



## Dannel P. Malloy

GOVERNOR  
STATE OF CONNECTICUT

July 9, 2018

The Honorable Donald J. Trump  
President of the United States  
The White House  
Washington, D. C.

Through: Mr. Douglas F. Wolcott, Jr.  
Acting Deputy Regional Administrator  
FEMA Region 1  
99 High Street  
Boston, MA 02110-2132

Dear Mr. President:

Under the provisions of Section 401 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. §§ 5121-5207 (Stafford Act), and implemented by 44 CFR § 206.36 (major disaster declaration requests), I request that you declare a major disaster for the counties of Fairfield and New Haven in the State of Connecticut as a result of severe storms including four confirmed tornadoes, and straight-line winds (one macroburst and two microbursts), all of which took place in a several-hour period on May 15, 2018. The incident period is May 15, 2018. I am also requesting that the independent communities of New Milford, Bridgewater, and Roxbury in Litchfield County be added to this major disaster declaration because of the localized damage occurring in those three municipalities.<sup>1</sup> In addition, am requesting Hazard Mitigation Assistance statewide, including the tribal lands of the Mashantucket Pequot and Mohegan Tribal Nations.

Specifically, I am requesting Public Assistance (PA), categories A through G for the counties of Fairfield and New Haven, and the independent municipalities of New Milford, Bridgewater, and Roxbury in Litchfield County. Preliminary expenses tabulated by type and amount are articulated in Enclosure B. They indicate a FEMA Preliminary Damage Assessment (PDA) of \$13.25 million. Even at this early stage, the damage estimates are almost three times the statewide per capita threshold of \$5.2 million.

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<sup>1</sup> A request for assistance for all of Litchfield County as a possible add-on county is pending the final results of the joint preliminary damage assessment for that county, which remains open at this time.

Additionally, I am requesting Individual Assistance (IA) funding for the counties of Fairfield and New Haven, and the independent communities of New Milford, Bridgewater, and Roxbury in Litchfield County, based on the number of homes that were destroyed or suffered major damage from these storms. The PDA indicates that 25 homes were destroyed on May 15. By comparison, in Connecticut, Superstorm Sandy destroyed 15 homes and Tropical Storm Irene destroyed 12 homes. In total, on May 15, 171 homes were either destroyed or experienced major damage and 269 homes had minor damage, all within a concentrated area. As will be explained further, this request for IA funding is also based in part on the extraordinary number of downed trees on private property. This damage, although not an eligible expense under the FEMA IA program, represents a real and significant cost to the affected homeowners.

In response to the situation, I took appropriate action under state law and approved activation of the State Response Framework (the State's emergency plan) on May 15, as well as activation of the State Urban Search and Rescue Team on that date. Because of the extensive damage and recovery operations, I declared a civil preparedness emergency on May 17, in accordance with Connecticut General Statutes Section 28-9.

#### State, Local and Volunteer Actions in Response to Severe Storms and Tornadoes.

The severe weather outbreak that struck a large swath of western and southern Connecticut on May 15 caused significant, major damage to that part of the state. See Attachment 1, National Weather Service (NWS) Data Report. To put these storms into perspective, we estimate that damage equal to that generated by a Category I hurricane covered an area of approximately 600 square miles in 19 towns; damage equivalent to that from a Category II hurricane covered an area of over 30 square miles in 7 of the 19 towns most affected. The Department of Emergency Services and Public Protection/Division of Emergency Management and Homeland Security (DESPP/DEMHS) provided Connecticut municipalities and agencies with a severe weather update based on forecasts from the National Weather Service and the Storms Prediction Center of the National Oceanic and Atmospheric Administration. Nine tornado warnings were issued for the State.

During and immediately following the storms, the State's emergency plan was executed. The State Emergency Operations Center was staffed to assist the DEMHS Regional Offices with municipal requests, coordinating with state agencies, utilities, and other private/non-profit partners. Hundreds of state and local roads were blocked, and neighborhoods were inaccessible. Metro-North Rail Services were suspended. In accordance with state law, the State Response Framework and Regional Emergency Support Plans, mutual aid came from across the state to

assist the affected towns. In support of Brookfield alone, 10 fire and police departments deployed 15 vehicles and accompanying personnel. The Statewide Fire Rescue Disaster Response Plan was activated, deploying 13 fire task forces and rescue strike teams to various municipalities during the period from May 15, 2018 to May 19, 2018. Volunteer Incident Management Team members were deployed to assist with incident planning and management. The state Department of Transportation sent loaders and tree crews to help clear both local and state roads. The Connecticut National Guard conducted road clearance in four towns on May 18, 19, and 20.

As a result of these severe storms, 21 local emergency operations centers were activated with at least 10 municipalities declaring local states of emergencies. Four Community Emergency Response Teams (CERT) and two Medical Reserve Corps (MRC) teams were activated to assist in a variety of storm response and recovery tasks. Nine shelters were opened in the communities of Bethany, Bridgewater, Sherman, New Milford, Brookfield, Oxford, Southbury, Danbury, and Newtown. As has been the practice in Connecticut, these shelters offered overnight accommodations and/or showering, charging, and feeding centers. In Brookfield, for example, more than 150 residents received meals, and more than 250 used the services of the center there. The Red Cross assisted with operating at least three of the shelters, and provided water and snacks. Hamden and North Haven ran commodities distribution sites to provide potable water to residents whose water systems were affected. Schools were closed in these communities for days, some school systems not opening until May 23, a week after the storms. Even then, in towns such as Brookfield, temporary student pick up/drop-off locations had to be established because roads were still impassable.

Housatonic Valley Regional Public Health operated a functional needs shelter at Western Connecticut State University in Danbury, activating a volunteer Medical Reserve Corps Team to staff the facility. Volunteer ambulance associations and residents with ATVs assisted in evacuations. The volunteer State Urban Search and Rescue team was activated (CT TF-1) and sent to assist the hardest hit communities, deploying chain saw teams and conducting door- to- door wellness checks. The state's Long Term Care Mutual Aid Plan was activated to provide assistance for nursing homes and convalescent facilities that received building damage and/or were without power.

The state activated the ESF-2 Communications Task Force to conduct surveys of telecommunications companies for damage assessments resulting from multiple reports of service disruptions. Multiple cell towers were affected, from Hamden and North Haven in New Haven County to Brookfield and New Fairfield in Fairfield County. Damage to cell towers in New Milford in Litchfield County degraded communications in hard-hit towns in the other counties. To assist with communications difficulties, mobile assets including Mobile Communications Vehicles (MCVs) were deployed to ensure

continuity of communications within the hardest hit communities. The State used the FirstNet system, providing municipal responders with ATT FirstNet phones to facilitate communications in affected areas. A COLT (Cell on Light Truck) was deployed on May 17 to address continuing capacity issues.

The state's Civil Air Patrol flew three sorties on May 16, and an additional four sorties on May 18, documenting the severity of the tree and home damage in the affected communities.

The Connecticut Department of Motor Vehicles supported the waiver of hours of service for commercial motor vehicles providing emergency materials and services. The Department of Insurance activated its emergency insurance adjuster program—within 48 hours, more than 500 adjusters had registered.

#### Describe Deaths and/or Injuries Associated With The Event.

The severity and quick onset of these storms resulted in two confirmed deaths related to incidents caused by weather-related situations. According to the Connecticut Department of Public Health, 83 storm-related Emergency Room visits were reported. Municipal information also indicates that multiple other injuries occurred in connection with the storms, including chain saw accidents, injuries from fallen debris, carbon monoxide poisoning, and people trapped in vehicles.

#### Effects of Severe Storms and Scope of Damage

At the peak of the storms, 182,607 customers were reported to be without electricity resulting from over 1,800 snapped utility poles and 300 miles of downed power lines. Three days later, more than 36,500 customers were still without power. Eversource alone indicated that 288 miles of electrical lines were destroyed on May 15, compared to 105 miles in Superstorm Sandy.<sup>2</sup> Six days later, on May 21, 6,117 Eversource customers were still without power; electricity was not fully restored in the hardest hit communities until after May 23, imposing a significant economic impact on communities. Additionally, six days later, more than 425 roadways were still blocked by debris and downed live wires, posing a substantial threat to life safety due to the hazards of driving over live wires and the inability of first responders to access those communities and neighborhoods. In towns such as Brookfield, phone and cable outages are taking weeks to repair. The town of Hamden in Region 2 has applied for “dire emergency” bonding for \$2 million, authorized when there is an unusual and serious condition endangering public

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<sup>2</sup> See Hartford Courant article, May 21, 2018, <http://www.courant.com/news/connecticut/hc-news-storm-damage-worse-sandy-20180520-story.html>

health and welfare and requiring the immediate expenditure of public funds. Conn. Gen. Stat. Section 7-379.

Extensive storm damage occurred at Connecticut State Parks and Forests, including Sleeping Giant State Park in Hamden, Chatfield Hollow State Park in Killingworth, Kettletown State Park in Southbury, Southfield Falls State Park in Oxford, Squantz Pond State Park in New Fairfield, Putnam Memorial State Park in Redding, Lovers Leap State Park in New Milford, and Wharton Brook State Park in Wallingford. The Connecticut Department of Energy and Environmental Protection (DEEP) worked hard to get most of these parks open for the Memorial Day weekend, but the damage was so extensive in two parks, Sleeping Giant and Wharton Brook, that opening was not possible. In fact, Sleeping Giant and Wharton Brook remained closed to the public six weeks later, throughout the July 4<sup>th</sup> holiday, and for the foreseeable future. The Brookfield Public Library was damaged, as was a public school in New Milford. A communications tower used by the Connecticut State Police at Troop A in Southbury was damaged by a fallen tree, requiring coordinated removal with the State Department of Transportation.

In the days following the storms, DESPP/DEMHS sent out an Initial Damage Assessment to affected towns to determine if it appeared that the damages warranted a joint Preliminary Damage Assessment (PDA). The data collected indicated that a joint PDA for IA, PA, and Small Business Administration loans was appropriate. The joint PDA was conducted in Fairfield, New Haven, and Litchfield Counties during the week of June 11. The PDA for Litchfield County is still in process. The total current PA costs, after verification by FEMA, are estimated at \$13.25 million. The PDA for home damages indicated that 25 homes were destroyed. By comparison, Superstorm Sandy destroyed 15 homes and Tropical Storm Irene destroyed 12 homes. In total, 146 additional homes experienced major damage and 269 homes minor damage, all within a concentrated area. SBA results indicated that 27 businesses experienced damages totaling over \$1.4 million.

### Recent Disaster History

Although the State of Connecticut has not received a Presidential major disaster declaration in the last 12 months, within that time period, state and local agencies, as well as non-governmental organizations, have been working together with FEMA Region 1 to address the needs of arrivals from Puerto Rico and other islands in the wake of Hurricanes Irma and Maria. Currently, 1,230 households living in Connecticut are registered with FEMA for disaster assistance. At my direction, we convened the Governor's Unified Command shortly after the hurricanes and have effectively treated this disaster as our disaster. The state has provided more than 1,700 hotel nights to Puerto Rican families, as well as disaster case management and recovery coordination, which includes regular Situation Reports, and Unified Command and Disaster Case Management

calls. We have coordinated assistance to hundreds of families, including those who have been or were at one time living in hotels under the FEMA Transitional Sheltering Assistance (TSA) program. As of June 30, there were over 75 households still in hotels under TSA. The State has worked, and will continue to work, to ensure that each and every household has a safe place to live. Job training, English language training, and continued disaster case management is also being provided.

Additionally, the State has been working with FEMA and other federal and state agencies on the slow-moving disaster of crumbling foundations, particularly in eastern Connecticut. Home foundations are failing as a result of the ratio of the mineral pyrrhotite, mixing with water and air, in the concrete. Over 500 homes have identified the problem, with up to 30,000 potentially affected. The cost to replace a foundation is estimated at as much as \$100,000 or more. In addition to state solutions, we have been working with FEMA Region 1 to bring in the United States Army Corps of Engineers to assist with inspection checklists, quarry testing and potentially remediation solutions.

Finally, in early March, Connecticut experienced a series of four strong winter storms in less than 3 weeks, which brought down trees and wires, caused power outages, and, in at least one county, dumped record snow. Although the storms did not meet the FEMA thresholds, the cleanup from each of these storms represented a significant cost to Connecticut municipalities, including the towns that were subsequently hit by the May 15 severe storms.

#### Impacted Population and Level of Insurance

The number of homes meeting the FEMA definition of destroyed (25) from these May 15 storms is unprecedented in Connecticut. In addition to damages to homes, many other items of personal property, including vehicles and boats, were destroyed. Volunteer organizations, including Team Rubicon from Maine and Connecticut, are helping homeowners remove massive amounts of debris from roadways, driveways, and yards.

The State of Connecticut ranks first in terms of area (72%) contained within the Wildland Urban Interface (WUI). See Attachment 2. In Connecticut, this means that woodlands with heavy tree coverage and foliage intermingle very closely with populated areas. In 2008, Connecticut conducted a survey of tree density within the utility corridors (50 feet either side of road center lines) in 6 towns. Average tree density along these town roads was determined to be 47 trees per acre.

According to the FEMA Preliminary Damage Assessment, the level of uninsured eligible damaged homes in this event is about 3%. Connecticut reviewed the rate of mortgages in these communities, and determined that the number of homes without a mortgage ranged from 29% in

Fairfield County to 31.2% in New Haven County. Holding a mortgage requires the homeowner to maintain insurance, which means that about a third of the residents in these two counties are not required to maintain insurance, leaving them vulnerable to be uninsured or underinsured. But the true cost to the residents of Connecticut affected by the May 15 storms must be measured not only in damages to homes but also in the tremendous cost of dealing with the debris. Homeowners are facing tens of thousands of dollars in tree removal, which is generally not covered by insurance. Estimates in the range of \$50,000 to \$70,000 are not uncommon. Opening the Individual Assistance Program to homeowners to cover even the insurance deductible would provide help to people facing significant uninsured and ineligible costs.

The chart below shows that although the poverty rates in these counties are below the national average, the unemployment rate is significantly higher. The percentage of elderly varies from below, above, or at the national average. The median household income is higher than the national average, but the cost of living in Connecticut is also significantly higher. The consumer price index (CPI) of 268 in Connecticut is 9.39% higher than the U.S. city average CPI of 245. The sales tax is 6.35%.

	Average of Persons Below Poverty Level <sup>1</sup>	Median Household Income <sub>1</sub>	Percent Elderly <sup>2</sup>	Percent Disabled <sup>2</sup>	Percent Pre-Disaster Unemployment <sup>3</sup>
National Average	14.0%	\$57,617	16.1%	8.6%	3.9%
State Average	9.9%	\$73,380	15.2%	7.2%	4.3%
Litchfield County	7.2%	\$76,323	19.7%	6.5%	4.0%
New Haven County	11.4%	\$66,012	16.3%	7.5%	4.5%
Fairfield County	8.6%	\$89,954	14.8%	5.7%	4.1%

<sup>1</sup> 2016 Small Area Income and Poverty Estimates (SAIPE)

<sup>2</sup> Bureau of Labor Statistics, April 2018

<sup>3</sup> Census Bureau Population Estimates- V2017

#### Localized Impact to Independent Municipalities Across County Lines:

The Stafford Act and the Code of Federal Regulations focus on county per capita damage estimates and county costs—it is assumed that county government will support its municipalities. But because there is no county government in Connecticut, one of the key layers of governmental assistance in other states simply does not exist in Connecticut. The towns of Bridgewater, Roxbury, and New Milford in Litchfield County are contiguous to Fairfield and New Haven Counties, and suffered the same damages as their neighbors across the county line. The per capita damage indicators in these three towns are \$80.34, \$11.59, and \$7.45 respectively, all well above the state indicator of \$3.68. **Attachment 3** provides a photographic example of the damages suffered in New Milford in Litchfield County. **Attachment 4** is a map of

Connecticut showing the path of the storms and areas of damage. New Milford and Bridgewater are in the area indicated in red where the Macroburst came through. These towns should not be excluded from receiving federal disaster assistance simply because they are on the wrong side of a county line, particularly in a state such as Connecticut where these lines are truly just historic demarcations that no longer represent jurisdictional boundaries. According to the joint PDA, the statewide threshold of \$5.2 million has been exceeded by more than \$8 million. The swath of damage did not stop at the artificial county line.

The concentration of damages from the May 15 storms is demonstrated by the fact that Bridgewater, Roxbury, and New Milford are only three of 26 municipalities in Litchfield County, yet the preliminary damage estimates for these three towns represent over 50% of the total county indicator of \$698,000.

There is precedent for FEMA to provide this assistance. In DR 1994 in 2011, FEMA provided disaster assistance to two towns in Massachusetts, Southbridge and Sturbridge, under circumstances similar to the May 15 event – tornadic activity that did not respect political boundaries.

Also, because of the lack of county government in Connecticut, these municipalities are in effect “independent cities.” In the case of disasters in other states, FEMA has recognized the concept of “independent cities”; that is, municipalities which are within the geographical boundaries of a county, but which are not part of county government. As the result of snow events in 2009, for example, federal public assistance disaster aid was made available, as it has been in previous disasters, to at least 9 independent cities in Virginia, in addition to a number of counties. (See Presidential Declaration of Major Disaster, FEMA-1874-DR.) The constitutional language establishing Independent Cities in Virginia is found in Article VII of the Virginia Constitution, which provides rights for certain Virginia cities. Similarly, Article X of the Connecticut Constitution contains the concept of Home Rule for Connecticut cities and towns, rather than county government. By 1960, although counties continued to exist in Connecticut as geographical boundaries, county governmental functions, such as the right to appropriate funds or tax residents, were gone. (See, for example, Public Act 152, 1959.) Without county government, every municipality in Connecticut is an independent city because each operates independent of any county control or assistance.

For these reasons, I request the opening of the PA and IA programs for the towns of Bridgewater, Roxbury, and New Milford in Litchfield County.

#### Infrastructure Damage:

Based on the preliminary damage assessment, 90% of the estimated costs are related to Categories A and B, debris removal and emergency protective measures, with 10% related to

Categories C through G. This infrastructure damage includes damages to communications and electrical infrastructure, public facilities such as parks, schools, a library, and roads.

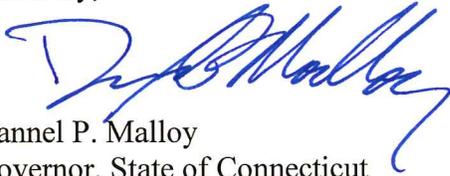
Concluding Statement

I certify that for this major disaster, the state and local governments will assume all applicable non-federal shares of costs required by the Stafford Act. Preliminary estimates of the types and amounts of federal disaster assistance needed under the Stafford Act are provided in tables attached as Enclosures B, C, and D. I am also submitting the required major disaster declaration request form.

I have designated William J. Hackett as the Governor's Authorized Representative (GAR) and State Coordinating Officer (SCO) for this request, and Brenda M. Bergeron as the alternate GAR and alternate SCO. They may provide further information or justification on my behalf, as requested or required.

Thank you for your consideration of this request.

Sincerely,



Dannel P. Malloy  
Governor, State of Connecticut

Cc: Dr. Dora B. Schriro, DESPP Commissioner  
William J. Hackett, DESPP Deputy Commissioner

Enclosures:

- OMB No. 1660-0009/FEMA Form 010-0-13
- A: Individual Assistance
- B: Public Assistance
- C: Requirements for Other Federal Agency Programs

- Attachment 1: NWS Data Report for May 15, 2018
- Attachment 2: Wildland Urban Interface-Tree Density
- Attachment 3: Photograph of Damage in Litchfield County
- Attachment 4: Storm Tracks May 15, 2018

**ENCLOSURE A TO MAJOR DISASTER REQUEST**

Estimated Requirements for Individual Assistance  
Under the Stafford Act

Enclose Individual Assistance Joint Preliminary Damage Assessment Cost Estimate Worksheets

What percent of the affected dwellings will be eligible for IHP?	<u>3%</u>
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County Name	Destroyed	Major	Minor	Affected	Affected Getting Assistance	Total	% Owner	% Insured	% Low Income
Fairfield	18	75	134	68	2	<b>229</b>	99%	99%	0%
Litchfield	0	7	1	5	1	<b>9</b>	100%	100%	0%
New Haven	7	64	134	91	2	<b>207</b>	94%	94%	5%
<b>TOTAL</b>	<b>25</b>	<b>146</b>	<b>269</b>	<b>164</b>	<b>5</b>	<b>445</b>			

**ENCLOSURE B TO MAJOR DISASTER REQUEST**

Estimated Stafford Act Requirements for Public Assistance

State \$1.46

County \$3.68

Date: 6/29/2018		PUBLIC DAMAGE								GOAL			
Report #:		A	B	C	D	E	F	G	TOTAL	POP. '10	\$/CAP.	\$3.68/CAP.	SHORT
Fairfield Co		\$5,842,643	\$271,987	\$42,537	\$0	\$12,402	\$16,943	\$74,833	\$6,261,346	916,829	\$6.83	\$3,373,931	\$0
Litchfield Co		\$314,963	\$24,632	\$0	\$0	\$35,000	\$0	\$0	\$374,595	189,927	\$1.97	\$698,931	(\$324,337)
--New Milford		\$150,000	\$24,632	\$0	\$0	\$35,000	\$0	\$0	\$209,631	28,142	\$7.45		
--Bridgewater		\$138,741	\$0	\$0	\$0	\$0	\$0	\$0	\$138,741	1,727	\$80.34		
--Roxbury		\$26,223	\$0	\$0	\$0	\$0	\$0	\$0	\$26,223	2,262	\$11.59		
New Haven Co		\$5,320,761	\$255,232	\$36,980	\$0	\$25,000	\$961,667	\$11,500	\$6,611,140	862,477	\$7.67	\$3,173,915	\$0
State Agencies		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	State POP	\$/CAP.	\$1.46/CAP	
<b>TOTALS</b>		<b>\$11,478,368</b>	<b>\$551,851</b>	<b>\$79,517</b>	<b>\$0</b>	<b>\$72,402</b>	<b>\$978,610</b>	<b>\$86,333</b>	<b>\$13,247,081</b>	3,574,097	\$3.71	\$5,218,182	\$0
NOTES:		DEBRIS CLEARANCE	PROTECTIVE MEASURES	ROAD SYSTEM	WATER CONTROL	BUILDINGS & EQUIPMENT	PUBLIC UTILITY	PARKS & OTHER		3,574,097	State Population total check-sum		
Percentage		86.65%	4.17%	0.60%	0.00%	0.55%	7.39%	0.65%					

**ENCLOSURE C TO MAJOR DISASTER REQUEST**

Estimated Assistance from Other Federal Agency Programs

County/ Independent Municipality	SBA Home Loans	SBA Business Loans	FSA Loans	NRCS	FHWA	USACE	BIA	OTHER
Fairfield	TBD	TBD	TBD	TBD	TBD	TBD	N/A	
New Haven	TBD	TBD	TBD	TBD	TBD	TBD	N/A	
New Milford and Bridgewater	TBD	TBD	TBD	TBD	TBD	TBD		
Litchfield	TBD	TBD	TBD	TBD	TBD	TBD	N/A	
<b>Totals</b>								

*Note: Provide numbers and amounts, as appropriate.*

# ATTACHMENT 1 TO CT MAJOR DISASTER DECLARATION REQUEST

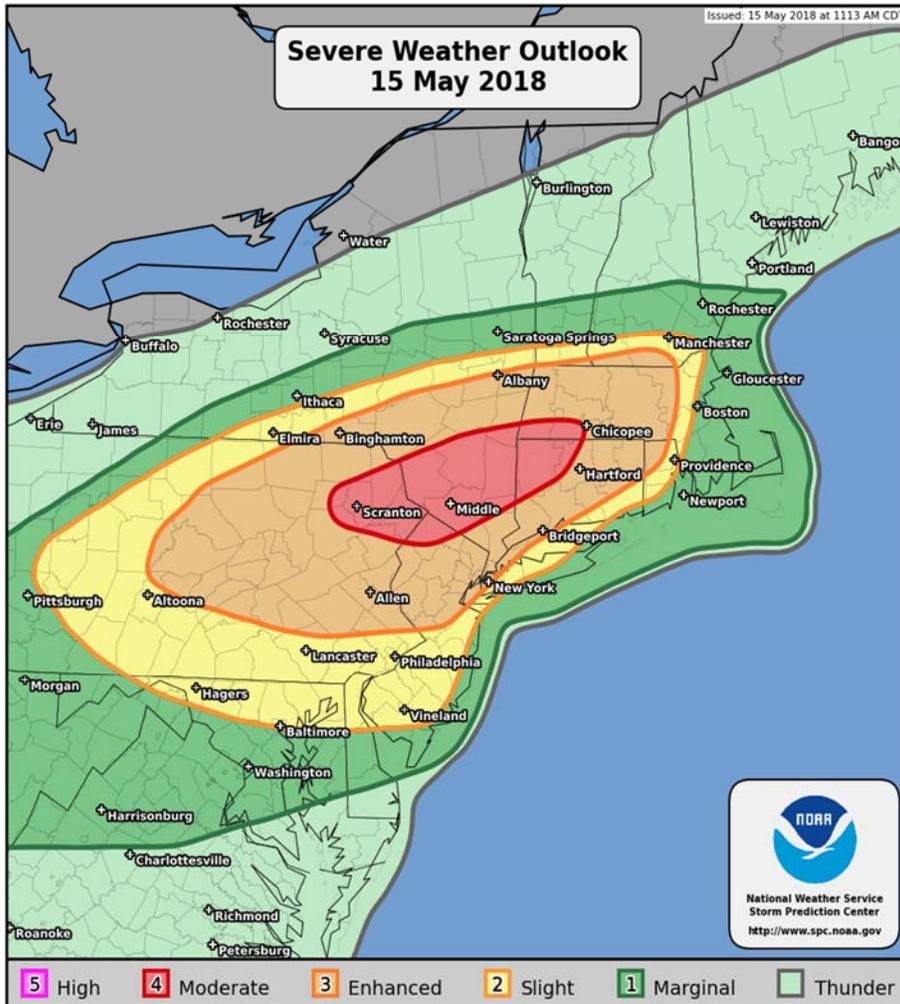
## NWS DATA REPORT FOR MAY 15, 2018

All information contained in this report was taken from the NWS New York Significant Weather Events Archive located at <https://www.weather.gov/okx/SevereEvent051518> and the NWS Albany New York Past Events Archive located at <https://www.weather.gov/aly/May15Severe>

### Storm Summary

A line of severe storms moved across the northeast on the afternoon of May 15. The storms became severe due to a highly unstable environment ahead of a strong cold front. A total of 5 tornadoes were reported across four counties. Three tornadoes impacted Putnam (1 EF-2, 1 EF-1) and Orange County (1 EF-0) in New York. Two EF1 tornadoes impacted New Haven County in Connecticut. The intense squall line also created widespread wind damage across the Lower Hudson Valley, Southern Connecticut, Northeast New Jersey and Long Island.

### NOAA Storms Prediction Center Severe Weather Outlook for May 15, 2018



## Atmospheric Environment from NWS Albany

Fast 500 mb flow existed over the Northeast US on May 15th between a strong upper low over northern Quebec and a high over the Deep South (Fig. 1). While 500 mb height falls were weak, there was a right entrance region of a strong upper jet which enhanced ascent (Fig. 2). At the surface, a NE/SW oriented cold front tracked westward through the day (Fig. 3). There was a bit of an outflow boundary present associated with showers and thunderstorms that tracked through the Mohawk Valley/Capital District earlier in the day, allowing the effective position of the front to sag farther south than originally forecast and spared the I-90 corridor/Schoharie Valley and points north from severe weather potential. To the south, there was plenty of sunshine through the morning and early afternoon which allowed temperatures to soar into the upper 70s (Catskills) to upper 80s (Mid-Hudson Valley) with dewpoints in the low 60s (Catskills) to upper 60s (Mid-Hudson Valley). This allowed a tongue of 1000-2000 J/kg MLCAPE values to surge into the eastern Catskills, Mid-Hudson Valley, and northwestern CT by 18Z (Fig. 4) coincident with a pocket of 6.5-8.0 K/km midlevel lapse rates (Figs. 5, 6). Effective bulk shear values were very impressive at 60-70 kt collocated with the axis of instability (Fig. 7). These factors coming together, along with the continued CAM depiction of several bowing lines of storms, prompted an SPC categorical upgrade to moderate risk with the 1630Z update (Fig. 8). This included probabilities of 10% tornado, 30% hail, and 60% wind.

As a broken line of bowing cells were forming over western/central PA during the early afternoon hours along the cold front, a few supercells formed ahead of the front in the Catskills around 17-1730Z. The lead cell became severe, resulting in an EF1 tornado near Saugerties at around 1830Z, and a swath of large hail in the 2.00-2.75" range in southern Columbia County. This cell eventually would produce two more tornadoes in northwestern CT. A couple of more discrete rotating storms formed with a few hail and wind reports, and then the frontal convection that had formed over western/central PA earlier approached. A portion of this line accelerated across far southern portions of Ulster/Dutchess/Litchfield Counties, producing swaths of widespread wind damage in spots, especially along the I-84 corridor from Beacon to Fishkill, NY. A few tornadoes were confirmed just south of our CWA border in Orange/Putnam/Fairfield Counties in addition to widespread straight-line wind damage. The event was over shortly thereafter for the ALY CWA, with the bulk of the severe reports occurring between 1830-2100Z.

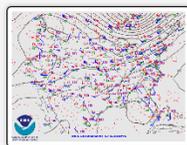


Figure 1: 500 mb analysis, 12Z 15 May 2018

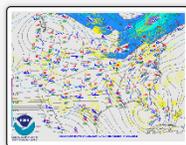


Figure 2: 300 mb analysis, 12Z 15 May 2018



Figure 3: Weather Prediction Center surface analysis valid 18Z 15 May 2018

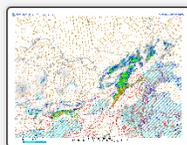


Figure 4: Storm Prediction Center mesoanalysis of mixed-layer CAPE (J/kg) valid 18Z 15 May 2018

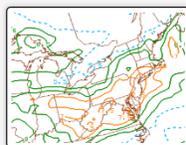


Figure 5: As in Fig. 4 but for 700-500-hPa lapse rates (K/km)

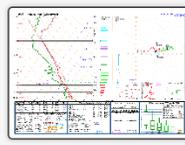


Figure 6: KALB RAOB at 18Z 15 May 2018



Figure 7: As in Fig. 4 but for effective bulk shear (kt).

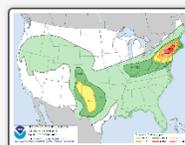
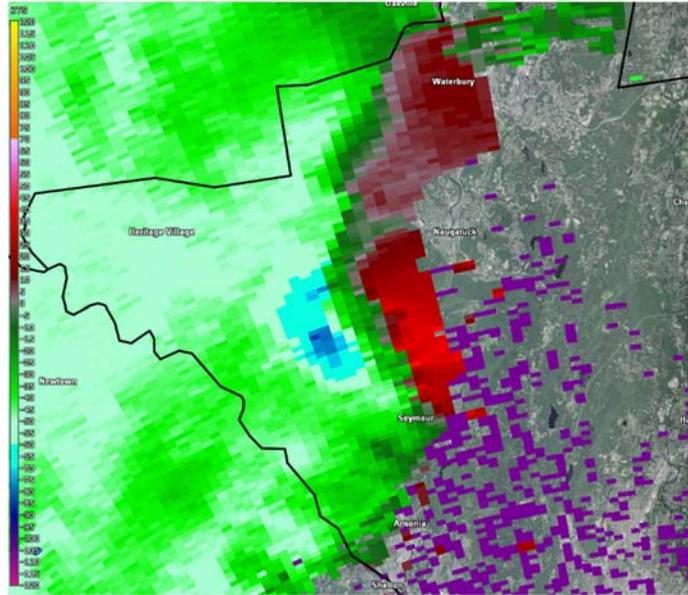


Figure 8: Storm Prediction Center Day 1 Convective Outlook issued 1630Z 15 May 2018

**Tornado - Southbury, CT to Oxford, CT**  
**NEW HAVEN COUNTY Radar Velocity**

<b>Date</b>	May 15, 2018
<b>Time (Local)</b>	4:53 pm
<b>EF Rating</b>	1
<b>Est. Peak Winds</b>	100 mph
<b>Path Length</b>	4.2 miles
<b>Max Width</b>	400 yards
<b>Injuries/Deaths</b>	0/0

**Summary:**  
 A tornado touched down near the intersection of Route 67 and Burma Road in Southbury and continued southeast into Oxford, leaving a path of numerous uprooted and snapped pine trees and some hardwood trees. The tornado lifted after damaging the roof of the Great Oak School in Oxford. Based on this information, this tornado is classified as an EF1 with maximum winds of 100 mph.

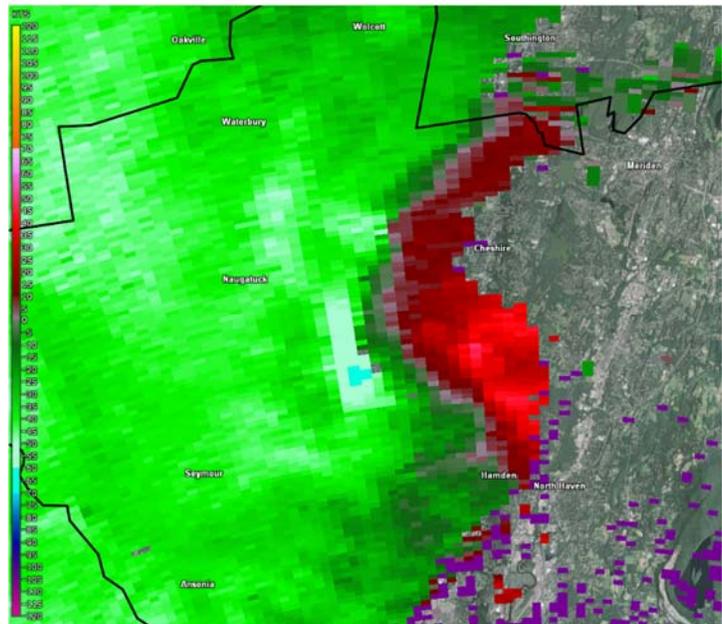


**Tornado - Beacon Falls, CT to Hamden, CT**  
**NEW HAVEN COUNTY Radar Velocity**

<b>Date</b>	May 15, 2018
<b>Time (Local)</b>	5:01 pm
<b>EF Rating</b>	1
<b>Est. Peak Winds</b>	110 mph
<b>Path Length</b>	9.5 miles
<b>Max Width</b>	600 yards
<b>Injuries/Deaths</b>	0/0

**Summary:**  
 A tornado touched down near the intersection of Bethany Road and Bonna Street in Beacon Falls, destroyed a barn in Bethany, and continued on to just west of Sleeping Giant State Park in Hamden, where the damage broadened and became more straight-line in nature. The tornado left a path of numerous uprooted and snapped hardwood and pine trees. Based on this information, this tornado is classified as an EF1 with maximum winds of 110 mph.

Radar Velocity



<b>Macroburst - New Fairfield, CT to Brookfield, CT</b>	
Fairfield County	
<b>Date</b>	May 15, 2018
<b>Time (Local)</b>	4:37 pm
<b>Est. Peak Winds</b>	110 mph
<b>Path Length</b>	9 miles
<b>Max Width</b>	3 miles
<b>Injuries/Deaths</b>	1/2
<b>Summary:</b>	
<p>Based on a National Weather Service storm survey, done in conjunction with the Connecticut State Police and the Town of Brookfield, it has been determined that a macroburst with maximum wind speeds of 110 mph impacted a swath about 3 miles in width and 9 miles in length from New Fairfield through Brookfield from about 437 PM EDT to 453 PM EDT. Numerous hardwood and pine trees were uprooted and snapped, with the most significant surveyed damage in Brookfield from the Candlewood Shores area, extending east across Route 7, to just north of the Senior High School, to Lake Lillinonah. Falling trees caused two fatalities, one in New Fairfield and another in Brookfield, and one serious injury via wind damage to the roof of a baseball dugout.</p> <p>For reference... A macroburst is a thunderstorm downdraft affecting an area at least 2.5 miles wide with peak winds lasting 5 to 20 minutes. The macroburst is a straight-line wind phenomena not associated with rotation...used to differentiate from tornadic winds.</p> <p>Macrobursts can produce as much if not more damage as tornadoes due to the size and scope of a macroburst.</p>	

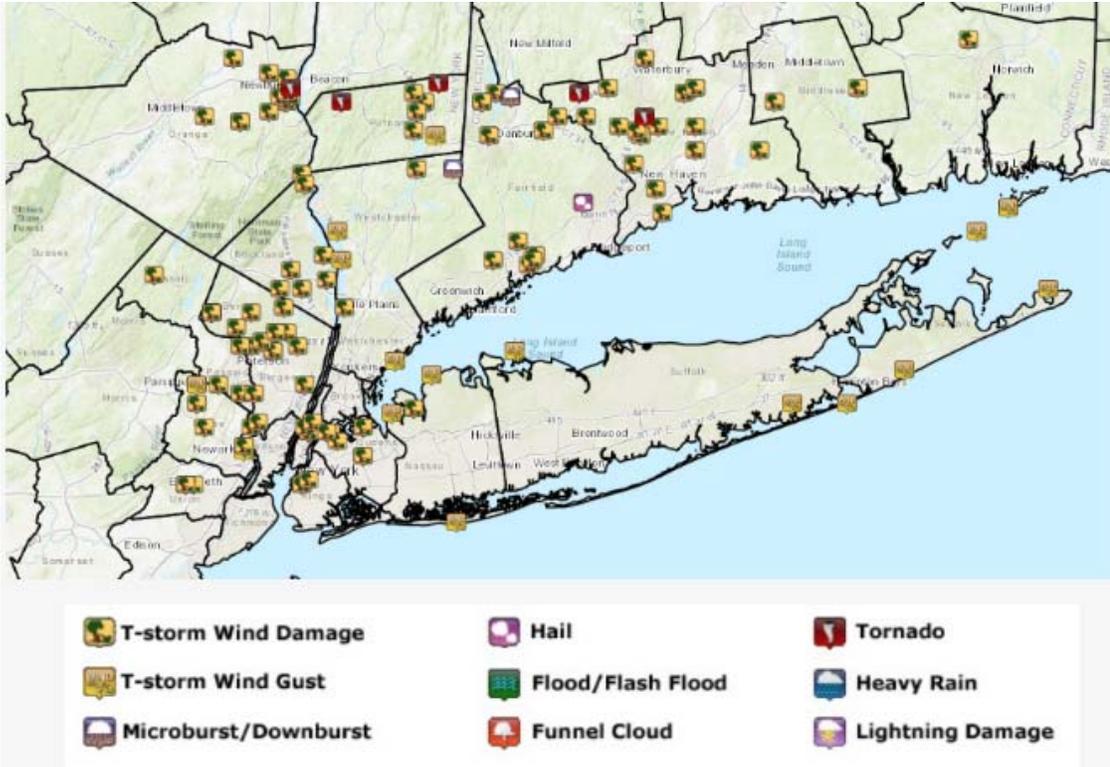
**MICROBURST CONFIRMED FROM HAMDEN CT TO WALLINGFORD CT...**

Start Location...Hamden in New Haven County CT  
 End Location...Wallingford in New Haven County CT  
 Date...May 15 2018  
 Estimated Time...501 PM EDT to 514 PM EDT  
 Estimated Maximum Wind Speed...100 mph  
 Maximum Path Width...880 yards  
 Path Length...7.25 miles  
 Beginning Lat/Lon...41.4268/-72.9150  
 Ending Lat/Lon...41.4196/-72.7723

**...SUMMARY...**

Based on a National Weather Service storm survey, it has been determined that the earlier Beacon Falls-Hamden tornado transitioned to a microburst with maximum wind speeds of 100 mph, and impacted a swath about 1/2 mile in width and 7.25 miles in length, from near Sleeping Giant State Park and Quinnipiac University, across Wharton Brook State Park, to just east of Tyler Mill in Wallingford. Extensive damage occurred, with numerous pine trees uprooted and snapped.

# LOCAL STORM REPORTS



**Tornado - Winsted, CT**  
LITCHFIELD COUNTY

Track Map

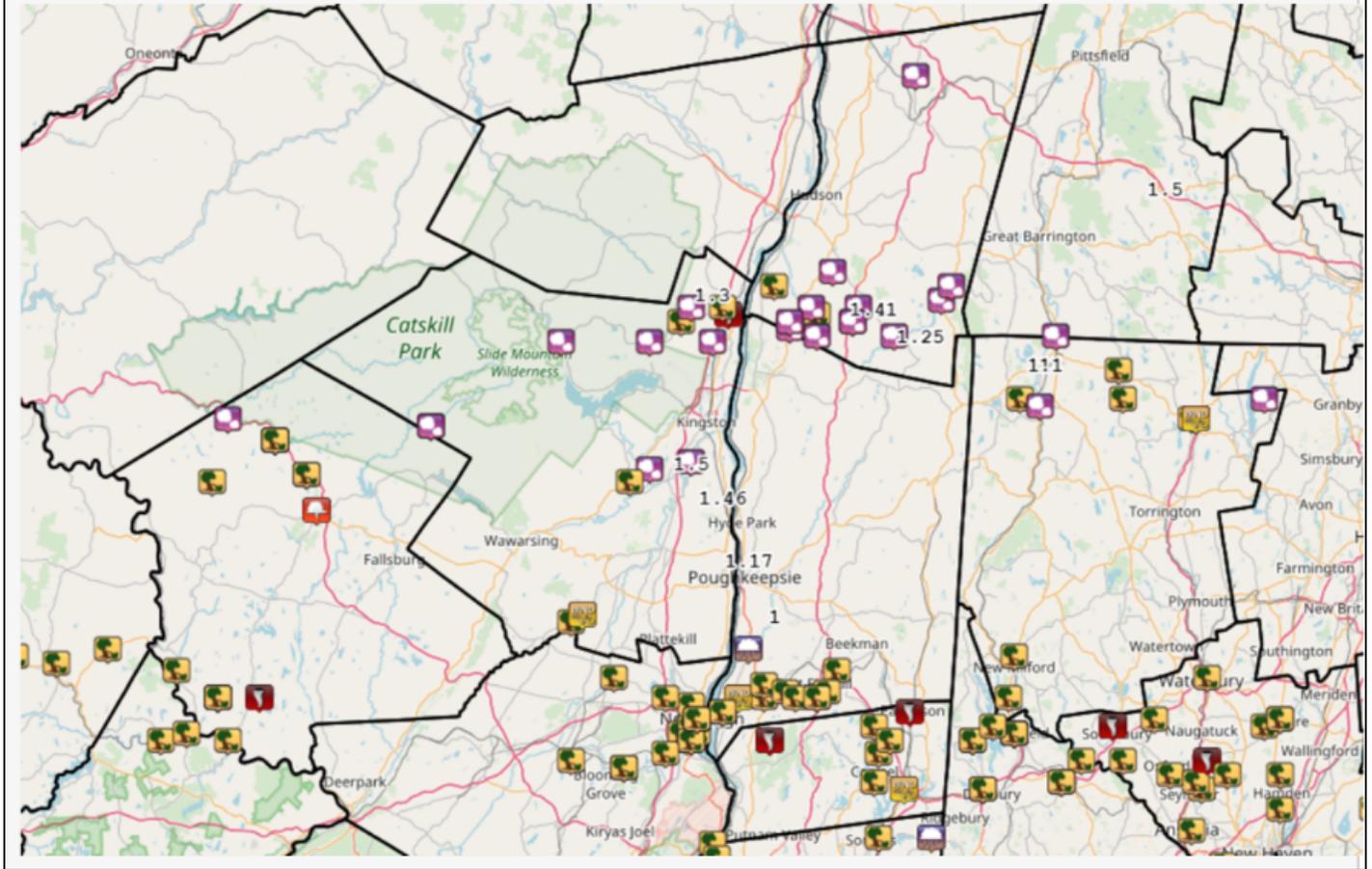
<b>Date</b>	May 15, 2018
<b>Time (Local)</b>	3:44-3:46 pm
<b>EF Rating</b>	1
<b>Est. Peak Winds</b>	95 mph
<b>Path Length</b>	0.7 miles
<b>Max Width</b>	175 yards
<b>Injuries/Deaths</b>	0/0
<b>Summary:</b>	
<p>On Tuesday, May 15 there was an EF1 tornado on the northeast side of Winsted, CT. The tornado moved west to east across 8 city blocks, shearing trees, uprooting trees, and producing some minor structural damage to homes. Many homes and power lines were damaged by fallen trees. A member of the local community witnessed the tornado.</p>	



**Tornado - Barkhamsted Reservoir, CT**  
LITCHFIELD COUNTY

<b>Date</b>	May 15, 2018
<b>Time (Local)</b>	3:52 pm
<b>EF Rating</b>	Unknown
<b>Est. Peak Winds</b>	Unknown
<b>Path Length</b>	Unknown
<b>Max Width</b>	Unknown
<b>Injuries/Deaths</b>	0/0
<b>Summary:</b>	
<p>The same thunderstorm traveled eastward over Barkhamsted Reservoir. Public video showed a tornado of unknown intensity over the reservoir. The damage survey team found no damage between Winsted and the reservoir. No damage was reported over the reservoir.</p> <p>National Weather Service Instruction 10-1605 requires a tornado spin-up over an inland lake that is not a marine zone to be assigned a rating of EFU. Unless a boat or an above-water-surface structure on the lake is damaged, or a buoy with an anemometer is within the path, a rating cannot be assigned. Barkhamsted Reservoir is not a marine zone.</p>	

# Storm Reports



## ATTACHMENT 2 TO CT MAJOR DISASTER DECLARATION REQUEST

### Wildland Urban Interface- Tree Density

**WILDLAND URBAN INTERFACE (WUI) MAP**      Courtesy of the University of Wisconsin



The State of Connecticut ranks #1 in terms of area (72%) contained within the Wildland Urban Interface (WUI). In 2008 Connecticut conducted a survey of tree density within the utility corridors (50' either side of road center lines) in 6 towns. Average tree density along town roads was determined to be 47 trees per acre.

A zoomed WUI map on page 2 shows an overlay of the towns impacted by the May 15<sup>th</sup> severe weather outbreak in western and central Connecticut. The map shows a high percentage of the area within most of the impacted towns within the WUI.

**Table 1.—State rank by area and housing units in interface, intermix, and total WUI**

Rank	Interface		Intermix		WUI	
	Area (ha)					
1	PA	1,048,577	NC	4,784,695	NC	5,527,830
2	CA	746,021	GA	3,328,527	PA	4,338,705
3	NC	743,134	PA	3,290,128	GA	3,957,293
4	TX	728,196	VA	2,911,236	NY	3,573,641
5	NY	707,604	NY	2,866,037	VA	3,504,168
Area (percent)						
1	DC	19	RI	61	CT	72
2	NJ	15	CT	60	RI	70
3	MA	12	MA	53	MA	65
4	CT	12	NH	38	NJ	46
5	RI	9	NC	38	NC	44



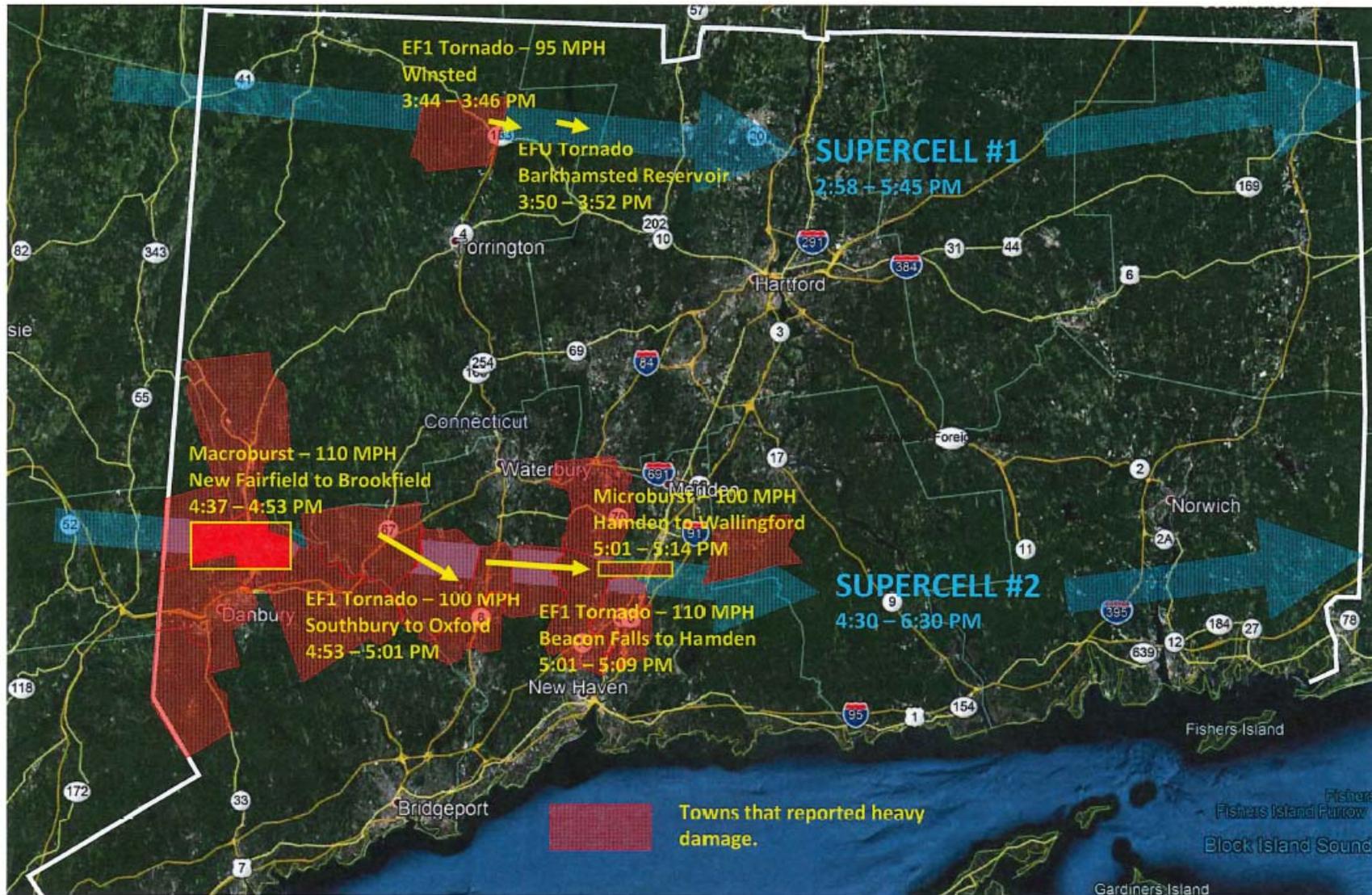
**ATTACHMENT 3 TO CT MAJOR DISASTER DECLARATION REQUEST**

Damages in Litchfield County on the Shores of Candlewood Lake



**ATTACHMENT 4 TO CT MAJOR DISASTER DECLARATION REQUEST**

Storm Tracks CT May 15, 2018  
Map of Tornadoes and Macro/Micro Burst Tracks



DEPARTMENT OF HOMELAND SECURITY  
Federal Emergency Management Agency  
**REQUEST FOR PRESIDENTIAL DISASTER DECLARATION**  
**MAJOR DISASTER OR EMERGENCY**

OMB Control Number 1660-0009  
Expires 09/30/2019

1. Request Date 7/9/2018

**Burden Disclosure Notice**

Public reporting burden for this form is estimated to average 9 hours per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and submitting the form. This collection of information is required to obtain a benefit. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing the burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street SW, Washington, DC 20472, Paperwork Reduction Project (1660-0009). **NOTE: Do not send your completed form to this address.**

Completion of this form including applicable attachments satisfies legal requirements for emergency and major disaster declaration requests under 42 U.S.C. §§ 5170 and 5191, respectively, as implemented at 44 C.F.R. §§ 206.35 and 206.36. Failure to use this form may result in a failure to meet these requirements and/or a delay in processing the request.

2a. Name of State (as defined in Stafford Act 102, 42 U.S.C. § 5122) or Indian tribal government requesting declaration.  Connecticut	2b. Population (as reported by 2010 Census) or estimated population of Indian tribal government's damaged area(s). <u>3.6 Million</u>
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3. Governor's or Tribal Chief Executive's Name Dannel P. Malloy	4. Designation of State or Tribal Coordinating Officer upon declaration (if available) and phone number William J. Hackett, 860-685-8541
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5. Designation of Governor's Authorized Representative or Tribal Chief Executive Representative upon declaration (if available) and phone number  
William J. Hackett, 860-685-8541

6. Declaration Request For:  Major Disaster (Stafford Act Sec. 401)  Emergency (Stafford Act Sec. 501 (a))

7. Incident Period: Beginning Date May 15, 2018 End Date May 15, 2018 or  Continuing

*If requesting a "continuing" incident period, enclose an official statement from a qualified Federal Government agency acknowledged as a national authority in a specific incident field (e.g., United States Geological Survey for seismic incidents, the National Weather Service for flooding).*

7b. Type of Incident (Check all that apply)

Drought  Earthquake  Explosion  Fire  Flood  Hurricane  Landslide  Mudslide  
Severe Storm  (rain, high water, wind-driven, rain, hail, lightning)  Snowstorm (Must include Enclosure D: Historic and Current Snowfall Data)  Straight-Line Winds

Tidal Wave  Tornado  Tropical Depression  Tropical Storm  Tsunami  Volcanic Eruption  Winter Storm

Other (please specify) \_\_\_\_\_

8. Description of damages (Short description of impacts of disaster on affected area and population). Include additional details in enclosed Governor's or Tribal Chief Executive's cover letter.

On May 15, 2018, Connecticut was affected by severe storms, including 4 confirmed tornadoes and straight-line winds (1 confirmed macroburst and 2 confirmed microbursts). In advance of the storm, the NWS and NOAA issued 9 tornado warnings due to a fast moving cold front. At the peak following the storm, 182,607 customer outages were reported, some for over a week. Areas within western and southern Connecticut within Fairfield, New Haven and Litchfield Counties experienced the greatest amount of storm damage, including blocked roads and school closings for over a week. Two fatalities directly related to the storm were reported, as well as numerous injuries.

9. Description of the nature and amount of State and local or Indian tribal government resources which have been or will be committed. Include additional details in enclosed Governor's or Tribal Chief Executive's cover letter.

State, local and private resources were coordinated to respond to and recover from the effects of this disaster. In the aftermath of this storm, the State Emergency Operations Center provided resource assistance to the DEMHS Regional Offices, coordinating with state and local agencies, utilities, and nongovernmental organizations. On May 17, 2018, the Governor signed a declaration of Civil Preparedness/State of Emergency in order to waive certain statutory requirements to ease ongoing response and recovery efforts, and activated the CT National Guard and the state Urban Search and Rescue Team.

In total, 21 Local Emergency Operations Centers were activated and 10 communities declared local emergencies. In order to respond at the local level, 4 CERT teams were activated and 2 MRC teams were activated.

10. Joint Preliminary Damage Assessment\*

Individual Assistance    Dates Performed **Requested** 6/4/2018    **Start** Jun 11, 2018    **End** Jun 15, 2018

Individual Assistance Accessibility Problems (Areas that could not be accessed, and why)

Accessibility issues existed following the May 15 storms, but were largely resolved at the time of the PDA.

Public Assistance    Dates Performed **Requested** 6/4/2018    **Start** Jun 11, 2018    **End** Jun 15, 2018

Public Assistance Accessibility Problems (Areas that could not be accessed, and why)

Accessibility issues existed following the May 15 storms, but were largely resolved at the time of the PDA.

11. Programs and Areas Requested

Individual Assistance  N/A     Individuals and Households Program     Crisis Counseling Program     Disaster Unemployment Assistance  
 All     Disaster Case Management     Disaster Legal Services     Small Business Administration (SBA) Disaster Assistance

For the following jurisdictions, specify programs and areas (counties, parishes, independent cities; for Indian tribal government, list tribe(s) and/or tribal area(s)) If additional space is needed, please enclose additional documentation).

Individuals and Households Program and Small Business Administration (SBA) Disaster Assistance for the Counties of Fairfield and New Haven and the individual municipalities of Bridgewater and New Milford in Litchfield County (full Litchfield County Request is pending.)

For States, identify Federally-recognized Tribes in the requested counties (if applicable).

N/A

Please see **Enclosure A: Supplemental Information for Individual Assistance** for additional information in support of this request\*.

*\*Not Required for Emergency Declaration Request*

11. Programs and Areas Requested (Continued)

Public Assistance  N/A  Debris Removal (Category A)  Emergency Protective Measures (Category B)  Permanent Work (Categories C-G)\* (not available for Emergency Declaration Requests)

For the following jurisdictions, specify programs and areas (counties, parishes, independent cities; for Indian tribal government, list tribe(s) and/or tribal area(s)). If additional space is needed or your request includes different categories of work for different jurisdictions; please enclose additional documentation.

Categories A through G for the Counties of Fairfield and New Haven and the independent municipalities of Bridgewater, Roxbury and New Milford in Litchfield County (A possible full Litchfield County request is pending results of ongoing PDA for that county and may be requested as an add-on county.)

For States, identify Federally-recognized Tribes included in the requested counties (if applicable).  
N/A

Please see **Enclosure B: Supplemental Information for Public Assistance** for additional information in support of this request\*.

**Indemnification for Debris Removal Activity**

I do not anticipate the need for debris removal.

I anticipate the need for debris removal, which poses an immediate threat to lives, public health and safety. Pursuant to Sections 403 and 407 of the Stafford Act, 42 U.S.C. §§ 5170b & 5173, the State or Indian tribal government agrees to indemnify and hold harmless the United States of America for any claims arising from the removal of debris or wreckage for this disaster. The State or Indian tribal government agrees that debris removal from public and private property will not occur until the landowner signs an unconditional authorization for the removal of debris.

**Request for Direct Federal Assistance**

I do not request direct Federal assistance at this time.

I request direct Federal assistance for work and services to save lives and protect property, and:

a. I request the following type(s) of assistance:

b. List of reasons why State and local or Indian tribal government cannot perform, or contract for, required work and services.

c. In accordance with 44 C.F.R. § 206.208, the State or Indian tribal government agrees that it will, with respect to direct Federal assistance: (1) Provide without cost to the United States all lands, easements, and rights-of-ways necessary to accomplish the approved work; (2) Hold and save the United States free from damages due to the requested work, and shall indemnify the Federal Government against any claims arising from such work; (3) Provide reimbursement to FEMA for the non-Federal share of the cost of such work in accordance with the provisions of the FEMA-State or FEMA-Tribe Agreement ; and (4) Assist the performing Federal agency in all support and local jurisdictional matters.

**Request for Snow Assistance**

N/A  I request snow assistance.

Snow assistance for the following jurisdictions (Specify counties, independent cities or tribes and/or tribal areas).

Please see **Enclosure D: Historic and Current Snowfall Data** for additional information in support of this request\*.

\*Not Required for Emergency Declaration Request

11. Programs and Areas Requested (Continued)

Hazard Mitigation\*  Statewide **OR**

For the following specific counties, parishes, independent cities or tribes and/or tribal areas.

12. Mitigation Plan Information\*

a. Mitigation Plan Expiration Date 1/08/2019 b. Type of Plan  Enhanced  Standard

13. Other Federal Agency Programs

I do not anticipate requirements from Other Federal Agencies  I do anticipate requirements from Other Federal Agencies

Please see **Enclosure C: Requirements for Other Federal Agency Programs** for additional information in support of this request\*.

14. Findings and Certifications

I certify the following:

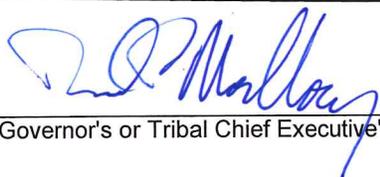
a. I have determined that this incident is of such severity and magnitude that effective response is beyond the capabilities of the State and the affected local government or Indian tribal government and that supplementary federal assistance is necessary.

b. In response to this incident, I have taken appropriate action under State or tribal law and have directed the execution of the State or Tribal Emergency Plan on May 15, 2018 in accordance with the Stafford Act.

c. The State and local governments, or Indian tribal government will assume all applicable non-Federal share of costs required by the Stafford Act.

15. List of Enclosures and Supporting Documentation

Cover Letter  Enclosure A (Individual Assistance)\*  Enclosure B (Public Assistance)\*  
 Enclosure C (Requirements for Other Federal Agency Programs)  Enclosure D (Historic and Current Snowfall Data)  
 Additional Supporting Documentation State Exhibits 1-4

  
\_\_\_\_\_  
Governor's or Tribal Chief Executive's Signature

7/9/18  
\_\_\_\_\_  
Date

If anyone except the Governor or Tribal Chief Executive signs this document, please provide the documentation that establishes that this individual has the legal authority to act on behalf of the Governor or Tribal Chief Executive.

\*Not Required for Emergency Declaration Request