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

Municipal Annex
for
Weston, CT

56 Norfield Road
Weston, CT 06883
August 2021

Prepared for:
WESTERN CONNECTICUT
COUNCIL OF GOVERNMENTS
1 Riverside Road
Sandy Hook, CT 06482
475-323-2060
www.westcog.org

MMI #3101-22

Prepared by:
MILONE & MACBROOM, INC.
99 Realty Drive
Cheshire, Connecticut 06410
(203) 271-1773
www.mminc.com

MILONE & MACBROOM
ENGINEERING | PLANNING | LANDSCAPE ARCHITECTURE | ENVIRONMENTAL SCIENCE

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

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 Weston 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

Incorporated in 1787, the Town of Weston is located in southern Fairfield County and home to a population of 10,179 (2010 U.S. Census). Weston is bordered by the municipalities of Wilton to the west, Easton to the east, Westport to the south, and Redding and Ridgefield to the north. Refer to Figure 2-1 for a map showing the location of Weston within the WestCOG region.

Weston is an exurban community, with several rivers and streams flowing throughout. The town is characterized by two-acre or greater residential lots sprawling through nearly all of the buildable area. The Saugatuck Reservoir is located in the northeast corner of town and is connected to the many streams. The West Branch of the Saugatuck River flows from the northwest corner of town to the south. The highest elevation in Weston is about 463 feet in the eastern most areas bordering Easton. With the south western area of Weston being at, or close to 100 feet. The varying terrain of Weston makes the town vulnerable to an array of natural hazards.

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 Weston can be found in Table 2-1.

Table 2-1: Land Cover by Area

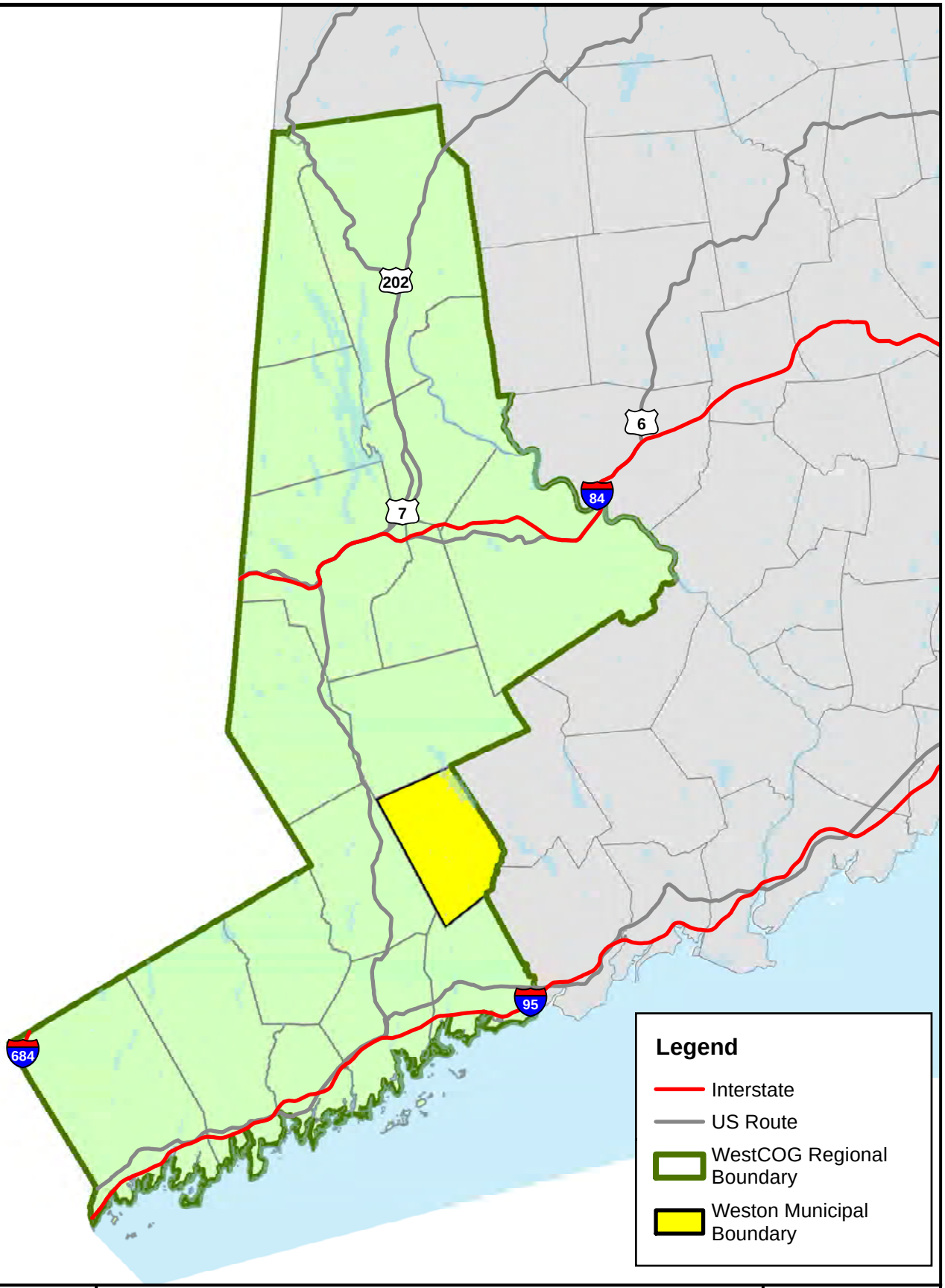
Land Cover Class	Area (Acres)	% of Community
Developed	2,587.3	19.56%
Turf & Grass	1,237.4	9.36%
Other Grasses	145.4	1.10%
Agricultural Field	15.4	0.12%
Deciduous Forest	7,560.8	57.17%
Coniferous Forest	355.1	2.69%
Water	678.7	5.13%
Non-Forested Wetland	8.5	0.06%
Forested Wetland	582.3	4.40%
Tidal Wetland	0.0	0.00%
Barren Land	22.0	0.17%
Utility Corridor	31.8	0.24%
TOTAL	**13,225**	**100%**

2.1.2 Land Use

Nearly the entire Town is zoned for single family residential and farming, with minimum lot size of two acres. As a result, 98.5% of housing units are single family homes (ACS). However, in some older areas of the community, houses on smaller lots predate the adoption of the first zoning regulations. Within Weston, 14.5 acres of land are used for commercial uses. Approximately 6.6 of those acres are actually zoned for commercial uses.

Date Saved: 11/12/2020

Document Path: Y:\3101-22\Maps\Location Maps.mxd



MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

Regional Location of Weston

WestCOG Hazard Mitigation Plan
Town of Weston

N

0 40,000 80,000
Feet

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

FIG. 2-1

2.1.3 Climate and Climate Change

Current Conditions

Over the course of the year, the temperature in Weston typically varies from 18 22°F to 82°F and is rarely below 7°F or above 89°F. The warm season lasts from June 1 to September 15, with an average daily high temperature above 73°F. The hottest day of the year is July 20, with an average high of 82°F and low of 66°F. The cold season lasts from December 3 to March 12, with an average daily high temperature below 45°F. The coldest day of the year is January 29, with an average low of 22°F and high of 36°F.

Precipitation falls throughout the year in Weston. The wetter season lasts from March 31 to December 10, with a greater than 29% chance of a given day being a wet day. The chance of a wet day peaks at 35% on July 31. The smallest chance of a wet day is 22% on January 29.

The most rain falls during the 31 days centered around June 3, with an average total accumulation of 3.8 inches. The least rain falls around January 30, with an average total accumulation of 1.8 inches.

The snowy period of the year lasts from November 13 to April 8, 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 26, with an average total liquid-equivalent accumulation of 0.9 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 Weston as 3.46 inches.

The NOAA Atlas 14, released on September 30, 2015 puts the 24-hour rainfall amount for a 50% annual-chance annual storm in Weston at 3.54 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	3.46	6.44	9.06
NOAA Atlas 14	3.54	6.61	8.43

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 Weston can expect the 24-hour rainfall amount for a 50% annual-chance storm to be around 3.7 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

Weston is divided among four sub-regional watersheds as shown in Table 2-3.

Table 2-3: Sub-Regional Drainage Basins

Drainage Basin	Overall Sub-regional Area (sq. mi)	Area within Town (sq. mi)	Area within Town (acres)	Percent of Town
Aspetuck River	23.05	1.81	1,156.41	8.76%
Norwalk River	32.55	0.32	202.31	1.55%
Saugatuck River	48.55	10.62	6,798.42	51.38%
West Branch Saugatuck River	11.92	7.92	5,067.47	38.32%
Total	n/a	20.67	13,224.61	100.00%

Source: Connecticut Department of Energy & Environmental Protection GIS Data

Weston is entirely encompassed within the Southwest Coast drainage basin, which drains directly into Long Island Sound. Of the four subregional drainage basins and their respective streams, the Saugatuck River running through Weston is the largest, followed by the West Branch of the Saugatuck River in the western part of town.

Aspetuck River

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

Norwalk River

The Norwalk River is approximately 21 miles, and originates at Great Pond in Ridgefield, Connecticut. The River does not flow through the town, and only a very small portion of this watershed within Weston town boundaries.

Saugatuck River

The Saugatuck River is approximately 24 miles, and originates at Sugar Hollow Pond in Danbury, Connecticut. The Saugatuck Basin drains 48.55 square miles of land, and ultimately flows directly into Long Island Sound. The river flows southwest from the Saugatuck Reservoir, and meanders parallel to Lyons Plain Road for almost its entire length through Weston.

West Branch Saugatuck River

The West Branch originates in Ridgefield, and flows throughout the northwest area of Weston through the Devil's Den Nature Preserve, through Bisceglie Park, and crossing under Route 53 into Wilton. The West Branch ultimately joins the Saugatuck River just south of the Weston/Westport border.

2.2 Society, Culture and Government

2.2.1 Population and Demographic Setting

According to the 2010 U.S. Census, Weston had a population of 10,179, with 494 persons per square mile. According to the 2018 American Community Survey five-year estimates, Weston's population between 2013 and 2018 was approximately 10,088.

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 Weston. 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.

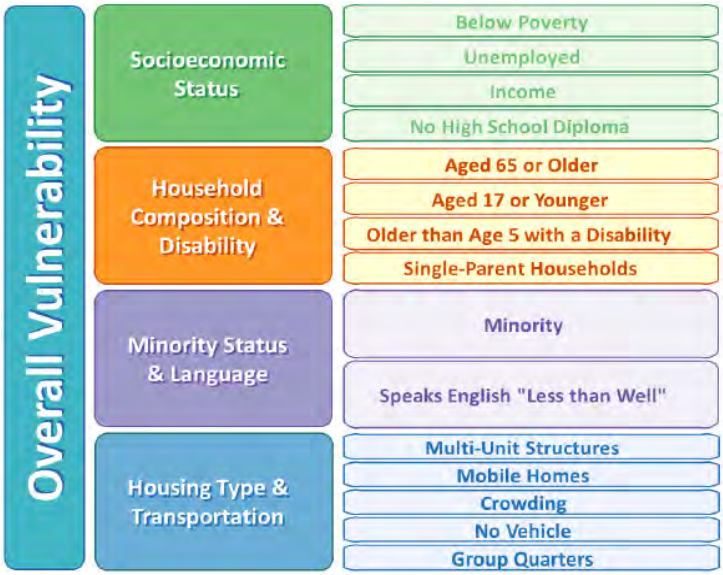


Figure 2-2: The CDC SVI Index Factors. Graphic: svi.cdc.com

The Town of Weston is considered to have a low level of vulnerability, with their most vulnerable population being minorities and those who speak English "less than well", followed by household composition and disability. The town is ranked very low based on socioeconomic status, and housing type and transportation. The more vulnerable populations identified are distributed between both the northern and southern tracts of town, with no apparent concentration of one population. Appendix B explores the SVI for Weston in more depth.

2.2.2 Development Trends

During the 18th century Weston was predominantly open space and agriculture. As time progressed, Weston was developed into homes. Unlike other nearby towns, Weston never had a railroad built through it, which stifled the development of non-agricultural businesses and suppressing population growth. Construction of the Merritt Parkway, which was constructed to the south of Weston in 1938, resulted in moderate population growth and more residential development. A small town center includes a handful of commercial land uses.

Weston remains a primarily residential community with its town center located outside of areas impacted by natural hazards. With its very low pace of infrequent single-family development, vulnerabilities to natural hazards are not increasing.

2.2.3 Governmental Structure

The First Selectman of Weston serves as the Chief Executive and Chief Administrative Officer of the Town. Along with presiding over Board of Selectmen meetings, the First Selectman serves as an ex-officio member of all Town Boards, Commissions and Committees. It is the responsibility of the First Selectman to supervise the administration of the town and to "execute and carry out

ordinances, resolutions, policies and other actions approved by the Board of Selectman or the Town Meeting". This can consist of overseeing programs, activities, and budgets in regard to their short-term and long-term effects on the town. In addition, the First Selectman acts as a link between Weston and State, regional, and federal agencies.

Town departments provide municipal services and day-to-day administration. Many commissions and departments play a role in hazard mitigation, including the Planning and Zoning, Building, Fire, Emergency Management, and Public Works.

2.2.4 Historic and Cultural Resources

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

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

Historic resources in Weston are concentrated within the Aspetuck, Bradley Edge Tool Company, Den, Kettle Creek, Lyons Plains, and Norfield Historic Districts. See Figure 2-3 for a map of historic resources in the community.

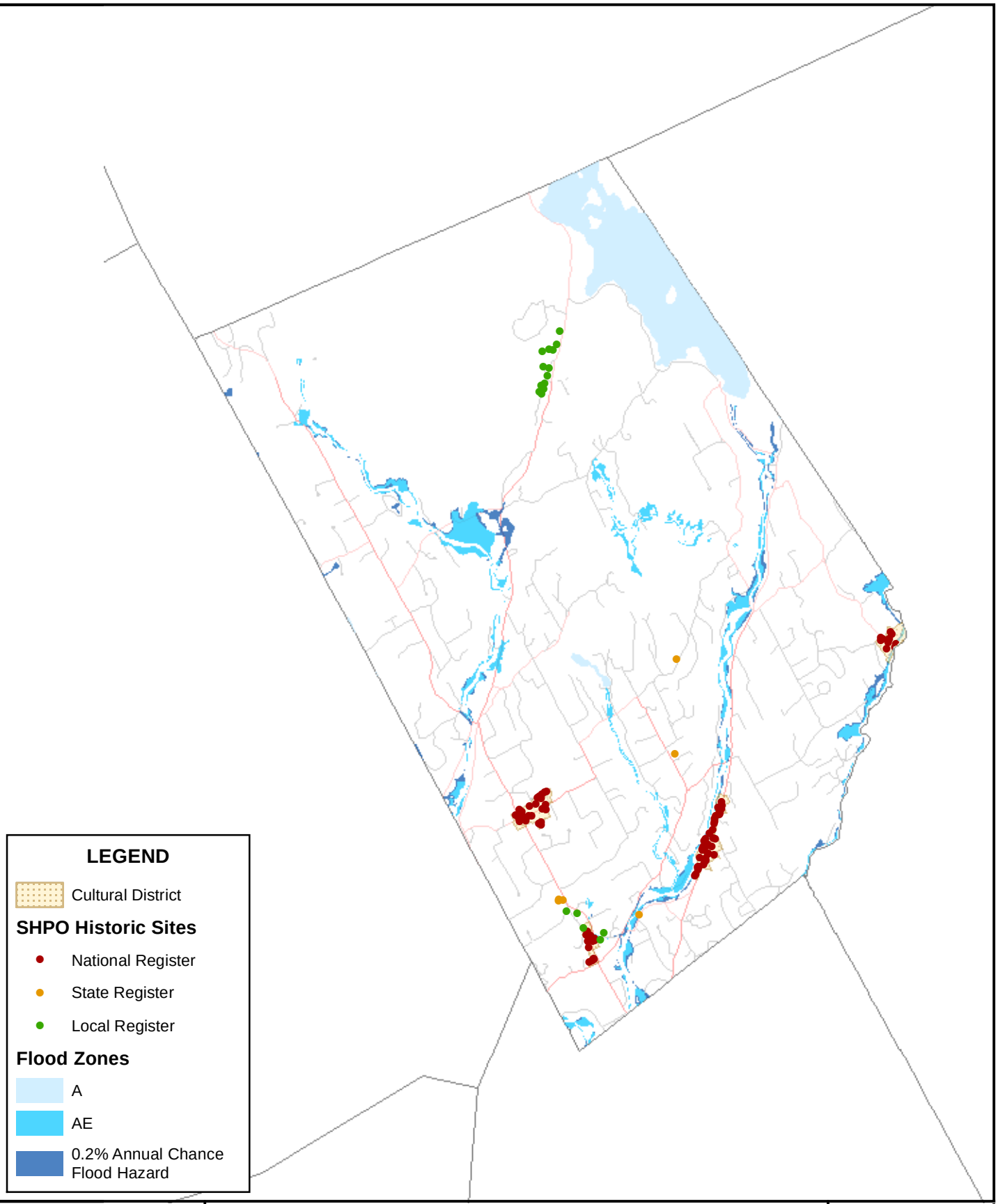
Analysis of the State Historic Preservation Office (SHPO) database of historic resources shows that some of these resources are exposed to natural hazards, as shown in Table 2-4.

Table 2-4: Number of Historic Assets Exposed to Different Hazards in Weston

Hazard	Count
Dam Failure	0
Earthquake	112
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	112
Sea Level Rise	0
Thunderstorm	112
Tornado	112
Winter Storm	112
Wildfire	103

Date Saved: 1/6/2021

Document Path: Y:\3101-22\Maps\Historic and flood zone.mxd



MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

Historic Resources with Flood Zones and Dam Failure Inundation Areas

WestCOG Hazard Mitigation Plan

Town of Weston

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

N

0 2,500 5,000
Feet

SCALE 1 " = 5,479 '

DATE 1/6/2021

3101-22
PROJ. NO.

FIG. 2-3

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

Major transportation routes in Weston include Route 57 which run norths to south through the western side of town, and Route 53 which runs from the north east corner to the south west.

2.3.2 Utilities

With few exceptions, Weston households, schools, government buildings, and commercial establishments rely on wells. Weston Water Supply serves approximately 100 people. Aquarion Water Company serves multiple towns, including small sections of southern Weston.

There is no sewer service in Weston with the exception of Weston Schools, which use a closed Advanced Treatment Sewer System (ATS) for on-site disposal. In 1979, Weston entered into an agreement to participate in the area Sewer Avoidance Program (pursuant to the State Public Act 78-154 as a part of the federal Clean Water Act). The steps taken by the Town to comply with the requirements of the program include the adoption of a heat pump ordinance, an erosion and sediment control regulation, and ongoing testing of water quality.

Residents and businesses use oil, propane, or natural gas for heat. Natural gas is available distribution lines from Southern Connecticut Gas.

2.4 Planning and Regulatory Capabilities

Weston has in place a number of community planning mechanisms, regulations, and policies that serve to mitigate natural hazards by limiting development in hazardous areas, requiring buildings be constructed to certain standards, or otherwise directing development and construction toward increased resilience. These are summarized below. More specific information about how each of these capabilities is relevant to each specific natural hazard type covered in this document is presented in each hazard chapter.

2.4.1 Review of Existing Local Plans

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

- **Plan of Conservation and Development (POCD):** Weston's most recent POCD was adopted in 2020. 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:** Weston maintains a Stormwater Management Plan dated 2014. The Town is working on updating this document 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):** Weston 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:** Weston 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):** Weston's EOP is reviewed annually and updated as needed. Dam failure Emergency Action Plans (EAPs) for dams with failure inundation zones that may impact Weston, and for which EAPs are available, are on file locally.
- **Watershed Management Plan:** A Watershed Management Plan has been developed for the Norwalk River Watershed. The Norwalk River Watershed Action Plan was prepared by the Norwalk River Watershed Initiative Committee, HDR/HydroQual, and the former South Western Regional Planning Agency (SWRPA) in 1998 and updated in 2011. This plan is focused on water quality, but can help the community mitigate inland flood risks by incorporating watershed management best practices into its planning efforts.
- **Open Space:** Weston does not maintain a stand-alone Open Space Plan; instead, open space planning is incorporated into the community's POCD.

2.4.1 Review of Regulatory Structures

Weston 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:** Weston enforces the Connecticut State Building Code locally.
- **Zoning Regulations:** Most recently updated on June 14, 2018.
- **Inland Wetlands and Watercourses Regulations:** Most recently updated in March 2011.
- **Subdivision Regulations:** Most recently updated in September 2011. Include provisions promoting control of stormwater runoff, installation of firefighting water sources, and burial of utilities.

2.5 Emergency Services, Critical Facilities, Sheltering, and Evacuation

The town considers its police, fire, and governmental facilities to be critical since these are needed to ensure that emergencies are addressed while day-to-day management of Weston continues. The town also considers various facilities housing higher-risk individuals (such as elderly individuals or children) and large populations to be critical facilities. Table 2-5 all of these critical facilities.

Table 2-5: Critical Facilities

Facility	Address or Location	Type	Emergency Power	Shelter	In 1% Floodplain
Weston Transfer Station & BW Landfill					
Weston High School	115 School Rd.	Primary Shelter	✓	✓	
Weston Middle School	135 School Rd.	Secondary Shelter	✓	✓	
Weston Volunteer Fire Department Station 2	234 Lyons Plain Road	Ambulance and Fire Service Combined			
Weston EMS	52 Norfield Rd	EMS			
Weston Volunteer Fire Department Station 1 - Headquarters	52 Norfield Road	Ambulance and Fire Service Combined			
Weston Volunteer Fire Department Station 1 - Headquarters	56 Norfield Rd	Fire			
Weston Volunteer Fire Department Station 1 - Headquarters	56 Norfield Rd	Fire/EOC			
Weston Police Department	56 Norfield Road	Police			
Town Hall	56 Norfield Road	Town Hall	✓		
Town Hall Weston Emergency Operations Center	56 Norfield Road	EOC	✓		
Senior Center	9 School Rd	Community Center			
Hurlbutt Elementary School	9 School Rd.	Secondary Shelter	✓	✓	
Weston Intermediate School	95 School Road	School			
Weston Town Library	56 Norfield Road	Warming/Cooling Center			
Communication Center	56 Norfield Road	Emergency Operations			
Town Hall Annex and Board of Education Building	24 School Road	Emergency Operations			

There are three shelters in town, all of which are schools.

Date Saved: 7/29/2021

Document Path: Y:\3101-22\Maps\Historic and flood zone.mxd

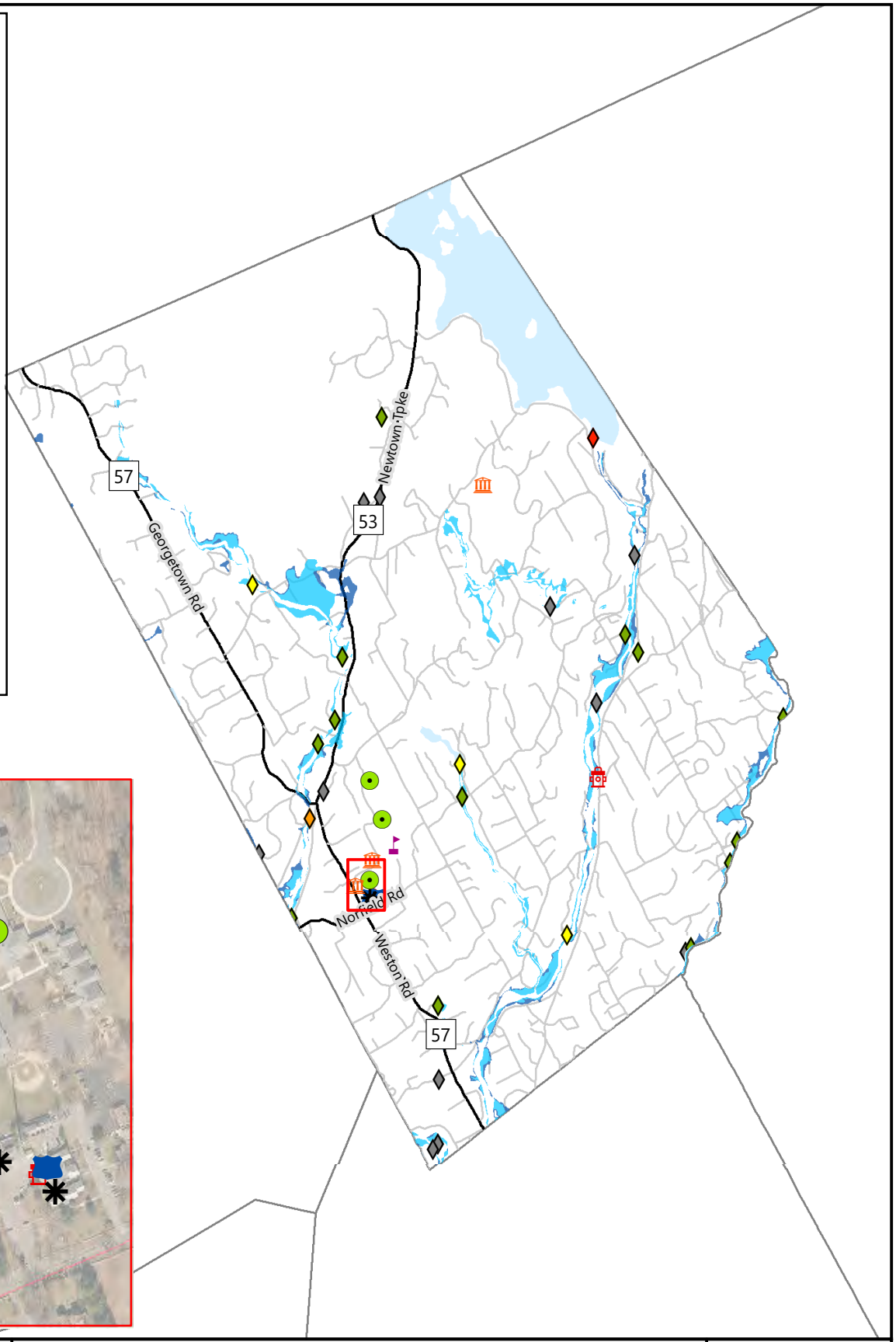
LEGEND

Dams

- Unclassified
- A
- BB
- B
- C
- Dam Failure Inundation Area
- Ambulance
- Municipal
- Fire
- Police
- School
- Shelter

Flood Zones

- A
- AE
- 0.2% Annual Chance Flood Hazard



MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

Critical Facilities with Flood Zones and Dam Failure Inundation Areas

WestCOG Hazard Mitigation Plan

Town of Weston

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

N

0 2,500 5,000
Feet

SCALE 1 " = 5,479 '

DATE 7/29/2021

PROJ. NO. 3101-22

FIG. 2-4

Utilities

Aquarion Water Company provides water service to a fraction of Weston residents along the southern border of Town. In addition, Weston Water Supply has a small water service area located just southwest of the Saugatuck Reservoir. Outside of these two service areas, it can be assumed that Weston residents rely on private wells for drinking water.

Eversource is the primary electric supplier for the Town of Weston. Natural gas is available from Southern Connecticut Gas.

Emergency Response

The Town's Emergency Operations Center (EOC), including its Emergency Communications Center, is located in Town Hall. Weston is located in the Connecticut Department of Emergency Services and Public Protection (DESPP) Region 1, consisting of 14 municipalities in southwestern Connecticut.

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

Weston's *Emergency Operations Team* is comprised of town officials from multiple town departments including Police, DPW, the Executive Director of the Weston-Westport Health District, private aid groups, and other municipal personnel. In addition to the Team, the town also maintains a two-phased plan that coordinates emergency communications. The centralized municipal complex promotes swift emergency response and coordination.

Emergency Communication Capabilities

The Town of Weston utilizes the Everbridge Emergency and Community Alert Program to alert residents of emergency situations. The Emergency Alert system allows local officials to help protect lives and property by providing critical information to residents during emergencies, including dangerous situations. The system allows the Police and Fire Departments to quickly send out an emergency alert to residents in any affected geographic area in town. Depending on the emergency, the alert may be sent to the entire town or selected areas within town.

The Town of Weston utilizes the CT Alert notification system to alert residents of emergency situations. This system allows the state to direct geographically specific emergency notification telephone calls into affected areas.

Information about natural hazards and hazard preparedness are posted on the Town Website through the Emergency Management Department.

Changes to Emergency Services since the Previous HMP

The town is upgrading their emergency communications system to Everbridge to allow for more robust communication and messaging.

3.0 HAZARD ASSESSMENT

3.1 FLOODING (COASTAL, INLAND, AND ICE JAMS)

3.1.1 Setting

The potential for flooding exists in concentrated areas in Weston, with the majority of major flooding occurring along established riverine SFHAs. The areas impacted by overflow of river systems are generally limited to river corridors and floodplains. Indirect flooding that occurs outside floodplains and localized nuisance flooding along tributaries can also be a concern. This type of flooding occurs particularly along roadways as a result of inadequate drainage and other factors. The frequency of flooding in Weston is considered likely for any given year, with flood damage potentially having effects during extreme events.

A regulatory floodplain with AE designation has been mapped along the Saugatuck River and the West Branch of the Saugatuck River. The Areas identified as providing flood storage are identified with A Zone designations, meaning they are regulated as floodplain, but flood elevations have not been established. Beaver Brook Pond, and Saugatuck Reservoirs have these traits. Floodplain and floodway designations have also been established along the rivers with AE designations. Refer to Figure 2-4 for the areas of Weston susceptible to flooding based on FEMA flood zones. In general, potential flooding problems in Weston are concentrated along the multiple rivers, brooks, and streams.

3.1.2 Capabilities

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

Weston has a rigid maintenance program regarding roadway maintenance and storm culverts. The town budget allocates funding for maintenance, paving, and storm culverts. Town officials also work closely with property owners on stormwater management systems associated with new subdivisions and development projects.

Floodplain Management, NFIP and CRS

The Town has consistently participated in the NFIP since March 8, 1974 and intends to continue participation in the NFIP. SFHAs in Weston are delineated on a Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS). The FIS and FIRMs for the town were most recently revised in 2010.

Ms. Tracy Kulikowski, AICP is currently the NFIP administrator for the Town and oversees the enforcement of NFIP regulations. The degree of flood protection established by the variety of regulations in the Town meets the minimum reasonable for regulatory purposes under the NFIP. The City has a minimum elevation standard to include one foot of freeboard.

The Town's Planning and Zoning Commission uses the 1% annual chance flood lines from the FIRM delineated by FEMA to determine floodplain areas. Site plan standards require that all

proposals be consistent with the need to minimize flood damage, that public facilities and utilities be located and constructed to minimize flood damage, and that adequate drainage is provided.

Ordinances, Regulations, and Plans

Weston uses regulations as a proactive means to protect the normal functioning of natural drainage systems and to prevent inappropriate development in floodplains. These local ordinances comply with FEMA guidelines, intended to mitigate flood damage. The Conservation Commission enforces inland wetlands regulations that minimize intrusion in or near wetland areas. These regulations minimize the potential for damage to the environment with the additional benefit of reducing property damage in the event of a flood. Furthermore, the Building Department ensures conformance with the Connecticut State Building Code including flood resistant construction and with elevation certification,

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

- ***Zoning Regulations***:
  - Chapter 212: Floodplain Management Regulations
  - Chapter 227: Storm Sewers

- ***Inland Wetland and Watercourse Regulations***:
  - Chapter 215: Inland Wetlands and Watercourses Regulations

- ***Subdivision Regulations:***
  - Chapter 230 of the zoning regulations with the purpose of providing flood management measures where needed.
  - Subdivision proposals must include natural features, including 2-foot contours where wetlands and floodplains are present.
  - Floodplain and floodway boundaries must be represented on subdivision proposals.

- ***Plan of Conservation and Development:***
  - The POCD acknowledges the importance of protecting the natural and cultural resources under future development
  - Aims to strengthen resiliency to climate change, improve disaster preparedness, and continue to enforce floodplain regulations.
  - Identifies the need to continue to promote low-impact development strategies

Drainage and Street Flooding

The Town 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.

There are several locations in town that are prone to street flooding due to drainage issues. There are also infrastructural components throughout town that are in need of repair, replacement, and upgrades to allow to increased conveyance.

Public Information

The city receives regular weather updates through Division of Emergency Management and Homeland Security (DEMHS) Region 1 email alerts as well as watches and warnings through the National Weather Service. There are nearby stream gages the town can monitor for flood levels; along the Norwalk River in South Wilton and the Saugatuck river in Westport.

Actions Completed and New Capabilities

The town has been proactively upgrading and replacing bridge infrastructure. It is in the process of replacing infrastructure on Cavalry Road, River Road and Davis Hill Road. The town has recently replaced Cartbridge Road, Pent Road, and Valley Forge Road infrastructure.

3.1.3 Vulnerabilities and Risk Assessment

Flooding can impact properties along the various river corridors in town. With climate change projections showing more intense precipitation events in the future, flooding in any of these areas may be exacerbated under future conditions. Areas that already see flooding may see increased levels, while areas that may not be a concern may see flooding issues in the future. While future conditions are uncertain, there are currently some areas in town that are presently experiencing flooding challenges.

Repetitive Loss Properties

There are 15 repetitive loss properties (RLPs) located in Weston; all are residential. Half are along the Saugatuck River and the other half are along the West Branch.

Critical Facilities

There are no facilities located within the 100-year flood zones.

At-Risk Areas

Weston has reported flooding to be a concern in the following areas:

- Georgetown Road near Samuelson Road
- Steep Hill Road
- Lords Highway near Davis Hill Road intersection
- Slumber Corners (private road)
- Newtown Turnpike at Dillon Pass
- Sections along Route 53 from Weston to Bethel

In addition to the identified roadways and intersections, there are several other areas of town that experience flooding challenges. There are drainage systems throughout town that need to be upgraded to allow for increased flow. Several culverts in town are also in need of repair and upgrades. Specific locations include Timber Mill Lane, Deepwood Road, and Route 57,

West Branch of the Saugatuck River

FEMA mapping shows extensive 1% annual-chance floodplain zones running along the West Branch of the Saugatuck River in Weston, indicating that the River may be considered a significant source of flood risk. Along the river there are 6 RLPs, reflecting past flood damages. There are several road crossings over the river, which may present challenges with regards to infrastructural capacity during a heavy event.

Changes and Improvements

The town has replaced several bridges in town.

3.2 DAM FAILURE

3.2.1 Setting

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

3.2.2 Capabilities

Dam failure inundation areas are included in the CT Alert emergency notification system contact database. The City has the Emergency Action Plan (EAP) for the Aquarion owned dams on file in the event of a potential failure.

Aquarion, as owner of the Samuel Senior Dam, implement a preventative maintenance schedule on the dam and its associated infrastructure. The Samuel Senior Dam is also equipped with a relief valve between the dam and the Hemlocks Reservoir in Easton, so that Aquarion can change water levels in either reservoir.

Actions Completed and New Capabilities

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

3.2.3 Vulnerabilities and Risk Assessment

As of 2013, there were 32 DEEP-inventoried dams within Weston. These dams are shown in Figure 2-4. One is a Class C, or high hazard dam, and four others are a Class B, or significant hazard dam. As shown in Table 3-1, the hazardous dams located in the town pose a risk to Weston, along with communities downstream.

Table 3-1: High Hazard Dams with Potential to Affect the T

#	Name	Location	Class	Owner
15701	Samuel P. Senior Dam	Saugatuck Reservoir	C	Aquarion Water Company of CT
15702	Cobbs Mill Pond Dam	West Branch Saugatuck River	B	Private
15703	Seyer Dam	Beaver Brook Lake	BB	Private
15704	Godfrey Pond	Godfrey Pond	BB	Devil's Den Preserve
15714	Hasen Pond Dam	Hasen Pond	BB	Private

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

The Samuel P. Senior Dam is 130 feet in length, with a maximum height of 990 feet. It is a concrete structure, and impounds roughly 420,000 acres at normal water levels with a

contributing watershed of 34.60 square miles. The primary purpose of the dam is for public water supply containment.

The Seyer Dam is a 245-foot-long earthen dam. This dam impounds roughly 65 acres, with a contributing watershed of 0.64 square miles.

Godfrey Pond Dam is a 45-foot-long masonry dam with a height of 15 feet. The pond area of the impoundment is about 0.3 acres.

The Hasen Pond Dam, which is along the Saugatuck River, is a masonry dam that is 83.6 feet long and 10 feet high. The dam impounds roughly 41 square miles of watershed, with a total pond area of 8 acres.

There is a privately owned dam in town at Cobbs Mill Pond that has not been maintained in the past few years as the property is now vacant. While there is no immediate concern regarding dam failure, it appears the dam may fail due to excessive sediment build up, and the pond may need to be dredged.

Changes and Improvements

Weston continues to be at low risk from dam failure.

3.3 HURRICANES AND TROPICAL STORMS

3.3.1 Setting

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

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

3.3.2 Capabilities

Wind loading requirements are addressed through the state building code. The 2018 Connecticut State Building Code was amended in 2009 and adopted with an effective date of October 1, 2018. The code specifies the design wind speed for construction in all the Connecticut municipalities, with the addition of split zones for some towns. Effective 2018, the design wind speed for Weston is 110 miles per hour for a Category 1, 120 miles per hour for a Category 2 and 130 for Category 3 or greater. Weston has adopted the Connecticut Building Code as its building code. The town website provides links to the State Building Codes so that developers are able to find design standards for wind.

The town has a tree warden and has budgeted for tree maintenance and removals. The warden is active in monitoring tree conditions and taking inventory of what needs maintenance. In addition, the DPW is fully equipped to remove trees and branches from roadways after a storm. Emergency communication capabilities were discussed in previous sections.

3.3.3 Vulnerabilities and Risk Assessment

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

Overall, the town is concerned with tree and wind damage on town-wide scale. Emergency access is also a major concern for the town during and after a high wind event storm. Many of the roadways in Weston only have a single-entry point, therefore if that point were to be blocked by debris, emergency access could become challenging.

School Road, which provides access to numerous municipal facilities and critical facilities, has several concerning trees located on a private property at the north entrance of the road. The town is concerned that a strong storm may bring these large trees down across the roadway, affecting critical facility access and potentially impeding emergency response. The town has attempted to work with the property owner on tree removal, and will continue to do so until the risk has been mitigated.

Changes and Improvements

Weston continues to improve their tree maintenance capabilities, reducing the vulnerability of the town's electric grid and roads system to high wind events.

3.4 SUMMER STORMS AND TORNADOES

3.4.1 Setting

Summer storms and tornadoes have the potential to affect any area within the Town of Weston. 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 town without harming another.

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

3.4.2 Capabilities

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

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

Actions Completed and New Capabilities

Weston's tree trimming and maintenance capabilities, its coordination with the local electric utility, and its emergency communication capabilities, have all been improved since adoption of the previous HMP.

3.4.3 Vulnerabilities and Risk Assessment

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

According to the 2019 State Natural Hazard Mitigation Plan Update, Fairfield County has a moderate to high risk of tornado activity based on historical occurrences. Therefore, by virtue of its location in Fairfield County, the Town of Weston has moderate to high potential to experience tornado damage. In general, thunderstorms and hailstorms in Connecticut are more frequent in the western and northern parts of the state and less frequent in the southern and eastern parts. The majority of these events do not cause any measurable damage. Although lightning is usually associated with thunderstorms, it can occur on almost any day. The likelihood of lightning strikes in the Weston 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 Weston is considered moderate in any given year.

Thunderstorms are expected to impact Weston about 20 days each year. The majority of these events do not cause any measurable damage. Although lightning is usually associated with thunderstorms, it can occur on almost any day. The likelihood of lightning strikes in the Wilton area is high during any given thunderstorm although no one area of the town is at higher risk of lightning strikes. There is also risk of a hailstorm occurring at least once per year in Weston.

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

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

Changes and Improvements

Weston continues to mitigate storm and wind damage on a regular basis.

3.5 WINTER STORMS AND NOR'EASTERS

3.5.1 Setting

The entire Town of Weston is susceptible to winter storms and, due to its variable elevation, can have higher amounts of snow in the upper elevations. In general, winter storms are considered highly likely to occur each year (although major storms are less frequent), and the hazards that result (nor'easter winds, snow, and blizzard conditions) can potentially have a significant effect over a large area of town.

According to the 2019 Connecticut State Natural Hazard Mitigation Plan the state can expect to experience at least two or more major snow events each year, with an average of 14 winter events in a season. It is estimated that Weston's average annual snowfall is about 2.5 to 4 feet.

3.5.2 Capabilities

Prior to a winter weather event, the town ensures that all warning/notification and communications systems are ready and ensures that appropriate equipment and supplies, especially snow removal equipment, are in place and in good working order. In some known problem areas, prestorm treatment is applied to roadways to reduce the accumulation of snow. The city 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 town has a robust, and often praised, snow removal program that includes around the clock plowing, salting, and sanding Weston's roadways.

Actions Completed and New Capabilities

In 2017 and 2018 the town worked with WestCOG on developing a local snow action plan, which included an update of road clearing routes and the salt distribution plan. This was part of the regional winter maintenance practices initiative led by WestCOG. Reports produced as part of that initiative are:

- Winter Maintenance Practices Baseline Assessment Report, November 2017. Prepared for WestCOG by Axiomatic, LLC
- Winter Maintenance Practices Guide, September 2018. Prepared for WestCOG by Axiomatic, LLC

3.5.3 Vulnerabilities and Risk Assessment

The entire Town of Weston is at relatively equal risk for experiencing damage from winter storms although some areas (such as icing trouble spots and neighborhoods with a high concentration of flat roofs) are more susceptible. The public assistance reimbursement from Winter Storm Alfred was $115,579, proving that winter storms can be costly. However, many damages are relatively site specific and occur to private property (and therefore are paid for by private insurance) while repairs for power outages are often widespread and difficult to quantify to any one municipality.

The structures and utilities in Weston are vulnerable to a variety of winter storm damage. Tree limbs and some building structures may not be suited to withstand high wind and snow loads. Ice can damage or collapse power lines, render steep gradients impassable for motorists,

undermine foundations, and cause "flood" damage from freezing water pipes in basements. Drifting snow can occur after large storms, but the effects are generally mitigated through municipal plowing efforts.

There are some roadways in that are more prone to icing as they also have drainage issues. This includes Georgetown Road near Samuelson Road, Steep Hill Road, and Lords Highway near the Davis Hill Road intersection. Georgetown Road is a state-owned roadway which presents certain challenges in regard to mitigation. In order to address the icing problem, the town ensures adequate treatment has been used that truck visit these sites often to ensure safe conditions.

Changes and Improvements

Weston continues to mitigate snow storms and icing.

3.6 WILDFIRES AND DROUGHT

3.6.1 Setting

The Town of Weston is generally considered a moderate risk area for small wildfires but a low risk area for large wildfires. Wildfires are of particular concern because there is no public water supply. During a drought, low water levels may also impact the fire departments ability to respond, as they rely on fire ponds to fight fires. Hazards associated with wildfires include property damage and loss of habitat.

In addition, Weston, 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: USDM Drought Time Series for Fairfield County depicts the various drought conditions in Fairfield County since 2000, where the warmer colors represent more advanced drought stages.

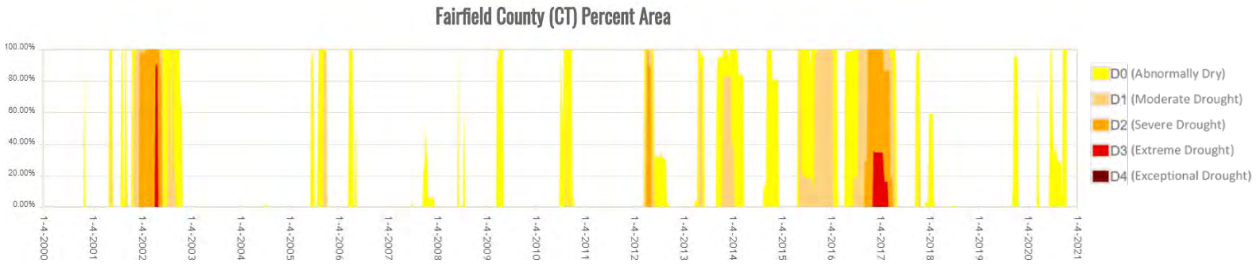


Figure 3-1: USDM Drought Time Series for Fairfield County

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

The town's Fire Department is not a town agency or department, but a private (501c3), non-profit membership corporation. It is an all-volunteer, unpaid fire department made up of both women and men who go through extensive and ongoing state-certified training. This gives each member the confidence and capability to perform at a very high level.

The WVFD operates out of two fire stations. Station One is located at the Norfield Headquarters (56 Norfield Road) with the primary responsibility of responding to calls on the west side of Weston; while Station Two, located on Lyons Plain (234 Lyons Plain Road) responds primarily to calls on the east side of Weston. The Department's fire apparatus consists of 2 attack engines, 2

support engines, and 1 tanker. Additionally, the Department has a Rescue vehicle, an ATV to support search & rescue operations, and, an inflatable boat for water rescues.

Actions Completed and New Capabilities

There are several fire pond and hydrant maintenance agreements made between the town and residents which tend to happen organically. The town will continue to develop a formal Capital Plan for fire ponds and hydrants.

Drought mitigation has been incorporated into the 2020 Weston POCD, including a recommendation that Sustainable Weston and the Westport Weston Health District encourage the reduction of the use of pesticides, herbicides and fertilizers that leach into groundwater by educating the public about alternatives and best practices to preserve clean water.

3.6.3 Vulnerabilities and Risk Assessment

In the drought year of 1999, the average wildfire in Connecticut burned five acres in comparison to the two most extreme wildfires recorded since 1986 that burned 300 acres each. Given the availability of firefighting water in Weston, including the use of nearby water bodies, it is believed that this average value for a drought year and the extreme value are applicable to the town as well.

According to the Wildland-Urban Interface (WUI), much of the Town of Weston can be classified as medium and high-density development intermixed with vegetation that may more susceptible to wildfires. While this classification does not equate to a high fire risk, it is important to understand that there is some level of risk to some areas of town. With high water availability throughout developments and town, this reduces the risk of widespread, large scale fire.

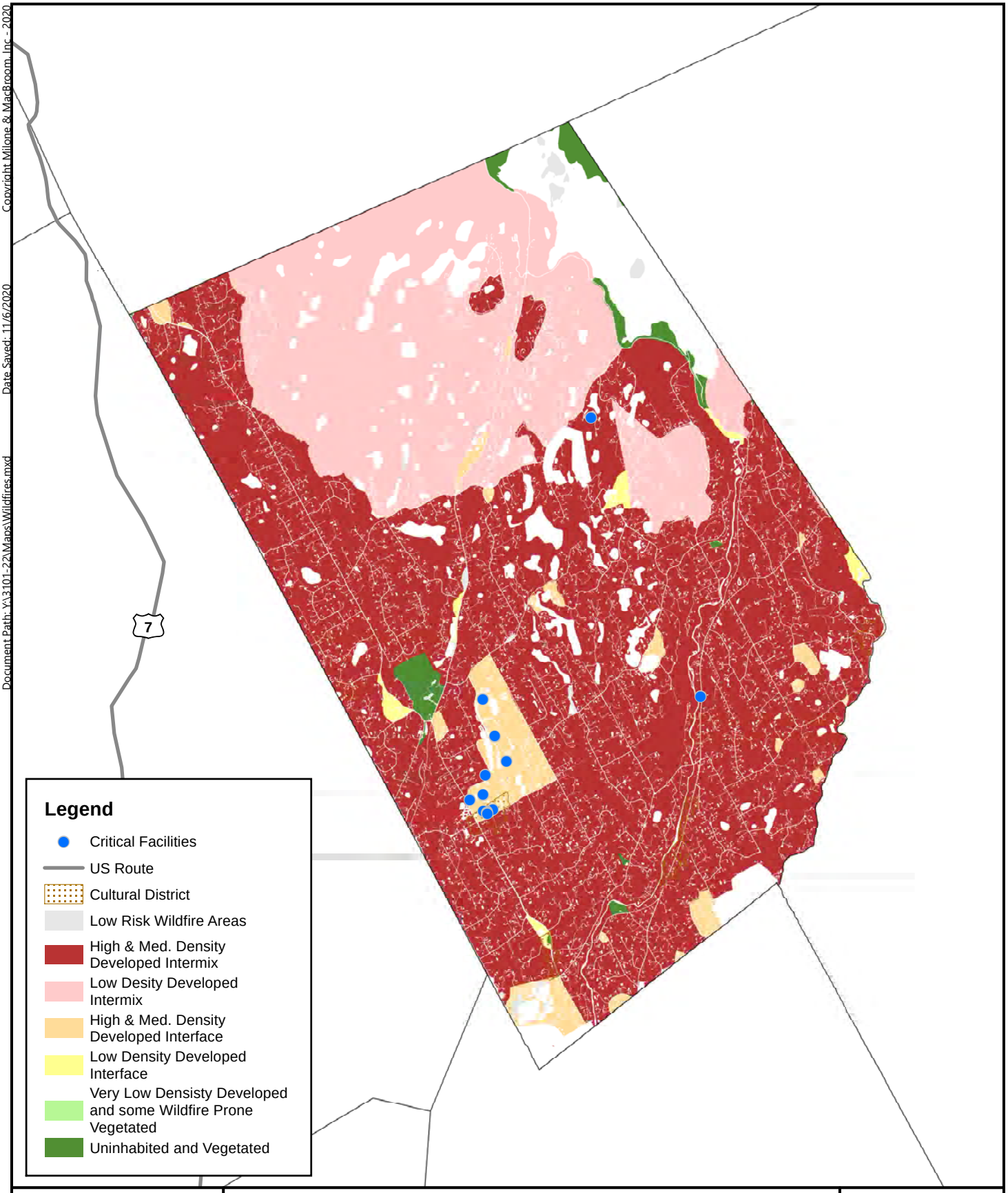
Wildfire Risk Areas are mapped in Figure 3-2.

Changes and Improvements

The town's vulnerability to wildfires continues to be low.

Date Saved: 11/6/2020

Document Path: Y:\3101-22\Maps\Wildfires.mxd



MILONE & MACBROOM
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773
WWW.MMINC.COM

Wildland-Urban Interface: Wildfire Risk Areas

WestCOG Hazard Mitigation Plan

Town of Weston

NPS: Cultural Resources

Wildland-Urban Interface:USFA

N

0 2,500 5,000

Feet

SCALE 1 " = 5,102 '

DATE 11/13/2020

3101-22
PROJ. NO.

FIG. 3-2

3.7 EARTHQUAKES AND LANDSLIDES

3.7.1 Setting

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

According to the 2019 *Connecticut Natural Hazard Mitigation Plan Update*, Connecticut is at a low to moderate risk for experiencing an earthquake of a magnitude greater than 3.5 and at a moderate risk of experiencing an earthquake of a magnitude less than 3.0 in the future. No earthquake with a magnitude greater than 3.5 has occurred in Connecticut within the last 30 years, and the USGS currently ranks Connecticut 43rd out of the 50 states for overall earthquake activity.

3.7.2 Capabilities

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

- Subdivision Regulations:
  - Ch. 230 Attachment 1 identifies soil types that may not be suitable for development and may require special evaluation before development proceeds.
  - Identifies that development of any kind should not occur on major slopes without approval.
- Plan of Conservation and Development:
  - Notes that areas where slopes are greater than 10% limit development.
  - Encourages the conservation areas which may include vulnerable soil types and steep slopes.
- Zoning
  - The town has a height restriction of 35 feet, which may help reduce earthquake damage risks.

Actions Completed and New Capabilities

Weston continues to have appropriate capabilities for mitigating earthquake events.

3.7.3 Vulnerabilities and Risk Assessment

Some areas in Weston are underlain by sand and gravel, particularly along the Saugatuck River, West Branch, and Held Pond. Structures in these areas are at increased risk from earthquakes due to amplification of seismic energy and/or collapse. Most of the remaining area is underlain by glacial till and is therefore not at increased risk during an earthquake due to unstable soils.

Changes and Improvements

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

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	Status	Notes
1	Institute water volume monitoring program. This could take the form of an irrigation/sprinkler reduction program.	Carry Forward with Revisions	Last plan was adopted during drought, so this was a specific recommendation at the time. Drought mitigation has been incorporated into the 2020 Weston POCD, including a recommendation that Sustainable Weston and the Westport Weston Health District encourage the reduction of the use of pesticides, herbicides and fertilizers that leach into groundwater by educating the public about alternatives and best practices to preserve clean water. Action is revised to parallel the POCD action: Encourage public best practices to protect groundwater resources during drought conditions.
2	Examine possible regulation requiring engineered storm water management systems to control runoff from new subdivision roads and parking lots.	Capability	Work with property owners on storm water management. remove – capability
3	Reach out to owners of properties with flood risk to discuss the potential for elevation or acquisition.	Carry Forward with Revisions	No action taken; town infrastructure is higher priority
4	Consider a town-wide investigation of culverts or bridges that may need to be replaced or repaired. Conduct necessary repairs or replacement as needed.	Capability	Ongoing program of assessing infrastructure. Valley forge, Pent Rd, Cartbridge Rd, were all replaced. Carry forward to identify those bridges that need to be replaced.
5	Assess vulnerability of existing critical facilities to earthquakes, hurricanes, tornadoes	Carry Forward with Revisions	Tree removal surrounding critical facilities is a greater concern. This action may have been geared toward upgrading generator capacity.
6	Consider participation in an inter-municipal tree condition inventory.	Drop	The town was unaware of any type of plan or discussion regarding this action. Possible regional action.

#	Description	Status	Notes
7	Implement strategies identified in vulnerability assessment.	Capability	Vulnerability assessment work contributed to the Town's understanding of hazards, and was inherently incorporated into this new edition of the plan.
8	Develop a Capital Plan for Fire Ponds and Hydrants	Carry Forward	Carry this forward. The town is all volunteer, and most properties are served by wells and septic systems, and the FD often works directly with property owners. There are a variety of maintenance agreements, and many actions have happened organically. Carry forward. Include Fire Marshall in responsible party.
9	Maintain existing fire ponds. Work with homeowners in the vicinity of Cobs Mill Pond and Beaver Brook to remove silt and debris and consider use as fire ponds. Explore additional areas for new fire ponds, cisterns, and hydrants.	Carry Forward with Revisions	Maintenance of existing ponds is a capability. Working with homeowners near Cobs Mill Pond and Beaver Brook is carried forward as a separate action. Exploring additional areas is a capability, or addressed by the previous action.
10	Investigate ways to enhance/improve telecommunication infrastructure and emergency communication throughout the town.	Carry Forward with Revisions	There is currently a radio project underway, however, the town is looking to modernize the entire system within the next year or two.
11	Identify and upgrade critical facilities (public and private) to ensure resiliency against natural hazards	Carry Forward with Revisions	Action is replaced with a specific action to increase the resiliency of the Library, including through installation of a natural gas generator.
12	Enhance Community preparedness programs: Develop educational materials and brochures promoting emergency preparedness and 'best management practices' for natural hazards, targeted to homeowners.	Carry Forward with Revisions	May fall under CERT teams. Some may fall under new communication system where informing more robustly. Revise to include CERT and new communication system.
13	Enhance Community preparedness programs: Provide "welcome kits" to new homeowners for properties located within the floodplain, or with a significant risk of flooding.	Carry Forward	Not sure if this is happening. GIS makes it easier to identify flood hazards for owners. Homeowners purchasing older houses, want to renovate with substantial improvements. Education occurs case by case.
14	Maintain and explore options for the procurement of emergency backup power (e.g. micro grid, fuel cell).	Carry Forward with Revisions	This action was specifically made by the fire Marshall regarding the town center. The town would be interested in implementing microgrid if funding were available. Revise to be more specific.

4.3 Prioritization of Strategies and Actions

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

4.4 Mitigation Strategies and Actions Implementation Table

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

Action WST-01	
Develop a Capital Plan for Fire Ponds and Hydrants	
Lead	FM, P&Z, Engineer, BOS, DPW, CC
Cost	$0 - $25,000
Funding	Operating Budget, Capital Improvement Plan, FEMA Assistance to Firefighters Grant
Timeframe	2022
Priority	High

Action WST-02	
Coordinate with CERT and utilize new public communication systems to develop a public engagement and education program to promote emergency preparedness and 'best management practices' for natural hazards, targeted to homeowners.	
Lead	EM
Cost	$0 - $25,000
Funding	Operating Budget
Timeframe	2022
Priority	Med

Action WST-03	
Compare local floodplain regulations with Revised State Model Flood Regulations to identify any remaining opportunities for improvement	
Lead	P&Z, Building, Land Use
Cost	$0 - $25,000
Funding	Operating Budget
Timeframe	2023
Priority	Low

Action WST-04	
Contact the owners of Repetitive Loss Properties and nearby properties at risk to inquire about mitigation undertaken and suggest options for mitigating flooding in those areas. This should be accomplished with a letter directly mailed to each property owner.	
Lead	EM, BOS
Cost	$0 - $25,000
Funding	Operating Budget, FEMA Grant
Timeframe	2023
Priority	Low

Action WST-05	
Revise regulations to promote Low Impact Development; this action will mitigate natural hazard risks and accomplish objectives listed in the 2020 POCD, while also meeting Sustainable CT objectives.	
Lead	BOS, P&Z, CC, Engineer, DPW
Cost	$25,000 - $50,000
Funding	Operating Budget, Sustainable CT Community Match Fund
Timeframe	2023
Priority	High

Action WST-06	
In accordance with Goal 2, Objective 5 of the 2020 POCD, have the Sustainability Committee, in cooperation with the Westport-Weston Health District, encourage public best practices to protect groundwater resources during drought conditions.	
Lead	BOS
Cost	$25,000 - $50,000
Funding	Operating Budget
Timeframe	2023
Priority	High

Action WST-07	
Perform tree removal around critical facilities to mitigate potential damage to the facilities or to the power lines and utilities serving those facilities.	
Lead	DPW, EM, Building
Cost	$25,000 - $50,000
Funding	Operating Budget
Timeframe	2024
Priority	High

Action WST-08	
Provide "welcome kits" to new home owners for properties located within the floodplain, or with a significant risk of flooding.	
Lead	EM
Cost	$25,000 - $50,000
Funding	Operating Budget
Timeframe	2024
Priority	Med

Action WST-09	
Complete a feasibility study for a microgrid in the Town Center, or other grid resiliency projects in that area.	
Lead	EM
Cost	$25,000 - $50,000
Funding	Operating Budget
Timeframe	2024
Priority	Low

Action WST-10	
Work with CT DEEP to validate and/or correct the RL list and update the mitigation status of each listed property.	
Lead	Land Use
Cost	$25,000 - $50,000
Funding	FEMA Grant
Timeframe	2024
Priority	Low

Action WST-11	
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 WST-12	
Complete upgrade of emergency alert system to Everbridge.	
Lead	EM
Cost	$50,000 - $100,000
Funding	Operating Budget, CT DEMHS
Timeframe	2025
Priority	Med

Action WST-13	
Increase the resiliency of the Library to natural hazards, possibly including installation of a natural gas generator.	
Lead	BOS, EM, Private
Cost	$100,000 - $500,000
Funding	Capital Improvement Plan, FEMA Grant, Other Grant
Timeframe	2025
Priority	High

Action WST-14	
Work with home owners in the vicinity of Cobs Mill Pond and Beaver Brook to remove silt and debris and consider use as fire ponds.	
Lead	DPW, FM
Cost	$100,000 - $500,000
Funding	Capital Improvement Plan, Other Grant
Timeframe	2025
Priority	High

Action WST-15	
Address icing issues along Steep Hill Road and Lords Highway near the Davis Hill Road intersection	
Lead	DPW
Cost	$100,000 - $500,000
Funding	Capital Improvement Plan, FEMA Grant, Other Grant
Timeframe	2026
Priority	Low

Action WST-16	
Work with the CTDOT to upgrade the culvert in the area of Newtown Turnpike (Rt 53) and Dillon Pass that is frequently clogged	
Lead	DPW
Cost	More than $500,000
Funding	Capital Improvement Plan, FEMA Grant, Other Grant
Timeframe	2026
Priority	Med

Action WST-17	
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	Land Use
Cost	$25,000 - $50,000
Funding	CT SHPO
Timeframe	2026
Priority	Low

Action WST-18	
Work with the CTDOT to address icing issues along Georgetown Road near Samuelson Road	
Lead	DPW
Cost	$100,000 - $500,000
Funding	Capital Improvement Plan, FEMA Grant, Other Grant
Timeframe	2026
Priority	Low

Action WST-19	
Upgrade the culvert on Deepwood Road along Jennings Brook	
Lead	DPW
Cost	More than $500,000
Funding	Capital Improvement Plan, FEMA Grant, Other Grant
Timeframe	2026
Priority	Low

Action WST-20	
Upgrade the deteriorated metal culvert on Timber Mill Lane	
Lead	DPW
Cost	More than $500,000
Funding	Capital Improvement Plan, FEMA Grant, Other Grant
Timeframe	2026
Priority	Low

Action WST-21	
Modernize the Town's internal emergency communication system.	
Lead	BOS, DPW, EM
Cost	$100,000 - $500,000
Funding	Capital Improvement Plan, Other Grant
Timeframe	2026
Priority	Low

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	
WST-01	Revise regulations to promote Low Impact Development; this action will mitigate natural hazard risks and accomplish objectives listed in the 2020 POCD, while also meeting Sustainable CT objectives.	Sustainable CT	BOS, P&Z, CC, Engineer, DPW	$25,000 - $50,000	Operating Budget, Sustainable CT Community Match Fund	2023	1	1	1	1	1	1	1	0	0	0	0	0	0	0	9
WST-02	In accordance with Goal 2, Objective 5 of the 2020 POCD, have the Sustainability Committee, in cooperation with the Westport-Weston Health District, encourage public best practices to protect groundwater resources during drought conditions.	Drought Mitigation	BOS	$25,000 - $50,000	Operating Budget	2023	1	1	1	0	1	1	1	0	0	0	0	0	0	0	8
WST-03	Develop a Capital Plan for Fire Ponds and Hydrants	Wildfire Fighting Capacity	FM, P&Z, Engineer, BOS, DPW, CC	$0 - $25,000	Operating Budget, Capital Improvement Plan, FEMA Assistance to Firefighters Grant	2022	0	1	1	0	1	1	1	0	0	0	0	0	0	0	7
WST-04	Perform tree removal around critical facilities to mitigate potential damage to the facilities or to the power lines and utilities serving those facilities.	Tree Management	DPW, EM, Building	$25,000 - $50,000	Operating Budget	2024	1	1	1	0	1	1	0	0	0	0	0	0	0	0	7
WST-05	Increase the resiliency of the Library to natural hazards, possibly including installation of a natural gas generator.	Energy Resiliency & Backup Power	BOS, EM, Private	$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
WST-06	Work with home owners in the vicinity of Cobs Mill Pond and Beaver Brook to remove silt and debris and consider use as fire ponds.	Wildfire Fighting Capacity	DPW, FM	$100,000 - $500,000	Capital Improvement Plan, Other Grant	2025	0	1	1	0	1	1	1	0	0	0	0	0	0	0	7
WST-07	Coordinate with CERT and utilize new public communication systems to develop a public engagement and education program to promote emergency preparedness and 'best management practices' for natural hazards, targeted to homeowners.	Outreach and Education	EM	$0 - $25,000	Operating Budget	2022	1	0	1	1	0	1	1	0	0	0	0	0	0	0	6
WST-08	Provide "welcome kits" to new home owners for properties located within the floodplain, or with a significant risk of flooding.	Outreach and Education	EM	$25,000 - $50,000	Operating Budget	2024	1	0	1	1	0	1	1	0	0	0	0	0	0	0	6
WST-09	Complete upgrade of emergency alert system to Everbridge.	Emergency Response	EM	$50,000 - $100,000	Operating Budget, CT DEMHS	2025	1	1	1	0	1	1	0	0	0	-1	0	0	0	0	6
WST-10	Work with the CTDOT to upgrade the culvert in the area of Newtown Turnpike (Rt 53) and Dillon Pass that is frequently clogged	Bridge & Culvert	DPW	More than $500,000	Capital Improvement Plan, FEMA Grant, Other Grant	2026	0	1	1	1	1	1	1	0	0	0	0	0	-1	0	6
WST-11	Compare local floodplain regulations with Revised State Model Flood Regulations to identify any remaining opportunities for improvement	Floodplain Management Regulations	P&Z, Building, Land Use	$0 - $25,000	Operating Budget	2023	0	1	1	0	1	1	0	0	0	0	-1	0	0	0	5
WST-12	Contact the owners of Repetitive Loss Properties and nearby properties at risk to inquire about mitigation undertaken and suggest options for mitigating flooding in those areas. This should be accomplished with a letter directly mailed to each property owner.	RLPs	EM, BOS	$0 - $25,000	Operating Budget, FEMA Grant	2023	0	1	1	0	1	1	0	0	0	-1	0	0	0	0	5
WST-13	Complete a feasibility study for a microgrid in the Town Center, or other grid resiliency projects in that area.	Energy Resiliency & Backup Power	EM	$25,000 - $50,000	Operating Budget	2024	1	1	1	1	1	1	0	0	-1	-1	0	0	0	0	5
WST-14	Work with CT DEEP to validate and/or correct the RL list and update the mitigation status of each listed property.	RLPs	Land Use	$25,000 - $50,000	FEMA Grant	2024	0	0	1	0	1	1	0	0	0	0	0	0	0	0	4
WST-15	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

#	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	
WST-16	Address icing issues along Steep Hill Road and Lords Highway near the Davis Hill Road intersection	Roadways	DPW	$100,000 - $500,000	Capital Improvement Plan, FEMA Grant, Other Grant	2026	1	1	0	1	0	1	0	0	0	0	0	-1	0	0	5
WST-17	Upgrade the culvert on Deepwood Road alog Jennings Brook	Bridge & Culvert	DPW	More than $500,000	Capital Improvement Plan, FEMA Grant, Other Grant	2026	0	1	0	1	1	1	1	0	0	0	0	0	-1	0	5
WST-18	Upgrade the deteriorated metal culvert on Timber Mill Lane	Bridge & Culvert	DPW	More than $500,000	Capital Improvement Plan, FEMA Grant, Other Grant	2026	0	1	0	1	1	1	1	0	0	0	0	0	-1	0	5
WST-19	Work with the CTDOT to address icing issues along Georgetown Road near Samuelson Road	Roadways	DPW	$100,000 - $500,000	Capital Improvement Plan, FEMA Grant, Other Grant	2026	1	1	0	1	0	1	0	0	0	-1	0	-1	0	0	4
WST-20	Modernize the Town's internal emergency communication system.	Emergency Response	BOS, DPW, EM	$100,000 - $500,000	Capital Improvement Plan, Other Grant	2026	0	1	1	0	0	0	0	0	0	0	0	0	0	0	3
WST-21	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	Land Use	$25,000 - $50,000	CT SHPO	2026	1	0	1	0	0	1	0	0	-1	0	0	0	0	0	2

APPENDIX B

Appendix B: SVI Summary

Town of Weston
Climate Vulnerability Assessment
A Component of Sustainable CT Action 5.4

The Town of Weston, 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 in town along several streams and rivers, such as along the Saugatuck River and West Branch Saugatuck River, there is continuously concern for riverine flooding. The numerous streams in town pose a flood risk to adjacent properties, whether it is a larger storm event or a short intense rainstorm. Some areas in town, such as Slumber Corners and along Route 53, have been challenged by flooding in the past. 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

Weston is largely residential with few commercialized areas along the main routes in town. Suburban communities are often impacted by strong winter storms in several ways; power outages from downed trees, accessibility issues, and icing concerns. Weston has experienced icing challenges in the past, particularly Georgetown Road, Steep Hill Road, and Lords Highway. Anticipated shifts in winter precipitation may bring more freezing rain events, which can result in an increase of downed trees and iced roads during a winter storm event. Downed trees can result in power outages, and lack of emergency access and egress.

Drought and Extreme Temperatures

A majority of town relies on private wells for drinking water, with the exception of a small system in the central are of town. Therefore, impacts to water supply may be an issue to the town as temperatures rise in the 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 Weston 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.

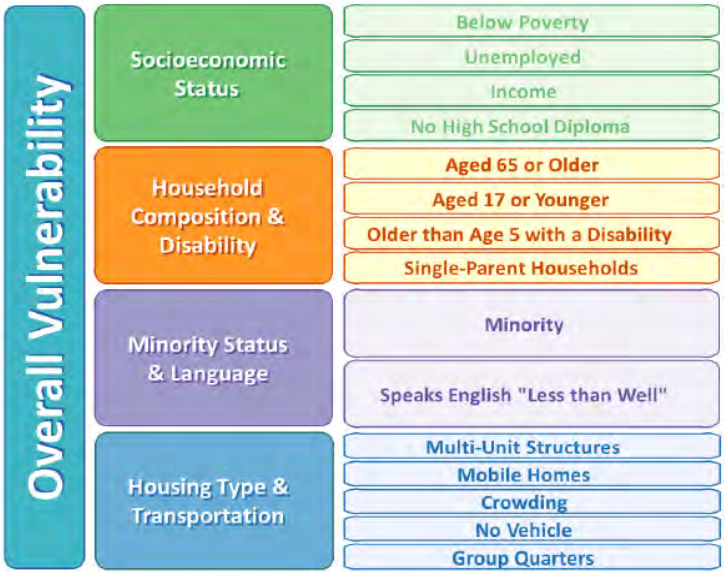


Figure 1: The CDC SVI Index Factors. Graphic: svi.cdc.com

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 Weston.

Table 1: Weston SVI Factor Rankings

	Overall SVI	Socioeconomic	Household Composition & Disability	Minority Status & Language	Housing Type & Transportation
WESTON	.01	.02	.15	.30	.01

The Town of Weston is considered to have a low level of vulnerability, with their most vulnerable population being minorities and those who speak English "less than well", followed by household composition and disability. The town is ranked very low based on socioeconomic status, and housing type and transportation. The more vulnerable populations identified are distributed between both the northern and southern tracts of town, with no apparent concentration of one population.

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 Weston, 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, so 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.