The High School is the primary shelter for the town. Each of these facilities has back-up power. For warming and cooling centers, the Town mainly identifies already open and staffed municipal buildings, including the Municipal Center, Community Center, and the Library. If warming or cooling needs coincided with a major event, a shelter location would be used.

Table 2-4: Critical Facilities

Facility	Address or Location	Comment	Emergency Power	Shelter	In 1% Chance Floodplain
Newtown Municipal Center	3 Primrose St	Multiple Municipal Buildings Emergency Operations Center Shelter	✔	✔	No
Police Department	3 Main St	Emergency Response	✔	✔	No
Newtown Ambulance Facility	6 Washington Circle	Emergency Response	✔		No
Newtown Middle School	11 Queen St	School and Shelter	✔	✔	No
Reed Intermediate School	3 Trades Ln	School			No
Fraser Woods Montessori School	173 S Main St	School			No
St. Rose School	40 Church Hill Rd	School			No
Housatonic Valley Waldorf School	40 Dodgingtown Rd	School			No
Hawley School	29 Church Hill Rd	School			No
Head O'Meadow School	94 Boggs Hill Rd	School			No
Middle Gate School	7 Cold Spring Rd	School			No
Sandy Hook School	12 Dickinson Dr	School			No
Newtown High School	12 Berkshire Rd	School and Shelter	✔	✔	No
Wastewater Treatment Plant	Commerce Rd	Critical Infrastructure			-
Electrical substations	Various Locations	Critical Infrastructure			-
Sandy Hook Volunteer Fire and Rescue Company	18-20 Riverside Rd	Emergency Response Backup EOC			No
Hawleyville Fire Company	34 Hawleyville Rd	Emergency Response			No
Botsford Fire Rescue	315 South Main St	Emergency Response			
Newtown Hook and Ladder	45 Main St	Emergency Response			
Dodgingtown Fire Company	55 Dodgingtown Rd	Emergency Response			
All wellheads located in town	Various Locations	Critical Infrastructure			Yes
Aquarion Public Water System	Various Locations	Critical infrastructure			Partial
Community Center	8 Simpson St	Emergency Response			No

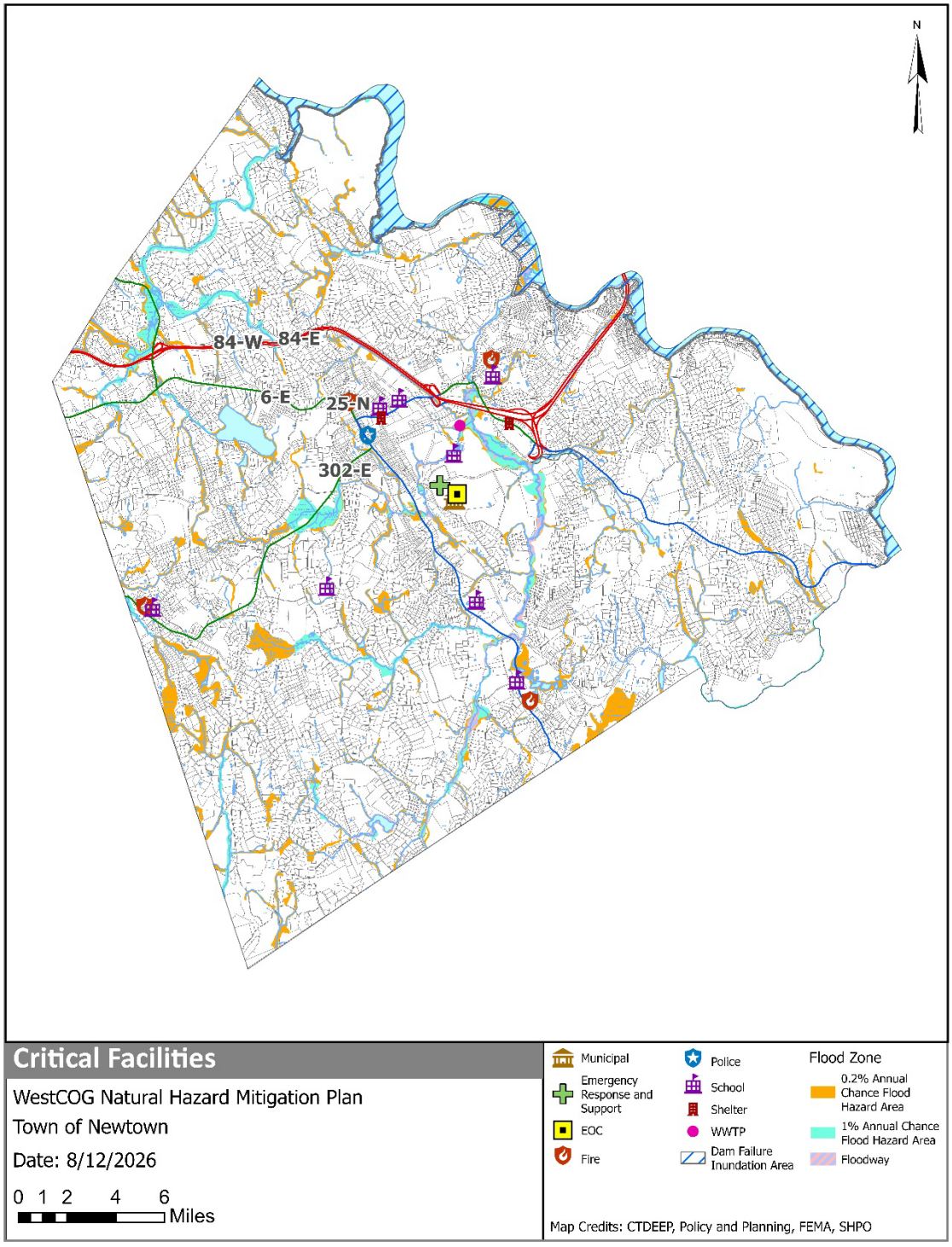

Figure 2-5: Critical Facilities & Flood Zones

Emergency Response Capabilities

The Police Department and Emergency Management Services coordinates emergency preparedness in the Town of Newtown. The Town's Emergency Operations Center (EOC) is a stand-alone facility. The EOC's goal is to provide citizens with the highest level of emergency preparedness before, during, and after disasters or emergencies. Emergency management coordinates with all departments internally to develop plans, protocols, and procedures that assure the safety of Newtown's citizens. It also provides technical assistance to state and local emergency response agencies and public officials. A backup EOC is located at the Sandy Hook Firehouse.

In Connecticut, the Department of Emergency Services and Public Protection (DESPP) added a regional focus. DESPP has divided Connecticut into five emergency planning regions and as part of this new view, the DEMHS subsection (Division of Emergency Management and Homeland Security) of DESPP has been partnering with HVCEO and other regional planning organizations to strengthen emergency response. Newtown is located in Region 5, consisting of forty-three towns in western Connecticut.

The Town's EOP guides its response to emergencies arising from both natural and anthropogenic hazards. The Town utilizes a program known as "CodeRED" to direct geographically specific emergency notification telephone calls into affected areas. The local radio station is also utilized for notification purposes.

The Town's Highway Department performs tree and shrub removal and trimming on Town-owned lands and rights-of-way. During emergencies and following storms, the Public Works Department, in conjunction with the Parks Department, responds to calls related to downed trees.

Public transportation is also available to move residents into and out of the town. HARTransit operates regular bus service in the town that may be available for use to move people and supplies. In addition, Town school buses and vans may be available for transportation during emergency situations.

Communications

In Connecticut, the Department of Emergency Services and Public Protection (DESPP) has a regional focus. DESPP has divided Connecticut into five emergency planning regions, and as part of this new view, the DEMHS subsection of DESPP has been partnering with HVCEO and other regional planning organizations to strengthen emergency response. Newtown is located in Region 5, consisting of 43 towns in western Connecticut.

The Town utilizes a CodeRED and Smart911 to direct geographically specific emergency notification telephone calls into affected areas.

3.0 HAZARD ASSESSMENT

3.1 FLOODING (COASTAL, INLAND, AND ICE JAMS)

3.1.1 Setting

According to FEMA, most municipalities in the United States have at least one clearly recognizable floodprone area around a river, stream, or large body of water. These areas are outlined as SFHAs and delineated as part of the NFIP. Floodprone areas are addressed through a combination of floodplain management criteria, ordinances, and community assistance programs sponsored by the NFIP and individual municipalities.

Many communities also have localized flooding areas outside the SFHA. These floods tend to be shallow and recur chronically in the same area due to a combination of factors. Such factors can include ponding, poor drainage, inadequate storm sewers, clogged culverts or catch basins, sheet flow, obstructed drainageways, sewer backup, or overbank flooding from minor streams.

In general, the potential for flooding is widespread across Newtown, with the majority of major flooding occurring along established SFHAs. The areas impacted by overflow of river systems are generally limited to river corridors and floodplains. Indirect flooding that occurs outside floodplains and localized nuisance flooding along tributaries are also common problems in the town. This type of flooding occurs particularly along roadways as a result of inadequate drainage and other factors. The frequency of flooding in Newtown is considered likely for any given year, with flood damage potentially having significant effects during extreme events.

3.1.2 Capabilities

Floodplain Management, NFIP, and CRS

The Town has participated in the NFIP since October 18, 1974, and intends to continue participation in the NFIP. SFHAs in Newtown are delineated on a Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS). The FIRM delineates areas within Newtown that are vulnerable to flooding. The original FIS and FIRMs for flooding sources in the town were published in June 1979; the current FIRMs are effective as of June 18, 2010. Newtown, in addition to several other communities in the region, are anticipating updated FIRMs for the Housatonic River Watershed to become effective in 2028.

The NFIP administrator for the Town oversees the enforcement of NFIP regulations. The degree of flood protection established by the variety of regulations in the Town exceeds the minimum reasonable for regulatory purposes under the NFIP, with four feet of freeboard for residential properties and ten feet for non-residential properties.

The Town is currently enrolled in the Community Rating System (CRS) program and has been since October 1, 1991. The CRS program is a voluntary program for National Flood Insurance Program (NFIP) participating communities. The goals of the CRS are to reduce flood damages to insurable property, strengthen and support the insurance aspects of the NFIP, and encourage a comprehensive approach to floodplain management. The CRS has been developed to provide incentives in the form of premium discounts for communities to go beyond the minimum floodplain management requirements to develop extra measures to provide protection from flooding.

Ordinances, Regulations, and Plans

Regulations, codes, and ordinances that apply to flood hazard mitigation in conjunction with and in addition to NFIP regulations include:

- ***Zoning Regulations*:** The Town of Newtown Zoning Regulations were most recently updated in 2024 and have been enacted to accomplish the following purposes: "to lessen congestion in the streets; to secure safety from fire, panic, flood and other dangers; to promote health and the general welfare; to provide adequate light and air; to prevent the overcrowding of land; to avoid undue concentration of population; to facilitate adequate provision for transportation, water, sewage, schools, parks and other public requirements; to conserve the value of the buildings and land; to encourage the most appropriate use of land throughout the Town of Newtown consistent with soil types, terrain and infrastructure capacity and to further such other purposes as may be authorized by statutes."

- ***Chapter 136 of the Town Code – Flood Damage Ordinance*:** Amended in 2010, the Town's Flood Damage Prevention Ordinance is essentially the local articulation of the NFIP requirements. The purpose of this Ordinance is to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to; a) restrict or prohibit uses which are dangerous to health safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities; b) require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; c) Control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of floodwaters; d) Control filling, grading, dredging and other development which may increase erosion or flood damage; and e) Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands.
  - Section 136.8 states that a flood hazard development permit shall be required in conformance with the provisions of this chapter prior to the commencement of any development activities.
  - Section 136-14 outlines permit requirements.
  - Section 136-18 outlines specific standards and requires the following in SFHA's A and AE: 1) residential construction, new construction or substantial improvement of any residential structure shall have the lowest floor, including basement, elevated at least to four feet above the base flood elevation; 2) New construction or substantial improvement of any commercial, industrial, or nonresidential structure located in Zone A or AE shall have the lowest floor, including basement, elevated at least to 10 feet above the level of the base flood elevation.
  - Section 136-18 also discusses floodways and states that Since the floodway is an extremely hazardous area due to the velocity of floodwaters which carry debris, potential projectiles and has erosion potential, the following provisions shall

apply: prohibit encroachments, including fill, new construction, substantial improvements and other developments, unless certification (with supporting technical data) by a registered professional engineer is provided demonstrating, through hydrologic and hydraulic analyses performed in accordance with standard engineering practice, that encroachments shall not result in any increase in flood levels during occurrence of the base flood discharge.

- ***Inland Wetlands and Watercourse Regulations:*** The purpose of the 2012 inland wetlands and watercourses regulations is to protect the quality of the inland wetlands and watercourses within the Town of Newtown by making provisions for the protection, preservation, maintenance, and use of inland wetlands and watercourses, including deterring and inhibiting the danger of flood and pollution.

    - Section 2.1 defines "Regulated Activity" as any operation within or use of a wetland or watercourse involving removal or deposition of material, or any obstruction, construction, alteration or pollution, of said wetland or watercourses, but shall not include the specified activities in Section 22a-40 of the Connecticut General Statutes. Furthermore, any clearing, grubbing, filling, grading, paving, excavating, construction, depositing or removal of material and discharging of stormwater in the following areas is a regulated activity:
        - Within two hundred feet measured horizontally from the ordinary high-water mark of Taunton Pond, Lake Zoar, or Lake Lillinonah.
        - On the land within one hundred feet measured horizontally from the boundary of any wetland or watercourse.
    - 4.4 states that no person may conduct or maintain a regulated activity without Section 4.1 states that no residential homes will be permitted "as of right" in wetlands and watercourses after July 1, 1987.
    - Section obtaining a permit. Section 7 outlines the permit application requirements.
- ***Plan of Conservation and Development:*** Updated in 2024, this document is the Town vision statement for future development.
    - Chapter 6 reviews the natural resources in Newtown, including the rivers and floodplains.
    - Objectives identified in this chapter include:
        - Regulating stormwater management activities within flood hazard areas.
        - Coordinate with DEEP to provide training and resources regarding chemical management for hazard resilience.
        - Create and adopt riparian buffer standards.
    - Several open space initiatives.

- ***Subdivision Regulations:*** Amended in 2013, the Town's Subdivision Regulations establish minimum acceptable standards of street construction; regulate the layout and development of lots and streets; and outline measures to prevent degradation of potable water sources, control erosion and siltation, preserve adequate and convenient open spaces, and retain the natural features of the land.
    - Section 20.3 states: The land to be subdivided shall be of such character that it can be used for building purposes without danger to public health, safety, or welfare. The land shall not be subdivided if the subdivision will endanger historical, archeological, natural, or scenic resources. Land subject to periodic flooding, poor drainage, steep slopes or other hazardous conditions shall not be subdivided.
    - Section 3.01.113 states that Any subdivision of land five acres or more in area which has areas of special flood hazard shall provide the base flood elevation data and engineering analysis necessary for compliance with the Flood Damage Prevention Ordinance of the Town of Newtown. Any such application shall include the opinion of the designated Town staff and/or agency responsible for administration of the Flood Damage Prevention Ordinance that the proposal is in compliance with the ordinance.
    - Section 3.09.110 indicates that No subdivision plan shall be approved unless each lot, and roadway shown thereon complies with the Newtown Subdivision Regulations, the Zoning Regulations of the Town or Borough as applicable, the Newtown Road Ordinance and the Newtown Flood Damage Ordinance.

Overall, the intent of these plans and regulations is to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas of the Town of Newtown by the establishment of standards designed to:

- Protect human life and public health
- Minimize expenditure of money for costly flood control projects
- Minimize the need for rescue and relief efforts associated with flooding
- Minimize prolonged business interruptions
- Minimize damage to public facilities and utilities such as water and gas mains; electric, telephone, and sewer lines; and streets and bridges located in floodplains
- Maintain a stable tax base by providing for the sound use and development of floodprone areas in such a manner as to minimize flood blight areas
- Ensure that purchasers of property are notified of special flood hazards
- Ensure the continued eligibility of owners of property in Newtown for participation in the NFIP

Drainage and Street Flooding

There are areas of street flooding throughout the town, and these are addressed by the Highway Department as necessary. The Town Highway Department oversees the maintenance of the town's drainage systems and performs clearing of bridges and culverts, and other maintenance as needed. Drainage complaints are routed to the Town Highway Department.

The Town uses these reports to identify potential problems and plan for maintenance and upgrades. The town is currently developing a system to monitor the capacity and capability of the present drainage system.

Communications

The National Weather Service issues a flood watch or a flash flood watch for an area when conditions in or near the area are favorable for a flood or flash flood, respectively. A flash flood watch or flood watch does not necessarily mean that flooding will occur. The National Weather Service issues a flood warning or a flash flood warning for an area when parts of the area are either currently flooding, highly likely to flood, or when flooding is imminent.

The Departments of Fire and Emergency Services are responsible for monitoring local flood warnings. The Town can access the National Weather Service website at http://www.weather.gov/ to obtain the latest flood watches and warnings before and during precipitation events.

The Town receives regular weather updates through the Division of Emergency Management and Homeland Security (DEMHS) Region 5 email alerts, as well as watches and warnings through the National Weather Service.

Actions Completed and New Capabilities

In summary, the Town primarily attempts to mitigate future flood damage and flood hazards by restricting building activities in floodprone areas. This process is carried out through both the Planning and Zoning and the Conservation Commission. All watercourses are to be encroached

The town is actively working to acquire multiple properties on Berkshire Road. The town has also completed some drainage work on Alpine Drive and Nearbrook Drive.

After heavy precipitation events in 2024, the Town partnered with York Labs to distribute information and provide discounts to residents to test private wells after the floods.

3.1.3 Vulnerabilities and Risk Assessment

Flooding can impact a variety of river corridors and cause severe damages in the Town of Newtown. There are several river corridors in town that may flood and cause severe damages in town. In addition, flooding due to poor drainage and streambank erosion are other hazards in the town and can cause minor infrastructure damage and create nuisance flooding of yards and basements.

Flood zones are depicted on Figure 2-5.

Vulnerability Analysis of Repetitive Loss Properties

Based on correspondence with the State of Connecticut NFIP Coordinator at the Connecticut DEEP, there are three Repetitive Loss Properties (RLPs) in Newtown. All of these properties are residential, and it is thought that none are currently mitigated. It should be noted that two of these properties are located adjacent to the Housatonic River so riverine flooding could be a concern, as well as drainage related flooding.

Vulnerability Analysis of Critical Facilities

The list of critical facilities provided by the Town (Section 2.5) was used with the parcel data to accurately locate each critical facility throughout the town. None of the critical facilities were found to lie within the 1% annual chance floodplains, with the exception of water-related facilities such as the wastewater treatment plant and wellheads.

Vulnerability Analysis of Areas Along Watercourses

The primary waterways in the town are the Pootatuck River and the Housatonic River. The remaining waterways in Newtown are mostly smaller streams and brooks. Lake Lillinonah and a variety of smaller lakes and ponds are significant recreational resources. As discussed in Section 2.5, floodplains with and without elevations are delineated for the majority of the floodprone brooks in the town. The majority of the brooks in the town are prone to flooding. Specific areas susceptible to flooding are identifiable by the FEMA defined special flood hazard areas.

The most frequently flooded areas in town are adjacent to the Pootatuck River. Town officials indicated that flooding occasionally requires the town to close portions of Turkey Hill Road and Nearbrook Drive, as both roads become impassable during flood events. Flooding also occurs along Meadow Brook Road.

Flooding also occurs along the Housatonic River and Cutis Pond Brook. Halfway River experiences flooding but it does not affect any development. Pond Brook experiences scour damage and the bank is failing. Pond Brook Road and Edge Lake Road are at risk due to the failing banks.

As of 2025, the Stony Brook Bridge, which was impacted by the August 2024 event, is out of service because of a washout. Given the remote location of the bridge, and alternative routes, it has not been repaired. However, the town will need to explore a long term replacement. Other bridges and culverts that were impacted by the 2024 event have been repaired, including the Pond Brook culvert which has a temporary replacement but will require a concrete replacement to withstand larger events. The august 2024 event also caused damage in the Eichlers Cove area. The town has been proactively working with FEMA to improve drainage and address the damage.

During more recent high intensity events since the 2021 update, the town has reported shifts and changes in streams and channels in the wake of heavy precipitation events. Locations that have not presented issues in the past have now signs of post-flood debris and new flow patterns. Some areas in town have also experienced heavy sediment deposition which has further altered the flow and drainage patterns, ultimately impacting homes that have never flooded before. This has presented new challenges as these are drainage changes on private property. Additionally, the town reports that some embankments have eroded or lost vegetation in the wake of events, and do not have sufficient to regrow and reestablish, further exacerbating runoff.

Town officials indicated that development is highly restricted in SFHAs. The town requires four feet of freeboard for single-family residential and ten feet for commercial uses.

Vulnerability of Other Areas

There are other areas around the town that suffer from street flooding due to undersized culverts. These are addressed on a case-by-case basis through system maintenance and/or

upgrades as necessary. Scouring and washouts around undersized culverts have occasionally occurred. Minor repairs and replacements with larger pipe diameters have been completed; however, Newtown could encourage the CT DOT to apply for funding to remediate these areas, since State agencies may apply for grants.

3.2 DAM FAILURE

3.2.1 Setting

Dam failures can be triggered suddenly, with little or no warning, and often from other natural disasters such as floods and earthquakes. Dam failures often occur during flooding when the dam breaks under the additional force of floodwaters. In addition, a dam failure can cause a chain reaction where the sudden release of floodwaters causes the next dam downstream to fail. While flooding from a dam failure generally has a moderate geographic extent, the effects are potentially catastrophic. Fortunately, a major dam failure is considered only a possible hazard event in any given year.

The Connecticut DEEP administers the statewide Dam Safety Program and designates a classification to each state-inventoried dam based on its potential hazard.

- Class AA: negligible hazard potential
- Class A: low hazard potential
- Class BB: moderate hazard potential
- Class B: significant hazard potential
- Class C: high potential hazard

DEEP inventory (March 2026) documents 70 dams within Town limits. Additionally, high hazard dams located in surrounding municipalities have the potential to affect the Town of Newtown in a failure event. Table 3-1 shows the high hazard dams that can potentially impact the town during an event.

Table 3-1: High Hazard Dams with Potential to Affect the Town of Newtown

Dam Number	Name	Location	Class	Owner
9701	Rocky Glen Dam	Pootatuck River, Newtown	C	Sandy Hook Hydro, LLC
9703	Curtis Pond Dam	Curtis Pond Brook, Newtown	B	Town of Newtown
9715	Carp Road Dam	Unnamed Watercourse, Newtown	B	Cullens Youth Association
13001	Shepaug Dam	Housatonic River, Southbury	C	First Light Power Resources

3.2.2 Capabilities

The Dam Safety Section of the Connecticut DEEP Inland Water Resources Division is charged with the responsibility for administration and enforcement of Connecticut's dam safety laws. The existing statutes require that permits be obtained to construct, repair, or alter dams, and that existing dams be inventoried and periodically inspected to ensure that their continued operation does not pose a hazard to life, health, or property.

The dam safety requirements are codified in Sections 22a-401 through 22a-411 inclusive of the Connecticut General Statutes. Sections 22a-409-1 and 22a-409-2 of the Regulations of Connecticut State Agencies have been enacted and set requirements for the registration, classification, and inspection of dams. Dams must be inventoried by the owner with the Connecticut DEEP according to Connecticut Public Act 83-38.

Effective October 1, 2013, the owner of any high or significant hazard dam (Class B and C) must develop and implement an EAP after the Commissioner of DEEP adopts regulations. The EAP shall be updated every two years, and copies shall be filed with DEEP and the chief executive officer of any municipality that would potentially be affected in the event of an emergency. New regulations shall establish the requirements for such EAPs, including but not limited to (1) criteria and standards for inundation studies and inundation zone mapping; (2) procedures for monitoring the dam or structure during periods of heavy rainfall and runoff, including personnel assignments and features of the dam to be inspected at given intervals during such periods; and (3) a formal notification system to alert appropriate local officials who are responsible for the warning and evacuation of residents in the inundation zone in the event of an emergency.

Dams regulated by the Connecticut DEEP must be designed to pass the 1% annual chance rainfall event with one foot of freeboard, a factor of safety against overtopping.

Significant and high hazard dams are required to meet a design standard greater than the 1% annual chance rainfall event.

The CT DEEP also administers the Flood and Erosion Control Board program, which can provide non-competitive state funding for the repair of municipality-owned dams. Funding is limited by the State Bond Commission. State statute Section 25-84 allows municipalities to form Flood and Erosion Control Boards, but municipalities must take action to create the board within the context of the local government, such as by revising the municipal charter. The Town's Planning and Zoning Commission is responsible for reviewing all development activities that occur within flood hazard or flood-prone areas.

The Town uses the CT Alert system for emergency notification. The dam failure inundation mapping discussed in the next section can be used to help streamline the geographic contact areas if the failure of a major dam is imminent.

Actions Completed and New Capabilities

Newtown continues to maintain and improve its dam failure mitigation capabilities.

3.2.3 Vulnerabilities and Risk Assessment

As of 2026, there were 70 DEEP-inventoried dams within the Town of Newtown. The primary dam failure concern relates to upstream dams located in adjacent municipalities. Failure of these structures would have an impact on Newtown. Dams and dam failure zones, where available, are depicted on Figure 2-5.

This section primarily discusses the possible effects of failure of high hazard (Class B and C) dams. Failure of a Class C dam has a high potential for loss of life and extensive property and infrastructure damage.

Class B and C Dams

Dam failure analyses have been prepared for many of the high hazard dams, and these are included in the EAPs. The inundation limits portrayed in the dam failure analysis maps represent a highly unlikely, worst-case scenario (1,000-year) flood event and should be used for emergency action planning only. As such, they are appropriate for use in the CodeRED emergency notification database. These analyses should not be interpreted to imply that the dams evaluated are not stable, that the routine operation of the dams presents a safety concern to the public, or that any particular structure downstream of the dam is at imminent risk of being affected by a dam failure.

Rocky Glen Dam (Dam No. 9701) - Pootatuck River, Newtown

The Rocky Glen Dam is a run-of-the-river dam on the Pootatuck River and impounds a storage volume of 70 acre-feet from a contributing watershed of 25.5 square miles. The concrete dam was constructed in 1870 and is 38 feet high and 130 feet long. It is owned by Sandy Hook Hydro, LLC, and used to impound a reservoir for hydropower. Flow is monitored with a transducer sensor in the canal tied to the computer that controls flow control.

The 1980 USACE Phase I inspection report noted that the dam was unsafe; it was reconstructed in 1989. An EAP for the Rocky Glen Dam was prepared by Milone & MacBroom, Inc. in June 1987, addressing actions to be taken during an emergency. In 1993, a CT DEEP inspection requested that the owner remove trees, fix deteriorated concrete at the right spillway training wall,/low level outlet pipe/downstream spillway face.

Failure of the structure and impacts from floodwaters are discussed in the 1987 EAP. The report notes that six houses are in the possible downstream impact area. Early warning procedures include contacting the Police and Fire Departments to alert residents in designated areas of the need for evacuation.

Curtis Pond Dam (Dam No. 9703) - Curtis Pond Brook, Newtown

The Curtis Pond Dam is located at the northern end of Curtis Pond and impounds a storage volume of 80 acre-feet from a contributing watershed of 1.73 square miles. It is owned by the Town of Newtown and used to impound a reservoir for recreation. The structure is an earthen dam with a concrete weir spillway and was constructed in 1856. It is 15 feet high and 240 feet long.

The Town received an order from the CT DEEP in 1998 to repair the structure. It was renovated in 2004, and included raising the embankment by two feet (total height of 15'), rebuilt low level outlet and control, install toe drains, drained/backfilled raceway and replaced with 18" RCP with concrete headwall and sluice gate.

The dam was inspected by the CT DEEP on April 11, 2013, and the inspection report noted that the structure was in need of maintenance including: reseeding the crest and mowing, addressing erosion gulleys on the left downstream embankment, reconstituting the left upstream embankment at the training wall, filling in eroded areas behind the right upstream

wall, monitoring horizontal cracks on training walls, clearing woody debris, and submitting the required EAP.

An EAP is currently on file at the DEEP for the Curtis Pond Dam, and it addresses actions to be taken during an emergency. The dam discharges to Curtis Pond Brook, which is impounded again by the Curtis Pond Brook Dam located approximately 800 feet downstream. The brook flows alongside Route 34 and under Toddy Hill Road before joining the Pootatuck River. Floodwaters from a dam failure have the potential to affect five houses and a large commercial building. Town officials noted that this dam was recently replaced.

Carp Road Dam (Dam No. 9715) - Newtown (unnamed watercourse)

The Carp Road Dam is located at the northern end of Carp Pond. The earthen dam is 3 feet high and 175 feet long. It is owned by Cullens Youth and used to impound a reservoir for recreation. The dam discharges through an unnamed watercourse that flows northward under Taunton Lake Road and into Taunton Pond located approximately 960 feet downstream. A number of residences located along the edge of Taunton Pond, and one house located directly downstream of the dam could potentially be affected by failure floodwaters.

Shepaug Dam (Dam No. 13001) - Housatonic River, Southbury

The Shepaug Dam is located at the southern end of Lake Lillinonah and impounds a storage volume of 156,145 acre-feet from a contributing watershed of 1,392 square miles. The dam is a concrete gravity structure anchored into bedrock, with a length of 1,412 feet. It is owned by First Light Power Resources and used to impound a reservoir for hydropower. The Shepaug Hydroelectric Station has a hydraulic capacity of 6,200 cfs.

The inundation area for the failure of the Shepaug Dam extends into Newtown. An EAP for the Shepaug Dam was prepared in 2012, addressing actions to be taken during an emergency. Notifications include the Newtown local police and the First Selectman.

Overall, the Rocky Glen Dam and the Lower Rocky Glen Dam, along the Pootatuck, are the two dams that the town has the most concern with respect to maintenance. Town officials have also indicated that they would like to remove the 27 Glen Road dam in order to reduce the amount of water and material behind it.

In addition, as noted in Section 1.7, the Stevenson Dam is also of concern for the Town of Newtown. Newtown should pursue improved communications with the Town of Oxford and First Light regarding emergency response along Lake Zoar.

Other Dams

- The Paparazzo dam, a low hazard dam located on Clapboard Oak Brook, had repairs reportedly accomplished in 2017, yet is still considered a concern of maintenance and observation because any failure could have significant results.
- The Johnsons Pond Dam, located on a northern branch of the Clapboard Oak Brook, is one of only two dams considered to have moderate hazard.

Changes and Improvements

Newtown continues to be at low risk of dam failure.

3.3 HURRICANES AND TROPICAL STORMS

3.3.1 Setting

Several types of hazards may be associated with tropical storms and hurricanes, including heavy or tornado winds, heavy rains, and flooding. While only some of the areas of Newtown are susceptible to flooding damage caused by hurricanes, wind damage can occur anywhere in the town. Hurricanes, therefore, have the potential to affect any area within the Town of Newtown. A hurricane striking Newtown is considered a possible event each year and could cause critical damage to the town and its infrastructure.

3.3.2 Capabilities

Wind loading requirements are addressed through the state building code. The 2005 Connecticut State Building Code was amended in 2011 and 2018, and again in 2022, with an effective date of October 1, 2022. The code specifies the design wind speed for construction in all Connecticut municipalities. The design wind speed for Newtown has been identified in the State code as 110 mph for a Category 1 event, 120 mph for a Category 2 event, and 130 mph for Categories 3 to 5.

Connecticut is located in FEMA Zone II regarding maximum expected wind speed. The maximum expected wind speed for a three-second gust is 160 mph. This wind speed could occur as a result of either a hurricane or a tornado in western Connecticut and southeastern New York. The American Society of Civil Engineers recommends that new buildings be designed to withstand this peak three-second gust.

The town has a proactive approach to tree trimming and has two tree wardens – one for the borough and one for the town. Over the years, the town has increased its trimming efforts. The tree trimming budget is estimated at around $200,000, with an emergency budget of $75,000. The town plans around Eversource's trimming, but the town desires better communication with Eversource about when and where they are planning to trim.

During emergencies, the Town currently has three designated emergency shelters available for residents as discussed in Section 2.5. During past events, the Town used the emergency notification system CodeRED to notify all residents in the SFHA that they may evacuate and use one of the shelters. The Board of Education also used its notification system to notify people on its list of emergency procedures. Since 2010, there have been several emergency declarations covering the town, with the most challenging aspect of those events having been downed trees and associated power loss.

Prior to severe storm events, the Town ensures that warning/notification systems and communication equipment are working properly and prepares for the possible evacuation of impacted areas.

Actions Completed and New Capabilities

The town regularly tracks events and information on Crisis Track, the damage assessment software. Also, the town continues to maintain a good relationship with Eversource, which plays an important role in tree trimming activities.

3.3.3 Vulnerabilities and Risk Assessment

The Town of Newtown is vulnerable to hurricane damage from wind and flooding, and from any tornadoes accompanying the storm. In fact, most of the damage to the town from historical tropical cyclones has been due to the effects of flooding.

The Town of Newtown is vulnerable to hurricane damage from wind and flooding, and from any tornadoes accompanying the storm. In fact, most of the damage to the town from historical tropical cyclones has been due to the effects of flooding. Fortunately, Newtown is less vulnerable to hurricane damage than coastal towns in Connecticut because it does not need to deal with the effects of storm surge. Factors that influence vulnerability to tropical cyclones in the town include building codes currently in place, local zoning and development patterns, and the age and number of structures located in highly vulnerable areas of the community.

Newtown's housing stock consists of historic buildings more than 50 years old, and sometimes 100 years old; relatively younger buildings built before 1990, when the building code changed to address wind damage; and relatively recent buildings that utilize the new code changes. Since most of the existing housing stock in the town predates the recent code changes, many structures are highly susceptible to roof and window damage from high winds. Homes located within SFHAs are also at risk from flooding as a result of the heavy rainfall that typically occurs during tropical storms and hurricanes.

Changes and Improvements

The Town of Newtown continues to mitigate hurricane and tropical storm damage via flood mitigation strategies and tree maintenance efforts.

3.4 SUMMER STORMS AND TORNADOES

3.4.1 Setting

Heavy wind (including tornadoes and downbursts), lightning, heavy rain, hail, and flash floods are the primary hazards associated with summer storms. Like hurricanes and winter storms, summer storms and tornadoes have the potential to affect any area within the Town of Newtown. Furthermore, because these types of storms and the hazards that result (flash flooding, wind, hail, and lightning) might have a limited geographic extent, it is possible for a summer storm to harm one area within the town without harming another. The entire Town of Newtown is therefore susceptible to summer storms (including heavy rain, flash flooding, wind, hail, and lightning) and tornadoes.

Based on the historic record, it is considered highly likely that a summer storm that includes lightning will impact the Town of Newtown each year, although lightning strikes have a limited effect. Strong winds and hail are considered likely to occur during such storms, but also generally have limited effects. A tornado is considered a possible event in Litchfield County each year, capable of causing significant damage to a small area.

3.4.2 Capabilities

Warning is the primary method of existing mitigation for tornadoes and thunderstorm-related hazards. The NOAA National Weather Service (NWS) issues watches and warnings when severe weather is likely to develop or has developed, respectively. Emergency management personnel

take specific actions under different NWS watches and warnings to prepare for summer storms and tornado impacts.

Aside from warnings, several other methods of mitigation for wind damage are employed in Newtown, as explained in Section 3.3. In addition, the Connecticut State Building Code includes guidelines for the proper grounding of buildings and electrical boxes.

Eversource trims trees along power lines. The town tree warden can remove dead and diseased trees in rights-of-way or Town land, working through the Public Works Department. Town-owned equipment is used except for complex situations, which would call for the use of a contractor.

Municipal responsibilities relative to summer storm and tornado mitigation and preparedness include:

- Developing and disseminating emergency public information and instructions concerning tornado, thunderstorm wind, lightning, and hail safety, especially guidance regarding in-home protection and evacuation procedures and locations of public shelters;
- Designating appropriate shelter space in the community that could potentially withstand lightning and tornado impact;
- Periodically testing and exercising tornado response plans; and
- Putting emergency personnel on standby at the tornado "watch" stage.

For municipal property, the Town budget is generally adequate to handle summer storm damage.

Actions Completed and New Capabilities

Newtown's summer storm and tornado capabilities continue to be strong.

3.4.3 Vulnerabilities and Risk Assessment

The entire Town of Newtown is at relatively equal risk for experiencing damage from summer storms and tornadoes.

According to the 2023 State Natural Hazard Mitigation Plan Update, Fairfield County has a moderately high risk of tornado activity based on historical occurrences. Therefore, by virtue of its location in Fairfield County, the Town of Newtown has a moderately high potential to experience tornado damage. In general, thunderstorms and hailstorms in Connecticut are more frequent in the western and northern parts of the state and less frequent in the southern and eastern parts. The majority of these events do not cause any measurable damage. Although lightning is usually associated with thunderstorms, it can occur on almost any day. The likelihood of lightning strikes in the Newtown area is very high during any given thunderstorm, although no one area of the town is at higher risk of lightning strikes. The risk of at least one hailstorm occurring in Newtown is considered moderate in any given year.

Most thunderstorm damage is caused by straight-line winds exceeding 100 mph. Straight-line winds occur as the first gust of a thunderstorm or from a downburst from a thunderstorm and have no associated rotation. The risk of downbursts occurring during such storms and damaging the Town of Newtown is believed to be low for any given year. All areas of the town are

susceptible to damage from high winds, although more building damage is expected in the town center, while more tree damage is expected in the less densely populated areas.

Secondary damage from falling branches and trees is more common than direct wind damage to structures. Heavy winds can take down trees near power lines, leading to the start and spread of fires.

NOAA states that climate change could increase the frequency and intensity of tornadoes, so the pattern of occurrence in Connecticut may change in the future.

Town officials indicate that while all areas of town are at risk of power outages, some areas seem to experience outages more often and for longer periods of time due to a lack of redundancy in the system.

Changes and Improvements

Newtown continues to maintain its capabilities to mitigate and respond to summer storms and tornadoes, including tree limb inspection and maintenance.

3.5 WINTER STORMS AND NOR'EASTERS

3.5.1 Setting

Winter events and the hazards that result (wind, snow, and ice) have widespread geographic extents and have the potential to affect any area of the Town of Newtown. Due to its variable elevation, the Town can have higher amounts of snow in the outskirts of the town than in the town center. In general, winter storms are considered highly likely to occur each year (although major storms are less frequent), and the hazards that result (nor'easter winds, snow, and blizzard conditions) can potentially have a significant effect over a large area of the town.

Most winter weather events occur between December and March. Winter weather may include snow, sleet, freezing rain, and cold temperatures. Most deaths from winter storms are indirectly related to the storm, such as from traffic accidents on icy roads and hypothermia from prolonged exposure to cold. Damage to trees and tree limbs and the resultant downing of utility cables are a common effect of these types of events. Secondary effects include loss of power and heat, and flooding as a result of snowmelt.

3.5.2 Capabilities

Programs that are specific to winter storms are generally those related to preparing plows and sand and salt trucks, tree trimming to protect power lines, and other associated snow removal and response preparations. The Town budget is generally adequate to handle winter storm damage, although the plowing budget is often depleted. The heavy snowfalls associated with the winter of 2010-2011 drained the Town's plowing budget and raised a high level of awareness of the danger that heavy snow poses to roofs.

The amended Connecticut Building Code specifies that a pressure of 30 pounds per square foot (psf) be used as the base "ground snow load" for computing snow loading for different types of roofs. The International Building code specifies the same pressure for habitable attics and sleeping areas, and specifies a minimum pressure of 35 psf for all other areas.

The town owns eleven trucks for plowing which cover four plowing districts and six routes per district. Newtown has over 260 miles of local roads that are plowed and many private roads that are plowed as well due to Town Ordinance.

Prior to a winter weather event, the Town ensures that all warning/notification and communications systems are ready and ensures that appropriate equipment and supplies, especially snow removal equipment, are in place and in good working order. In some known problem areas, pre-storm treatment is applied to roadways to reduce the accumulation of snow. The Town also prepares for the possible evacuation and sheltering of populations that could be affected by the upcoming storm (especially the elderly and persons with special needs).

Actions Completed and New Capabilities

The town has posted snowplowing routes in municipal buildings to increase public awareness. In addition, town staff and emergency personnel have identified areas that may be difficult to access during a winter event and developed plans to access these areas during an emergency.

3.5.3 Vulnerabilities and Risk Assessment

The entire Town of Newtown is at relatively equal risk for experiencing damage from winter storms, although some areas (such as icing trouble spots and neighborhoods with a high concentration of flat roofs) are more susceptible. Many damages are relatively site specific and occur to private property, while repairs for power outages are often widespread.

Based on the historic record, Connecticut experiences at least one major nor'easter every four years, along with a variety of minor and moderate snow and ice storms that occur nearly every winter. According to the 2023 Connecticut Natural Hazard Mitigation Plan Update, recent climate change studies predict a shortened winter season with less frequent, but potentially more intense precipitation events. It is predicted that the number of precipitation events may shift toward more rainfall than snow, ultimately leading to a shift in precipitation type.

After a storm, snow piled along the sides of roadways can reduce sightlines and reflect blinding amounts of sunlight. When coupled with slippery road conditions, poor sightlines, and heavy glare, these conditions create dangerous driving conditions. Stranded motorists, especially senior and/or handicapped citizens, are at particularly high risk of injury or death from exposure during a blizzard. The elderly population in Newtown, in particular, is susceptible to the impacts created by winter storms due to resource needs (heat, electricity loss, safe access to food, etc.).

The structures and utilities in the Town of Newtown are vulnerable to a variety of winter storm damage. Tree limbs and some building structures may not be suited to withstand high wind and snow loads. Ice can damage or collapse power lines, render steep gradients impassable for motorists, undermine foundations, and cause "flood" damage from freezing water pipes in basements.

Icing causes difficult driving conditions along Route 53 in the western portion of town. The Town's standard of presalting has been helpful in controlling ice in these problem areas. The town engineer is currently developing a list of drainage projects to address this area and has made good progress to date. Drifting snow can occur after large storms, but the effects are generally mitigated through municipal plowing efforts.

Changes and Improvements

The town is confident municipal buildings are in adequate shape to withstand snow loads and have also worked to develop plans on reaching potentially hard to access areas in town during an event.

3.6 WILDFIRES AND DROUGHT

3.6.1 Setting

The ensuing discussion about wildfires is generally focused on the undeveloped wooded and shrubby areas of Newtown, along with low-density suburban type development found at the margins of these areas known as the wildland interface.

The Town of Newtown is generally considered a high-risk area for small wildfires but a low risk area for large wildfires. Wildfires are of particular concern in outlying areas with poor access for firefighting equipment. Hazards associated with wildfires include property damage and loss of

habitat. Wildfires of any type are considered a likely event each year, but when one occurs, it is generally contained to a small range with limited damage to non-forested areas.

The 2023 Connecticut Natural Hazard Mitigation Plan assumes that the State of Connecticut is likely to experience a drought every two to three years. This assumption is based on climate change projections that anticipate hotter, wetter conditions in the near future. Climate forecasts often suggest that while precipitation may increase, the overall pattern will generally be higher intensity storms, with longer than average dry periods between events. The State Plan also identifies that Fairfield County accounts for roughly 7.28% of the state's total number of farms, with a market value of over $42 million in product sold from these farms.

3.6.2 Capabilities

The town also has regulations that require any development with more than three houses to include a 30,000-gallon cistern for fire protection. In addition, the town has approximately 800 hydrants throughout Newtown and a number of dry hydrants as well. The town Fire Department also has verbal mutual aid agreements with surrounding towns.

Newtown is served by the following five volunteer Fire Departments: Sandy Hook (which has two firehouses), Dodgingtown, Botsford, Hawleyville, and Newtown Hook and Ladder. These fire departments are typically the first to respond to incidents in the State forest.

Finally, the DEEP Forestry Division uses rainfall data from a variety of sources to compile forest fire probability forecasts. This allows the DEEP and the Town to monitor the drier areas of the state to be prepared for forest fire conditions.

Regulations regarding fire protection are outlined in the Zoning Regulations and the Subdivision Regulations.

- Zoning Regulations, Article VIII, Section 14 – Initial Attack Fire Suppression Water Supply. Specifically, the purpose of this section is to establish criteria and requirements for the installation of an initial attack fire suppression water supply for commercial, industrial, and residential developments. The intent of this section is to ensure that an initial supply of water is available and accessible for the immediate use by the Fire Department in the case of an emergency.

- Subdivision Regulations, Section 3.01.542 requires the location of water storage tanks for fire suppression required pursuant to Article VIII, Section 14 of the Zoning Regulations.

- Subdivision Regulations, Section 4.03.110 states that in subdivisions to which public water, public sanitary sewers, or public storm sewers are available, and all mains, conduits, laterals to the street are available, each building lot, branch offsets, fire hydrants, or facilities of like nature necessary to a complete utility system shall be installed by the subdivider without expense to the Town.

Actions Completed and New Capabilities

Town fire departments have coordinated with Aquarion Water Company to identify areas where firefighting capacity may be limited due to a lack of pressure or storage.

3.6.3 Vulnerabilities and Risk Assessment

According to the Connecticut DEEP, the actual forest fire risk in Connecticut is low due to several factors. First, the overall incidence of forest fires is very low. According to the 2023 State Hazard Mitigation Plan, an average of 243 fires per year occurred from 2013 to 2022; an increase from the average 109 fires per year reported in the 2019 State HMP. In 2020 alone, there were a reported 603 wildland fire events. Secondly, as the wildfire/forest fire prone areas become fragmented due to development, the local fire departments have increased access to those neighborhoods for firefighting equipment. Third, the problematic interface areas such as driveways too narrow to permit emergency vehicles are site specific. Finally, trained firefighters at the local and state level are readily available to fight fires in the state, and inter-municipal cooperation on such instances is common.

However, local risk is not necessarily the same as the overall statewide risk. Newtown town officials believe that the fuels are present in the forested parts of the town, and thus believe that the risk is present.

The most common causes of wildfires are arson, lightning strikes, and fires started from downed trees hitting electrical lines. Thus, wildfires have the potential to occur anywhere and at any time in both undeveloped and lightly developed areas. The extensive forests and fields covering the state are prime locations for a wildfire. In many areas, structures and subdivisions are built abutting forest borders, creating areas of particular vulnerability.

Wildfires are more common in rural areas than in developed areas, as most fires in populated areas are quickly noticed and contained. The likelihood of a severe wildfire developing is reduced by the state's extensive network of water features, which create natural breaks that can stop the spread of a fire. During prolonged droughts, these natural features may dry up, increasing the state's vulnerability to wildfires.

The Wildland-Urban Interface (WUI) index is used to identify areas that may be at greater risk of wildfires based on the density of development in comparison to the amount of wildfire prone vegetation. Wildfire risk areas are shown in Figure 3-1.

Most wildfires in Connecticut are relatively small. Given the availability of firefighting water in the town, including the use of nearby water bodies, it is believed the average wildfire burned area of five acres for a drought year is applicable to Newtown.

Newtown has experienced brush fires in the past and has areas vulnerable to wildfires. The Paugussett State Forest may be considered a high-risk area due to the amount of wooded areas.

Most recently, with the Aquarion Water Company wellfield offline as of late 2025 (due to flood damage), the town reported townwide water use restrictions. While there has been no loss of service, there is a concern regarding supply during potential severe drought. This is also a moratorium on new service connections. There have been discussions regarding an interconnection, however the status of that was unknown as of December 2025.

Changes and Improvements

The town continues to mitigate droughts and wildfires where possible and improve firefighting capabilities.

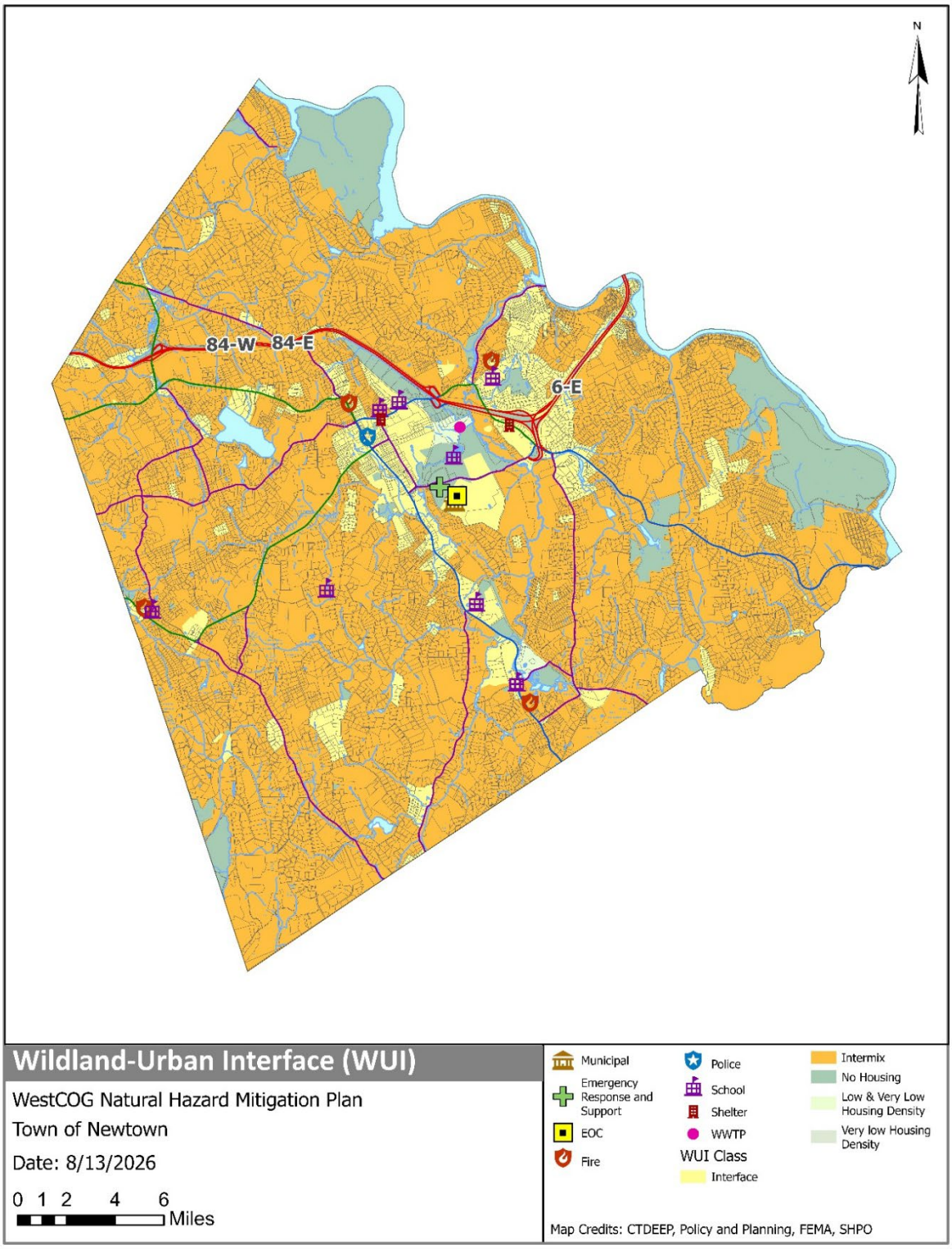

Figure 3-1: Wildfire Risk Areas

3.7 EARTHQUAKES AND LANDSLIDES

3.7.1 Setting

The entire Town of Newtown is susceptible to earthquake damage. However, even though earthquake damage has the potential to occur anywhere both in the town and in the northeastern United States, the effects may be felt differently in some areas based on the type of geology. In general, earthquakes are considered a hazard that may possibly occur but that may cause significant effects to a large area of the town.

3.7.2 Capabilities

The Connecticut Building Codes include design criteria for buildings specific to each municipality as adopted by the Building Officials and Code Administrators (BOCA). These include the seismic coefficients for building design in the Town of Newtown. The Town has adopted these codes for new construction, and they are enforced by the Building Official. Due to the infrequent nature of damaging earthquakes, land use policies in the Town do not directly address earthquake hazards. However, various documents do indirectly discuss areas susceptible to earthquake damage and regulations that help to minimize potential earthquake damage.

Actions Completed and New Capabilities

The town has ensured backup facilities and capabilities in the event of an earthquake that results in damage to a municipal building. In addition, development in areas prone to collapse are reviewed and evaluated on a case by case basis.

3.7.3 Vulnerabilities and Risk Assessment

Some areas in Newtown are underlain by sand and gravel. Structures in these areas are at increased risk from earthquakes due to amplification of seismic energy and/or collapse. The best mitigation for future development in areas of sandy material may be the application of the most stringent building codes or possibly the prohibition of new construction. However, many of these areas are located in floodplains associated with the streams and rivers in Newtown, so they are already regulated. The areas that are not at increased risk during an earthquake due to unstable soils are the areas underlain by glacial till, which includes most of the town.

Areas of steep slopes can collapse during an earthquake, creating landslides. Seismic activity can also break utility lines such as water mains, electric and telephone lines, and stormwater management systems. Damage to utility lines can lead to fires, especially in electric and gas mains. Dam failure can also pose a significant threat to developed areas during an earthquake. For this Plan, dam failure has been addressed separately.

Changes and Improvements

The Town continues to mitigate for earthquakes when feasible.

3.8 EXTREME HEAT

3.8.1 Setting

Extreme heat can occur at any time during the warmer months and can be defined as temperatures that hover 10 degrees or more above the average high temperature for the region. The NWS defines extreme heat as a period of abnormally hot weather generally lasting more than two days. A *heat wave* typically lasts three or more days with temperatures over 90 degrees for those days. These events typically last for a prolonged period of time, can vary in extent and intensity, and are often accompanied by high humidity.

An extreme heat event or heat wave can occur anywhere throughout Connecticut and any of the WestCOG communities. According to the 2023 Connecticut State Natural Hazard Mitigation Plan, Fairfield and Litchfield counties experienced, between 2012 and 2021, the greatest and least average annual number of days with temperatures greater than 90 degrees, respectively. Fairfield County experienced five days on average, while Litchfield County experienced zero days on average.

Extreme heat events are expected to increase. The WestCOG Regional Climate Assessment (2026) notes that "by 2050, in a high CO_2-emissions scenario (RCP 8.5), average temperatures are expected to rise by approximately 5°F and continue to increase thereafter." The region is also likely to see an increase in heat wave days, summer days (where daily maximum temperatures are above 77 degrees), and tropical nights (where the daily minimum is below 68 degrees).

3.8.2 Capabilities

The Town of Newtown has identified cooling centers in town that can provide respite to members of the community during an extreme heat event or heat wave. The Town also monitors the National Weather Service and local forecasts for heat warnings and advisories, in addition to guidance set forth by the State.

Actions Completed and New Capabilities

The town has identified three cooling centers in Newtown.

3.8.3 Vulnerabilities and Risk Assessment

While the entire town is at risk of an extreme heat event, vulnerability can vary widely throughout the community as it does across Connecticut. To better characterize vulnerability to extreme heat, UConn CIRCA has developed a tool to aid in understanding extreme heat vulnerability for communities across the state. This tool, known as the Climate Change Vulnerability Index (CCVI), comprises dozens of factors that contribute to a community's heat sensitivity, exposure, adaptive capacity, and, ultimately, overall heat vulnerability. The CCVI can be used to characterize heat vulnerability in Newtown.

In general, the most vulnerable populations in Newtown would include the young and the elderly, and those populations living in the more densely developed areas in town, which may have reduced tree coverage and a greater density of impervious surface. According to the CCVI, more heat vulnerable areas in Town are concentrated in the Main Street and Sandy Hook areas in addition to along the Route 25 corridor.

Changes and Improvements

The town, like all WestCOG communities, is now including extreme heat in its HMP and beginning to plan more intently to address extreme heat impacts.

4.0 MITIGATION STRATEGIES AND ACTIONS

4.1 Goals and Objectives

Municipal goals and objectives have been made consistent regionally and are presented in the Multi-Jurisdictional Plan document.

4.2 Status of Mitigation Strategies and Actions from Previous HMP

The table below lists the mitigation actions developed in the previous HMP and their status. Actions to be carried forward are noted as such. Actions that have been institutionalized as capabilities are not carried forward.

Table 4-1 Status of Previous Mitigation Actions

#	2021 Action	2025 Status	Notes
1	Prepare status memo that describes objectives and policies from this hazard mitigation plan that may be considered for incorporation into the Plan of Conservation and Development when it is updated in 2024; and provide the memo to the Planning and Zoning Commission.	Complete	Follow up with Rob for additional detail.
2	Provide information on the Town website about CT DEEP training and information around small business chemical management for hazard resilience.	Remove	Regional Initiative
3	Use the CT Toxics Users and Climate Resilience Map to identify toxic users located in hazard zones within your community. Contact those users to inform them about the CT DEEP small business chemical management initiative.	Remove	Regional Initiative
4	Host a CT DEEP presentation for municipal staff and local businesses about business chemical management for hazard resilience.	Remove	Regional Initiative
5	Register as a Sustainable CT community and make progress with the hazard mitigation goals associated with registration.	Remove	No progress, not feasible

#	2021 Action	2025 Status	Notes
6	Coordinate with CT SHPO to conduct outreach to owners of historic properties to educate them on methods of retrofitting historic properties to be more hazard-resilient while maintaining historic character.	Remove	Regional Initiative
7	Identify properties for future acquisition within the Halfway River watershed.	Carry forward with revisions	Homes on Berkshire are potentially being acquired, some others that may be eligible, but may not be interested. Revise complete the buyout, and expand the program where possible per the known challenge areas. expand this action beyond the Halfway River watershed area. may become a general "buy out" action. Areas have been identified.
8	Compile a checklist that cross-references the bylaws, regulations, and codes related to flood damage prevention that may be applicable to a proposed project and make this list available to potential applicants.	Remove	Capability - usually this is department based and everyone typically knows what to look for during reviews. This may not necessarily be needed anymore.
9	Develop and hold and annual workshop with town departments to provide training for dealing with widespread flooding damage.	Carry forward	No events to mention, maybe something to carry forward
10	Work with Eversource to identify municipal actions to improve electric grid resiliency.	Ongoing	Will need follow up - Eversource is typically always working on improvements, and if they are planning for growing communities, could this count as resiliency? Town works to identify trees/debris that could pose a risk to powerlines, and contacts Eversource if there are issues they need address.
11	Compare local floodplain regulations with Revised State Model Flood Regulations to identify any remaining opportunities for improvement	Ongoing	Capability

#	2021 Action	2025 Status	Notes
12	Require consideration of the most recent Northeast Regional Climate Center rainfall statistics (precip.eas.cornell.edu) when developing alternatives for culvert and bridge replacement designs and sizes.	Ongoing	follows whatever the State manual suggests and uses latest Atlas
13	Contact the owners of Repetitive Loss Properties and nearby properties at risk to inquire about mitigation undertaken and suggest options for mitigating flooding in those areas. This should be accomplished with a letter directly mailed to each property owner.	Remove	Regional Initiative/effort
14	Coordinate with CT SHPO to conduct historic resource surveys, focusing on areas within natural hazard risk zones (flood zones, wildfire hazard zones, steep slopes) to identify historic resources at risk and support the preparation of resiliency plans across the state.	Remove	Regional Initiative/effort
15	Conduct drainage evaluations along Turkey Hill Road to determine appropriate measures for improved drainage and flood mitigation.	Remove – issue addressed	Lakeside is always being evaluated, and minor improvements being made where feasible. These neighborhoods vary because some are low lying and flat, but others are steep and it is sometimes more challenging to improve drainage. Some work has been done on Alpine Drive. Some minor improvements have been done along Nearbrook Drive.
16	Conduct drainage evaluations along Nearbrook Drive to determine appropriate measures for improved drainage and flood mitigation.	Carry forward	
17	Conduct drainage evaluations along Meadow Brook Road to determine appropriate measures for improved drainage and flood mitigation.	Remove	

#	2021 Action	2025 Status	Notes
18	Conduct drainage evaluations in the vicinity of the five lakeside communities to determine appropriate measures for improved drainage and flood mitigation.	Carry forward with revisions	Turkey Hill road: Basins were likely changed confirm with Fred. The issue seems to be addressed. The road that connects to it, River Run Road, continues to have a flood issue there. Near brook drive. Potential Project? Still experiencing flooding Meadow brook: finished with new drainage. Bridge replaced last year Lakeside communities: Covers all of them along the Housatonic and Taunton lake so this will require more time, town has been acquiring right of way access from these properties and some of them have received road improvements (alpine area for example). Maybe break this up into sections or communities. Potential FEMA project application
19	Develop a comprehensive natural hazards public outreach and education program.	Remove	Capability - Part of CRS
20	Evaluate the feasibility of designating the new Community Center as the new primary shelter	Carry forward with revisions	Facility has not been designated as a primary shelter, but it is a supportive location. Location does not have a generator. The facility often does stay powered after an event, but this is not reliable without a generator.
21	Work with CT DEEP to validate and/or correct the RL list and update the mitigation status of each listed property.	Completed	Capability/ongoing
22	Develop a plan to stabilize low-lying roads, especially in the lakeside communities	Carry forward with revisions	After August 2024 this was almost like a "stress test", and some locations not tagged as high flood risk were impacted. Now ongoing efforts primarily focus on just dealing with streams/sediments as a whole. Constantly being evaluated.

#	2021 Action	2025 Status	Notes
23	Conduct an evaluation of Route 53 to identify causes of, and mitigate risks caused by, winter icing of the road.	Remove	Route 53 is not in Newtown.
24	Annually conduct an emergency operations exercise for a local terrorism, sabotage, or mass casualty event.	Remove	Regional Initiative
25	Pursue acquisition of additional municipal open space in SHFAs and set it aside for greenways, parks, etc.	Carry forward/integrate into other acquisition actions	As of 2024, making progress. The draper property. Open space purchase is being considered. Adjacent to Dickenson Park. Add Land use as member(Shady Rest, Edge Lake Community, Alpine Community, Lake View Community). Subject to hydro dams. Edge lake or shady rest would be competitive for flooding and drainage studies through the BRIC program. Meadowbrook has been improved from a culvert to span. on track for this 2024/2025.
26	Develop a priority list of areas along streams that are in need of stabilization and implement corrective actions	Carry forward	No specific progress, somewhat ongoing.
27	Evaluate scour damage along Pond Brook and develop mitigation measures	Carry forward	Ongoing efforts
28	Complete necessary improvements of town bridges. Specifically, Turkey Hill Bridge and Meadow Brook Bridge which are due for replacement.	Complete	
29	Complete the Meadow Brook Bridge replacement project.	Complete	
30	Pursue funding to place utilities underground in existing developed areas, targeting at least two in the lifespan of this plan	Carry forward	Still ongoing
31	Relocate utilities underground town wide where feasible; especially in the riverside communities.	Carry forward	Still ongoing

#	2021 Action	2025 Status	Notes
32	Work with the owner of 27 Glen Road Dam to determine the feasibility of removing the dam to reduce the amount of water and material behind it.	Carry forward	Ongoing project - Dam has an emergency action plan for it. 80 years of silt behind it. Removing it would be a huge change. Needed if you want fish to use it. Owner is stable. Dam removal. Maybe a study or a grant to remove it.

4.3 Prioritization of Strategies and Actions

The STAPLEE method, described in the Multi-Jurisdictional document, was used to score mitigation activities. The STAPLEE matrix in Appendix A provides the total scores. Actions have been further prioritized based on implementation cost, project urgency, and municipal and public input. The strategies below are presented in priority order, with qualitative priority levels listed for each.

4.4 Mitigation Strategies and Actions Implementation Table

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

APPENDIX A

Appendix A: STAPLEE Matrix

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NTN-01	Complete the property acquisitions in the Halfway River watershed area, and expand the program to any and all areas in town with a focus on those already identified as opportunities.	BOS	>$1M	Capital Improvement Plan, FEMA HMA	2026-2028	Med	Natural Resources Protection	Flooding	0	0	1	0	1	1	0	0	1	0	1	1	1	0	**4**
NTN-02	Continue to participate in the WestCOG program that provides outreach to repetitive loss property owners.	EM, BOS	$0 - $25,000	Operating Budget and COG general services budgets	Annually in 2026, 2027, 2028, 2029, and 2030	Medium	Property Protection	Flooding	1	0	1	0	1	0	1	0	0	0	1	0	1	0	**8**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NTN-03	Work with WestCOG to update the mitigation status of repetitive loss properties.	Planning	$0 - $25,000	Operating Budget and COG general services budgets	2029	Medium	Property Protection	Flooding	0	0	1	0	1	0	0	0	1	0	1	0	0	0	**6**
NTN-04	Pursue acquisition of additional municipal open space in SHFAs and set it aside for greenways, parks, etc.	BOS	>$1M	Capital Improvement Plan, FEMA HMA, DEEP Open Space Grants	2027-2029	High	Natural Resources Protection	Flooding	1	0	1	0	1	0	1	0	1	0	1	1	1	0	**7**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NTN-05	Compare local floodplain regulations with Revised State Model Flood Regulations to identify opportunities for improved consistency when adopting the new FEMA maps for the Saugatuck, Southwestern CT, and Housatonic studies. Ensure that freeboard is consistent with the State Building Code.	Planning	$0 - $25,000	Operating Budget	2026 or when directed by the State NFIP Coordinator	High	Prevention	Flooding	1	0	1	0	1	0	1	0	1	0	1	0	1	0	**9**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NTN-06	Develop and hold and annual workshop with town departments to provide training for dealing with widespread flooding damage.	Planning	$0 - $25,000	Operating Budget	Annually in 2027, 2028, 2029, 2030, and 2031	Low	Education & Awareness	Flooding	1	0	1	0	1	1	1	0	1	0	0	0	1	0	**6**
NTN-07	Conduct drainage evaluations along Nearbrook Drive to determine appropriate measures for improved drainage and flood mitigation.	DPW	$100,000 - $500,000	Capital Improvement Plan, FEMA HMA, STEAP	2028-2029	Med	Structural Projects	Flooding	1	0	1	0	1	1	1	0	1	0	1	1	1	0	**6**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NTN-08	Conduct drainage evaluations in the vicinity of the five lakeside communities to determine appropriate measures for improved drainage and flood mitigation.	DPW	$100,000 - $500,000	Capital Improvement Plan, FEMA HMA, STEAP	2028-2029	Med	Structural Projects	Flooding	1	0	1	0	1	1	1	0	1	0	1	1	1	0	**6**
NTN-09	Identify low-lying roads in town that have histroically have flood related challenges, and identify mitigation and stabilization strategies	DPW	$100,000 - $500,000	Capital Improvement Plan, FEMA HMA, STEAP	2028-2029	Med	Structural Projects	Flooding	1	0	1	0	1	1	1	0	1	0	1	1	1	0	**6**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NTN-10	Develop a priority list of areas along streams that are in need of stabilization and implement corrective actions	DPW	$100,000 - $500,000	Capital Improvement Plan, FEMA HMA, STEAP	2028-2029	Low	More than one category	Flooding	0	0	1	0	1	0	1	0	0	0	1	1	1	0	**5**
NTN-11	Evaluate scour damage along Pond Brook and develop mitigation measures	DPW	$100,000 - $500,000	Capital Improvement Plan, FEMA HMA, STEAP	2028-2029	Low	Structural Projects	Flooding	1	0	1	0	1	1	1	0	1	0	1	1	1	0	**6**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NTN-12	Consider flooding and drainage studies for the Edge Lake and Shady Rest neighborhoods to explore mitigation stratgeis and stabilization options for low-lying roadways.	DPW	$100,000 - $500,000	Capital Improvement Plan, FEMA HMA, STEAP	2028-2029	Med	Structural Projects	Flooding	1	0	1	0	1	1	1	0	1	0	1	1	1	0	**6**
NTN-13	Conduct drainage evaluations along River Run Road to determine appropriate measures for improved drainage and flood mitigation.	DPW	$100,000 - $500,000	Capital Improvement Plan, FEMA HMA, STEAP	2028-2029	Med	Structural Projects	Flooding	1	0	1	0	1	1	1	0	1	0	1	1	1	0	**6**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NTN-14	Work with Aquarion Water Company to increase flood resilience of the existing public water supply wellfield.	DPW, BOS	$100,000 - $500,000	Capital Improvement Plan, Aquarion Water Company	2027-2028	Med	Water & Wastewater Utility Projects	Multiple Hazards	1	0	1	0	1	0	1	0	0	0	1	1	1	0	**6**
NTN-15	Acquire backup power for the Community Center to further evaluate the feasibility of designating the Center as the new primary shelter.	EMS	$100,000 - $500,000	Operating Budget, FEMA HMA, STEAP	2027-2028	High	Preparedness & Emergency Response	All Hazards	1	0	1	0	1	0	1	0	1	0	1	1	1	0	**7**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NTN-16	Pursue funding to place utilities underground in existing developed areas, targeting at least two in the lifespan of this plan	DPW	>$1M	Operating Budget, FEMA HMA, STEAP	2030-2031	Low	Prevention	Multiple Hazards	0	0	1	1	1	1	1	0	0	0	1	1	1	0	**2**
NTN-17	Relocate utilities underground town wide where feasible; especially in the riverside communities.	DPW	>$1M	Operating Budget, FEMA HMA, STEAP	2030-2031	Low	Prevention	Multiple Hazards	0	0	1	1	1	1	1	0	0	0	1	1	1	0	**2**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NTN-18	Work with the owner of 27 Glen Road Dam to determine the feasibility of removing the dam to reduce the amount of water and material behind it.	DPW	$100,000 - $500,000	Operating Budget, FEMA HMA, STEAP	2028-2029	Low	Structural Projects	Dam-Related Concerns	1	0	1	0	1	1	1	0	1	0	1	1	1	0	**6**
NTN-19	As the opportunity arises, collaborate with CIRCA on the "Resilient Connecticut" project to advance further study in areas with flood and extreme heat risks.	BOS	$0 - $25,000	Operating Budget plus CIRCA funds from State and Federal sources	2028-2030	Low	More than one category	Multiple Hazards	1	0	1	0	1	1	1	0	0	0	1	0	1	0	**7**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NTN-20	Work with Aquarion Water Company to enforce mandatory twice-per-week irrigation schedule.	BOS	$0 - $25,000	Operating Budget	2027-2031	Low	Education & Awareness	Drought	1	0	1	0	1	1	0	0	0	0	0	0	1	0	**4**

Western Connecticut Council of Governments Multi-Jurisdiction Hazard Mitigation Plan Update 2026-2031

Municipal Annex
for
City of Norwalk

125 East Avenue
Norwalk, CT 06851
Draft: October 2026

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Appendix A: STAPLEE Matrix

1.0 INTRODUCTION

1.1 Purpose of Annex

The purpose of this Hazard Mitigation Plan (HMP) annex is to provide a community-specific hazard risk assessment, capability analysis, and evaluation and prioritization of hazard mitigation measures and projects. Background information and the regional effects of pertinent natural hazards are discussed in the main body of the Western Connecticut Council of Governments (WestCOG) Multi-Jurisdictional Hazard Mitigation Plan. This annex is designed to supplement the information presented in the Multi-Jurisdictional HMP with more specific detail for the City of Norwalk and is not to be considered a standalone document.

The primary goal of this HMP, including this Municipal Annex, is to identify natural hazard risks and mitigation opportunities in order to reduce the loss of or damage to life, property, infrastructure, and natural, cultural, and economic resources. This includes the reduction of public and private damage costs. Limiting losses of life and damage to property will also reduce the social, emotional, and economic disruption associated with a natural disaster.

2.0 COMMUNITY PROFILE

2.1 Geography

2.1.1 Physical Setting

Incorporated in 1651, the City of Norwalk is located in southern Fairfield County and is home to a population of 85,603 (2010 U.S. Census). Norwalk is bordered by the municipalities of Darien to the west, New Canaan and Wilton to the north, Westport to the east, and Long Island Sound to the south. Refer to Figure 2-1 for a map showing the regional location of Norwalk within the WestCOG region.

Norwalk is a coastal community with several rivers and streams flowing throughout the community. The city is characterized by highly developed areas along the Route 7 north to south corridor, and along the east to west running Interstate 95 corridor. Lower elevations adjacent to the shoreline are residentially developed, with commercial development increasing closer to the mouth of the Norwalk River; these areas are also low in elevation.

The Norwalk River flows south through the center of the City, parallel to Route 7, cutting through the suburban and urban areas before it eventually flows into Long Island Sound. There are no major lakes or reservoirs in the city; there are, however, several ponds along the Norwalk River, Fivemile River, and Woods Pond Brook.

The highest elevation in Norwalk is about 320 feet in the northernmost areas bordering Wilton, with the southern area of Norwalk being at or close to sea level. The varying terrain of Norwalk makes the city vulnerable to an array of natural hazards.

The Center for Land Use Education and Research (CLEAR) has developed a statewide land cover dataset derived from the 2023 Annual National Land Cover Dataset (NLCD). Areas identified as developed open space are maintained grasses such as residential and commercial lawns or golf courses. The land cover, by percent of total land area, for Norwalk is shown in Table 2-1.

Table 2-1: Land Cover by Area

Land Cover Class	Percent of Total Land
Developed	50%
Forest	6%
Agriculture	0%
Developed Open Space	42%

Source: University of Connecticut Center for Land Use Education and Research (CLEAR)

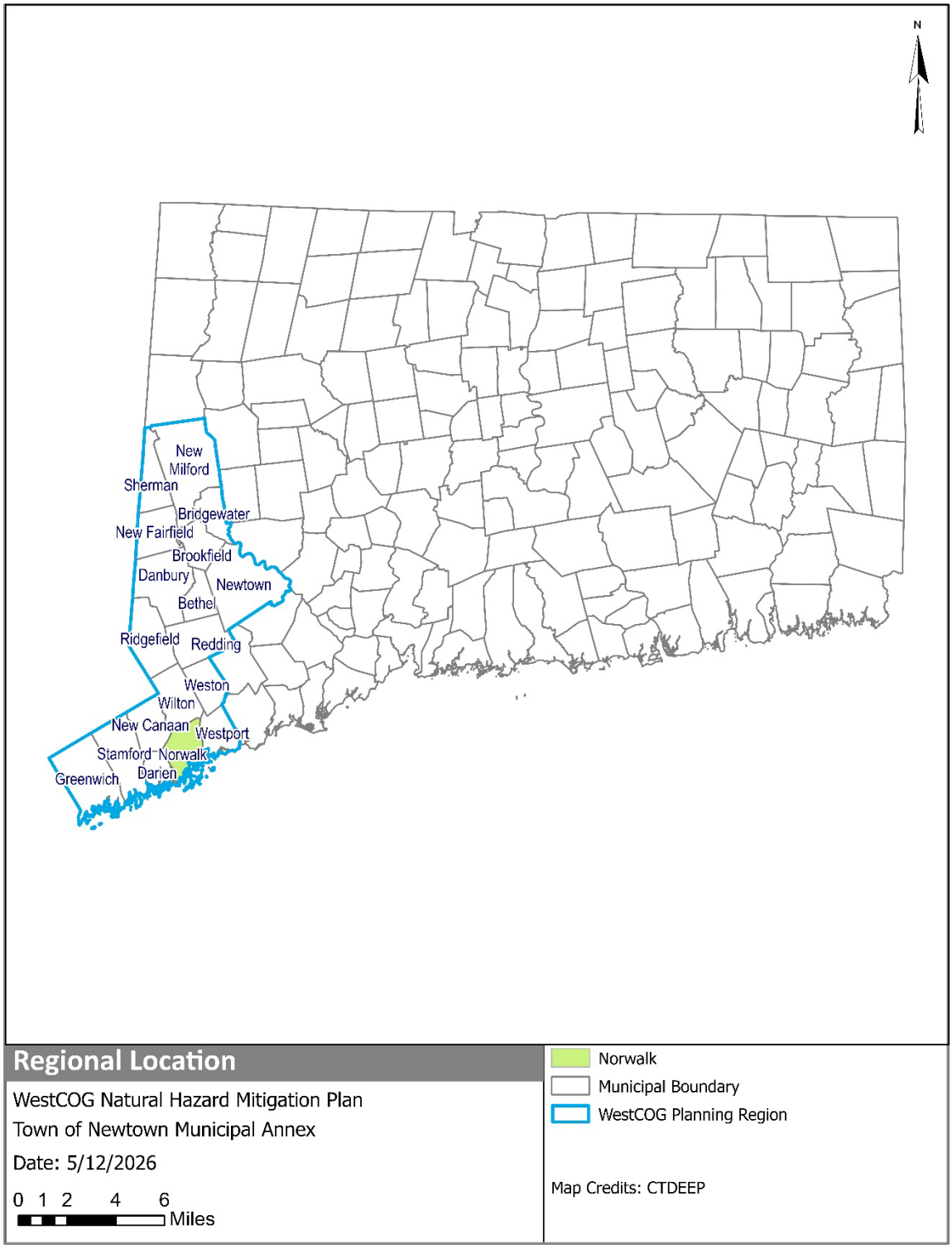

Figure 2-1: Location Map

2.1.2 Land Use

Norwalk is a large city with both high urbanized areas and suburban development. Most higher density development and commercial activity lie along the major roadway corridors, and along the Norwalk River. The highest concentration of commercial activity is focused in the southern part of the City around the Route 7 and I-95 interchange, in South Norwalk along the river. The areas outside of these corridors are primarily residential, with larger lot residential neighborhoods north of Interstate 95, and smaller lot residential south of 95.

According to the city's 2019 Plan of Conservation and Development (POCD), more than 65% of Norwalk's total land area is currently occupied by residential development. Almost 11% of the city's land use is accounted for by vacant residential, commercial, and industrial land uses. Table 2-2 summarizes 2019 land use data identified in the POCD.

Table 2-2: 2019 Land Use by Area

Use	Area (acres)	Parcels	Percent of Total Land
Residential			
Residential – 1 or 2 family	7,457	18,328	57.1%
Residential – 3 or more families	686	873	5.3%
Mixed Residential/Commercial	64	199	0.5%
Mixed Use – Village	0	1	0%
Business			
Commercial	1,201	872	9.2%
Industrial	201	117	1.5%
Public & Institutional Uses			
Government/Institutional	805	226	6.2%
Public Land and Open Space			
Open Space	705	73	5.4%
Cemetery	130	17	1%
Other			
Utility	107	21	1%
Other	906	603	7%
Vacant			
Vacant – Commercial	99	165	1%
Vacant – Industrial	20	37	0%
Vacant – Municipal	157	22	1%
Vacant – Residential	365	524	3%
Vacant – Utility	148	18	1%
Developed/Committed	12,262	20,458	94.2%
Vacant/Undeveloped	789	766	6%
Total Land Area	**13,051**	**21,224**	**100.2%**

Source: 2019 Norwalk Plan of Conservation and Development

2.1.3 Climate and Climate Change

Current Conditions

Over the course of the year, the temperature in Norwalk typically varies from 23°F to 83°F and is rarely below 9°F or above 90°F. The warm season lasts from June 2 to September 17, with an average daily high temperature above 74°F. The hottest month of the year is July, with an

average high of 82°F and a low of 67°F. The cold season lasts from December 4 to March 13, with an average daily high temperature below 64°F. The coldest month of the year is January, with an average low of 24°F and high of 37°F.

Precipitation falls throughout the year in Norwalk. The wetter season lasts from April 1 to August 19, with a greater than 29% chance of a given day being a wet day. The chance of a wet day peaks at 36% on May 30. The smallest chance of a wet day is 22% on January 28.

The most rain falls during the month of April with an average total accumulation of 3.7 inches. The least rain falls in February, with an average total accumulation of 2.1 inches.

The snowy period of the year lasts from November 19 to April 6, with a sliding 31-day liquid-equivalent snowfall of at least 1.0 inches. The most snow falls during February, with an average snowfall of 7.5 inches.

Climate data was sourced from Weather Spark based on analysis of the years 1980 to 2016.

Climate Change

Climate change projections for Connecticut were sourced from the 2019 Connecticut Physical Climate Science Assessment Report, developed by the University of Connecticut (UConn) Atmospheric Sciences Group and commissioned by the Connecticut Institute for Resilience and Climate Adaptation (CIRCA) with funding from the Department of Energy and Environmental Protection (DEEP). All projections are based on the IPCC high CO_2 emission scenario (RCP8.5).

Temperature

Annual temperatures have been increasing throughout Connecticut and are projected to continue to do so in the future. By mid-century, the average annual temperature is projected to increase by 5°F. Seasonal average temperatures are also expected to rise, with the greatest increase (6°F) experienced in summer (June to August). The number of nights when the temperature remains above 68°F will quadruple from 10 days per year to more than 40, and the number of extremely hot days will increase from more than 4 per year to 48 per year.

Precipitation

Rainfall data in "Technical Paper No. 40" by the U.S. Weather Bureau (now the National Weather Service) (Hershfield, 1961) dates from the years 1938 through 1958. According to these data, the 24-hour rainfall amount for a 50% annual-chance storm in Fairfield County is 3.3 inches.

The continued increase in precipitation only heightens the need for hazard mitigation planning as the occurrence of floods may change in accordance with the greater precipitation.

The Northeast Regional Climate Center (NRCC) has partnered with the Natural Resources Conservation Service (NRCS) to provide a consistent, current regional analysis of rainfall extremes (http://precip.eas.cornell.edu/). In 2020, this dataset listed the 24-hour rainfall amount for a 50% annual-chance storm in Norwalk as 3.45 inches.

The NOAA Atlas 14, released on September 30, 2015, puts the 24-hour rainfall amount for a 50% annual-chance annual storm in Norwalk at 3.49 inches.

These precipitation amounts and more details are summarized in Table 2-3, below.

Table 2-3: 24-Hour Rainfall Amounts by Annual-Chance Occurrence

Source	24-Hour Rainfall Amount (inches) by Annual-Chance Occurrence		
	50%	4%	1%
Technical Paper No. 40	3.3	5.7	7.2
NRCC	3.45	6.38	8.96
NOAA Atlas 14	3.49	6.49	8.26

Annual precipitation has been increasing statewide and is projected to continue to increase. By mid-century, annual precipitation is projected to increase by 8.5%, with the greatest increase (13.4%) occurring in the winter months. Extreme precipitation events are projected to increase in both frequency and magnitude. Based on this increase and the precipitation figures above, by 2050, Norwalk can expect the 24-hour rainfall amount for a 50% annual-chance storm to be around 3.7 to 3.8 inches or greater.

Impervious surfaces and infrastructure in the city have increased over time as well, leading to increasing runoff and peak discharge values.

Despite overall increases in precipitation, drought risk is projected to rise, especially during summer, due to shifting precipitation patterns and rising potential evapotranspiration (plants taking up more water in hotter temperatures and longer growing seasons).

Sea Level Rise

WestCOG's coastal communities face an increasing threat related to rising sea levels. Per the Fifth National Climate Assessment, national rates of rise have increased from 0.05 inches (±0.01) per year between 1901 to 1900, to 0.13 inches (±0.02) per year between 1993 and 2022; these rates accelerated to 0.17 inches per year between 2013 and 2022. In an effort to establish a more local assessment and projection for Connecticut, the UConn CIRCA Sea Level Rise Report (2016) determined that the rate of rise for the NOAA Bridgeport tide station, the nearest station to WestCOG, was 4.0mm (±1.8) from 1976 to 2016. As of April 2026, the NOAA Bridgeport station reported a trend of 3.43mm per year from 1964 to 2025.

Connecticut legislature has identified a 2050 "planning threshold" of 0.5 meters (1.64 feet or nearly 20 inches) rise in sea levels, and a 2100 "caution threshold" of 1.0 meters (3.28 feet). This planning threshold was a product of the sea level rise projections developed for the CIRCA Sea Level Rise Report. This planning threshold is required for certain types of planning and development projects in Connecticut.

2.1.4 Drainage Basins and Hydrology

Norwalk is divided among five sub-regional watersheds as shown in Table 2-4. Three of the five sub-regional basins drain into Long Island Sound, with the Silvermine River basin draining into the Norwalk River basin, and the West Branch Saugatuck River basin draining into the Saugatuck River basin. All of the water that passes through Norwalk eventually empties into Long Island Sound.

Table 2-4: Sub-Regional Drainage Basins

Drainage Basin	Overall Sub-regional Area (sq. mi)	Area within City (sq. mi)	Area (acres)	Percent of City

Norwalk River	32.55	8.63	5,524.57	41.33%
Southwest Shoreline	41.41	5.54	3,544.59	26.53%
Fivemile River	12.49	4.88	3,124.07	23.37%
Silvermine River	22.52	1.82	1,165.02	8.72%
West Branch Saugatuck River	11.92	0.01	6.54	0.5%
Total	n/a	20.88	13,364.79	100%

Source: Connecticut Department of Energy & Environmental Protection GIS Data

Norwalk is entirely encompassed within the Southwest Coast drainage basin, which drains directly into Long Island Sound. Of the five subregional drainage basins and their respective streams, the Norwalk River, which runs through central Stamford, is the largest, followed by the Silvermine River basin in the northern part of the city, which ultimately flows into the Norwalk River basin.

The Norwalk River is approximately 21 miles long and originates in Ridgefield, Connecticut. The Norwalk Basin drains 32.55 square miles of land and ultimately flows directly into Long Island Sound.

The Fivemile River is approximately 11 miles long and originates in New York, just over the New Canaan border. The river flows into the Sound along the western border of Norwalk, adjacent to the Rowayton neighborhood.

2.2 Society, Culture, and Government

2.2.1 Population and Demographic Setting

According to the 2020 U.S. Census, Norwalk had a population of 91,184 with 3,982 persons per square mile. The Connecticut State Department of Public Health estimates Norwalk's 2026 population at 92,187. The American Community Survey (ACS) projects a decline in population, with estimates showing a population of only 16,376 for the year 2030.

One important aspect of natural hazard mitigation planning is to identify a community's demographic trends in relation to natural hazards. The FEMA National Risk Index (NRI) (Version 1.20) explores and illustrates the relationships among social vulnerability, community resilience, expected annual losses from natural hazards, and risk from those hazards. The NRI has four ratings built into the dataset:

Figure 2-2 Community Resilience Estimates Vulnerability Components (Source: US Census Bureau)

The social vulnerability incorporated into the NRI uses data from the United States Census Bureau's Community Resilience Estimate (CRE) dataset. This ten variable dataset represents the socioeconomic factors that are expected to contribute most to a community's ability to prepare for, withstand, and recover from a natural hazard event (Figure 2-2). The data used in the CRE from the 1-year American Community Survey and Population Estimates Program.

The City of Norwalk has areas in the City which have very low social vulnerability, and areas that are very high (Figure 2-3). Areas in the City which have high social vulnerability have high percentages of the population with three or more components of social vulnerability. Areas with moderate social vulnerability have one or two of the contributing components. The components, which are based off of census data are:

- poverty status
- number of caregivers in the households
- unit-level crowding
- communication barrier
- employment
- disability status
- health insurance coverage
- age (65+)
- vehicle access
- broadband internet access

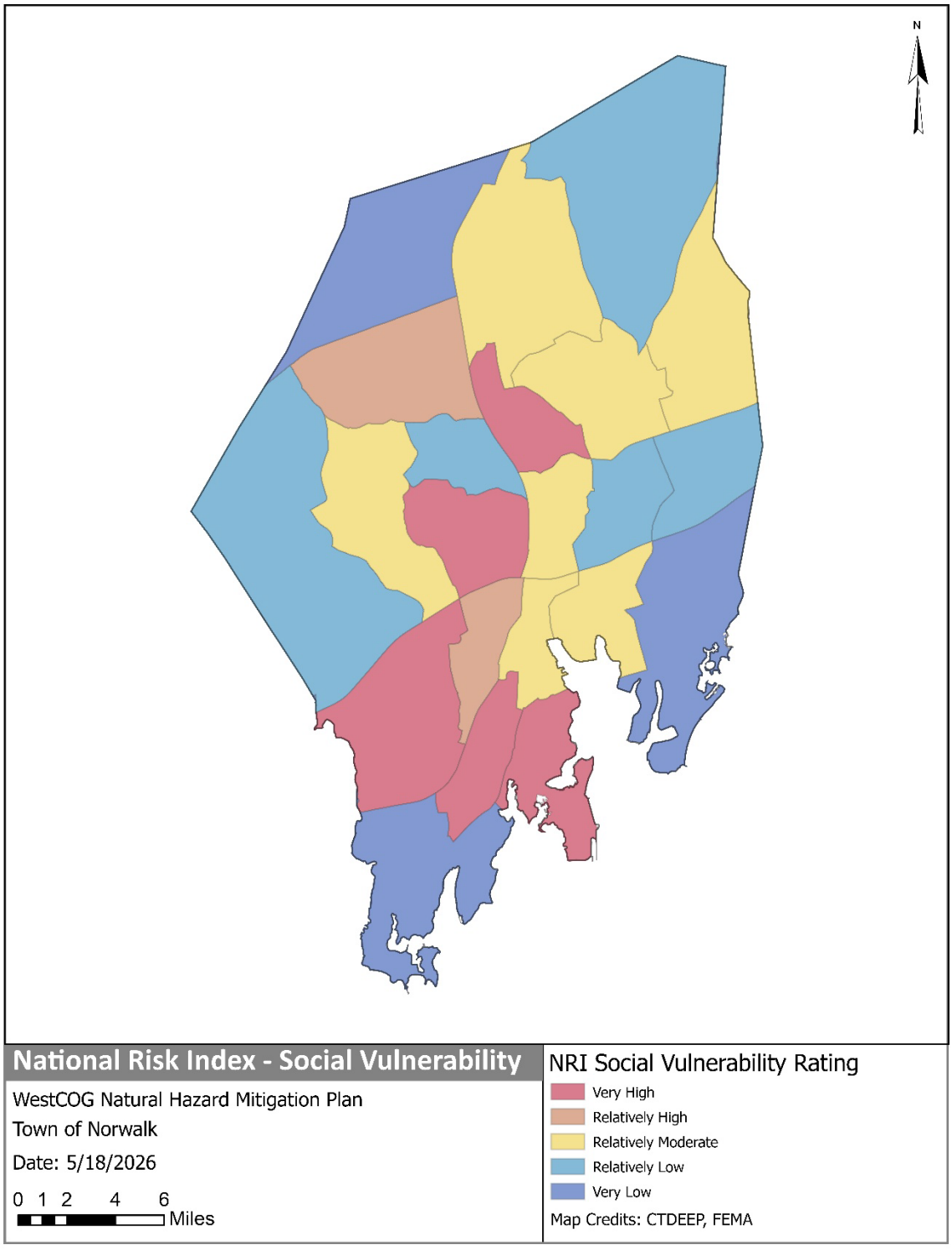

Figure 2-3 FEMA National Risk Index Social Vulnerability

2.2.2 Development Trends

In the early 1900's, the City of Norwalk was characterized by a variety of land use types, walkable neighborhoods comprised of small lot sizes, and modified street grid development. As years progressed, suburban style development began to grow outwards of the urbanized core of the city. This character is still true today, with larger residential lots more prominent moving away from the urbanized areas, with larger block sizes and numerous cul-de-sacs throughout the neighborhoods. With the advancement of transportation, and the development of major roadways, land use types began to separate, with commercialized areas along these major roadways, including Route 1, Route 7, and the Merritt Parkway.

Today, Norwalk is the sixth most populous City in Connecticut. Redevelopment pressures continue to be significant. South Norwalk and the downtown are experiencing ongoing investment and redevelopment, especially in housing, which is likely to continue into the future. Major travel corridors for Route 7 and Route 15 have the potential for redevelopment over the next 10 years. The City would also like to see mixed-use activity centers in every neighborhood, varying in size. The City of Norwalk has identified two transit-oriented development (TOD) focus areas: one centered around the East Norwalk Train Station, and one around the South Norwalk Train Station. Development in South Norwalk includes the new retail mall, which is within walking distance of the train station. The TOD plans for South Norwalk (2016) and East Norwalk (2020) both recognize the presence of existing flood zones, and both discuss the potential risks associated with sea level rise and other climate change impacts. Both plans call for development to be consistent with avoiding risks associated with these hazards.

The City has embarked on studies of its commercial and industrial parcels north of downtown along the Norwalk River, and commercial and water-dependent uses located along the harbor on Water Street. Both studies are intended to highlight the risks associated with redevelopment and the unique opportunities in the City. While the City's potential for exposure to flood risks is significant due to the Norwalk River, Keeler Brook, and the shoreline, the TOD plans, and two ongoing studies are directly addressing the need to reduce risks. Therefore, while development in Norwalk may not reduce exposure to flooding, opportunities for stringent redevelopment will at least reduce risks and damage. These opportunities will also help reduce vulnerabilities to other natural hazards.

In the past five years, the City has seen several redevelopment projects, both commercial and residential. Projects in high hazard areas have consistently met or exceeded standards; for example, a new residential construction exceeded the BFE by several feet. The City also pursued the South Norwalk Station Area Study, which is an implementation study of the TOD Redevelopment Plan, the Mathews Park Master plan, and the Streetscape at Pinnacle Site project, which includes infrastructural and streetscape improvements on West Avenue.

2.2.3 Governmental Structure

The City of Norwalk is a mayor-council style government, where the mayor is elected by city residents. The city charter delegates certain powers and duties to the Common Council, while others are a joint effort between the mayor and council.

In addition to the Mayor and Common Council, there are boards, commissions, and committees providing input and direction to City administrators, while City departments provide municipal services and day-to-day administration. Many of these commissions and departments play a role in hazard mitigation, including the Planning and Zoning Department, Code Enforcement, Highways Department, Conservation Commission, Building Management, the Fire Chief, and the Emergency Management Department.

2.2.4 Historic and Cultural Resources

Historic and cultural resources include sites, structures, and objects that are significant in history, architecture, archaeology, engineering, and culture. Protection of these resources grows economies and enhances community character and following a natural disaster they can help to reinforce neighborhood connections and reestablish a sense of community and normalcy. Consideration of these resources in this HMP is critical.

Historic preservation planning helps protect historic properties and cultural resources from demolition or alteration. **Hazard mitigation planning** helps protect life and property from damage caused by natural and manmade hazards. **Integrating** these two planning processes helps create safe and sustainable historic communities. - Paraphrased from FEMA Report 386-6

There are numerous historic sites throughout the city. As one of the oldest cities in the State, Norwalk has been making strides to preserve historic resources. Historic resources in Norwalk are concentrated within the Norwalk Green, Fivemile River Landing, Camp Street, Golden Hill, Haviland and Elizabeth Streets/Hanford Place, Pudding Lane, Silvermine Center, South Main & Washington Street, and Village Creek Historic District. See Figure 2-4 for a map of historic resources in the community.

Resources also include Fodor Farm, Gallaher Estate at Cranbury Park, Oyster Row, Greens Ledge and Peck Ledge Lighthouses, the Railroad Station, and the Norwalk River Bridge. Analysis of the State Historic Preservation Office (SHPO) database of historic resources shows that some of these resources are exposed to natural hazards, as shown in Table 2-5.

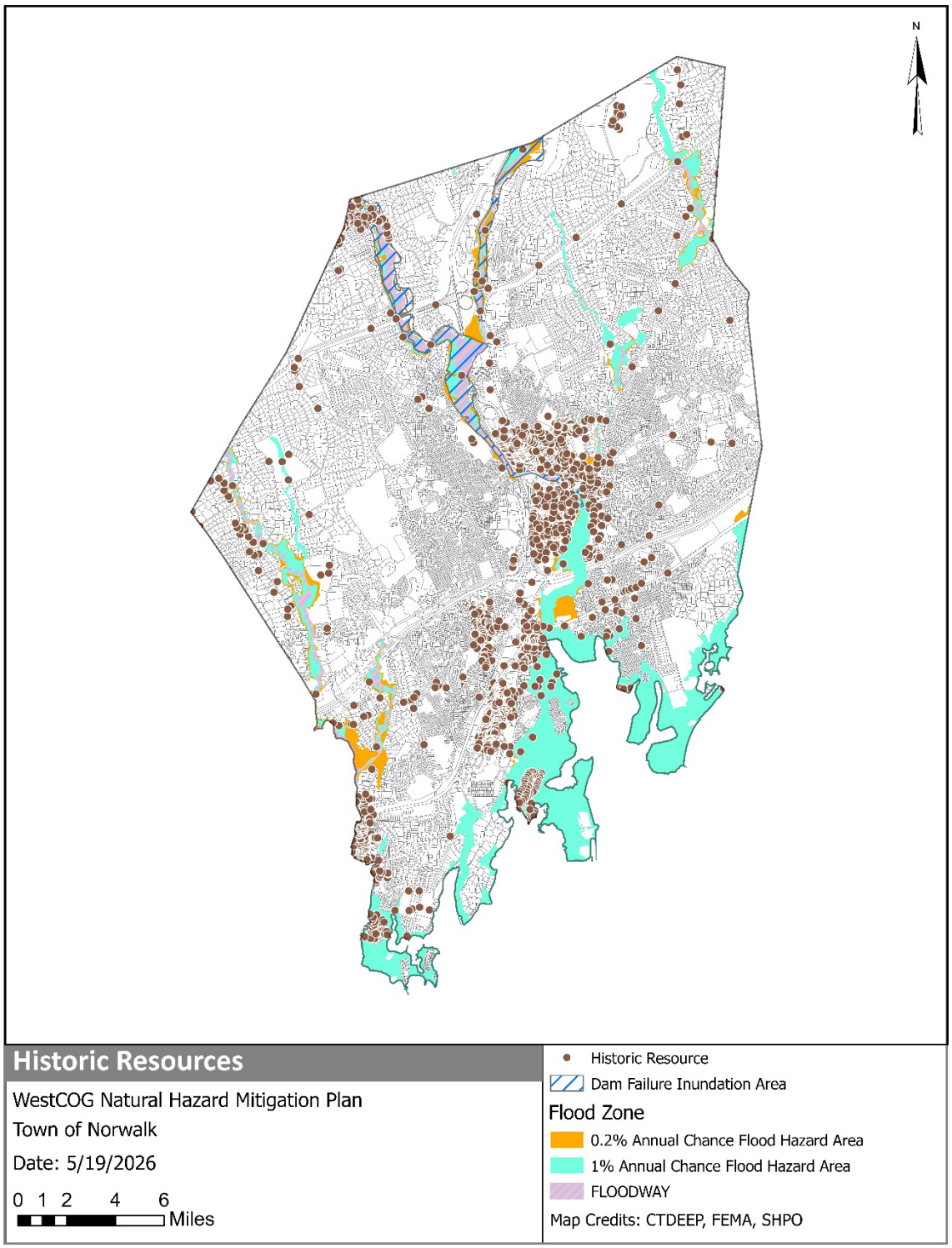

Figure 2-4: Historic Resources

Table 2-5: Number of Historic Assets (by parcel) Exposed to Different Hazards in Norwalk

Hazard	Count	Value
Dam Failure	83	$155,667,310
Earthquake	1,611	$1,908,012,378
Flooding		
1% Annual	236	$532,812,688
0.2% Annual	168	$304,593,640
VE Zone	32	$46,534,300
Storm Surge		
Category 1	159	$294,030,927
Category 2	220	$364,282,709
Category 3	305	$508,101,349
Category 4	425	$676,167,522
Hurricane/Tropical Storm	1,611	$1,908,012,378
Sea Level Rise	6	
Thunderstorm	1,611	$1,908,012,378
Tornado	1,611	$1,908,012,378
Winter Storm	1,611	$1,908,012,378
Wildfire		
Intermix	5	$3,066,660
Interface	7	$3,349,490

Historic buildings and structures may be particularly susceptible to natural hazards because they were built prior to the establishment of more recent construction standards. Additionally, some of the structural integrity of these resources may have been degraded over the decades or centuries since their original construction. Structural retrofits and hazard mitigation methods may be challenging or restricted in cases where alteration of a resource will also diminish its cultural or historical aesthetic and value. Finally, miscommunications or lack of knowledge may lead to historic resources being damaged during the disaster recovery process.

Steps to incorporate historical and cultural preservation into hazard mitigation planning include:

- Inventory and survey historic and cultural resources
- Implement appropriate mitigation measures for those resources
- Take steps to move portable resources, such as artwork or documents, to safe locations prior to the occurrence of a hazard, if possible
- Consider these resources in emergency operations plans to prevent accidental damages during recovery efforts

Specific actions to mitigate natural hazard risks to historic resources were identified in the 2021 plan and are no longer current actions for the 2026-2031 update.

2.3 Infrastructure

2.3.1 Transportation

Major transportation routes in Norwalk include Interstate 95 and the Merritt Parkway (Route 15), which run east to west through the city. The Parkway runs through the northern part of the city, while I-95 runs through the southern region of Norwalk. Route 7 runs south from the Wilton border, where it ultimately merges with I-95. Route 1 also runs through the city, running

parallel to I-95 in the western half of the city, running north from the I-95 and Route 7 Interchange, where the route then crosses the Norwalk River and runs east into Westport.

In addition, the Metro North/Amtrak rail lines also run through the city, south and parallel to Interstate 95. There are three stations located in the city: East Norwalk, South Norwalk, and Rowayton. The CTtransit bus system is also active in the city with several stops throughout the community.

2.3.2 Utilities

There are two public water systems that operate in the city. The Norwalk First Taxing District system operates in the eastern half of Norwalk, while the Second Taxing District system serves the western half. A majority of the city receives public water supply, with the potential exception of small residential areas in the northwest and northeast corners of the city. These properties likely rely on a private well for drinking water.

Residents and businesses use oil, propane, or natural gas for heat. Natural gas is available via distribution lines from Eversource.

The Norwalk Water Pollution Control Authority maintains the sewer systems in the urbanized areas along I-95 and Route 7, branching into residential neighborhoods from the urbanized core. The system does not extend to some small coastal areas and to multiple neighborhoods in the northern third of the city.

According to geoISP (geoISP.com), access to Broadband Internet is available to most residents in Norwalk. There are 2 DSL Providers (MegaPath, AT&T), 1 Cable Internet provider (CSC Holdings), and 4 Fiber Internet providers (CSC Holdings, Fibertech Networks LLC, Level (3) Communications, and Connecticut Education Network). There are also 4 Mobile Broadband (cellular) providers with service available in Norwalk.

2.4 Planning and Regulatory Capabilities

Norwalk has in place a number of community planning mechanisms, regulations, and policies that serve to mitigate natural hazards by limiting development in hazardous areas, requiring buildings be constructed to certain standards, or otherwise directing development and construction toward increased resilience. These are summarized in this section.

2.4.1 Review of Existing Local Plans

Norwalk has a number of plans that are relevant to hazard mitigation. These are noted here:

- **Plan of Conservation and Development (POCD):** Norwalk's most recent POCD was adopted in 2019. It addresses natural hazard concerns within the community and includes strategies that will mitigate risks from those hazards as the community continues to develop.
- **Stormwater Management:** Norwalk maintains a Stormwater Management Plan. This document has been updated to comply with the requirements of the US EPA 2017

updated *General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems* (MS4 General Permit).

- **Capital Improvement Plan (CIP):** Norwalk maintains a CIP that is updated annually and lays out capital investments for a five-year period. The CIP often includes road, drainage, and other infrastructure improvement projects relevant to hazard mitigation.
- **Economic Development Plan:** Norwalk is included within the Western Connecticut included within the Western Connecticut Comprehensive Economic Development Strategy (CEDS) of 2023, developed by WestCOG. The plan aligns with the COG's other efforts to promote climate sustainability and resiliency in the region. The City also developed its own plan, the Norwalk *Economic Development Action Plan*, in 2015.
- **Emergency Operations Plan (EOP):** Norwalk's EOP is reviewed annually and updated as needed. Dam failure Emergency Action Plans (EAPs) for dams with failure inundation zones that may impact Norwalk, and for which EAPs are available, are on file locally.
- **Watershed Management Plan:** Watershed Management Plans have been developed for the Norwalk River Watershed, the Saugatuck-Aspetuck River Watershed, and the Five Mile River Watershed. The Norwalk River Watershed Action Plan was prepared by the Norwalk River Watershed Initiative Committee, HDR/HydroQual, and the former South Western Regional Planning Agency (SWRPA) in 1998 and updated in 2011. The Saugatuck River Watershed Based Plan was developed by SWRPA in 2012. The Five Mile River Watershed Based Plan was developed by AKRF, Inc. for SWRPA in 2012. These plans are focused on water quality, but can help the community mitigate inland flood risks by incorporating watershed management best practices into its planning efforts.

2.4.1 Review of Regulatory Structures

Norwalk regulates development through a number of regulations, codes, and ordinances. These are summarized below. More detailed information about how these regulations relate to specific natural hazards is described in Section 3.

- **Building Code:** Norwalk enforces the Connecticut State Building Code locally.
- **Zoning Regulations:** Most recently updated in February 2024.
- **Inland Wetlands and Watercourses Regulations:** Most recently updated in June 2024, effective July 1, 2024.
- **Subdivision Regulations:** Most recently updated in January 2012. Include provisions promoting installation of firefighting water sources, construction of adequate emergency access and egress, and burial of utilities.

2.5 Emergency Services, Critical Facilities, Sheltering, and Evacuation

The City considers its police, fire, and governmental facilities to be critical since these are needed to ensure that emergencies are addressed while day-to-day management of Norwalk continues. The city also considers various facilities housing higher-risk individuals (such as elderly individuals or children) and large populations to be critical facilities. Table 2-6 identifies all of these critical facilities. The City has identified Norwalk High School and Brien McMahon High School as the shelter locations. The Norwalk Public Library serves as the warming and

cooling center in Norwalk, and the newly constructed South Norwalk Community Center may also serve as a warming and cooling center.

Table 2-6: Critical Facilities

Facility	Address or Location	Type	Emergency Power	Shelter	In 1% Floodplain
Norwalk Hospital	34 Maple Street	Hospital			
Norwalk Police Department	1 Monroe Street	Police			
Norwalk Police Marine Patrol	100 Water Street	Police			✔
Norwalk Fire Department Station 4	180 Westport Avenue	Fire/EMS			
Norwalk Fire Department Station 1	90 New Canaan Avenue	Fire/EMS			
Norwalk Fire Department Station 2 - Headquarters	121 Connecticut Ave	EOC/Fire/EMS			
Norwalk Fire Department Station 3	56 Van Zant Street	Fire/EMS			
Norwalk Fire Department Station 5	23 Meadow Street	Fire/EMS			
City Hall	125 East Avenue	City Hall	✔		
Public Works	125 East Avenue	Municipal	✔		
Norwalk High School	23 Calvin Murphy St.	School/Shelter	✔	✔	
Brien McMahon High School	300 Highland Ave.	School/Shelter	✔	✔	
Norwalk Wastewater Treatment Plant	15 South Smith Street	Critical Service	✔		
Sanitary Sewer Pump Stations	Multiple	Critical Service	✔		
Academy Of Learning	650 West Avenue	School			
All Saints Catholic School	139 West Rocks Rd	School			
Briggs High School	350 Main St.	School			
Brookside Elementary School	382 Highland Ave.	School			
Columbus Elementary School	46 Concord St.	School			
Cranbury Elementary School	5 Knowalot Ln.	School			
Fox Run Elementary School	228 Fillow St.	School			
Jefferson Elementary School	75 Van Buren Ave.	School			
Kendall Elementary School	228 Fillow St.	School			
Marvin Elementary School	15 Calf Pasture Beach	School			
Naramake Elementary School	16 King St.	School			
Nathan Hale Middle School	176 Strawberry Hill Av	School			
National Bartenders School	24 Belden Avenue	School			
Norwalk Community College	188 Richards Avenue	School			
Norwalk Hosp Sch Of Respir Car	24 Maple Street	School			
Oakbridge School Community Sol	57 West Rocks Road	School			
Parkway Chr Acad Happy Time Nu	260 New Canaan Avenue	School			
Ponus Ridge Middle School	21 Hunters Ln.	School			
Renasci Academy Of Hair, Inc	3 Isaac Street	School			
Roton Middle School	201 Highland Ave.	School			
Rowayton School	1 Roton Ave.	School			
Side By Side Community School	10 Chestnut St.	School			
Silvermine Elementary School	157 Perry Ave.	School			
Tracey School	20 Camp St.	School			
West Rocks Middle School	81 West Rocks Rd.	School			
Wolfpit School	One Starlight Dr.	School			

Facility	Address or Location	Type	Emergency Power	Shelter	In 1% Floodplain
Americares Free Clinic/Sono Community Center	98 South Main St.	Care Facility			
Casena Care	23 Prospect Avenue	Care Facility			
Catholic Family Services Of Norwalk	7 Chapel St	Care Facility			
Connecticut Renaissance Inc Outpatient	83 Wall Street	Care Facility			
Elmcrest Terrace Halfway House	16 Elmcrest Terrace	Care Facility			
Fairfield Manor Health Care Center	23 Prospect Ave	Care Facility			
Family & Children's Agency, Inc.	9 Mott St	Care Facility			
Gambro Healthcare-Norwalk	31 Stevens Street	Care Facility			
Honey Hill Care Center	24 Stevens St, Norwalk	Care Facility			
Louise Carlson Senior Residence	17 Nelson Ave	Care Facility			
Ludlowe Commons/Ludlowe Village	11 Rogers Square	Care Facility			
Meridian Hill Triage And Detoxification	4 Elmcrest Terrace	Care Facility			
New Vision Cataract Center	605 West Avenue	Care Facility			
Norwalk Center	73 Strawberry Hill Ave	Care Facility			
Norwalk Community Health Center	120 Connecticut Ave.	Care Facility			
Norwalk Department Of Health	137 East Ave	Care Facility			
Norwalk Methadone Treatment Program	20 North Main	Care Facility			
Notre Dame Convalescent Home	76 W Rocks Rd	Care Facility			
Project Reward	Ben Franklin Ctr - 165 Flax Hill Rd	Care Facility			
St. John Street Group Home	4 St John Street	Care Facility			
The Dr. Robert E. Appleby Health Center-Richard Briggs High School	350 Main Street	Care Facility			
The Marvin	60 Gregory Blvd	Care Facility			
The Robert E Appleby - Brien McMahon	Highland Avenue	Care Facility			
East Ave Gas Station	227 East Ave				
Devine Bros	38 Commerce St	POL Terminal, Storage Facility, or Tank Farm			
Norwalk Public Library	1 Belden Avenue	Municipal			

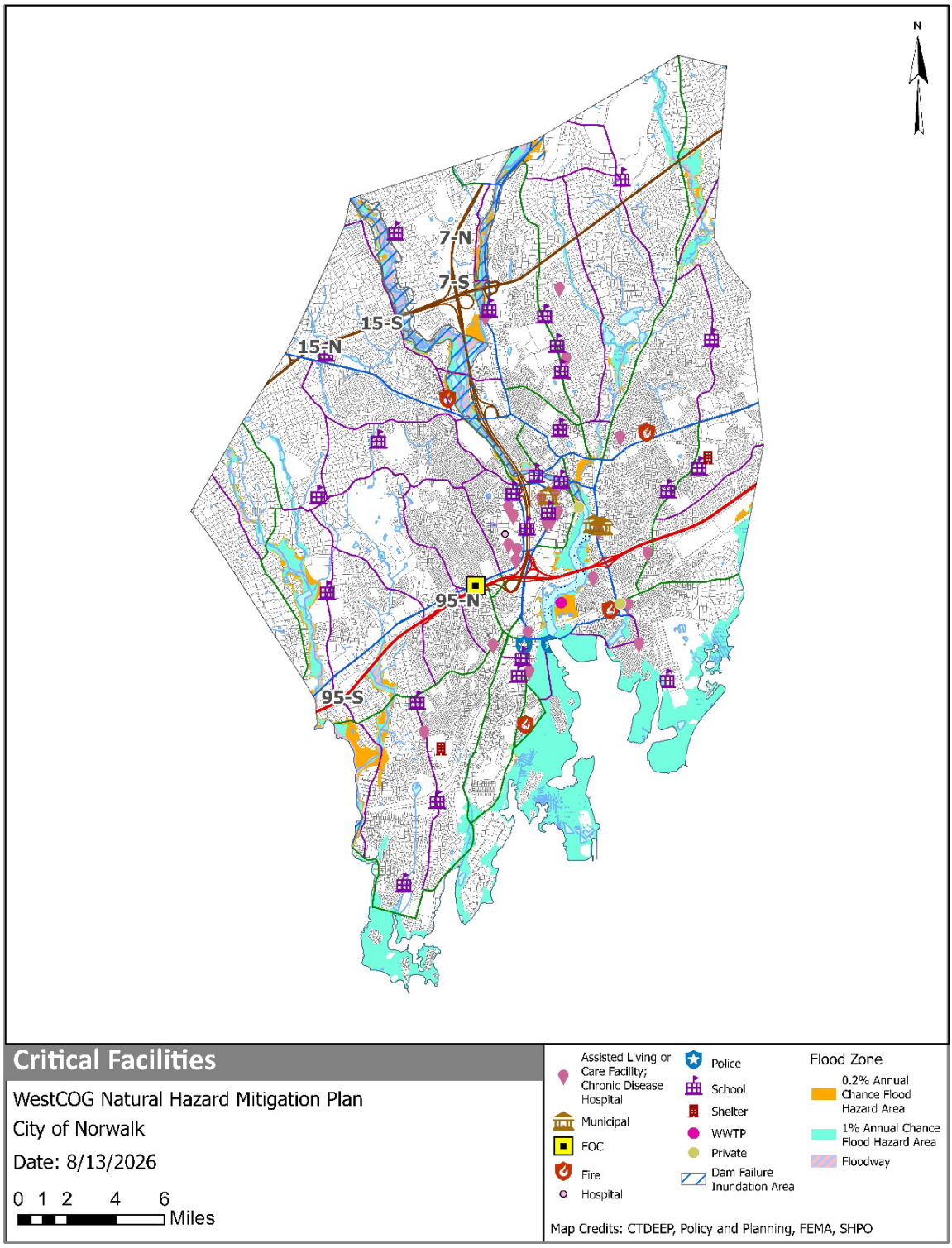

Figure 2-5: Critical Facilities & Flood Zones

Emergency Response

The City's Emergency Operations Center (EOC) is located in Norwalk Fire Department Station 2 – Headquarters on Connecticut Avenue. The fire department and EOC are connected to all public buildings, including schools, via a fiber optic network. Norwalk is located in the Connecticut Department of Emergency Services and Public Protection (DESPP) Region 1, consisting of 14 municipalities in southwestern Connecticut.

The City has also displayed long-term commitment to emergency response and management by utilizing warning system and various emergency planning techniques. In addition, there are two emergency management and planning specific roles in the city: Director of Combined Dispatch and Emergency Preparedness Planning. City staff are also trained in National Incident Management System (NIMS) and Incident Command system (ICS)

Emergency Communication Capabilities

The City of Norwalk utilizes the Code Red notification system to alert residents of emergency situations. This system allows the state to direct geographically specific emergency notification telephone calls into affected areas. The city also utilizes social media sources including Facebook and Twitter to post public information. Various media outlets are also used to relay information to the public. Residents can also sign up for city e-mail notifications. These messages can be in relation to natural hazards, or other city information.

Information about natural hazards and hazard preparedness is posted on the City Website through the Public Safety Health & Welfare Department.

Hazardous Materials

King Chemicals, which is located in 100-year flood zone, is a chemical manufacturer located along the Norwalk River.

Changes to Emergency Services since the Previous HMP

Both shelters have standby power and are continuously pursuing the acquisition of back-up generators for pumping stations. The city has also developed regional sheltering plans to address sheltering and evacuation needs.

3.0 HAZARD ASSESSMENT

3.1 FLOODING (COASTAL, INLAND, AND ICE JAMS)

3.1.1 Setting

The potential for flooding exists across Norwalk, with the majority of major flooding occurring along established riverine and coastal SFHAs. The areas impacted by overflow of river systems are generally limited to river corridors and floodplains. Indirect flooding that occurs outside floodplains and localized nuisance flooding along tributaries can also be a concern. This type of flooding occurs particularly along roadways as a result of inadequate drainage and other factors. Coastal flooding can occur during a severe storm event by way of storm surge, and can also occur as nuisance flooding, which is experienced during extremely high tide events. The frequency of flooding in Norwalk is considered likely for any given year, with flood damage potentially having significant effects during extreme events.

A regulatory floodplain with AE designation has been mapped along the Norwalk River, Silvermine River, Fivemile River, and Stony Brook. There are also regulatory floodplain areas with a VE or an AE designation along the Long Island Sound shoreline. The Areas identified as providing flood storage are identified with A Zone designations, meaning they are regulated as floodplain, but flood elevations have not been established. The Fourteen Acre Pond and Woods Pond distribute these traits. Floodplain and floodway designations have also been established along the rivers with AE designations. Refer to Figure 2-5 for the areas of Norwalk susceptible to flooding based on FEMA flood zones.

In general, potential flooding problems in Norwalk are concentrated along the multiple rivers and the coastline. City officials have noted that Water Street and the surrounding areas in South Norwalk continue to be of flooding concern. In addition, the Taylor Pond area is also a concern. While the city has upgraded the pipes in the area, there is concern about what the area will look like under elevated sea levels.

Coastal flood events, especially storm surge during hurricanes and tropical storms, can cause some of the most severe damage with high economic impacts to the city and residential properties. Figure 3-1 shows hurricane storm surge inundation zones.

3.1.2 Capabilities

The City primarily attempts to mitigate future flood damage and flood hazards by restricting building activities in floodprone areas. This process is carried out through both the Planning and Zoning process. All watercourses are to be encroached minimally or not at all to maintain the existing flood-carrying capacity. These regulations rely primarily on the FEMA-defined 1% annual chance flood elevations to determine flood areas.

Floodplain Management, NFIP, and CRS

The City has consistently participated in the NFIP since April 3, 1978, and intends to continue participation in the NFIP. SFHAs in Norwalk are delineated on a Flood Insurance Rate Map

(FIRM) and Flood Insurance Study (FIS). The FIS and FIRMs for the city were most recently revised in 2013.

The city has historically participated in the FEMA Community Rating System (CRS) program, which recognizes and rewards more stringent floodplain regulations. While the City has since been unenrolled from the program, it submitted paperwork to FEMA in the spring of 2020 requesting reentrance. By participating in the program, city residents will receive a discount on flood insurance.

The NFIP administrator for the city oversees the enforcement of NFIP regulations. The degree of flood protection established by the variety of regulations in the City meets the minimum requirements for regulatory purposes under the NFIP. The City has a minimum elevation standard to include one foot of freeboard.

The City's Planning and Zoning Commission uses the 1% annual chance flood lines from the FIRM delineated by FEMA to determine floodplain areas. Site plan standards require that all proposals be consistent with the need to minimize flood damage, that public facilities and utilities be located and constructed to minimize flood damage, and that adequate drainage is provided.

Ordinances, Regulations, and Plans

Regulations, codes, and ordinances that apply to flood hazard mitigation in conjunction with and in addition to NFIP regulations are listed below, with examples of sections and content with specific relevance to flood mitigation.

Zoning Regulations:

- Article 110, Flood Hazard Zone: Outlines general development requirements for all flood zones, including 1 foot of freeboard for all new and substantially improved construction.
- Article 110, Flood Hazard Zone (C)(5) and (6): Flood provisions for AE, VE and Coastal AE zones, including 1 foot of freeboard for all new and substantially improved construction.

Inland Wetland and Watercourse Regulations:

- Defines "Significant Regulated Activity": as any activity which substantially diminishes the natural capacity of an inland wetland or watercourse to; support desirable fisheries, wildlife, or other biological life; prevent flooding; supply water; assimilate waste; facilitate drainage; provide recreation or open space; or perform other functions.
- 60A-10(B)(1): The standards and criteria for decisions include potential effects on the capacity for the inland wetlands or watercourses to prevent flooding.

Subdivision Regulations:

- Section 3.01: Land shall not be subdivided if it cannot be safely used because of a flood danger
- Section 3.30 (b): If a subdivision is proposed in a flood prone area, it shall be constructed to minimize flood damage, locate utilities to minimize flood damage, drainage should be provided to minimize flood hazards, base flood elevation will be provided with all proposals.

Norwalk Harbor Management Plan

- Identifies the need to protect coastal resources including tidal ponds.
- Norwalk River Watershed Action Plan
- Developed by the Norwalk River Watershed Initiative (NRWI) in 1998, and updated in 2012, the City of Norwalk supports the various goals outlined within the plan, including those directed toward floodplain protection and flood hazard mitigation.

Drainage and Street Flooding

The Norwalk Department of Public Works (DPW) oversees the maintenance of the city's drainage systems and performs clearing of bridges and culverts, and other maintenance as needed. Drainage concerns are addressed in conjunction with road pavement projects.

Drainage complaints are routed to the DPW through an online work-order system called Cityworks. The reports can then be used to monitor and track flood prone areas. City staff noted Water Street and surrounding areas to be of concern.

Public Information

The city receives regular weather updates through the Division of Emergency Management and Homeland Security (DEMHS) Region 1 email alerts as well as watches and warnings through the National Weather Service. A stream gauge on the Norwalk River in South Wilton and a tidal gauge in Bridgeport help city officials watch for flooding conditions and respond accordingly.

Actions Completed and New Capabilities

The city recently installed back-up generators at all sanitary sewer pumping stations. This is critical for flooding and other natural hazard events. The city is also currently working to acquire a new property to relocate the Keeler Brook pump station.

3.1.3 Vulnerabilities and Risk Assessment

Repetitive Loss Properties

There are 227 repetitive loss properties (RLPs) located in the City of Norwalk; 218 are residential, and 9 are commercial. There is 1 property along Stony Brook, 3 properties along the Norwalk River, 4 properties along the Fivemile River, 207 properties within coastal zones, and the remaining 3 properties are along smaller tributaries or not adjacent to a significant stream

Critical Facilities

There is one facility located within the 100-year flood zones. This facility is critical to police response water capabilities during an event.

The at-risk facilities include:

- Norwalk Police Marine Patrol Station

At-Risk Areas

Norwalk has reported flooding to be a concern at the following locations:

- Taylor Pond

- Water Street and adjacent areas

Figure 2-5 depicts FEMA flood zones in Norwalk. Figure 3-1 shows hurricane storm surge inundation zones.

Norwalk River

Southern reaches of the river have the large delineated floodplains, in addition to a large floodway area delineated at the convergence point of the Norwalk and Silvermine Rivers. Therefore, these may be considered to be the most at-risk areas along the Norwalk River. Although there are only 3 RL properties along the river, flooding is possible in some areas. The Norwalk River flows directly into Long Island Sound; there are numerous repetitive loss properties located at the mouth of the river along the Norwalk Harbor.

Long Island Sound Coastline

The shoreline of Norwalk is primarily residential, with commercial activity along the Norwalk Harbor. The entire coastline, specifically the southern areas of Rowayton, Wilson Point, Manressa Island, and the southern areas of East Norwalk, is particularly at risk of storm surge during an event under future sea level rise scenarios.

Overall, the city reports that during extreme downpours, extreme flooding occurs throughout Norwalk. The most recent extreme precipitation event in August 2024 caused flooding and also impacted the Keeler Brook pump station. The station is operating on a temporary basis and will need to be permanently repaired or relocated.

Changes and Improvements

The city has executed several drainage projects throughout Norwalk. It is estimated that between $17 and $18 million in upgrades have occurred in recent years. Positive effects of these investments have been observed.

3.2 DAM FAILURE

3.2.1 Setting

Dam failures can be triggered suddenly, with little or no warning, and often from other natural disasters such as floods and earthquakes. Dam failures often occur during flooding when the dam breaks under the additional force of floodwaters. In addition, a dam failure can cause a chain reaction where the sudden release of floodwaters causes the next dam downstream to fail. While flooding from a dam failure generally has a moderate geographic extent, the effects are potentially catastrophic. Fortunately, a major dam failure is considered very unlikely in any given year.

3.2.2 Capabilities

Dam failure inundation areas are included in the CT Alert emergency notification system contact database. The high hazard dams that could potentially have an impact on the city if there were to be a failure are Chasmar Pond dam, Popes Pond Dam in Wilton, and the John D. Milne Lake and Grupes Reservoir dams located in New Canaan

Actions Completed and New Capabilities

Norwalk dam failure mitigation capabilities have improved since adoption of the previous plan through increased dam monitoring and dam safety enforcement capabilities at the state level, as well as the digitization and inclusion of dam failure inundation areas into the CTAlert system.

3.2.3 Vulnerabilities and Risk Assessment

As of March 2026, there were 47 DEEP-inventoried dams within the City of Norwalk. These dams are shown in Figure 2-5. One of these dams is a Class C, or high hazard dam, and five others are a Class B, or significant hazard dam. As shown in Table 3-1, the high hazard dams located in the City pose a risk to the City of Norwalk, along with some portions of the Town of Darien.

Table 3-1: High Hazard Dams with Potential to Affect the City of Norwalk

#	Name	Location	Class	Owner
10312	Chasmars Pond Dam	Chasmars Pond, Norwalk	C	Private
10302	Millard Pond Dam	Millard Pond, Norwalk	B	Private
10305	Hams Pond Dam	Upper Pond, Norwalk	B	Private – Orchard Lake Condominium
10307	Chestnut Hill Pond Dam	Chestnut Hill Pond, Norwalk	B	Private
10308	Perry Pond Dam	Perry Pond, Norwalk	B	Private – The Whitman Co.
10313	Florsheim Pond Dam	Florsheim Pond, Norwalk	B	Private -Opale Metals & Trading Company Limited

Failure of a high hazard dam can affect properties downstream of the impoundment both in and outside of the city, with potential large inundation zones traveling along each respective waterway.

The Chasmars Pond Dam is 72 feet long and has a maximum height of 11 feet. It is a masonry structure and impounds roughly 26.5 acres at normal water levels with a contributing watershed of 11.80 square miles. The primary purpose of the dam is “unidentified”; however, the pond is adjacent to the Metro-North track, making this impoundment likely the product of railway construction.

Millard Pond Dam, located along the Fivemile River, is a 75-foot-long masonry dam with a height of 17 feet. The dam impounds a pond of roughly 4.2 acres, and has a total watershed area of 6.85 square miles. The recreational dam is privately owned.

The Hams Pond Dam is an earth and masonry dam that is 175 feet long with a height of 9 feet. The dam is recreational and located on Silvermine Brook. The dam impounds a pond of 1.5 acres, with a drainage area of 0.9 square miles.

Chestnut Hill Pond Dam is an earth and masonry dam located on the Stony Brook. The dam is 250 feet long, with a height of 5 feet, and is classified as recreational. The dam impounds a 2.0-acre pond with an associated drainage area of 0.5 square miles.

Perry Pond Dam, located along the Silvermine River, is a 60-foot-long masonry dam with a height of 15 feet. The recreational dam impounds a pond of 1.0 acres, with a watershed area of 19.8 square miles.

The Florsheim Pond Dam is 100 feet long and 6 feet high. The masonry recreational dam impounds a 3.0-acre pond, with a watershed drainage area of 7.46 square miles. This dam is located on the Fivemile River.

Changes and Improvements

Norwalk continues to be at low risk from dam failure.

3.3 HURRICANES AND TROPICAL STORMS

3.3.1 Setting

A hurricane striking Norwalk is considered a possible event each year and could cause critical damage to the city and its infrastructure. Wind damage from a hurricane can occur anywhere in the city, and heavy rainfall may cause riverine and urban flooding, and storm surge can occur anywhere along the coastline.

Connecticut is located in FEMA Zone II regarding maximum expected wind speed. The maximum expected wind speed for a three-second gust is 160 mph. The American Society of Civil Engineers recommends that new buildings be designed to withstand this peak three-second gust.

3.3.2 Capabilities

Wind loading requirements are addressed through the state building code. The 2022 Connecticut State Building Code was amended in 2022 and adopted with an effective date of October 1, 2022. The code specifies the design wind speed for construction in all Connecticut municipalities. Effective 2022, the design wind speed for Norwalk is 110 miles per hour for a Category 1, 120 miles per hour for a Category 2, 130 miles per hour for a Category 3, and 135 miles per hour for a Category 4 or greater. Norwalk has adopted the Connecticut Building Code as its building code. The city website provides links to the State Building Codes so that developers are able to find design standards for wind.

The city has a robust tree maintenance program, with a budget that allows for maintenance, along with the equipment and machinery necessary for this maintenance. The city's tree warden also maintains a tree asset identification system, which identifies trees as their maintenance issues are addressed. This system also allows the city to track the state of the tree canopy.

Actions Completed and New Capabilities

Two districts in the city have electric assets located underground.

3.3.3 Vulnerabilities and Risk Assessment

Most of the damage to the city from historical tropical cyclones has been due to the effects of flooding and wind. Areas of known and potential flooding problems are discussed in Section 3.1

The City of Norwalk is vulnerable to hurricane damage from wind, flooding, storm surge, and from any tornadoes accompanying the storm. In fact, most of the damage to the city from historical tropical cyclones has been due to the effects of flooding. Factors that influence vulnerability to tropical cyclones in the city include building codes currently in place, local zoning and development patterns, and the age and number of structures located in highly vulnerable areas of the community.

Changes and Improvements

Norwalk continues to mitigate hurricane and tropical storm impacts with flood mitigation efforts and tree maintenance.

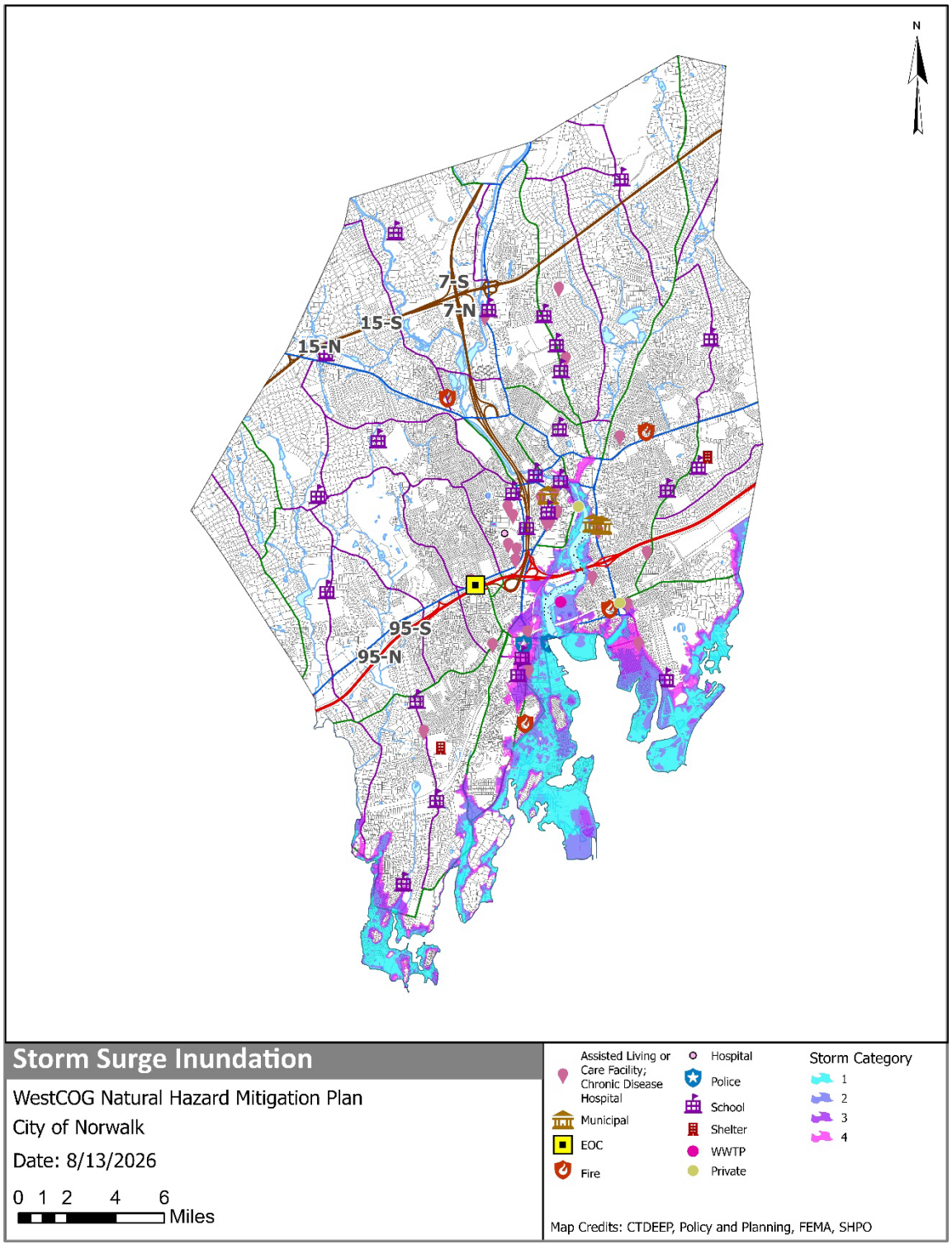

Figure 3-1: Storm Surge Inundation Zones

3.4 SUMMER STORMS AND TORNADOES

3.4.1 Setting

Summer storms and tornadoes have the potential to affect any area within the City of Norwalk. Because these types of storms and the hazards that result (flash flooding, wind, hail, and lightning) might have a limited geographic extent, it is possible for a summer storm to harm one area within the city without harming another.

Based on the historic record, it is considered highly likely that a summer storm that includes lightning will impact Norwalk each year, although lightning strikes have a limited effect. Strong winds and hail are considered likely to occur during such storms, but also generally have limited effects. A tornado is considered a possible event in Fairfield County each year that could cause significant damage to a small area.

3.4.2 Capabilities

The City's capabilities regarding mitigation of high wind events are described in Section 3.3.2.

Warning is the primary method of existing mitigation for tornadoes and thunderstorm-related hazards. The NOAA National Weather Service issues watches and warnings when severe weather is likely to develop or has developed, respectively. Norwalk's emergency communication capabilities are described in Section 2.5.

Actions Completed and New Capabilities

Norwalk's tree trimming and maintenance capabilities, and its emergency communication capabilities, continue to mitigate impacts from summer storms.

3.4.3 Vulnerabilities and Risk Assessment

The entire City of Norwalk is at relatively equal risk for experiencing damage from summer storms and tornadoes. Based on the historic record, a few summer storms have resulted in costly damages to the city. Most damages are relatively site specific and occur to private property (and therefore are paid for by private insurance). For municipal property, the city budget for tree removal and minor repairs is generally adequate to handle summer storm damage.

According to the 2023 State Natural Hazard Mitigation Plan Update, Fairfield County has a moderately high risk of tornado activity based on historical occurrences. Therefore, by virtue of its location in Fairfield County, the City of Norwalk has moderate to high potential to experience tornado damage. In general, thunderstorms and hailstorms in Connecticut are more frequent in the western and northern parts of the state and less frequent in the southern and eastern parts.

Thunderstorms are expected to impact Norwalk about 20 days each year. The majority of these events do not cause any measurable damage. Although lightning is usually associated with thunderstorms, it can occur on almost any day. The likelihood of lightning strikes in the Norwalk area is very high during any given thunderstorm, although no one area of the city is at higher

risk of lightning strikes. The risk of at least one hailstorm occurring in Norwalk is considered moderate in any given year.

The risk of downbursts occurring during such storms and damaging the City of Norwalk is believed to be low for any given year. All areas of the city are susceptible to damage from high winds, although more building damage is expected in downtown and surrounding areas, while more tree damage is expected in the less densely populated areas of the city.

Secondary damage from falling branches and trees is more common than direct wind damage to structures. Heavy winds can take down trees near power lines, leading to the start and spread of fires. Most downed power lines in Norwalk are detected quickly, and any associated fires are quickly extinguished. Such fires can be extremely dangerous during the summer months during dry and drought conditions. It is important to have an adequate water supply for fire protection to ensure the necessary level of safety is maintained.

Changes and Improvements

Norwalk continues to mitigate summer storms and tornadoes.

3.5 WINTER STORMS AND NOR'EASTERS

3.5.1 Setting

The entire City of Norwalk is susceptible to winter storms and, due to its variable elevation, can have higher amounts of snow in the northern neighborhoods of the city than in the downtown area. In general, winter storms are highly likely each year (although major storms are less frequent), and the hazards they produce (nor'easter winds, snow, and blizzard conditions) can have a significant effect across a large area of the city.

According to the 2023 Connecticut State Natural Hazard Mitigation Plan, the state can expect to experience at least four major snow events each year, with an average of 8 winter events in a season for Fairfield County. It is estimated that Norwalk's average annual snowfall is about 2.5 to 4 feet.

3.5.2 Capabilities

Prior to a winter weather event, the city ensures that all warning/notification and communications systems are ready and ensures that appropriate equipment and supplies, especially snow removal equipment, are in place and in good working order. In some known problem areas, pre-storm treatment is applied to roadways to reduce the accumulation of snow. The city also prepares for the possible evacuation and sheltering of populations that could be affected by the upcoming storm (especially the elderly and people with special needs).

The city has robust road-clearing capabilities with regard to snow events. There are 255 miles of roadway in Norwalk that need to be plowed during an event, which is covered by 26 different plow routes. The city has prioritized streets for plowing and salt treatment, with special attention paid to those main roadways with steep hills and difficult intersections. The Norwalk DPW has developed a snow removal policy that clearly outlines the methods used by the city and provides additional information for residents and their responsibilities during an event.

The public works department has several resources located on their website, including snow emergency routes, a guide to understanding snow removal operations, and winter storm safety tips.

Actions Completed and New Capabilities

Norwalk's winter storm mitigation capabilities continue to be significant, although there has not been a significant change in these capabilities since the previous HMP was adopted.

3.5.3 Vulnerabilities and Risk Assessment

The entire City of Norwalk is at relatively equal risk for experiencing damage from winter storms, although some areas (such as icing trouble spots and neighborhoods with a high concentration of flat roofs) are more susceptible. The public assistance reimbursement from Winter Storm Alfred was over $89,000, proving that winter storms can be very costly. However, many damages are relatively site specific and occur to private property (and therefore are paid for by private insurance) while repairs for power outages are often widespread and difficult to quantify to any one municipality.

For municipal property, the city budget for tree removal and minor repairs is generally adequate to handle winter storm damage, although the plowing budget is often depleted.

The structures and utilities in Norwalk are vulnerable to a variety of winter storm damage. Tree limbs and some building structures may not be suited to withstand high wind and snow loads. Ice can damage or collapse power lines, render steep gradients impassable for motorists, undermine foundations, and cause "flood" damage from freezing water pipes in basements. Drifting snow can occur after large storms, but its effects are generally mitigated by municipal plowing.

Changes and Improvements

Norwalk has upgraded some drainage infrastructure and worked to get electric assets below ground, helping to mitigate outages and flooding associated with winter events.

3.6 WILDFIRES AND DROUGHT

3.6.1 Setting

The City of Norwalk is generally considered a moderate risk area for small wildfires but a low risk area for large wildfires. Wildfires are of particular concern in the few areas without public water service and other areas with poor access to firefighting equipment. Such areas in Norwalk are likely limited to the northern stretches of the city. Hazards associated with wildfires include property damage and loss of habitat.

In addition, Norwalk and Fairfield County overall have experienced drought challenges over recent years. The 2023 Connecticut Natural Hazard Mitigation Plan assumes that the State of Connecticut is likely to experience a drought every two to three years. This assumption is based on climate change projections that anticipate hotter, wetter conditions in the near future. Climate forecasts often suggest that while precipitation may increase, the overall pattern will generally be higher intensity storms, with longer than average dry periods between events. The State Plan also identifies that Fairfield County accounts for roughly 7.28% of the state's total number of farms, with a market value of over $42 million in product sold from these farms.

3.6.2 Capabilities

Regulations regarding fire protection in Norwalk are outlined in the city's *Code of Ordinances:*

- Chapter 42A Fire Prevention: Outlines the purpose of these codes as safeguarding life and property from the storage or use of materials that pose a fire hazard.
- Chapter 42A-8 Abatement of Fire Hazards: Materials located in a building or upon any premises that are combustible, pose as obstructions, or violate the statutes must be removed and remedied.

The city's Fire Department is comprised of five stations located throughout the city, all of which are staffed by career firefighters. The career department has 148 employees, including uniformed and civilian professionals.

Actions Completed and New Capabilities

The city continues to mitigate wildfires.

3.6.3 Vulnerabilities and Risk Assessment

According to the Connecticut DEEP, the actual forest fire risk in Connecticut is low due to several factors. First, the overall incidence of forest fires is very low. According to the 2023 State Hazard Mitigation Plan, a total of 2,430 wildland fire events occurred between 2013 and 2022, with an average of 1.2 total acres burned per incident. Secondly, as the wildfire/forest fire prone areas become fragmented due to development, the local fire departments have increased access to those neighborhoods for firefighting equipment. Third, the problematic interface areas such as driveways too narrow to permit emergency vehicles are site specific. Finally, trained firefighters at the local and state levels are readily available to fight fires in the state, and inter-municipal cooperation on such instances is common.

As suggested by the historic record, most wildfires in Connecticut are relatively small. In the drought year of 1999, the average wildfire burned 5 acres, compared with the two most extreme wildfires recorded since 1986, which burned 300 acres each. Given the availability of firefighting water in the city – including the use of nearby water bodies – and the historic record, it is believed that the average size of a wildfire in a drought year would be less than one acre, although the extreme value of five acres is likely applicable to the city.

Wildfires are more common in rural areas than in developed areas, as most fires in populated areas are quickly noticed and contained. The likelihood of a severe wildfire developing is reduced by the state's extensive network of water features, which create natural breaks that can stop the spread of a fire. During long periods of drought, these natural features may dry up, increasing the vulnerability of the state to wildfires. Wildfire Risk Areas are mapped in Figure 3-2.

The most common causes of wildfires are arson, lightning strikes, and fires started from downed trees hitting electrical lines. Thus, wildfires have the potential to occur anywhere and at any time in both undeveloped and lightly developed areas. The extensive forests and fields covering the state are prime locations for a wildfire. In many areas, structures and subdivisions are built abutting forest borders, creating areas of particular vulnerability.

The Wildland-Urban Interface (WUI) index is used to identify areas that may be at greater risk of wildfires based on the density of development in comparison to the amount of wildfire prone vegetation. A small portion of the northern area of Norwalk, specifically along the Wilton border, could be considered at risk due to moderate to high levels of development intermixed with fire prone vegetation. However, given the small size of this at-risk area, and firefighting capacity and water availability, it is likely that the city has effective capabilities to minimize damage from fires that may occur.

Wildfires can also become more frequent or aggressive during times of drought. The city health department and emergency manager frequently meet with water utilities to receive updates and to better understand how to support utilities during times of drought. Additionally, the city helps to disseminate drought related information to residents. While there are no specific areas of concern related to drought, the city works to mitigate impacts throughout Norwalk.

Changes and Improvements

The city's vulnerability to wildfires and drought continues to be low.

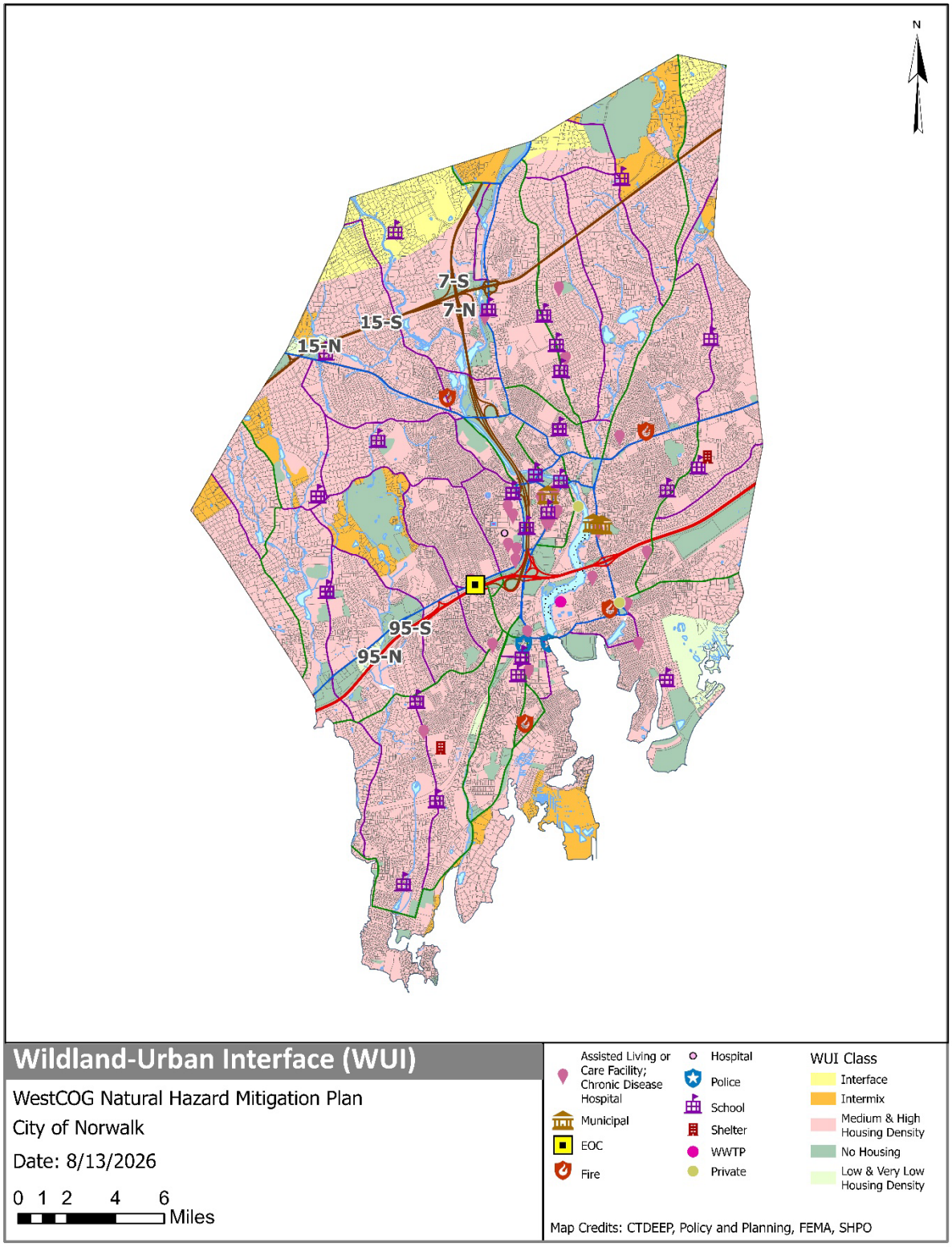

Figure 3-2: Wildfire Risk Areas

3.7 EARTHQUAKES AND LANDSLIDES

3.7.1 Setting

The entire City of Norwalk is susceptible to earthquake damage. However, even though earthquake damage has the potential to occur anywhere, both in the city and in the northeastern United States, the effects may be felt differently in some areas based on the type of geology. In general, earthquakes are considered a hazard that may possibly occur, but that may cause significant effects to a large area of the city.

3.7.2 Capabilities

The city has adopted the state building codes for new construction, and they are enforced by the Building Official. Due to the infrequent nature of damaging earthquakes, land use policies in the city do not directly address earthquake hazards. However, various documents do indirectly discuss areas susceptible to earthquake damage and regulations that help to minimize potential earthquake damage.

Subdivision Regulations:

- Encourage the conservation of natural features to the maximum feasible extent, and take into consideration erosion problems.

Zoning

- Article 112 outlines regulations to minimize soil erosion throughout the city.

Actions Completed and New Capabilities

Norwalk continues to have appropriate capabilities for mitigating earthquake events.

3.7.3 Vulnerabilities and Risk Assessment

Some areas in Norwalk are underlain by sand and gravel, such as along the Norwalk and Fivemile River, and artificial fill, particularly within the more urban neighborhoods like South Norwalk. Structures in these areas are at increased risk from earthquakes due to amplification of seismic energy and/or collapse. Most of the remaining area is underlain by glacial till and is therefore not at increased risk of unstable soils during an earthquake.

A series of earthquake probability maps was generated using the 2009 interactive web-based mapping tools hosted by the USGS. These maps were used to determine the probability of an earthquake of greater than magnitude 5.0 or greater than magnitude 6.0 damaging the City of Norwalk. Results are presented in Table 3-1 below.

Table 3-1: Probability of a Damaging Earthquake in the Vicinity of Norwalk

Time Frame (Years)	Probability of the Occurrence of an Earthquake Event > Magnitude 5.0	Probability of the Occurrence of an Earthquake Event > Magnitude 6.0
50	2% to 3%	< 1%
100	4% to 6%	1% to 2%
250	10% to 12%	2% to 3%
350	12% to 15%	3% to 4%

Changes and Improvements

The city's vulnerability to earthquakes continues to be low.

3.8 SEA LEVEL RISE AND SHORELINE CHANGE

3.8.1 Setting

The coastal areas of Norwalk are susceptible to sea level rise and shoreline change. With most of the shoreline being residential, and commercial and water dependent activity in pockets throughout, residential properties are at a greater risk of future inundation. Sea level rise may not be considered a high hazard risk in and of itself; however, rising seas in conjunction with extreme weather may result in inundation farther inland than seen during past events. In addition to extreme weather, nuisance flooding may also become a more frequent issue during extreme high tides.

The State of Connecticut has adopted the recent sea level rise projections developed by the University of Connecticut, Connecticut Institute for Resilience and Climate Adaptation (CIRCA), as the latest planning threshold for coastal municipalities. This projection anticipates a rise of 50 cm by the year 2050.

3.8.2 Capabilities

The city has begun to see an increase in nuisance flooding, and has experienced the impacts of extreme storm surge; leaving city officials aware of the potential impacts of an extreme storm with elevated sea levels.

City staff have begun to identify the areas that are at risk of increased nuisance flooding and solutions and mitigation strategies are being recognized. In an effort to protect municipal infrastructure, projects are also being developed and funded, such as the Greenwich Avenue pump station, which is at risk of inundation.

Actions Completed and New Capabilities

Norwalk continues to build its sea level rise and shoreline change capabilities.

3.8.3 Vulnerabilities and Risk Assessment

The most at-risk areas are those immediately along the shoreline, with risk slightly declining moving inland. The marshes of Manressa Island and in East Norwalk are at an increased risk, while some areas, such as Taylor Pond and Water Street, are already seeing flooding issues during high water events. In addition, a 100-year storm event with one foot of sea level rise has the potential to inundate many of the coastal areas, including parts of Rowayton, Manressa Island, the coastline in East Norwalk, and South Norwalk and Spring Hill along the river.

With much of the commercial area at risk of flooding during a 100-year event with elevated sea levels, there is a significant economic risk. There are several large-scale companies, historic resources, and tourist attractions in these vulnerable areas.

Changes and Improvements

The city has begun to elevate infrastructure and is continuing to work on elevating pump stations.

3.9 EXTREME HEAT

3.9.1 Setting

Extreme heat can occur at any time during the warmer months and can be defined as temperatures that hover 10 degrees or more above the average high temperature for the region. The NWS defines extreme heat as a period of abnormally hot weather generally lasting more than two days. A *heat wave* typically lasts three or more days with temperatures over 90 degrees for those days. These events typically last for a prolonged period of time, can vary in extent and intensity, and are often accompanied by high humidity.

An extreme heat event or heat wave can occur anywhere throughout Connecticut and any of the WestCOG communities. According to the 2023 Connecticut State Natural Hazard Mitigation Plan, Fairfield and Litchfield counties experienced, between 2012 and 2021, the greatest and least average annual number of days with temperatures greater than 90 degrees, respectively. Fairfield County experienced five days on average, while Litchfield County experienced zero days on average.

Extreme heat events are expected to increase. The WestCOG Regional Climate Assessment (2026) notes that "by 2050, in a high CO_2-emissions scenario (RCP 8.5), average temperatures are expected to rise by approximately 5°F and continue to increase thereafter." The region is also likely to see an increase in heat wave days, summer days (where daily maximum temperatures are above 77 degrees), and tropical nights (where the daily minimum is below 68 degrees).

3.9.2 Capabilities

The City of Norwalk has identified cooling centers in the city which can provide respite to members of the community during an extreme heat event or heat wave. The City also monitors the National Weather Service and local forecasts for heat warnings and advisories, in addition to guidance set forth by the State.

Actions Completed and New Capabilities

The City has identified two cooling centers in Norwalk.

3.9.3 Vulnerabilities and Risk Assessment

While the entire city is at risk of an extreme heat event, vulnerability can vary widely throughout the community as it does across Connecticut. To better characterize vulnerability to extreme heat, UConn CIRCA has developed a tool to aid in understanding extreme heat vulnerability for communities across the state. This tool, known as the Climate Change Vulnerability Index (CCVI), comprises dozens of factors that contribute to a community's heat sensitivity, exposure, adaptive capacity, and, ultimately, overall heat vulnerability. The CCVI can be used to characterize heat vulnerability in Norwalk.

In general, the most vulnerable populations in Norwalk would include the young and the elderly, and those populations living in the more densely developed areas in the city, which may have reduced tree coverage and a greater density of impervious surface. According to the CCVI, more heat vulnerable areas in Norwalk are in the South Norwalk area and along the Route 7 Corridor,

Changes and Improvements

The city, like all WestCOG communities, is now including extreme heat in its HMP and beginning to plan more intently to address extreme heat impacts.

4.0 MITIGATION STRATEGIES AND ACTIONS

4.1 Goals and Objectives

Municipal goals and objectives have been made consistent regionally and are presented in the Multi-Jurisdictional Plan document.

4.2 Status of Mitigation Strategies and Actions from Previous HMP

The table below lists the mitigation actions developed in the previous HMP and their status. Actions to be carried forward are noted as such. Actions that have been institutionalized as capabilities are not carried forward.

Table 4-1 Status of Previous Mitigation Actions

#	Description	Status	Notes
1	Provide information on the Town website about CT DEEP training and information around small business chemical management for hazard resilience.	Remove	Complete - not other engagement has occurred, and no other presentations.
2	Use the CT Toxics Users and Climate Resilience Map to identify toxic users located in hazard zones within your community. Contact those users to inform them about the CT DEEP small business chemical management initiative.	Remove	Make regional
3	Host a CT DEEP presentation for municipal staff and local businesses about business chemical management for hazard resilience.	Remove	Make regional
4	Register as a Sustainable CT community and make progress with the hazard mitigation goals associated with registration.	Complete	Gold status - complete
5	Improve consistency of communication and coordination with Eversource for emergency response efforts, with a goal of at least one improved coordinated response during an event in the lifespan of this plan.	Potentially Remove As It May Be A Capability	eversource does a quarterly briefing call to review information/procedures, so this is ongoing. SNEW has an outage map
6	Collaborate with CIRCA on the "Resilient Connecticut" project	Remove	Complete

#	Description	Status	Notes
7	Coordinate with CT SHPO to conduct outreach to owners of historic properties to educate them on methods of retrofitting historic properties to be more hazard-resilient while maintaining historic character.	Remove	Make regional
8	Conduct outreach and education to the public regarding evacuation routes and procedures.	Revise With Education Actions	included in annual offerings and happenings. There are no high water evacuation markers - would be nice, but may not be welcome. But always included in pubed throughout the year.
9	Encourage development (especially higher density) to be located outside areas of flood risk wherever possible, including increased setbacks to account for sea level rise. This should be accomplished through changes to regulations as well as through close coordination with developers.	Carry Forward With Revision.	addressed to the extent that it can be. City may look at specific areas, such as Water st, also have to be mindful of some of the high value properties i.e., train
10	Evaluate the needs and abilities of departments to function beyond first 24 hours in case of loss of power, access, or other hazard impacts.	Carry Forward - Always Opportunities	departments should be somewhat responsible on their own. Still a need, and there are always opportunities
11	Compare local floodplain regulations with Revised State Model Flood Regulations to identify any remaining opportunities for improvement	Carry Forward With Revisions	Revised since, likely exceed
12	Contact the owners of Repetitive Loss Properties and nearby properties at risk to inquire about mitigation undertaken and suggest options for mitigating flooding in those areas. This should be accomplished with a letter directly mailed to each property owner.	Remove	Make regional. City does not have access to the list, COG may have reached out to properties. WestCOG does do annual outreach
13	Coordinate with CT SHPO to conduct historic resource surveys, focusing on areas within natural hazard risk zones (flood zones, wildfire hazard zones, steep slopes) to identify historic resources at risk and support the preparation of resiliency plans across the state.	Remove	Make regional - unsure there has been any movement with this or #7
14	Develop a natural hazards outreach and education program. Ensure outreach is targeted to those with limited English proficiency, and those with visual/auditory impairments. Identify and take advantage of opportunities to present hazard mitigation information through the non-profit organizations with which the city has relationships.	Remove Or Revise	Capability - put a spotlight on the City's website to highlight potential seasonal storms/impacts. Will promote resources and links, including other languages, depending on the hazard resources will vary. throughout the year city does a lot with community partners as needed. Michele will send out information and requests they share with their communities.
15	Work with CT DEEP to validate and/or correct the RL list and update the mitigation status of each listed property.	Remove	No progress, make regional
16	Annually conduct an emergency operations exercise for a local terrorism, sabotage, or mass casualty event.	Capability - Remove	Capability - attended state exercise - attends every year - will do other programs and tabletops throughout the year

#	Description	Status	Notes
17	Identify a suitable site to store DPW communications and vehicles out of harm's way, during flood events.	Carry Forward	no change - can always move to a temporary site, but nothing long term
18	Determine the risks, needs, and mitigation options for the WWTP.	Carry Forward	controls are done, still in the process of moving pumps. Some complete, some ongoing.
19	Provide adequate back-up generators at storm water pumping stations	Complete	this is for sewer pump stations, generator in all of them. Vanessa believes this is complete.
20	Elevate the Keeler Brook Pump Station above flood elevations.	Carry Forward With Revisions	in the process of acquiring another property to remove the pump station out of the floodzone. In process of closing, and working on design, but this will be a few years out.

4.3 Prioritization of Strategies and Actions

The STAPLEE method, described in the Multi-Jurisdictional document, was used to score mitigation activities. The STAPLEE matrix in Appendix A provides the total scores. Actions have been further prioritized based on implementation cost, project urgency, and municipal and public input. The strategies below are presented in priority order, with qualitative priority levels listed for each.

4.4 Mitigation Strategies and Actions Implementation Table

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

APPENDIX A

Appendix A: STAPLEE Matrix

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NWK-01	Compare local floodplain regulations with Revised State Model Flood Regulations to identify opportunities for improved consistency when adopting the new FEMA maps for the Saugatuck, Southwestern CT, and Housatonic studies. Ensure that freeboard is consistent with the State Building Code.	Planning	$0 - $25,000	Operating Budget	2026 or when directed by the State NFIP Coordinator	High	Prevention	Flooding	1	0	1	0	1	0	1	0	1	0	1	0	1	0	**9**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NWK-02	Encourage development (especially higher density) to be located outside areas of flood risk wherever possible, including increased setbacks to account for sea level rise. Consider appropriate mechanisms for specific neighborhoods throughout the City that consider existing develeopment and property values. This should be accomplished through changes to regulations as well as through close coordination with developers.	Planning	$0 - $25,000	Operating Budget	2027-2030	Med	Prevention	Flooding	1	1	1	0	1	1	0	0	1	0	1	0	1	0	**6**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NWK-03	Explore opportunities for new or expanded outreach and educational opportunities including non-profit partnerships, updated resources for the City website, and resources to target those with limited English proficiency, and those with visual/auditory impairments.	OEM	$25,000 - $50,000	Operating Budget	2027	Low	Education & Awareness	All Hazards	1	0	1	0	1	1	1	0	0	0	0	0	1	0	**5**
NWK-04	Identify potential locations for high water evacuation markers, and evaluate options for signage.	OEM, DPW	$50,000 - $100,000	Capital Improvement Plan, Operating Budget	2027-2028	Med	Education & Awareness	Multiple Hazards	1	0	1	0	1	0	1	0	1	0	1	0	1	0	**9**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NWK-05	Evaluate the needs and abilities of departments to function beyond first 24 hours in case of loss of power, access, or other hazard impacts.	OEM with Mayor's Office	$0 - $25,000	Operating Budget	2027-2029	Low	Preparedness & Emergency Response	All Hazards	1	0	1	0	1	0	1	0	1	0	0	0	0	0	**6**
NWK-06	Identify a suitable site to store DPW communications and vehicles out of harm's way, during flood events.	OEM, DPW, WPCA	$100,000 - $500,000	Capital Improvement Plan	2027-2029	Med	Property Protection	Flooding	1	0	1	0	1	0	1	0	1	0	1	0	1	0	**9**
NWK-07	Determine the risks, needs, and flood mitigation options for the WWTP.	DPW	$100,000 - $500,000	Operating Budget, FEMA HMA, CWSRF	2029-2031	High	Water & Wastewater Utility Projects	Flooding	1	0	1	0	1	1	1	0	1	0	1	0	1	0	**8**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NWK-08	Complete the mitigation of the Keeler Brook Pump Station including elevations or relocation.	DPW, OEM	>$1M	Operating Budget, FEMA HMA, CWSRF	2026-2028	High	Water & Wastewater Utility Projects	Flooding	1	0	1	0	1	1	1	0	1	0	1	0	1	0	**8**
NWK-09	As the opportunity arises, collaborate with CIRCA on the "Resilient Connecticut" project to advance further study in areas with flood and extreme heat risks.	Mayor's Office	$0 - $25,000	Operating Budget plus CIRCA funds from State and Federal sources	2028-2030	Low	More than one category	Multiple Hazards	1	0	1	0	1	1	1	0	0	0	1	0	1	0	**7**
NWK-10	Continue to participate in the WestCOG program that provides outreach to repetitive loss property owners.	Planning, Mayor's Office	$0 - $25,000	Operating Budget and COG general services budgets	Annually in 2026, 2027, 2028, 2029, and 2030	Medium	Property Protection	Flooding	1	0	1	0	1	0	1	0	0	0	1	0	1	0	**8**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NWK-11	Work with WestCOG to update the mitigation status of repetitive loss properties.	Planning	$0 - $25,000	Operating Budget and COG general services budgets	2029	Med	Property Protection	Flooding	0	0	1	0	1	0	0	0	1	0	1	0	0	0	**6**
NWK-12	Work with the First District Water Department and SNEW to enforce outdoor water use restrictions when applicable.	BOS	$0 - $25,000	Operating Budget	2027-2031	Low	Education & Awareness	Drought	1	0	1	0	1	1	0	0	0	0	0	0	1	0	**4**
NWK-13	Install a 60-kW natural gas standby generator with automatic transfer switch to provide uninterrupted power to the FDWD office, operations building, and garage during utility outages.	FDWD	$100,000 - $500,000	Capital Improvement Plan, FEMA HMA, and DWSRF	2027-2028	Med	Water & Wastewater Utility Projects	Multiple Hazards	1	0	1	0	1	1	0	0	0	0	1	1	1	0	**4**

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
NWK-14	Replace existing Kellogg-Deering Wellfield generator with a new diesel standby generator capable of supporting full wellfield operations, including treatment processes, automated transfer capabilities, and SCADA monitoring integration.	FDWD	>$1M	Capital Improvement Plan, FEMA HMA, and DWSRF	2027-2028	High	Water & Wastewater Utility Projects	Multiple Hazards	1	0	1	0	1	1	0	0	0	0	1	1	1	0	**4**
NWK-15	Rehabilitate the Grupes Reservoir Dam to safely pass design flood events, reduce failure risk, protect downstream populations and infrastructure, and maintain reliable drinking water supply service.	FDWD	>$1M	Capital Improvement Plan, FEMA HMA, and DWSRF	2028-2031	High	Water & Wastewater Utility Projects	Dam-Related Concerns	1	0	1	0	1	1	1	0	0	0	1	1	1	0	**5**