Naugatuck Valley Council of Governments

Hazard Mitigation Plan Update

2021 – 2026

Municipal Annex
for

NAUGATUCK, CT

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Naugatuck, CT 06770
MMI #3211-29

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1.0 INTRODUCTION

1.1 Purpose of Annex

This Hazard Mitigation Plan (HMP) annex provides 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 Naugatuck Valley Council of Governments (NVCOG) Multi-Jurisdictional Hazard Mitigation Plan. This annex is designed to supplement the information presented in the Multi-Jurisdictional HMP with more specific local detail, 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.

1.2 Planning Process

A meeting was held with Naugatuck representatives on November 10, 2020 for the purposes of initial data collection and review of necessary updates for this document. The meeting was convened by the HMP local coordinator, Jim Stewart.

Additional input was provided at the two regional municipal staff workshops, held on November 18, 2020, and February 3, 2021.

Public input collected at public workshops and through an online survey have also informed development of this HMP update.

1.3 Physical Setting

The Borough of Naugatuck is located in New Haven County. It is bordered by the Town of Beacon Falls to the south, the Town of Oxford to the west, the Town of Middlebury and the City of Waterbury to the north, and the Towns of Prospect and Bethany to the east and southeast.

Naugatuck is located within the western part of the crystalline uplands, or Western Highlands, of western Connecticut. This geologic feature consists of three belts of metamorphic rocks bounded to the west by the sediments and metamorphic rocks of the Hudson River valley and on the east by the Triassic sediments of the Connecticut River valley.

The topography of the Borough is generally moderate sloping along the Naugatuck River in the central portion of the Borough in the developed area. Steeper sections of land occur in the southwestern portion of the Borough near the Naugatuck State Forest, although both the west and east sides of the community

are quite hilly. Elevations range from approximately 200 feet above sea level along the Naugatuck River in the northern part of the Borough to over 870 feet above sea level near Andrews Hill in the southwestern part of the Borough, based on the National Geodetic Vertical Datum of 1929. The hilly, elevated terrain of Naugatuck makes it particularly vulnerable to an array of natural hazards. In fact, approximately 23% of land area has slopes greater than 15%.

1.4 Land Cover

The Borough of Naugatuck encompasses 16.4 square miles. Table 1-1 summarizes 2015 land cover data which was derived from satellite imagery. Areas shown as turf and grass are maintained grasses such as residential and commercial lawns or golf courses. According to this data, about 50% of Naugatuck is forested and approximately 35% is developed.

Table 1-1: 2015 Land Cover by Area

Land Cover	Area (acres)	Percent of Community
Developed	3,692.1	35.09%
Turf & Grass	918.1	8.73%
Other Grass	204.1	1.94%
Agricultural Field	182.4	1.73%
Deciduous Forest	4,954.6	47.09%
Coniferous Forest	198.3	1.88%
Water	117.8	1.12%
Non-Forested Wetland	4.4	0.04%
Forested Wetland	84.4	0.80%
Tidal Wetland	0.0	0.00%
Barren	120.3	1.14%
Utility Row	44.5	0.42%
Total	**10,521.0**	**100%**

Source: UCONN Center for Land Use Education and Research (CLEAR)

Naugatuck is characterized by its hills and steep slopes, which limit development in much of the Borough. Naugatuck features a linear commercial & institutional district along Route 63, the Naugatuck River and Route 8, extending from Route 68 in the north to Cherry Street in the south. To the east and west of this district are medium density residential neighborhoods. Further to the east and west, low density residential areas are interspersed with agricultural areas. Some isolated high density residential areas are dispersed throughout the Borough.

A large industrial park is located in the northeast corner of Naugatuck to the north of Route 68. A large area at the southern border of the Borough is protected open space. Nearly 30% of land in Naugatuck is classified as open space, with roughly half of this area permanently protected, including State Forest, and the other half consisting of water company land and others types of open space. There is a general lack of open space along watercourses such as Fulling Mill Brook, Cold Spring Brook, Beacon Hill Brook, and Long Meadow Pond Brook. However, steep slopes along the watercourses tend to limit some development.

1.5 Geology

Geology is important to the occurrence and relative effects of natural hazards such as floods and earthquakes. Thus, it is important to understand the geologic setting and variation of bedrock and surficial formations in Naugatuck.

The Borough of Naugatuck's bedrock consists primarily of metasedimentary and metaigneous schists and secondarily of metamorphic amphibolite and granofels, and metasedimentary and metaigneous gneisses within the Iapetos Terrane. The bedrock alignment trends generally southeast to northwest in the Borough, although regionally the bedrock formations appear to ring about Naugatuck while fault lines trend southwest to northeast.

The three primary bedrock formations in the Borough (from north to south) are Waterbury Gneiss, Taine Mountain and Collinsville Formation (undivided), and The Straits Schist. In addition, there is a small area of Ultramafic Rock in the northern part of the Borough. Bedrock outcrops are prevalent in Naugatuck, and are often be found at higher elevations and on hilltops.

One unnamed fault is located in Naugatuck in the far southeast corner of the Borough. The fault divides an area of the Straits Schist and forms a portion of the boundary between the Straits Schist and the Taine Mountain and Collinsville Formation in this area of the Borough. This small fault runs southwest to northeast, eventually joining the Western Border Fault in Southington. The Western Border Fault is a large fault extending along the western edge of the Mesozoic Basin and stretches from Milford northwards into Massachusetts. None of these faults are active.

At least twice in the late Pleistocene, continental ice sheets moved across Connecticut. As a result, surficial geology of the Borough is characteristic of the depositional environments that occurred during glacial and postglacial periods.

Much of the Borough is covered by glacial till. Tills contain an unsorted mixture of clay, silt, sand, gravel, and boulders deposited by glaciers as a ground moraine. This area includes nearly all of Naugatuck with the exception of the river valleys associated with the Naugatuck River and its tributary streams. Stratified sand and gravel ("stratified drift") areas are associated with the Naugatuck River, Long Meadow Pond Brook, Hop Brook, Fulling Mill Brook, and Beacon Hill Brook and their tributaries. These deposits accumulated by glacial meltwater streams during the outwash period following the latest glacial recession.

The amount of stratified drift present in the Borough is important for several reasons:

- Thicker sequences of the stratified drift are currently used by the Connecticut Water Company to provide drinking water and fire protection water via wells.
- Areas of stratified materials are generally coincident with inland floodplains. These materials were deposited at lower elevations by glacial streams, and these valleys later were inherited by the larger of our present-day streams and rivers. However, smaller glacial till watercourses can also cause flooding, though flooding on such watercourses is rare in Naugatuck.
- The amount of stratified drift also has bearing on the relative intensity of earthquakes and the likelihood of soil subsidence in areas of fill.

1.6 Drainage Basins and Hydrology

The Borough of Naugatuck drains to six major watersheds corresponding to the Naugatuck River, Hop Brook, Long Meadow Pond Brook, Fulling Mill Brook, Beacon Hill Brook, and Little River. These are described below. Various ponds and streams are found within both the eastern and western sections of the Borough, which is divided by the southward-flowing Naugatuck River. All of the watersheds in Naugatuck are part of the regional Naugatuck River basin that ultimately discharges into the Housatonic River. The drainage basins are described below.

Table 1-2: Drainage Basins

Drainage Basin	Area (sq. mi)	Percent of Borough
Naugatuck River	5.96	36.2%
Long Meadow Pond Brook	3.26	19.9%
Fulling Mill Brook	2.96	18.0%
Beacon Hill Brook	2.65	16.1%
Hop Brook	1.60	9.7%
Little River	0.01	0.1%
Total	16.44	100.0%

Source: Drainage Basins, 2008 CT DEEP GIS Data for Connecticut

Naugatuck River

The Naugatuck River originates near the City of Torrington and flows south almost 40 miles to meet the Housatonic River in the City of Derby, giving it a total basin area of 311 square miles. It is the only major river in Connecticut whose headwaters are within the boundaries of the state. The Naugatuck River is well-known for its rich industrial history and the many defunct dams associated with these industries.

All of the land in Naugatuck eventually drains into the Naugatuck River, but only 5.96 square miles (sq. mi) or 36.2% of the land area drains directly into the river. This area is comprised of a north-south corridor that passes through the center of the Borough. The Naugatuck River also makes up a portion of the Borough's southern boundary.

The river is joined by a number of tributaries as it flows through the Borough, including Long Meadow Pond Brook, Hop Brook, Fulling Mill Brook, Cold Spring Brook, and several unnamed streams. Egypt Brook and Little River drain through portions of the Borough before their confluence with the Naugatuck River downstream of Naugatuck, and Spruce Brook and Beacon Hill Brook join the Naugatuck River at the boundary between Naugatuck and Beacon Falls.

Much of the land surrounding the Naugatuck River is urbanized, however there are large areas in the watershed that are undeveloped, such as the area near Spruce Brook which flows through the Naugatuck State Forest in the southwest section of the watershed.

Long Meadow Pond Brook

Long Meadow Pond Brook drains 3.26 sq. mi. of land in the eastern section of the Borough (19.9% of Naugatuck's total land area). Its headwaters are located in Lake Elise in western Middlebury. From the lake,

Long Meadow Pond Brook flows southward into Long Meadow Pond, a body of water with a surface area of approximately 100 acres.

Long Meadow Pond Brook continues to meander eastward through the Town of Oxford into Naugatuck, collecting a number of unnamed tributaries before passing underneath a downtown factory and falling into the Naugatuck River. Development in the watershed is concentrated in the lower reaches. Two dams lie along its reach in Naugatuck, impounding the Armory Pond and the Naugatuck Ice Company Pond.

Fulling Mill Brook

Fulling Mill Brook drains 2.96 square miles of land (18.0% of the Borough's land area) in the northeastern corner of Naugatuck. It has its headwaters in central Prospect near Brewster Pond. The Brook begins at the west edge of Brewster Pond at the Salem Road Pond Dam, and flows westward and northward across Prospect into Beer Pond. After passing through Beer Pond, the brook flows westward into Naugatuck.

Once entering Naugatuck, the brook joins an unnamed tributary that drains Schildgen Pond, and Cold Spring Brook in the vicinity of City Hill Road and North Main Street before flowing into the Naugatuck River. In total, the Fulling Mill Brook drainage basin covers 5.38 square miles in Naugatuck, Prospect, and Waterbury.

Beacon Hill Brook

Beacon Hill Brook forms the Borough's southeastern boundary with the Town of Beacon Falls. The brook drains a total of 2.65 square miles of land within Naugatuck (16.1% of the Borough's land area) in the southeastern section of the Borough.

Beacon Hill Brook has its headwaters near the Bethany-Prospect Town line along State Route 69. It drains southwest into Bethany, entering the Long Hill Reservoir. Beacon Hill Brook flows west out of the reservoir through southeastern Naugatuck towards Straitsville. It is joined by Marks Brook west of Horton Hill Road and by Straitsville Brook near Beacon Valley Road. The brook then begins to form the boundary between Beacon Falls and Naugatuck, eventually passing under Route 8 and reaching its confluence with the Naugatuck River. In total, Beacon Hill Brook drains 10.22 square miles of land across Naugatuck, Beacon Falls, Bethany and Prospect.

Hop Brook

Hop Brook drains 1.60 square miles of land in the northwestern section of Naugatuck (approximately 9.7% of the Borough's total land area). It originates in northwestern Middlebury and flows through parts of Watertown and Middlebury before joining the Naugatuck River in Naugatuck near the intersection of Church Street and Bridge Street. The largest body of water that Hop Brook passes through is Hop Brook Lake, a flood control reservoir located on the border between Waterbury and Middlebury, just to the north of Naugatuck.

In addition to a number of unnamed tributaries, there are several smaller named tributaries that flow into Hop Brook, including Goat Brook, Long Swamp Brook, and Welton Brook in Middlebury, and Pigeon Brook

in Naugatuck. In total, Hop Brook drains 17.40 square miles of land located within the municipalities of Naugatuck, Waterbury, Middlebury, Watertown and Woodbury.

Little River

A small portion in the southwestern corner of Naugatuck (0.01 sq. mi. or 0.1% of the Borough's land area) drains to the southwest into the Little River watershed. The Little River originates in western Oxford and flows generally south-southeast towards Seymour. It is joined by several unnamed tributaries and larger tributaries including Jacks Brook and Towantic Brook before its confluence with the Naugatuck River near Route 67 in Seymour. In total, the Little River watershed drains 15.50 square miles of land in Seymour, Beacon Falls, Oxford, Middlebury and Naugatuck.

1.7 Climate and Climate Change

In Naugatuck, the summers are warm and wet, the winters are freezing, and it is partly cloudy year round. Over the course of the year, the temperature typically varies from 20°F to 81°F and is rarely below 6°F or above 89°F.

The warm season lasts for 3.5 months, from June 1 to September 16, with an average daily high temperature above 72°F. The hottest day of the year is July 21, with an average high of 81°F and low of 64°F. The cold season lasts for 3.3 months, from December 3 to March 12, with an average daily high temperature below 44°F. The coldest day of the year is January 29, with an average low of 20°F and high of 35°F.

The wetter season lasts 3.5 months, from May 3 to August 18, with a greater than 29% chance of a given day being a wet day. The chance of a wet day peaks at 36% on May 30. The drier season lasts 8.5 months, from August 18 to May 3. 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 4.0 inches. The snowy period of the year lasts for 5.4 months, from November 4 to April 15, 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 1.1 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 10% annual-chance storm in New Haven County is 5 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 10% annual-chance storm in Naugatuck as 4.96 inches.

The NOAA Atlas 14, released on September 30, 2015 puts the 24-hour rainfall amount for a 10% annual-chance storm in Naugatuck at 5.59 inches.

These precipitation amounts, and more details, are summarized in Table 1-3, below.

Table 1-3: 24-Hour Rainfall Amounts by Annual-Chance Occurrence

Source	24-Hour Rainfall Amount (inches) by Annual-Chance Occurrence		
	10%	4%	1%
Technical Paper No. 40	5.0	5.6	7.1
NRCC	5.0	6.2	8.7
NOAA Atlas 14	5.6	6.8	8.8

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 Naugatuck can expect the 24-hour rainfall amount for a 10% annual-chance storm to be around 5.4 to 6.1 inches or greater.

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).

1.8 Development Trends

Naugatuck was settled in 1701 but the Borough was not incorporated until 1844. The settlement was agrarian in its origins, but as time passed industry developed using the Naugatuck River as a power source. Initial industries included woolen mills and metal factories.

Several landmarks in Naugatuck are representative of its prominent historic industry. Naugatuck was the site of the invention of vulcanized rubber by Charles Goodyear in the mid-1800s. As a result, Naugatuck led in the manufacturing of rubber-soled shoes, tires and other rubber-based products. The United States

Rubber Company, later known as Uniroyal, was founded in 1892; the headquarters was relocated in the 1980s. The organization manufactured Keds shoes and the artificial leather known as Naugahyde. Another landmark, the Peter Paul Company, manufactured candy bars at a large factory on Route 63 starting in 1922 until the facility was closed in 2007. In recent years, several of the buildings associated with the candy factory have been torn down and Parcel "C" has been remediated. The Borough purchased Parcel B and has completed environmental studies on the property.

The 2010 U.S. Census reported a population in Naugatuck of 31,347 individuals. U.S. Census Bureau estimates for 2019 show a population around 32,537 individuals, an increase from 2010 of 3.8%. The Connecticut State Data Center predicts that population will decrease by 0.4% through 2025 to an estimated population of 4,979 individuals.

According to the Connecticut Data Collaborative, the number of annual housing permits in Naugatuck decreased slightly over the last decade. The number of permits issued in 2010 and 2011 was 8 and 10, respectively, while 8 permits were issued in 2016, and 0 permits were issued in 2017. On average, 12 housing permits were issued each year in Naugatuck between 2010 and 2017.

According to the U.S. Census Bureau, the overall number of housing units in Naugatuck dropped by approximately 5.3-percent between 2010 and 2019, from 13,061 units in 2010 to 12,402 units in 2019. In 2019, the housing stock was made up of approximately 62% single-unit structures, 13% two-unit structures, 21% multi-unit structures, and 4% mobile-homes or other types of structures.

According to the Connecticut Office of Policy and Management, Naugatuck's 2019 Total Equalized Net Grand List was valued at $1,729,000,000. The equalized net grand list is an estimate of the market value of all taxable property in the municipality, and gives some indication of the value of property at risk in the event of a major natural disaster.

Additional information can be found in the 2019 Connecticut Economic Resource Center profile for Naugatuck, included as Appendix C.

The development goal of the Naugatuck POCD is proactive encouragement of mixed-use development throughout the Route 8 corridor and downtown. Enhancing community appearance with a unified theme for streetscapes and building architecture and scaling downtown and along the commercial corridor are also goals. Amending zoning regulations to support the POCD recommendations for land use management is discussed.

According to the 2019 NVCOG Transit Oriented Development Scenario Report, approximately 44 acres of vacant or underutilized land that have redevelopment potential within approximately one-half a mile of the Naugatuck Train Station (Metro North Waterbury Line). If redeveloped and fully infilled, this land could yield a total development mix of some 1,950 housing units and over 1.4 million square feet of commercial building area. The current one-half mile TOD area in Naugatuck encompasses ten land use zones: two business, two industrial, four residential, a design district, and a special development district.

In recent years, small subdivisions have been ongoing and large subdivisions approved 10 to 15 years ago are being completed. Most of this land is not in areas of flood risk. In addition, the railroad signalization project is almost complete, which will allow the reopening of the commuter rail line. An RFP for development of downtown parcels will be going forward soon.

Future development is also expected to occur at the sprawling Uniroyal industrial property and at the former Peter Paul Company commercial property. These properties are not located within SFHA's. However, the Uniroyal Industrial property is located adjacent to the Naugatuck River Floodway and future development should take this into consideration during the design phase. The Borough of Naugatuck has and will continue to ensure that new development is sited and approved with minimal risk from natural hazards.

Summary

Recent development in Naugatuck has been largely focused in previously developed land, and has been balanced by continued improvement to the community's hazard mitigation capabilities and ongoing enforcement of zoning regulations and building codes. Overall, this development has not increased natural hazard vulnerabilities in the community, and continuation of these development trends are not expected to increase natural hazard risks over the next five years.

1.9 Historic and Cultural Resources

Historic and cultural resources include sites, structures, and objects that are significant in history, architecture, archaeology, engineering, and culture. These resources grow economies and enhance 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 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.

Historic resources in Naugatuck near flood sources may be damaged during flooding or other hazard events.

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.

1.10 Social Vulnerability Index

By evaluating local social vulnerabilities, a community can identify populations that may be more vulnerable to natural hazards, and implement actions to better respond to the needs of those populations. The Center for Disease Control and Prevention (CDC) uses 15 factors extracted from census data to calculate a Social Vulnerability Index (SVI) for communities. The SVI factors fall into four categories:

- socioeconomic status
- household composition and disability
- minority status and language
- housing type and transportation

Naugatuck is considered to have a Medium level of social vulnerability, with a higher vulnerability score for the SVI category of Household Composition & Disability. In other words, a particular challenge in Naugatuck may include the presence of residents who need additional assistance during a disaster event due to disabilities.

2.0 MUNICIPAL CAPABILITIES

2.1 Governmental Structure and Capabilities

The Borough has developed zoning and subdivision regulations that have general implications regarding hazard mitigation. For example, cul-de-sacs in new developments are discouraged and connectivity of roads is encouraged. Specifically, the Borough requires a 50-foot right of way for local residential streets with a turnaround located at the end of dead end streets. Cul-de-sacs can have no more than 20 homes or can be no longer than 1,000 feet, whichever constraint is more stringent. Subdivisions featuring cul-de-sacs offer a single access point for emergency services, lengthening emergency response times and rendering those residential areas vulnerable if access is cut off by flooding or downed tree limbs.

The Naugatuck Subdivision Regulations require that utilities serving new developments must be installed underground wherever possible. Exceptions due to shallow bedrock are granted on a case-by-case basis. Public water supply is available throughout the majority of Naugatuck and connectivity is recommended for new developments. Where public water supply is unavailable, 25,000-gallon cisterns are required for fire protection.

2.2 Infrastructure

Transportation

The primary transportation routes into and out of the town are Route 8 running north-south, Route 68 running east-west, and Route 63 running north to southeast. Other key roads include Rubber Ave, Jones Rd, Field St, Spring St, Union City Rd, Maple Hill Rd, Mulberry street, and May Street.

There are no public bus systems in Naugatuck. The Borough is served by Naugatuck Station, a commuter-rail station on the Waterbury Branch of the Metro-North Railroad's New Haven Line.

Utilities

Public water in Naugatuck is provided by the Connecticut Water Company's Naugatuck Region-Central System, as well as a couple of small Community Water Systems and Non-Community Public Water Systems. Public sewer service is provided by the Naugatuck Water Pollution Control Department.

Eversource is the primary electricity provider in Naugatuck. Natural gas service is provided by Eversource.

According to geoISP (geoISP.com), there are 1 DSL Providers, 1 Cable Internet providers, 3 Fiber Internet (FTTH) providers, and 0 Fixed Wireless (WISP) providers in Naugatuck, CT. There are also 4 Mobile Broadband (cellular) providers with service available in Naugatuck.

2.3 Critical Facilities and Emergency Response

Naugatuck has identified several critical facilities throughout the town, as summarized on Table 2-1 below.

Table 2-1: Critical Facilities

Facility	Address or Location	Type	Emergency Power	Shelter	SFHA
Borough of Naugatuck Offices	229 Church St	Municipal Offices	✓		0.2%
Borough of Naugatuck Police Department	211 Spring St	Police Station	✓		
Naugatuck Fire Headquarters	41 Maple St	Fire Department			0.2%
Eastside Fire Station	May St & Osborn Rd	Fire Department			
Naugatuck Ambulance Services	246 Rubber Ave	EMT	✓		
Public Works Department Office	246 Rubber Ave	Municipal	✓		
Public Works Department Garage	510 Rubber Ave	Municipal	*		
Recreation Center	607 Rubber Ave	Municipal			0.2%
Parks Maintenance	607 Rubber Ave	Municipal			0.2%
Naugatuck Events Center	6 Rubber Ave	Municipal		✓	0.2%
Wastewater Treatment Plant	500 Cherry St	Utility – Sewer	✓		0.2%
Connecticut Water Company		Utility – Water			✠
Southern New England Telephone		Utility – Phone			✠
Eversource S. Naugatuck Substation	Cherry St	Utility – Electric			0.2%
Algonquin Gas Pipeline	Northern Naugatuck	Utility – Gas			✠
Naugatuck Senior Center	300 Meadow St	Senior Center			
Ecumenical Food Bank	75 Spring St	Food Bank			0.2%
Naugatuck High School	543 Rubber Ave	Primary Shelter	✓	✓	
City Hill Middle School	441 City Hill St	School		♦	
Hillside Middle School	51 Hillside Ave	School		♦	
Cross Street Intermediate School	120 Cross St	School		♦	
Hop Brook Intermediate School	75 Crown St	School		♦	0.2%
Andrew Avenue Elementary School	140 Andrew Ave	School		♦	
Central Avenue Elementary School	28 Central Ave	School		♦	
Maple Hill Elementary School	641 Maple Hill Rd	School		♦	
Prospect Elementary School	100 Prospect St	School		♦	
Salem Elementary School	124 Meadow St	School		♦	
Western Elementary School	100 Pine St	School		♦	

* *Hookup in place for a portable generator*

✠ *Partially located in SFHA*

♦ *All schools have been designated as backup shelters. Lack of emergency power limits capacity.*

Emergency Response Capabilities

The Department of Public Works utilizes a light tower generator for limited standby power, allowing them to assist critical facilities and conduct operational activities during emergencies.

The armory development at 607 Rubber Avenue, Recreational and Parks Maintenance, consists of two separate buildings. It was determined to be a critical facility because Parks and Recreation staff can respond to emergencies.

While the Borough has no elderly housing facilities, The Borough Emergency Operations Plan includes a list of addresses of special needs persons that would require special assistance during an emergency. In addition, the Borough realizes that the influx of active adult housing in Borough is increasing the amount of population that requires more assistance during emergencies, and plans to account for these populations in its emergency plan updates.

Sheltering Capabilities

The Naugatuck High School serves as the Borough's primary shelter. Approximately 81-million dollars-worth of renovations to the school were completed in recent years, including installation of a new backup generator. Naugatuck High School is also designated as an emergency supply distribution point.

The Naugatuck Events Center can be used as a shelter during large-scale events, and can also serve as a food distribution center. The facility does not have backup power.

The Borough has designated all of the other local schools as backup shelters, but none of the structures have emergency generators. Hop Brook Intermediate School is located in the 0.2% annual-chance floodplain, and therefore might not be usable in the event of an extreme flood. City Hill School is currently designated as an emergency supply distribution point.

The Borough lacks trained staff to operate shelters. If a shelter were to open, the Borough would rely on volunteers from the American Red Cross to staff the shelter. Some of the local emergency volunteers have received shelter training. The Borough currently recommends that people shelter in place unless relocation is necessary due to an imminent threat, such as severe flooding. The Naugatuck Emergency Management Advisory Council plans on addressing sheltering issues in 2009.

Communications

The primary answering point for emergency calls is the Police Department on Spring Street. The Borough also uses enhanced 9-1-1 service through the Northwest Connecticut Public Safety Communication Center, Inc. to facilitate ambulance dispatch. Borough personnel supplement 9-1-1 service with radios. The Borough uses phone lines to enhance their radio communications. If phone service is cut off, Borough personnel rely on low-band radios and cellular communications. The Borough has also contracted with Emergency Communications Network, Inc. to provide "CodeRED" high-speed telephone emergency notification services. The CodeRED system is capable of telephoning warnings into areas likely to be impacted by a disaster, or into the entire Borough, at a rate of 60,000 calls per minute.

The Borough of Naugatuck is in the southeast portion of Region 5 of the Connecticut Emergency Medical Service regions. The Borough dispatch center has a high band radio compatible with Region 5, which contains most of the COGCNV municipalities. Thus, it is important that Naugatuck maintain emergency notification systems compatible with those of Region 5, which contains most of the COGCNV municipalities. The Borough's enhanced 9-1-1 service is already compatible with much of Region 5, and Region 2 to the

south. As development continues in the eastern portion of Borough, it is also important for Naugatuck 's system to be compatible with Prospect's (also Region 2) to the east. The town of Prospect also uses CodeRED. The Borough has mutual aid agreements with all neighboring communities.

Evacuation and Access

The Borough of Naugatuck does not have any hospitals. Instead, residents use the nearby facilities in Waterbury. As a means of accessing these facilities, Naugatuck has convenient access on Route 8 that functions as the major transportation artery. Naugatuck's full-time ambulance corps staffs the ambulance service to these hospitals. If paramedics are needed, they are called in from Waterbury.

Evacuation routes are regionally defined by the Regional Evacuation Plan. Route 8, which runs north-south through central Naugatuck, provides access to Waterbury and Interstate 84 to the north and Bridgeport and Route 15 and Interstate 95 to the south. State Route 68 also runs from Prospect in the east and merges with State Route 63 in the center of the Borough. South Main Street (Route 63) is also an evacuation route into the Town of Bethany.

Utilities

Water service is a critical component of hazard mitigation, especially in regards to fighting wildfires. It is also necessary for everyday residential, commercial, and industrial use. The Connecticut Water Company provides potable and fire fighting water to the majority of the Borough. The Fire Department uses alternative water supplies to fight fires in the less developed areas of Naugatuck, including fire ponds and underground water tanks, and brings as much water in its tankers as possible to these fires.

The Naugatuck Wastewater Treatment Plant is located at the south end of Cherry Street and serves most of the developed area of Naugatuck. Other utilities important enough to be considered critical facilities include the electric substation on Cherry Street, the Algonquin Gas Pipeline that traverses northern Naugatuck, and the electric and telephone lines in the Borough. Gas and electricity are important for both day-to-day living and emergency usage, and the telephone is used to complement emergency communications in the Borough.

Potential Impacts from Natural Hazards

Critical facilities are not regularly impacted by flooding in the Borough of Naugatuck, despite several critical facilities being located in the 500-year floodplain. Major transportation arteries, such as State roads, are largely unaffected by flooding, and the emphasis on creating through streets has provided multiple modes of egress to the majority of neighborhoods in Naugatuck.

No critical facilities are particularly susceptible to wind, summer storms, winter storms, or earthquakes more than the rest of the Borough. However, the Public Works Department, Ambulance Services, Fire Department, Borough Offices, South Naugatuck Eversource Substation, and Hop Brook School are all located within a mapped dam failure inundation area, and Maple Hill School is located on the edge of a wildfire risk area. Subsequent sections will discuss each natural hazard in detail and include a description of populations at-risk.

3.0 FLOODING

3.1 Existing Capabilities

Participation in the NFIP

Naugatuck has participated in the NFIP since 08/15/1979. The Flood Insurance Rate Map (FIRM) for the community was most recently updated in 07/08/2013. Naugatuck does not participate in the FEMA Community Rating System (CRS) program.

According to FEMA, there are 93 flood insurance policies in force in Naugatuck as of 6/30/2019 with an insurance value of $15,037,300.

Regulations and Other Methods of Prevention

The Borough of Naugatuck has in place a number of measures to prevent flood damage. These include regulations and plans that control encroachment and development in and near floodplains and floodways. Regulations, codes, and ordinances that apply to flood hazard mitigation in conjunction with and in addition to NFIP regulations include:

- ***Floodplains:*** Section 29 of the Zoning Regulations is essentially the local version of the NFIP regulations. This section recognizes areas of special flood hazards within the Borough as a zoning overlay and establishes minimum standards and review procedures over the use of the land in order to reduce flooding hazard to human life and health, reduce flood damages to public and private property, minimize disruptions of commerce and governmental services, protect values, maintain the natural drainage system's capacity to safely store and transport flood water and minimize damaging flood erosion and any increases in downstream flood potential. It establishes the FIRMs and the FIS as the official maps for delineating areas of special flood hazard.
  - Section 29.5.1 requires new construction and substantial improvements to be anchored and resistant to flood damage.
  - Section 29.5.3.1 requires that no new construction be permitted in A zones with established flood elevations if the base flood elevation would be increased by more than one foot.
  - Section 29.6.1 requires that new construction and substantial improvements of any residential structure shall have the lowest floor, including the basement, elevated at least two feet above the base flood.
  - Section 29.6.2 requires that new construction and substantial improvements of any nonresidential structure shall have the lowest floor, including the basement, elevated at least two feet above the base flood, or flood proofed.
  - Section 29.6.3 provides additional requirements for mobile home parks.
  - Sections 29.6.4 and 29.7 control encroachment into floodways.
  - Section 29.6.8 requires floodplain compensation for development that reduces the holding capacity of floodplains.

An application for approval of a development in a flood plain must be submitted to the Zoning Enforcement Officer and be approved before construction can begin.

- ***Open Space Subdivision Plans*** (Section 35 of the Zoning Regulations). This section allows for the proposal and permitting of an "open space subdivision" to preserve land as unsubdivided and undeveloped; for parks; for conserving natural resources; and to protect streams, rivers and ponds to avoid "flooding" and "erosion."

- ***The Naugatuck Subdivision Regulations*** contain numerous provisions relative to flood hazard mitigation:
  - Section 3.2.4 requires that an Engineering Report be submitted with all applications, and that it shall address impacts on floodplains, aquifers, watersheds, greenways and natural features. This report shall also include summaries of stormwater drainage designs.
  - Sections 4.3.2 and 4.4.2 require that existing and proposed watercourses, wetlands, ponds, swamps, shorelines, floodplain or flood boundaries be shown on site plans.
  - Section 4.7.7 requires delineation of floodplain or flood boundaries and base flood elevation data within the subdivision.
  - Section 5.2 requires that any lot which is "found to be unsuitable for occupancy and buildings by reason of water or flooding conditions, unsuitable soil, topography, ledge, rock or other conditions shall be combined with another contiguous lot that is suitable…."
  - Section 5.8 guides stormwater management and drainage system design to ensure peak flow attenuation or other mitigation.
  - Section 5.9 guides stormwater conveyance and stipulates the storm frequencies that must be conveyed by bridges, culverts, catch basins, etc.

- ***Flood Hazard Standards*** (Section 5.12 of the Subdivision Regulations) requires that:
  - 5.12.1 – Proposed subdivisions shall be consistent with the need to minimize flood damage
  - 5.12.2 – Public utilities, including adequate storm drainage, shall be designed, located and constructed to minimize flood damage.
  - 5.12.3 – Adequate storm drainage shall be provided to reduce exposure to flood damage.
  - 5.12.4 – Base flood elevation data shall be provided for all land proposed to be subdivided, whether or not it is available from FEMA.

- ***Soil Erosion and Sediment Control Plan*** (Section 4.6 of the Subdivision Regulations and Section 36 of the Naugatuck Zoning Regulations). These sections require the submittal of a Soil Erosion and Sediment Control Plan with any application in which the disturbed area of such development is cumulatively more than one-half acre.

- ***Inland Wetlands and Watercourses Regulations***. These regulations define in detail the Borough of Naugatuck's requirements regarding development near wetlands, watercourses, and water bodies. Section 2 defines "Regulated Activities" covered by the Regulations. Section 4 states that no person may conduct or maintain a regulated activity without obtaining a permit. Section 7 outlines the application requirements, and requires the delineation of the boundaries of all wetlands and watercourses on the plans for Inland Wetlands and Watercourses Commission submittals. In particular:

- ⇨ Section 7.5.9 requires delineation of "floodplain limits and elevations,… drainage systems and channels…."
- ⇨ Section 7.6.7 requires additional information regarding measures that "prevent flooding… erosion and sedimentation and obstruction of drainage…."
- ⇨ Section 8.6 requires providing a hydrologic analysis of runoff and peak flow.
- ⇨ Section 10.2.1 states that the Commission must consider the environmental impact of the proposed action, including the effects on the watercourse's natural capacity to support fish and wildlife, to prevent flooding, to supply and protect surface and ground waters, to control sediment, to facilitate drainage, to control pollution, to support recreational activities, and to promote public health safety and welfare.
- ⇨ Section 10.2.7 requires evaluation of the impact of the activity on upstream and downstream wetlands and watercourses as well as impacts on the overall watershed.
- ⇨ Section 10.2.9 requires evaluation of stormwater management.
- ⇨ Section 10.2.10 requires consideration of, among other things, management of open spaces and detention basins.

- ***Aquifer Protection Regulations.*** These regulations replaced Section 28 of the Zoning Regulations subsequent to the State's adoption of the model aquifer protection ordinance. The regulations apply to the two aquifer protection zones in the Borough, located around the Indian Field groundwater supply in nearby Prospect (with the zone extending into Naugatuck) and the Marks Brook groundwater supply in southeastern Naugatuck. Although the regulations primarily address land uses that involve use, storage, or transfer of hazardous materials or chemicals within the aquifer protection zones, they provide an additional level of protection in the floodplains within each zone. Although the Indian Field wells are located in a floodplain in Prospect, the Marks Brook aquifer protection zone includes portions of the Marks Brook and Beacon Hill Brook floodplains in Naugatuck.

- ***Plan of Conservation & Development.*** According to the Plan of Conservation and Development, thirty percent of the land area in Naugatuck is currently set aside as open space exceeding the state goal of 21 percent. The Plan also notes that trends have been positive as the Borough has acquired open space and required developers to provide open space. Examples of this include the acquisition of the Gunntown Nature Preserve, Fawn Meadow Field and the anticipated grant for acquisition of a 145 acre parcel on Andrew Mountain.

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

- Protect human life and public health;
- Minimize expenditure of money for costly flood control projects;
- Minimize the need for rescue and relief efforts associated with flooding;
- Ensure that purchasers of property are notified of special flood hazards;
- Ensure that all land approved for subdivision shall have proper provisions for water, drainage, and sewerage and in areas contiguous to brooks, rivers, or other bodies of water subject to flooding, and that proper provisions be made for protective flood control measures;
- Ensure that property owners are responsible for their actions;

- Ensure the continued eligibility of owners of property in Naugatuck for participation in the National Flood Insurance Program.

The Borough of Naugatuck retained a consultant to review Zoning and Subdivision Regulations in 2008. The review was completed in November 2008. Most of the recommendations are related to incorporating elements of low impact development into the regulations, especially with regard to stormwater management. In no case did a recommendation reduce any requirements related to flood hazard mitigation, and in fact, the recommendations provided for enhanced peak flow management in new developments, if implemented.

The Borough of Naugatuck Zoning Enforcement Officer serves as the NFIP administrator and oversees the enforcement NFIP regulations under the authority of the Zoning Commission. The Borough currently has no plans to enroll in the Community Rating System program.

The Borough of Naugatuck uses the 1% annual-chance flood lines from the FIRM and FIS delineated by FEMA as the official maps and report for determining special flood hazard areas. FEMA completed its "Map Mod" program, which created single FIRM for New Haven County. Many municipalities with revised FIRMs from the Map Mod program have found that more properties are in floodplains than originally believed.

Zoning and subdivision regulations require that all structures in flood hazard areas have their lowest floor (including basement) be two feet above established base flood elevations. 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. Wet floodproofing is required for buildings that include a fully enclosed space below the base flood elevation formed by foundation or other exterior walls. No encroachment on floodways is allowed that will raise the level of base flood elevation. The Naugatuck Inland Wetlands Commission also reviews new developments and existing land uses on and near wetlands and watercourses.

Flood Control Projects

Subsequent to the devastating floods of 1955, extensive flood control modifications have been made to the Naugatuck River basin, including the construction of five flood control dams by the ACOE. Three of these dams are located upstream of Naugatuck in the Town of Thomaston, and two others are located further upstream in Torrington. These dams are further described in Section 8.3. According to the FEMA FIS for Thomaston, these five dams can store all runoff up to a 100-year storm and provide a controlled release to the channel downstream.

Drainage Systems

The Naugatuck Department of Public Works is in charge of the maintenance of the Borough's drainage systems, and performs clearing of bridges and culverts and other maintenance as needed. Drainage complaints are routed to the department and recorded. The Borough uses these documents to identify potential problems and plan for maintenance and upgrades. The Borough can also access NOAA's Automated Flood Warning System to monitor precipitation totals.

Borough officials indicated that drainage improvements along Nettleton Avenue were completed in 2012, however more are needed. In addition, an HMGP application for Cherry Street drainage improvements was

submitted in 2012. Although this did not get funded, the fact that they submitted an application demonstrates that they have the capability to do so. Additionally, the Borough would like to move forward with flood mitigation and drainage projects involving Highland Avenue, and Meadow/Church Street.

Emergency Services

In summary, many of Naugatuck's capabilities to mitigate for flood damage have improved since the initial hazard mitigation plan was adopted, particularly with regard to knowledge of hazard areas. Specifically, the floodplain regulations require two feet of freeboard which far exceeds the minimum criteria set by NFIP. Overall, the increased knowledge of vulnerable areas, combined with other local planning efforts, has assisted community officials and commissions to provide a variety of flood mitigation recommendations for new development.

New Capabilities and Completed Actions

Naugatuck continues to maintain its strong flood mitigation capabilities.

Summary

Naugatuck mitigates flood damages primarily through regulating development in floodprone areas, performing maintenance and upgrades of drainage infrastructure, and performing structural projects when appropriate.

3.2 Vulnerabilities and Risk Assessment

According to the FEMA FIRMs, approximately 219 acres of land in Naugatuck are located within the 100-year flood boundary and 575 acres of land are located within the 500-year flood boundary. In addition, indirect and nuisance flooding occurs near streams and rivers throughout Naugatuck due to inadequate drainage and other factors. Flood prone areas in the community today, as mapped by FEMA, are presented in Figure 3-1.

The primary waterway in the Borough is the Naugatuck River, which flows north to south through the Borough. The remaining waterways in Naugatuck are mostly tributary streams and brooks significant for water supply and conservation purposes, with only Hop Brook noted as recreational resource. SFHAs with defined elevations are delineated for the Naugatuck River, Hop Brook, Long Meadow Pond Brook, Fulling Mill Brook, Cold Spring Brook, and Beacon Hill Brook. These watercourses, along with several additional smaller streams, have 500-year floodplains delineated by approximate methods. All of these delineated floodplains are generally limited to the areas adjacent to the streams.

Due to the large amount of buffer capacity provided by the ACOE flood control dams upstream, there is little wide-scale flooding in Naugatuck. Specific areas susceptible to flooding have been identified by Borough personnel. Most flooding occurs due to large amounts of rainfall, sometimes falling in conjunction with snowmelt, and it often occurs due to undersized road culverts and drainage problems.

Vulnerability Analysis of Repetitive Loss Properties and Critical Facilities

Naugatuck has zero Repetitive Loss Properties (RLP). Of those, zero are classified as Severe RLP. Zero of the RLPs in Naugatuck have been mitigated in the past. None of Naugatuck's critical facilities are located in SFHAs.

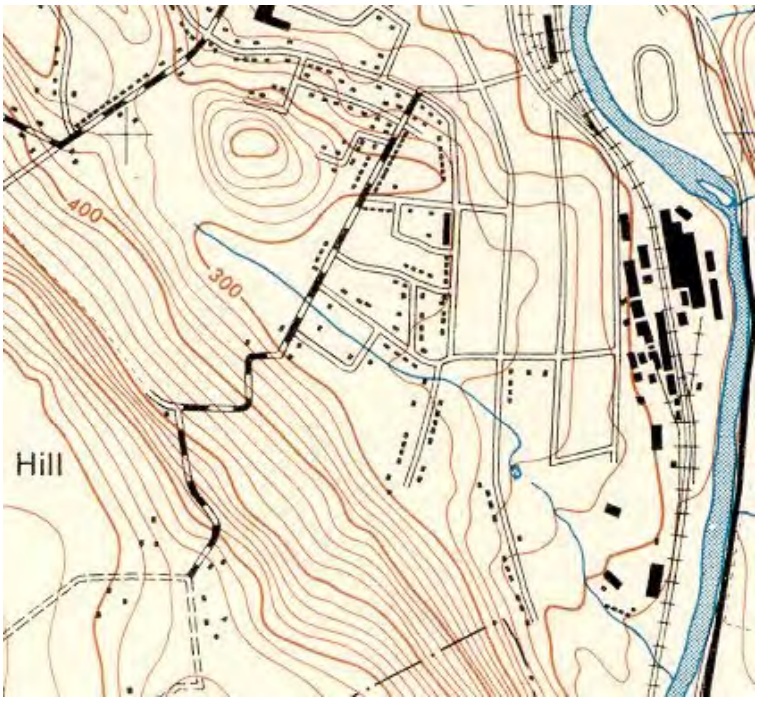
Vulnerability Analysis of Areas Along Watercourses

- Spencer Street Corridor/Cherry Street/Pleasant Avenue – This area was cited as a significant flood-prone area during the data collection meeting for the initial plan, although severe damage does not occur and nuisance flooding appears to be the problem. A review of historical topographic maps reveals that an unnamed stream was formerly located in this area in 1947, flowing from west to east, but it has been located in a culvert underground since at least 1954.

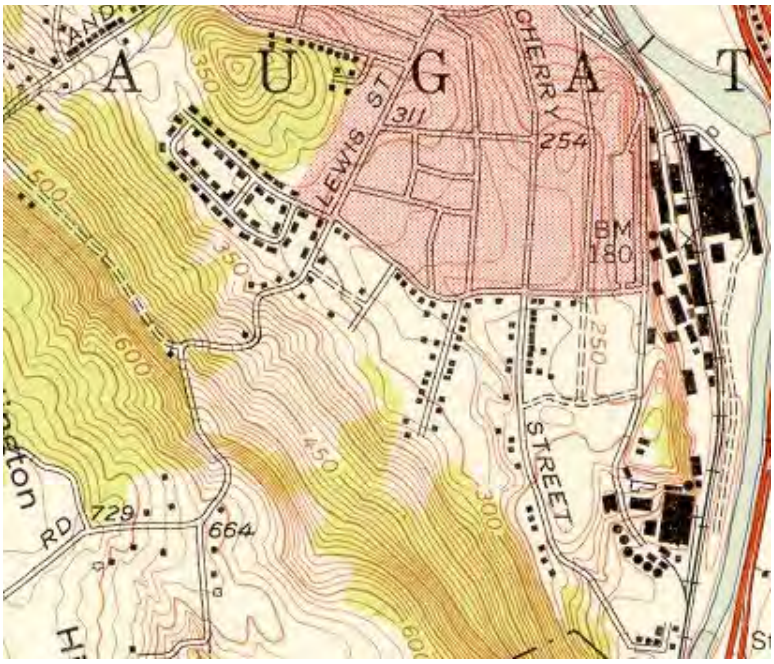
- Currently, there is a detention pond near this area with an adjacent swale from a hillside; and a stream daylights to the west of Lewis Street. Streets and homes can flood within the development during periods of heavy rainfall. Stormwater systems tied to this watercourse are also affected. It has been reported that water levels can rise so rapidly that a "geyser" forms in the storm drainage system when water gets backed up following periods of high rainfall. In fact, the historic Grant House on Cherry Street Extension was damaged due to pressures within the stormwater system.

- Long Meadow Pond Brook – The corridor of this stream and its tributary were noted by Borough personnel as experiencing flooding during heavy rainfall. The specific area of concern is located adjacent to the Long Meadow Pond Brook and its tributary near Rubber Avenue and Harlow Court, near Mountview Plaza and north of the Baummer Dam. The flooding at this site is partly associated with water entering from the vicinity of Webb Road. There have been approximately four residential or commercial sites that have been flooded in this location, though repetitive loss properties are not located in this area.

  Flooding in this area was also discussed in Section 3.3 and noted that all of the Long Meadow Pond Brook culverts flooded during the August 1, 2012, localized heavy rainfall which dropped 6" of rain in the Greater Naugatuck area in one hour.



View of 1947 Topographic Map, Spencer Street Corridor



View of 1954 Topographic Map, Spencer Street Corridor

- <u>Arch Street</u> – The lower portion of Arch Street at Long Meadow Pond Brook receives three feet of standing water during large rainfall events. A storm drain near a vacant building is sometimes clogged, causing storm water to back up and build in the street during these storms. On one account, the standing water caused a dumpster to float.

- Beacon Valley Road – Flooding has been reported along Beacon Valley Road near Beacon Falls. This neighborhood becomes inundated with water from Beacon Hill Brook after heavy rains.

Other Areas of Concern

- Cold Spring Brook – Although not mentioned at the data collection kick-off meeting, this corridor was investigated. The brook is very close to Brook Street and flooding could affect homes and access to Cold Spring Circle.

- Crown Spring Bridge – This bridge over Hop Brook on Bridge Street has recurring problems with flooding after periods of heavy rainfall.

- East Waterbury Road – The portion of East Waterbury Road below the Union Ice Company Dam now becomes flooded after heavy rains. As a result of the pond losing storage due to sedimentation, this problem may be worsening. During substantial rain events, the dam overtops and water spills onto East Waterbury Road. The water runs down the road and eventually re-enters the tributary to Fulling Mill Brook. Under certain conditions, water can enter homes.

- Fulling Mill Brook along Route 68 – Flooding of Route 68 has been known to occur during periods of heavy rain. The channel is near street level in some areas, and when water is overbank, it causes minor flooding.

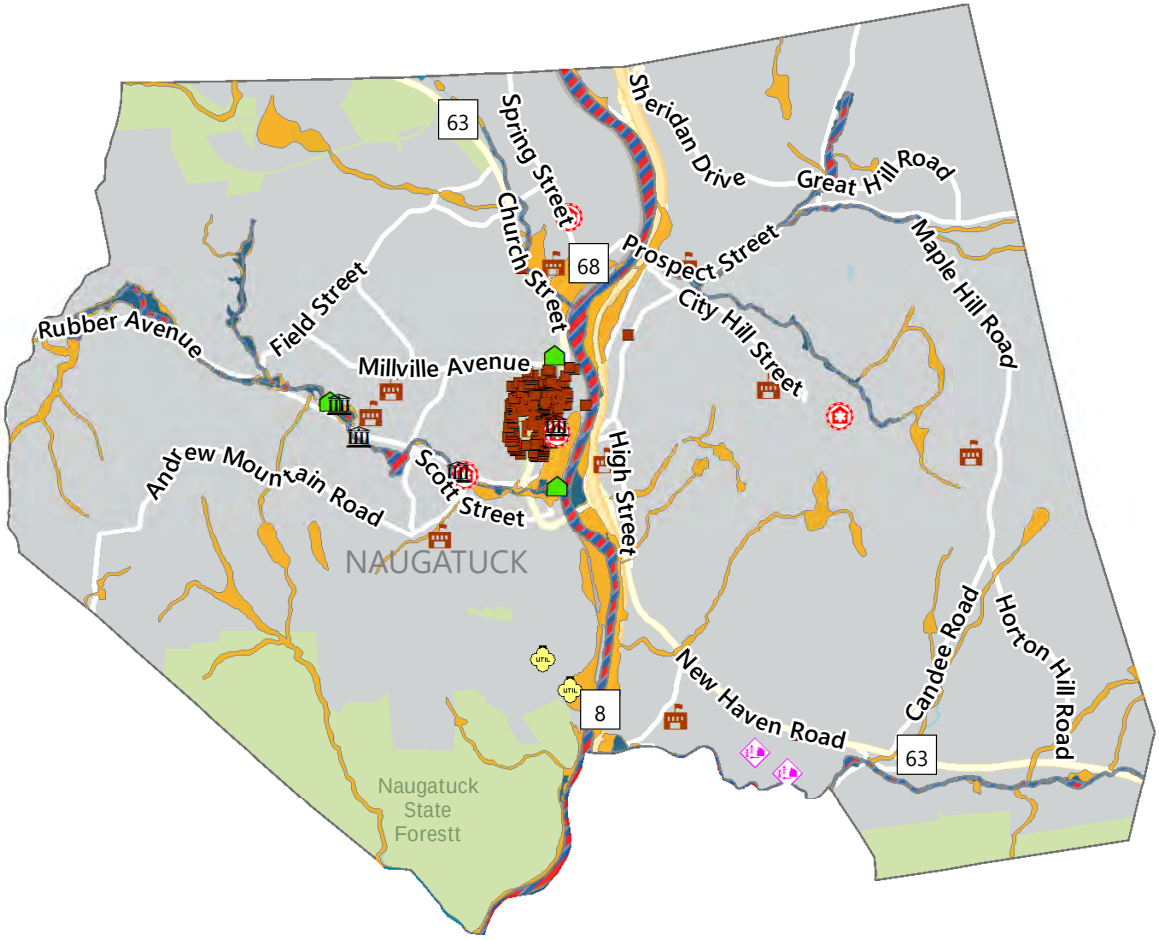
- Highland Street near Galpin Street – This area was reported to have flooding issues after substantial rain events. The area was inspected but the alleged drainage problems were not apparent. Problems may occur under more significant events.

- May Street – The nearby unnamed stream may have the tendency to jump the culvert at the intersection with Bird Road and cause washouts in a resident's yard.

- Nichols Garage (Irving Gas Station) – This site marks the point at which Pigeon Brook flows underground before entering Hop Brook. There is a pond adjacent to the garage at this site that may have mitigated flooding problems in the past, but it has become filled with silt.

- Maple Street – A sinkhole approximately 100 feet long formed in July 2008 near the Naugatuck Fire Headquarters. The sinkhole was the result of the failure of an old storm drain.

It should be noted that in response to chronic downtown and neighborhood flooding problems, the Mayor's Office in association with the Department of Public Works, the Fire Department and the Engineering Department met with State officials to determine the appropriate course of action. Steps were taken to determine the areas of critical need and subsequently an HMGP application was submitted to secure funding for drainage improvements on Nettleton Avenue and within the vicinity of Cherry Street. At this time, it does not appear that this project was selected for funding.



Critical Facilities
- Community Center
- Emergency Response
- Government Services
- School
- Utility
- Vulnerable Population

Historic Sites
- Historic Sites

Flood Zone
- A
- AE
- Floodway
- X: 0.2% Annual Chance

SLR
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773

Flood Hazards in Naugatuck

NVCOG Hazard Mitigation Plan Update
Naugatuck Valley Council of Governments
47 Leavenworth Street, 3rd Floor
Waterbury, CT 06702

N

0 2,000 4,000
Feet

DATE 6/15/2021

141.3211.00029
PROJ. NO.

FIG. 3-1

4.0 HURRICANES AND TROPICAL STORMS

4.1 Existing Capabilities

Flooding

Existing capabilities appropriate for flooding were discussed in Section 3.0. These include the ordinances, codes, and regulations that have been enacted to minimize flood damage. In addition, various structures exist to protect certain areas, including dam and local flood protection projects.

Wind

Wind loading requirements are addressed through the state building code. The State Building Code has been amended several times in the past two decades. The 2005 Code was amended in 2009, 2011, and 2013. The code was then updated and amended in 2016, with the current code having been updated and effective as of October 1, 2018. The code specifies the design wind speed for construction in all the Connecticut municipalities. Effective October 1, 2018 the design wind speed for Naugatuck is 110 mph for a Category 1 event, 125 mph for a Category 2, and 135 mph for a Category 3, 4 or 5 hurricane event.

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

Parts or all of tall and older trees may fall during heavy wind events, potentially damaging structures, utility lines, and vehicles. Currently tree maintenance is coordinated by the Public Works Department; the Department of Public Works Superintendent is the tree warden. The Borough has an approximately $15,000 annual tree budget for maintenance and emergencies and subcontractors are used for this work. Eversource Energy also performs tree maintenance near its power lines.

Landowners are primarily responsible for conducting tree maintenance on private property away from Borough property. The Borough attempts to close roads at convenient intersections rather than at the location of the downed tree or branch. In addition, all utilities in new subdivisions must be located underground whenever possible in order to mitigate storm-related damages.

The Borough relies on radio and television to spread information on the location and availability of shelters. During a disaster, the Borough will notify residents of emergency information on a neighborhood basis using its CodeRED emergency notification service. Prior to severe storm events, the Borough ensures that warning/notification systems and communication equipment is working properly, and prepares for the possible evacuation of impacted areas.

New Capabilities and Completed Actions

Naugatuck continues to maintain its strong tropical cyclone mitigation capabilities. Many of Naugatuck's capabilities to mitigate for wind damage and prevent loss of life and property have improved slightly since

the initial hazard mitigation plan was adopted. Furthermore, Eversource has increased its capabilities and response relative to tree and tree limb maintenance near utility lines.

Summary

Naugatuck mitigates hurricane and tropical storm damages through tree and limb maintenance, public alert and communications procedures, and enforcement of building code requirements related to high winds.

4.2 Vulnerabilities and Risk Assessment

Hurricane-force winds can easily destroy poorly constructed buildings and mobile homes. 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 cause 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.

There are five mobile home parks in the Borough of Naugatuck that are considered to be at increased risk of being damaged by high winds associated with tropical storm systems:

- Idleview Mobile Home Park on Lewis Hill off Duncan Avenue in the northwestern section of Naugatuck;
- Riverview Mobile Home Estates on Thunderbird Drive in the northern part of Naugatuck overlooking the Naugatuck River;
- The Davis Mobile Home Park at 117 Lewis Street;
- The Weber Mobile Home Park at 137 Lewis Street; and
- Gendron's Valley Mobile Home Park at 108 Clark Hill Road.

As the Borough of Naugatuck is not affected by storm surge, hurricane sheltering needs have not been calculated by the Army Corps of Engineers for the Borough. The Borough of Naugatuck determines sheltering need based upon areas damaged within the Borough. Under limited emergency conditions, a high percentage of evacuees will seek shelter with friends or relatives rather than go to established shelters. During extended power outages, it is believed that only 10% to 20% of the affected population of Naugatuck will relocate, though many of this number will again stay with friends or relatives rather than go to established shelters.

Naugatuck had one of the few fatalities in Connecticut during Tropical Storm Isaias. The victim was killed by a falling tree. The Borough reportedly had to wait six hours for Eversource to shut off power, so they could retrieve the deceased. The Borough stated that Eversource often did not arrive when expected, and the Borough was unable to track the crews or determine where they were deployed. The outage lasted at least five days.

5.0 SUMMER STORMS AND TORNADOES

5.1 Existing 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 Naugatuck as explained in Section 4. In addition, the Connecticut State Building Code includes guidelines for the proper grounding of buildings and electrical boxes.

In the Borough of Naugatuck, the local utilities are responsible for tree branch removal and maintenance above and near their lines. In addition, all new developments in Naugatuck must place utilities underground wherever possible. The Public Works Department also performs annual tree maintenance on municipal right of ways.

Municipal responsibilities relative to tornado mitigation and preparedness include:

- 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.
- Utilizing the "CodeRED" Emergency Notification System to send warnings into potentially affected areas.

New Capabilities and Completed Actions

Naugatuck continues to maintain its summer storm mitigation capabilities. Its tree and limb removal procedures continue to be adequate, and it coordinates closely with Eversource on protecting power lines.

Summary

Naugatuck mitigates summer storm risks primarily through tree, limb, and debris management, emergency communications, and coordination with Eversource. In general, the protocols and regulations that the Borough of Naugatuck has in place, such as requiring that all new developments place utilities underground, are considered effective for mitigating wind and summer storm-related damage.

5.2 Vulnerabilities and Risk Assessment

According to Borough personnel, the most susceptible areas of Borough to wind damage are the mobile home parks listed in Section 4. Other areas of Borough are more susceptible to damage from falling branches and trees than from actual wind damage.

Significant damage occurred in Borough during the May 2018 tornado and microburst event in Connecticut, causing power outages for 3 to 4 days. Localized heavy rainfall on August 1, 2012 caused significant damages, demonstrating that severe localized thunderstorm events can occur with significant damage. In this particular case, most of the damage was from flooding. Likewise, a tornado that hit the borough in 2009 caused significant tree damage that exceeded estimated annual loss figures for thunderstorms.

In summary, the entire community is at relatively equal risk for experiencing damage from summer storms and tornadoes. Based on the historic record, several severe thunderstorms and associated events like tornadoes have resulted in costly damages in Naugatuck. Most damages are relatively site-specific and occur to private property (and therefore are paid for by private insurance). For municipal property, the budget for tree removal and minor repairs may need to be adjusted from time to time to address storms. Based on the damage caused by the 2009 tornado, an estimate of several million dollars in damage may be reasonable for an EF2 tornado striking Naugatuck, and with a greater damage amount to be expected should an EF3 or stronger tornado strike.

6.0 WINTER STORMS

6.1 Existing Capabilities

As it is almost guaranteed that winter storms will occur annually in Connecticut, it is important for municipalities to budget for and then allocate fiscal resources for snow management. The Borough 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 Borough also prepares for the possible evacuation and sheltering of some populations which could be impacted by the upcoming storm (especially the elderly and special needs persons).

The Public Works Department has 22 routes for plowing throughout Naugatuck. A fleet of five large trucks and several smaller trucks are used to conduct the work. The Borough has indicated that only having five large trucks was part of the reason that the Borough's response to the February 2013 snowstorm (Nemo) was so poor. Each section of the Borough has a crew assigned to it. Plow trucks are first dispatched to the areas of Naugatuck with higher elevations as it begins to snow. During emergencies, a plow vehicle can be dispatched ahead of an emergency vehicle.

New Capabilities and Completed Actions

Naugatuck continues to maintain its strong winter storm mitigation capabilities. Naugatuck's capabilities to mitigate for winter storm damage and prevent loss of life and property has improved since the initial hazard mitigation plan was adopted, such as the increased attention to removing snow from buildings.

Summary

Naugatuck mitigates snow damages through implementation of road and building clearing protocols, enforcement of the State Building Code, and through the mitigation measures previously discussed for high wind events.

6.2 Vulnerabilities and Risk Assessment

The heavily treed landscape in close proximity to densely populated residential areas in the Borough of Naugatuck 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.

As there is over 720 feet in elevation difference between the high point and low point in the Borough, Naugatuck can experience snow in the hills while it rains in the downtown area. The Borough relies on its personnel to report areas receiving snow in the higher elevations, as there are many hills in Naugatuck which can make driving difficult in icy weather.

As for other winter hazards, drifting snow is not as large a problem in Naugatuck as in other areas, but it can still occur. This problem is mitigated through municipal plowing efforts. Ice jams are not a problem in Naugatuck.

Elderly, linguistically isolated, and disabled populations reside in the Borough of Naugatuck. It is possible that significant populations impacted by a severe winter storm could consist of the elderly, linguistically isolated households, and people with disabilities. Thus, it is important for Naugatuck's emergency personnel to be prepared to assist these special populations during emergencies such as winter storms.

7.0 GEOLOGICAL HAZARDS

7.1 Existing Capabilities

The Zoning Regulations of the Borough of Naugatuck (Section 24.10) states no more than 25 percent of the Minimum Buildable Area shall contain slopes in excess of 25 percent. Section 36.1 of the Zoning Regulations requires a Sediment and Erosion Control Plan be submitted when the disturbed area of a site is greater than one-half acre. The Plan of Conservation and Development suggests that areas of greater than 15% slopes be defined as un-buildable area. In particular, Goal #3 item #4 of the Plan of Conservation and Development states "Establish development standards for single-family housing on slopes."

New Capabilities and Completed Actions

Naugatuck continues to maintain its earthquake and landslide mitigation capabilities. Naugatuck's capabilities to mitigate for earthquake damage and prevent loss of life and property have not necessarily changed since the initial hazard mitigation plan was adopted, although the State's building code has been updated and the borough has incorporated those changes. In the event that a damaging earthquake occurs, Naugatuck will activate its Emergency Operations Plan and initiate emergency response procedures as necessary.

Summary

Naugatuck mitigates geological hazards through enforcement of zoning and subdivision regulations preventing development in higher risk areas. Other mitigation measures consist of general emergency response capabilities.

7.2 Vulnerabilities and Risk Assessment

Earthquake Vulnerabilities

Several areas in the Borough of Naugatuck are underlain by sand and gravel. Structures in these areas are at increased risk from earthquakes due to amplification of seismic energy and/or collapse. The best mitigation for future development in areas of sandy material may be application of the most stringent building codes, or possibly the prohibition of certain types of vulnerable construction in these areas. The areas that are not at increased risk during an earthquake due to unstable soils are the areas underlain by glacial till.

One inactive fault is located in Naugatuck in the far southeast corner of the Borough. Even though this fault is inactive, the best mitigation for future development in the area of this fault would be to preserve or convert the fault area into municipal open space. Much of the fault area lies within the Naugatuck State Forest and the area is already set aside as rural.

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.

8.0 DAM FAILURE

8.1 Existing Capabilities

The Dam Safety Section of the Connecticut DEEP Inland Water Resources Division is responsible for administration and enforcement of Connecticut's dam safety laws. Dam safety laws are codified in Sections 22a-401 through 22a-411 of the Connecticut General Statutes. The statutes require that permits be obtained to construct, repair, or alter dams and that existing dams be inventoried and periodically inspected to assure that their continued operation does not constitute a hazard.

> Dams regulated by the Connecticut DEEP must be designed to pass the 1% annual chance rainfall event with one foot of freeboard, a factor of safety against overtopping.
>
> Significant and high hazard dams are required to meet a design standard greater than the 1% annual chance rainfall event.

Effective October 1, 2013, the owner of any high or significant hazard dam (Class B and C) must develop and implement an Emergency Action Plan (EAP). The EAP shall be updated every two years, and copies shall be filed with DEEP and the chief executive officer of any municipality that would potentially be affected in the event of an emergency. The EAP must include inundation zone mapping, procedures for monitoring the structure during periods of heavy rainfall and runoff, and a system to alert local officials in the event of an emergency.

The CT DEEP also administers the Flood and Erosion Control Board (FECB) program, which can provide noncompetitive state funding for repair of municipality-owned dams. State statute Section 25-84 allows a municipality to form an FECB.

Actions Completed and New Capabilities

Naugatuck continues to maintain its capabilities for mitigating and responding to dam failure risks. Naugatuck's capabilities to mitigate for dam failure and prevent loss of life and property have increased since the initial hazard mitigation plan was adopted, mainly as a result of recent statewide legislative actions described above. In the next few years, dam safety programs will continue to strengthen.

Summary

Naugatuck mitigates dam failure hazards primarily by supporting State Dam Safety Program efforts locally.

One dam that has been of concern in the past, the Scoville Pond Dam, has been removed, and Scoville Pond no longer exists.

8.2 Vulnerabilities and Risk Assessment

While flooding from a dam failure generally has a moderate geographic extent, the effects are potentially catastrophic. The Connecticut DEEP administers the statewide Dam Safety Program and designates a classification to each state-inventoried dam based on its potential hazard.

- *Class AA*: negligible hazard potential

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

As of 2020, there were 21 DEEP-inventoried dams within Naugatuck. Seven of these dams had a Significant or High Hazard Potential rating. These dams are listed in Table 8-1 and shown in Figure 8-1.

Table 8-1: DEEP-Inventoried Dams in Naugatuck

Number	Name	Class	Owner
8801	CANDEE RESERVOIR DAM	BB	Water Utility
8802	THURSTON POND DAM	C	Private Corporation
8803	MAY STREET SOUTH POND DAM	B	Private
8804	MAY STREET NORTH POND DAM	B	Private
8805	MULBERRY RESERVOIR DAM	C	Water Utility
8806	UNION ICE COMPANY POND DAM	BB	Private
8807	SCHILDGEN POND DAM	BB	Private
8808	BAUMMER DAM	A	Municipal
8809	ARMORY POND DAM	A	Municipal
8810	UNIROYAL DAM		Private
8811	STRAITSVILLE POND DAM	A	Water Utility
8812	UNION CITY DAM	AA	Private
8813	STRAITSVILLE RESERVOIR DAM	B	Water Utility
8814	HOP BROOK DAM	C	Federal USACE
8815	RIDGE LOWER DETENTION DAM	B	Private Corporation
8816	RIDGE UPPER DET POND	BB	Municipal
8817	UNIROYAL DAM		Private Corporation
8818	BEACON BROOK	A	Private Corporation
8819	NOB HILL ASSOC POND		Private Corporation
8820	NEW ELEMENTARY SCHOOL DET. PD		Municipal
8821	DONOVAN ROAD DETENTION BASIN DAM	BB	Municipal

The following table summarizes the status of EAPs for the higher-hazard potential dams in Naugatuck:

Table 8-2: EAP Status of Higher-Hazard Dams

Number	Name	Class	EAP Status	EAP Status Date
8802	THURSTON POND DAM	C	Acceptance Letter Sent	6/20/2019
8803	MAY STREET POND SOUTH DAM	B	Updated EAP Not Received	1/22/2018
8804	MAY STREET POND NORTH DAM	B	Updated EAP Not Received	1/22/2018
8805	MULBERRY RESERVOIR DAM	C	Acceptance Letter Sent	10/23/2018
8813	STRAITSVILLE RESERVOIR DAM	B	Acceptance Letter Sent	10/31/2017
8814	HOP BROOK DAM	C	USACE dam on Federal Land EAP exists	
8815	RIDGE LOWER DETENTION DAM	B	Assigned to DEEP Staff for review	8/8/2017

Naugatuck should work to ensure EAPs are up-to-date.

The three Class C dams located in the Borough of Naugatuck include the Thurston Pond Dam, the Mulberry Reservoir Dam, and the Hop Brook Dam. In addition, there are four other Class C dams upstream of Naugatuck whose failure would impact Borough residents, as listed in Table 8-3 below.

Table 8-3: Class C Dams Upstream of the Borough of Naugatuck

Number	Name	Watercourse in Naugatuck	Municipality
803	Long Hill Reservoir Dam	Beacon Hill Brook	Bethany
14001	Thomaston Dam	Naugatuck River	Thomaston
14007	Black Rock Dam	Naugatuck River	Thomaston
14008	Northfield Brook Dam	Naugatuck River	Thomaston

The upstream flood control dams described in Section 3 are also reportedly in good to excellent condition. The following paragraphs provide a description and highlight the general condition of each Class C and B dam based on information available at the Connecticut DEEP.

Class C Dams Located within the Borough of Naugatuck

Thurston Pond Dam

This dam, also known as the New Dam, is owned by Chemtura Corporation. Thurston pond is located on Long Meadow Pond Brook at the southwest corner of the intersection of Rubber Avenue and Melbourne Street and covers a surface area of approximately 4.5 acres. It consists of an of an earth embankment with a stone masonry overflow spillway located at the right end of the dam, and outlet works located at the right abutment. The total length of the dam, including the spillway section, is 510 feet. The maximum height is 20 feet. The stone masonry overflow spillway section has an upstream earth embankment of unknown section, a concrete cap and a batter of six inches per vertical foot on the downstream face. The outlet works consist of a concrete intake structure with inlet and outlet gates which can discharge water through a 24-inch concrete pipe to downstream locations or through an 18-inch concrete pipe into the stream below the dam. The spillway capacity is 2,500 cfs, or 37% of the Test Flood Outflow. The dam is believed to be in good condition.

According to Borough official's maintenance activities were recently conducted at Thurston's Dam to address washouts and repair the emergency spillway.

The downstream corridor is a mixture of medium density residential development and commercial and industrial developments. Based on dam failure inundation maps in the Emergency Operations Plan on file at the DEEP, a dam failure at full pool height would cause flooding along Long Meadow Brook all the way to the central portion of the Borough along the Naugatuck River. Critical facilities such as Public Works and Ambulance Services would be affected by this flooding.

Mulberry Reservoir Dam

The Mulberry Reservoir is owned by the Connecticut Water Company and is used for public water supply. The reservoir covers a surface area of approximately 8.3 acres and it receives its inflow from a 2.4 acre wetland located approximately 1,040 feet upstream on an unnamed tributary. The dam consists of an earth embankment, constructed of impervious materials with a pervious zone and toe drain on the downstream side. The dam is 580 feet in length with a top width of 20 feet, a maximum height of 66 feet, and upstream and downstream slopes of two feet horizontal to one foot vertical. A 40-foot long concrete spillway with

discharge chute and stilling basin is located near the right end of the dam. The outlet works located near the center of the dam consist of a 12-inch cast iron blowoff and a 12-inch cast iron supply main through the dam, both controlled by manually operated gates located in an upstream gatehouse. The dam is considered to be in good condition. ACOE hydraulic analyses indicate that the capacity of the existing spillway is 1,600 cfs with the reservoir at elevation 574.78 (at top of dam). The calculations show the spillway is capable of passing 400% of the probable maximum flood without overtopping the dam.

The downstream corridor is undeveloped forested land for approximately 650 feet, after which there is a large area of residential developments. The dam failure inundation area follows the unnamed tributary to the Naugatuck River and would not appear to directly affect the residential developments south and southeast of the dam. The inundation area becomes wider after the unnamed tributary passes under Route 63, encompassing a large portion of Grove and St. James Cemeteries. Critical facilities in the Borough of Naugatuck are not located in the inundation area.

Hop Brook Dam

This ACOE flood control dam is located on Hop Brook at the Waterbury and Naugatuck corporate boundary. It consists of a rolled-earth fill with rock slope 520 feet long with a maximum height of 97 feet above the river bed. Outlet works include a three foot by five foot concrete rectangular conduit founded in rock. The dam is maintained by the ACOE and is believed to be in excellent condition. The ACOE conducted repairs in 2013 to address washouts.

Based on dam failure inundation maps provided by the ACOE, a dam failure at full pool height would cause flooding along Hop Brook and the Naugatuck River corridors all the way to Derby. The most concentrated damage would likely occur along the Route 63 corridor, and many of the critical facilities in the downtown area would be flooded.

Class C Dams Located Upstream of the Borough of Naugatuck

Thomaston Dam

This ACOE flood control dam is located on the Naugatuck River in northeastern Thomaston and consists of an earth and rock-fill dam that was completed in 1970. The dam is 142 feet high and 2,000 feet long. Outlet works are founded on bedrock under the dam, and there is a side channel spillway 450 feet long on the left abutment. The reservoir has a storage capacity of 42,000 acre-feet. At spillway height, a 950 acre pool would extend about 6.5 miles upstream. The ACOE owns all the land behind the dam that would be affected by the backwater conditions up to 465 feet, and has flood easements in this area up to an elevation of 499 feet, which is 5 feet above the spillway. The dam is maintained by the ACOE and is believed to be in excellent condition.

Based on dam failure inundation maps provided by the ACOE, a dam failure at full pool height (worst-case scenario) would cause flooding along the Naugatuck River corridor all the way to the Housatonic River in Derby. Much of downtown Naugatuck would experience some degree of flooding, including many of the critical facilities in the Borough. Such a failure would cause backwater conditions along Beacon Hill Brook and past St. James Cemetery up to the western end of Beacon Valley Road. A breach at full height would cause flooding greater than the mapped 500-year flood event for Naugatuck.

Black Rock Dam

This ACOE flood control dam is located on Branch Brook downstream of Wigwam Dam along the Thomaston-Watertown boundary in Black Rock State Park. It consists of an earth-fill dam 933 feet long and 154 feet high and was completed in 1970. Outlet works include a gated four-foot by five-foot concrete conduit in the right abutment of the dam, and a chute spillway with a 140-foot long crest adjacent to the right abutment. The reservoir has a storage capacity of 8,700 acre-feet. At spillway height, a 190 acre pool would extend approximately 1.8 miles upstream. The ACOE owns all the land behind the dam that would be affected by the backwater conditions and has easements up to the spillway crest elevation. The dam is maintained by the ACOE and is believed to be in excellent condition.

Based on dam failure inundation maps provided by the ACOE, a dam failure at full pool height would cause flooding along the Branch Brook and Naugatuck River corridors all the way to downtown Beacon Falls. Flood heights would be outside the 500-year floodplain in the center of the Borough, though flood heights would be less than a failure of Hop Brook Dam. Several critical facilities in the downtown area would be flooded.

Northfield Brook Dam

This ACOE flood control dam is located on Northfield Brook approximately 1.3 miles upstream of the Naugatuck River in the Town of Thomaston. It consists of an earth-fill dam 810 feet long and 118 feet high and was completed in 1966. Outlet works include a chute spillway with an ogee weir that is 72 feet long, and a three-by-three-foot gate controlling discharged into a 36-inch conduit founded on rock in the right abutment. The reservoir has a storage capacity of 2,430 acre-feet. At spillway height, a 67 acre pool would extend approximately 1.25 miles upstream. The dam is maintained by the ACOE and is believed to be in excellent condition.

The downstream corridor is developed with many residential properties. Based on dam failure inundation maps provided by the ACOE, a dam failure at full pool height would cause flooding along Northfield Brook and the Naugatuck River all the way into central Naugatuck. The inundation area is nearly coincidental with that of the Black Rock Dam failure inundation area. Flood heights would be less than the 500-year floodplain in the center of the Borough, however many of the critical facilities in the downtown area would be flooded.

Class B Dams Located within the Borough of Naugatuck

May Street Pond North Dam

The May Street Pond North Dam (Vanasse's Pond) is owned by James, John and Robert Vanasse. The pond covers a surface area of approximately 2.5 acres and receives its inflow from an unnamed brook that drains a private pond located approximately 600 feet upstream and approximately 260 feet west of Gabriel Drive. The dam is an earthen dam with a concrete spillway at the southwestern portion of the dam, and is believed to be in good condition.

Should this Class B dam fail, 10-15 houses along June Street, Bird Road, Spruce Drive, and Homestead Avenue could experience flooding.

May Street Pond South Dam

The May Street Pond South (Griesbach's Pond) Dam is owned by Dr. Hans Griesbach, a resident of May Street in Naugatuck. The pond covers a surface area of approximately 2.06 acres and receives its inflow primarily from groundwater. The dam is an earthen dam with a concrete spillway at the southeastern portion of the dam, and is believed to be in good condition.

Should this Class B dam fail, a few houses along the dead-end streets of Hickory Road and Woodland Street would likely experience flooding, and a few homes on High Street could also be flooded.

Long Hill Reservoir Dam

The Long Hill Reservoir, also known as the New Naugatuck Reservoir, is owned by the Connecticut Water Company and used for water supply. The reservoir covers a surface area of approximately 87.4 acres in the Towns of Bethany and Prospect, and the reservoir receives its inflow from Beacon Hill Brook and several unnamed tributaries. The dam is an earthen dam with a rock fill slope with a concrete spillway in the southeastern portion of the dam. The dam is maintained by the Connecticut Water Company and believed to be in good to excellent condition.

The downstream corridor is developed with many residential and some commercial and industrial properties. The dam failure inundation area extends along Route 63 and Beacon Valley Road. Critical facilities in the Borough of Naugatuck are not in the inundation area, but many residential structures south of Route 63 in the southeast section of the Borough would be flooded if the dam failed. A dam failure could trap residents in the Cotton Hollow Road area as well if the bridge were undermined.

Straitsville Reservoir Dam

The Straitsville Reservoir is owned by the Connecticut Water Company and is used for water supply. The reservoir covers a surface area of approximately 2.07 acres in Naugatuck and Prospect, and the reservoir receives its inflow from Marks Brook. The dam is an earthen dam with a rock fill slopes with a spillway at the southeastern portion of the dam, and is believed to be in good to excellent condition.

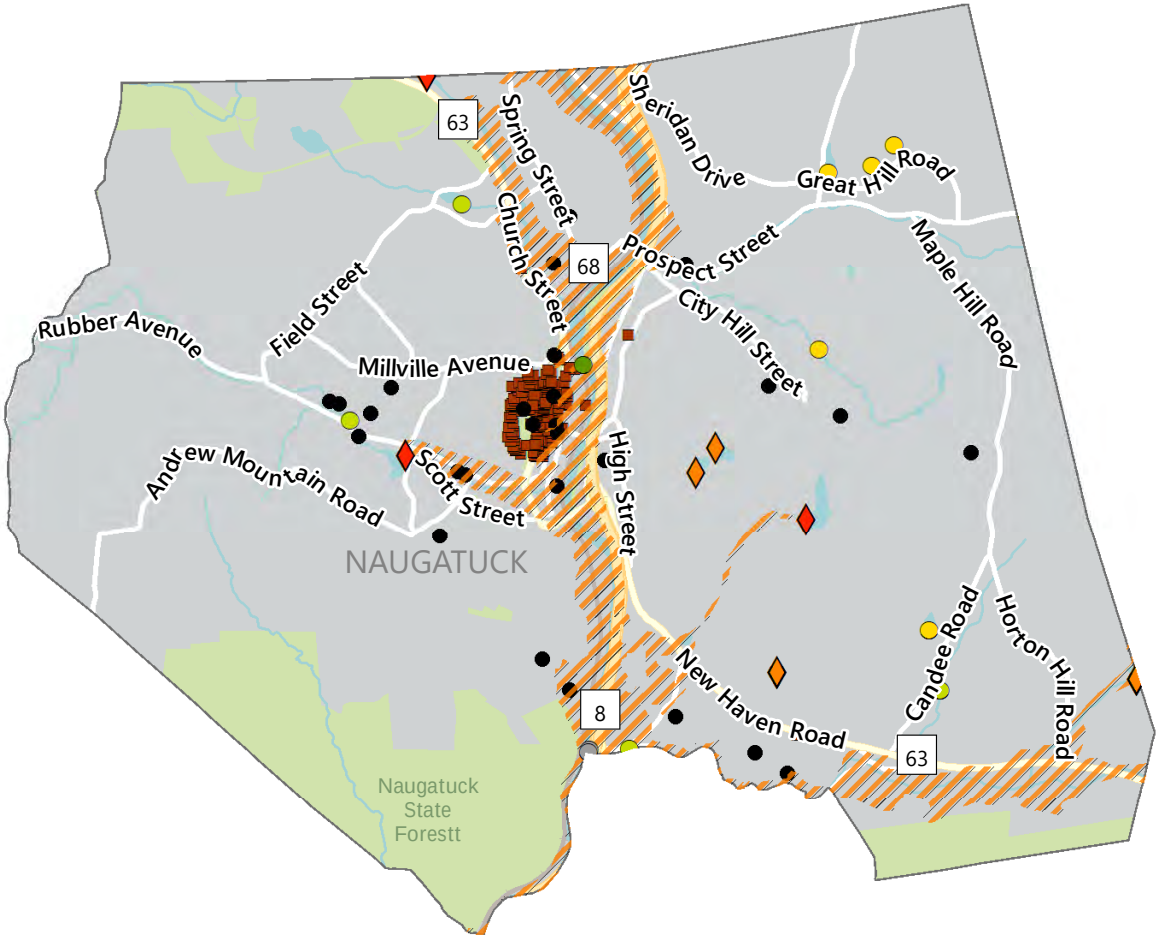
Should this Class B dam fail, the initial impact area would be the condominium development along Horton Road. It is anticipated that the peak outflow of 6,200 cfs would raise the water elevation downstream between one foot and six feet, with a maximum of three to four feet of flooding expected within the condominiums. It is expected that the condominiums would flood within minutes and hit maximum flood level in ten to fifteen minutes. Flooding in this area would be exacerbated if the failure of Moody Reservoir Dam (a Class B dam located upstream in Prospect) triggered the failure of Straitsville Reservoir Dam. In this scenario, the dam failure inundation area would be similar to the inundation area for Moody Reservoir Dam.

Other Dams

There are other dams within and around Naugatuck that could impact on the residents or infrastructure of the Borough if they failed.

- Ridge Lower Pond Dam: This Class BB dam impounds a retention pond located at the end of Warren Avenue below the Ridge Development. Borough officials noted that repairs at this dam have been completed and the pond functioned well during recent flooding.

- Donovan Road Dam: This unregistered dam on the pond labeled as "Water Company Pond No. 1" on USGS Topographic Maps was mentioned at the data collection meeting as having the potential to cause flooding.



Dam Hazard Class

- Unclassified
- AA - Negligible Hazard
- A - Low Hazard
- BB - Moderate Hazard
- B - Significant Hazard
- C - High Hazard
- Dam Breach Inundation Area

Critical Facilities

- Critical Facilities

Historic Sites

- Historic Sites

SLR
99 REALTY DRIVE
CHESHIRE, CT 06410
203.271.1773

Dam Failure Hazards in Naugatuck

NVCOG Hazard Mitigation Plan Update
Naugatuck Valley Council of Governments
47 Leavenworth Street, 3rd Floor
Waterbury, CT 06702

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DATE 6/15/2021

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FIG. 8-1

9.0 WILDFIRES

9.1 Existing Capabilities

Existing mitigation for wildland fire control is typically focused on the Borough of Naugatuck Fire Department (NFD) training and maintaining an adequate supply of equipment. The Borough of Naugatuck Zoning Regulations and Subdivision Regulations require that the Fire Marshal review all plans for subdivisions and commercial developments to ensure that the requirements for fire safety are met. The Fire Marshal's Office is also responsible for the enforcement of the State of Connecticut Life Safety Code, investigation of fire safety complaints, fire investigation and fire prevention programs.

Unlike wildfires on the west coast of the United States where the fires are allowed to burn toward development and then stopped, the NFD 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 Connecticut Water Company's water service to fight fires in the central part of Borough. In the remainder of the Borough, the NFD relies on the use of local water bodies and its tanker trucks to supply fire fighting water, and water cisterns installed in more recent outlying subdivisions.

The NFD is often a first responder for fires that happen in the Naugatuck State Forest, and coordinates with the Beacon Falls, Oxford, and Bethany Fire Departments to control these forest fires. The Fire Department has two fire station s in the Borough; one station is located on Maple Avenue in the downtown area, and the other is located on May Street on the east side of the Naugatuck River. The Fire Department has two Class A pump trucks, a 105-foot rear mount ladder truck with a fire pump, and a rescue truck. The NFD is equipped for structure fires, confined space entry, trench rescue, motor vehicle rescue, basic hazardous materials response, and surface water/ice rescue. The NFD also has two spare Class A pump trucks, and the Borough also has mutual aid agreements with all of its neighbors.

Regulations regarding fire protection are outlined in the *Subdivision Regulations*:

- **The Borough of Naugatuck Subdivision Regulations** outline the following:
    - Driveways to interior lots shall be designed and constructed to accommodate fire apparatus and other emergency equipment.
    - Applicants shall provide sufficient information to establish that an adequate water supply is available to serve the domestic and fire protection needs of the proposed subdivision.
    - Where public water is not required, a private well may be permitted for each lot. Adequate water supply for fire protection shall be established in accordance with Borough standards.

Other capabilities for reducing wildfire risk include:

- Encouraging property owners to widen access roads such that fire trucks and other emergency vehicles can access remote locations.
- Continuing intermunicipal cooperation in firefighting efforts.
- Providing outreach programs on how to properly manage burning and campfires on private property.

- Patrolling Borough-owned open space and parks to prevent unauthorized campfires.
- Enforcing regulations and permits for open burning.

The Connecticut DEEP Open Burning Program requires designated "Open Burning Officials" in every community to oversee open burning within the town. The Borough of Naugatuck is compliant with this program and has a designated Burning Official.

Actions Completed and New Capabilities

Naugatuck continues to maintain its capabilities for mitigating and responding to wildfire risks.

Summary

The Borough mitigates wildfire hazards by implementing the state's Open Burning Program locally, installing dry hydrants and firefighting-water sources in remote areas, and training its fire department to fight wildfires.

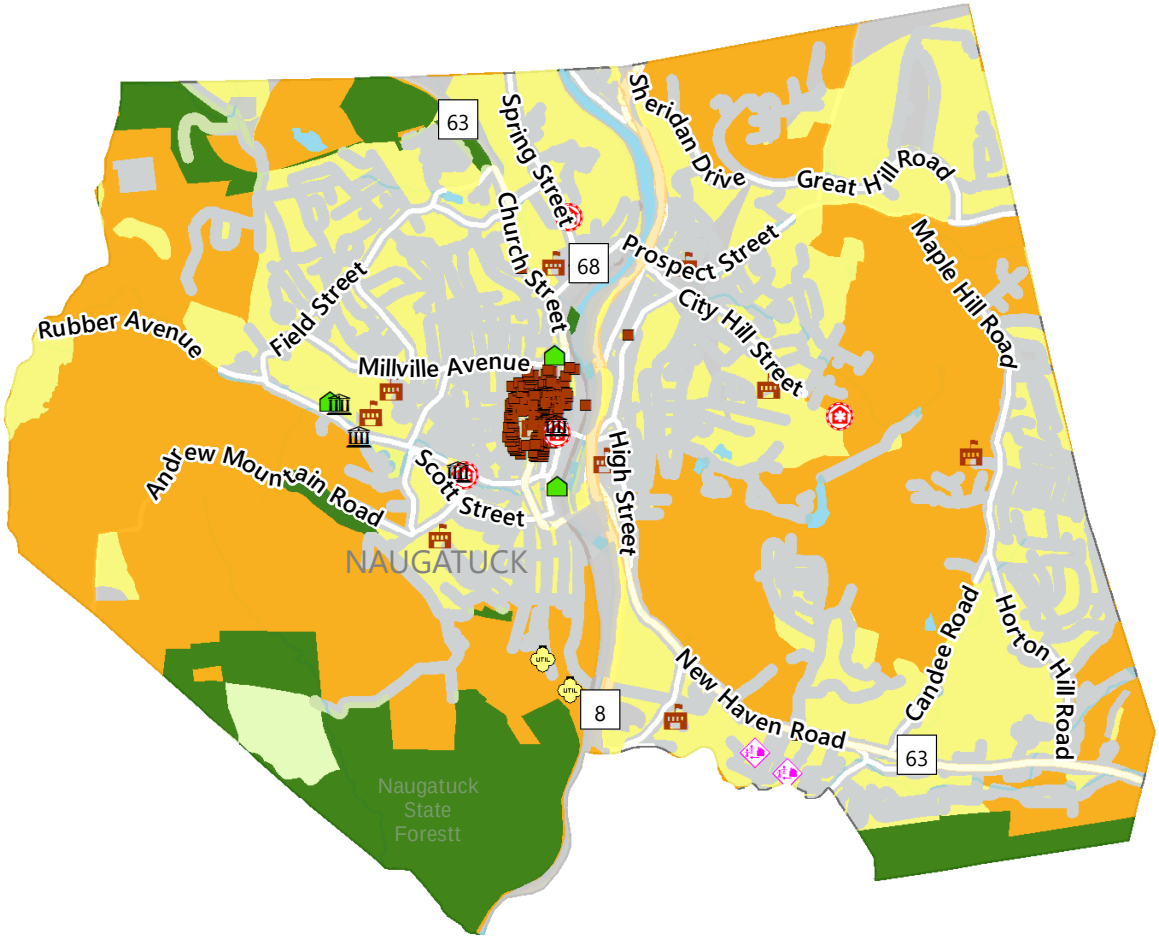
9.2 Vulnerabilities and Risk Assessment

The approximately 6,071 acres of forests and undeveloped land in Naugatuck may be susceptible to drought conditions that make them more vulnerable to wildfires. The approximately 387 acres of agricultural fields and maintained grasses may be vulnerable to direct damage from drought conditions. Wildfire risk zones are mapped in Figure 9-1.

Up to 14% of the land area of Naugatuck is publicly protected open space with an additional 15% being privately held open space, and fires have occurred in wildlands throughout the Borough. Specifically, personnel from the Borough of Naugatuck noted that fires have occurred in the Huntington Hill section of the Naugatuck State Forest in Naugatuck. Such fires are usually caused by arson or from campfires that spread out of control. Fires that start in Naugatuck in this area are sometimes allowed to burn due to the topography, and the fires can spread to other parts of the forest near the urban/wildland interface or south into Beacon Falls. The Borough typically has a few wildfires per year that average five to ten acres in size.

There are several streets in the Borough which are inaccessible to fire trucks due to either steep grades or the narrowness of the road. These include Aetna Place, Bosco Drive, Highland Circle, Hughes Street, Joseph Road, Mitchell Street and Theresa Street.

The NFD has expressed concerns regarding response times to developments in the northwest and southeast portions of the Borough. Additionally, the water pressure in some areas, particularly around the perimeter of the Borough, has been identified as a problem. These areas exhibit low-pressure situations which may inhibit the department's ability to deal with fires.



Critical Facilities

- Community Center
- Emergency Response
- Government Services
- School
- Utility
- Vulnerable Population

Historic Sites

- Historic Sites

Wildland Urban Interface Type

- Wildland-Urban Intermix
- Wildland-Urban Interface
- Vegetated: Low Housing Density
- Vegetated: No Housing
- Non-vegetated
- Water

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CHESHIRE, CT 06410
203.271.1773

Wildfire Hazard in Naugatuck

NVCOG Hazard Mitigation Plan Update

Naugatuck Valley Council of Governments

47 Leavenworth Street, 3rd Floor

Waterbury, CT 06702

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Feet

DATE 6/15/2021

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PROJ. NO.

FIG. 9-1

10.0 MITIGATION STRATEGIES AND ACTIONS

10.1 Goals and Objectives

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

10.2 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.

Strategy	Description	Responsible Party	Status	Notes
NTK-1	Add pages to the Borough website dedicated to citizen education and preparation for natural hazard events	EMS	Complete	Complete: http://www.naugatuck-ct.gov/content/113/123/125/355/default.aspx
NTK-2	Upgrade at least one secondary shelter to a primary shelter, and attempt to have the resources to shelter 10% of population	EMS	Carry Forward	Action not yet completed due to limited funding.
NTK-3	Include Condominium Associations into emergency management planning	PZ, EMS	Carry Forward	Action not yet completed due to limited municipal capacities.
NTK-4	Streamline the permitting process and develop a checklist to ensure maximum education of developer or applicant	PZ	Complete	This is standard practice; floodplain management is in land use office.
NTK-5	Consider joining FEMA's Community Rating System	Mayor	Drop	The Borough likely does not have an interest in CRS at this point.

Strategy	Description	Responsible Party	Status	Notes
NTK-6	Obtain an HMGP grant to conduct drainage improvements along Nettleton Avenue and Cherry Street	PW	Carry Forward with Revision	Nettleton Ave is partially completed, but other sections are desired.
NTK-7	Provide technical assistance regarding floodproofing measures to interested residents. Pursue funding for home elevations should any residents become interested.	PW	Capability	This is done as needed. The Borough has not supported home elevations in the past, but none have been requested by property owners.
NTK-8	Encourage property owners to purchase flood insurance under the NFIP and to report claims when flooding damage occurs.	PW	Drop	The Borough does not have sufficient reasons to conduct this.
NTK-9	Develop a plan to conduct routine catch basin maintenance.	PW	Complete	This is done.
NTK-10	Pursue the acquisition of additional municipal open space properties inside SFHAs and set those aside as greenways, parks, etc.	Mayor	Carry Forward	None in the last five years.
NTK-11	Consider a Borough-wide analysis to identify undersized and failing portions of drainage systems, and prioritize repairs as needed	PW	Carry Forward with Revision	This is done as needed, and a Borough-wide analysis is not necessary. The Borough is evaluating the Meadow Street/Church Street area now. Projects are coming out of the CIP and/or using in-house resources.
NTK-12	Pursue flood mitigation options along unnamed stream in Spencer Street corridor	PW	Drop	No progress. This is yard flooding only; first floors are not affected.
NTK-13	Upgrade the drainage systems in downtown areas to enhance drainage	PW	Capability	Nothing major has been needed recently. The Borough re-lined a pipe in last few years. As needs arise, they are addressed.

Strategy	Description	Responsible Party	Status	Notes
NTK-14	Increase maintenance of drainage systems on Arch Street near Long Meadow Pond Brook	PW	Complete	This is ongoing. The Borough's departments are meeting this fall to finalize list of maintenance items, working with the GIS team.
NTK-15	If necessary, increase conveyance of Crown Spring Bridge over Hop Brook at Bridge Street	PW	Drop	Hop Brook flows under Rt 68 here, so this is a DOT problem.
NTK-16	Review critical facilities and ensure that each one has adequate standby power. For those facilities that do not, consider acquiring standby power supplies.	EMS	Complete	A fixed-in place generator may be warranted for the PW garage. The Borough might also want to expand the capacity of the high school generator, so more can be done with the facility during an outage.
NTK-17	Continue to provide information on the dangers of cold-related hazards to people and property.	EMS	Capability	Capability
NTK-18	Consider posting the snow plowing routes in Town buildings each winter to increase public awareness.	EMS	Drop	They have the routes internally but do not publish them.
NTK-19	The Building Department should provide literature regarding appropriate design standards for mitigating icing, insulating pipes, and retrofits for flat-roofed buildings such as heating coils.	BD	Capability	The department has handouts.
NTK-20	Evaluate critical facilities to determine if any interior systems should be braced.	PW	Drop	No current concerns.
NTK-21	Obtain EOPs/EAPs when they are completed	PW	Complete	Engineering has copies of these.

Strategy	Description	Responsible Party	Status	Notes
NTK-22	Keep abreast of changes in the requirements for Class A, AA, and unranked dams; and compile information for these dams as it becomes available	PW	Complete	Changes to requirements have not occurred since 2014.
NTK-23	Continue to have CTWC extend/upgrade the public water supply systems into areas requiring water for fire protection	Fire & EMS	Capability	The Borough is proceeding with an expansion of the water system on Crestwood Drive to address quantity and quality problems.
NTK-24	Revise and enhance the town's website concerning the local regulatory requirements concerning open burning.	Fire & EMS	Complete	http://www.naugatuck-ct.gov/filestorage/15604/Open_Burning.pdf
NTK-25	Explore other fire protection solutions when water main extensions are not feasible, such as the use of cisterns, fire ponds and dry hydrants.	Fire & EMS	Complete	These are required in new subdivisions.

10.3 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.

10.4 Mitigation Strategies and Actions Implementation Table

The Borough 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 NTK-01	
Take one of the following actions that will mitigate natural hazard risks while also meeting Sustainable CT objectives: 1. Disseminate a toolkit for pre-disaster business preparedness. 2. Revise regulations to promote Low Impact Development. 3. Include the goals of this Hazard Mitigation Plan, and at least three other sustainability concepts, in your next POCD update.	
Lead	Plan
Cost	$0 - $25,000
Funding	OB, CT DEEP, Sustainable CT
Timeframe	2022
Priority	High

Action NTK-02	
Fully incorporate the provisions of the DEEP model flood regulations into the local flood damage prevention regulations (or ordinance), including but not limited to the required design flood elevations for the first floor, building electrical systems, and building mechanical systems.	
Lead	Plan, FS, NFIP Coordinator
Cost	$0 - $25,000
Funding	OB, FEMA Grant, CT DEEP
Timeframe	2022
Priority	Med

Action NTK-03	
Increase Substantial Damage and Substantial Improvement lookback periods to two or more years.	
Lead	Plan, FS, NFIP Coordinator
Cost	$0 - $25,000
Funding	OB, FEMA Grant, CT DEEP
Timeframe	2022
Priority	Med

Action NTK-04	
Remain engaged with CIRCA's Resilient Connecticut project and utilize vulnerability mapping tools to help with local planning and project development.	
Lead	Plan
Cost	$0 - $25,000
Funding	OB, CT DEEP, Resilient CT
Timeframe	2022
Priority	Med

Action NTK-05	
Remain engaged with FEMA and the State during the Housatonic River Watershed flood map updates. Review draft maps and provide comments to FEMA.	
Lead	Plan, FS, NFIP Coordinator
Cost	$0 - $25,000
Funding	OB, FEMA Grant, CT DEEP
Timeframe	2022
Priority	Med

Action NTK-06	
Work with CIRCA to develop potential risk reduction pilot projects in the identified "adaptation/resilience opportunity areas" near and in locations of transit-oriented development (TOD).	
Lead	Plan
Cost	$0 - $25,000
Funding	OB, CT DEEP, Resilient CT
Timeframe	2022
Priority	Med

Action NTK-07	
Coordinate with CT SHPO to conduct outreach to owners of historic properties to educate them on methods of retrofitting historic properties to be more hazard-resilient while maintaining historic character.	
Lead	Plan, HC/HDC
Cost	$0 - $25,000
Funding	OB, CT SHPO
Timeframe	2022
Priority	Low

Action NTK-08	
Use the CT Toxics Users and Climate Resilience Map to identify toxic users located in hazard zones within your community. Contact those users to inform them about the CT DEEP small business chemical management initiative.	
Lead	EM, FS
Cost	$0 - $25,000
Funding	CT DEEP
Timeframe	2022
Priority	Low

Action NTK-09	
Include Condominium Associations into emergency management planning	
Lead	PZ, EMS
Cost	$0 - $25,000
Funding	OB
Timeframe	2022 – 2023
Priority	Low

Action NTK-10	
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 support the preparation of resiliency plans across the state.	
Lead	Plan, HC/HDC
Cost	$0 - $25,000
Funding	OB, CT SHPO
Timeframe	2022 – 2023
Priority	Low

Action NTK-11	
Evaluate drainage systems in the Meadow Street and Church Street area to identify needed repairs and upgrades.	
Lead	PW
Cost	$25,000 - $50,000
Funding	OB, CIP, FEMA Grant, CT DEEP
Timeframe	2022 – 2024
Priority	Med

Action NTK-12	
Upgrade at least one secondary shelter to a primary shelter, and attempt to have the resources to shelter 10% of population	
Lead	EMS
Cost	$100,000 - $500,000
Funding	CIP, FEMA Grant, CT DEMHS
Timeframe	2023 – 2025
Priority	Low

Action NTK-13	
Pursue the acquisition of additional municipal open space properties inside SFHAs and set those aside as greenways, parks, etc.	
Lead	Mayor
Cost	$100,000 - $500,000
Funding	OB, FEMA Grant, CT DEEP
Timeframe	2023 – 2025
Priority	Low

Action NTK-14	
Obtain an HMGP grant to conduct drainage improvements on Nettleton Road, Cherry Street, Highland Avenue, and Meadow/Church.	
Lead	PW
Cost	More than $500,000
Funding	OB, CIP, FEMA Grant, CT DEEP
Timeframe	2023 – 2025
Priority	Med

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	
NTK-01	Take one of the following actions that will mitigate natural hazard risks while also meeting Sustainable CT objectives: 1. Disseminate a toolkit for pre-disaster business preparedness. 2. Revise regulations to promote Low Impact Development. 3. Include the goals of this Hazard Mitigation Plan, and at least three other sustainability concepts, in your next POCD update.	Sustainable CT	Plan	$0 - $25,000	OB, CT DEEP, Sustainable CT	2022	1	1	1	1	1	1	1	0	0	0	0	0	0	0	9
NTK-02	Fully incorporate the provisions of the DEEP model flood regulations into the local flood damage prevention regulations (or ordinance), including but not limited to the required design flood elevations for the first floor, building electrical systems, and building mechanical systems.	Flood Regulations	Plan, FS, NFIP Coordinator	$0 - $25,000	OB, FEMA Grant, CT DEEP	2022	1	1	1	0	1	0	1	0	0	0	-1	0	0	0	5
NTK-03	Increase Substantial Damage and Substantial Improvement lookback periods to two or more years.	Flood Regulations	Plan, FS, NFIP Coordinator	$0 - $25,000	OB, FEMA Grant, CT DEEP	2022	1	1	1	0	1	0	1	0	0	0	-1	0	0	0	5
NTK-04	Remain engaged with CIRCA's Resilient Connecticut project and utilize vulnerability mapping tools to help with local planning and project development.	Resilient CT	Plan	$0 - $25,000	OB, CT DEEP, Resilient CT	2022	0	1	1	1	1	1	0	0	0	0	0	0	0	0	7
NTK-05	Remain engaged with FEMA and the State during the Housatonic River Watershed flood map updates. Review draft maps and provide comments to FEMA.	Flood Map Updates	Plan, FS, NFIP Coordinator	$0 - $25,000	OB, FEMA Grant, CT DEEP	2022	1	1	1	0	1	0	1	0	0	0	-1	0	0	0	5
NTK-06	Work with CIRCA to develop potential risk reduction pilot projects in the identified "adaptation/resilience opportunity areas" near and in locations of transit-oriented development (TOD).	Resilient CT	Plan	$0 - $25,000	OB, CT DEEP, Resilient CT	2022	0	1	1	1	1	1	0	0	0	0	0	0	0	0	7
NTK-07	Evaluate drainage systems in the Meadow Street and Church Street area to identify needed repairs and upgrades.	Drainage	PW	$25,000 - $50,000	OB, CIP, FEMA Grant, CT DEEP	2022 – 2024	0	1	0	1	1	1	0.5	0	0	0	0	0	0	0	6.5
NTK-08	Obtain an HMGP grant to conduct drainage improvements on Nettleton Road, Cherry Street, Highland Avenue, and Meadow/Church.	Drainage	PW	More than $500,000	OB, CIP, FEMA Grant, CT DEEP	2023 – 2025	0	1	0	1	1	1	0.5	0	0	0	0	0	0	0	6.5
NTK-09	Coordinate with CT SHPO to conduct outreach to owners of historic properties to educate them on methods of retrofitting historic properties to be more hazard-resilient while maintaining historic character.	Historic & Cultural Resources	Plan, HC/HDC	$0 - $25,000	OB, CT SHPO	2022	1	0	1	1	0	1	0	0	0	0	0	0	0	0	5
NTK-10	Use the CT Toxics Users and Climate Resilience Map to identify toxic users located in hazard zones within your community. Contact those users to inform them about the CT DEEP small business chemical management initiative.	Small Business Chemicals	EM, FS	$0 - $25,000	CT DEEP	2022	1	0	1	0	1	1	1	0	0	0	0	0	0	0	6
NTK-11	Upgrade at least one secondary shelter to a primary shelter, and attempt to have the resources to shelter 10% of population	Sheltering Capabilities	EMS	$100,000 - $500,000	CIP, FEMA Grant, CT DEMHS	2023 – 2025	1	1	1	0	1	1	0	0	0	0	0	0	0	0	7
NTK-12	Pursue the acquisition of additional municipal open space properties inside SFHAs and set those aside as greenways, parks, etc.	Acquisition & Open Space	Mayor	$100,000 - $500,000	OB, FEMA Grant, CT DEEP	2023 – 2025	1	1	0	0	1	1	1	0	0	0	-1	0	0	0	6
NTK-13	Include Condominium Associations into emergency management planning	Public Education & Engagement	PZ, EMS	$0 - $25,000	OB	2022 – 2023	1	0.5	0	1	1	1	0	0	0	-1	0	0	0	0	5.5
NTK-14	Coordinate with CT SHPO to conduct historic resource surveys, focusing on areas within natural hazard risk zones (flood zones, wildfire hazard zones, steep slopes) to support the preparation of resiliency plans across the state.	Historic & Cultural Resources	Plan, HC/HDC	$0 - $25,000	OB, CT SHPO	2022 – 2023	1	0	1	1	0	1	0	0	0	0	0	0	0	0	5

APPENDIX B

RECORD OF MUNICIPAL ADOPTION

BOROUGH OF NAUGATUCK

Nancy K. DiMeo, Borough Clerk

229 CHURCH STREET
NAUGATUCK, CT 06770
PHONE: 203-720-7008
FAX: 203-720-7099
ndimeo@naugatuck-ct.gov

I, Nancy K. DiMeo, Borough Clerk of the Borough of Naugatuck, do hereby certify that the following is a true and correct copy of a resolution adopted by the Naugatuck Board of Mayor and Burgesses at its duly called and held meeting on November 3, 2021, at which a quorum was present and acting throughout, and that the resolution has not been modified, rescinded, or revoked and is at present in full force and effect:

WHEREAS, the Borough of Naugatuck has historically experienced severe damage from natural hazards and it continues to be vulnerable to the effects of those natural hazards profiled in the plan (e.g. *flooding, high wind, thunderstorms, winter storms, earthquakes, droughts, dam failure, and wildfires)*, resulting in loss of property and life, economic hardship, and threats to public health and safety; and

WHEREAS, the Naugatuck Board of Mayor and Burgesses approved the previous version of the Plan in 2015; and

WHEREAS, the Borough of Naugatuck and the Naugatuck Valley Council of Governments developed and received conditional approval from the Federal Emergency Management Agency (FEMA) for the Hazard Mitigation Plan Update, 2021-2026 under the requirements of 44 CFR 201.6; and

WHEREAS, public and committee meetings were held and public input was sought in 2020 and 2021 regarding the development and review of the Hazard Mitigation Plan Update, 2021-2026; and

WHEREAS, the Plan specifically addresses hazard mitigation strategies and Plan maintenance procedure for Naugatuck; and

WHEREAS, the Plan recommends several hazard mitigation actions/projects that will provide mitigation for specific natural hazards that impact Naugatuck, with the effect of protecting people and property from loss associated with those hazards; and

WHEREAS, adoption of this Plan will make Naugatuck eligible for funding to alleviate the impacts of future hazards; now therefore be it

RESOLVED by the Board of Mayor and Burgesses:

1. The Plan is hereby adopted as an official plan of the Borough of Naugatuck.

2. The respective officials identified in the mitigation strategy of the Plan are hereby directed to pursue implementation of the recommended actions assigned to them.

3. Future revisions and Plan maintenance required by 44 CFR 201.6 and FEMA are hereby adopted as a part of this resolution for a period of five (5) years from the date of this resolution.

4. An annual report on the progress of the implementation elements of the Plan shall be presented to the Board of Mayor and Burgesses.

ROLL CALL VOTE:

FOR		**OPPOSE**	**ABSTAIN**
Mayor N.W. Hess	J. Mizeski	None	None
R. Neth	G. Mudry		
M. Bronko	D. Neth-Kunin		
F. Dambowsky	M. Smith		
C. Marenghi	R. Vitale		

Motion carried 10-0-0

IN WITNESS WHEREOF: The undersigned has executed this certificate on this 9th day of November 2021.

Nancy K. DiMeo, Borough Clerk

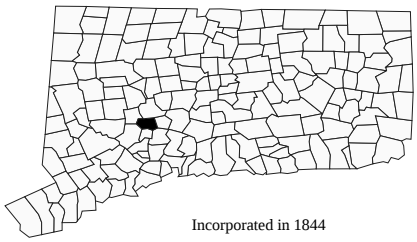
Nancy K. DiMeo, Borough Clerk

APPENDIX C

CERC Borough Profile 2019

Naugatuck, Connecticut

CERC Town Profile 2019 *Produced by Connecticut Data Collaborative*



Town Hall
229 Church Street
Naugatuck, CT 06770
(203) 720-7007

Belongs To
New Haven County
LMA Waterbury
Naugatuck Valley Planning Area

Demographics

Population

	Town	County	State
2000	30,989	824,008	3,405,565
2010	31,862	862,477	3,574,097
2013-2017	31,649	862,127	3,594,478
2020	32,210	898,514	3,604,591
'17 - '20 Growth / Yr	0.6%	1.3%	0.1%

	Town	County	State
Land Area (sq. miles)	16	605	4,842
Pop./Sq. Mile (2013-2017)	1,940	1,426	742
Median Age (2013-2017)	39	40	41
Households (2013-2017)	11,765	327,402	1,361,755
Med. HH Inc. (2013-2017)	$63,452	$64,872	$73,781

	Town	State
Veterans (2013-2017)	1,726	180,111

Race/Ethnicity (2013-2017)

	Town	County	State
White Non-Hisp	23,481	553,000	2,446,049
Black Non-Hisp	2,125	105,661	350,820
Asian Non-Hisp	946	33,678	154,910
Native American Non-Hisp	17	783	5,201
Other/Multi-Race Non-Hisp	1,357	20,448	84,917
Hispanic or Latino	3,723	148,446	551,916

	Town	County	State
Poverty Rate (2013-2017)	10.0%	12.1%	10.1%

Educational Attainment (2013-2017)

	Town		State	
High School Graduate	7,155	33%	673,582	27%
Associates Degree	2,089	10%	188,481	8%
Bachelors or Higher	6,016	28%	953,199	38%

Age Distribution (2013-2017)

	0-4		5-14		15-24		25-44		45-64		65+		Total	
Town	2,419	8%	3,538	11%	3,862	12%	8,485	27%	8,628	27%	4,717	15%	31,649	100%
County	45,072	5%	100,549	12%	120,727	14%	216,208	25%	240,037	28%	139,534	16%	862,127	100%
State	186,188	5%	432,367	12%	495,626	14%	872,640	24%	1,031,900	29%	575,757	16%	3,594,478	100%

Economics

Business Profile (2018)

Sector	Units	Employment
Total - All Industries	568	6,959
23 - Construction	52	340
31-33 - Manufacturing	47	1,098
44-45 - Retail Trade	57	1,058
62 - Health Care and Social Assistance	54	1,355
72 - Accommodation and Food Services	53	521
Total Government	16	919

Top Five Grand List (2018)

	Amount
Yankee Gas Services Co	$1,174,123
Connecticut Light & Power Co	$1,118,375
Connecticut Water Company	$641,599
Garden Homes Naugatuck	$445,557
Wal-Mart Real Estate	$413,092
Net Grand List (SFY 2016-2017)	$1,598,980,201

Major Employers (2018)

Borough of Naugatuck
Wal-Mart
Beacon Brook Health Center
ION Bank
Glendale Center

Education

2018-2019 School Year

	Grades	Enrollment
Naugatuck School District	PK-12	4320

Pre-K Enrollment (PSIS)

	2018-2019
Naugatuck School District	161

4-Year Cohort Graduation Rate (2017-2018)

	All	Female	Male
Connecticut	88.3%	91.8%	85.1%
Naugatuck School District	86.1%	90.4%	81.9%

Smarter Balanced Test Percent Above Goal (2017-2018)

	Grade 3		Grade 4		Grade 8	
	Town	State	Town	State	Town	State
Math	65.0%	53.8%	54.7%	51.3%	40.1%	43.0%
ELA	55.0%	53.1%	53.8%	54.9%	50.3%	56.1%

Rate of Chronic Absenteeism (2017-2018)

	All
Connecticut	10.7%
Naugatuck School District	12.8%

Public vs Private Enrollment (2013-2017)

	Town	County	State
Public	88.8%	88.2%	86.8%
Private	11.2%	11.8%	13.2%

Naugatuck, Connecticut

CERC Town Profile 2019

Connecticut Economic Resource Center

Government

Government Form: Mayor - Council

Total Revenue (2017)	$125,496,449
Tax Revenue	$76,511,539
Non-tax Revenue	$48,984,910
Intergovernmental	$43,233,350
Per Capita Tax (2017)	$2,382
As % of State Average	81.2%

Total Expenditures (2017)	$123,907,284
Education	$70,427,642
Other	$53,479,642
Total Indebtedness (2017)	$102,794,581
As % of Expenditures	83.0%
Per Capita	$3,267
As % of State Average	130.0%

Annual Debt Service (2017)	$11,673,065
As % of Expenditures	9.4%
Eq. Net Grand List (2017)	$2,309,625,442
Per Capita	$73,412
As % of State Average	48.6%
Moody's Bond Rating (2017)	Aa3
Actual Mill Rate (2017)	47.67
Equalized Mill Rate (2017)	32.45
% of Net Grand List Com/Ind (2017)	12.0%

Housing/Real Estate

Housing Stock (2013-2017)

	Town	County	State
Total Units	12,777	365,546	1,507,711
% Single Unit (2013-2017)	58.0%	53.6%	59.2%
New Permits Auth (2017)	0	750	4,547
As % Existing Units	0.0%	0.2%	0.3%
Demolitions (2017)	2	202	1,403
Home Sales (2017)	85	4,763	21,880
Median Price	$179,900	$244,400	$270,100
Built Pre-1950 share	28.0%	33.2%	29.3%
Owner Occupied Dwellings	7,815	204,037	906,798
As % Total Dwellings	66.4%	62.3%	66.6%
Subsidized Housing (2018)	1,113	46,013	167,879

Distribution of House Sales (2017)

	Town	County	State
Less than $100,000	12	106	536
$100,000-$199,999	49	1,232	5,237
$200,000-$299,999	21	1,785	6,681
$300,000-$399,999	3	888	3,863
$400,000 or More	0	752	5,563

Rental (2013-2017)

	Town	County	State
Median Rent	$1,006	$1,100	$1,123
Cost-burdened Renters	54.0%	54.5%	52.3%

Labor Force

	Town	County	State
Residents Employed	16,632	438,576	1,827,070
Residents Unemployed	815	20,171	78,242
Unemployment Rate	4.7%	4.4%	4.1%
Self-Employed Rate	6.5%	8.5%	10.0%
Total Employers	568	24,958	122,067
Total Employed	6,959	366,848	1,673,867

Connecticut Commuters (2015)

Commuters Into Town From:		Town Residents Commuting To:	
Naugatuck, CT	1,805	Waterbury, CT	1,853
Waterbury, CT	1,477	Naugatuck, CT	1,805
Watertown, CT	290	New Haven, CT	676
Prospect, CT	195	Shelton, CT	562
Wolcott, CT	152	Stratford, CT	540
Meriden, CT	137	Hartford, CT	499
Torrington, CT	134	Danbury, CT	456

Quality of Life

Crime Rates (per 100,000 residents) (2017)

	Town	State
Property	1,383	1,777
Violent	113	228

Disengaged Youth (2013-2017)

	Town	State
Female	0.0%	4.2%
Male	5.6%	5.6%

	Town
Library circulation per capita	2.04

Distance to Major Cities

	Miles
Hartford	27
New York City	73
Providence	88
Boston	120
Montreal	281

Residential Utilities

Electric Provider
Eversource Energy
(800) 286-2000

Gas Provider
Eversource Energy
(800) 989-0900

Water Provider
Connecticut Water Company
(800) 286-5700

Cable Provider
Comcast Seymour
(800) 266-2278