

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

Municipal Annex for Town of Darien

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1.0 INTRODUCTION

1.1 Purpose of Annex

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

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

2.0 COMMUNITY PROFILE

2.1 Geography

2.1.1 Physical Setting

Incorporated in 1820, the Town of Darien is located in Southern Fairfield County and is home to a population of 20,732 (2010 U.S. Census). Darien is bordered by the municipalities of Stamford to the west, Norwalk to the east, and New Canaan to the north, and its southern border is the coastline along Long Island Sound. Refer to Figure 2-1 for a map showing the regional location of Darien.

Darien is a coastal community with several rivers and streams flowing throughout. The Town is characterized by residentially developed, lower elevations adjacent to the shoreline just south, with suburban development sprawling northward away from the urban areas. Interstate 95 bisects the town, running east to west; most commercial development in town is centralized along this corridor. The Noroton River flows south along the town's western border, emptying into the Sound via Holly Pond. The Five Mile River also flows into the Sound along the southern half of the town's eastern border. There are several other streams in town, including the Goodwives River and Stony Brook. The highest elevation in Darien is about 270 feet in the central northern areas of town, with the southern coastline of Darien being at or close to sea level. The varying terrain of Darien makes the town vulnerable to an array of natural hazards.

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

Table 2-1: Land Cover by Area

Land Cover Class	Percent of Total Land
Developed	23%
Forest	10%
Agriculture	0%
Developed Open Space	65%

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

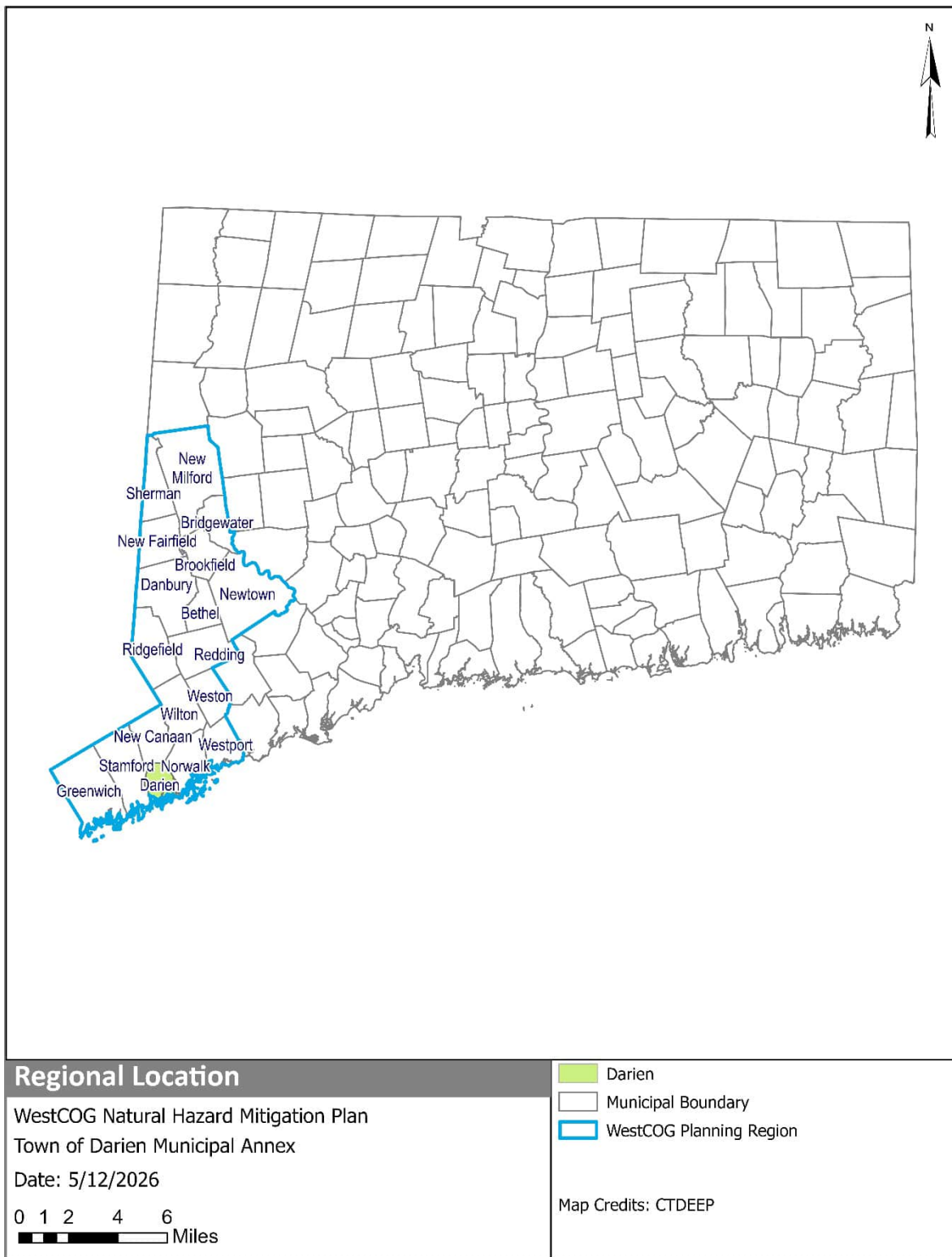


Figure 2-1: Location Map

2.1.2 Land Use

Darien is a small town with some commercial activity along the interstate corridor and suburban development throughout the majority of the town. Higher density residential development is primarily located in the western areas of town both north of 95 and south in the Noroton neighborhood, as well as along the northwestern border. Commercial activity is primarily concentrated along the Interstate 95 corridor. South of 95 in the Tokeneke area is a 1-acre residential development, with larger 2-acre lot zoning in the most northern areas of Darien.

According to the town's 2026 Plan of Conservation and Development (POCD) (draft as of July 15, 2026), the Darien Assessor records identified over 65% of Darien's total land area to be residential development. Historically, low to moderate density single-family residential uses have been situated throughout the northern and southern areas in town, with higher density one family and multi-family zoning in closer proximity to the commercialized areas along Interstate 95. Table 2-2 summarizes land use data identified in the POCD.

Table 2-2: Land Use by Area (2026 POCD)

Use	Percent of Total Land
Single-Family Residential	65%
Private Open Space	7%
Public Open Space	4%
Vacant	3%
Community Facilities	3%
Preserved Open Space (DLT)	2%
Commercial	2%
Institutional	2%
Transportation and Parking	2%
Multifamily	2%
Mixed-use	1%
2-4 Unit Residential	0.2%
Utility	0.2%

Source: Darien draft 2026 POCD

2.1.3 Climate and Climate Change

Current Conditions

Over the course of the year, the temperature in Darien typically varies from 23°F to 83°F and is rarely below 9°F or above 90°F. The warm season lasts from June 2 to September 16, with an average daily high temperature above 74°F. The hottest month of the year is July, with an average high of 82°F and a low of 67°F. The cold season lasts from December 4 to March 13, with an average daily high temperature below 46°F. The coldest month of the year is January, with an average low of 24°F and high of 37°F.

Precipitation falls throughout the year in Darien. The wetter season lasts from April 1 to December 11, with a greater than 29% chance of a given day being a wet day. The chance of a wet day peaks at 35% on May 30. The smallest chance of a wet day is 22% on January 28.

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

The snowy period of the year lasts from November 20 to April 6, with a sliding 31-day liquid-equivalent snowfall of at least 1.0 inches. The most snow falls during February, with an average snowfall of 7.3 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, updated in 2025, 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 CO₂ emission scenario (RCP8.5).

Temperature

Annual temperatures have been increasing throughout Connecticut and are projected to continue to do so in the future. By mid-century, the average annual temperature is projected to increase by 5°F. Seasonal average temperatures are also expected to rise, with the greatest increase (6°F) experienced in summer (June to August). The number of nights over which the 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 per year to 48 per year.

Precipitation

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

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

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

The NOAA Atlas 14, released on September 30, 2015, puts the 24-hour rainfall amount for a 50% annual-chance annual storm in Darien at 3.46 inches.

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

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

Source	24-Hour Rainfall Amount (inches) by Annual-Chance Occurrence		
	50%	4%	1%
Technical Paper No. 40	3.3	5.7	7.2
NRCC	3.45	6.38	8.95
NOAA Atlas 14	3.54	6.55	8.33

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, Darien can expect the 24-hour rainfall amount for a 50% annual-chance storm to be around 3.7 to 3.8 inches or greater.

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

Sea Level Rise

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

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

2.1.4 Drainage Basins and Hydrology

Darien is divided among four sub-regional watersheds as shown in Table 2-4. All four basins flow directly into Long Island Sound. All of the water that passes through Darien ultimately empties into the Sound.

Table 2-4: Sub-Regional Drainage Basins

Drainage Basin	Overall Sub-regional Area (sq. mi)	Area within Town (sq. mi)	Area within Town (acres)	Percent of Town
Darien River	6.21	5.52	3,532.88	43.46%
Noroton River	11.03	2.72	1,737.65	21.42%
Southwest Shoreline	41.41	3.60	2,307.68	28.35%
Five Mile River	12.49	0.86	551.00	6.77%
Total	n/a	12.7	8,129.21	100%

Source: Connecticut Department of Energy & Environmental Protection GIS Data

Darien is entirely encompassed within the Southwest Coast drainage basin, which drains directly into Long Island Sound. Of the four subregional drainage basins and their respective streams, the Five Mile River is the largest basin, and the Darien basin is the smallest.

The Noroton River is approximately 10 miles long and originates in New Canaan. The river flows into the Sound through Holly Pond.

2.2 Society, Culture, and Government

2.2.1 Population and Demographic Setting

According to the 2020 U.S. Census, Darien had a population of 21,499 with 1,654 persons per square mile. The Connecticut State Department of Public Health estimates Darien's 2026 population at 21,936. The American Community Survey (ACS) projects a decline in population, with estimates showing a population of only 16,376 for the year 2030.

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

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

The Town of Darien is considered to have very low social vulnerability (Figure 2-3).

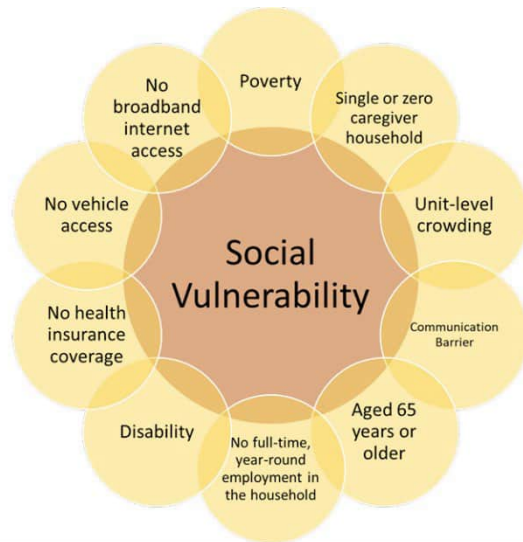


Figure 2-2 Community Resilience Estimates Vulnerability Components (Source: US Census Bureau)

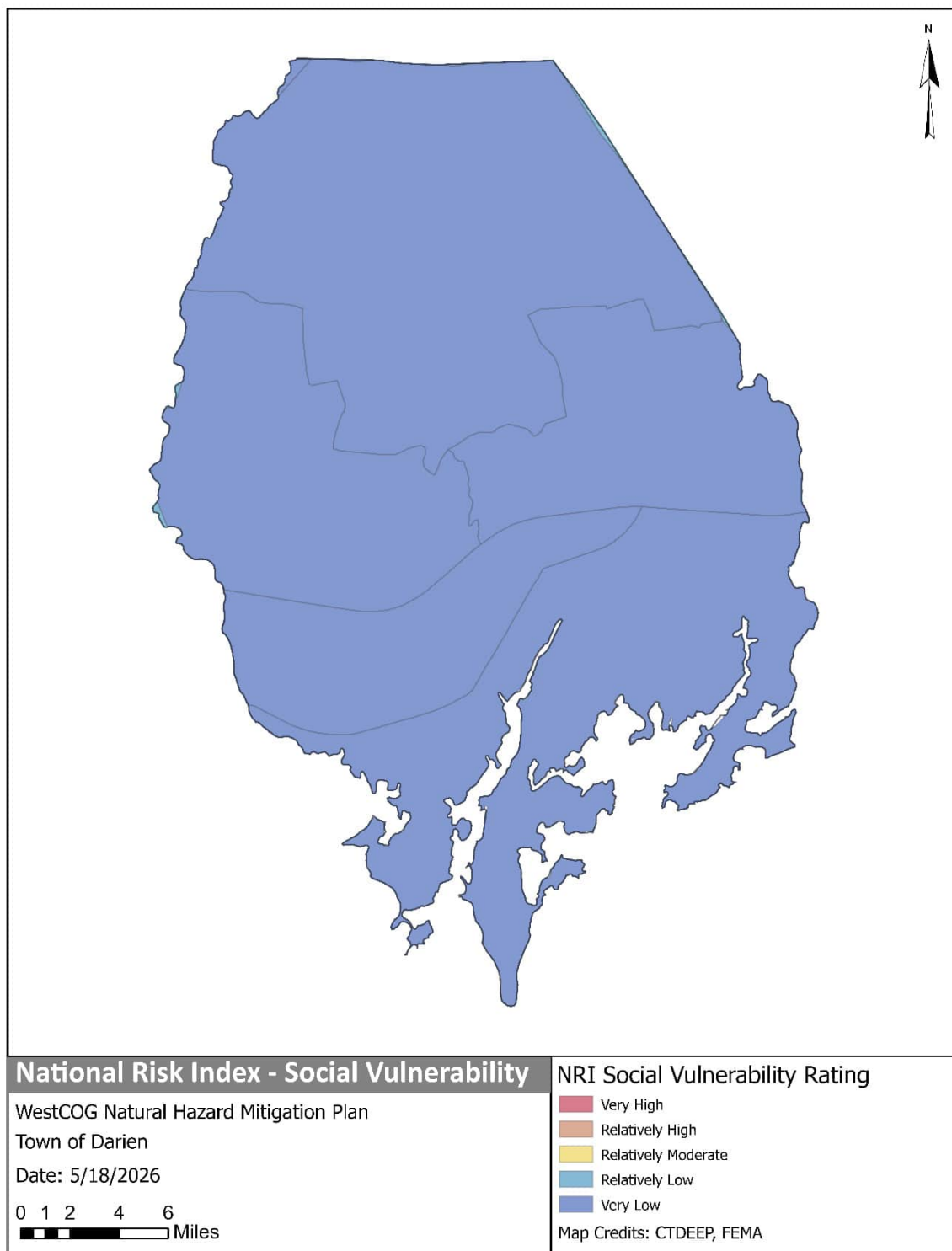


Figure 2-3 FEMA National Risk Index Social Vulnerability

2.2.2 Development Trends

While the neighboring City of Stamford rapidly settled in the early 18th century, farmers and settlers began expanding into the now region of Darien. Seeking less developed areas, the population of the town slowly grew and maintained a rural character.

The advancement of transportation, such as the railway and automobile, slowly contributed to an increasing population, including many New York residents who built vacation homes along the coast. Overall, the town maintained a rural characteristic into the 19th century, as more suburbanized communities began to appear outside of the built-up corridor along the railway and interstate.

Development continues at a moderate pace in Darien, focused on the western areas of the town and along the Route 95 corridor. Darien supports limited transit-oriented development in the areas around its Noroton Heights and downtown passenger rail stations. The Town recognizes some limitations in each, given the proximity to flood zones.

Recent developments include three new mixed-use developments currently underway and expected to be completed within two to four years. These new developments comply with Town regulations and include updates to the local drainage infrastructure. One such development involves the former Pear Tree Point School property, which is being converted into multiple lots for single-family homes. Parts of this property are located in close proximity to 1% annual-chance flood zones, but no structures will be built within a flood zone. This is typical of all new developments in Darien. They are either located in areas with the lowest risk or developed in a way that reduces risk. Overall, community vulnerabilities are not increasing.

Within the past five years, development has been a combination of residential and commercial projects; however, there has been no major project that stands out, and nothing major has occurred in high hazard risk areas in Darien. Additionally, the Town has recently undertaken significant work to update development regulations to limit and mitigate hazard impacts.

2.2.3 Governmental Structure

The Town of Darien has an elected Board of Selectmen, including the Chief Elected Official, the First Selectman, and four other board members. In addition to the Board of Selectmen, there are several boards, commissions, and committees that provide input and direction to town administrators. Town departments provide municipal services and day-to-day administration. Several commissions and committees play a role in hazard mitigation, including Planning and Zoning, Environmental Protection, Advisory Commission on Coastal Waters, and the Advisory Committee on Sustainability. Town departments such as Public Works, Emergency Management, and the Fire Department also play a role.

2.2.4 Historic and Cultural Resources

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

Historic preservation planning helps protect historic properties and cultural resources from demolition or alteration.

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

Historic resources in Darien are concentrated within the Boston Post Road Historic District and the Tokeneke neighborhood, but can also be found throughout the town. The district has 30 contributing resources, including the First Congregational Church, the old town hall building, a row of 12 nineteenth-

century houses, and the Bates-Scofield House. Darien historic resources also include the Stephen Tying Mather House, the Meadowlands, the Pond-Weed House, and other sites around Town. See Figure 2-4 for a map of historic resources in the community.

Analysis of the State Historic Preservation Office (SHPO) database of historic resources shows that some of these resources are exposed to natural hazards, as shown in Table 2-5.

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

Hazard	Count	Value
Dam Failure	3	\$1,639,120
Earthquake	561	\$1,134,176,820
Flooding	-	
1% Annual	160	\$470,369,200
0.2% Annual	173	\$471,406,530
VE Zone	41	\$224,331,590
Storm Surge		
Category 1	84	\$336,314,580
Category 2	110	\$399,606,970
Category 3	133	\$463,772,330
Category 4	137	\$471,544,010
Hurricane/Tropical Storm	561	\$1,134,176,820
Thunderstorm	561	\$1,134,176,820
Tornado	561	\$1,134,176,820
Winter Storm	561	\$1,134,176,820
Wildfire		
Intermix	9	\$29,868,650
Interface	0	

There are several historic resources in close proximity to the Goodwives River and another unnamed stream, putting these sites at an increased risk of flooding during an event. These, and other resources throughout town, may also be at risk of damages from wind or heavy snow depending on the age and ability of the structure to withstand severe weather.

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

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

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

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

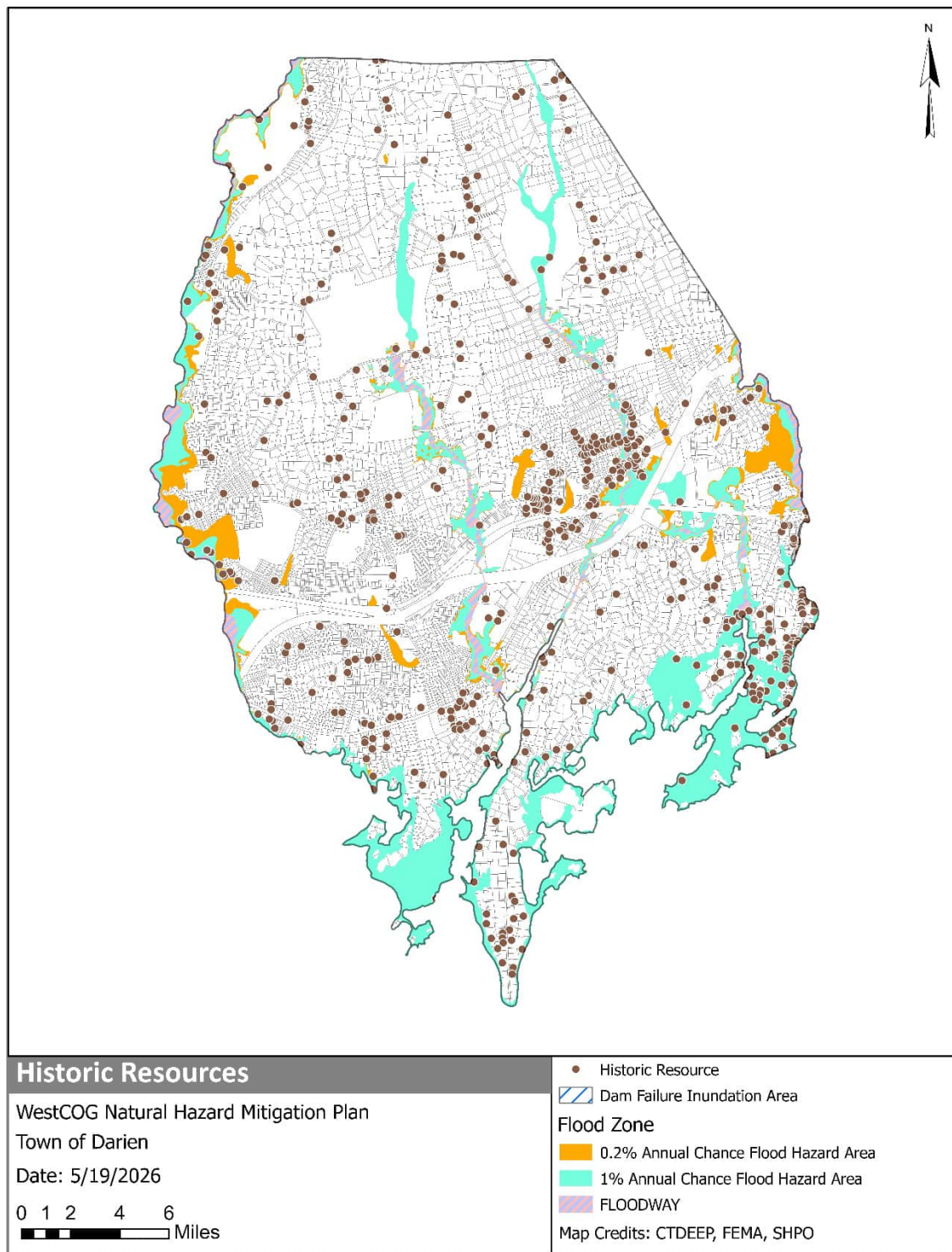


Figure 2-4: Historic Resources

2.3 Infrastructure

2.3.1 Transportation

Major transportation routes in Darien include Interstate 95 and Route 1. Both routes bisect the town, running from the southwest to the northeast to the Norwalk border. Route 124 runs from the northern border south, terminating at Route 1; Route 136 also terminates at a similar location on Route 1, but runs north from the Norwalk border. The terminus of these roads is adjacent to a major intersection of Route 1, Interstate 95, and the Metro-North railway, with the Darien train station in proximity.

In addition, the Metro North/Amtrak rail lines also run through the town relatively parallel to Interstate 95. There are two stations in town. The Darien station is located in downtown Darien, and the Noroton Heights station is located farther west in the southern part of the Noroton Heights neighborhood. The CTtransit bus system is also active in the town with several stops throughout the community.

2.3.2 Utilities

Aquarion Water Company owns and operates one public water system in Darien; this is the utility's largest main system. This system provides water for the majority of the town; there are no other public water systems in the town. There are properties in the northern areas of town that rely on a private well for drinking water due to the lack of service mains identified in these areas.

Residents and businesses use oil, propane, or natural gas for heat. Natural gas is available in town via distribution lines from Eversource. Eversource is also the electric provider for Town. The Darien Public Works Department maintains the sewer systems in town along with an active Sewer Commission.

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

2.4 Planning and Regulatory Capabilities

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

2.4.1 Review of Existing Local Plans

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

- **Plan of Conservation and Development (POCD):** Darien's most recent POCD was adopted in 2016; however, the 2026 POCD is currently being updated, with a draft available as of the development of this HMP. The 2026 draft addresses natural hazard concerns within the community, including a climate change risk, adaptation, and resilience chapter, and includes strategies that will mitigate risks from those hazards as the community continues to develop.

- **Stormwater Management:** Darien maintains a Stormwater Management Plan. This plan complies with the requirements of the US EPA 2017 updated General Permit for the Discharge of Stormwater from Small Municipal Separate Storm Sewer Systems (MS4 General Permit).
- **Capital Improvement Plan (CIP):** Darien maintains a CIP that is updated annually and lays out capital investments for a five-year period. The CIP often includes road, drainage, and other infrastructure improvement projects relevant to hazard mitigation.
- **Economic Development Plan:** Darien is included within the Western Connecticut Comprehensive Economic Development Strategy (CEDS) of 2023, developed by WestCOG. The plan aligns with the COG's other efforts to promote climate sustainability and resiliency in the region.
- **Emergency Operations Plan (EOP):** Darien's EOP is reviewed annually and updated as needed.
- **Watershed Management Plan:** A Watershed Management Plan has been developed for the Five Mile River Watershed. The Five Mile River Watershed Based Plan was developed for the South Western Regional Planning Agency (SWRPA) by AKRF, Inc. in 2012. This plan focuses on water quality but can also help the community mitigate inland flood risks by incorporating watershed management best practices into its planning.
- **Open Space:** Darien incorporates Open Space planning into the community's POCD. Additionally, the Town developed the Darien Parks & Recreation Master Plan in January 2018; this document highlights the public-health benefits of open space, summarizes existing open space assets, and calls for continued acquisition of open space areas.

2.4.2 Review of Regulatory Structures

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

- **Building Code:** Darien enforces the Connecticut State Building Code locally.
- **Zoning Regulations:** Most recently updated in May 2026.
- **Inland Wetlands and Watercourses Regulations:** Most recently updated in April 2016, with an inland wetlands and watercourse map updated in April 2024.
- **Subdivision Regulations:** Most recently updated in June 2009. Include provisions promoting control of stormwater runoff, installation of firefighting water sources, construction of sufficient access and egress for emergency response, and burial of utilities.

2.5 Emergency Services, Critical Facilities, Sheltering, and Evacuation

The Town considers its police, fire, and governmental facilities critical, as they are needed to ensure emergencies are addressed while day-to-day management of Darien continues. Table 2-6 identifies these critical facilities.

Table 2-6: Critical Facilities

Facility	Address or Location	Type	Emergency Power	Shelter	In 1% Floodplain
Town Hall	2 Renshaw Rd	Municipal	✓✓	✓	**
Darien High School	80 High School Ln	School / Shelter	✓	✓	**
Middlesex Middle School	204 Hollow Tree Ridge	School / Shelter	✓	✓	

Facility	Address or Location	Type	Emergency Power	Shelter	In 1% Floodplain
Tokeneke Elementary School	7 Old Farm Rd	School / Shelter	✓	✓	***
Mather Community Center/Senior Center	2 Renshaw Rd	Community Center	✓	✓	
Darien Emergency Medical Service	0 Ledge Rd	Emergency Response			
Paramedics Station	701 Boston Post Road	Emergency Response			
Darien Police Department	25 Hecker Ave	Police/EOC			
Darien Volunteer Fire Department	848 Post Rd	Emergency Response			***
Noroton Fire Department	1873 Post Rd	Emergency Response			
Noroton Heights Fire Department	209 Noroton Ave	Emergency Response			
Darien DPW	126 Ledge Rd	Public Works			
Hindley Elementary School	10 Nearwater Ln	School			
Holmes Elementary School	18 Hoyt St	School			
Ox Ridge Elementary School	395 Mansfield Ave	School			
Royle Elementary School	133 Mansfield Ave	School			
Atria of Darien	50 Ledge Rd	Care Facility			
Maplewood Of Darien	599 Post Rd	Care Facility			
The Residence at Sellecks Woods	1 Parklands Drive	Care Facility			

*** These facilities are located partially within, or within close proximity to, 1% annual-chance flood zones*

**** Located within 0.2% annual-chance flood zones*

There are several shelters for residents throughout the town, including schools and the community center. The Town has identified the Library as a cooling and warming center.

Critical facilities are mapped in Figure 2-5.

Emergency Response

The town's Emergency Operations Center (EOC), is located in the Police Department. Darien is located in the Connecticut Department of Emergency Services and Public Protection (DESPP) Region 1, consisting of 14 municipalities in southwestern Connecticut.

The town has an active tree maintenance program, which includes a pruning list to track progress and need throughout the town.

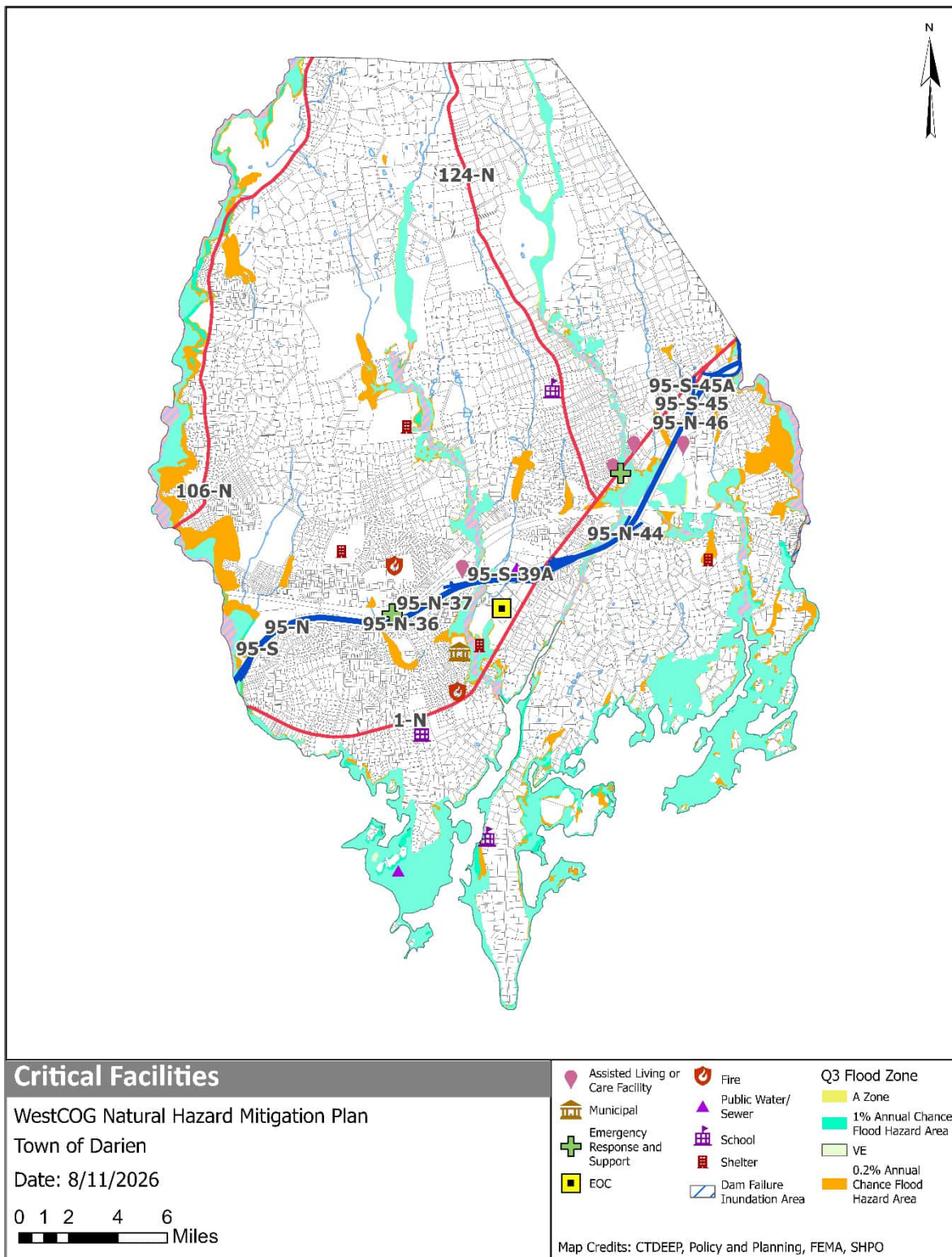


Figure 2-5: Critical Facilities & Flood Zones

Emergency Communication Capabilities

The Town of Darien utilizes the CodeRED notification system to alert residents of emergency situations. This system allows the town to alert residents to emergencies via emergency notification telephone calls. Various media outlets are also used to relay information to the public. These resources are identified in Table 2-7.

Table 2-7: Public Media Outlets in Darien

Outlet	Media Type
WNLK-1350	AM Radio
WSTC-1400	AM Radio
WEFX-95.9	FM Radio
WKHL 96.7	FM Radio
WTNH Channel 8	Television
WFSB Channel 3	Television
News 12	Cable TV
Darien Channel 79	Cable TV
211 Infoline	Phone Hotline
NOAA NWS Weather Alert Radio	Radio

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

Changes to Emergency Services since the Previous HMP

The Town held a basic sheltering operations class in summer 2025 to further educate volunteer shelter staff.

3.0 HAZARD ASSESSMENT

3.1 FLOODING (COASTAL, INLAND, AND ICE JAMS)

3.1.1 Setting

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

A regulatory floodplain with AE designation has been mapped along the Noroton River, Stony Brook, Goodwives River, Tokeneke Brook, and the Five Mile River. There are also regulatory floodplain areas with a VE or an AE designation along the Long Island Sound shoreline. The Areas identified as providing flood storage are identified with A Zone designations, meaning they are regulated as floodplain, but flood elevations have not been established. Floodplain and floodway designations have also been established along the rivers with AE designations. Refer to Figure 2-5 for the areas of Darien susceptible to flooding based on FEMA flood zones.

In general, potential flooding problems in Darien are concentrated along multiple rivers and the coastline and are the most impactful hazard, according to Town officials. Town officials have noted that nuisance flooding has become an increasing concern, especially along Pear Tree Beach. Other areas at risk of coastal flooding include Holly Pond, Contentment Island Road, and sections of Tokeneke.

Coastal flood events, especially storm surge from hurricanes and tropical storms, can cause some of the most severe damage and high economic impacts on the town and residential properties.

3.1.2 Capabilities

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

Floodplain Management, NFIP, and CRS

The Town has consistently participated in the NFIP since January 2, 1981, and intends to continue participation in the NFIP. SFHAs in Darien are delineated on a Flood Insurance Rate Map (FIRM) and Flood Insurance Study (FIS). The FIS and FIRMs for the town were most recently revised in 2013.

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

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

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

The town does not participate in the FEMA Community Rating System (CRS) program.

Ordinances, Regulations, and Plans

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

- **Zoning Regulations:**
 - Section 820: Flood Damage protection
 - Section 825(d)(6) & (7): New and substantially improved residential and nonresidential buildings require 1 foot of freeboard.
 - Section 825(f)(7): There shall be no alteration of sand dunes that would increase potential flood damage.
- **Inland Wetland and Watercourse Regulations:**
 - "Significant Impact": any activity, including, but not limited to, the following activities which have a major effect: any activity which substantially diminishes the natural capacity of an inland wetland or watercourse to: support aquatic, plant, or animal life and habitats; prevent flooding; supply water; assimilate water; facilitate drainage; provide recreation or open space; or perform other functions.
- **Subdivision Regulations:**
 - Generally, requires that land of a certain geophysical nature that may aggravate or create a flood hazard cannot be used unless appropriate measures are taken.
 - In areas contiguous to brooks, rivers, or other bodies of water subject to flooding, including tidal areas, proper provision shall be made for flood protection, including effects on neighboring properties and downstream areas, or properties.
 - Reiterates 1 foot of freeboard for new and substantially improved residential construction.

Drainage and Street Flooding

The Town Department of Public Works (DPW) is in charge of the maintenance of the town's drainage systems and performs clearing of bridges and culverts, and other maintenance as needed.

Flooding associated with poor drainage frequently occurs in various areas of town. The intersection of Route 1 and Hecker Avenue often experiences flooding related problems, as well as Leroy Avenue and Raymond Street at railroad underpasses. Certain stretches of Route 1 flood often enough that businesses are pursuing mitigation strategies to prevent future disruptions and future damages.

The town tracks flooding complaints as they are filed with planning and zoning, public works, and the First Selectman's office.

Warning and Alerts

The town receives regular weather updates through the Division of Emergency Management and Homeland Security (DEMHS) Region 1 email alerts as well as watches and warnings through the National Weather Service. A tidal gauge in Bridgeport helps town officials watch for flooding conditions and respond accordingly.

Public Information

Darien hosts links to all of the most recent FIRMs for the community on its website. Additionally, the Town maintains an interactive online flood mapper that allows members of the public and decision-makers to explore a detailed digital FIRM for the entire Town. The online mapper includes information about the NFIP and map updates, as well as links to Darien Flood Damage Prevention Regulations and the Connecticut Institute for Resilience & Climate Adaptation (CIRCA) sea level rise projections.

Actions Completed and New Capabilities

The town is currently addressing infrastructural needs and upgrades in certain flood prone areas, especially in regard to coastal infrastructure at risk of inundation. The town is also continuously exploring ways to preserve open space to minimize the risk of flooding. The Town recently completed a project at the Weed Beach pumping station, which protects the main power source from flooding, and is currently working on plans to execute site improvements, including elevating the building/generator. The Town is also working with CIRCA on designing a project to reduce the number of times and the length of flood time on Leroy Avenue. The Town has also been working closely with CT DEEP to elevate the parking at Pear Tree Beach.

3.1.3 Vulnerabilities and Risk Assessment

Repetitive Loss Properties

There are 55 repetitive loss properties (RLPs) located in the Town of Darien; 45 are residential, and 10 are commercial. There are 30 properties located along the shoreline that are likely repetitive due to coastal flooding, 7 along Stony Brook, 2 properties along the Goodwives River, 7 along the Noroton River, and the remaining properties are not located in a FEMA designated flood zone.

Table 3-1: Repetitive Loss Properties

Count	Flooding Source	Mapped Floodplain
30	Coastal Flooding	1% Annual Chance
7	Stony Brook	1% Annual Chance
2	Goodwives River	1% Annual Chance
7	Noroton River	1% Annual Chance
9	Other	X: Minimal Risk of Flooding

Critical Facilities

There are no critical facilities located entirely in a FEMA flood zone; however, there are two facilities that are either partially located in a zone (the Town Hall) or in close proximity to a flood zone (the Darien High School). These are listed below. There are also two facilities located in the 0.2% annual chance flood zone: Darien Volunteer Fire Department on Boston Post Road and areas of the Tokeneke Elementary School property, but not the building itself.

The at-risk facilities include:

- Darien Town Hall
- Darien High School

Darien staff have also observed that several sewer pumping stations in Town are vulnerable to flooding. The Town is interested in pursuing floodproofing and other upgrades.

At-Risk Areas

Figure 2-5 depicts FEMA flood zones in Darien and Figure 3-1 depicts areas at risk of hurricane storm surge inundation.

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

- Neighborhood adjacent to Town Hall
- Boston Post Road and Hecker Avenue
- Leroy Avenue and Raymond Street at the train underpasses
- Various locations along Boston Post Road
- Pear Tree Beach
- Weed Beach
- Coastal flooding at Holly Pond, Contentment Island Road, and through Tokeneke

Flooding at the intersection of state and town roads results in major traffic diversions and impedes emergency response capabilities, as the reroutes for emergency vehicles are very indirect. Boston Post Road and Leroy Avenue, which lie on either side of the Darien Train Station, flood during heavy rains; Town staff observe that drainage issues appear to be related to tides. The Town has begun to permanently station barricades along these roadways for deployment because flooding has become so frequent. Boston Post Road is the Town's primary emergency route. Mitigation of flooding in this area should be a focus for the Town moving forward; such mitigation would also align with the goals of the Resilient CT initiative, which supports the creation of resilient corridors centered around transportation hubs, such as train stations.

Two areas of flooding concern include the location of a new mixed-use development and a residential neighborhood adjacent to the town hall. It is anticipated that the drainage upgrades associated with the mixed-use projects will help alleviate these concerns.

Flooding in front of the Jaguar Dealership along Boston Post Road, just south of the I-95 interchange, is also problematic. The dealership has begun to address flooding on the property by pursuing the installation of a floodwall; however, the roadway still floods.

There are sections of the Noroton River that have relatively wide floodplains in town, increasing the flood risk to development in these areas. In addition, there is also a large floodway surrounding Gorhams Pond, which is located at the confluence of Stony Brook and the Goodwives River. While other streams in town also have flood zones, these may be the higher risk areas.

Town staff have also noted a concern regarding privately owned and maintained roads; the associations responsible for these roads sometimes fail to perform the maintenance or upgrades necessary to ensure adequate drainage and flood control. This can result in blocked or washed-out roads and a need for municipal intervention to perform emergency stabilization or resident rescues.

Long Island Sound Coastline

The shoreline of Darien is primarily residential. The entire coastline, specifically the southern areas of Norton and the eastern neighborhoods of Tokeneke, is identified to have low lying, coastal stretches that may be at risk of both nuisance and storm surge flooding.

Changes and Improvements

The town has begun evaluating the best course of action to upgrade Town-owned facilities along Pear Tree Beach and Weed Beach.

A new mixed-use development is currently being constructed in an area that has experienced poor drainage flooding in the past. The town has worked closely with developers to ensure drainage designs will control this flooding concern in the future.

Town staff reports that several repetitive loss properties have been elevated, though this is not reflected on the official RLP list.

3.2 DAM FAILURE

3.2.1 Setting

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

3.2.2 Capabilities

Dam failure inundation areas are included in the CT Alert emergency notification system contact database. The Town works with dam owners to ensure compliance with the Connecticut DEEP Dam Safety Regulatory Program, which oversees dam maintenance and reporting. There are a few dams of concern in or upstream of Darien.

Actions Completed and New Capabilities

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

3.2.3 Vulnerabilities and Risk Assessment

As of March 2026, there were 46 DEEP-inventoried dams within the Town of Darien. There are no Class C high hazard dams located in the Town of Darien; there is however, a Class C dam located on Five Mile River in Norwalk along the town border. There is only one dam in town that is a Class B, significant Hazard. As shown in Table 3-1, the high hazard dams pose the greatest risk in the event of a breach

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

#	Name	Location	Class	Owner
10312	Chasmars Pond Dam	Five Mile River, Norwalk	C	Private & CT DOT
3501	Streets Pond Dam	Tokeneke Brook	B	Private

Failure of a high hazard dam can affect properties downstream of the impoundment, with potential large inundation zones traveling along each respective waterway. The Chasmars Pond Dam, as delineated by Connecticut DEEP, does not have a large inundation zone in relation to other Class C dams in the State. The failure of this dam could potentially impact residential properties along the Five Mile River and quickly disperse into the sound, as the dam is located close to the mouth of the river.

Changes and Improvements

Darien continues to be at low risk from dam failure.

3.3 HURRICANES AND TROPICAL STORMS

3.3.1 Setting

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

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

3.3.2 Capabilities

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

The Town has a tree maintenance program, with an active pruning list; tree maintenance is critical to reducing outages.

Utilities must be placed underground in new developments; this capability is considered proactive to prevent damage from wind and falling trees.

Actions Completed and New Capabilities

Several public facilities have recently been upgraded to meet or exceed wind codes.

3.3.3 Vulnerabilities and Risk Assessment

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

Most of the housing stock in town predates recent building code changes and may therefore be susceptible to roof and window damage from high winds. The primary risk associated with tropical storm winds is the downing of trees and limbs, leading to power outages and blocked roads.

No specific areas of concern regarding windstorms have been noted by town staff. The Department of Public Health has great concern over the loss of power as it directly impacts food safety, water potability/availability, and the municipal sewage system during a crisis.

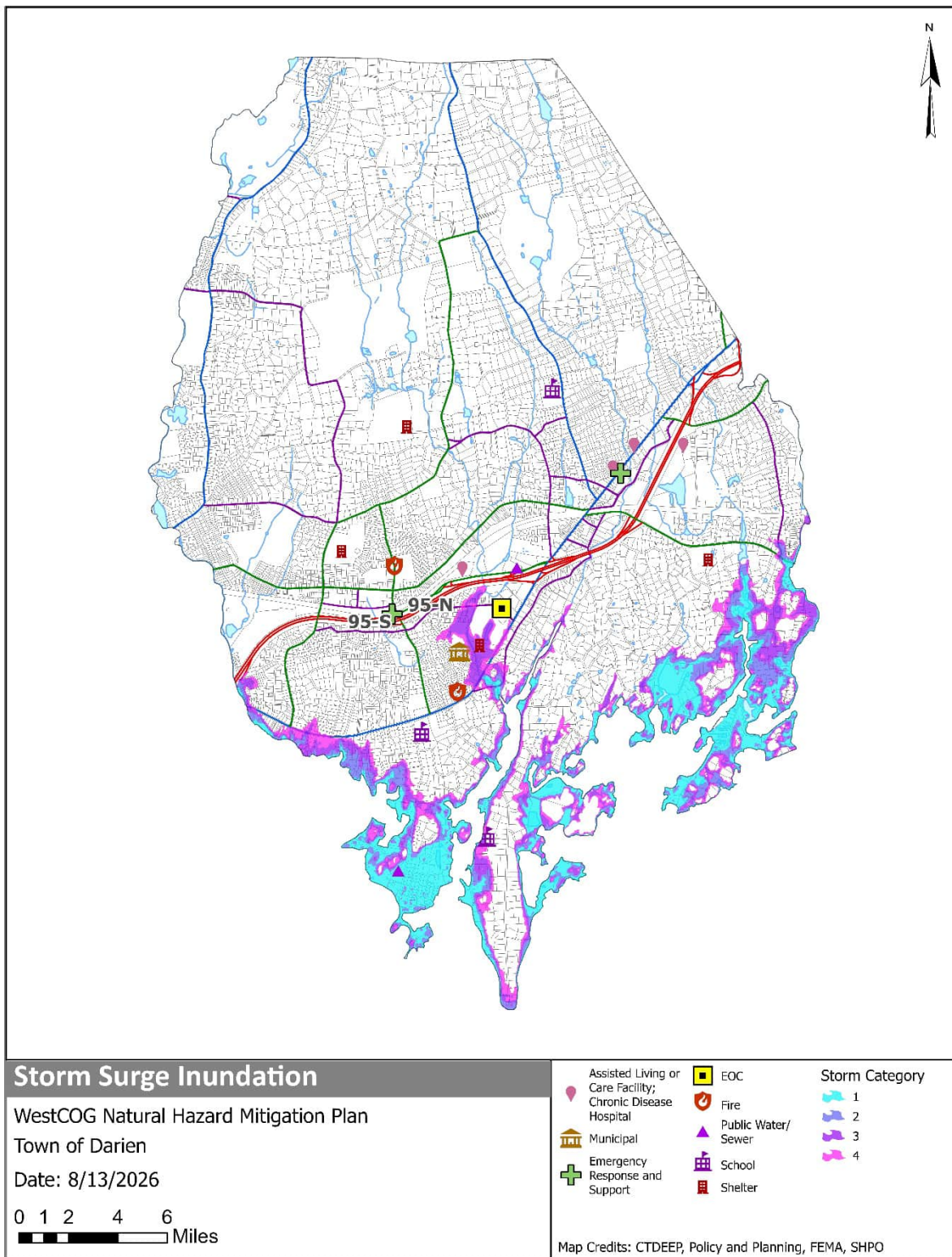


Figure 3-1: Storm Surge Inundation Areas

3.4 SUMMER STORMS AND TORNADES

3.4.1 Setting

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

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

3.4.2 Capabilities

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

Warning is the primary existing mitigation method 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. Darien's emergency communication capabilities are described in Section 2.5.

Actions Completed and New Capabilities

Darien has upgraded facilities to withstand severe windstorms. The town also continuously maintains trees throughout town to minimize downed power lines and outages.

3.4.3 Vulnerabilities and Risk Assessment

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

Darien has moderate to high potential to experience tornado damage. In addition, NOAA states that climate change could increase the frequency and intensity of tornadoes, so the pattern of occurrence in Connecticut may change in the future.

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

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

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

In May 2018, a series of intense thunderstorms, including downbursts, struck the region. This event did not impact Darien to the same extent as it impacted some nearby communities, but high winds did result in downed electrical wires and power outages.

Changes and Improvements

Darien maintains a strong tree-trimming program, reducing risks throughout town.

3.5 WINTER STORMS AND NOR'EASTERS

3.5.1 Setting

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

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

3.5.2 Capabilities

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

The town has robust road-clearing capabilities with regard to snow events. Priority is given to plowing egresses to critical facilities. CT DOT plows all State roads and Interstates. Homeowners, private associations, and businesses are responsible for plowing their own driveways and roads.

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

The town has determined that there are no specific areas that are difficult to access during winter storm events.

Actions Completed and New Capabilities

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

3.5.3 Vulnerabilities and Risk Assessment

The entire Town of Darien is at relatively equal risk for experiencing damage from winter storms, although some areas (such as icing trouble spots and neighborhoods with a high concentration of flat roofs) are more susceptible. Since 2003, the town has received over \$350,000 in public assistance reimbursements for winter storms, proving these events can be very costly. However, many damages are relatively site specific and occur to private property (and therefore are paid for by private insurance) while repairs for power outages are often widespread and difficult to quantify for any one municipality.

Icing is often a concern for the entire community. While there is no one area of concern, the degree of impacts to certain areas is variable with each storm.

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

"flood" damage from freezing water pipes in basements. Drifting snow can occur after large storms, but its effects are generally mitigated by municipal plowing. Icing is typically a concern for the entire community, with impacts to certain areas varying with each storm.

The elderly population in Darien is particularly susceptible to the impacts created by winter storms due to resource needs (heat, electricity loss, safe access to food, etc.).

3.6 WILDFIRES AND DROUGHT

3.6.1 Setting

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

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

3.6.2 Capabilities

Regulations regarding fire protection in Darien are outlined in the town's *Code of Ordinances*:

- Section 26-31: (a) No person, within the limits of the town and without a written permit issued by the fire marshal, shall burn any leaves, brush, or other combustible material in the open air except:
 - (1) In a covered metal container constructed for such purpose;
 - (2) In a fireplace constructed of incombustible material and having a flue screen; or
 - (3) In a grill designed for cooking of foods.
- Section 26-32: When the fire marshal deems that the public safety of the town may be jeopardized by fires in the open air, he may deny any application for a fire permit for such period of time as he believes advisable, or he may limit the duration of the permit. No permit shall be issued for a period in excess of 30 days.

The town's fire department is volunteer, with three stations located throughout the community.

- Darien Volunteer Fire Department – 848 Post Road
- Noroton Volunteer Fire Department – 1873 Boston Post Road
- Noroton Heights Volunteer Fire Department – 209 Noroton Avenue

Any new development is reviewed for the availability of firefighting water. The Town requires the installation of fire protection water in new developments where municipal water service is unavailable, and sprinkler systems where access is limited for fire apparatus.

The Town implements the state Open Burning Program locally. Information on open burning is available on the Town website.

Actions Completed and New Capabilities

The Town continues to adequately mitigate wildfires.

3.6.3 Vulnerabilities and Risk Assessment

According to the Connecticut DEEP, the actual forest fire risk in Connecticut is low due to several factors. First, the overall incidence of forest fires is very low. According to the 2023 State Hazard Mitigation Plan,

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

In the drought year of 1999, the average wildfire in Connecticut burned 5 acres, compared with the two most extreme wildfires recorded since 1986, which burned 300 acres each. Given the availability of firefighting water in Darien, including the use of nearby water bodies, it is believed that this average value for a drought year and the extreme value are applicable to the town as well.

The Town experienced voluntary restrictions from the State and water company during droughts in recent years. Water availability is reportedly an emergency management concern all year because if there is no water in storage, this could present several problems. While the Town has not had this issue, there is always a persistent concern.

Wildfires are more common in rural areas than in developed areas as most fires in populated areas are quickly noticed and contained. In many areas, structures and subdivisions are built abutting forest borders, creating areas of particular vulnerability. The Wildland-Urban Interface (WUI) index is used to identify areas that may be at greater risk of wildfires based on the density of development in comparison to the amount of wildfire prone vegetation. There are a few areas in Darien that pose a risk of wildfire or brushfire; these include the areas near Woodland Park, Littlebrook Road, Dunlap Lake, and the Wee Burn Country Club.

Wildfire Risk Areas are mapped in Figure 3-2.

Changes and Improvements

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

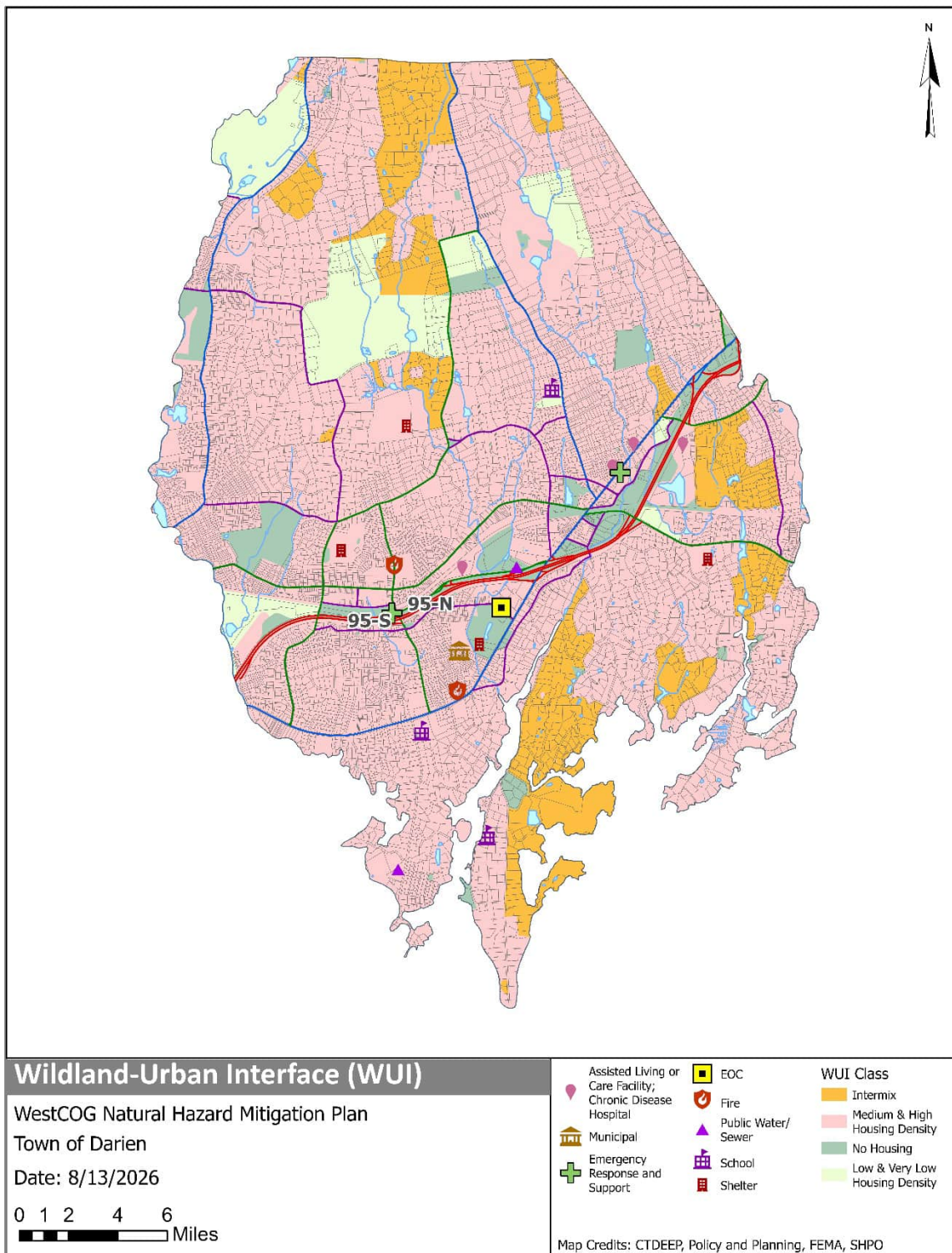


Figure 3-2: Wildfire Risk Areas

3.7 EARTHQUAKES AND LANDSLIDES

3.7.1 Setting

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

3.7.2 Capabilities

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

Subdivision Regulations:

- Land of such geophysical nature that, in its present state, cannot be used for building purposes because of danger to health, or the public safety, because of peril from fire or flood, or other conditions, such as difficult drainage, configuration, inaccessibility, temporary flooding, erosion, steep sloping topography, wetlands, swamps, large rock outcrops, or high ground-water level, shall not be planned for residential use, nor for other such uses as may increase danger to health, life or property, or aggravate or create a flood hazard, unless appropriate measures have been taken by the subdivider to correct such hazard in accordance with the specifications declared a part of these Regulations, or the specific requirements established by the Planning and Zoning Commission, pursuant to these Regulations.

Plan of Conservation and Development:

- Recommends the continued protection of natural resources such as steep slopes, sensitive habitats, and other natural diversity areas.

Zoning:

- The town has a height restriction of 30 feet, which applies to most residential and municipal buildings; this may help reduce earthquake damage risks.

Actions Completed and New Capabilities

Darien continues to have appropriate capabilities for mitigating earthquake events.

3.7.3 Vulnerabilities and Risk Assessment

Some areas in Darien, specifically along the coastline, are underlain by artificial fill. Structures in these areas are at an increased risk from earthquakes due to amplification of seismic energy and/or collapse. Most of the remaining area is underlain by glacial till and is therefore not at increased risk during an earthquake due to unstable soils.

A series of earthquake probability maps was generated using the 2009 interactive web-based mapping tools hosted by the USGS. These maps were used to determine the probability that an earthquake with a magnitude greater than 5.0 or 6.0 would damage the Town of Darien. Results are presented in Table 3-2 below.

Table 3-2: Probability of a Damaging Earthquake in the Vicinity of Darien

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

Changes and Improvements

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

3.8 **SEA LEVEL RISE AND SHORELINE CHANGE**

3.8.1 Setting

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

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

3.8.2 Capabilities

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

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

Actions Completed and New Capabilities

The town continues to upgrade infrastructure at risk of inundation, and private properties continue to elevate homes.

3.8.3 Vulnerabilities and Risk Assessment

The most at-risk areas are those immediately along the shoreline, with risk slightly declining as one moves inland. The southern areas of Noroton and eastern properties in the Tokeneke neighborhood are particularly at risk of increased nuisance flooding under future sea levels. In addition, a 100-year storm event with one foot of sea level rise has the potential to inundate many of the coastal areas, including Noroton Neck, Tokeneke Park, Hay Island, Butlers Island, and Colyer Point (at the western end of Contentment Island).

Pear Tree Beach regularly floods during high tides. This flooding has introduced a new challenge as the town continues to explore upgrades to the public facilities located on this beach.

Many of the coastal, low-lying areas that experienced flooding during Sandy have elevated homes or are in the process of elevating.

Other areas of concern for coastal flooding include Holly Pond, Contentment Island, and Tokeneke.

Flooding is also a concern for one of the primary sewer pumping stations near Weed Beach. The station was close to inundation during Sandy, and the town is concerned that with sea levels rising, inundation may occur soon, ultimately disrupting the sewer service. The Town has successfully floodproofed the main power at this station; however, additional mitigation measures are needed to better protect the station.

3.9 EXTREME HEAT

3.9.1 Setting

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

An extreme heat event or heat wave can occur anywhere throughout Connecticut and any of the WestCOG communities. According to the 2023 Connecticut State Natural Hazard Mitigation Plan, Fairfield and Litchfield counties experienced, between 2012 and 2021, the greatest and least average annual number of days with temperatures greater than 90 degrees, respectively. Fairfield County experienced an average of 5 days, while Litchfield County experienced an average of 0 days.

Extreme heat events are expected to increase. The WestCOG Regional Climate Assessment (2026) notes that “by 2050, in a high CO₂-emissions scenario (RCP 8.5), average temperatures are expected to rise by approximately 5°F and continue to increase thereafter.” The region is also likely to see an increase in heat wave days, summer days (where daily maximum temperatures are above 77 degrees), and tropical nights (where the daily minimum is below 68 degrees).

3.9.2 Capabilities

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

Actions Completed and New Capabilities

The town has identified the library as a cooling center in Darien.

3.9.3 Vulnerabilities and Risk Assessment

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

In general, the most vulnerable populations in Darien would include the young and the elderly, and those populations living in the more densely developed areas in town, which may have reduced tree coverage and a greater density of impervious surface. According to the CCVI, more heat vulnerable areas in Town are concentrated along the Route 95 and Route 124 corridors, and along the Darien and Stamford line.

Changes and Improvements

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

4.0 MITIGATION STRATEGIES AND ACTIONS

4.1 Goals and Objectives

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

4.2 Status of Mitigation Strategies and Actions from Previous HMP

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

Table 4-1 Status of Previous Mitigation Strategies

#	Description	Status	Notes
1	Provide information on the Town website about CT DEEP training and information around small business chemical management for hazard resilience.	Remove	No industry/manufacturing - not a high priority
2	Use the CT Toxics Users and Climate Resilience Map to identify toxic users located in hazard zones within your community. Contact those users to inform them about the CT DEEP small business chemical management initiative.	Remove	Circulate this link with the team will decide from there
3	Host a CT DEEP presentation for municipal staff and local businesses about business chemical management for hazard resilience.	Remove - moving to regional	Not complete - may not be applicable - will revise these if any users in town.
4	Take one of the following actions that will mitigate natural hazard risks while also meeting Sustainable CT objectives: - Disseminate a toolkit for pre-disaster business preparedness. - Revise regulations to promote Low Impact Development. - Include the goals of this Hazard Mitigation Plan, and at least three other sustainability concepts, in your next POCD update.	Carry forward	Last POCD was 2016, currently working on the next one. Consultant working on the update is aware of the HMP will be potentially integrated. Recently modified stormwater regulations
5	Mitigate flooding at the Weed Beach pumping station	Carry forward	Done some more implementation, main power source has been protected, currently working to develop plans for overall site improvements, to elevate building/generator
6	Conduct outreach and education to volunteer Emergency Shelter staff regarding emergency shelter operations, including associated protocols and best management practices.	Carry forward	No progress.
7	Collaborate with CIRCA on the "Resilient Connecticut" project; in particular, by pursuing mitigation of flooding along Boston Post Road and Leroy Avenue near the Darien Train Station, which aligns with Resilient Connecticut program goals.	Carry forward with revisions	Don't believe any progress has been made to date. Areas under train tracks are low spots Hazard for vehicles. Bridge has been redone This issue affects multiple coastal towns, transportation becomes prohibited due to significant flooding at underpasses. Town believes this is a regional issue (Fairfield county?) Potentially a FEMA application that spans multiple towns?

#	Description	Status	Notes
8	Coordinate with CT SHPO to conduct outreach to owners of historic properties to educate them on methods of retrofitting historic properties to be more hazard-resilient while maintaining historic character.	Remove	No progress – make regional
9	Work with CT DEEP to elevate the parking lot at Pear Tree Beach to help mitigate flooding in this area.	Complete	Drainage improvements completed in lieu of elevating parking lot.
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 identify historic resources at risk and support the preparation of resiliency plans across the state.	Remove - regional?	Not started - not high priority
11	Develop a town-wide natural hazard outreach and education program to be implemented over the next five years to inform residents and business of natural hazard risks, mitigation measures, and preparedness techniques.	Carry forward with revisions	The State had a regional outreach effort conducted this past spring in Darien, Jon prepared a video about what to do during a disaster - i.e., if power goes out, flooding - a good tool to have on hand for future events. Disseminated through public TV. Town has some information on the website - a substantial amount of information and educational materials. Revise - maybe something promoted annually, say beginning of hurricane season.
12	Compare local floodplain regulations with Revised State Model Flood Regulations to identify any remaining opportunities for improvement	Remove	Get specifics back to the town - post CAFM update for communities?
13	Contact the owners of Repetitive Loss Properties and nearby properties at risk to inquire about mitigation undertaken and suggest options for mitigating flooding in those areas. This should be accomplished with a letter directly mailed to each property owner.	Remove - regional?	Following 2021/2022 - had two floods, contacted owners of the properties, worked with Dewberry for HMGP to elevate/acquire Dewberry met with applicants.
14	Work with CT DEEP to validate and/or correct the RL list and update the mitigation status of each listed property.	Remove to regional perhaps	Data from FEMA is challenging. Tried to do this at the municipal level but not easy. Old, not good data. Many homes have been remodeled, elevated, some owners have done this on their own.
15	Annually conduct an emergency operations exercise for a local terrorism, sabotage, or mass casualty event.	Remove	State emergency exercise every year, and the town participates.
16	Identify specific bridges and culverts known to be having adverse impacts on drainage, flooding, navigation, safety, and environmental quality. Upgrade identified bridges and culverts.	Carry forward	Hecker Ave, no movement at all - Salt Box Lane is being engineered, design about 90% complete, submitting permits to DEEP now, Tilly Pond about 50% design complete
17	Work with CTDOT to conduct an engineering study to assess the flood impacts and appropriate mitigation measures along Route 1 at the Metro-North rail overpass.	Carry forward but may need revision.	No movement, challenging to get these conversations going.

4.3 Prioritization of Strategies and Actions

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

4.4 **Mitigation Strategies and Actions Implementation Table**

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

APPENDIX A

Appendix A: STAPLEE Matrix

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
DRN-01	Mitigate flooding at the Weed Beach pumping station	DPW	\$500,000 - \$1M	Capital Improvement Plan, FEMA HMA, CWSRF	2027-2029	High	Water & Wastewater Utility Projects	Flooding	1	0	1	0	1	0	1	0	1	0	1	1	1	0	7
DRN-02	Conduct outreach and education to volunteer Emergency Shelter staff regarding emergency shelter operations, including associated protocols and best management practices.	EM	\$0 - \$25,000	Operating Budget	2027	Med	Education & Awareness	All Hazards	1	0	1	0	1	1	1	0	0	0	0	0	0	0	4
DRN-03	Complete the flood mitigation project on Boston Post Road and Leroy Avenue to reduce number of incidents and length of flood times.	BOS	\$500,000 - \$1M	Capital Improvement Plan	2029-2031	Med	Structural Projects	Flooding	1	0	1	0	1	1	1	0	1	0	1	1	1	0	6

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
DRN-04	Develop a town-wide, annual natural hazard outreach and education program to be implemented at the beginning of hurricane season to inform residents and business of all natural hazard risks, mitigation measures, and preparedness techniques.	EM	\$0 - \$25,000	Operating Budget	Annually in 2027, 2028, 2029, 2030, and 2031	Low	Education & Awareness	All Hazards	1	0	1	0	1	1	0	0	0	0	0	0	1	0	4

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
DRN-05	Compare local floodplain regulations with Revised State Model Flood Regulations to identify opportunities for improved consistency when adopting the new FEMA maps for the Saugatuck, Southwestern CT, and Housatonic studies. Ensure that freeboard is consistent with the State Building Code.	PZC	\$0 - \$25,000	Operating Budget	2026 or when directed by the State NFIP Coordinator	High	Prevention	Flooding	1	0	1	0	1	0	1	0	1	0	1	0	1	0	9
DRN-06	Identify specific bridges and culverts known to be having adverse impacts on drainage, flooding, navigation, safety, and environmental quality. Upgrade identified bridges and culverts.	DPW	>\$1M	Capital Improvement Plan, FEMA HMA, LOTCIP	2030-2031	Low	Structural Projects	Flooding	1	0	1	0	1	1	1	0	1	0	1	1	1	0	6

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
DRN-07	Work with CTDOT to conduct an engineering study to assess the flood impacts and appropriate mitigation measures along Route 1 at the Metro-North rail overpass.	DPW	>\$1M	CT DOT, PROTECT, FEMA HMA	2029-2031	Low	Structural Projects	Flooding	1	0	1	0	1	1	1	0	1	0	1	1	1	0	6
DRN-08	As the opportunity arises, collaborate with CIRCA on the "Resilient Connecticut" project to advance further study in areas with flood and extreme heat risks.	BOS	\$0 - \$25,000	Operating Budget plus CIRCA funds from State and Federal sources	2028-2030	Low	More than one category	Multiple Hazards	1	0	1	0	1	1	1	0	0	0	1	0	1	0	7

Action #	Action Description	Responsible Entity	Cost Range	Funding Sources	Timeframe	Community Priority	Type of Action	Hazard	Social Benefit	Social Cost	Technical Benefit	Technical Cost	Admin Benefit	Admin Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environ. Benefit	Environ. Cost	STAPLEE Score
DRN-09	Continue to participate in the WestCOG program that provides outreach to repetitive loss property owners.	EM, BOS	\$0 - \$25,000	Operating Budget and COG general services budgets	Annually in 2026, 2027, 2028, 2029, and 2030	Medium	Property Protection	Flooding	1	0	1	0	1	0	1	0	0	0	1	0	1	0	8
DRN-10	Execute FEMA HMA grants to elevate and acquire properties	BOS, EMD		FEMA HMA	2027-2029	Medium	Property Protection	Flooding	0	0	1	0	1	1	1	0	1	0	1	0	1	0	7
DRN-11	Work with WestCOG to update the mitigation status of repetitive loss properties.	Planning	\$0 - \$25,000	Operating Budget and COG general services budgets	2029	Medium	Property Protection	Flooding	0	0	1	0	1	0	0	0	1	0	1	0	0	0	6
DRN-12	Work with Aquarion Water Company to enforce mandatory twice-per-week irrigation schedule.	BOS	\$0 - \$25,000	Operating Budget	2027-2031	Low	Education & Awareness	Drought	1	0	1	0	1	1	0	0	0	0	0	0	1	0	4

