# Western Connecticut Council of Governments Multi-Jurisdiction Hazard Mitigation Plan Update 2021 – 2026

## Municipal Annex
for
# New Fairfield

3 Brush Hill Road
New Fairfield, Connecticut
October 2020

*Prepared for:*
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MMI #3101-22

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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 New Fairfield 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 and damage to life and 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

New Fairfield is located in northern Fairfield County along the New York state border. The Town is bordered by the Connecticut municipalities of Sherman to the north, New Milford and Brookfield to the east (from north to south), and to the south by the city of Danbury. It is bordered to the west (from north to south) by the municipalities of Patterson and Southeast, New York. Figure 2-1 illustrates the Town's regional location.

New Fairfield is located in the Western Highlands of Connecticut. The topography is characterized as semimountainous terrain with upland ridges intermingled with lower mountains, especially in the southwest section. In addition, peaks in central and northern New Fairfield reach elevations over 1,000 feet above mean sea level (msl) including Beaver Bog Mountain at 1,178 feet above msl and Pond Mountain at 1,200 feet above msl. The eastern third of the Town is dominated by Lake Candlewood, Connecticut's largest lake. Over 40 miles of the lake's shoreline are located in the Town, dividing that section into bays, coves, peninsulas, and small islands. The varying terrain of New Fairfield makes the Town vulnerable to an array of natural hazards. The Town does not include any coastline or tidally influenced watercourses, removing hazards from storm surges or predicted sea level rise.

The Center for Land Use Education and Research (CLEAR) has developed a land cover dataset derived from 2016 satellite imagery to depict statewide land cover. The land cover by percent of total land for New Fairfield can be found in Table 2-1.

**Table 2-1: Land Cover by Area**

| Land Cover Class | Percent of Total Land |
|---|---|
| **Developed** | 15.2% |
| **Turf & Grass** | 7.7% |
| **Other Grasses** | 0.5% |
| **Agricultural Field** | 0.6% |
| **Deciduous Forest** | 50.7% |
| **Coniferous Forest** | 3.4% |
| **Water** | 19.7% |
| **Non-Forested Wetland** | 0.03% |
| **Forested Wetland** | 2.0% |
| **Tidal Wetland** | 0.0% |
| **Barren Land** | 0.1% |
| **Utility Corridor** | 0.0% |

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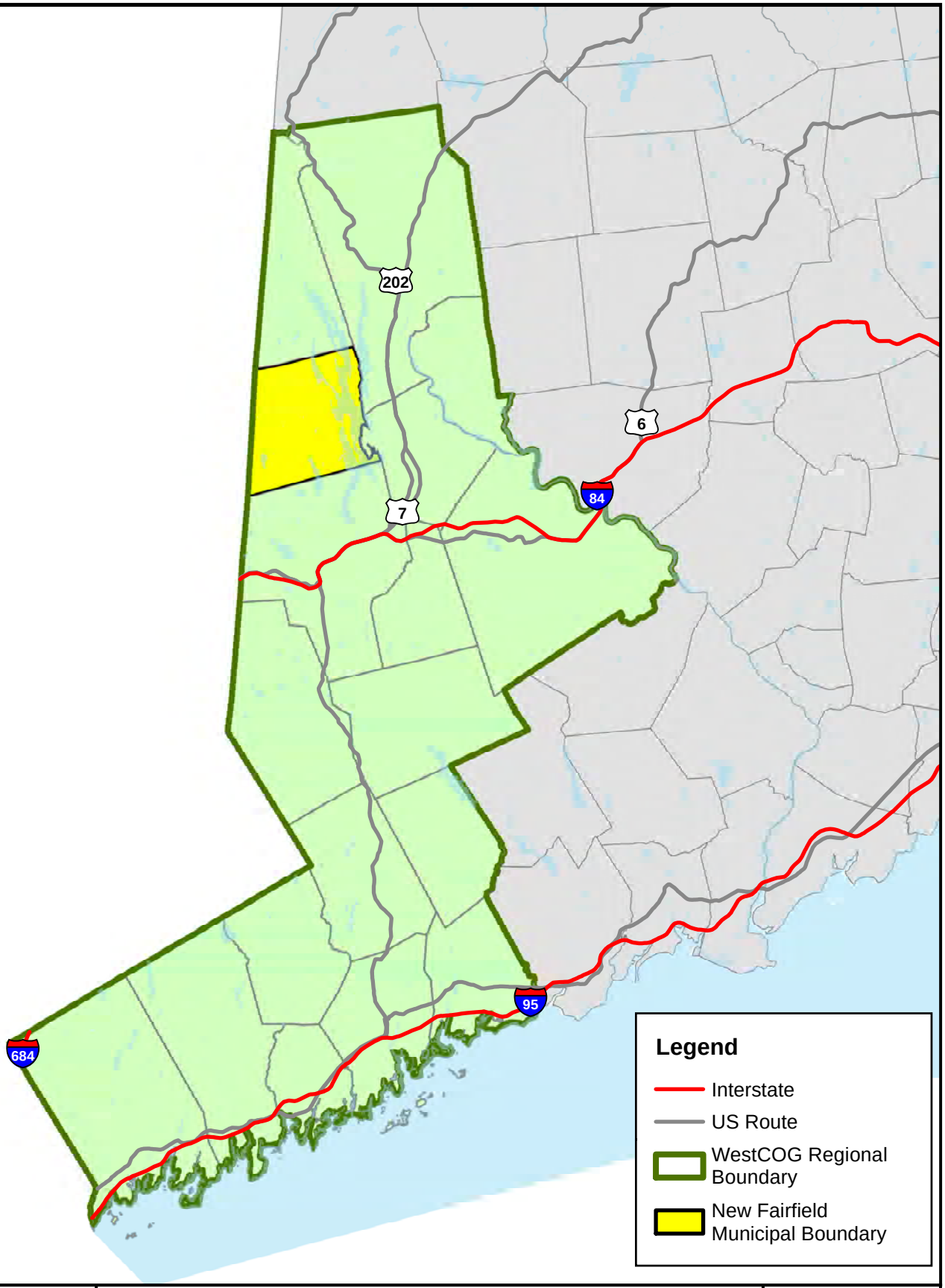


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## Regional Location of New Fairfield

WestCOG Hazard Mitigation Plan
Town of New Fairfield

N

0 40,000 80,000
Feet

| | |
|---|---|
| SCALE | 1 " = 82,167 ' |
| DATE | 11/12/2020 |
| PROJ. NO. | 3101-22 |

**FIG. 2-1**

### 2.1.2 Land Use

New Fairfield is a suburban town characterized by medium population density and limited commercial development. The lack of sanitary sewer service and presence of only small public water systems limit density throughout the community. In general, medium-density residential uses are located around Candlewood Lake and Ball Pond and along the major transportation corridors through New Fairfield, State Routes 37 and 39. A small Town hub with commercial, municipal, and institutional land uses is located at the junction of Routes 37 and 39 in the center of New Fairfield.

According to the New Fairfield 2014 POCD, New Fairfield has over 3,700 acres of open space land.

### 2.1.3 Climate and Climate Change

*Current Conditions*

Over the course of the year, the temperature in New Fairfield typically varies from 17°F to 81°F and is rarely below 2°F or above 89°F. The warm season lasts from May 29 to September 14, with an average daily high temperature above 72°F. The hottest day of the year is July 20, with an average high of 81°F and low of 62°F. The cold season lasts from December 1 to March 10, with an average daily high temperature below 43°F. The coldest day of the year is January 29, with an average low of 17°F and high of 34°F.

Precipitation falls throughout the year in New Fairfield. The wetter season lasts from May 3 to August 20, with a greater than 30% chance of a given day being a wet day. The chance of a wet day peaks at 37% on August 2. The smallest chance of a wet day is 22% on January 29.

The most rain falls during the 31 days centered around June 4, with an average total accumulation of 3.9 inches. The least rain falls around January 24, with an average total accumulation of 1.5 inches.

The snowy period of the year lasts from October 27 to April 16, with a sliding 31-day liquid-equivalent snowfall of at least 0.1 inches. The most snow falls during the 31 days centered around January 25, with an average total liquid-equivalent accumulation of 1.2 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, which was developed by the University of Connecticut (UConn) Atmospheric Sciences Group, 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 is projected to continue to do so in the future. By mid-century, 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 over which temperature remains

above 68°F will quadruple from 10 days per year to more than 40 days, and the number of extremely hot days will increase from above 4 a 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 New Fairfield as 3.35 inches.

The NOAA Atlas 14, released on September 30, 2015 puts the 24-hour rainfall amount for a 50% annual-chance annual storm in New Fairfield at 3.52 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** | 3.35 | 6.30 | 8.92 |
| **NOAA Atlas 14** | 3.52 | 6.72 | 8.62 |

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 New Fairfield can expect the 24-hour rainfall amount for a 50% annual-chance storm to be around 3.6 to 3.8 inches or greater.

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

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

### 2.1.4 Drainage Basins and Hydrology

New Fairfield is divided among six subregional watersheds, including Lake Candlewood, as shown on in Table 2-3. Subregional watersheds on the west side of New Fairfield, Corner Brook, East

Branch Croton River, and Quaker Brook drain to the Hudson River Basin in New York State. The remaining subregional basins drain to the Housatonic River. The largest subregional basin in New Fairfield (aside from Candlewood Lake) belongs to Ball Pond Brook, which drains toward the Housatonic River via Candlewood Lake.

**Table 2-3: New Fairfield Subregional Drainage Basins**

| SUBREGION | Area (acres) | % of Town |
|---|---|---|
| Lake Candlewood | 6,633 | 41 |
| Ball Pond Brook | 4,714 | 29 |
| East Branch Croton River | 1,472 | 9 |
| Corner Pond Brook | 1,332 | 8 |
| Quaker Brook | 998 | 6 |
| Padanaram Brook | 954 | 6 |
| **Total** | **16,102** | **100** |

*Source: Connecticut Department of Environmental Protection GIS Data*

### *Candlewood Lake*

The Candlewood Lake watershed comprises 40 percent of the Town's land area. Candlewood Lake is the country's first pump-storage reservoir and, at 5,400 acres, is the largest lake in Connecticut. The reservoir was constructed to support power generation at the Rocky River power station in New Milford. Beginning in 1926, water has been diverted from the Housatonic River as needed and pumped uphill into the lake. During low-flow conditions on the Housatonic River, water is released from Candlewood Lake to run the generation turbines, and hence, this water is returned to the Housatonic River.

### *Housatonic River*

The Housatonic River originates in western Massachusetts with its main stem forming at the confluence of the west and southwest branches in Pittsfield. From there, the river flows 132 miles through western Massachusetts and Connecticut to its mouth at Long Island Sound at Milford Point in Connecticut. The Housatonic River watershed covers 1,948 square miles in three states (Connecticut, Massachusetts, and New York). The Housatonic River has several hydroelectric power dams and diversions within the state of Connecticut. The watershed for the Housatonic River and its tributaries covers 76 percent of the land area of New Fairfield.

### *Ball Pond Brook*

Ball Pond Brook originates at Ball Pond located in southwestern New Fairfield and flows southeast through New Fairfield, is joined by Short Woods Brook (confluence Route 37 at Mill Road), and ends at Candlewood Lake. The Ball Pond Brook watershed covers 7.58 square miles (29 percent of New Fairfield land area) and is contained entirely in New Fairfield. The watershed is approximately 30 percent developed and 64 percent forested.

### *Padanaram Brook*

Padanaram Brook originates in Danbury at the Padanaram Reservoir. The Padanaram Brook watershed is 7.27 square miles of which approximately 50 percent is developed, and 40 percent is forested. The portion of the Padanaram Brook watershed in New Fairfield (about 20 percent)

includes Margerie Reservoir (a City-of-Danbury water supply reservoir), covers 6 percent of New Fairfield, and drains from the southeastern section of the Town into the Padanaram Reservoir.

#### *Hudson River*

The Hudson River originates at Lake Tear of the Clouds on Mount Marcy in the Adirondack Mountains in northern New York State. From its headwaters, the Hudson River flows 315 miles south to its mouth at Upper New York Bay (New York Harbor). The Hudson River watershed covers 13,400 square miles, with 93 percent of the watershed within New York State. Small parts of the watershed are also located in Vermont, Massachusetts, New Jersey, and Connecticut.

The Hudson River is managed for commercial traffic from Hudson Falls to Albany, and the lower half of the river is a tidal estuary, with tidal water influence as far north as Troy, New York. Several reservoirs within the Hudson River basin (including the Croton River discussed below) contribute to the New York City water supply system, supplying water for approximately eight million people. The watershed for the Hudson River and its tributaries, including the East Branch Croton River, Quaker Brook, and Corner Pond Brook watersheds, cover 23 percent of the land area of New Fairfield.

#### *East Branch Croton River*

The East Branch Croton River originates in the Great Swamp, a 6,000-acre wetland area of high conservation value in Dutchess and Patterson Counties in New York State. The watershed covers 8.45 square miles, of which 27 percent is in the western half of New Fairfield bordering New York (covering 9 percent of New Fairfield land area, with unnamed tributaries in New Fairfield). The East Branch Croton River is a tributary of the Croton River, which feeds the Croton Reservoir, a component of the New York City water supply watersheds to the east of the Hudson River.

#### *Corner Pond Brook*

Corner Pond Brook is a tributary to the Croton River, which is included in the Hudson River Basin. Similar to Padanaram Brook and East Branch Croton River, Corner Pond brook does not flow through New Fairfield but has contributing watershed area in the southwest corner of the Town. The Corner Pond Brook watershed is 4.89 square miles, with 43 percent in New Fairfield (covering 8 percent of New Fairfield land area).

#### *Quaker Brook*

Quaker Brook flows southwest through New Fairfield, Connecticut and then west into Patterson, New York. It eventually joins the East Branch of the Croton River and the Croton Reservoir, which serves as a public water supply source for New York. Approximately 6 percent of the land area in New Fairfield drains to this brook in the northwestern portion of Town.

## 2.2 Society, Culture, and Government

### 2.2.1 Population and Demographic Setting

New Fairfield had a population of 13,881 people, or 552 persons per square mile, in 2010 according to the U.S. Census Bureau. According to the 2018 American Community Survey five-year estimates, New Fairfield's population between 2013 and 2018 was approximately 13,992.

The Connecticut State Data Center's (CTSDC) 2015 projection predicted a decrease in population, with an estimated 12,912 people living in the Town in 2025. Population projections developed by the CT DOT, on the other hand, show population increasing to 15,434 people in New Fairfield in 2030. Future changes in New Fairfield population will likely be relatively minor and gradual, are not expected to lead to significant development in hazardous areas, and are not expected to change the hazard profile for the Town.

One important aspect of natural hazard mitigation planning is to identify a community's demographic trends in relation to natural hazards. The Center for Disease Control and Prevention (CDC) Social Vulnerability Index (SVI) is used to identify vulnerable populations in New Fairfield. The SVI uses census data to identify populations within the town that may be more vulnerable to natural hazards. As a result of this analysis, the town is identified to have a certain level of overall social vulnerability with a rank of 0 to 1; 1 being the most vulnerable and 0 being the least.

To determine social vulnerability, the CDC incorporates 15 factors into the overall SVI calculation under four categories, or themes: socioeconomic status, household composition and disability, minority status and language, and housing type and transportation. Figure 2-2 represents the breakdown of the SVI process. These themes and their ranking are based on census statistics. By evaluating these factors and determining a level of social vulnerability, a community can identify specific needs for before, during, and after an event. Such needs may include sheltering capacity, evacuation routes, or to decide how many emergency personnel may be required to respond after an event.

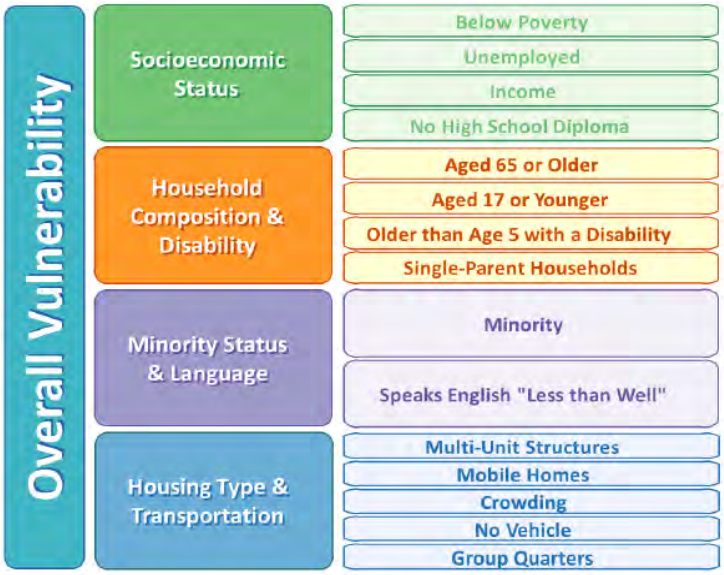


**Figure 2-2: The CDC SVI Index Factors. Graphic: svi.cdc.com**

The Town of New Fairfield is considered to have a low level of vulnerability, with their most vulnerable social aspect being household composition and disability, followed by minority and linguistically challenged populations, and socioeconomic status populations. Vulnerable age groups and disabled are identified in all three tracts in town, with socioeconomic concerns identified in the two western tracts, and minority and linguistically challenged populations distributed throughout the community. Appendix B explores the SVI for New Fairfield in more depth, including maps showing overall vulnerability, and theme vulnerability.

### 2.2.2 Development Trends

The Town had fewer than 10 new construction permits per year between 2000 and 2012. Since the adoption of the initial HMP in 2011, development has continued to be minor. The only significant ongoing development is of Barn Brook Estates off State Route 37. When completed there will be 23 single-family homes within the subdivision. Other development in Town focuses on tearing down and rebuilding structures.

Because the pace of development is minimal in New Fairfield, and because this minimal development will not increase any specific risks to hazards, there was no need to revise this plan due to development trends or patterns. Vulnerabilities to natural hazards are not increasing due to development. Instead, revisions in this update are mainly focused on explaining enhanced capabilities.

Given the patterns of development associated with Ball Pond as well as other areas within New Fairfield as described above, numerous homeowner and residential associations exist within the Town. Many of these associations are charged with paying for projects such as road maintenance within their boundaries. As this Plan will discuss in subsequent sections, the presence of so many small associations presents a unique set of challenges relative to natural hazard mitigation.

### 2.2.3 Governmental Structure

The Town is governed by a Selectmen-Town Meeting form of government in which legislative responsibilities are shared by the Board of Selectmen and the Town Meeting. The First Selectman serves as the chief executive.

In addition to Board of Selectmen and the Town Meeting, there are boards, commissions, and committees providing input and direction to Town administrators while 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 Commission, the Zoning Commission, the Zoning Board of Appeals, the Conservation Inlands/Wetlands Commission, the Parks and Recreation Department, the New Fairfield Volunteer Fire Department, the Public Works Department, the Office of Emergency Department, and the New Fairfield Resident Trooper Office.

The Public Works Department is the principal municipal department that responds to problems caused by natural hazards. Town policy is to route complaints related to Town maintenance issues to the Public Works Department, which investigates and remediates them as necessary.

### 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

New Fairfield historic resources include the Cosier-Murphy House, the Williams House, the Hubbell House, and the Austin House. 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 2-4.

**Table 2-4: Number of Historic Assets Exposed to Different Hazards in New Fairfield**

| Hazard | Count |
|---|---|
| **Dam Failure** | 1 |
| **Earthquake** | 9 |
| **Flooding** | |
| 1% Annual | 0 |
| 0.2% Annual | 0 |
| **Storm Surge** | |
| Category 1 | 0 |
| Category 2 | 0 |
| Category 3 | 0 |
| Category 4 | 0 |
| **Hurricane/Tropical Storm** | 9 |
| **Sea Level Rise** | 0 |
| **Thunderstorm** | 9 |
| **Tornado** | 9 |
| **Winter Storm** | 9 |
| **Wildfire** | 8 |

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 are listed at the end of this Annex.

## 2.3 Infrastructure

### 2.3.1 Transportation

Routes 37 and 39 are the two major transportation arteries out of Town, with both routes connecting New Fairfield with New Milford to the east and Danbury to the south. Route 55 also provides access to Dover, New York to the west in the northern part of Town. New Fairfield residents must use Route 37 to access Interstate 84 in Danbury.

New Fairfield has many dead-end roads, and many are relatively long and/or private, with some of these owned and maintained by homeowner associations. Emergency services can be cut off by fallen trees or washed out culverts during emergencies. The Office of Emergency Management has provided education to the private communities about road and tree maintenance to help ensure adequate access while the Town tree warden maintains trees along public roads.

The most difficult emergency response problem in New Fairfield is poor access to the private lake communities and homeowner associations. These roads are narrow, often one lane, and have steep grades that impede access by modern firefighting and rescue equipment. New public and private roads are regulated by the Town through the subdivision process such that emergency access is not an issue moving forward.

### 2.3.2 Utilities

New Fairfield receives electricity through Eversource. The Town is not served by any natural gas infrastructure, and residents rely on oil, propane, wood, or other fuels for heating.

Drinking water is delivered to residents and businesses by a number of Aquarion Water Company community water systems, and numerous non-community public water systems, as well as private wells.

New Fairfield does not have a public wastewater treatment system.

## 2.4 Planning and Regulatory Capabilities

### 2.4.1 Review of Existing Local Plans

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

- **Plan of Conservation and Development (POCD):** New Fairfield's most recent POCD was adopted in 2014. 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:** New Fairfield 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):** New Fairfield 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:** New Fairfield is included within the Western Connecticut Economic Development Plan of 2017, developed by WestCOG. The plan aligns with the COG's other efforts to promote climate sustainability and resiliency in the region.
- **Emergency Operations Plan (EOP):** New Fairfield's EOP is reviewed annually and updated as needed. Dam failure Emergency Action Plans (EAPs) for dams with failure inundation zones that may impact New Fairfield, 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.

### 2.4.2 Review of Regulatory Structures

New Fairfield 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 are described in Section 3.

- **Building Code:** New Fairfield enforces the Connecticut State Building Code locally.
- **Zoning Regulations:** Most recently updated in April 2016.
- **Inland Wetlands and Watercourses Regulations:** Most recently updated in August 2000.
- **Subdivision Regulations:** Most recently updated in July 2014. Include provisions promoting control of stormwater runoff and burial of utilities.

## 2.5 Emergency Services, Critical Facilities, Sheltering, and Evacuation

New Fairfield's existing capabilities include the training and technical assistance programs of its Office of Emergency Management (OEM), its participation in the Resident State Trooper program, its application of the Blackboard Connect emergency notification system, the tree maintenance program carried out by its DPW, and its established policy of routing Town maintenance complaints to the DPW.

The Town considers its police, fire, and other governmental facilities to be its most important critical facilities, for these are needed to ensure that emergencies are addressed while day-to-day management of New Fairfield continues. Some educational institutions and churches are also included as critical facilities as these can be used as shelters or supply distribution centers. Because the hilly nature of the Town can make cell phone and radio reception spotty, and because of the importance of communication to emergency response and recovery, the Town also lists key cellular towers as critical facilities.

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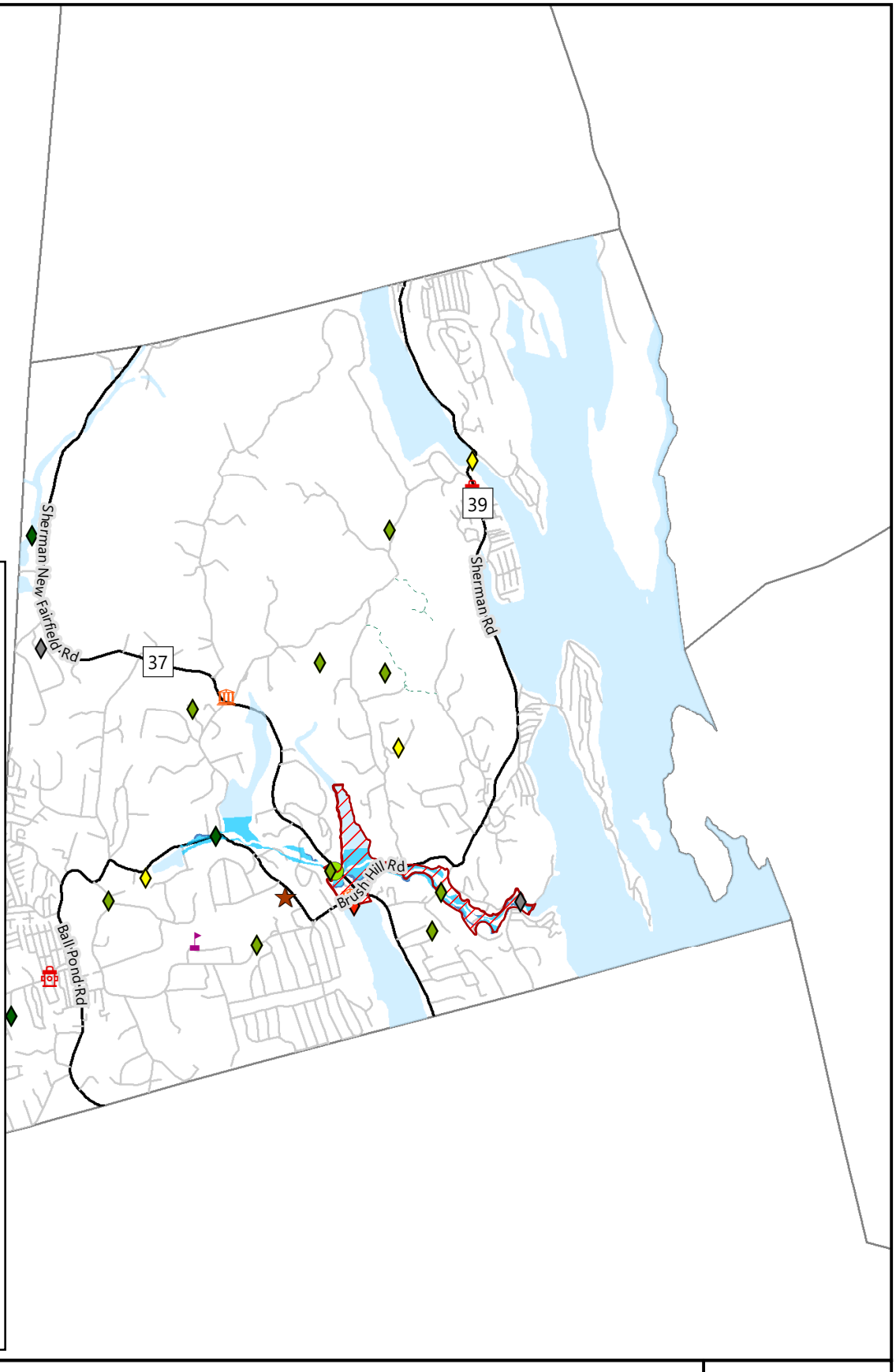


## LEGEND

### Dams

- Unclassified
- AA
- A
- BB
- C
- Dam Failure Inundation Area
- Municipal
- EOC
- Fire
- School
- Shelter
- Dam Failure Inundation Area

### Flood Zones

- A

### Flood Zones

- A
- AE
- 0.2% Annual Chance Flood Hazard

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# Critical Facilities with Flood Zones and Dam Failure Inundation Areas

WestCOG Hazard Mitigation Plan

Town of New Fairfield

NPS: Cultural Resources CT DEEP: DFA FEMA: DFRIM & Q3

N

0 2,500 5,000
Feet

| | |
|---|---|
| SCALE | 1 " = 5,678 ' |
| DATE | 7/29/2021 |
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**FIG. 2-3**

Elderly housing facilities or assisted facilities are not present in the town. Populations of individuals that would require special assistance during an emergency are scattered throughout the Town.

A map of the critical facilities in New Fairfield is shown in Figure 2-3, and a list of the critical facilities is provided in Table 2-5. Each critical facility and the Town's emergency response capabilities are described in more detail below along with a summary of the potential for these facilities to be impacted by natural hazards.

**Table 2-5: Critical Facilities in New Fairfield**

| Name | Address | Type | Located in SFHA | Emergency Generator |
|---|---|---|---|---|
| New Fairfield High School and Middle School | 54 Gillotti Road | School/Shelter | No | Yes |
| New Fairfield Senior Center | 33 Route 37 North | Shelter | No | Yes |
| Town Hall and Annex | 4 Brush Hill Road | Government | No | Yes |
| Public Safety Complex (Police Department, Fire Station, and Emergency Operation Center) | 302 Ball Pond Road | Police/Fire | No | Yes |
| Ball Pond Volunteer Fire Department | 7 Fairfield Drive | Fire | No | No |
| Squantz Engine Company Volunteer Fire Department | 255 Route 39 | Fire | No | No |
| Department of Public Works | 188 Route 37 | Government | No (adjacent) | No |
| New Fairfield Library | 2 Brush Hill Road | Community Center | No | No |
| Ball Pond Road Cell Phone Tower (owned by Town) | 302 Ball Pond Road | Communications | No | unknown |
| Tower Hill Cell Phone Tower (owned by Town) | 212 Tower Hill Road, Paterson, NY | Communications | No | unknown |
| Titicus Cell Phone Tower (owned by American Tower) | 16 Titicus Mountain Road | Communications | No | unknown |
| Bogus Hill Cell Phone Tower (Leased by Girl Scout Camp to SBA Tower) | 29 Bogus Hill Road | Communications | No | unknown |

### *Shelters*


New Fairfield High School and Middle School Campus.

Emergency shelters are an important subset of critical facilities as they are needed in most large-scale emergency situations. The Town has designated two American Red Cross emergency shelters with additional facilities that can be used as needed. The New Fairfield High School and Middle School campus is currently the primary shelter facility. It has a 200-person capacity, a feeding capacity for 1,500 persons, and handicap access to lavatory facilities. It is equipped with a 125-kilowatt diesel generator and two portable generators that can be brought to other facilities during an emergency.

The New Fairfield Senior Center is the second emergency shelter; it is handicap enabled (including a single handicap-accessible shower) and also has a 200-person capacity with a 150-person feeding capacity. A portable generator is available for use at the Senior Center

These buildings have been designated as public shelter facilities by meeting specific American Red Cross guidelines. The New Fairfield Police Department and the New Fairfield Volunteer Fire Department staff the shelters according to protocols established by the EOP. Amenities and operating costs of the designated shelters including expenses for food, cooking equipment, emergency power services, bedding, etc. are the responsibilities of the community and generally are not paid for by the American Red Cross.

The Town's other critical facilities include the New Life Community Church, the Town Hall and Annex, the Public Safety Complex, the Ball Pond Volunteer Fire Department, and the Squantz Engine Company Volunteer Fire Department. The Public Safety Complex is the current Emergency Operations Center and is equipped with a new anchored generator purchased in 2014. An emergency generator has been installed at the Town Hall.

### *Emergency Response Capabilities*

The Office of Emergency Management coordinates emergency preparedness in the Town. The office provides training for emergency response personnel, supports state and local emergency response exercises, and provides technical assistance to state and local emergency response agencies and public officials. Its goal is to provide citizens with the highest level of emergency preparedness before, during, and after disasters or emergencies.

New Fairfield participates in the Resident State Trooper program and supplements this program with additional officers dedicated to service in only New Fairfield. Resident State Trooper

program benefits include access to all services provided within the Connecticut State Police Department. According to the Town website, at least two troopers or officers are on duty at all times. The New Fairfield police force provides a large variety of services including criminal investigations, accident investigations, safety programs, building tours, and informational talks. They have a full-time dedicated sergeant from the State Police in Town as well as six additional resident troopers dedicated to Town 24 hours a day 7 days a week. The Town also employs six full-time New Fairfield officers.

The Town currently uses the AlertNow emergency communication system to notify its residents quickly for such things as a utility outage, evacuation notice, chemical or gas spill, major road closure, public health emergency, or shelter information. When a notification occurs, enrolled citizens receive a recorded message or email with all of the pertinent information for the situation that is occurring. Residents have the option of being notified via home phone, cellular phone, and email (or all three). The Town will be transitioning to the Everbridge emergency alert communication system because of its greater capabilities, and in particular it's capabilities to help residents with special needs.

**New Fairfield Volunteer Fire Department: Squantz Engine Company Facility**

The New Fairfield Volunteer Fire Department provides firefighting and ambulance services for the residents of New Fairfield. Fire Department equipment includes two ambulances, 14 fire trucks (including six fire engines, two tanker trucks, and a brush truck), and 10 private cars equipped with radios for emergency response communication. The Fire Department also has two rescue boats available at the Squantz Engine Company station. Access to a rescue boat is important because during some emergencies it is easier and faster to access some lakeside communities by water than by land.

After Tropical Storm Irene in 2011, the Town found that delivery of emergency supplies from the CT DEMHS to the Town was hindered by a lack of transportation vehicles and personnel. The Town then purchased a new tractor trailer, which will aid future distribution of supplies.

After Winter Storm Alfred in 2011 and the subsequent power outage, many businesses and homeowners purchased small-scale private generators, potentially decreasing the Town's overall vulnerability to power failure.

The Town does not have any hospitals or medical centers. Instead, residents use the nearby facilities in New Milford or Danbury. As a means of accessing these facilities, New Fairfield residents travel along Route 37 and Route 7 in New Milford or south along Route 37 into Danbury.

### *Evacuation*

Routes 37, 39, and 55 are the key evacuation routes in Town. New Fairfield residents must use Route 37 to access Interstate 84 in Danbury. There is no regional emergency/evacuation plan.

### *Potential Impacts from Natural Hazards*

Critical facilities are rarely impacted by flooding in the Town as none are located within floodplains. None of the critical facilities in New Fairfield are any more susceptible to wind, summer storms, winter storms, or earthquakes than structures in the rest of the Town. The only critical facility that is within a potential dam failure inundation area is the New Fairfield Town Hall, downstream of the Margerie Lake North Dam. The hazard class of this dam was undefined at the time the initial HMP was adopted and has since been defined as a class C hazard dam by the CT DEEP. This vulnerability and potential mitigation actions and strategies are discussed further in Section 8.

The following sections will discuss each natural hazard in detail and include descriptions of vulnerable populations and areas as well as mitigation capabilities and strategies.

# 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 Special Flood Hazard Areas (SFHA) and delineated as part of the National Flood Insurance Program (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 shallower and chronically reoccur 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 small streams.

### 3.1.2 Capabilities

The Town has in place a number of measures to prevent flood damage. These include regulations, codes, and ordinances preventing encroachment and development near floodways.

*Regulatory Capabilities*

The New Fairfield Zoning Department has a stated purpose of guiding the "development of the Town of New Fairfield so as to promote beneficial and convenient relationships among… areas within the town, considering the suitability of each area for such uses" (from the Town website). The department relies on commissions to implement and administer the various regulations and programs necessary for accomplishing its policy of "considering the suitability of each area." Regulations, codes, and ordinances that apply to flood hazard mitigation in conjunction with and in addition to NFIP regulations include the following:

- ***Inland Wetlands and Watercourses Regulations***. This document defines in detail the Town's regulations regarding development near wetlands, watercourses, and water bodies that are sometimes coincident with floodplains.
  - Section 2 defines "Regulated Activities" covered by the Regulations.
  - Section 6 states that no person may conduct or maintain a regulated activity without obtaining a permit.
  - Section 7 outlines the application requirements.

- ***Subdivision Regulations.*** The Town Subdivision Regulations (Appendix B of the New Fairfield Code of Ordinances) address floodplain protection and flooding mitigation in many sections.
  - Section 1.3(a) states that "land subject to flooding… shall not be subdivided for residential purposes."
  - Section 1.3(e) requires that reserved open spaces be graded to dispose of surface water.
  - Section 1.3(g) and (h) of the regulations outlines the responsibility of any subdivision to protect important features including prevention of pollution of

wetlands, watercourses, and waterbodies; protection of quality and quantity of water supplies; and minimization of flood damage.
    - Section 3.03 specifically addresses SFHAs specifying protective flood control measures for floodprone areas.
    - Section 1.5(e)2 specifically addresses storm drainage design requirements for new subdivisions. These regulations require that any drainage infrastructure or culverts within the subdivision must have capacity for a 50-year storm.
    - Section 1.5(e)3 gives the Board of Selectmen and the Town Engineer both the authority and the responsibility to mandate stormwater runoff management methods in subdivisions "where it is anticipated that the additional runoff incident to the development of the subdivision will overload an existing downstream drainage facility during a fifty-year storm."

- ***Zoning Regulations***. Section 5.1 of the New Fairfield Zoning Regulations details the use requirements of the Floodplain Overlay District as established by FEMA in 1983. This includes definitions, permitted uses, special permit uses in the floodplain (open space preserves, water supply systems, sanitary sewage systems, bridges, etc.), and special permit uses in the flood fringe (basement elevation requirements above base flood elevation, etc.).

New Fairfield has programs in place to execute each of these regulations.

The Town of New Fairfield Zoning Enforcement Officer serves as the NFIP administrator and oversees the enforcement of NFIP regulations. The degree of flood protection established by this ordinance meets the minimum reasonable for regulatory purposes under the NFIP. New Fairfield currently has no plans to enroll in the Community Rating System program, which would require surpassing NFIP minimum flood protection requirements.

SFHAs in New Fairfield are delineated on a Flood Insurance Rate Map (FIRM) and in a Flood Insurance Study (FIS). The FIRM delineates areas within New Fairfield that are vulnerable to flooding. The initial Flood Hazard Boundary Map (FHBM) is dated January 31, 1975, and the initial FIRM is dated February 15, 1984. The Town of New Fairfield FIS was originally published on August 15, 1983. Updates to both the FIRM and the FIS were published most recently on October 16, 2013 as part of the Fairfield County FIS update. The Town intends to continue participating in the NFIP.

The Town of New Fairfield Planning Commission and the Town of New Fairfield Zoning Commission use the 1-percent-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, public facilities and utilities be located and constructed to minimize flood damage, and adequate drainage is provided. The New Fairfield Inland Wetlands Agency also reviews new developments and existing land uses on and near wetlands and watercourses.

Additionally, New Fairfield protects against flood damage through the following regulatory measures:

- Requiring that new buildings are designed and graded to direct drainage away from the building
- encouraging developers to consider detention or retention of stormwater when it is the best option for reducing peak flows downstream of a project
- providing a checklist of individual municipal departments engaged in flood mitigation to be contacted by applicants proposing development projects.

### *Flood Control and Drainage Projects*

The New Fairfield Department of Public Works (DPW) is in charge of 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 DPW and recorded. The Town uses these documents to identify potential problems and plan for maintenance and upgrades. The Town can also access the Automated Flood Warning System to monitor precipitation totals. The CT DEEP installed the Automated Flood Warning System in 1982 to monitor rainfall totals as a mitigation effort for flooding throughout the state.

The East Lake Flood Study and Candlewood Corners Flood Study commissioned in 2009 addressed flooding concerns and proposed improvements to these chronic flood locations, and those suggestions were included in the initial HMP as potential mitigation actions. Since adoption of that Plan, drainage projects have begun or been completed at those sites and have been reclassified as capabilities.

The Candlewood Corners project addressed regular flooding from a tributary to Ball Pond Brook. Replacement of the drainage system took place in 2016. This project will reduce flooding in nearby neighborhoods and is described in more detail in Sections 3.6.6 and 3.7.

Another project is taking place at Bigelow Corners, where Ball Pond Brook has been known to flood Route 39. This project is being overseen by the state. More details are provided in Sections 3.6.6 and 3.7.

### *Emergency Services*

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, are highly likely to flood, or when flooding is imminent. Additionally, the Town can access the National Oceanic and Atmospheric Administration (NOAA) Automated Flood Warning System to monitor precipitation totals.

### *Summary*

In summary, many of New Fairfield's capabilities to mitigate for flooding and prevent loss of life and property have improved since the initial HMP was adopted. Its policies and programs include the following: current participation and a policy of continued future participation in the NFIP; requiring that developers submit site plans to the relevant municipal commissions prior to new construction; requiring that all new buildings direct drainage away from the building; encouraging developers to consider the downstream impacts of detention versus retention of stormwater on

new subdivisions; providing a list of municipal departments involved in flood mitigation to developers; monitoring and clearing of drainage systems, culverts, and bridges by the DPW; and reviewing drainage complaints to identify problem locations (performed by the DPW).

The Town continues to restrict building activities inside floodprone areas and control construction of bridges, culverts, and drainage systems. These processes are carried out by the Planning, Zoning, and Inland Wetlands Commissions. 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 100-year flood elevations to determine flood areas.

Additionally, the Town has completed an important drainage improvement project at Candlewood Corners that will decrease flood risk from Ball Pond Brook.

### 3.1.3 Vulnerabilities and Risk Assessment

In general, flooding affects a few small areas of New Fairfield with moderate to frequent regularity. 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 more 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 New Fairfield is considered likely for any given year, with flooding damage potentially having significant effects during extreme events.

The majority of the watercourses in New Fairfield are mapped as Zone A while Ball Pond Brook has some area mapped as 0.2-percent annual-chance floodplain. Refer to Figure 2-3 for the areas of New Fairfield susceptible to flooding based on FEMA flood zones.

#### *Vulnerability Analysis of Repetitive and Severe Repetitive Loss Properties*

Based on correspondence with the State of Connecticut NFIP Coordinator, repetitive loss properties (RLP) are not located in the Town.

#### *Vulnerability Analysis of Areas along Watercourses*

The primary waterways in the Town are Ball Pond Brook and its tributary, Short Woods Brook. The remaining waterways in New Fairfield are mostly small streams. Candlewood Lake and Ball Pond are significant recreational resources. Floodplains with elevations are delineated for Ball Pond Brook while the majority of the smaller brooks and streams, including the major water bodies, have floodplains delineated by approximate methods. All of these delineated floodplains are generally limited to the areas adjacent to the streams.

The 2010 Fairfield County Digital Flood Insurance Rate Map (DFIRM) was utilized with the 2004 leaf-off aerial photography mosaic available from the CT DEEP to determine the number of structures within SFHAs. Results are shown in Table 3-1 below.

**Table 3-1: Structures within SFHAs**

| SFHA | Brook | Number of Structures in SFHA |
|---|---|---|
| **100-year Zone A** | Ball Pond Brook and tributary | 9 |
| | Candlewood Lake | 53[1] |
| | Quaker Brook and tributary | 3 |
| | Short Woods Brook | 3 |
| **100-year Zone AE** | Ball Pond Brook | 21[2] |
| **100-year Floodway in Zone AE** | Ball Pond Brook | 8[3] |
| **500-year Zone X** | Ball Pond Brook | 4[4] |

[1]*Two buildings appear to be large association clubhouses.*
[2]*Three buildings appear to be nonresidential.*
[3]*One building appears to be nonresidential.*
[4]*One building appears to be commercial.*

Based on the information in Table 3-1, there are 97 structures within the 100-year floodplain in New Fairfield, with 92 of the structures being residential homes. According to AOL Real Estate, the average market value for a home in New Fairfield, CT for July 2010 was $355,322. Thus, the estimated value of the homes within the 100-year floodplain is $32,689,624.

Assessment data from Vision Appraisal was utilized to determine the value of the remaining properties in the 100-year floodplain. Assessments were completed in 2009. The appraised value of each property is summarized below:

- 55 Lake Drive North: Clubhouse was appraised at $1,372,600 (Zone A).
- 180 Route 39: Town Park was appraised at $744,500 (Zone A).
- 126 Route 37: Commercial building was appraised at $315,300 (Zone AE Floodway).
- 25 Route 39: Stop & Shop (previously Shaw's Supermarket; a commercial building) was appraised at $10,342,400 (Zone AE).
- 5 Route 39: Office building (commercial) was appraised at $2,059,200 (Zone AE).
- 8 Dunham Drive: Industrial building was appraised at $388,200 (Zone AE).
- 100 Route 37 – Commercial building was appraised at $2,647,000 (Zone X – 500-year floodplain).

Thus, the total estimated value of properties within the 100-year floodplain in the Town is $47,911,824.

### *Review of Reported Flooding Occurrences*

Due to the steep topography surrounding the major watercourses and Candlewood Lake, wide-scale flooding does not occur frequently in New Fairfield. On the other hand, specific areas susceptible to flooding were identified by Town personnel and observed by MMI staff during field inspections as described in Section 1.5. Most flooding occurs due to large amounts of rainfall. Chronic flooding areas are limited in extent and described below:

- East Lake Brook Crossings: East Lake Brook is not associated with a SFHA. The brook has five road crossings in New Fairfield: Gillotti Road, Indian Hill Road, Williams Road, Old

Farms Road, and Smoke Hill Drive. Results of the flood frequency model run for the East Lake Brook Flood Study show that all of these crossings except Gillotti Road are overtopped for flows between the 2-year and 25-year floods. The only dwelling affected by this flooding is the Zackeo residence at 14 Williams Road, where a 10-year storm event floods the lower level of the house. Significant damages have occurred to this structure in the past. In addition, the routine road closures and poststorm cleanup that are necessary are significant issues of concern to the Town.

The replacement of the culverts at the five road crossings with upgraded culverts that have greater flow capacities will decrease flooding at this site. See Sections 3.4, 3.6.6, and 3.7.

- Candlewood Corners: Historic flooding here was due to undersized culverts draining the watershed above Route 39 at the intersection with Sawmill Road. The watercourse is not associated with a SFHA. Flooding at this intersection has caused damage to several commercial properties and the roads despite the lack of a mapped floodplain.

  The construction of a larger replacement culvert in 2016 is expected to have decreased flood risk at this site.

- Beaver Bog Road: Flooding (and icing) at Beaver Bog Road is due to an undersized culvert for conveyance of Short Woods Brook (a tributary of Ball Pond Brook) on a steep slope.

- Sawmill Road: Ball Pond Brook floods a residential pond at the intersection with Sawmill Road due to an undersized culvert. The area of flooding is within the SFHA.

- Bigelow Corners: Ball Pond Brook floods Route 37 at the intersection with Bigelow Road via a divergence upstream of Route 37, pictured to the right. This flooding has caused damage to Route 37. The area of flooding is within the SFHA.

  

  Improvement of the drainage system at this site through a construction project being overseen by the State of Connecticut should decrease flood risk here.

- Galloping Hill Road: A section of Galloping Hill Road is flooded by a concentrated drainage flow due to an undersized culvert.

New Fairfield has many dead-end roads, and many of these roads cross a watercourse near the intersection end. These areas could potentially be cut off from emergency services during a severe flooding event. Bridge scour and overtopping from spring floods are also recurring problems on some of these roads, particularly when culverts become blocked by debris. New Fairfield does not currently regulate the number of homes located on dead-end streets.

### *Critical Facilities and Emergency Services*

Critical facilities are not regularly impacted by flooding in the Town. Routes 37 and 39, the main thoroughfares through and out of New Fairfield, have sections within FEMA mapped flood zones and at risk of being impassable during flooding from Ball Pond Brook, Candlewood Lake, and other waterways during severe storms.

## 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. With 18 registered dams and potentially several other minor dams in the Town, dam failure can occur almost anywhere in New Fairfield. While flooding from a dam failure generally has a medium geographic extent, the effects are potentially catastrophic. Fortunately, a major dam failure is not considered a definite natural hazard event in any given year.

### 3.2.2 Capabilities

The dam safety statutes are codified in Sections 22a-401 through 22a-411, inclusive, of the Connecticut General Statutes. Dam Inspection Regulations require that nearly 700 dams in Connecticut be inspected annually. The DEEP currently prioritizes inspections of those dams that pose the greatest potential threat to downstream persons and properties. Public Act No. 13-197, (passed June 2013) generally shifts regularly scheduled inspection and reporting requirements from the DEEP to the owners of dams. The Act also makes owners generally responsible for supervising and inspecting construction work and establishes new reporting requirements for owners when the work is completed.

The owner of any high or significant hazard dam (Class B and C) must develop and implement an Emergency Action Plan (EAP). The EAP must be updated every 2 years, and copies filed with DEEP and the chief executive officer of any municipality that would potentially be affected in the event of an emergency. EAPs include (1) standards for inundation studies and mapping; (2) procedures for monitoring the dam during periods of heavy rainfall; and (3) a formal notification system to alert local officials responsible for warning and evacuation of residents.

The City of Danbury, the owner of the Class C Margerie North Pond Dam, has prepared an EAP for that dam.

The Connecticut DEEP also administers the Flood and Erosion Control Board program, which can provide noncompetitive state funding for repair of municipality-owned dams. State statute Section 25-84 allows municipalities to form Flood and Erosion Control Boards. The Town has a Flood and Erosion Control Board that is focused specifically on flood and erosion hazards associated with the Margerie Reservoir.

*Summary*

Programs enacted in New Fairfield to mitigation dam failure include participation in the Statewide Dam Safety Program, staying up to date on the evolution of any EAPs and Dam Failure Analyses for high hazard dams in Town, making copies of those documents available at the Town Hall for public viewing, and including dam failure areas into the AlertNOW emergency notification system.

The Town's capabilities to mitigate for dam failure and prevent loss of life and property have increased since the initial HMP was adopted, mainly as a result of recent statewide legislative actions described above.

Other improvements to dam-failure mitigation capabilities arise from improvement in flood mitigation, described in section 3. The establishment of a Flood and Erosion Control Board and participation in that DEEP program is an important aspect of this capability.

*Actions Completed and New Capabilities*

New Fairfield continues to maintain its strong dam failure mitigation capabilities.

### 3.2.3 Vulnerabilities and Risk Assessment

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

- *Class AA* – negligible hazard potential: failure would result in negligible damage and economic loss.
- *Class A* –low hazard potential: failure would result in minimal damage and economic loss.
- *Class BB* – moderate hazard potential: failure would result in minor damage and moderate economic loss.
- *Class B* – significant hazard potential: failure would result in possible loss of life, moderate damage to structures, and significant economic loss.
- *Class C* – high potential hazard dams: failure would result in loss of life, major damage to structures, and great economic loss.

As of 1996, there were 18 DEEP-registered dams within the Town, of which nine were Class A, two were Class BB, one was Class B, and six were undefined. The list of statewide Class B and C dams was updated by the DEEP in 2007 and again in 2013. Dams in New Fairfield are listed in Table 3-2, and dam locations are illustrated in Figure 2-3.

**Table 3-2: Dams Registered with the DEEP in the Town of New Fairfield**

| Number | Name | Class |
|---|---|---|
| **9101** | Forest Lake Dam | BB[1] |
| **9102** | O'Neill/Merten's Mill-Pond Dam | BB |
| **9103** | Rodgers Pond Dam | BB |
| **9104** | Feldman Pond Dam | A |
| **9105** | Weiner Pond Dam | --- |
| **9106** | Squantz Pond Dam | --- |
| **9107** | Ball Pond Dam | A |
| **9108** | Gillotti Pond Dam | A |
| **9109** | Manlapaz Pond Dam | A |
| **9110** | Disbrow Pond Dam | A |

| Number | Name | Class |
|---|---|---|
| **9111** | Fox Pond Dam | --- |
| **9112** | Saw Mill Road Pond Dam | A |
| **9113** | Narrow Pond Dam | A |
| **9114** | Hermansen Dam | A |
| **9115** | Gerow Brook Pond Dam | A |
| **9116** | Green Mill Pond Dam | --- |
| **9117** | Quaker Pond Dam | --- |
| **9119** | Margerie Lake North Dam | C[2] |

[1]*Listed as a Class B dam in 1996, not included in the 2007 DEEP updated list, assigned Class BB in the 2013 update.*
[2]*Undefined in 1996, Class C in 2013 updated list.*

- Forest Lake Dam – This wetland pond dam is owned by Bruce Oberfest of Chappaqua, New York and located east of Short Woods Road in eastern New Fairfield. It was listed as a Hazard Class B dam in 1996 and in DEEP correspondence in 2004, was not included in the 2007 DEEP list of Class B and C dams, but was listed as Class BB in the 2013 high hazard dam list compiled by the DEEP. DEEP correspondence from 2004 expresses concern about seepage between the original dam and a modified cap placed over the dam after construction. The dam controls flow from Pierce Lake. It is currently not considered to be a significant hazard.

  Margerie Reservoir North Pond Dam is the only Class C dam in the Town. This dam is one of two containing Margerie Reservoir and is located immediately upstream of the New Fairfield Town center. This dam was not assigned a hazard class until 2013. The dam was last inspected in 2012. It is not known whether a dam failure analysis has been performed. A failure of the Margerie Reservoir North Pond Dam would cause flooding of the New Fairfield Town center, potentially damaging the Town Hall (one of the Town's critical facilities) and rendering the busy intersection of Routes 37 and 39 completely impassable. The flood wave would follow Ball Pond Brook to Candlewood Lake. The classification of the Margerie North Pond Dam as Class C reflects a significant hazard that must be addressed moving forward.

  Margerie Reservoir is the main storage reservoir within the City of Danbury's Padanaram Brook Watershed public water supply. The watershed occupies much of western and northwestern Danbury and extends into the Town of New Fairfield. Margerie Reservoir was developed in 1935 and became operational in 1937. The reservoir has a dam at its southern end and a dike at its northern end. According to the National Program for Inspection of Non-Federal Dams, the dike is an earthfill embankment about 1,104 feet long with a maximum height of about 16 feet. The dike appeared to be in good condition at the time of the National Program inspection in 1978, and a toe drain at the dike appeared to be functioning as intended. The reservoir spillway is located at the main dam. A spillway is not present at the dike.

  When the dam and dike for Margerie Reservoir were reconstructed several years ago, provisions were made to allow for the eventual raising of Margerie Reservoir by 3 feet to

provide additional storage for diversions from adjacent watersheds. Specifically, the Margerie Reservoir dam and dike were constructed sufficiently wide to allow raising but were not constructed to the full height.

The Town has recently established a Flood and Erosion Control Board that is specifically focused on hazards from Margerie Reservoir. This Board may be able to assist with mitigation of potential dam failure.

Most of the eastern border of New Fairfield is formed by Candlewood Lake, which is impounded by a series of Class C dams and dikes in New Milford and Danbury. While the failure of any of the Candlewood Lake dams and dikes (including the Squantz Pond Dam) would not have a direct impact on the Town, residents bordering the lake and those who have boats moored at the lake would be indirectly affected. Any failure would cause the lake level to lower, and a complete failure could cause the entire lake to drain. A rapid drawdown could cause damage to boats as they come to rest on the bed of the lake, and if the dams were not restored, the failure would negatively impact individual property values. Failure of the Squantz Pond causeway would isolate the Bogus Hill neighborhood, restricting access to these residences to Route 33 from Sherman to the north.

## 3.3 HURRICANES AND TROPICAL STORMS

### 3.3.1 Setting

Hazards associated with tropical storms and hurricanes include winds, heavy rains, and inland flooding. While only some of the areas of New Fairfield 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. A hurricane striking New Fairfield is considered a possible event each year and could cause critical damage to the Town, its critical facilities, and its infrastructure.

### 3.3.2 Capabilities

Wind loading requirements are addressed through the state building code. The 2005 Connecticut State Building Code was adopted on December 31, 2005. Amendments were made in 2007, 2009, 2011, and 2013. The code specifies the design wind speed for construction in all Connecticut municipalities. Effective as of the 2016 code update, the design wind speed for New Fairfield is 90 mph. New Fairfield has adopted the Connecticut Building Code as its building code and remains up-to-date on changes.

Eversource Energy, the local electric utility, provides tree maintenance near its power lines. Eversource has provided a liaison to the Town to assist with communication and coordination, which Town officials have indicated to be a positive effort. Nonetheless, officials have indicated that the response time for outages has increased since Eversource took over. Despite the liaison, officials feel that Eversource has not been forthcoming with information that would help pinpoint outage hotspots during emergencies. Officials also note that New Fairfield is at the end of the transmission system, so power often takes an especially long time to be restored.

The Town has a tree warden who encourages residents to cut trees that can be dangerous to power lines. The tree warden is also responsible for maintenance along Town roads and advises private associations and the Public Works Department regarding potentially hazardous trees on private roads. Thus, landowners and community associations are primarily responsible for conducting tree maintenance on private property. In addition, all utilities in new subdivisions must be located underground whenever possible in order to mitigate storm-related damages. Town officials cite their tree-maintenance program as successful and estimate that the annual cost for the program is around $15 thousand, reflecting a decrease in costs over time.

During emergencies, the Town currently has two designated emergency shelters available as well as the New Life Community Church as a backup shelter facility (Section 2.9). As hurricanes generally pass an area within a day's time, additional shelters can be set up after the storm as needed for long-term evacuees.

The Town relies on radio, television, area newspapers, and the internet to spread information on the location and availability of shelters. It is understood that several of these information sources can be cut off due to power failure, so emergency personnel can also pass this information on manually. The local newspaper is printed too infrequently to reliably publish shelter information prior to most hazard events, although it can be used for those hazards with a long lead time such as hurricanes. 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.

*Summary*

New Fairfield's hurricane-mitigation capabilities are centered on a strong tree-limb maintenance program designed to prevent damage to utilities, roads, and residents. This program includes designating a Town Tree Warden, noting and encouraging residents to cut dangerous trees on their properties, and cutting dangerous trees on public roads and rights-of-way. Active coordination with the regional power company has improved since Connecticut Light and Power was taken over by Eversource and the Eversource liaison program was initiated. Post-event road closures due to fallen trees or power lines are addressed in person by the Town First Selectman. An additional capability that has improved since the initial HMP is the number and distribution of both municipal and privately-owned power generators.

Other municipal policies related to tropical storm mitigation include the following: the most up-to-date Connecticut State Building Code is implemented in Town; landowners are responsible for maintaining trees on their properties; utilities must be placed underground in new developments. Finally, the Town has a program for ensuring that emergency communication systems are operational prior to forecasted storm events.

### 3.3.3 Vulnerabilities and Risk Assessment

Connecticut is located in FEMA Zone II in regard to maximum expected wind speed. The maximum expected wind speed for a 3-second gust is 160 mph. This wind speed could occur as a result of either a hurricane or a tornado. The American Society of Civil Engineers recommends that new buildings be designed to withstand this peak 3-second gust.

The Town 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. Areas of known and potential flooding problems are discussed in Section 3, and tornadoes will be discussed in Section 5.

New Fairfield's housing stock consists of historic buildings greater than 50 and sometimes 100 years old, relatively younger buildings built before 1990 when the building code changed to mitigate for 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.

Debris such as signs, roofing material, and small items left outside become flying missiles in hurricanes. Extensive damage to trees, towers, aboveground and underground utility lines (from uprooted trees), and fallen poles causes considerable disruption for residents. Streets may be flooded or blocked by fallen branches, poles, or trees, preventing egress. Downed power lines from heavy winds can also start fires, so adequate fire protection is important.

As the residents and businesses of the state of Connecticut become more dependent on the internet and mobile communications, the impact of hurricanes on commerce will continue to increase. A major hurricane has the potential of causing complete disruption of power and communications for up to several weeks, rendering electronic devices and those that rely on utility towers and lines inoperative.

## 3.4 SUMMER STORMS AND TORNADOES

### 3.4.1 Setting

Summer storms and tornadoes have the potential to affect any area within the Town. Because these types of storms and the hazards that result (flash flooding, wind, hail, and lightning) might have limited geographic extent, it is possible for a summer storm to harm one area within the Town without harming another. Based on the historic record, it is considered highly likely that a summer storm that includes lightning will impact the Town 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.

Tornadoes are most likely to occur in Connecticut in June, July, and August of each year.

According to the NOAA Storm Event Database, the highest relative risk for tornadoes in Connecticut is Litchfield (22 events between January 1, 1950 and July 31, 2015) and Hartford Counties (17 events), followed by New Haven (15 events), Fairfield (13 events), Tolland (11 events), Middlesex (7 events), Windham (3 events), and finally New London (2 events) Counties. The same source shows the adjacent Dutchess County (11 events) in New York as tied with four other New York counties as having the fifth-highest occurrence of tornado activity since 1950. By virtue of its location in Fairfield County (moderate risk) but adjacent to Litchfield County (high risk) and Dutchess County (moderate risk), the Town is therefore at a relatively moderate to high risk for tornadoes. The pattern of occurrence in Connecticut is expected to remain unchanged according to the 2019 Connecticut Natural Hazards Mitigation Plan although that document points out that climate change is expected to increase the frequency and intensity of thunderstorms, in turn increasing the risk and occurrence of associated tornadoes.

### 3.4.2 Capabilities

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.

Aside from warnings, several other methods of mitigation for wind damage are employed in New Fairfield. Continued location of utilities underground is an important method of reducing wind damage to utilities and the resulting loss of services. The Connecticut Building Codes include guidelines for wind load criteria that are specific to each municipality, as explained in Section 4.0. In addition, specific mitigation measures address debris removal and tree trimming.

In the Town of New Fairfield, the local utilities are responsible for tree branch removal and maintenance above and near their lines. The Town also performs tree branch trimming along Town roads and on Town property. In addition, all new developments in New Fairfield must place utilities underground wherever possible. The tree warden also approaches residents on a case-by-case basis when trees and branches on their property look hazardous though ultimately tree removal on private property is up to the property owner. More information on tree maintenance was provided in Section 4.0.

Municipal responsibilities relative to tornado mitigation and preparedness include the following:

- Developing and disseminating emergency public information and instructions concerning tornado safety, especially guidance regarding in-home protection and evacuation procedures and locations of public shelters
- Designate appropriate shelter space in the community that could potentially withstand tornado impact
- Periodically test and exercise tornado response plans
- Put emergency personnel on standby at tornado "watch" stage

*Summary*

New Fairfield's capabilities to mitigate and respond to summer storm and tornado hazards all relate to wind-protection measures. Programs and policies include: ensuring communication systems are operational prior to forecast storms; broadcasting storm warning information; disseminating tornado safety information and evacuation procedures; designating tornado-resistant public shelters; periodic testing of tornado response plans; putting emergency personnel on standby at tornado "watch" stage; a strong tree maintenance program; a post-storm debris removal program; requiring buildings meet the Connecticut State Building Code; an increase in the number and distribution of power generators; and improved coordination with Eversource.

### 3.4.3 Vulnerabilities and Risk Assessment

According to the Connecticut 2014 Natural Hazard Mitigation Plan Update, Fairfield County has a moderate to high risk of tornado activity based on historical occurrences. By virtue of its location in Fairfield County, New Fairfield has a medium to low potential to experience tornado damage. In addition, NOAA states that climate change has the potential to increase the frequency and intensity of tornadoes, so it is possible that the pattern of occurrence in Connecticut could change in the future.

Fairfield County experiences an average of 7.5 severe, damaging thunderstorms per year according to the Connecticut 2014 Natural Hazard Mitigation Plan Update. Although lightning is usually associated with thunderstorms, it can occur on almost any day. The likelihood of lightning strikes in the New Fairfield 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 New Fairfield is considered moderate in any given year.

New Fairfield is particularly susceptible to damage from high winds due to its high elevation and heavily treed landscape.

Heavy winds can take down trees near power lines, leading to the start and spread of fires. Such fires can be extremely dangerous during the summer months during dry and drought conditions. Most downed power lines in New Fairfield are detected quickly, and any associated fires are quickly extinguished.

*Summary*

According to Town personnel, no single area of Town is more susceptible to wind damage than any other. Secondary damage from falling branches and trees is more common than direct wind damage to structures.

## 3.5 WINTER STORMS AND NOR'EASTERS

### 3.5.1 Setting

The entire Town of New Fairfield is susceptible to winter storms, and due to its high elevation can have higher amounts of snow than surrounding communities. The hazards that result from winter storms (nor'easter winds, snow, and blizzard conditions) can potentially have a significant effect over a large area of the Town.

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.

Most winter weather events occur between December and March. Connecticut experiences at least one major nor'easter approximately every 4 years although a variety of minor and moderate snow and ice storms occur nearly every winter. According to the 2019 Connecticut Natural Hazards Mitigation Plan Update, Connecticut residents can expect at least two or more severe winter weather events per season, including heavy snowstorms, potential blizzards, nor'easters, and potential ice storms.

According to the 2019 Connecticut Natural Hazards Mitigation Plan Update, recent climate change studies predict a shorter winter season for Connecticut (as much as 2 weeks) and less snow-covered days with a decreased overall snowpack. These models also predict that fewer, more intense precipitation events will occur with more precipitation falling as rain rather than snow. This trend suggests that future snowfalls will consist of heavier (denser) snow, and the potential for ice storms will increase. Such changes will have a large impact on how the state and its communities manage future winter storms and the impact such storms have on the residents, roads, and utilities in the state.

### 3.5.2 Capabilities

Capabilities 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 ensures that all warning/notification and communications systems are ready before a storm and ensures that appropriate equipment and supplies, especially snow removal equipment, are in place and in good working order. The Town also prepares for the possible evacuation and sheltering of some populations that could be impacted by the upcoming storm (especially the elderly and special needs persons).

The amount of snowfall in New Fairfield is elevation-dependent during storms. The Town primarily uses Town staff for plowing operations. The Town utilizes plow trucks to clear and treat all Town-owned roadways, properties, and sidewalks. The Connecticut Department of Transportation plows Routes 37 and 39 and Shortwoods Drive leading to Pootatuck State Park. Private communities are responsible for plowing their own roads. Town roads are not prioritized for plowing. During emergencies, a plow vehicle can be dispatched ahead of an emergency vehicle.

*Summary*

In summary, policies relevant to winter storm mitigation include: primarily using Town staff for plowing operations; clearing of state, Town, and private roads are the responsibility of the state, Town, and private communities respectively. Relevant programs include: ensuring communication systems, equipment and supplies, evacuation routes and shelters are all prepared prior to forecast storm events; dispatching plows ahead of emergency vehicles. For municipal property, the budget for plowing and minor repairs is generally adequate to handle winter storm damage although the plowing budget is often depleted in severe winters.

### 3.5.3 Vulnerabilities and Risk Assessment

The heavily treed landscape in close proximity to populated residential areas in New Fairfield poses problems in relation to blizzard condition 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. Heavy winter precipitation can also lead to roof collapse; the Marina on Candlewood Lake in New Fairfield was damaged by snow in 2011.

Winter storms present problems for motorists and emergency responders all over the state. Icing causes difficult driving conditions throughout the hillier sections of New Fairfield. Town officials noted that there is an icing problem on Shortwoods Road near Pootatuck State Park. The largest problems occur on narrow, steeply sloped private roads. Drifting snow is not as large a problem in New Fairfield as in other communities, but it still occurs. This problem is mitigated through municipal plowing efforts. Ice jams are not a problem along the rivers in New Fairfield.

*Summary*

The entire community is at relatively equal risk for experiencing damage from winter storms although some areas may be more susceptible. 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.

## 3.6 WILDFIRES AND DROUGHT

### 3.6.1 Setting

Wildfires are any nonstructure fire, other than a prescribed burn, that occurs in undeveloped areas. They are considered to be highly destructive, uncontrollable fires. Although the term brings to mind images of tall trees engulfed in flames, wildfires can occur as brush and shrub fires, especially under dry conditions. Wildfires are also known as "wildland fires."

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. In many areas, structures and subdivisions are built abutting forest borders, creating areas of particular vulnerability. This "wildland/urban interface" is where many such fires are fought. An isolated wildland fire may not be a threat, but the combined effect of having residences, businesses, and lifelines near a wildland area causes increased risk to life and property.

The likelihood of a severe wildfire developing is lessened by the vast network of water features in the state, which creates natural breaks likely to 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.

Traditionally, the highest forest fire danger in Connecticut occurs in the spring from mid-March to mid-May.

In addition, New Fairfield, and Fairfield County overall, has experienced drought challenges over recent years. The U.S. Drought Monitor (USDM), which has been monitoring nationwide drought conditions since 2000, estimates that over the past two decades Connecticut experienced its longest drought of 46 weeks beginning June 21, 2016 and lasting until May 2, 2017. It was also estimated that the most intense period of this extended drought occurred the week of November 15, 2016, where approximately 44.5% of Connecticut lands were impacted. Figure 3-1 depicts the various drought conditions in Fairfield County since 2000, where the warmer colors represent more advanced drought stages.

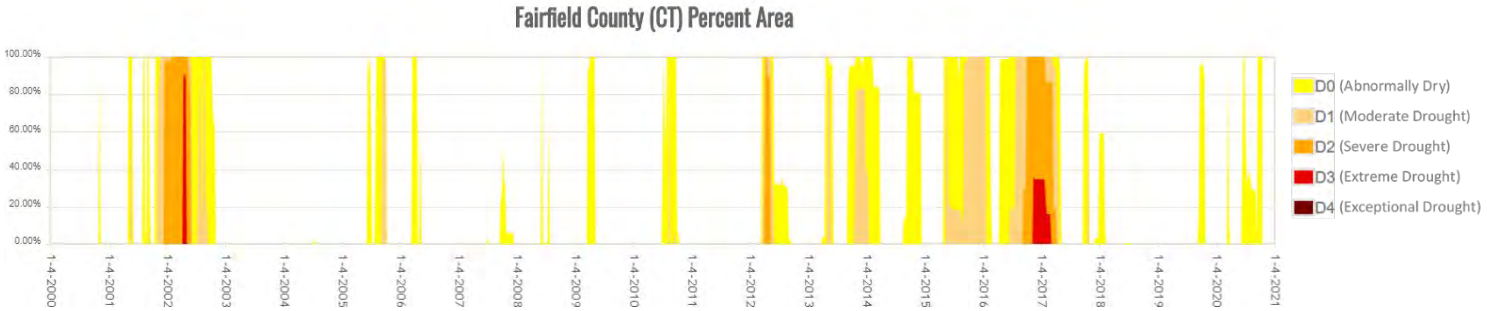


**Figure 3-1: USDM Drought Time Series for Fairfield County**

The 2019 Connecticut Natural Hazard Mitigation Plan assumes that the State of Connecticut has a medium probably of future drought events. This assumption is based on climate change projections anticipating hotter and 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 7.34% of the state's total number of farms, with a market value of over $34 million in product sold from these farms.

### 3.6.2 Capabilities

Existing mitigation for wildland fire control is typically focused on Fire Department training and maintaining an adequate supply of equipment. The Town of New Fairfield Subdivision Regulation and the New Fairfield Water Supply Ordinance require provision of supplemental water supply systems for fire protection and stipulate that the Fire Department review and approve the location, size, design, construction specifications, and installation of these water supply systems. In addition, new roads, subdivisions, and fire ponds are required to allow for fire truck access. New Fairfield promotes intermunicipal cooperation in firefighting efforts.

Unlike wildfires on the west coast of the United States where the fires are allowed to burn toward development and then stopped, the New Fairfield Volunteer Fire Department goes to the fires whenever possible. This proactive approach is believed to be effective for controlling wildfires. The Fire Department has some water storage capability but primarily relies on the use of the 68 fire ponds, dry hydrants, and water tanks to fight fires located along major roads throughout Town. Exact locations of each water source are available on the New Fairfield Volunteer Fire Department website at http://www.nfvfd.org/6586/.

New Fairfield has an Open Burning Official who has taken an online training course and exam to become certified, and is responsible for permitting open burning activities.

#### *Summary*

In summary, New Fairfield programs that mitigate wildfire hazards include adding firefighting water supplies to areas currently underserved, intermunicipal firefighting coordination, public outreach and education about fire safety and outdoor burning, patrolling public spaces to monitor campfires, and participation in the Connecticut Open Burning program. Policies include requiring fire ponds with dry hydrants and water tanks to be installed at new subdivisions, requiring that roads are constructed to allow firefighting vehicles access to new subdivisions, and proactively going to fires when possible rather than letting them burn.

### 3.6.3 Vulnerabilities and Risk Assessment

Based on the historic record, most wildfires in Connecticut are relatively small. In the drought year of 1999, the average wildfire burned 5 acres in comparison to the two most extreme wildfires recorded since 1986 that burned 300 acres each. Given the availability of firefighting water in New Fairfield, including the use of nearby water bodies, and the long-standing mutual aid assurances the Town Fire Department has with neighboring communities, it is believed that these figures are applicable to this Town. Indeed, Town personnel report that in a typical year the largest fires only burn a couple of acres before being contained despite the rural nature of the Town.

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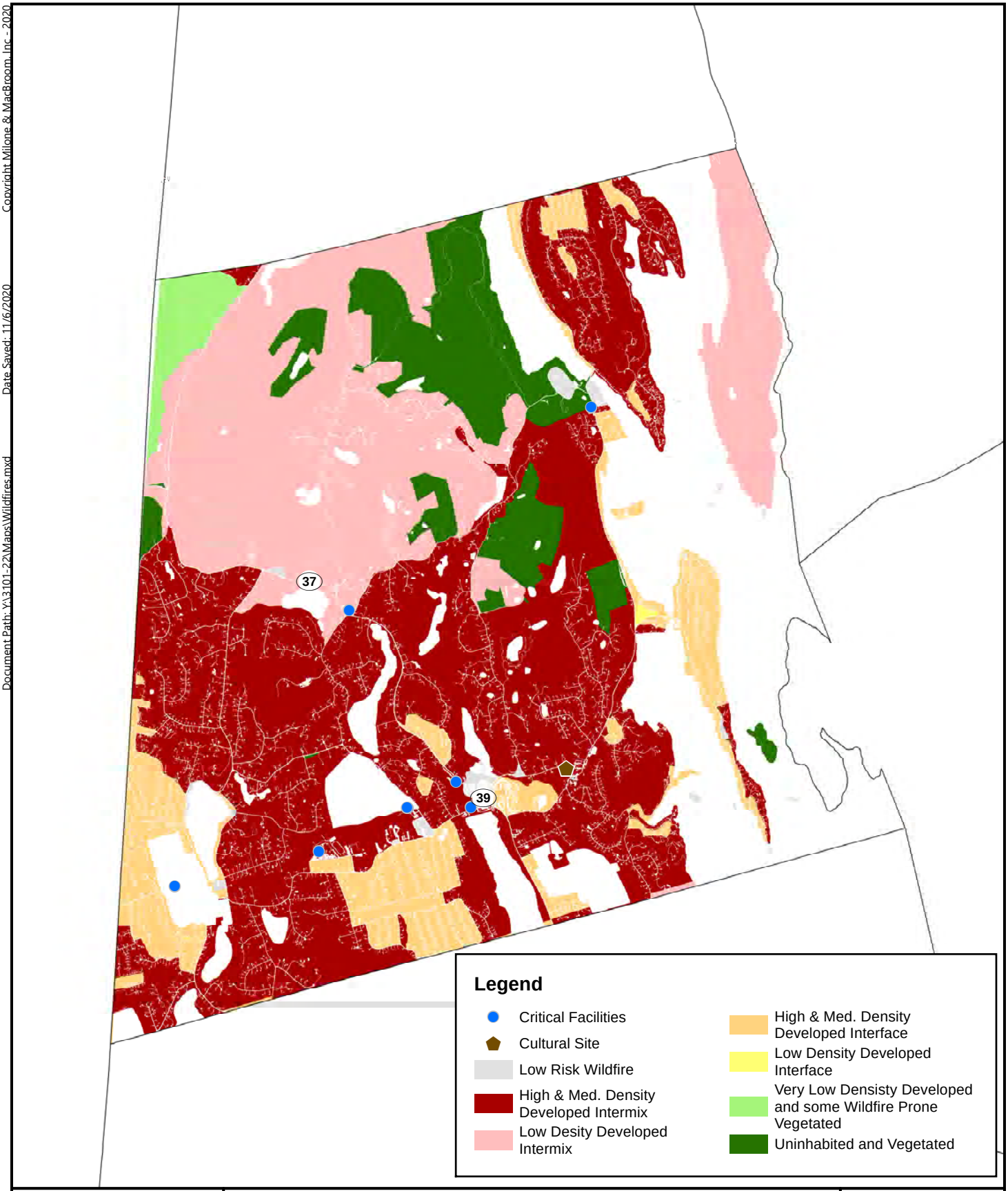


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# Wildland-Urban Interface: Wildfire Risk Areas

WestCOG Hazard Mitigation Plan
Town of New Fairfield

NPS: Cultural Resources
Wildland-Urban Interface:USFA

N

0 2,500 5,000
Feet

SCALE 1 " = 5,036 '
DATE 11/13/2020
3101-22
PROJ. NO.

**FIG. 3-2**

Wildfires are of particular concern in the many wooded areas and other areas with poor access for firefighting equipment throughout New Fairfield. However, the geographic extent of these areas is small, and the preparedness and responsiveness of the New Fairfield Volunteer Fire Department is very strong. As a result, the overall vulnerability of New Fairfield to wildfire hazards is low. Figure 9-1 presents the wildfire risk areas for the Town. Hazards associated with wildfires include property damage and loss of forest. Wildfires are considered a likely event each year, but when one occurs, it is generally contained to a small range with limited damage to nonforested areas.

In addition, there are many areas of Town where roads are narrow and one way. This hinders emergency access to fight fires. This is a particular problem within many of the private community associations. Fire trucks often need to drive into such areas in line with the last one in being the first one to back out as there is no place to turn around. In other places, fire trucks simply can't get to the houses that are up narrow dirt roads and driveways. The Fire Department should continue public education in these areas and encourage homeowners and private communities to widen the access for emergency vehicles wherever possible.

There are limited public camping areas in Town, so there are few fires caused by out-of-control campfires. The only forested state park in town is the Pootatuck State Forest, which borders Squantz Pond in northern New Fairfield.

The wildfire risk areas in New Fairfield presented in Figure 3-2 were defined as being contiguous wooded areas with limited access. These areas are generally associated with large tracts of privately and publicly owned forests and other Town-owned open space. The limited access conservation properties are considered to be at the highest risk for fires. As each area borders residential sections of the Town, residents on the outskirts of these risk areas are the most vulnerable to fire, heat, and smoke effects of wildfires. Despite having a large amount of forest/suburban interface, the overall risk from wildfires occurring in the Town is considered to be low. Such fires fail to spread far due to the speed of detection and strong fire response.

In summary, areas adjacent to open space are considered most at risk from wildfires. In addition, there is concern about fires in the wooded northern sections of Town where there is limited firefighting water available. While fires are infrequent in these areas, they can often be difficult to access and fight.

New Fairfield experienced a significant wildfire in September 2015. Thirty-five fire departments responded to help fight the fire. Twenty-eight acres of state forestland were burned. The plume was 3,000 feet high. The blaze was first discovered on a Saturday covering 10 acres, was fought, and was thought to be controlled. On Sunday, it had spread more. No losses to structures or vehicles were experienced, with a minor amount of lost gear and supplies.

## 3.7 EARTHQUAKES AND LANDSLIDES

### 3.7.1 Setting

The entire Town is susceptible to earthquakes. However, even though earthquakes have 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. The Town has adopted these codes for new construction, and they are enforced by the Town Building Official.

Due to the infrequent nature of damaging earthquakes, land use policies in New Fairfield do not directly address earthquake hazards. However, the Subdivision Regulations of the Town (Section 3.02) prohibit development on slopes greater than 25 percent. The Town reserves the right to impose more stringent regulations on a site to maintain the stability of the bank under the proposed conditions.

*Summary*

In summary, New Fairfield's capabilities to mitigate for hazards have remained strong since adoption of the initial HMP. Town policy continues to require adherence to Connecticut Building Codes and to prohibit development on especially steep slopes.

### 3.7.3 Vulnerabilities and Risk Assessment

Surficial earth materials behave differently in response to seismic activity. Unconsolidated materials such as sand and artificial fill can amplify the shaking associated with an earthquake. Artificial fill material has the potential for liquefaction. When liquefaction occurs, the strength of the soil decreases, and the ability of soil to support building foundations and bridges is reduced. Increased shaking and liquefaction can cause greater damage to buildings and structures and a greater loss of life.

As explained in Section 2.3, several areas in the Town are underlain by sand and gravel, including the commercial Town center. Figure 2-4 depicts surficial materials in the Town. 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 application of the most stringent building codes or possibly the prohibition of new construction. However, many of these areas occur in floodplains associated with the various streams and rivers in New Fairfield, so they are already regulated. The areas that are not at increased risk during an earthquake due to unstable soils are the areas in Figure 2-4 underlain by glacial till.

> Liquefaction is a phenomenon in which the strength and stiffness of a soil are reduced by earthquake shaking or other rapid loading. It occurs in soils at or near saturation and especially in finer textured soils.

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 in Section 9.0.

A series of earthquake probability maps were 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 Town. Results are presented in Table 3-3 below.

**Table 3-3: Probability of a Damaging Earthquake in the Vicinity of New Fairfield**

| 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% |
| 250 | 10% to 12% | 2% to 3% |
| 350 | 12% to 15% | 3% to 4% |

While the risk of an earthquake affecting New Fairfield is relatively low over the short term, long-term probabilities suggest that a damaging earthquake (magnitude greater than 5.0) could occur within the vicinity of New Fairfield.

Because a damaging earthquake would likely affect a large area beyond New Fairfield, it is likely that the community may not be able to receive regional aid for a few days. It is important for municipal facilities and departments to have adequate backup plans and backup supplies to ensure that restoration activities may begin and continue until outside assistance can be provided.

# 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 the status of each. Actions to be carried forward are noted as such. Actions that have been institutionalized as capabilities are not carried forward.

| # | Description | Responsible Party | Status | Notes |
|---|---|---|---|---|
| **1** | Acquire up to three additional portable generators to be stored at the Town Hall, the Drop-Off Center, and the Library. | DPW | In-Progress Carry Forward with Revisions | A permanent generator has been installed at the Town Hall and Annex. A hookup for a portable generator has been installed at the Senior Center, and a portable generator acquired. Significant progress has been made on this action. This action is carried forward to call for acquisition of portable generators to be stored at the Drop-Off Center and the Library only. |
| **2** | Upgrade emergency notification system to a company that has more capabilities for assisting residents with special needs. | OEM | Carry Forward with Revision | Town has been exploring options for updating its emergency notification system. It currently uses the AlertNow system, but has identified the Everbridge system as the system to which it will transition. |
| **3** | Review and update potential evacuation routes while allowing flexibility in case of downed trees or power lines blocking the road. | OEM | Capability | This action is performed regularly and as part of standard operations during and following hazard events. |
| **4** | Create a public road-closure reporting system so residents can inform the town of the locations of downed tree limbs and power lines, or flooded roads. | DPW | Completed | Residents are instructed to call the New Fairfield Communications Center (by dialing 9-1-1). The Communications Center relays information to the DPW. |

| # | Description | Responsible Party | Status | Notes |
|---|---|---|---|---|
| **5** | Pursue funding to place utilities underground in existing developed areas. | DPW | Drop | Town does not believe this action will necessarily increase hazard mitigation capabilities. Town works with utility companies to support grid resiliency efforts. Action is dropped. |
| **6** | Require developers to determine whether detention or retention of stormwater is the best option for reducing peak flows downstream of a project, rather than having the responsibility be on Town officials. | ZC | Capability | Stormwater retention/detention is covered in the 2007 Zoning Regulations Section 6.5: Residential & Commercial Post Development. New Fairfield Planning Commission approves subdivision and redevelopment applications |
| **7** | In conjunction with the land trusts in town, pursue the acquisition of additional municipal open space inside SFHAs and set it aside as greenways, parks, or other nonresidential, noncommercial, or nonindustrial use. | PC, ZC | Capability | This is a capability |
| **8** | Coordinate with the CTDOT and pursue/allocate funding to upgrade the Ball Pond Brook road crossing at Bigelow Corners | DPW | Drop | This is a State Road, and the Town is not involved in decision-making. CTDOT maintains and improves State Roads as needed. |
| **9** | Collaborate with the Stormwise project, participate in education, management, and research efforts, and implement the Stormwise framework. | DPW | Drop | Town DPW maintains trees using best known practices. This specific action is not necessary. |
| **10** | Develop a microgrid within the Town using both private and Town-owned generators. | DPW | Carry Forward with Revisions | Action has not yet been pursued due to limited funding and municipal resources. Carry forward, revised to refer specifically to critical facilities. |
| **11** | Evaluate the cost-effectiveness of installing solar panels on Town buildings to provide an additional source of local electricity in the event of a regional power outage. | Selectman's Office | Carry Forward | Action has not yet been pursued due to limited funding and municipal resources. Carry Forward. |

| # | Description | Responsible Party | Status | Notes |
|---|---|---|---|---|
| **12** | Evaluate the cost-effectiveness of performing a GPS study of roads in order to prioritize plowing routes, increase efficiency and efficacy of plowing efforts, and help plan evacuation routes. | DPW | Drop | DPW believes existing plow routes are acceptable. |
| **13** | Regulate development on and near slopes to prohibit construction on slopes greater than 25% | ZC | Capability | Regulated through Zoning Commission Regulations |
| **14** | Make copies of EOP/EAP documents available at the Town Hall for reference and public viewing. | OEM | Carry Forward with Revisions | Action is redundant with Action #16, below. |
| **15** | Include potential dam failure areas into the AlertNow emergency notification system. | OEM | Carry Forward with Revisions | Action will be completed during transition to Everbridge System. |
| **16** | Actively coordinate with the Town of Danbury to ensure that New Fairfield receives a copy of the Dam Failure Analysis and EAP for the Margerie North Pond Dam. | Selectman's Office | Carry Forward with Revision | Town has requested document from Danbury and is awaiting a response. |
| **17** | Encourage property owners to widen access roads such that fire trucks and other emergency vehicles can access remote locations. | Fire Department | Capability | Planning & Zoning requires this and enforces during review of new proposals. |
| **18** | Provide outreach programs on how to properly manage burning and campfires on private property | Fire Department | Carry Forward with Revisions | Action has not yet been pursued due to limited staff resources. Action is carried forward, revised to be the responsibility of the Emergency Manager. |
| **19** | Coordinate with the State of Connecticut to ensure there is adequate monitoring of fires on State Forest land. | Selectman's Office | Capability | This is performed by the Fire Department. |
| **20** | Coordinate with the State of Connecticut to ensure there is adequate accessibility for emergency vehicles to respond to fires on State Forest land. | Selectman's Office | Capability | Conservation Officers and State Forest are responsible for implementing these practices. |

| # | Description | Responsible Party | Status | Notes |
|---|---|---|---|---|
| **21** | Perform prescribed burning on municipal land when and where appropriate. | Fire Department | Capability | Fire Department coordinates with the Town, and perform burning under appropriate conditions. |

## 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.

The comprehensive list of actions to be pursued in the next five years are presented below.

| Action NFF-01 | |
|---|---|
| **Provide outreach programs on how to properly manage burning and campfires on private property** | |
| **Lead** | EM |
| **Cost** | $0 - $25,000 |
| **Funding** | Operating Budget, FEMA Assistance to Firefighters Grant |
| **Timeframe** | 2022 |
| **Priority** | Med |

| Action NFF-02 | |
|---|---|
| **Actively coordinate with the Town of Danbury to ensure that New Fairfield receives a copy of the Dam Failure Analysis and EAP for the Margerie North Pond Dam; make copies of EAP documents available at the Town Hall for reference and public viewing.** | |
| **Lead** | Selectman's Office |
| **Cost** | $0 - $25,000 |
| **Funding** | Operating Budget |
| **Timeframe** | 2023 |
| **Priority** | Low |

| Action NFF-03 | |
|---|---|
| **Increase Substantial Damage and Substantial Improvement lookback periods to two or more years.** | |
| **Lead** | Planning |
| **Cost** | $0 - $25,000 |
| **Funding** | Operating Budget |
| **Timeframe** | 2023 |
| **Priority** | Low |

| Action NFF-04 | |
|---|---|
| **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.** | |
| **Lead** | Planning |
| **Cost** | $25,000 - $50,000 |
| **Funding** | CT SHPO |
| **Timeframe** | 2024 |
| **Priority** | High |

| Action NFF-05 | |
|---|---|
| **Include potential dam failure areas in the Everbridge emergency notification system.** | |
| **Lead** | OEM |
| **Cost** | $25,000 - $50,000 |
| **Funding** | Operating Budget, CT DEMHS |
| **Timeframe** | 2024 |
| **Priority** | Med |

| Action NFF-06 | |
|---|---|
| **Evaluate the cost-effectiveness of installing solar panels on Town buildings to provide an additional source of local electricity in the event of a regional power outage.** | |
| **Lead** | Selectman's Office |
| **Cost** | $25,000 - $50,000 |
| **Funding** | Capital Improvement Plan, FEMA Grant |
| **Timeframe** | 2024 |
| **Priority** | Low |

| Action NFF-07 | |
|---|---|
| **Complete a feasibility study to develop a microgrid supporting municipal critical facilities (such as the Town Hall, Library, and Senior Center, or the High School and Middle School campus), and possibly essential private businesses (such as groceries and gas stations).** | |
| **Lead** | DPW |
| **Cost** | $25,000 - $50,000 |
| **Funding** | Operating Budget |
| **Timeframe** | 2024 |
| **Priority** | Low |

| Action NFF-08 | |
|---|---|
| **Annually conduct an emergency operations exercise for a local terrorism, sabotage, or mass casualty event.** | |
| **Lead** | EMD |
| **Cost** | $25,000 - $50,000 |
| **Funding** | Operating Budget |
| **Timeframe** | 2024 |
| **Priority** | Low |

| Action NFF-09 | |
|---|---|
| **Upgrade emergency notification system to Everbridge instead of AlertNow because of the superior capabilities of Everbridge, including for assisting residents with special needs.** | |
| **Lead** | OEM |
| **Cost** | $50,000 - $100,000 |
| **Funding** | Operating Budget, CT DEMHS |
| **Timeframe** | 2025 |
| **Priority** | Med |

| Action NFF-10 | |
|---|---|
| **Acquire up portable generators to be stored at the Drop-Off Center and the Library.** | |
| **Lead** | DPW |
| **Cost** | $100,000 - $500,000 |
| **Funding** | Capital Improvement Plan, FEMA Grant, Other Grant |
| **Timeframe** | 2025 |
| **Priority** | High |

# APPENDIX A

**Appendix A: STAPLEE Matrix**

| # | Action Description | Regional Theme | Lead Department | Cost Estimate | Potential Funding Sources | Timeframe for Completion | Weighted STAPLEE Criteria | | | | | | | | | | | | | | Total STAPLEE Score |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Benefits | | | | | | | Costs | | | | | | | |
| | | | | | | | Social | Technical (x2) | Administrative | Political | Legal | Economic (x2) | Environmental | Social | Technical (x2) | Administrative | Political | Legal | Economic (x2) | Environmental | |
| NFF-01 | 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. | SHPO | Planning | $25,000 - $50,000 | CT SHPO | 2024 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| NFF-02 | Acquire up portable generators to be stored at the Drop-Off Center and the Library. | Energy Resiliency & Backup Power | DPW | $100,000 - $500,000 | Capital Improvement Plan, FEMA Grant, Other Grant | 2025 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| NFF-03 | Provide outreach programs on how to properly manage burning and campfires on private property | Outreach and Education | EM | $0 - $25,000 | Operating Budget, FEMA Assistance to Firefighters Grant | 2022 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| NFF-04 | Include potential dam failure areas in the Everbridge emergency notification system. | Emergency Response | OEM | $25,000 - $50,000 | Operating Budget, CT DEMHS | 2024 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 6 |
| NFF-05 | Upgrade emergency notification system to Everbridge instead of AlertNow because of the superior capabilities of Everbridge, including for assisting residents with special needs. | Emergency Response | OEM | $50,000 - $100,000 | Operating Budget, CT DEMHS | 2025 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 6 |
| NFF-06 | Actively coordinate with the Town of Danbury to ensure that New Fairfield receives a copy of the Dam Failure Analysis and EAP for the Margerie North Pond Dam; make copies of EAP documents available at the Town Hall for reference and public viewing. | Dam Safety | Selectman's Office | $0 - $25,000 | Operating Budget | 2023 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| NFF-07 | Increase Substantial Damage and Substantial Improvement lookback periods to two or more years. | Floodplain Management Regulations | Planning | $0 - $25,000 | Operating Budget | 2023 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | -1 | 0 | 0 | 0 | 5 |
| NFF-08 | Evaluate the cost-effectiveness of installing solar panels on Town buildings to provide an additional source of local electricity in the event of a regional power outage. | Energy Resiliency & Backup Power | Selectman's Office | $25,000 - $50,000 | Capital Improvement Plan, FEMA Grant | 2024 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | -1 | -1 | 0 | 0 | 0 | 0 | 5 |
| NFF-09 | Complete a feasibility study to develop a microgrid supporting municipal critical facilities (such as the Town Hall, Library, and Senior Center, or the High School and Middle School campus), and possibly essential private businesses (such as groceries and gas stations). | Energy Resiliency & Backup Power | DPW | $25,000 - $50,000 | Operating Budget | 2024 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | -1 | -1 | 0 | 0 | 0 | 0 | 5 |
| NFF-10 | Annually conduct an emergency operations exercise for a local terrorism, sabotage, or mass casualty event. | Terrorism & Mass Casualty | EMD | $25,000 - $50,000 | Operating Budget | 2024 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 5 |

# APPENDIX B

**Appendix B: SVI Summary**

# Town of New Fairfield
# Climate Vulnerability Assessment
# A Component of Sustainable CT Action 5.4

The Town of New Fairfield, for this Climate Vulnerability Assessment (CVA) is considered a suburban inland town, resulting in various climate change vulnerabilities. Inland flooding, extreme heat, and winter storms may impact the community the most as many issues have been identified.

## Hazards

### Inland Flooding

With FEMA flood zones primarily around the lakes and ponds in town, along with Quaker Brook and Ball Pond Brook, there is a flood risk to adjacent properties whether it is a larger storm event, or a short intense rainstorm. With precipitation expected to increase due to climate change, flooding events may occur more frequently. Overall, flooding may continue, or become a larger issue with future shifts in precipitation.

### *Winter Storms*

New Fairfield is largely residential, with large swaths of open land, and a commercialized area at the intersection of Route 37 and 39. Suburban communities are often impacted by strong winter storms in several ways; power outage from downed trees, accessibility issues, and icing concerns. Anticipated shifts in winter precipitation may bring more freezing rain events, which can result in an increase of downed trees during a winter storm event. Downed trees can result in power outages, and lack of emergency access and egress.

### *Drought and Extreme Temperatures*

Most of the town relies on private wells for drinking water, with the exception of a few small public water systems. Therefore, impacts to water supply may be an issue to the town as temperatures rise in the near future, resulting in isolated issues with water scarcity. With increased temperatures, and high pumping levels, private wells may be impacted during times of drought.

In addition to private wells, many suburban communities have high levels of agricultural activity, whether it be crop production or livestock, these operations are heavily water dependent for healthy growing and revenue generation.

When considering these impacts from climate change, the primary vulnerabilities for the town of New Fairfield include:

- Private well owners
- Emergency access
- Agricultural operations

## Secondary Impacts

***Economic Impacts***

With areas vulnerable to flooding and winter storm events, the town faces an economic challenge of addressing the flooding concerns and increasing snow and debris removal capacity. There is also a potential economic impact to local businesses during flooding events, and heavy winter storms. Businesses may incur expenses related to flood mitigation or clean-up efforts, or experience loss of income if there is no site access during a storm.

Winter storm snow removal or icing also presents financial responsibility to the town by way of roadway treatment. As precipitation events may increase during winter months, the town may seek to increase sand or salt stockpiles to account for increased icing events.

Private property owners who rely on private drinking water wells may also be impacted economically during droughts or periods of extreme heat. With increasing heat, typically comes increased water demand. This demand would be placed upon local aquifers, potentially resulting in the need for new well construction, or deepening of an existing well.

The many impacts of climate change can result in economic impacts to many citizens, business owners, and municipal budgets as the impacts can be felt on a town level, down to building level.

***Social Impacts***

To identify social impacts to the town, the Center for Disease Control and Prevention (CDC) Social Vulnerability Index (SVI) was used to identify any vulnerable populations within the town. This index was developed to supplement a community's natural hazard preparation actions. To evaluate social vulnerability, the CDC incorporates 15 factors (Fig. 1) into the overall calculation under the categories, or themes, of: socioeconomic status, household composition and disability, minority status and language, and housing type and transportation. These themes and their ranking are based on census statistics. By evaluating these factors and determining a level of social vulnerability, a community can identify specific needs for before, during, and after an event. Such needs may include sheltering capacity, evacuation routes, or to decide how many emergency personnel may be required to respond after an event.

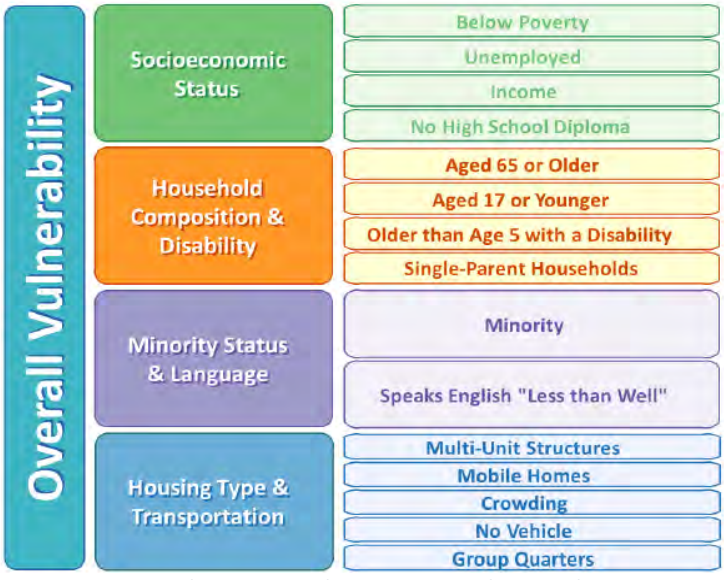

*Figure 1: The CDC SVI Index Factors. Graphic: svi.cdc.com*

Each municipalities' census tracts were ranked for overall vulnerability, and theme vulnerability, in comparison to other Connecticut municipalities. This rank, 0 to 1, is based on the percentile rank among all tracts within the State of Connecticut. A value closer to 0 indicates a lower vulnerability, while a value closer to

1 indicates a higher vulnerability. Table 1 presents the overall vulnerability and theme rankings for New Fairfield.

Table 1: New Fairfield SVI Factor Rankings

| | Overall SVI | Socioeconomic | Household Composition & Disability | Minority Status & Language | Housing Type & Transportation |
|---|---|---|---|---|---|
| **NEW FAIRFIELD** | .13 | .21 | .29 | .21 | .14 |

The Town of New Fairfield is considered to have a low level of vulnerability, with their most vulnerable social aspect being household composition and disability, followed by minority and linguistically challenged populations, and socioeconomic status populations. Vulnerable age groups and disabled are identified in all three tracts in town, with socioeconomic concerns identified in the two western tracts, and minority and linguistically challenged populations distributed throughout the community.

These populations may be vulnerable to impacts from drought, flooding and storm events based on the geographic concentrations.

***Public Health Considerations***

Of the primary vulnerabilities identified, drought and flooding can potentially have public health repercussions. During hot summer months, or drought, if private wells were to be impacted, certain populations may find themselves without adequate drinking water supply, resulting in health problems. Also, when considering the environmental shifts occurring during drought periods, drinking water contamination may become an issue as aquifers become stressed due to excessive pumping.

Food scarcity is another consideration when discussing the impacts of drought and extreme temperatures. Agricultural operations that are impacted by water shortages may find that crop or livestock yields are below average, ultimately resulting in food scarcity concerns. Depending on the size of an operation, the impacts can be on a small or large scale.

Flooding also presents the concern of pollution into nearby water bodies as commercialized and impervious areas drain, they collect pollutants and excess sediment. Depending upon the drainage areas, this runoff can have environmental impacts in associated ecosystems, or public health impacts if water bodies are used for recreational activities.

## Vulnerable Populations

The SVI identified the presence of certain populations within the town that may be more vulnerable to climate change hazards. Communities, including New Fairfield, should pay special attention to elderly or disabled populations, linguistically challenged population, and those that may need evacuation assistance due to lack of transportation.

Some populations often need additional time for hazard response, evacuation or preparation, and may find it more challenging to recover due to financial constraints or health concerns. These populations should be considered more vulnerable for the reasons that emergency response and preparation may

be more challenging, health issues may be of higher concern, and language barriers may exist when working to communicate with the community on risks, response, and recovery efforts.

In addition to the populations, it is important to identify the facilities that can provide different types of assistance to the populations, and others, during or after an event. These facilities, and their proximity to flood zones, can be found in Figure 2-4.