



EAST HADDAM



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Community Resilience Building Summary of Findings

April 2023



Town of East Haddam, Connecticut

Community Resilience Building

Summary of Findings

Overview

The need for municipalities, regional planning organizations, academic institutions, corporations, states, and federal agencies to increase resilience to extreme weather events and a changing climate is strikingly evident amongst the communities across the state of Connecticut. Relatively recent events such as Super Storm Sandy, severe winter storms (2013 & 2015), COVID-19 pandemic, and Tropical Storm Isaias have reinforced this urgency and compelled leading communities like the Town of East Haddam to proactively collaborate on planning and mitigating risks. Ultimately, this type of leadership is to be commended because it will reduce the vulnerability and reinforce the strengths of people, infrastructure, and ecosystems and serve as a model for other communities in Connecticut, New England, and the nation.

Recently, the Town of East Haddam embarked on certification with Sustainable CT. As part of that certification, The Nature Conservancy (TNC) and Sustainable CT provided the Town with a community-driven process to assess current hazard and climate change impacts and to generate potential and prioritized solutions to improve resilience and sustainability. In April 2023, East Haddam's Core Team helped organize a Community Resilience Building process and workshop facilitated by TNC in partnership with Sustainable CT. The core directive of this effort was the engagement with and between community members to define strengths and vulnerabilities and the development of priority resilience actions for the Town of Haddam.

The East Haddam Community Resilience Building Workshop's central objectives were to:

- Define top local, natural, and climate-related hazards of concern.
- Identify existing and future strengths and vulnerabilities.
- Identify and prioritize actions for the Town.
- Identify opportunities to collaboratively advance actions to increase resilience alongside residents and organizations from across the Town, and beyond.

The Town of East Haddam employed an “anywhere at any scale”, community-driven process called Community Resilience Building (CRB) (www.CommunityResilienceBuilding.org). The CRB’s tools, reports, other relevant planning documents, and local maps were integrated into the workshop process to provide both decision-support and visualization around shared issues and existing priorities across East Haddam. The East Haddam Plan of Conservation and Development (2019) and the Lower Connecticut River Valley Council of Governments Hazard Mitigation Plan (2021) were particularly instructive as references. Using the CRB process - rich with information, experience, and dialogue - the participants produced the findings presented in this summary report. This includes an overview of the top hazards, current concerns and challenges, existing strengths, and proposed actions to improve East Haddam’s resilience to hazards and climate change today, and in the future.

The summary of findings transcribed in this report, like any that concern the evolving nature of risk assessment and associated action, is proffered for comments, corrections and updates from workshop attendees and other stakeholders alike. The leadership displayed by the Town of East Haddam on community resilience building will benefit from the continuous participation of all those concerned.

Summary of Findings

Top Hazards and Vulnerable Areas for the Community

Prior to the CRB Workshop, the East Haddam Core Team identified the top hazards for the Town. The hazards of greatest concern included hurricanes and tropical storms, extreme temperature events (hot and cold), and infectious disease and pandemic outbreaks resulting in public health emergencies. Additional hazards highlighted by participants during the CRB Workshop included Nor’easters and blizzards during fall, winter, and spring months as well as high wind events associated with thunderstorms and micro-bursts. These hazards have direct and increasing impacts on the infrastructure, environment, and residents of and visitors to East Haddam. These effects are seen in residential areas, natural areas (wetlands, rivers, forests, preserves), roads, bridges, businesses, farms, transportation, municipal facilities, churches, social support services, arts and culture, and other critical infrastructure and community assets within East Haddam.

Current Concerns and Challenges Presented by Hazards

The Town of East Haddam has several concerns and faces multiple challenges related to the impacts of natural hazards and climate change. In recent years, East Haddam has experienced a series of highly disruptive and damaging weather events including severe flooding (March 2010), Tropical Storm Irene (August 2011), Storm Alfred (October 2011), Superstorm Sandy (October 2012), Nor'easter Nemo (February 2013), Blizzard Juno (January 2015), Tropical Storm Isaias (August 2020), and other less impactful but more frequent events. Impacts from Irene included rain-induced, inland flooding and wind damage while Sandy caused some wind and tree damage across portions of East Haddam. Storm Alfred and Nemo respectively dropped several feet of snow on the Town knocking out power and isolating residents and neighborhoods. The magnitude and intensity of these events and others across Connecticut have increased awareness of natural hazards and climate change, while motivating communities such as East Haddam to proactively improve their resilience.

This recent series of extreme weather events highlights that the impacts from hazards are diverse. In East Haddam this included riverine flooding (flash flooding) of critical infrastructure, roads, and low-lying areas; riverine flooding specific to Succor Brook through the center of Town; localized flooding from stormwater runoff during intense storms and heavy precipitation events; and property damage and utility outages (lasting several days or more) from wind, snow, and ice. Longer periods of elevated heat, particularly in July and August, have raised concerns about vulnerable segments of the population, including elderly and/or disabled community members. The combination of these issues presents a challenge to preparedness and mitigation priorities and requires comprehensive, yet locally specific actions for the Town.

The workshop participants were generally in agreement that East Haddam is experiencing more intense and frequent storm events and heat waves. Additionally, there was a general concern about the increasing challenges of being prepared for the worst-case scenarios (e.g., major thunderstorms and hurricanes (Cat-3 or above)) particularly in the late summer and in the fall/winter months when more intense storms coincide with colder weather (i.e., snow/ice storms, Nor'easters, blizzards). The impact of the current COVID-19 pandemic was raised by workshop participants as well.

Specific Categories of Concerns and Challenges

As in any community, East Haddam is not uniformly vulnerable to hazards and climate change. Certain locations, assets, and populations have been and will be affected to a greater degree than others. Workshop participants identified the following items as their community's key areas of concern and challenges across several broad categories. Vulnerabilities identified in the current East Haddam Hazard Mitigation Plan Annex (2014) are provided in Appendix A for cross reference.

Municipal Functions, Operations, & Growth:

- Regional collaboration opportunities can be a challenge to initiate despite the potential for better services and cost savings in East Haddam.
- High dependence on the volunteer community without a formalized social services department in East Haddam. This results in short-term, acute resolution (“band-aids”) of issues but is limited in terms of comprehensive services consistently over time.
- Availability to volunteer amongst younger residents in Town is challenging given the other time commitments of family life. Many boards and commissions are populated almost entirely by older residents.
- Limited availability and access to public transportation for residents without reliable access to automobiles.
- Inability to be fully responsive to the needs of unhoused individuals in the community or those at risk of losing their primary residence.
- Limited coordination amongst municipality and supporting organizations for underserved populations in East Haddam.
- Lack of affordable housing for existing and new residents to East Haddam.
- East Haddam does not meet the state of Connecticut's definition of broadband access - 0% of the municipality.
- Many areas of the municipality do not have adequate cell coverage.
- Lack of adequate internet connectivity and cell coverage in areas can hamper communications during emergencies and have an impact on the daily quality of life for residents.
- Downtown area is situated at the base of a 300' change in elevation, which has implications for water flow, pooling, and flooding.
- Equipment deficiencies amongst municipal departments including the lack of ample water pumps at the schools and snowplows to adequately service residents.

Specific Categories of Concerns and Challenges (cont'd)

- Twenty-five percent of the residents meet the definition as asset limited, income constrained, and employed (ALICE).

Emergency Management & Preparedness:

- Aging and elderly population that is vulnerable to isolation and loss of power during major events, particularly in the winter months during Nor'easters and blizzards. Concerns about loss of power and inability to draw drinking water from many private wells.
- Proximity of the Goodspeed Opera's Actor Housing to the Succor Brook which periodically overtops its banks in this location.
- Concerns about the reoccurrence frequency and duration of drought conditions in central Connecticut and the impacts it is having on people, agriculture, and natural ecosystems.
- Limited amount of housing options for residents displaced by major storm events due to lack of power and water. Residents are forced to travel outside of East Haddam to find short-term accommodations such as hotels.
- Limited number of major roadways which can hinder effective evacuation efforts during natural disasters with overreliance on egress via the East Haddam Swing Bridge.
- Ongoing challenges in distributing resources and information during power outages and road closures due to downed trees in many parts of the municipality.
- Cycles of drought and intense rainstorms coupled with a warming climate is increasing the risk of vector borne diseases across Connecticut including East Haddam.
- Dispersed nature of residents, homes, and structures across 56 square mile area presents challenges for emergency response and access during major events coupled with the limited mobility of many senior citizens in East Haddam. Many senior citizens are living in remote areas with limited mobility.
- Despite previous management, trees continue to present an ongoing danger to power lines and roadways and associated risks to residents (i.e., power outages, access/egress, physical injury, etc.).
- High winds regularly clocked at 50 mph on the top of the 264' church steeple in Town present dangers to structures across East Haddam.
- Ongoing issues with impacts to structures (i.e., Goodspeed Opera lost library and rehearsal studio) and livelihoods associated with flash flooding on Succor Brook.

Specific Categories of Concerns and Challenges (cont'd)

- Steep slopes and rapid change in elevation has increased vulnerabilities of structures and livelihoods due to flooding and erosion (i.e., Succor Brook). Floods of June 1982 resulted in roads washing out and residents trapped homes however, subsequent building took place along the former path of impact which has elevated the risk to people and property.

Roads, Bridges, Road Networks, & Dams:

- Relatively high number of roads (128+ miles) to clear and make safe after major storm events.
- Creamery Road and the airport area are vulnerable to riverine flooding from the Connecticut River and proximate smaller tributaries.
- Significant concerns regarding the potential for damage to the East Haddam Swing Bridge during a major disaster followed by extensive time needed to repair resulting in isolation of East Haddam from immediate access to the west side of the Connecticut River. East Haddam Swing Bridge is a critical westward egress route for residents in East Haddam.
- Concerns that routine rehabilitation projects on the East Haddam Swing Bridge will retard the ability of tourist to get across the river to East Haddam resulting in negative economic impacts to businesses such as Goodspeed Opera. among others.
- Increased washouts of small bridges and collapse of smaller dams during more intense and longer duration storms in recent decades. Concerns that major disaster will result in catastrophic failure of bridges and smaller dams across Town.
- Stream crossings in many locations are currently subjected to flooding due to undersized or insufficient culverts, which were designed for precipitation events of decades past.
- Large number of privately-owned, small dams along waterways in East Haddam, which are in various states of disrepair if not routinely maintained and monitored.
- Concerns regarding smaller dams that were built a long time ago and have not been well maintained over the decades since former utility as grist mills and sawmills prior to invention of combustion engines. Although not many are classified as high hazard, catastrophic failure would have negative downstream consequences to people, property, and the aquatic environment. Dam failure can also place additional strain on existing culvert systems already at capacity due to modern precipitation events that exceed their design ability.

Specific Categories of Concerns and Challenges (cont'd)

- Concerns that state oversight by CT Department of Energy and Environmental Protection (DEEP) of dams in East Haddam and adjoining municipality is insufficient and inadequate to prevent negative impacts to people and property due to catastrophic failures.

Stormwater, Waste Systems, & Drinking Water Supply:

- Storm drains and stormwater pipes are old and undersized to manage the magnitude of current precipitation events in many locations along the 128-mile roadway network in East Haddam.
- Growing concerns about the insufficient ability of septic systems and private drinking water wells to function over time suggests a need for updating at many residences. One key concern is the potential for failing septic systems to contaminate drinking water wells and adjoining wetlands due to outdated practices and/or rising seasonal groundwater tables.
- Two public water systems in East Haddam which provide services for a very limited portion of Town with most residents drawing drinking water from private wells.
- Growing number of private drinking water wells that are drying up each year during droughts and seasonal dry weather events. Concerns amongst residents there will not be enough groundwater to provide for the current population, let alone additional residents, with reliable, high quality drinking water. Difficulties in understanding the extent of the issue without monitoring and a centralized reporting mechanism or entity.
- Limited potable water supply in East Haddam.

Watersheds, Wetlands, Rivers, Open Space, Forests, Agricultural Lands, & Trees:

- Dead and dying trees located along transportation corridors that present potential challenges to public safety, road access, and power outages (e.g., Tropical Storm Isaias). Tree density and canopy along roadways has expanded significantly since last major hurricane.
- Growing concerns regarding the extend and rate of spread of aquatic invasive species in wetlands, ponds, and rivers across East Haddam.
- Increased presence of the invasive species water chestnut in ponds and larger rivers in East Haddam.
- Growing concern about the use of pesticides at the household level and the impacts on pollinators, drinking water wells, and adjoining wetlands, river, ponds, and streams.

Specific Categories of Concerns and Challenges (cont'd)

- Increasing number of black bear sightings in Town.
- Ongoing concerns regarding the periodic construction of beaver dams that cause localized flooding and road closures after major precipitation events.
- Economic impact and safety issues associated with beaver dam construction due to flooding of adjoining buildings and property.
- Trees, in particular ash and oak, have been significantly impacted by infestations, leaving dead and standing trees vulnerable to high winds and precipitation events. November 2022 rainstorms resulted in approximately twenty power lines begin knocked out in East Haddam due to trees falling on lines.
- Concerns about the impacts of more intense and extended droughts on forest species diversity and distribution over time in the forested landscapes of East Haddam and the entire Connecticut River corridor.
- Ongoing proliferation of invasive species along roadways due to current maintenance techniques and approaches.
- Tick population continues to expand and is becoming a major public health problem with more complicated tick-borne illnesses beyond just Lyme Disease.



Credit: Trip Advisor



Credit: CT Examiner



Credit: Wikimedia

Current Strengths and Assets

Just as certain locations, facilities, and populations in East Haddam stand out as particularly vulnerable to the effects of hazards and climate change, other features are notable assets for East Haddam's resilience building. Workshop participants identified the following items as their community's key strengths and expressed interest in centering them as the core of future resilience building actions.

Municipal Functions, Operations, & Growth:

- Clearly, the responsive and committed engagement exhibited by leadership, staff, and residents is a very appreciated strength within and across East Haddam. Ongoing collaboration between municipal staff, committee/commission/board volunteers, business community, faith-based organizations, non-governmental organizations, adjoining municipalities, Council of Government, and various state-wide organizations (i.e., Sustainable CT), among others, on priorities identified herein will help advance comprehensive, cost-effective, community resilience building actions.
- Strong and connected network of volunteers and community groups (including faith and civic-based organizations) that are a key force in keeping East Haddam functioning. Citizens of East Haddam are generous and engaged around community improvement.
- Community has strong interest and commitment to taking care of each other as expressed by the vitality of the Senior Center, food bank, and transfer station. Residents very responsive to the individual needs within the community.
- High number of long-term residents with long-standing knowledge of East Haddam's history and track record of decisions made by municipal leadership, staff, and volunteers.
- Residents generally well educated (40% bachelor's degree or higher) and represent a higher income population with many financially secure, which lends to increasing the resilience of the overall community.
- East Haddam is known for its rural character and natural beauty where residents can escape busy urban centers and find peace and healing opportunities (i.e., "green is serene"). Community members are committed to preserving this rural character and the natural resources of East Haddam.
- Work amongst community members for the betterment of East Haddam is built on a foundation of mutual respect and appreciation of diverse perspectives.

Current Strengths and Assets (cont'd)

- High degree of creative energy as expressed by the vibrant community of artists and people attracted to the outdoors.
- Numerous retreat facilities in the municipality including Islamic School and Hassidic Camp. These facilities add to the overall diversity of East Haddam and provide valuable gathering spaces for the community.
- Active Senior Center that provides services such as Meals on Wheels, Medicare counseling, tax review, food sharing, and problem-solving opportunities for residents.
- Active business (i.e., new bookstore) and historical society in East Haddam that draw visitors and residents and serve to augment the cultural activities.
- Cafes that host multiple music events as well as outdoor religious services help to create a sense of community and provide residents opportunities to connect informally.
- Goodspeed Opera is the largest arts organization in the region bringing in between 80-100 thousand visitors to East Haddam each year.
- Local small businesses closely connected and looking to offer locally produced and sourced products in response to local needs, help centralize the local economy, and attract new businesses to East Haddam.
- Business community supportive of East Haddam creating a more resilient future for the community. Café owners and business community members used their day off to participate in the East Haddam Community Resilience Building workshop.
- Residents in general understand the risk as well as benefits of certain kinds of development but are aligned around preventing development categorized as “urban sprawl”.
- Presence of a well-supported and utilized food bank in East Haddam.
- Connected to adjoining municipalities through the Lower Connecticut River Council of Governments and other networks that allow for regional planning to occur.
- School system is greatly appreciated and supported by the community with a strong East Haddam Parent Teacher Organization.
- Widely anticipated, appreciated, and respected weekly publication of the East Haddam News, which has high readership in Town, particularly amongst the senior citizens.

Current Strengths and Assets (cont'd)

- East Haddam is drawing more and more new residents with 10 new building permits for new homes issued by the Town in March 2023, alone.

Emergency Management & Preparedness:

- Volunteer-based Community Emergency Response Team (CERT) with over 70 members and training session at least once per year. East Haddam's CERT in place to assist with staffing shelters and preparing and serving hot meals to residents in times of need. East Haddam's CERT is one of the largest in the state of Connecticut.
- Municipality maintains a list of residents with special needs related to health and/or mobility and provides residents with ways to voluntarily join the list on a routine basis as part of the ongoing Emergency Operations Plan for East Haddam. Special Needs List activates special communications and/or special care of select residents in times of crisis. Individuals on this list are checked on throughout the year.
- Responsive community-based Police Department that strives to serve the needs of East Haddam.
- Volunteer Fire Department and East Haddam Ambulance Association provide invaluable "neighbor-helping-neighbor" services for resident.
- Recently secured a grant to improve communications between ambulances in East Haddam.
- Cooling centers with generators positioned around Town that are available to charge phones, provide showers (in some locations), and have a meal during times of crisis. Town Hall is a designated emergency services area with a generator also at the transfer station, public works garage, and the schools.
- Extreme weather shelter system plan in place and operational which includes the Senior Center as the primary cooling center in East Haddam and the High School, Middle School, and Elementary School as sheltering facilities.
- Town Hall has a back-up generator in place and routinely maintained to maximize readiness in the event of a major disaster.

Current Strengths and Assets (cont'd)

- Emergency status updates about road closures during storms get communicated in a timely and effective manner by the municipal emergency management professionals. Town website has emergency related information as does the Emergency Management Facebook page.
- Indispensable local pharmacy that stepped up as a true community leader during the COVID-19 pandemic as well as during cold and flu seasons with vaccinations and general responsiveness to residents and the overall East Haddam community. Pharmacy set up a table in Senior Center to proactively ensure greater outreach and connection with residents during the COVID-19 pandemic.

Roads, Bridges, Road Networks, & Dams:

- Public Works Department viewed as very responsive and dedicated to needs of the community particularly during winter snowstorms and tree removal associated with road closure.
- Over 128 miles of locally maintained roads with a relatively large number of dirt roads for a municipality of this size in Connecticut.
- Flood of 1982 compelled East Haddam to improve the resilience of several critical road crossings.
- Limited exposure of sea level rise (i.e., Creamery Road, airport) although the Connecticut River is tidal upstream to Hartford. Positioning of structures and buildings away from the Connecticut River buffers threat as compared to other municipalities along the Connecticut River such as Essex and Old Saybrook.
- Presence of a small airport in East Haddam.

Stormwater, Waste Systems, & Drinking Water Supply:

- Sewer Treatment Facility in East Haddam Village.
- Seasonal drinking water supply system at Lake Hayward.
- Privately-owned, year-round, drinking water supply system at Banner Road in the planned residential development.

Current Strengths and Assets (cont'd)

Watersheds, Wetlands, Rivers, Open Space, Forests, Agricultural Lands, & Trees:

- Learning network of friends and neighbors focused on teaching and better understanding the natural resources and ecosystems in East Haddam and adjoining communities.
- Outdoor opportunities provided to residents and visitors by the East Haddam Land Trust increase awareness and use of preserves and trails by the community. Outreach and use of natural resource areas was “tremendous” during the COVID-19 pandemic.
- Natural beauty of East Haddam and the surrounding areas helps to retain visitors for extended periods of time in all seasons.
- Three state parks located in East Haddam, which helps to increase the availability and access to open space and recreational opportunities for resident and visitors.
- Due to heavy forested landscape and minimal urbanization, the Town is relatively well positioned to withstand environmental impacts associated with climate change.
- Economic Development working with East Haddam Land Trust and others to explore ways to create more bike paths and walking trails that better connect open space, preserves, and places such as Gillette Castle.
- Municipality, local land trust, The Nature Conservancy, private citizens, and many other have protected an outstanding amount and diversity of natural habitats and ecosystems across many watersheds and forested areas. These natural resources are recognized as beneficial in many ways to both residents and visitors to East Haddam.
- Strong community desire to preserve and maintain the rural character of East Haddam through open space protection and working agricultural landscapes.
- Relatively high level of biodiversity and array of habitats including forested lands, open spaces, rivers and lakes, and trails that help increase tourism in East Haddam.
- Presence and involvement of the local agricultural community in the social, economic, and ecological landscape of East Haddam is a recognized and appreciated strength.
- Active and connected agricultural community in East Haddam that focus on vegetable, flower, and livestock farming.

Current Strengths and Assets (cont'd)

- Large number of residents that manage vegetable gardens and raise livestock such as chickens that reflects the ability of residents to be self-supportive.
- Municipality is looking into ways to promote local farms and farming by increasing the marketplace for local goods via farm stands and other community-based points of purchase.
- Community gardens and local farmers markets help to empower local food security and create interdependency amongst community members.
- Growing number of small farms and homesteads the are feeding families at the local level in a more environmentally friendly manner.
- East Haddam is part of the 8 Mile River Watershed, which is a nationally recognized resources of great ecological importance.



Credit: Cold Spring Farm



Credit: visiteasthaddam.com



Credit: East Haddam Land Trust

Recommendations to Improve Resilience

A common theme among workshop participants was the need to continue community-based planning efforts focused on developing adaptive measures to reinforce East Haddam's strengths and reduce vulnerability to extreme weather, climate change and other common concerns raised. To that end, the workshop participants helped to identify several priority topics requiring more immediate and/or ongoing attention including:

- **Long-term vision and growth** (i.e. sustainable growth, volunteerism, conservation & recreation, affordable housing, local food security, ample drinking water);
- **Infrastructure improvements** (i.e. roads/bridges/dams/road crossings, green stormwater infrastructure/management systems, drinking water supply, broadband);
- **Quality of life improvements** (i.e. parks and recreation, open space & accessibility, sustainability, health & safety, economic prosperity, housing, education, transportation);
- **Emergency management** (i.e. communications, outreach, education, continuation of services, business recovery, evacuation, vulnerable populations).

In direct response, the Community Resilience Building workshop participants developed the following actions and identified, but not ranked, them as priority or as additional actions. Mitigation actions from the East Haddam Hazard Mitigation Plan Annex (2021) are provided in Appendix A for cross reference with actions presented herein. Maps provided during the CRB Workshop, gathered from the East Haddam Hazard Mitigation Plan (2014, 2021) and Plan of Conservation and Development (2019), are provided in Appendix B.

Priority Actions

- Prepare for the emerging impacts of climate change on human health, well-being, quality of life, and future livelihoods in East Haddam.
- Generate more opportunities for “neighbor-helping-neighbor” efforts to increase communications and relationships between East Haddam residents (i.e., “increase social cohesion”), which will be instrumental in increasing the overall resilience of the community.

Priority Actions (cont'd)

- Proactively identify likely impacts of climate change and more extreme weather events on the underserved community in East Haddam followed by coordination amongst the municipality and supportive organizations to fulfill identified needs.
- Identify ways to increase public transportation options for residents to help maximize access to social services and support centers.
- Conduct comprehensive road crossing inventory and assessment of condition coupled with the identification of needed actions at each location. Ensure that remediation or retrofitting is conducted to help build resilience of the crossing as well as improve the environmental conditions within the associated streams, rivers, and wetlands.
- Secure dam inventory list from DEEP so emergency management professionals in East Haddam can check on them during major storms to assess level of risk due to catastrophic failures. In addition, provide inventory list to residents to help foster crosschecking of the list with ground truthing of known and unregistered dams in East Haddam. Municipality can then list the ownership, location, and condition of all known and unregistered dams and the level of risk posed to people, property, and the environment in the event of catastrophic failure.
- Allow the Public Works Department to identify and prioritize areas for ongoing tree management including school bus stops and more densely populated areas with the intent of eventually creating a “Roadside Tree Management Plan” for East Haddam.
- Continue to allocate municipal funds (\$200K annually, currently) to working on the dead and dying tree crisis across East Haddam. Re-direct any unspent funds from snow removal budget to additional tree management as climate changes and snow events become less frequent.
- Rethink current roadside vegetation management practices to better prevent the establishment and spread of invasive species.

Priority Actions (cont'd)

- Explore techniques for roadside management that help to control invasive species without cutting and spraying with herbicides, which can be detrimental to adjoining waterways. Consider looking to neighboring states with effective procedures.
- Plant native shrubs and perennials with deep root structure along roadsides to help stabilize slopes and prevent erosion that can be expensive to correct.
- Conduct outreach to help educate private landowners and public works employees about proper forest management practices and invasive species control. Utilize outreach mechanisms to further education such as the East Haddam News, municipal website, forums at the grange and schools, among others.
- Better communicate municipal emergency management plans and procedures at the household level via website(s), newsletters, direct mail, and social media. Look for way to tie in communications outreach with efforts to make broadband available to all residents.
- Advertise the East Haddam Emergency Management Facebook page to more residents in hopes of increasing awareness of procedures and available resources for the community.
- Include emergency management information in all welcome packets to new residents.
- Look to include emergency management information in the quarterly East Haddam Events mailer alongside other important municipal-related information.
- Conduct outreach to increase awareness and hopefully subscription to the reverse phone call system to help broaden the reach of emergency alerts to more residents.
- Direct municipal funding to establishing a municipally owned, open-access broadband program to ensure all residents have free and fast internet connectivity in East Haddam.

Priority Actions (cont'd)

- Conduct formal and comprehensive water assessment of stormwater runoff and flooding issues including an examination of culverts, dams, road crossings, and storm drains, among other water-related infrastructure.
- Continue to assess the extent of impact and options to reduce flooding and associated damage to structures along Succor Brook. Options to consider may include creating wider stream channels, natural flood/runoff storage areas, upsizing bridges along various segments, and addressing vulnerabilities of buildings within and adjoining this waterway.
- Reinforce the need to incorporate flood mitigation strategies such as green stormwater infrastructure into East Haddam Village development plans and activities.
- Provide education to owners of private drinking water wells on how to get water tested and how to monitor and report drought conditions as expressed through well water availability. Look to set up a reporting structure and repository to help identify the extent and duration of dry drinking water wells over time in East Haddam.
- Examine the availability, location, and quantities of fresh water for a comprehensive public drinking water supply system. Use assessment to help create redundancies in high quality supplies for residents during all seasons.



Credit: Historic Bridges



Credit: Lakeside Dan's



Credit: Next Door

Additional Actions

- Explore the needs for resources to sustainability support the growth of the municipality's population over the next few decades.
- Engage with neighboring municipalities regarding priority actions generated during Community Resilience Building workshops in hopes of fostering more regional approaches and projects over time.
- Continue to advance the funded social services program through the Youth and Family Services Department that will help create and support a more centralized response to the societal needs of East Haddam residents.
- Work to identify, develop, and expand the affordable housing options to help support and retain existing and attract new residents to East Haddam.
- Look to replicate the successful neighborhood network on River Road across East Haddam where neighbors all check in with each other before and after major events.
- Work to improve food security through availability and access of locally grown produce and meat products.
- Work with the local agricultural community to proactively identify likely impacts due to climate change on crops and livestock and seek out solutions before issues become critical.
- Establish a private-public team to list, map, and market agricultural products from East Haddam and promote farmstands and stores selling locally grown items to help residents and visitors recognize products from specific East Haddam farms.
- Further identify the needs of residents across East Haddam in advance of and during heat waves including the increase in the number and distribution of cooling stations.

Additional Actions (cont'd)

- Periodically conduct emergency preparedness drills at the High School to ensure the primary sheltering facility for East Haddam is fully functional including running the emergency back-up generators. Engage CERT in these drills to help share and instill knowledge regarding procedures and how to handle various situations.
- Identify ways to increase the subscription of the special needs list in East Haddam to ensure those that are in need are properly cared for in advance of and after major disasters.
- Make necessary improvements to the evacuation route planning and sheltering facility management (opening and hours of operations) that should include extensive advertising to residents well in advance of crisis events.
- Seek out funding to install back-up power generator at the First Church to help increase community support and attention during major events. First Church is the backup location for the Chesthelm Nursing Home.
- Create and launch a “community-sharing-generators program” to help ensure residents in need have continuity of power during power outages and to also help create redundancies in the power grid in East Haddam.
- Explore current and future opportunities to increase the use of distributed power generation in the form of household solar and battery back-up equipment.
- Define and implement differential zoning for floodplains to help ensure appropriate development occurs with resiliently located, designed, and constructed buildings and supporting infrastructure.
- Explore and identify steps needed to reduce flooding along the Moodus River and associated tributaries.

Additional Actions (cont'd)

- Compel DEEP to conduct necessary debris management on a routine basis at the ice control structure on the Salmon River.
- Explore further the potential for a private-public partnership to advance more comprehensive and greener stormwater management projects to alleviate localized flooding in well-known areas of impact. Look to engage the business community upstream from residential areas in low lying areas subjected to flooding to help provide funding for better stormwater management efforts.
- Advance a proactive prioritization, repair, and maintenance plan and program for comprehensive bridge repair throughout East Haddam. Continue to build prioritized projects into every annual budget to help circumvent deferred maintenance default behavior by leadership for critical infrastructure.
- Provide the Department of Public Works with more equipment (i.e., beaver deceivers) to help minimize impact of beaver dam flooding on roadways.
- Create a comprehensive forest management plan for East Haddam.
- In the Plan of Conservation and Development look to include education-related actions to help improve the overall forest management and invasive control across East Haddam.
- Work on increasing the number of pathways connecting features such as Gillette Castle and preserves via bike paths and walking trails.
- Provide clearer signage and access spots for natural areas in East Haddam.

CRB Workshop Participants: Department/Organization

Town of East Haddam – Office of the First Selectmen
Town of East Haddam – Office of the Selectmen
Town of East Haddam – Emergency Management
Town of East Haddam – Youth and Family Services
Town of East Haddam – Land Use Office
Town of East Haddam – Department of Public Works
Town of East Haddam – Conservation Commission
Town of East Haddam – Economic Development Commission
Town of East Haddam – Sustainability Committee
Town of East Haddam – Board of Finance
Town of East Haddam – Resident
East Haddam Business Association
Gateway Commission Member
East Haddam Land Trust
Chatham Health District
Goodspeed Opera
Cold Spring Farm
First Congregational Church
Two Wrasslin' Cats Café
Ballek's Garden Center
Shagbark Hardware
Eight Mile River Committee
Salmon River Watershed Partnership
Connecticut Institute for Resilience & Climate Adaptation

East Haddam Core CRB Project Team

Irene Haines – First Selectman – Town of East Haddam

John Olin – East Haddam Conservation Commission Member – Town of East Haddam

Pete Govert – East Haddam Land Trust Executive Director

Bernie Gills – East Haddam Conservation Commission Member – Town of East Haddam

Michele Velez – Director – Department of Public Works – Town of East Haddam

Amalia Shaltiel – East Haddam Sustainability Committee Member – Town of East Haddam

Online CRB Workshop Facilitation Team

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Sustainable CT – Jessica LeClair (Small Group Facilitator)

The Nature Conservancy – Drew Goldsman (Small Group Facilitator)

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The Nature Conservancy – Matthew Thorne (Scribe)

Sustainable CT – Torin Radicioni (Scribe)

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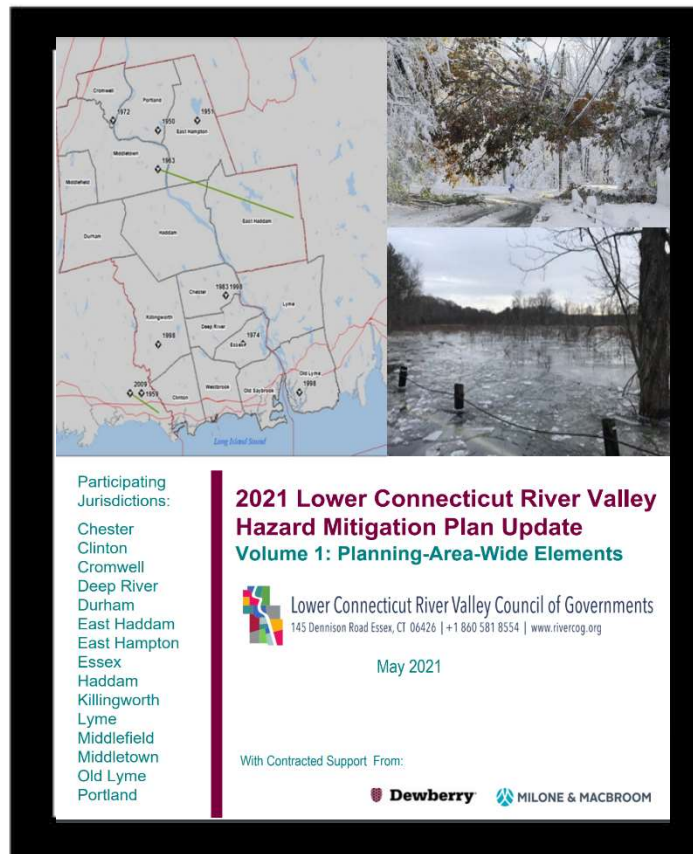
Acknowledgements

Special thanks to the Town leadership, staff, and community members for their willingness to embrace the process in hopes of a more resilient future for East Haddam. This online Community Resilience Building Workshop was made possible in large part through the dedicated contribution of the facilitation team members who skillfully conducted the East Haddam Community Resilience Building workshop in close partnership with the Town's Core CRB Project Team.

Appendix A

East Haddam

Mitigation Action Plan and Actions*



***Gathered from East Haddam’s Municipal Annex within the Lower Connecticut River Valley Council of Governments Hazard Mitigation Plan Update (2021).**

KEY: SW= Severe Weather, TW = Tornado/Wind, ET = Extreme Temperatures, WS=Winter Storm, F = Flood, TI = Tree Damage and Invasive Species, WF = Wild Fire, D = Drought, E = Earthquake, CC = Climate Change

Table 5-3. East Haddam Hazard Mitigation Strategies and Prioritization.

Activity #	Goal/Objective	Activity Description	Lead Agency	Est. Cost*	Potential Funding Sources	Timeframe for Completion	Hazard (s) Addressed	Weighted STAPLEE Criteria														Total STAPLEE Score/Priority
								Social Benefit	Social Cost	Technical Benefit	Technical Cost	Administrative Benefit	Administrative Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environmental Benefit	Environmental Cost	
1	2-1	Coordinate with DOT to address culverts, pipes, bridges, etc. on state owned roadways to mitigate flooding and overtopping problems. Create list, request meeting with DOT, annual reminders (refer to the list in Table 13)	PW, BOS, BOF	\$10,000-\$15,000	State DOT	2021 for Coordination, Implementation Annually	F	1	1	1	0	0	1	0	0	0	1	1	0	1	0	7/H
2	2-1	Conduct engineering studies to mitigate various Town-owned structures in need of repair, culverts, pipes, bridges, etc., on Town-owned roadways that are causing flooding and overtopping problems. Replace 1-	PW, BOS, BOF	\$25,000-\$50,000	HMPG, FMA, CIP, STIP, TIP, RTP	2022-2023	F	1	0	1	1	0	0	1	1	0	0	1	1	0	0	11/H

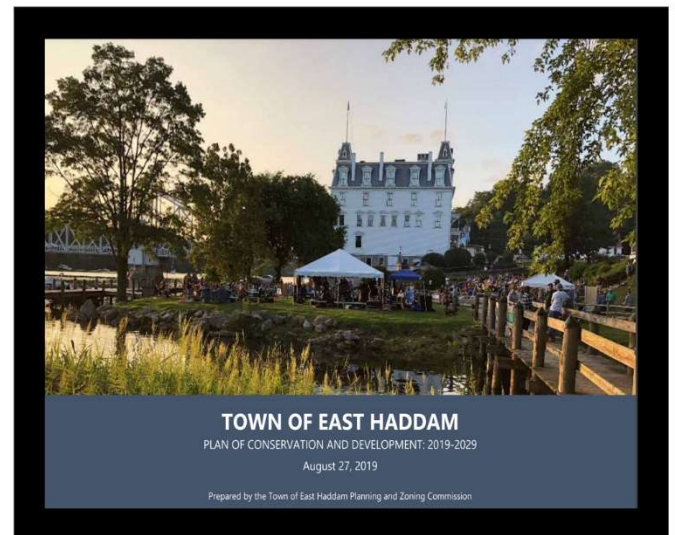
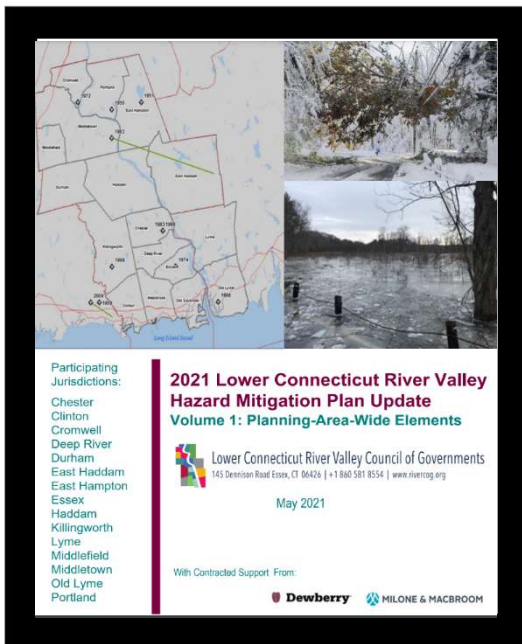
Activity #	Goal/Objective	Activity Description	Lead Agency	Est. Cost*	Potential Funding Sources	Timeframe for Completion	Hazard (s) Addressed	Weighted STAPLEE Criteria														Total STAPLEE Score/Priority	
								Social Benefit	Social Cost	Technical Benefit	Technical Cost	Administrative Benefit	Administrative Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environmental Benefit	Environmental Cost		
		2 annually. (refer to the list in Table 13)																					
3	2-1	Support mitigation projects that will result in protection of public or private property from natural hazards through stormwater management improvements for areas identified by the Town. Identify and implement one per year.	PW, BOS, BOF	\$10,000-\$15,000	HMPG, FMA, PDM, CIP, Op	2020	F	1	0	1	1	0	0	1	1	0	0	1	1	0	0	11/H	
4	1-1	Identify funding to assist flood prone properties along the Connecticut River and inland streams for acquisition. Prioritize Repetitive Loss properties.	LU, BOS		FEMA HMA, HMPG, HUD-CDBG-DR, CIP	2024	F	1	0	0	0	0	0	1	1	0	0	1	1	0	0	5/H	
5	1-1	Update the existing Debris Management Plan. Identify locations for large	PW, FM, EMD, BO, LUO, BOS, BOF	\$0-\$1,000	CIP, OP	2023	SW, TW, WS, TI, WF	1	0	0	0	1	1	0	0	0	0	0	0	0	1	0	4/H

Activity #	Goal/Objective	Activity Description	Lead Agency	Est. Cost*	Potential Funding Sources	Timeframe for Completion	Hazard (s) Addressed	Weighted STAPLEE Criteria														Total STAPLEE Score/Priority		
								Social Benefit	Social Cost	Technical Benefit	Technical Cost	Administrative Benefit	Administrative Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environmental Benefit	Environmental Cost			
		volumes of debris and comply with DEMHS debris management plan standards.																						
6	1-1	Budget appropriate money necessary to maintain and remove dead, dying, dangerous, and diseased trees in rights-of-ways and on other town-owned land.	Public Works	\$50,000 + annually	CIP	Annually through 2025	TI	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	4/H
7	2-1	Culvert Construction. Oversee the completion of construction of the three culverts along East Shore Drive that started with 2018 FEMA Public Assistance funding.	PW, BOS, BOF	\$25,000-\$50,000	FEMA PA CIP, OP	2020	F	1	0	1	1	0	0	1	1	0	0	1	1	0	0	0	0	11/H
8	2-1	Culvert Construction. Oversee and complete construction of the Mitchell Road culvert	PW, BOS, BOF	\$10,000-\$15,000	HMGP, FMA, PDM, CIP, Op	2020	F	1	0	1	1	0	0	1	1	0	0	1	1	0	0	0	0	11/H

Activity #	Goal/Objective	Activity Description	Lead Agency	Est. Cost*	Potential Funding Sources	Timeframe for Completion	Hazard (s) Addressed	Weighted STAPLEE Criteria														Total STAPLEE Score/Priority		
								Social Benefit	Social Cost	Technical Benefit	Technical Cost	Administrative Benefit	Administrative Cost	Political Benefit	Political Cost	Legal Benefit	Legal Cost	Economic Benefit	Economic Cost	Environmental Benefit	Environmental Cost			
		improvements to reduce flooding																						
9	1-1	Critical Facilities. Install generators at Elementary Schools and Transfer Stations.	PW, FM, EMD, BO, LUO, BOS, BOF	\$1,000-\$5,000	CIP, OP	2022	SW, TW, WS, ET	1	0	0	0	0	0	1	1	0	0	1	1	0	0	0	0	5/H
10	3-1	Promote use of Everbridge. Place postings on the community website and social media promoting registration to the Everbridge system to grow it use.	EM	Staff Time	OP	2021	All	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	3/M

Appendix B

East Haddam Map Resource Packet* Used During Workshop



***Gathered from East Haddam's Plan of Conservation and Development (2019) and the Lower Connecticut River Valley Council of Governments Hazard Mitigation Plan Update (2014, 2021).**

Lower Connecticut River Valley Council of Governments Planning Region



Map 1: RiverCOG Region, with former Midstate Planning Region shown in yellow outline.
Source: RiverCOG

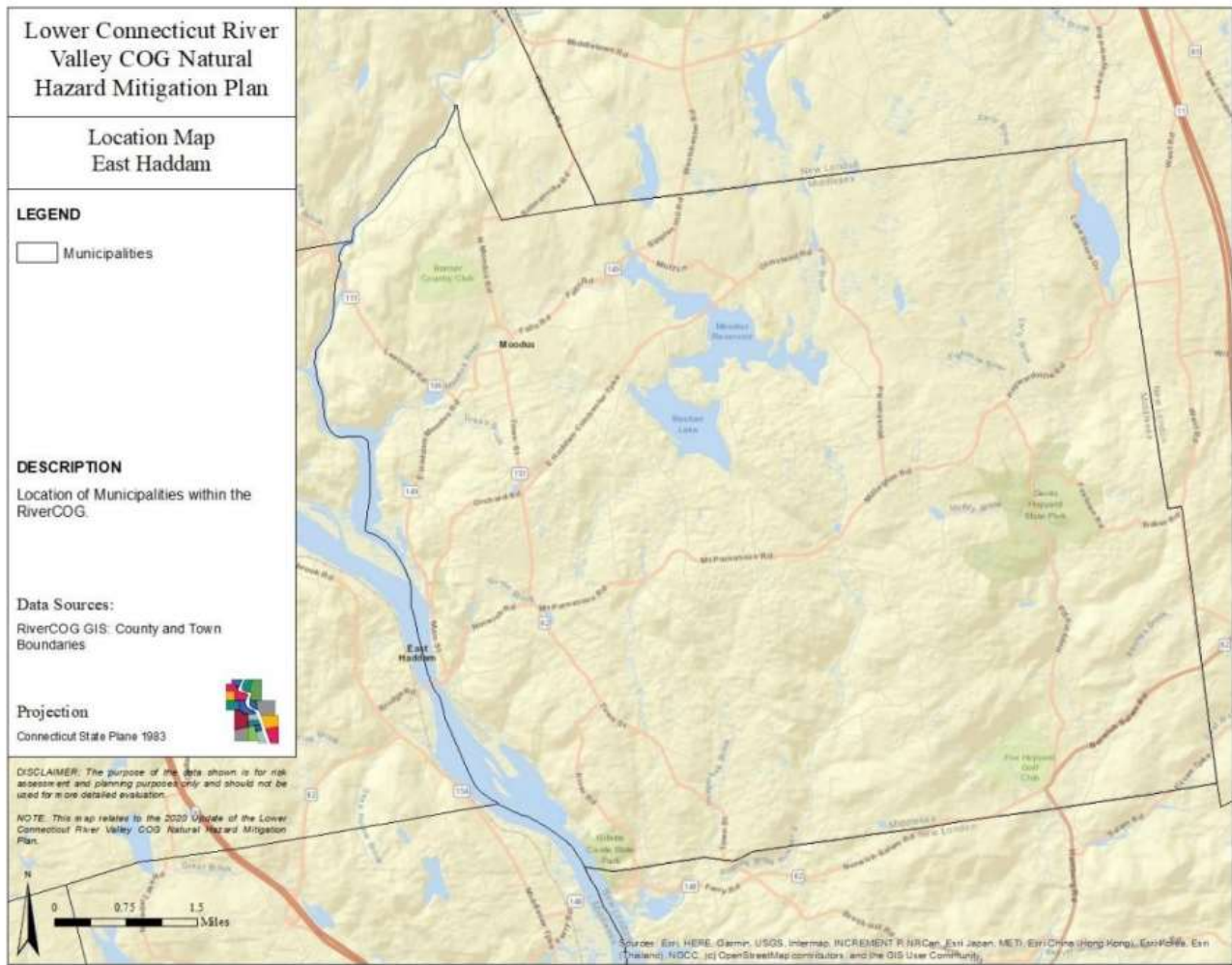


Figure 2-1. East Haddam Location.

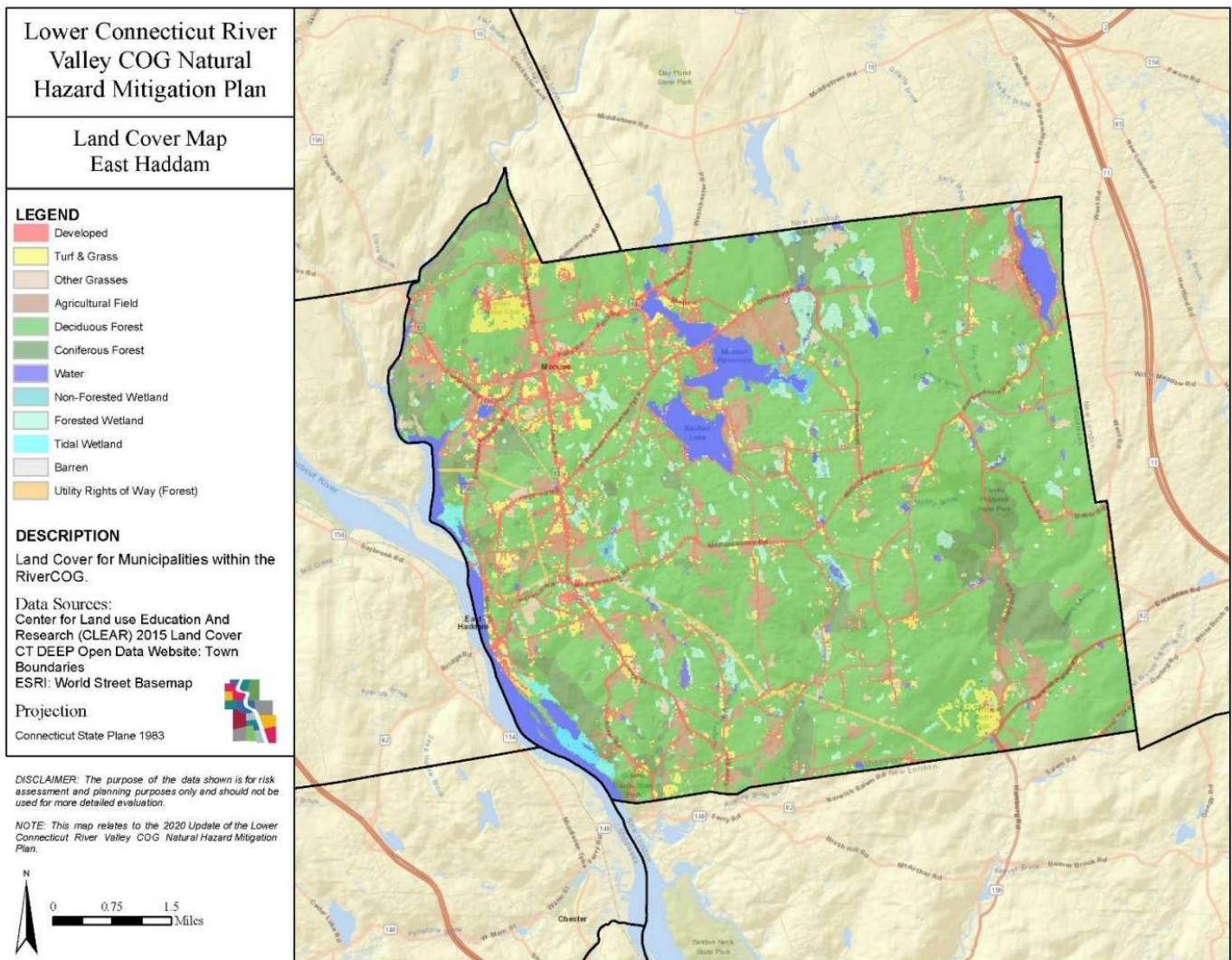


Figure 2-2. East Haddam Land Cover

Lower Connecticut River Valley COG Natural Hazard Mitigation Plan

Dam Location Map
East Haddam

LEGEND

Dams Hazard Class

-  Unclassified
-  AA
-  A
-  BB
-  B
-  C

DESCRIPTION

Location of Dams in Municipalities within the RiverCOG.

Data Sources:

CT DEEP GIS Open Data Website:

Dams 10/28/2019

Town Boundaries

ESRI: World Topographic Map Basemap

Projection

Connecticut State Plane 1983



DISCLAIMER: The purpose of the data shown is for risk assessment and planning purposes only and should not be used for more detailed evaluation.

NOTE: This map relates to the 2020 Update of the Lower Connecticut River Valley COG Natural Hazard Mitigation Plan.

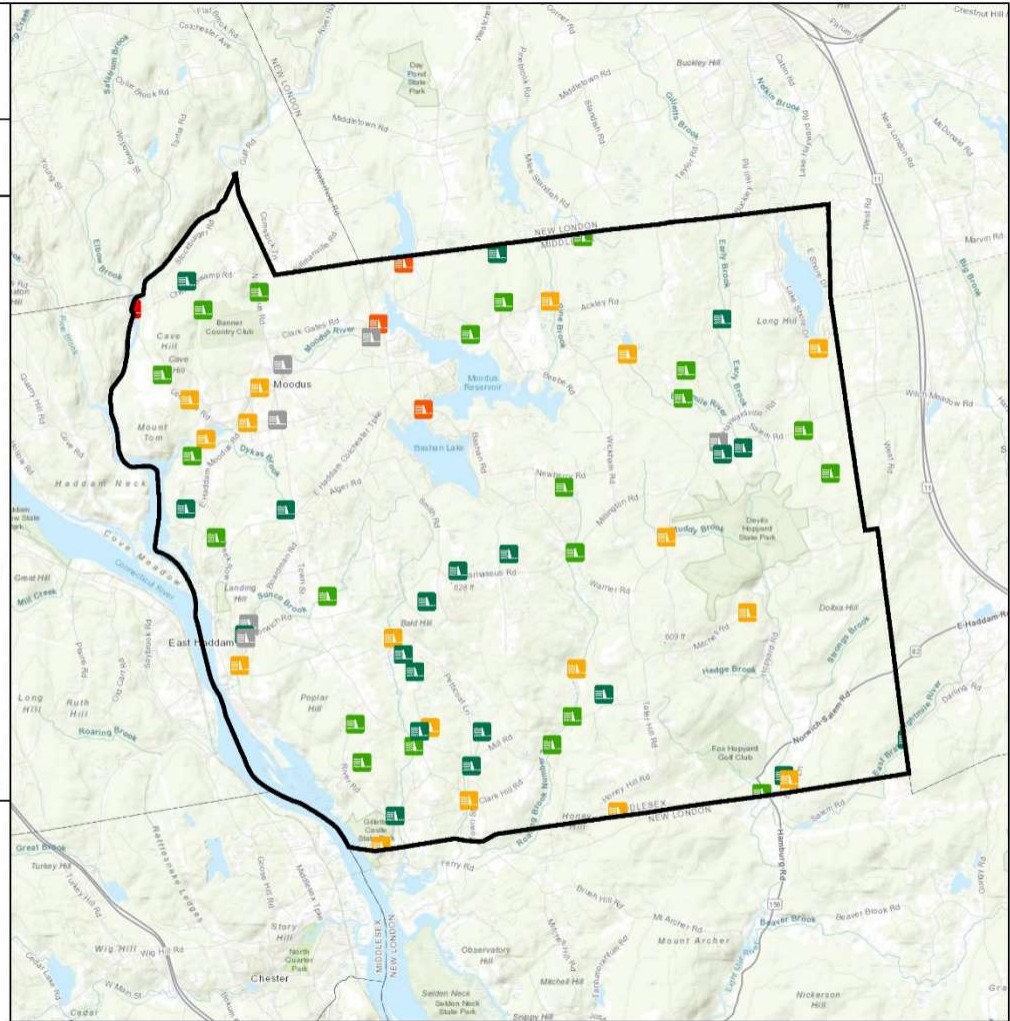















Figure 2-4. Location of Dams in East Haddam

Lower Connecticut River Valley COG Natural Hazard Mitigation Plan

Critical Facility Location Map
East Haddam

LEGEND

-  EMS
-  Fire Station
-  Municipal Solid Waste
-  Public Works
-  Shelter
-  Town Hall
-  Emergency Operations Centers
-  Fire Stations
-  Police Stations
-  Schools
-  Town Halls
-  Nursing Homes
-  Airports

DESCRIPTION
Critical Infrastructure for Municipalities within the RiverCOG.

Data Sources:
Critical Facilities: DAS, Supplemented with Local Data
CT DEEP Open Data Website: Town Boundaries
ESRI: World Topographic Basemap

Projection
Connecticut State Plane 1983

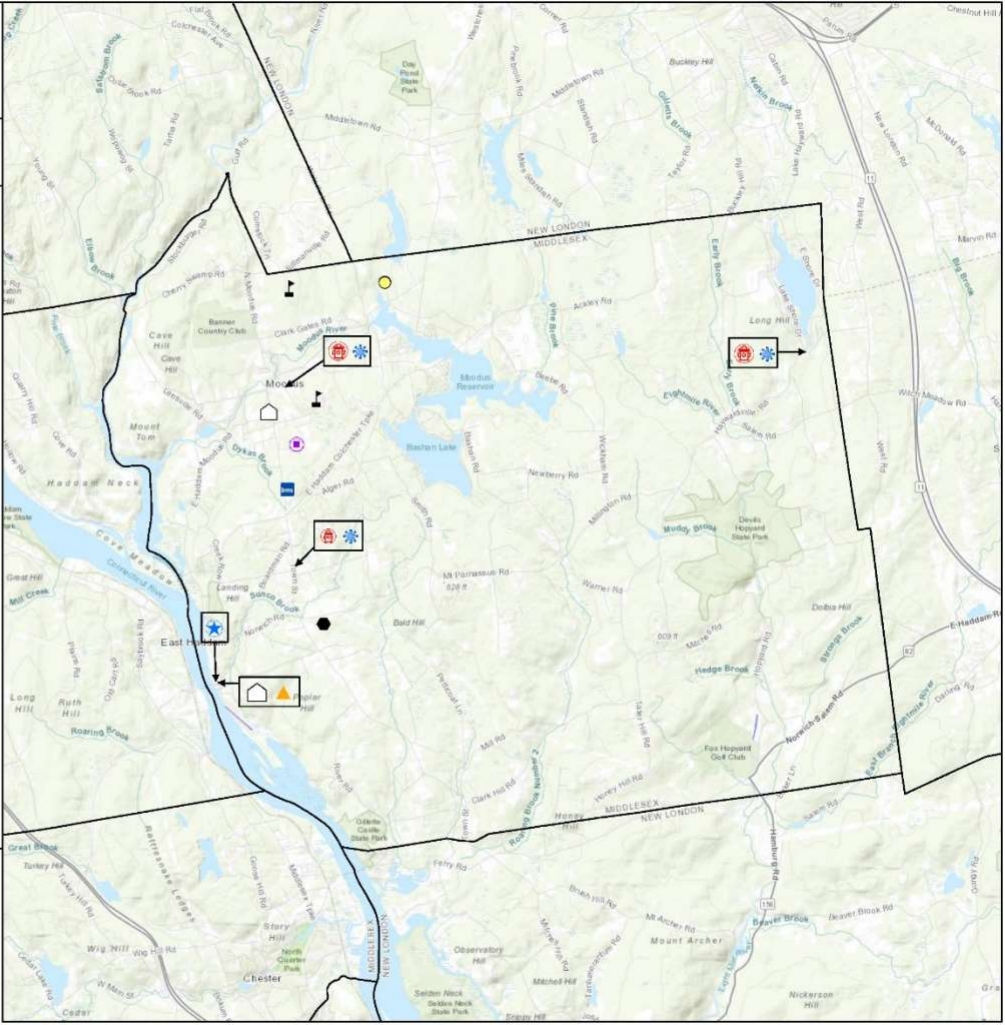
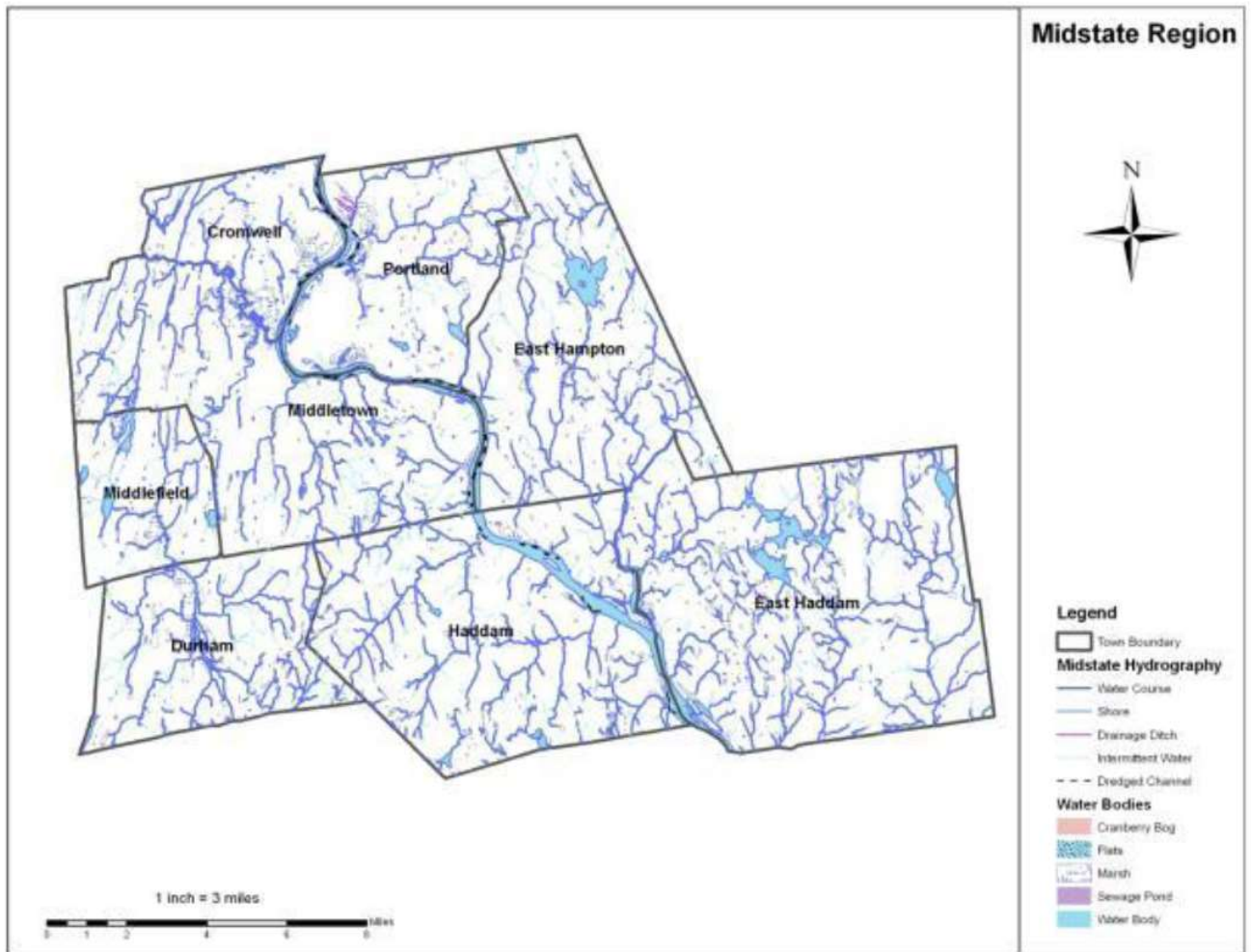
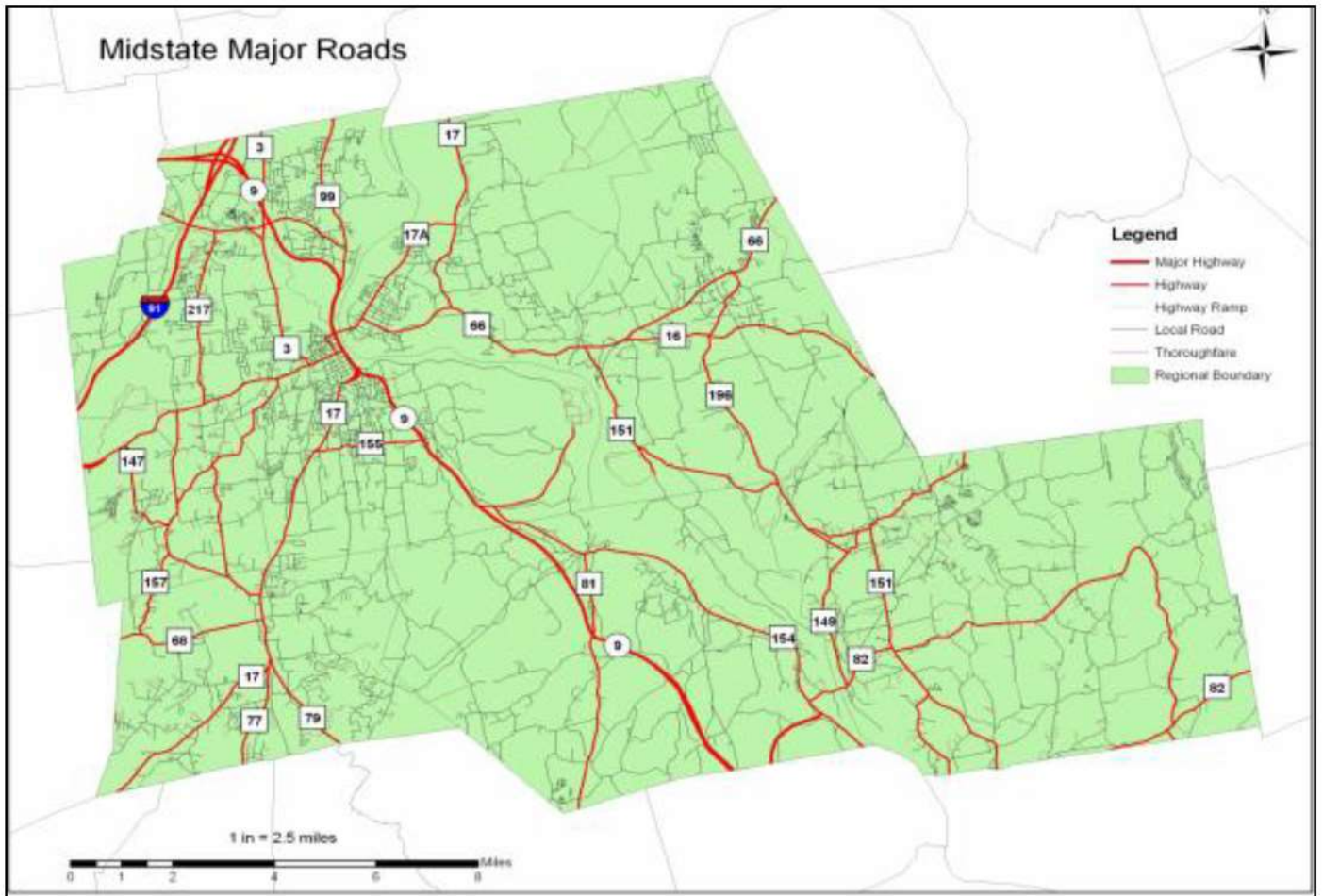


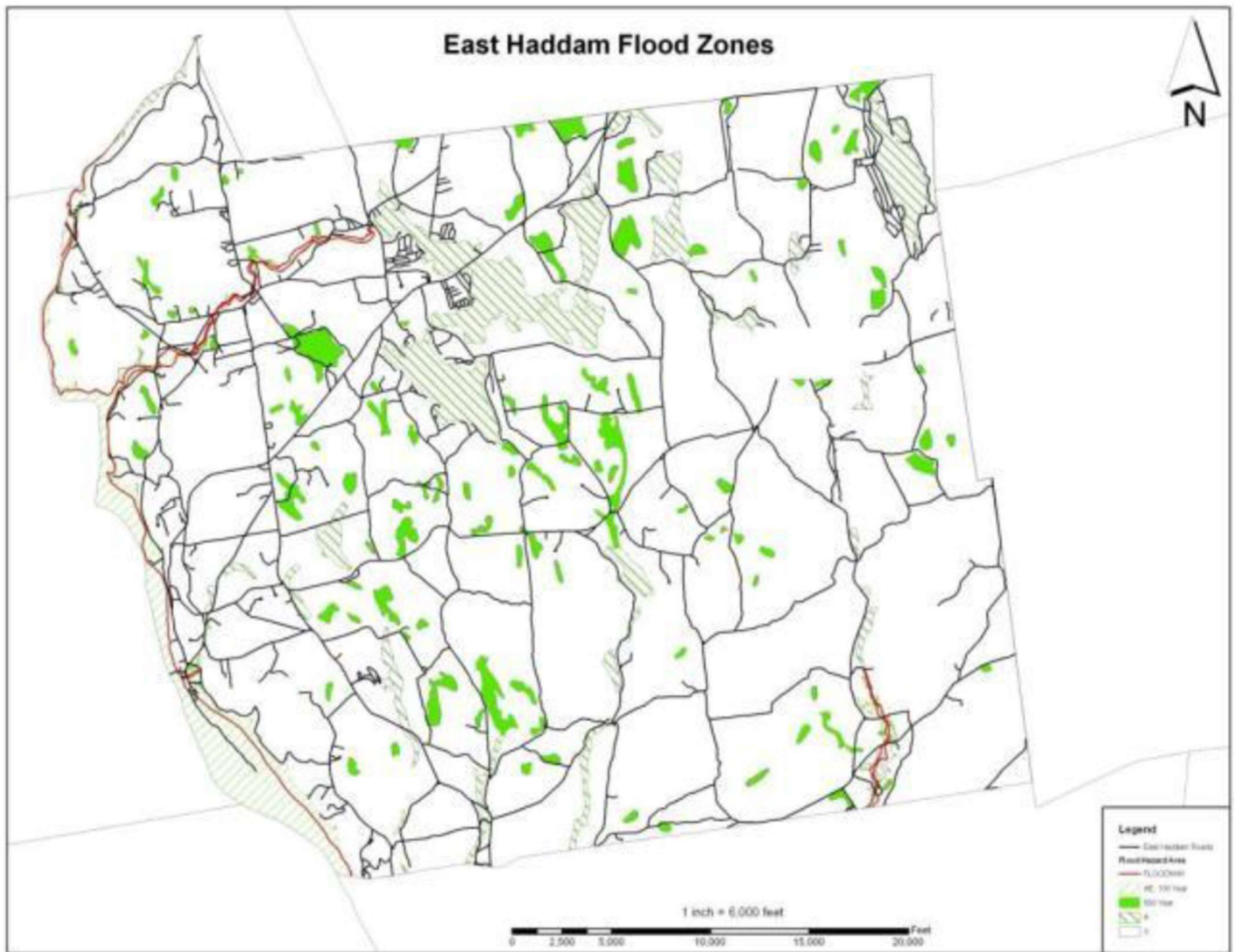
Figure 3-1. Location of Critical Facilities in East Haddam



Map 2: Hydrography of the Eight Former Midstate Region Municipalities
 Source: RiverCOG



Map 3: Major Roads in the Eight Former Midstate Region Municipalities
 Source: RiverCOG



Map 2: East Haddam Flood Zones

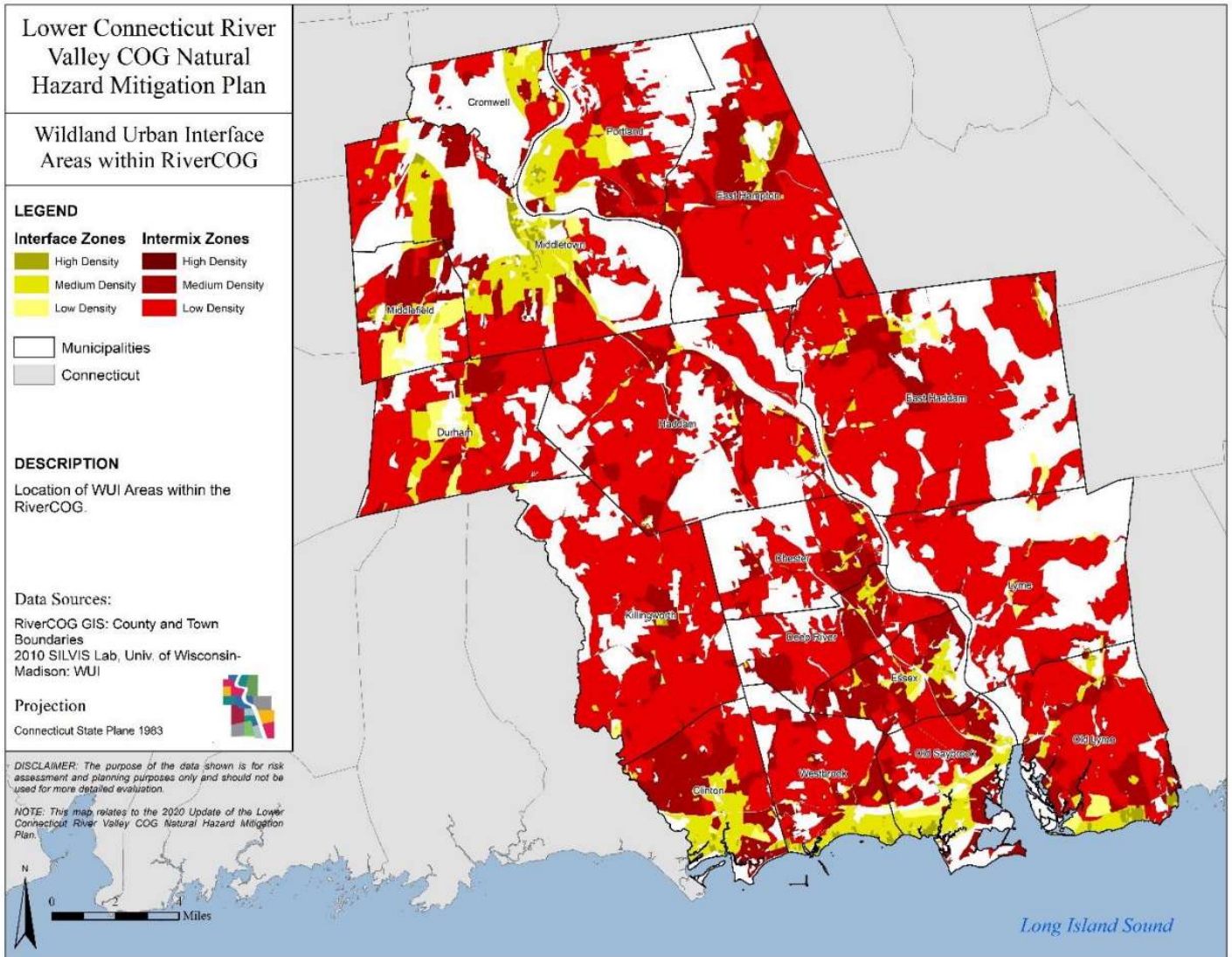
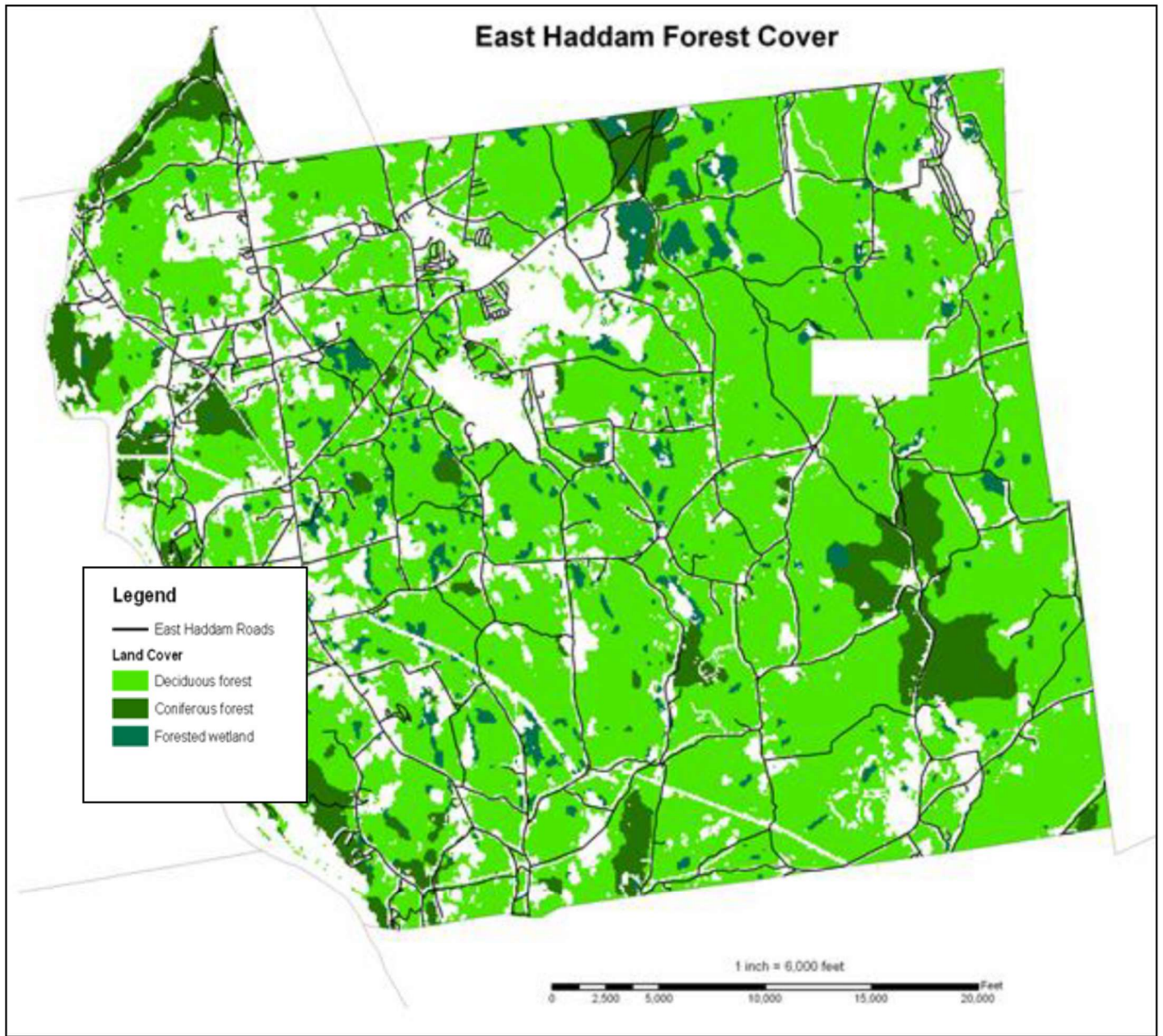
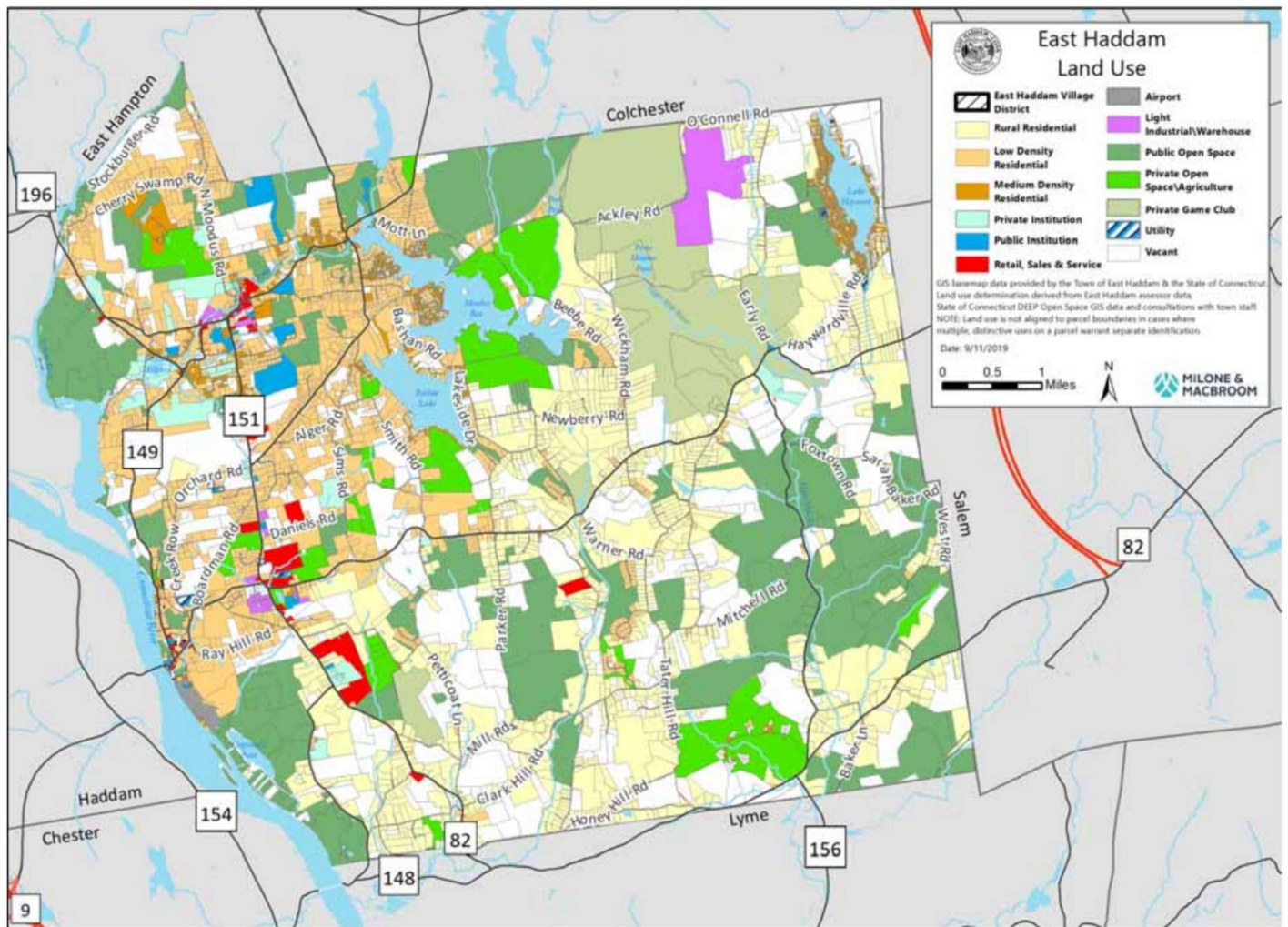


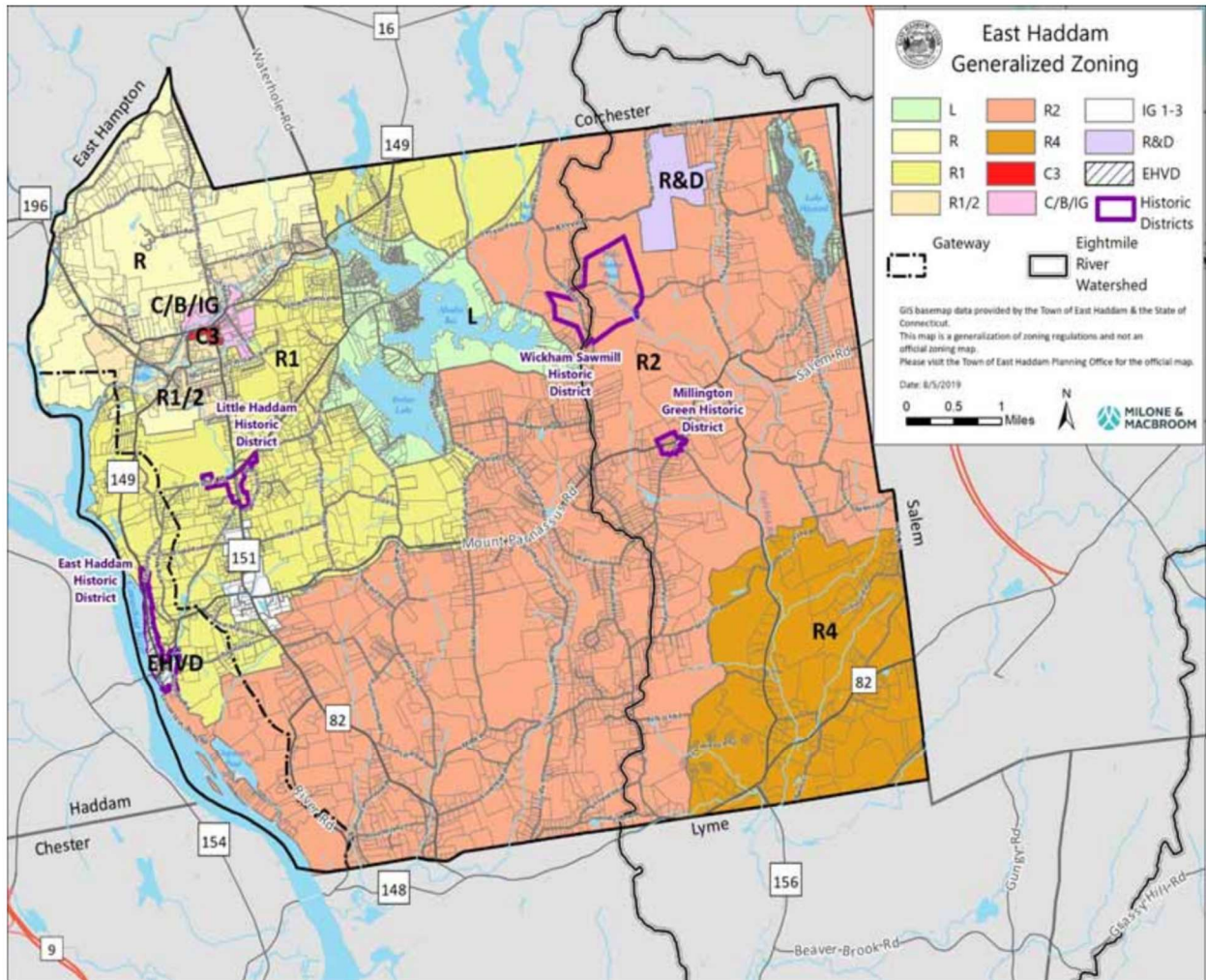
Figure 2-19. Wildfire Hazard Areas.

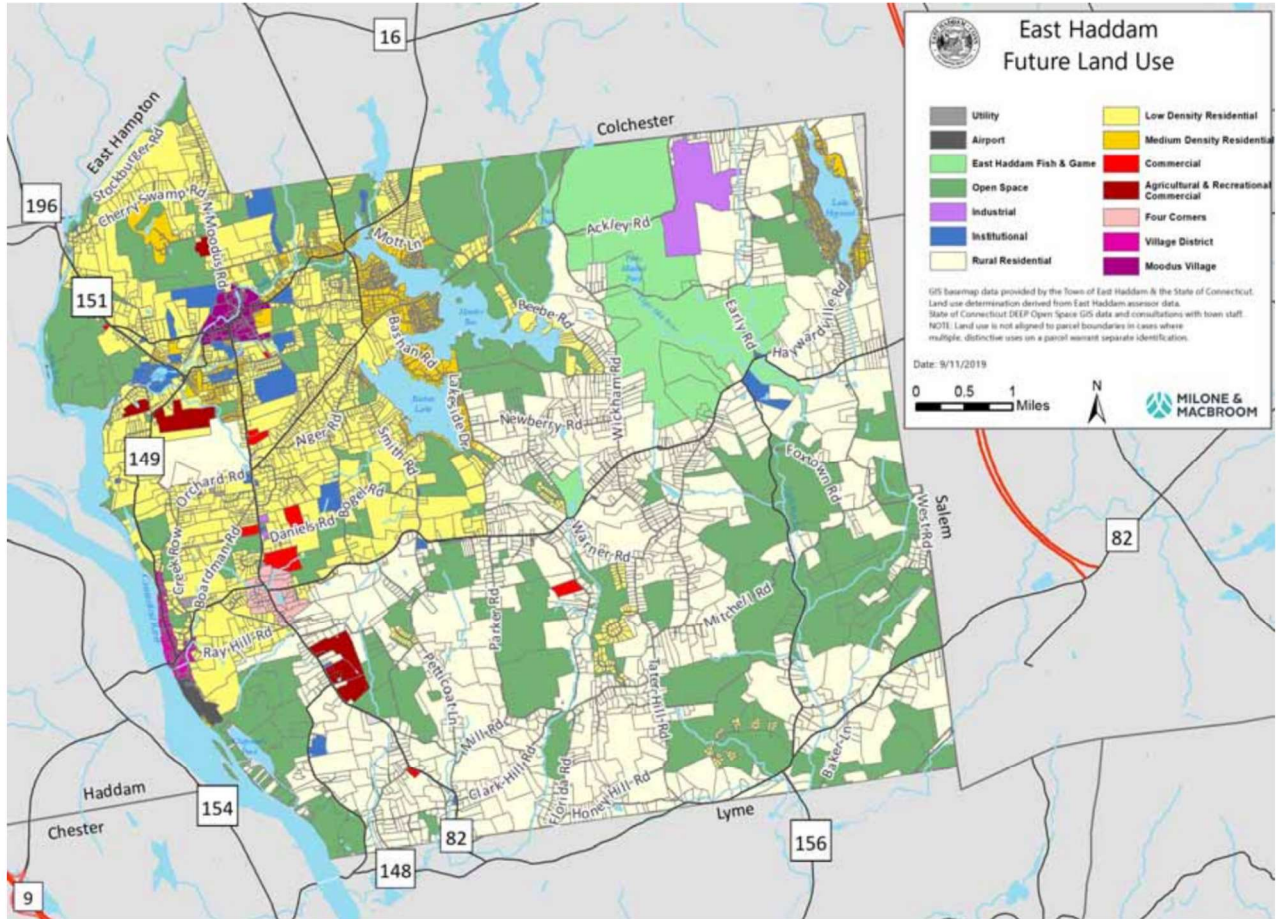


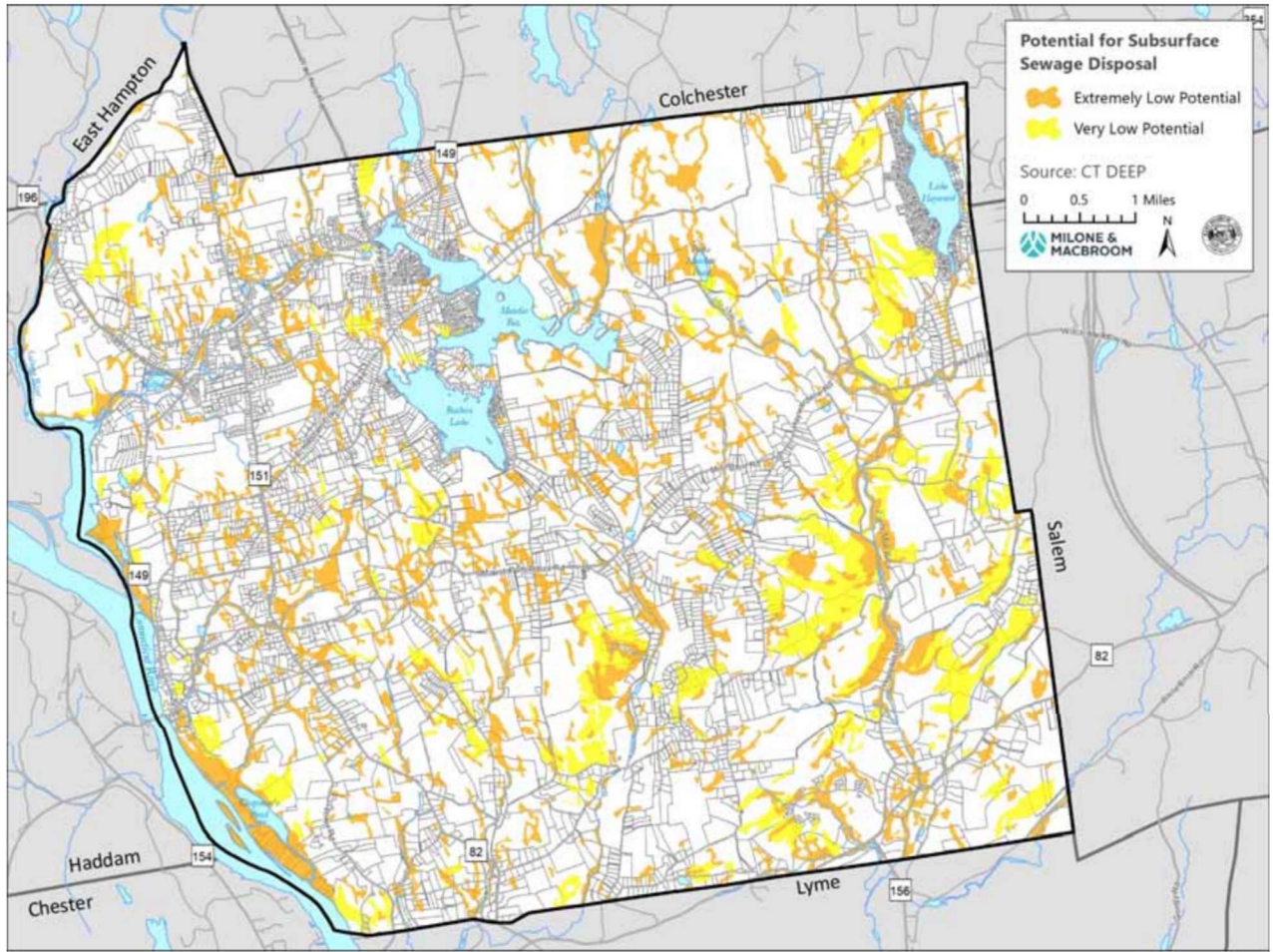
Map 5: East Haddam Forest Cover

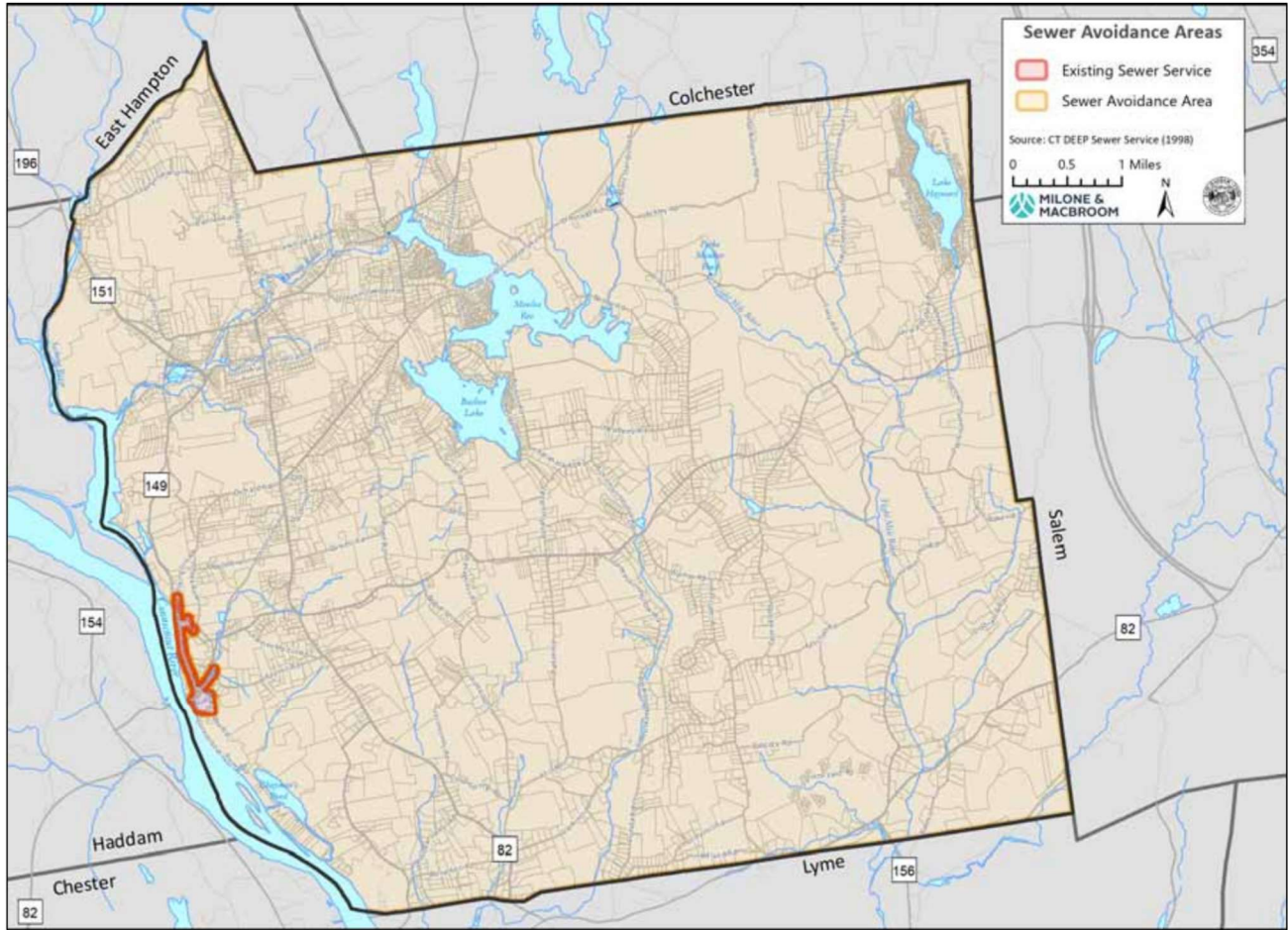
Source: RiverCOG

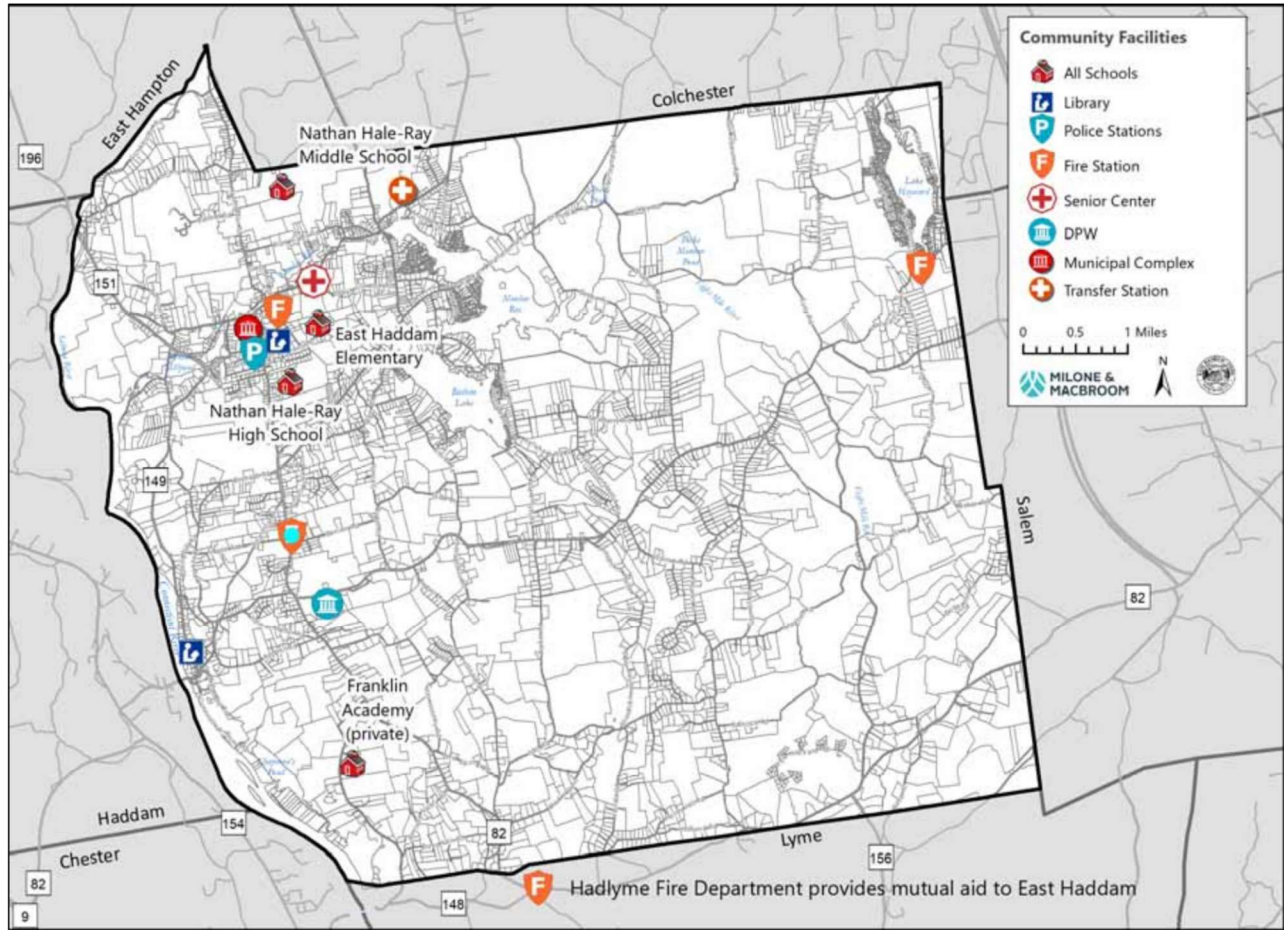


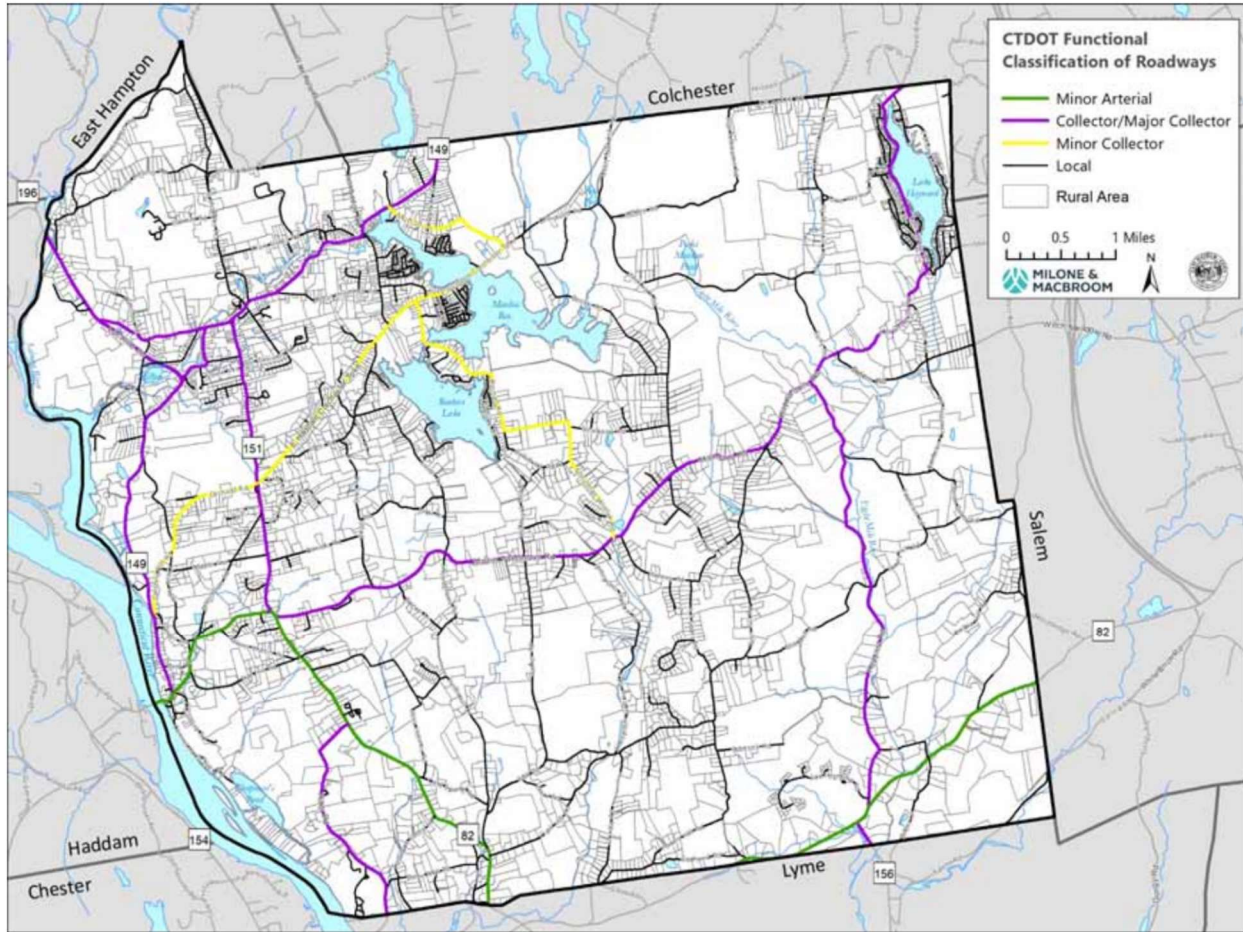


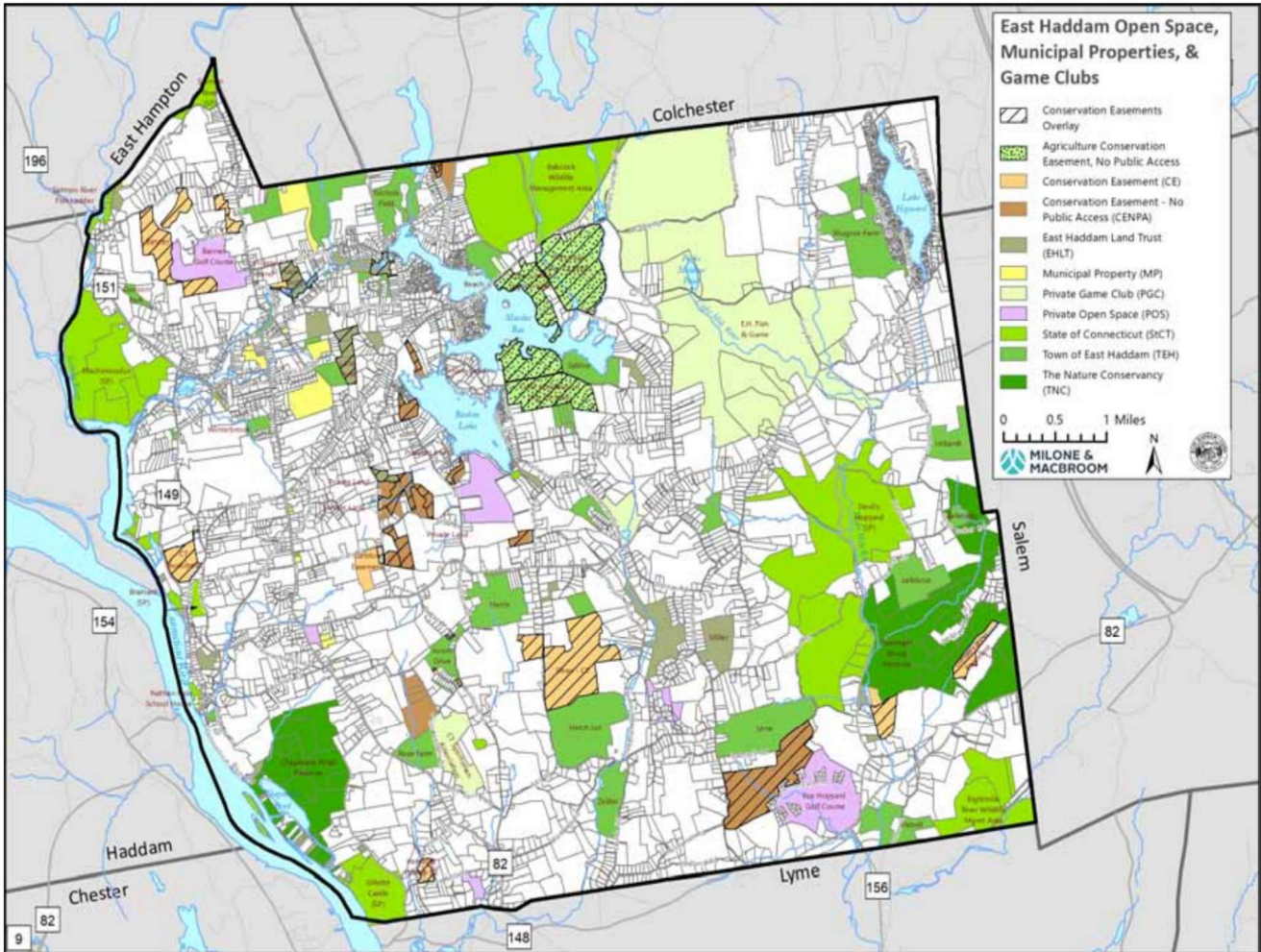


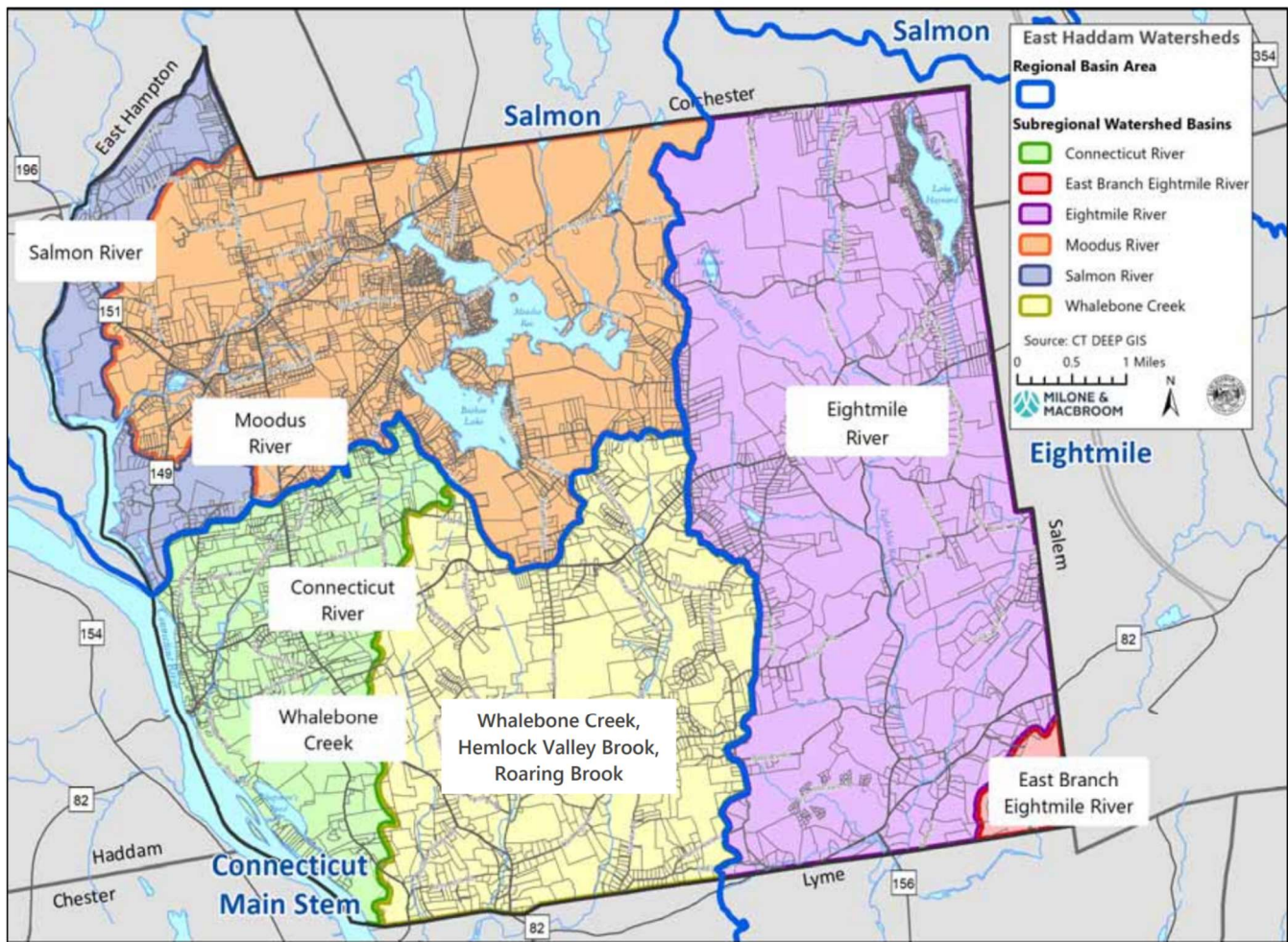


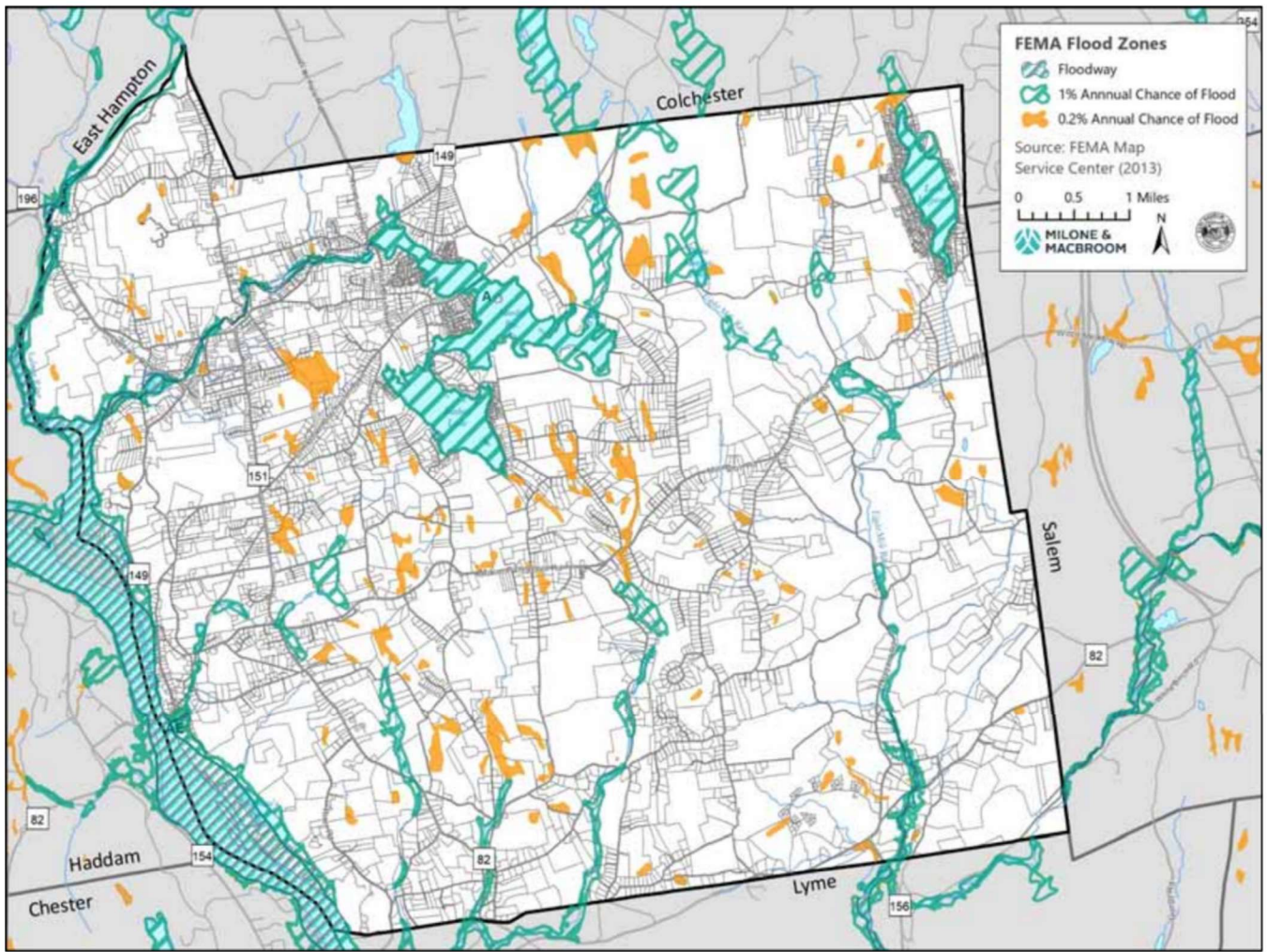


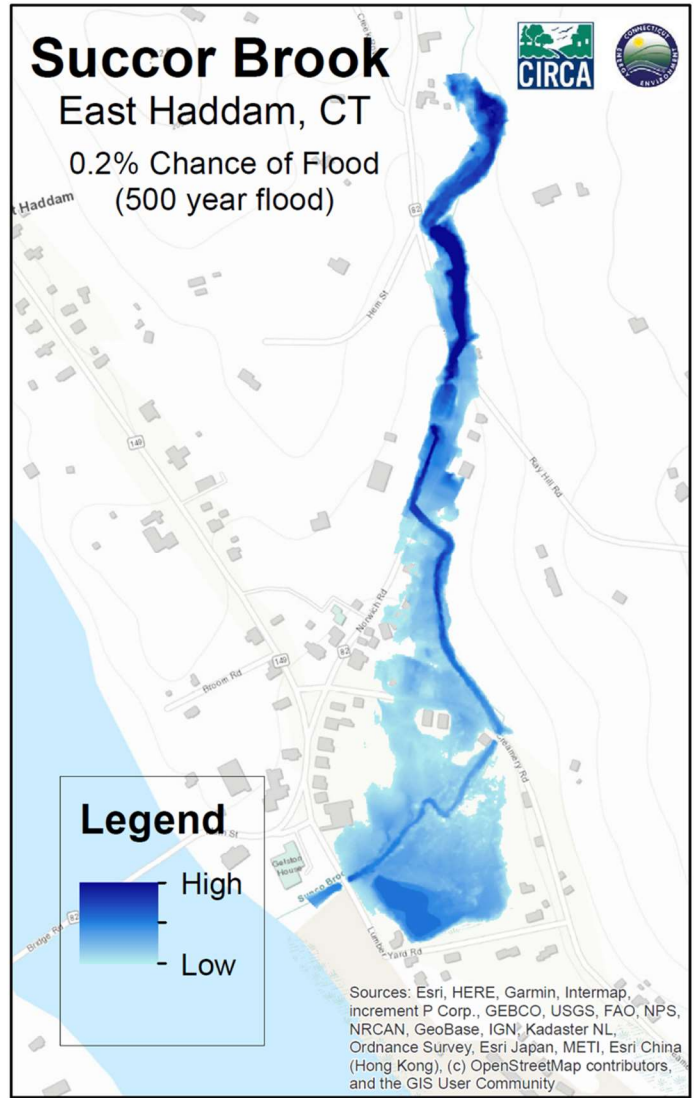
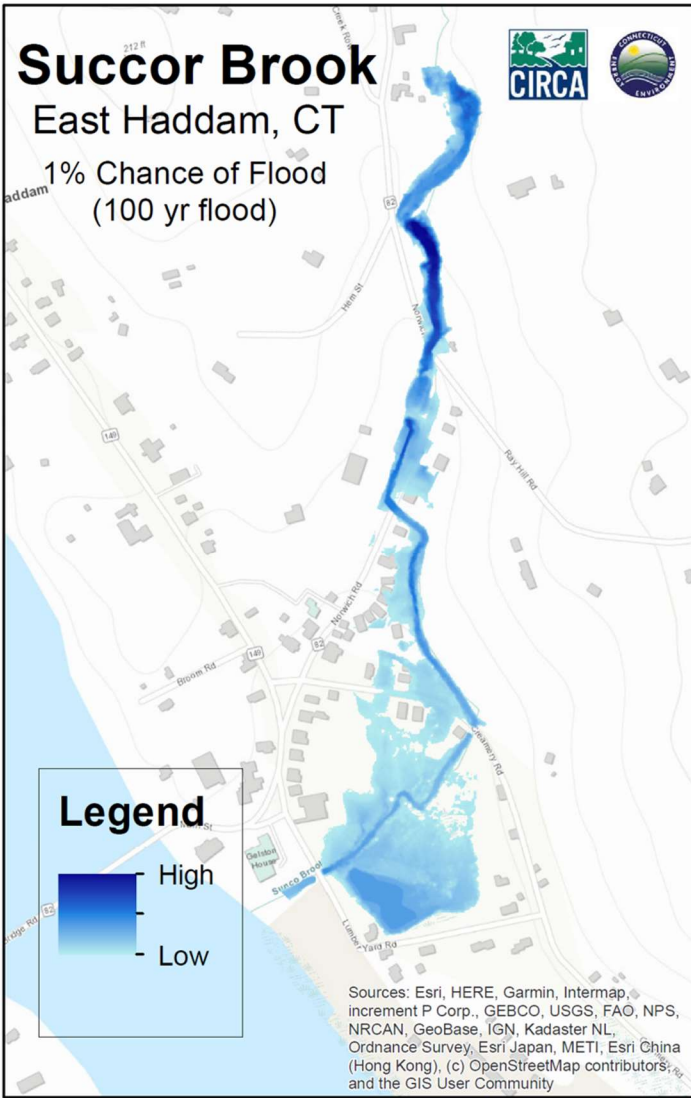














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