



Manchester



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Community Resilience Building Workshop

Summary of Findings

August 2022



Town of Manchester, Connecticut

Community Resilience Building Workshop

Summary of Findings

Overview

The need for municipalities, regional planning organizations, 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. Recent events such as Tropical Storm Irene, Super Storm Sandy, and Tropical Storm Isaias have reinforced this urgency and compelled leading communities like the Town of Manchester to proactively collaborate on planning and mitigating extreme weather and climate-related 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.

In the spring of 2022, the Town of Manchester engaged Sustainable CT and the Nature Conservancy to provide the Town with a voluntary process to assess extreme weather and climate change impacts and generate potential and prioritized solutions to improve resilience and sustainability. In August 2022, a municipal-based core team organized a Community Resilience Building Workshop facilitated by The Nature Conservancy and Sustainable CT. The core directive of this effort was the engagement with and between municipal staff and respective departments to define strengths and vulnerabilities and the development of priority resilience actions for the Town of Manchester.

The Manchester 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 then 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 Manchester benefited from a unique “anywhere at any scale”, community-driven process called Community Resilience Building (CRB) (www.CommunityResilienceBuilding.org). The CRB’s tools, 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 Manchester. The Manchester Natural Hazard Mitigation Plan Municipal Annex (2019) and the Plan of Conservation and Development (“Manchester 2020”) (2019) were particularly instructive. Using the CRB process, rich with information, experience, and dialogue, the municipal staff participants produced the findings presented in this summary report including an overview of the top hazards, current concerns and challenges, existing strengths, and proposed actions to improve 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, are proffered for comments, corrections and updates from workshop attendees and other stakeholders alike. The leadership displayed by the Town of Manchester on community resilience building will benefit from the continuous and expanding participation of all those concerned.

Summary of Findings

Top Hazards and Vulnerable Areas for the Community

Prior to the CRB Workshop, the Manchester Core Team identified the top hazards for the Town of Manchester. The hazards of greatest concern included extreme precipitation events leading to riverine and stormwater runoff flooding, severe high wind events, and winter storms and Nor’easters. Additional hazards mentioned and discussed during the workshop included more intense and longer duration heat waves (leading to droughts) as well as extreme cold snaps. These hazards have direct and increasing impacts on the infrastructure, residents, and environment including neighborhoods, natural areas (parks, wetlands, rivers), roads, bridges, businesses, municipal facilities, churches, schools, social support services and other critical infrastructure and community assets.

Current Concerns and Challenges Presented by Hazards

The Town of Manchester has several concerns and faces multiple challenges related to the impacts of natural hazards and climate change. In the last decade, Manchester has experienced a series of highly disruptive and damaging weather events including Tropical Storm Irene (August 2011), Storm Alfred (October 2011), winter Nor'easter Nemo (February 2013), Tropical Storm Isaias (July 2020), Tropical Storm Henri and Ida (2021) and other less impactful but more frequent events. Impacts from many of these storm events cause inland flooding with wind damage. Storms Alfred and Nemo respectively dropped several feet of snow on the Town knocking out power and isolating residents and neighborhoods for periods of 72 hours or more. 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 Manchester to proactively and comprehensively improve their resilience.

This series of extreme weather events highlights that the impacts from hazards are diverse: ranging from riverine flooding of critical infrastructure, bridges, roads, and low-lying areas; localized flooding from stormwater runoff during intense storms and heavy precipitation events; road closures due to downed trees; property damage from trees, 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, disabled, and/or isolated residents. The combination of these issues presents a challenge to preparedness and mitigation priorities and requires comprehensive, yet tailored actions for particular locations and/or areas across the Town of Manchester.

The workshop participants were generally in agreement that Manchester 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 (i.e. major disasters, winter storms, major hurricanes (Cat-3 or above)) throughout the year, but particularly in the fall/winter months due to more intense snow and ice storms coupled with colder weather. The impact of the Covid-19 pandemic was raised several times by workshop participants.



(Credit: reddit.com)



(Credit: downtownmanchester.org)



(Credit: tripadvisor.com)

Specific Categories of Concerns and Challenges

As in most community, Manchester is not uniformly vulnerable to hazards and climate change, and certain locations, assets, and populations have and will be affected to a greater degree than others. The Community Resilience Building Workshop participants identified the following items as their community's key areas of concern and challenges across three broad categories - Infrastructure, Societal, and Environmental.

Infrastructure, Societal, & Environmental Concerns and Challenges

Roads, Bridges, Road Networks, & Dams:

- Road closures due to high wind events that knock down limbs and trees.
- Inadequate inspections and maintenance of various dams across Manchester.
- Increasing occurrence of freezing rain and wintery mix versus "traditional" snowstorms which results in much more salt and sand being used to make roads safe.
- Concerns about the potential for legacy contaminants stored over the decades and centuries behind dams with particular concerns around the resuspension of materials associated with dam removals or catastrophic failures.
- Flooding on the pedestrian bridge on Center Street below the rail line.
- Concerns about the extent of flooding and impacts to people and property in the event of catastrophic failure or breach of seven dams in Manchester.

Stormwater, Sewer, Drinking Water Systems:

- Growing concerns about the aging infrastructure, increasingly onerous regulations, and biosolid management related to the municipal drinking water supply system.
- Limited planning efforts and deficient zoning regulations that don't promote green stormwater infrastructure (i.e. nature-based solution) to manage stormwater runoff and localized flooding.
- Limited strategic understanding of highest priority stormwater drainage system projects or interventions.
- Ongoing and increasing reliance on stormwater drainage system that is currently under sized for projected increases in the magnitude of major precipitation events.
- Limited access to the Wastewater Treatment Plant via the single access road with a stream crossing with a double barrel culvert that is in a degraded and declining state requiring replacement.
- Inability to access and refuel generators at Wastewater Treatment Plant in the event of power outages due to current declining condition of access road.
- Wastewater Treatment Plant that experiences flooding as well as several critical pump stations.
- Currently no sewer district in the 8th District

Specific Categories of Concerns and Challenges (cont'd)

Emergency Management & Preparedness:

- Volatile and quicker onset of storms including high winds presents a growing challenge to emergency management response decisions such as those associated with when to evacuate public facilities, such as schools, or allow them to remain open.
- All seasons now require emergency management to be on full alert (versus mainly winter, previously) due to more regular and increasing impacts of high wind events, among others, that result in power outages.
- Declining number of volunteers for Community Emergency Response Team (CERT) with challenges related to retaining current members and attracting a broader demographic of Manchester residents.
- Lack of broader awareness and understanding of exiting emergency operations and response needs across the two Fire Districts (8th and Manchester) for the JC Penny Warehouse which represents the largest commercial complex in Manchester.
- Currently, lack of awareness amongst residents about the need to be and how to be self-sufficient for 72 hours after major storm events.
- Impacts from extended power outages on heating and cooling as well as impacts on critical medical devices and life support systems for elderly residents.
- Different perceptions and awareness of hazard issues between renters and homeowners which reduces the collective response to climate change in the Town.
- Limited availability of sheltering capacity across the primary shelters in Manchester which has been stressed lately due to the spacing requirements associated with the Covid pandemic precautions.
- Frequent power outages and limited cell phone coverage along Line Street.
- Recognition that droughts are longer and more severe in the last 10 years with important implications for residents and businesses in Manchester and the larger Capital Region.
- Insufficient staff strength and only one fire truck in the 8th District resulting in 85% of the fire-related calls being responded to by the adjacent Manchester Fire District.
- Several locations (southwest and southeast corners of Town) without fire hydrants.

Businesses:

- Business community is vulnerable to natural disasters and major events such as flooding with direct impacts to structures as well as longer term disruption of commerce and revenue due to closure during recovery phases.
- Ongoing decline of the Buckland Hills Mall.
- General lack of generators amongst most of restaurants and gas stations in Manchester which presents challenges for residents and business owners post-disaster.
- Limited connections currently between the Chamber of Commerce and the municipality resulting in limited understanding of the needs of the business community during pre- and post disasters.

Specific Categories of Concerns and Challenges (cont'd)

Community Volunteerism, Health, Safety, & Equity:

- Aging population with a growing number of elderly residents that present unique challenges and increased risk of complications due to isolation, lack of mobility, and medical needs during major weather events.
- Recognized socioeconomic disparities and inequalities amongst and between neighborhoods in Manchester.
- Declining number of volunteers across multiple programs and departments in Manchester including challenges in recruiting younger residents due to professional and personal time demands.

Municipal Functions & Operations

- Ongoing decline in the condition of various municipal buildings due to the age and the amount of maintenance that is required.
- Concerns around vulnerabilities or gaps in fire coverage due to routine requests of the Manchester Fire District to provide fire call support in the 8th District (i.e. “stretched to thin”).
- Growing number of vacant municipal building that present an ongoing budgetary and opportunity cost to Manchester including the recently closed three elementary schools.
- Growing number of residents with additional language translational needs on municipal forms and processes (i.e. English, Spanish, Bengali).
- Automobile focused infrastructure with limited alternative transit options.

Housing & Development:

- Aging residential building stock with increasingly critical need for repairs and maintenance of many privately-owned residential structures.
- Limited systemic uptake of Low Impact Development approaches, best practices, and projects in residential and commercial development and redevelopment across municipality.
- Concerns related to fire risk for residents in old mill duplexes near downtown that have been repurposed from formal manufacturing operations.
- Limited amount of landlord accountability which could, if in place, help ensure tenants are equitably protected from high rents and associated costs.
- High concentration of group homes, nursing homes, and smaller multi-family dwellings resulting in more absentee or neglectful landlords.

Specific Categories of Concerns and Challenges (cont'd)

Watersheds, Waterways, Parks, Trees:

- Declining number of trail and park volunteer maintenance crews that can be less than receptive to new volunteers looking to engage and productively contribute to better outdoor experiences in Manchester.
- Lack of certified watershed management plans in key watersheds such as the Hockanum River which contributes to a reactive response to maintaining and restoring ecological functions and processes such as flood water storage and improved recreational opportunities.
- Lack of funding through state DEEP 319 program due to lack of certified watershed management plans.
- Street trees across many neighborhoods are in poor condition with increasing gaps in urban tree canopy coverage.
- Lack of official municipal policy or program related to increasing and maintain a healthy and viable urban tree canopy.
- Flooding at Charter Oak Park.
- Impacts on wetlands and waterways from historic development patterns have reduce ecological integrity of ecosystems.
- Limited consistency in communications on need for and ways to conserve water from utility to user at the individual household and business scale.
- Ongoing development within aquifer protection areas.



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Current Strengths and Assets

Just as certain locations, facilities, and populations in Manchester stand out as particularly vulnerable to the effects of hazards and climate change, other features are notable assets for Manchester'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.

- Clearly, the responsive and committed engagement exhibited by leaderships, staff, and residents is a very appreciated strength within and across Manchester. Ongoing collaboration between municipal staff, committee/commission volunteers, business community, faith-based organizations, NGOs, adjoining municipalities, Capital Region Council of Governments, and various state-level organizations, among others, on priorities identified herein will help advance comprehensive, cost-effective, community resilience building actions.
- Deep experience and knowledge of the community challenges and opportunities amongst staff with ongoing coordination across various departments including leadership, Public Works, Police, Fire, and Human Services was cited as a highly valued community strength.
- High degree of respectful and collaborative exchange on priority issues and opportunities between various departments which leads to greater intergovernmental coordination within Manchester.
- Strong tradition of volunteerism with deep partnerships in place between municipality (Human Services Department, in particular), residents, faith-based organizations, and other local non-profit organizations.
- Routine and local table-top exercises on various hazards in partnership between emergency management staff and DEMHS Region 3 coordinators and staff.
- Only municipally-owned and operated landfill in the state of Connecticut which generates a significant annual revenue stream for Manchester.
- Long-term outdoor passive recreational resource at Case Mountain valued by residents and visitors.
- Strong network of community-based NGOs and faith-based organizations that respond directly and routinely to the needs of the Manchester community with overarching organization and funding provided via the municipality's Human Services Department.

Current Strengths and Assets (cont'd)

- Highly valued and well used network of municipally-managed parks and open space (town greens to wildlands) that provide residents and visitors outdoor recreational activities and family gathering spots.
- Overall well-maintained, managed, and serviced infrastructure across the Town.
- Public Works Department with leadership that has extensive experience with flood mitigation projects and approaches.
- Active and engaged Community Emergency Response Team (CERT) with management and coordination provided via the Manchester Fire District.
- Water supply system including source (reservoirs and aquifers) owned and operated by municipality.
- Diverse array of platforms and approaches in place to increase awareness and responses pre-, during, and post- disaster including newspaper, am radio station, and websites.
- Presence of in-house engineering and design capacity as well as high quality GIS team which helps to reduce consulting fees and increase awareness of inter-related projects or opportunities.
- Redundancies in the water supply system with 17 facilities (pump stations, wells, etc.) that help maintain water provisions even during recent flooding events.
- Adequate drinking water resources for Manchester including below ground aquifer and reservoir reserves.
- Robust Senior Center providing quality programming for Manchester's fastest growing population segment.
- Three solid decommissioned municipal buildings (elementary schools) available for different beneficial uses for the community.
- Gas capture upgrades and renewable energy generation at municipal landfill.
- Strong institutional partner in the hospital which brings a great deal of expertise and services including mental health and addiction treatment resources.
- Relatively high amount of affordable housing coupled with a very diverse residential housing stock.

Current Strengths and Assets (cont'd)

- Long history of environmental organizations working together to improve the condition and access to natural resources for all residents.
- High quality of life in Manchester as compared to other urban/suburban areas of similar size and extent in Connecticut and New England.
- Growing understanding amongst residents that environmental health is linked to social health.
- Municipality has a tree warden.
- Relatively large and diverse number of educational institutions and organizations from elementary schools to community college.
- Manchester is viewed and relied upon as a regional hub or destination for emergency response and social service resources.



(Credit: connecticutexplorer.com)

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 reduce Manchester's 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. responsible/sustainable growth, volunteerism, conservation & recreation, multi-modal transportation, diverse demographics, Low Impact Development, affordable housing);
- **Infrastructure improvements** (i.e. landfill, road/bridge network, wastewater treatment plant, stormwater management systems, transportation system, green stormwater infrastructure, dams, park facilities and trails);
- **Quality of life improvements** (i.e. urban tree canopy, parks and recreation, housing, mobility, sustainability, health equity, connectivity, demographic diversity);
- **Emergency management** (i.e. communications, outreach, education, continuation of services, business recovery, sheltering, evacuation, vulnerable populations).

In direct response, the workshop participants developed the following priority and additional action list. Mitigation/adaptation actions from the Manchester Natural Hazard Mitigation Plan Municipal Annex (2019) are provided in Appendix A for cross reference.

Priority Actions

- Continue long range analysis of landfill maintenance activities and operation potential beyond the current 2030 fill horizon to help ensure continued service and revenue stream for Manchester.
- Look to establish a process and structure to organize and coordinate volunteerism across Manchester that will help link ongoing and future volunteer needs with available skill sets coupled with routine reinforcement with recognition and appreciation by municipal leadership and staff.

Priority Actions (cont'd)

- Conduct a long-range strategic plan for the municipal water supply system that takes into account the increasing impacts of climate-related drought on surface water supply reservoirs as well as increasing demand on the aquifer. Strategic plan should take into account aging infrastructure and the need for added flexibility in supply sources (reservoir and/or aquifer based on water levels in reservoir due to drought).
- Work to further educate emergency personal and first responders on basic communications in multiple language including Spanish and Bengali in hopes of improving services and building trust around emergency management operations in Manchester.
- Seek out people that can serve as community-based liaisons with the Bengali community to help strengthen relationships and build trust in hopes of having more engagement in planning process and programs.
- Initiate a plan to educate residents on Low Impact Development approaches and projects and incentive via interdepartmental coordination (i.e. Building, DPW, Planning, etc.).
- Accelerate the installation of green stormwater infrastructure in streetscapes, parking lots, and parks/playgrounds to reduce localized flooding, improve environmental conditions, and help reduce stress on existing stormwater conveyance systems.
- Seek out opportunities and approaches that help to increase coordination amongst various departments and NGOs for volunteers in hopes of increasing the overall number and availability of volunteers.
- Continue ongoing discussions to explore the opportunities and options for a merger of the two Fire Districts into one for the Town of Manchester.
- Continue to advance the well prograded and long-term implementation of repairs and repaving operations across the 215 miles of municipally-owned streets and roads in Manchester.
- Create a comprehensive plan and provide resources to increase the capacity and ability of the Information Technology Department which seeks to provide critical services for multiple municipal departments.
- Enhance accessibility to Wastewater Treatment Plant by replacing culverts at stream crossing as well as explore potential options for additional access road.

Priority Actions (cont'd)

- Work to conduct rehabilitation program for old mill duplexes to reduce existing fire hazards as well as health risks due to lead pipes.
- Continue to evolve programming and services provided through the Senior Center in response to the rapidly growing number of elderly residents in Manchester.
- Work to improve the accessibility and mobility of residents looking to utilize the programming and services provided through the Senior Center.
- Work to further improve the communication and engagement process and opportunities with residents and municipal leadership and staff.
- Explore models and approaches used by other successful communities to further help improve the support of existing and other potential community-based organizations.



(Credit: twitter.com)



(Credit: Wikipedia.org)



(Credit: pinterest.com)

Additional Actions

- Conduct long range planning effort for park network that incorporates needs for re-occurring and ongoing maintenance, restoration, and erosion control projects and helps to transition the resources from a passive reactionary run asset to a more organized, proactive operation.
- Consider rewriting select zoning regulations to include incentives for beneficial modifications such as green stormwater infrastructure and nature-based solutions.
- Convene leadership and staff from both Fire Districts and the JC Penny Warehouse to share current emergency operations plans, discuss response scenarios and contingencies, and identify opportunities to enhance the emergency management for the facility and employees in the event of a major event.
- Work to continuously improve inter-departmental communications to ensure timeliness and effectiveness of decisions during challenging events via various communication systems.
- Continue to find ways to harness and direct the large pool of volunteers that are capable of assisting in emergencies.
- Convene a Manchester Parks Team to help operationalize the recently completed Master Parks Plan in partnership and alignment with the Parks Department with the express goal of further enhancing the value of the parks and open space network as well as seek out ways to increase the resilience of residents during droughts and heat waves (i.e. natural cooling areas – forests and waterways).
- Work across two Fire Districts and with DEMHS to better position the current resource depot (water, food, etc.) for residents away from problematic and congested areas around the mall and major commercial structures such as the JC Penny Warehouse.
- Document and present the benefits to housing stability for Manchester residents via the current federal funding to municipal leadership in hopes of establishing a permanent budget for services such as mortgage and rental relief amongst qualified residents via the Human Services Department.
- Adopt and advance the Manchester affordable housing plan.
- Document with measurable data as well as community-based stories of the positive impact that the NGO and faith-based organizations are having across Manchester in hopes of maintaining and ideally, increasing municipal funding via the Human Services Department.

Additional Actions (cont'd)

- Work to clarify and define the role for community members in achieving a higher degree of readiness and resilience to extreme weather and climate change.
- Comprehensively assess the current condition and needs for aging buildings and implement plans to facilitate upgrades to structures that incorporate the best available technology and approaches for greater resilience in direct partnership with municipality.
- Accelerate the effort to ensure that all properties are properly numbered in highly visible locations to further assist first responders. Effort should specifically focus on landlords and rental units.
- Explore the potential to establish a policy that would incentivize the installation of charging stations and solar panels on all new residential home construction as well as retrofits on existing properties.
- Actively seek out and attract new CERT members via a diverse array of communications platform including local paper, am radio station broadcasts, and creation of service video to be shared on social media by the municipality and Fire District.
- Continue to advance opportunities to routinely upgrade or shift platforms for the municipal emergency management communications to ensure the best available technology is utilized across Manchester including the geographic scope of both Fire Districts.
- Look to increase the translation of forms and documents into multiple languages to help increase representation in municipal functions.
- Continue to strengthen equity considerations in the municipal hiring process in accord with human resources across all departments.
- Review the story of shifts over time in the waste management realm with an eye towards informing the upcoming need to adjust the water supply system to accommodate climate change (i.e. “lessons learned over last 50 years that may be applicable between waste and water”).
- Identify ways to increase the education of residents about preparedness in advance of major disasters (i.e. “Be prepared for 72-hours without support” – food, water, medical, energy back-up systems).
- Strive to further amplify the importance and benefits of the rivers and wetlands to residents and visitors through greater promotion, education, and public access to this critical natural resource.

Additional Actions (cont'd)

- Increase focus on protecting, restoring, and expanding riparian buffers to further reduce the impacts of current and future flooding events including the review and update of riparian buffer setback regulations.
- Conduct an engineering assessment to better identify priority stormwater drainage system priorities that full incorporate nature-based solutions to help with infiltration and reduce stress on existing system.
- Establish a watershed management plan for the Hockanum River to help identify priority projects and secure funding via various state and federal programs (DEEP 319, etc.).
- Advance the need for a comprehensive urban tree/canopy management plan for Manchester that incorporates the planting and maintenance of trees in and around disadvantaged neighborhoods (i.e. equity-centered tree management).
- Conduct an assessment of tree and limb debris quantities generated by a Category-3 hurricane (1938) against the current ability to transport, store, and process storm-generated woody debris in Manchester.
- Look to present to leadership and other departments the findings of the recent feasibility and asset assessment study conducted on the Senior Center.
- Explore options to identify and prioritize needed maintenance and upgrades to municipal buildings and facilities.
- Continue to identify ways to increase further the vibrance and attractiveness of the downtown area through careful planning and coordinated events.
- Continue to conduct meetings to determine the community-based, emergency sheltering needs in Manchester and present recommendations to leadership once in agreement on steps to enhance capacity and services.
- Conduct educational outreach to private homeowners about the types and extent of potential wind damage during hurricanes and microbursts.
- Continue to encourage the use of online meetings amongst municipal departments and project teams to help reduce carbon emissions within Manchester.
- Look to increase the number of drinking water supply lines to and from the water treatment plant to further increase redundancies and continuity of service during extreme weather events and droughts.
- Establish a urban forestry management plan for Manchester.

Additional Actions

- Look into developing a program to hold landlord more accountable for their tenant's welfare through income-based programs and protections.
- Initiate a dialogue focused on vacant municipal building and potential opportunities to allow different uses and the creation of revenue streams for the Town versus on-going budgetary concerns with vacant structures.
- Continue to expand and adapt municipal parks and recreational facilities to accommodate changing demographic and community needs (i.e. new cricket pitch) per the Parks Master Plan.
- Continue to maintain strong working relationship with hospital and look to bridge with new ownership in the event the facility is sold and placed under new management.
- Through a partnership between the Chamber of Commerce and the municipality work to define preparation checklists and pre-storm communications for the business community well in advance of major disasters and work to secure generators for essential businesses including restaurants and gas stations.
- Review when affordable housing restrictions expire and ensure there is a plan in place to maintain high quality and affordable housing is available in Manchester.
- Look to incorporate gas stations and energy generation into emergency management and response plans with an emphasis on identifying grant programs to make sure strategic locations (such as gas stations) have functional generators.
- Look to site and install cell tower(s) in order to create additional revenue streams.
- Increase dialogue with electric utility to ensure roadside trees are managed in an efficient and transparent manner that reduces risk, yet maintains this natural asset.
- Explore and secure Tree City certification for Manchester.
- Conduct needs assessment on all municipally-owned, critical infrastructure including pump stations, roads, facilities, bridges, and dams.
- Identify and map extent of road network flooding under current and future precipitation scenarios and use as a blueprint to determine evacuation routes and access/egress route for vulnerable neighborhoods.
- Implement Low Impact Development projects to serve as demonstration of effective and sustainable alternative techniques and approaches for Manchester.

Additional Actions

- Develop a realistic plan for sheltering facility expansion with targets for sheltering capacity including heating and cooling stations.
- Build on the fact that Manchester provides many services and resources on a regional basis to surrounding municipalities and consider further collaboration and coordination with a regional staff position paid for via shared funding.
- Connect with CT Fast Track system to Manchester Center to help provide alternative transit options for residents.
- Look to install fire hydrants in southwest and southeast corners of Town to ensure full coverage.



(Credit: vacationideas.com)

CRB Workshop Participants: Department/Organization

Town of Manchester - Public Works Department

Town of Manchester - Health Department

Town of Manchester - Emergency Management

Town of Manchester - Fire Department

Town of Manchester - Water and Sewer Department

Town of Manchester - Police Department

Town of Manchester - Parks

Town of Manchester - Planning and Economic Development Department

Town of Manchester - Human Services

Town of Manchester - Budget and Research Office

Town of Manchester - Community Emergency Response Team

Town of Manchester - Communications and Civic Engagement Office

Manchester CRB Core Project Team

Courtney Lindberg – Deputy Director Public Works

In-person CRB Workshop Facilitation Team

The Nature Conservancy - Adam Whelchel, Ph.D. (Lead Facilitator)

The Nature Conservancy - Drew Goldsman (Small Group Facilitator)

Sustainable CT - Joseph Dikerson (Scribe)

Sustainable CT - Nicole Govert (Scribe)

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Appendix A

Town of Manchester Natural Hazard Mitigation Plan Municipal Annex (2019)

Mitigation Strategies and Actions from Previous HMP & Updated Mitigation Strategies and Actions

Mitigation Strategies and Actions from Previous HMP

Table 19-11: Status of Previous Mitigation Strategies and Actions, Manchester

Action #	Action	Notes	Status
GOAL: MINIMIZE LOSS TO CRITICAL INFRASTRUCTURE DUE TO FLOODING, WINTER STORMS, HURRICANES AND HIGH WINDS			
Objective 1: To reinforce, renovate and upgrade existing critical town facilities.			
1.1	Implement needed improvements to build a new Emergency Operations Center, when funding is available, at the Department of Public Works facility to withstand hurricanes and other disasters.	A new EOC was put into facilities management building. It was placed there but the building was not retrofitted or hardened. This work should be a new strategy in the plan update.	Carry Forward with Revisions
1.2	Implement needed upgrades to electrical system at the Senior Center, which is the primary emergency shelter to allow year-round use.	Action complete.	Complete
1.3	Install operating generators at all primary and tertiary shelters and designated alternate care sites.	Action complete.	Complete
Objective 2: To upgrade existing transportation infrastructure in order to allow for continuity of operations.			
2.1	Upgrade identified flood prone roadways to reduce potential for access being blocked due to flooding.	Ongoing activity but needs metrics for plan update.	Carry Forward with Revisions
2.2	Maintain list of on-call consultant engineers who can provide necessary assistance for structural and other specialized engineering assistance in response to impacts from natural disasters.	Existing capability / ongoing activity.	Capability
2.3	Upgrade bridge and/or other structure replacements based upon potential impact from flood hazards.	Keep - there are easement issues being worked through. Construction is expected in next year. Update strategy to reflect current status.	Carry Forward with Revisions
Objective 3: To upgrade existing communication system in order to facilitate efficient emergency response in a natural disaster.			
3.1	Upgrade Emergency Operations Center communications system, including any necessary building upgrades.	Action completed.	Complete
GOAL: REDUCE THE LIKELIHOOD OF FLOODING DAMAGES THROUGH MONITORING AND INCREASED PUBLIC AWARENESS			
Objective 1: Coordinate with the Town of Vernon to monitor dams and potential flooding along Hockanum River.			
1.1	Continue communications with Vernon emergency management personnel.	Existing capability / ongoing activity.	Capability
Objective 2: Raise awareness of flooding risks among property owners.			
2.1	Determine real estate disclosure practices in high risk areas.	Current state-required disclosure is sufficient.	Drop

Mitigation Strategies and Actions from Previous HMP

Action #	Action	Notes	Status
2.2	Implement an educational system for property owners, including appropriate materials and means for information dissemination. (Include information on importance of properly maintaining private trees).	Not completed. Revisit and select realistic and measurable tactics.	Carry Forward with Revisions
Objective 3: Raise awareness of public health concerns from flooding of private wells and/or on-site septic systems.			
3.1	Continue to update identified private properties including businesses, food service establishments, daycares and group homes served by private wells and/or on-site septic systems located within known flood risks.	Summer intern mapped septic systems and wells to some extent. This work was started, but Manchester would like to add a strategy to complete it and potentially add new items, again using an intern.	Carry Forward with Revisions
3.2	Implement an educational program for private owners including materials and recommendations for appropriate remediation of private utilities that have been subjected to flooding, for health protection and promotion.	Deferred.	Carry Forward

Updated Mitigation Strategies and Actions

Action #1

Consider and document the labor resource needs and benefits of participation in the Sustainable CT program.

Goal	4. Increase the use of natural, "green," or "soft" hazard mitigation measures, such as open space preservation and green infrastructure.
Category	Natural Resources Protection
Lead	Planning
Cost	\$0 - \$10,000
Funding	Town Operating Budget
Timeframe	01/2019 - 12/2019
Priority	High

Action #2

Require Elevation Certificates for all new development permits in or near floodplains and filing them both in the building department and with land records.

Goal	2. Ensure Municipal Codes and Regulations support hazard mitigation
Category	Property Protection
Lead	Building Department
Cost	\$0 - \$10,000
Funding	Town Operating Budget
Timeframe	07/2019 - 06/2020
Priority	High

Action #3

Develop a prioritized list of flood prone roadways to be upgraded to reduce potential for access being blocked due to flooding.

Goal	5. Improve the resilience of local and regional utilities and infrastructure using strategies including adaptation, hardening, and creating redundancies.
Category	Structural Projects
Lead	Public Works
Cost	\$0 - \$10,000
Funding	Town Operating Budget
Timeframe	07/2019 - 06/2020
Priority	High

Action #4

Assess needs of the new EOC in the facilities management building to determine its resilience to natural hazards, and to identify needs to make it more resilient.

Goal	1. Minimize the impact of natural hazards on physical buildings and infrastructure
Category	Preparedness & Emergency Response
Lead	Emergency Management
Cost	\$10,000 - \$25,000
Funding	Town Operating Budget / DEMHS
Timeframe	07/2019 - 06/2021
Priority	High

Updated Mitigation Strategies and Actions

Action #5

Conduct outreach to local small businesses with the aim of preventing the accidental release and pollution from chemicals stored and used at their facilities during or following natural hazard events.

Goal	6. Improve public outreach, education, and warning systems
Category	Education & Awareness
Lead	Planning, in coordination with DEEP
Cost	\$0 - \$10,000
Funding	Materials & Resources Provided by CT DEEP
Timeframe	01/2019 - 12/2019
Priority	Medium

Action #6

Coordinate with NEMO and CRCOG to share resources and gain technical support for hazard mitigation actions involving stormwater management and public outreach, which have parallel benefits related to MS4 stormwater permit compliance.

Goal	1. Minimize the impact of natural hazards on physical buildings and infrastructure
Category	Prevention
Lead	Public Works
Cost	\$0 - \$10,000
Funding	Town Operating Budget
Timeframe	01/2020 - 12/2020
Priority	Medium

Action #7

Participate in EMI courses or the seminars and annual conference held by the Connecticut Association of Flood Managers.

Goal	3. Improve institutional awareness and understanding of natural hazard impacts and mitigation within municipal governments and other decision-making bodies
Category	Education & Awareness
Lead	Planning
Cost	\$0 - \$10,000
Funding	Town Operating Budget
Timeframe	07/2019 - 06/2024
Priority	Medium

Updated Mitigation Strategies and Actions

Action #8

Address easement issues being worked through with regards to a bridge upgrade, and complete construction.

Goal	5. Improve the resilience of local and regional utilities and infrastructure using strategies including adaptation, hardening, and creating redundancies.
Category	Structural Projects
Lead	Public Works
Cost	\$25,000 - \$50,000
Funding	Town Operating Budget / Grants
Timeframe	07/2021 - 06/2023
Priority	Medium

Action #9

Implement an educational system for property owners, including appropriate materials and means for information dissemination. (Include information on importance of properly maintaining private trees).

Goal	6. Improve public outreach, education, and warning systems
Category	Education & Awareness
Lead	Emergency Management
Cost	\$25,000 - \$50,000
Funding	Town Operating Budget / Grants
Timeframe	01/2021 - 12/2023
Priority	Medium

Action #10

Contact the owners of Repetitive Loss Properties and nearby properties at risk to inquire about mitigation undertaken and suggest options for mitigating flooding in those areas. This should be accomplished with a letter directly mailed to each property owner.

Goal	1. Minimize the impact of natural hazards on physical buildings and infrastructure
Category	Property Protection
Lead	Planning
Cost	\$0 - \$10,000
Funding	Town Operating Budget / DEMHS
Timeframe	07/2021 - 06/2022
Priority	Low

Updated Mitigation Strategies and Actions

Action #11

Complete and add on to identification of private properties served by private wells and/or on-site septic systems located within known flood risk zones.

Goal	3. Improve institutional awareness and understanding of natural hazard impacts and mitigation within municipal governments and other decision-making bodies
Category	Property Protection
Lead	Emergency Management
Cost	\$10,000 - \$25,000
Funding	Town Operating Budget
Timeframe	07/2021 - 06/2023
Priority	Low

Action #12

Coordinate with CT SHPO to conduct historic resource surveys, focusing on areas within natural hazard risk zones (such as flood or wildfire hazard zones and areas near steep slopes), to support identification of vulnerable historic properties and preparation of resiliency plans across the state. This action leverages existing resources and best practices for protection of historic and cultural resources through an ongoing statewide initiative by CT SHPO.

Goal	8. Ensure community character and social equity are addressed in mitigation activities
Category	Property Protection
Lead	Planning, in coordination with SHPO
Cost	\$10,000 - \$25,000
Funding	SHPO
Timeframe	07/2021 - 06/2023
Priority	Low

Action #13

Work with CT DEEP to complete a formal validation of the Repetitive Loss Property list and update the mitigation status of each listed property.

Goal	1. Minimize the impact of natural hazards on physical buildings and infrastructure
Category	Property Protection
Lead	Planning
Cost	\$10,000 - \$25,000
Funding	Town Operating Budget / CT DEEP / DEMHS
Timeframe	07/2021 - 06/2023
Priority	Low

Updated Mitigation Strategies and Actions

Action #14

Conduct outreach to owners of properties identified as being served by private wells and/or on-site septic systems located within known flood risk zones to educate them about strategies for protecting their properties. Include materials and recommendations for appropriate remediation of private utilities that have been subjected to flooding, for health protection and promotion.

Goal	6. Improve public outreach, education, and warning systems
Category	Education & Awareness
Lead	Emergency Management
Cost	\$10,000 - \$25,000
Funding	Town Operating Budget
Timeframe	01/2021 - 12/2023
Priority	Low

Appendix B

Manchester

Map Resource Packet*

Used During Workshop

CRCOG CAPITOL REGION
COUNCIL OF GOVERNMENTS
Working together for a better region.

Natural Hazards Mitigation Planning

The Capitol Region is active in planning for natural hazards mitigation in order to reduce our vulnerabilities to natural disasters and enable our communities to minimize losses and recover more effectively when disasters do occur.

CRCOG has prepared a multi-jurisdictional natural hazard mitigation plan covering all 38 member municipalities. The plan has been adopted by all member cities and towns and received FEMA's approval on November 7, 2019. The plan will be in effect until November 6, 2024. With FEMA's approval, our towns and cities are eligible to apply to the CT Division of Emergency Management and Homeland Security (DEMHS) for mitigation grants administered by FEMA.

2019 - 2024 Plan Update

FEMA Approval Letter	Executive Summary
FEMA Plan Review Tool	Municipal Sections (Annexes)
Multi-jurisdictional Sections	Adoption Resolutions
Appendices A-F	Appendices G-H

Manchester 2020

2012 Plan of Conservation and Development

VISION — ASPIRATIONS — ACTIONS

Adopted: December 17, 2012
Effective: January 14, 2013

***Gathered from Norwalk Hazard Mitigation Plan Municipal Annex (2019 and Plan of Conservation & Development (Manchester 2020) (2019)**

Following Maps Gathered from the Manchester Hazard Mitigation Plan Municipal Annex (2019)

CRCOG CAPITOL REGION
COUNCIL OF GOVERNMENTS
Working together for a better region.

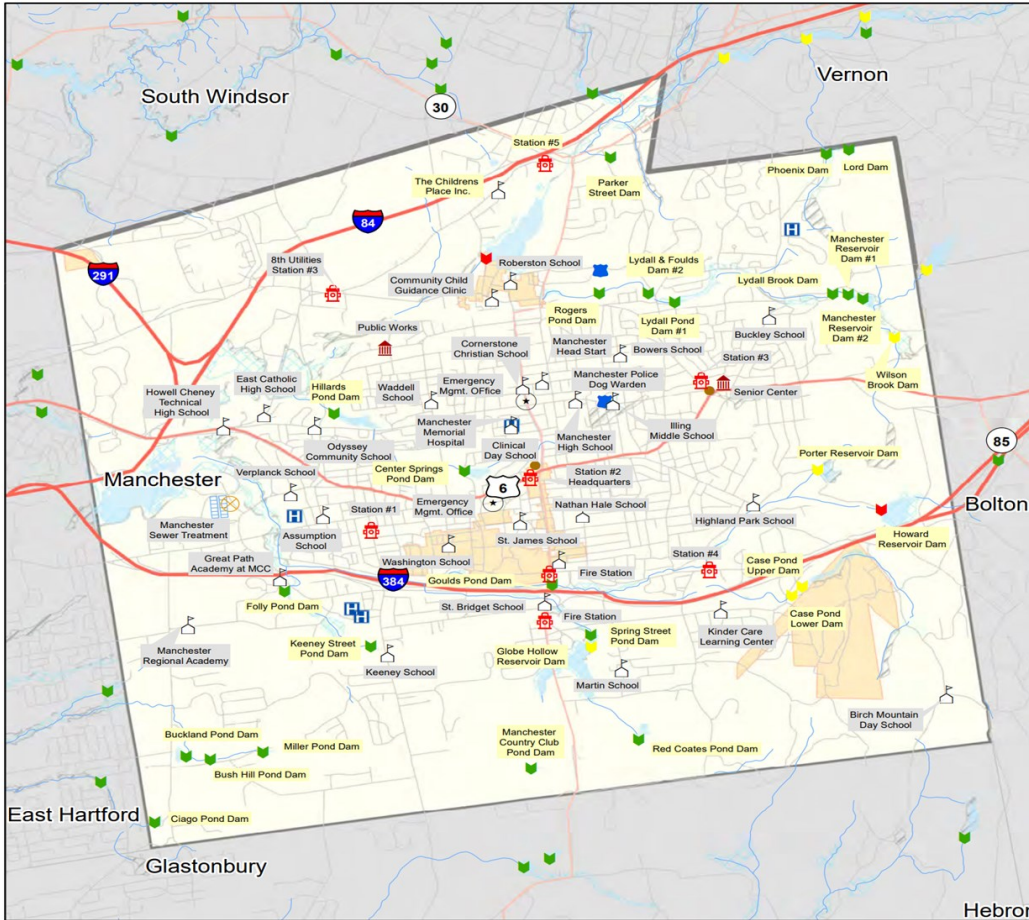
Natural Hazards Mitigation Planning

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2019 - 2024 Plan Update

FEMA Approval Letter	Executive Summary
FEMA Plan Review Tool	Municipal Sections (Annexes)
Multi-jurisdictional Sections	Adoption Resolutions
Appendices A-F	Appendices G-H



Capitol Region Natural Hazards Mitigation Plan Update

Manchester, Connecticut

Flood Plains, Dams & Critical Facilities

Critical Facilities

- Fire Station
- Police Station
- School
- Healthcare Facility
- State Facility
- Town Facility
- Waste Water Facility
- Emergency Center
- NRHP Buildings/Sites

Dam Hazard Class

- BB, A, AA OR Unclassified
- Class B - Significant Hazard
- Class C - High Hazard

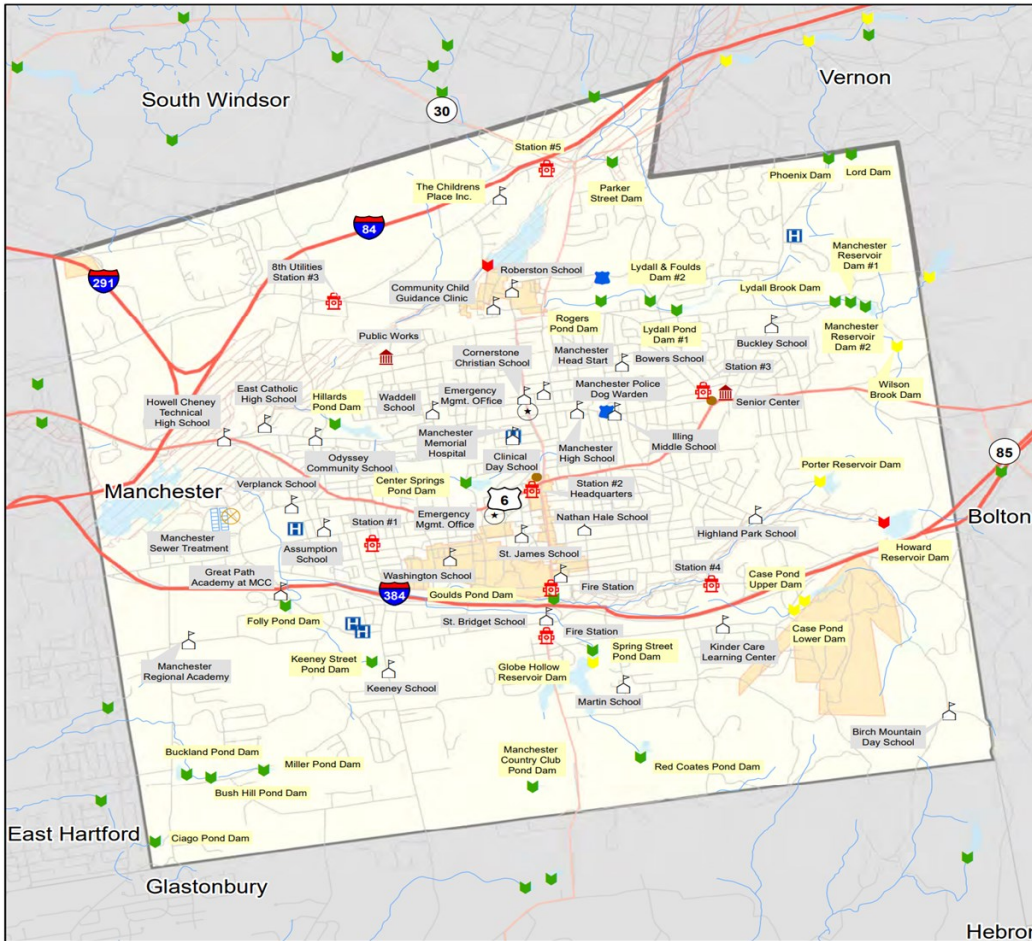
FEMA Flood Hazard Area

- 100 Year Flood Zone
- 500 Year Flood Zone
- NRHP Districts/Areas

Data Sources: FEMA, National Register of Historic Places, CT DEEP, CRCOG, ESRI



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 www.miloneandmacbroom.com



Capitol Region Natural Hazards Mitigation Plan Update

Manchester, Connecticut
 Dam Breach Inundation Area & Critical Facilities

Critical Facilities

- Fire Station
- Police Station
- School
- Healthcare Facility
- State Facility
- Town Facility
- Waste Water Facility
- Emergency Center
- NRHP Buildings/Sites

Dam Hazard Class

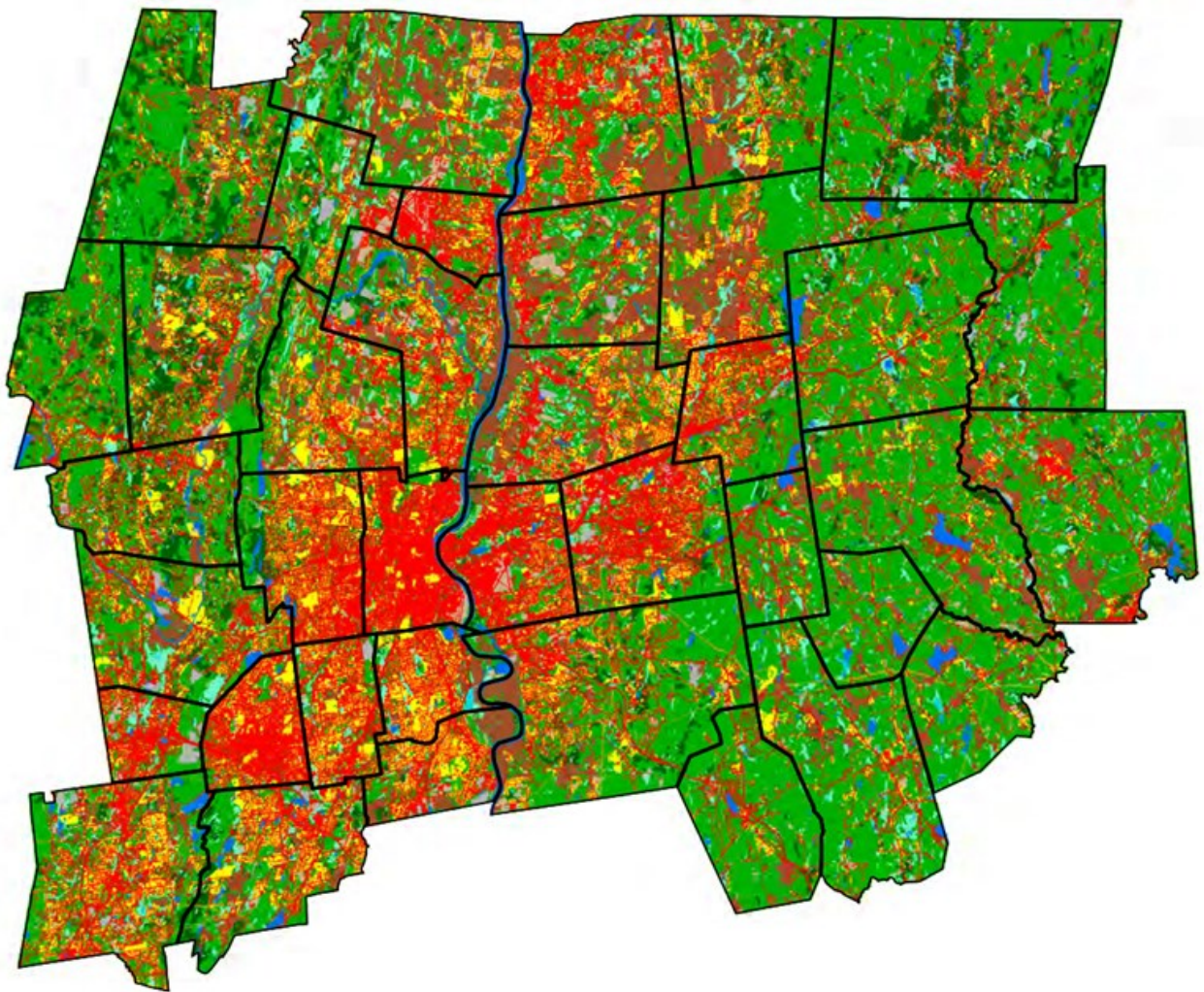
- BB, A, AA OR Unclassified
- Class B - Significant Hazard
- Class C - High Hazard

- Dam Breach Inundation Areas
- NRHP Districts/Areas

Data Sources: FEMA, National Register of Historic Places, CT DEEP, CROG, ESRI

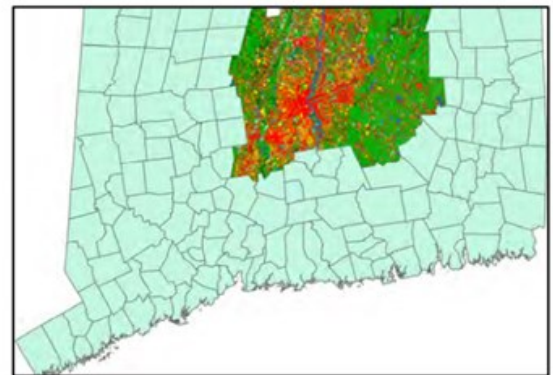


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LEGEND

- Agriculture
- Barren Land
- Coniferous Forest
- Deciduous Forest
- Developed
- Forested Wetland
- Non-forested Wetland
- Other Grasses
- Tidal Wetland
- Turf & Grass
- Utility ROWs
- Water



SOURCE(S):
UConn CLEAR

Map 2: Land Cover

LOCATION:
Capitol Region, CT

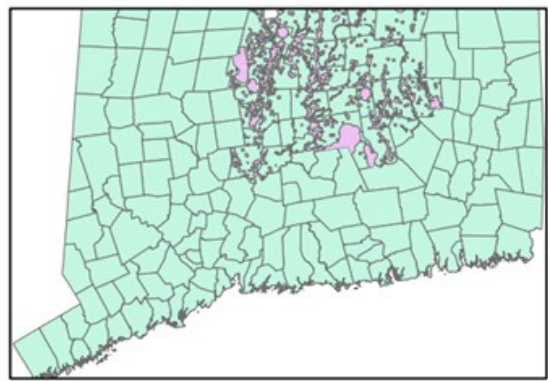
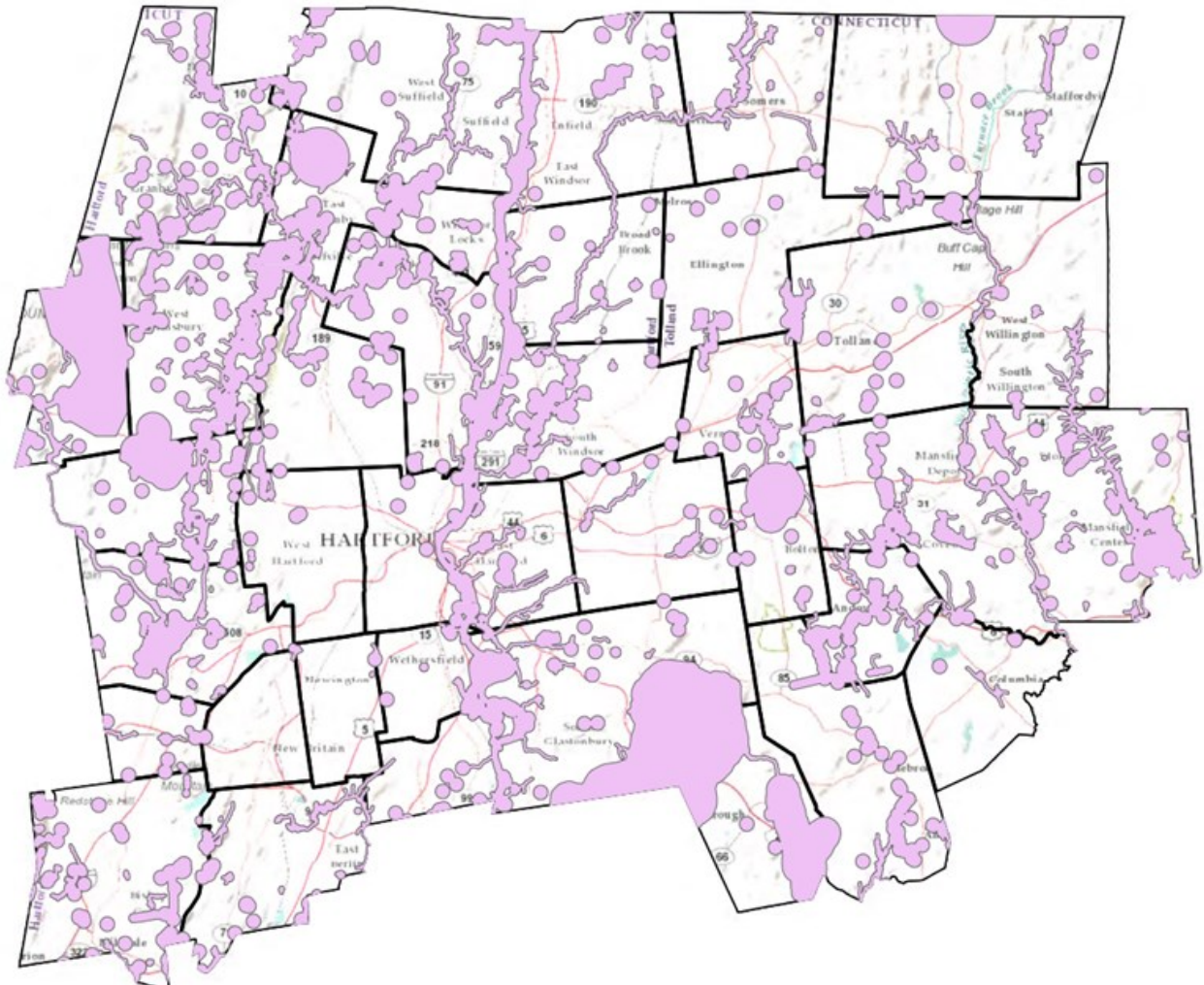


**Capitol Region Natural Hazards
Mitigation Plan Update**

Map By: MER
MMI#: 2020-16
Original: 10/11/2017
Revision: 10/11/2017
Scale: 1 inch = 30,000 feet



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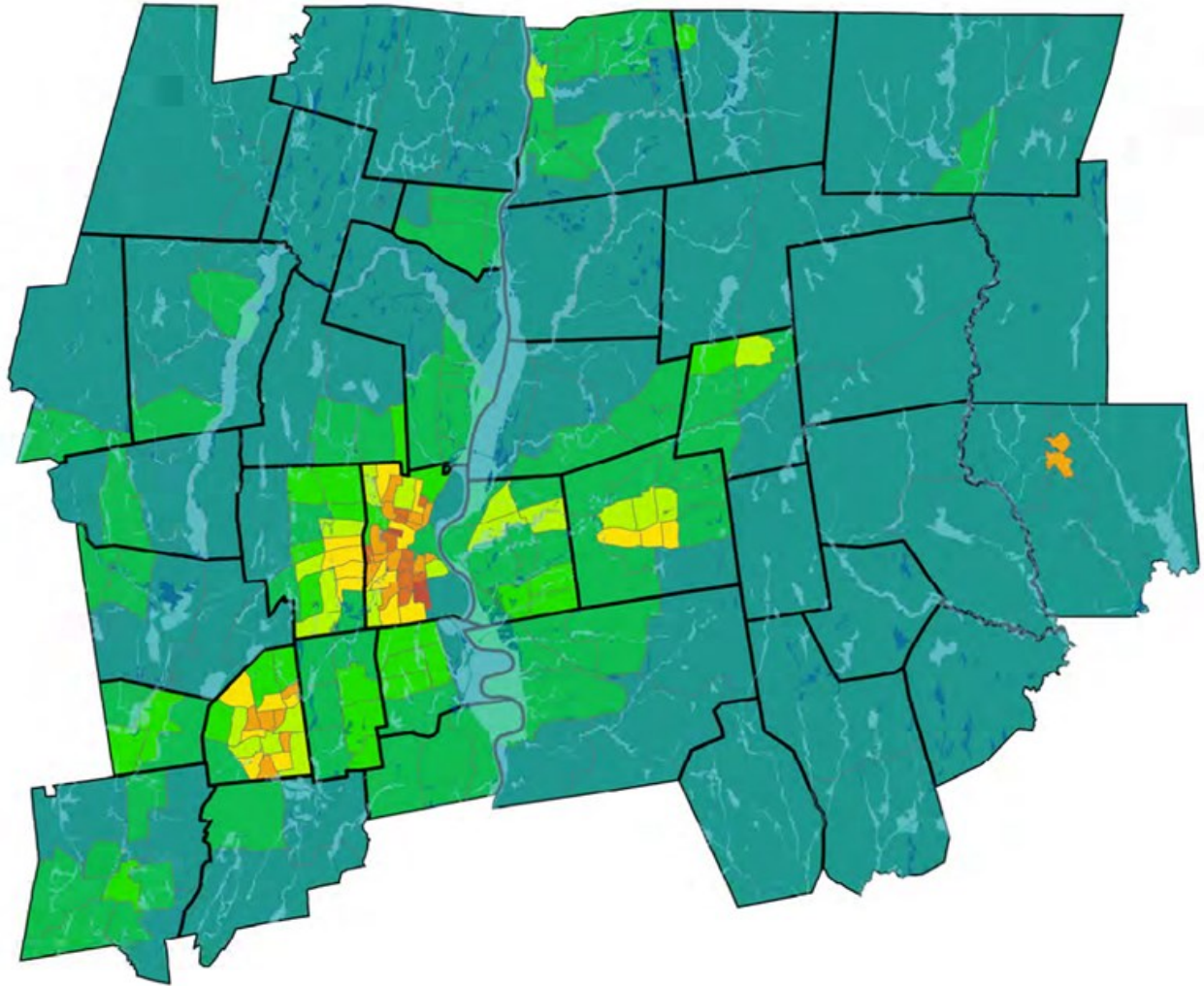
MXD: Y:\2020-16\Maps\Map 2_Land Cover_mxd



LEGEND

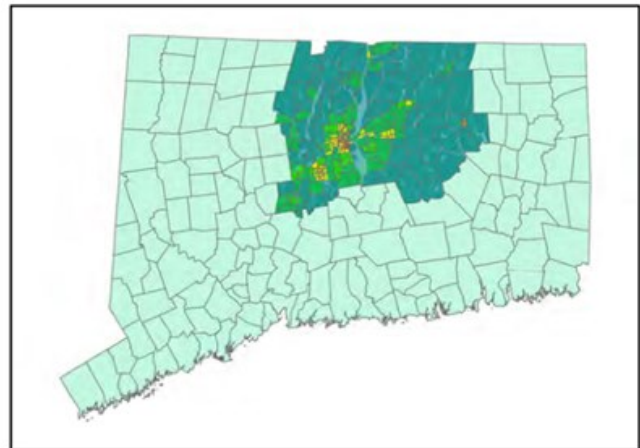
 Natural Diversity Database Areas

<p>SOURCE(S): CT DEEP</p>	<p>Map 4: Locations of Potential Endangered and Threatened Species in the Capitol Region</p>	<p>LOCATION: Capitol Region, CT</p>
<p>Capitol Region Natural Hazards Mitigation Plan Update</p> <p></p> <p><small>MXD: Y:\2020-16\Maps\Map_4_NDDB_.mxd</small></p>	<p>Map By: MER MM#I#: 2020-16 Original: 10/11/2017 Revision: 10/11/2017 Scale: 1 inch = 30,000 feet</p>	<p> MILONE & MACBROOM 99 Realty Drive Cheshire, CT 06410 (203) 271-1773 Fax: (203) 272-9733 www.miloneandmacbroom.com</p>



LEGEND

Population Density	FEMA Flood Zone
Greater than 20,000	100 Year Flood Zone
15,000 to 20,000	500 Year Flood Zone
9,000 to 15,000	
6,000 to 9,000	
4,000 to 6,000	
2,500 to 4,000	
1,000 to 2,500	
Less than 1,000	



SOURCE(S):
US Census

Map 6: Population Density and Flood Zones

LOCATION:

Capitol Region, CT

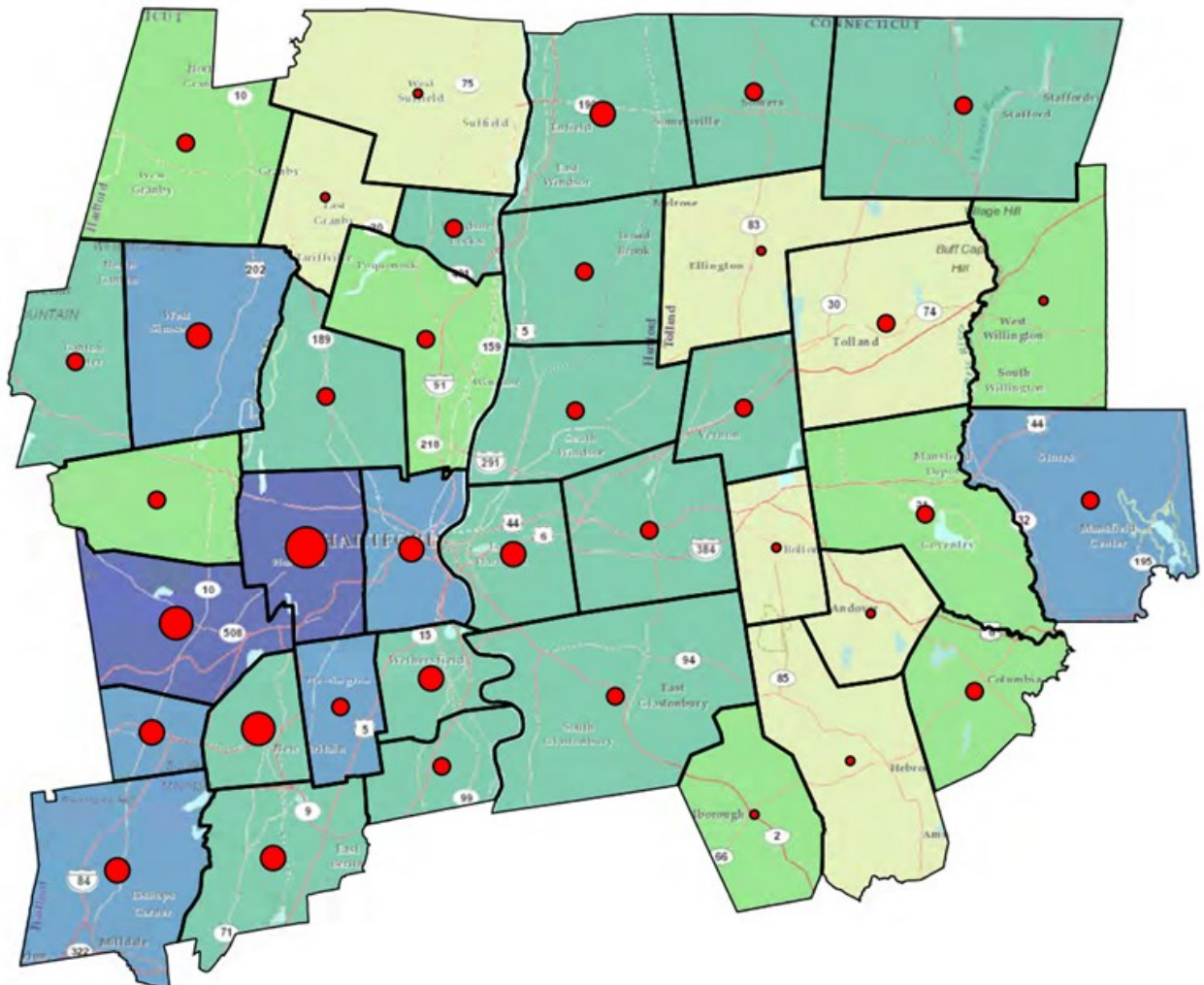


**Capitol Region Natural Hazards
Mitigation Plan Update**

MXD: Y:\2020-16\Maps\Map_6_Pop_Density_Dams_Flood_zones_mxd

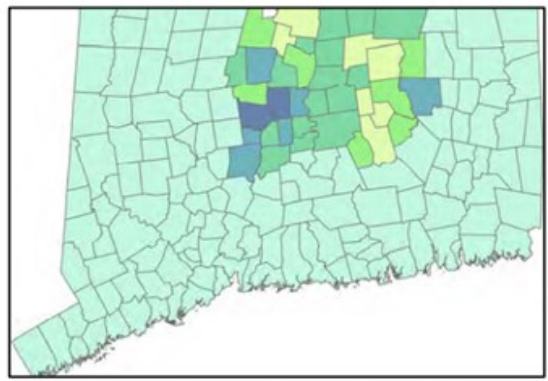
Map By: MER
MMIF: 2020-16
Original: 10/11/2017
Revision: 7/25/2018
Scale: 1 inch = 30,000 feet

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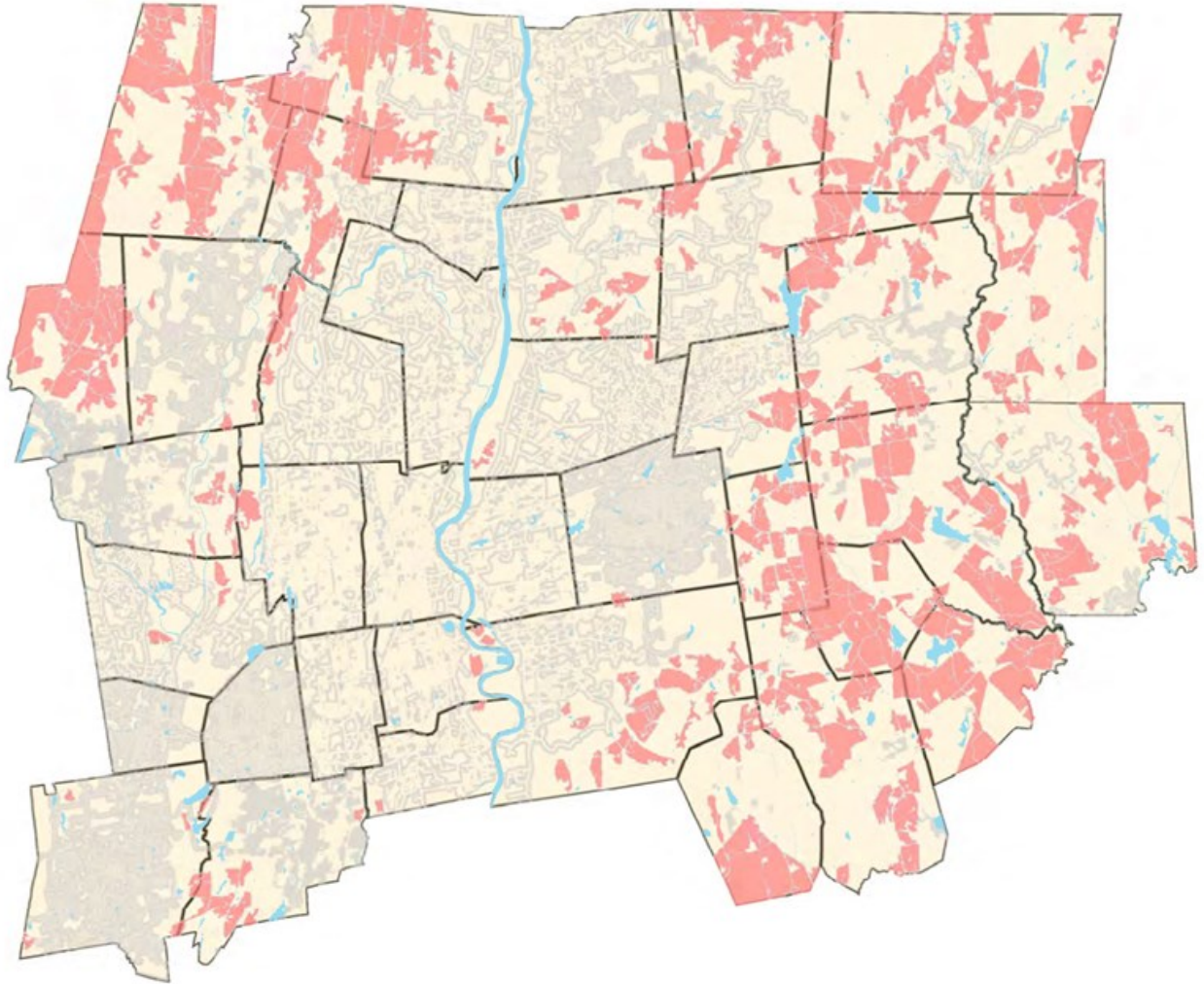


LEGEND

Total Payments	Total Claims
 Less than \$10,000	 Under 10
 \$10,000 to \$100,000	 11 - 50
 \$100,000 to \$500,000	 51 - 100
 \$500,000 to \$1,000,000	 101 - 250
 Over \$1,000,000	 Over 250

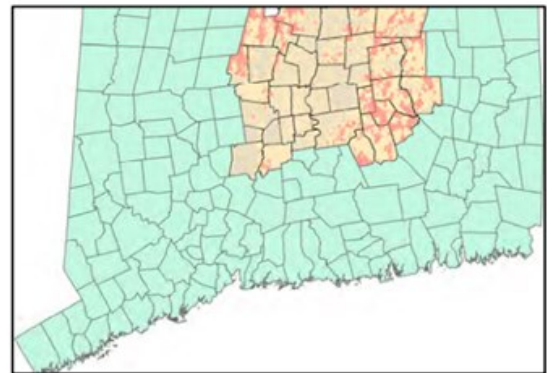


<p>SOURCE(S): FEMA</p>	<p>Map 7: Total Flood Insurance Claims in the Capitol Region by Town Through July 31, 2017</p>	<p>LOCATION: Capitol Region, CT</p>
<p>N</p>	<p>Capitol Region Natural Hazards Mitigation Plan Update</p>	<p>Map By: MER MMI#: 2020-16 Original: 10/11/2017 Revision: 7/19/2018 Scale: 1 inch = 30,000 feet</p>
<p>MXD: Y:\2020-16\Maps\Map_7_Claims_and_Losses.mxd</p>		<p>MILONE & MACBROOM 99 Realty Drive Cheshire, CT 06410 (203) 271-1773 Fax: (203) 272-9733 www.miloneandmacbroom.com</p>



LEGEND

- High Wildfire Risk Area
- Low Wildfire Risk Area
- Rivers & Lakes
- PWS Distribution Systems



SOURCE(S):
Connecticut DEEP

Map 10: Wildfire Risk Areas

LOCATION:
Capitol Region, CT



Capitol Region Natural Hazards Mitigation Plan Update

MXD: Y:\2020-16\Maps\Map_10_Wildfire_Risk_Areas.mxd

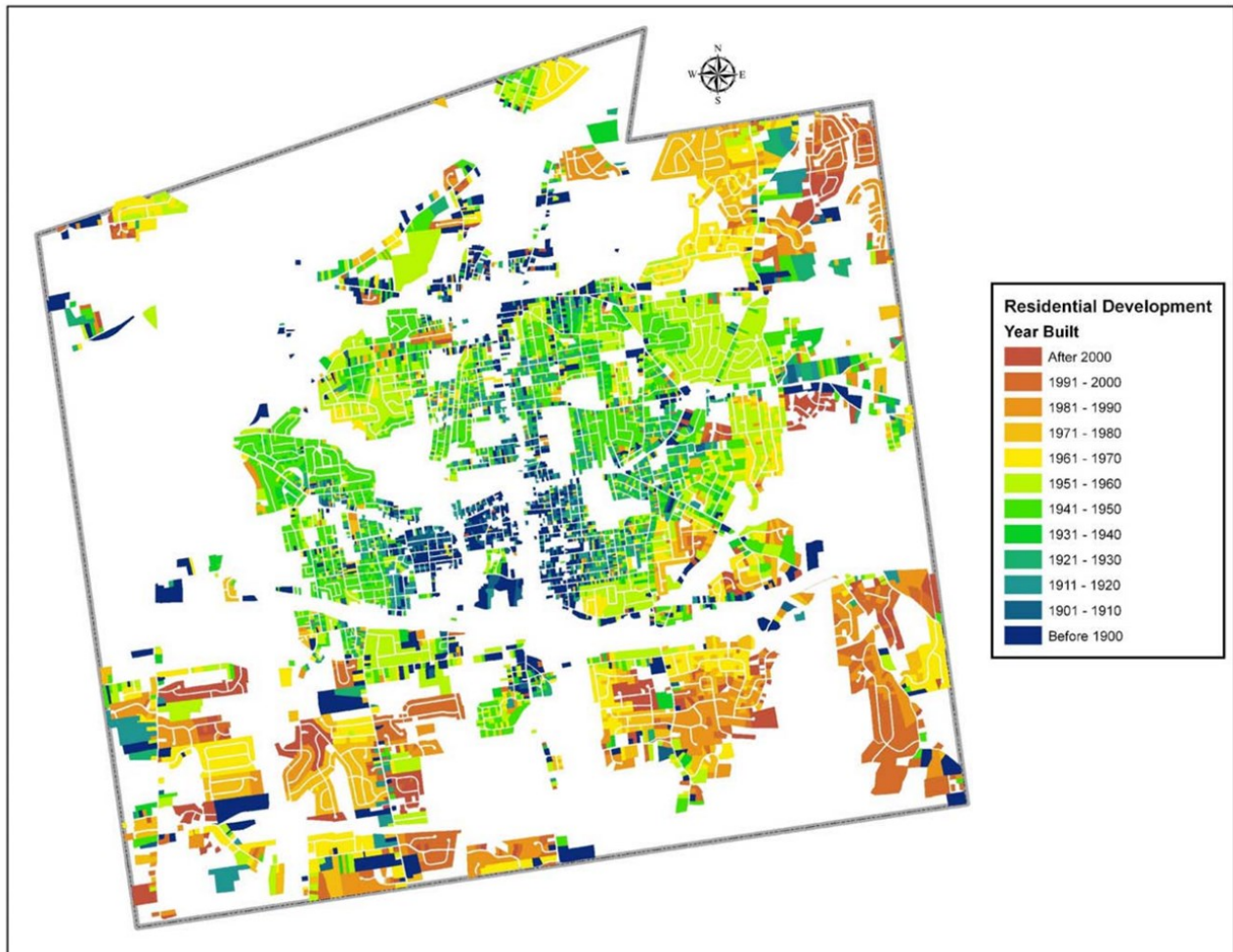
Map By: VLB
MM##: 2020-16
Original: 7/25/2018
Revision: 7/26/2018
Scale: 1 inch = 30,000 feet

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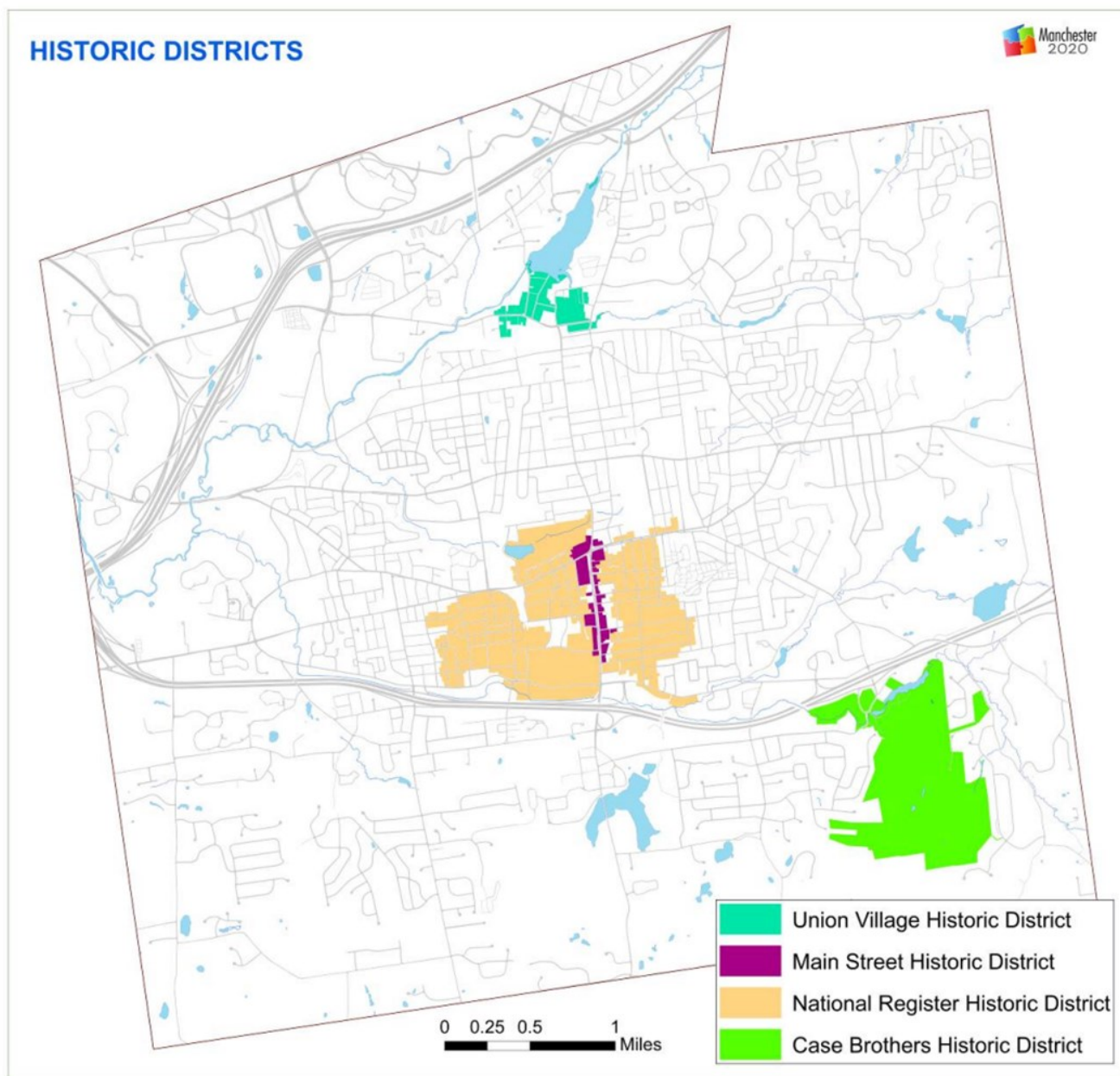
Following Maps Gathered from the Manchester Plan of Conservation & Development (Manchester 2020) (2019)



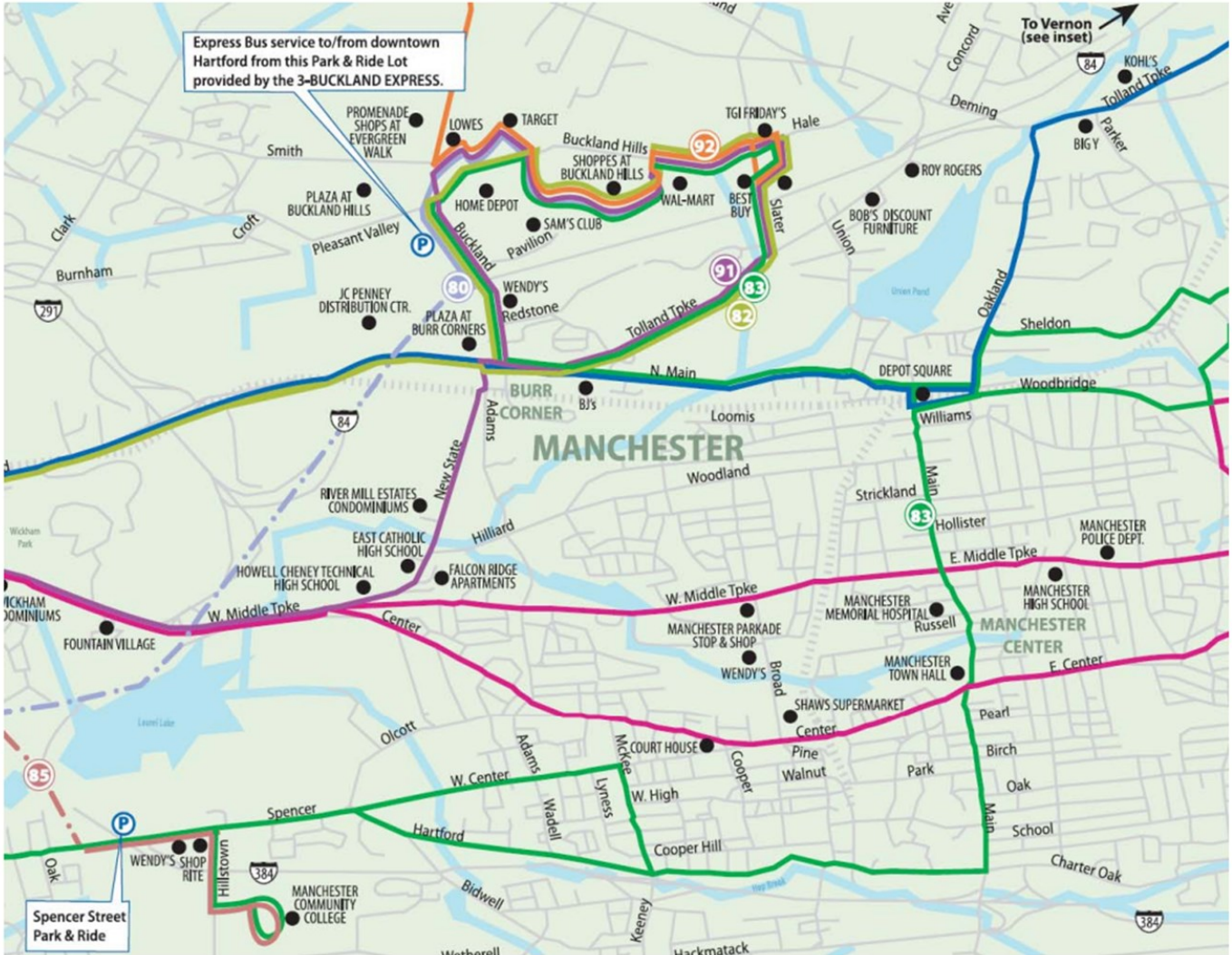
Map 1: Residential Development by Year Built



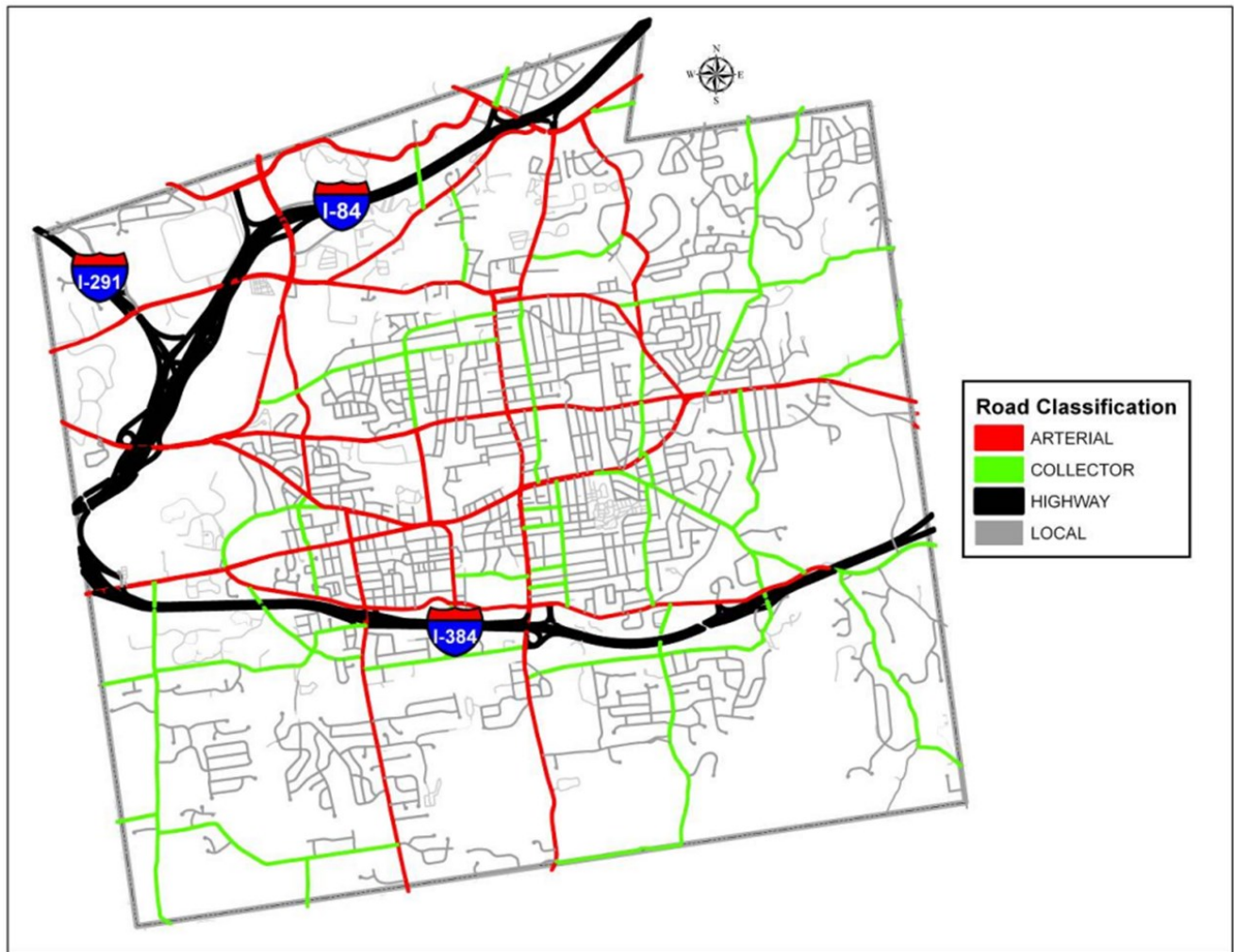
Map 2: Historic Districts



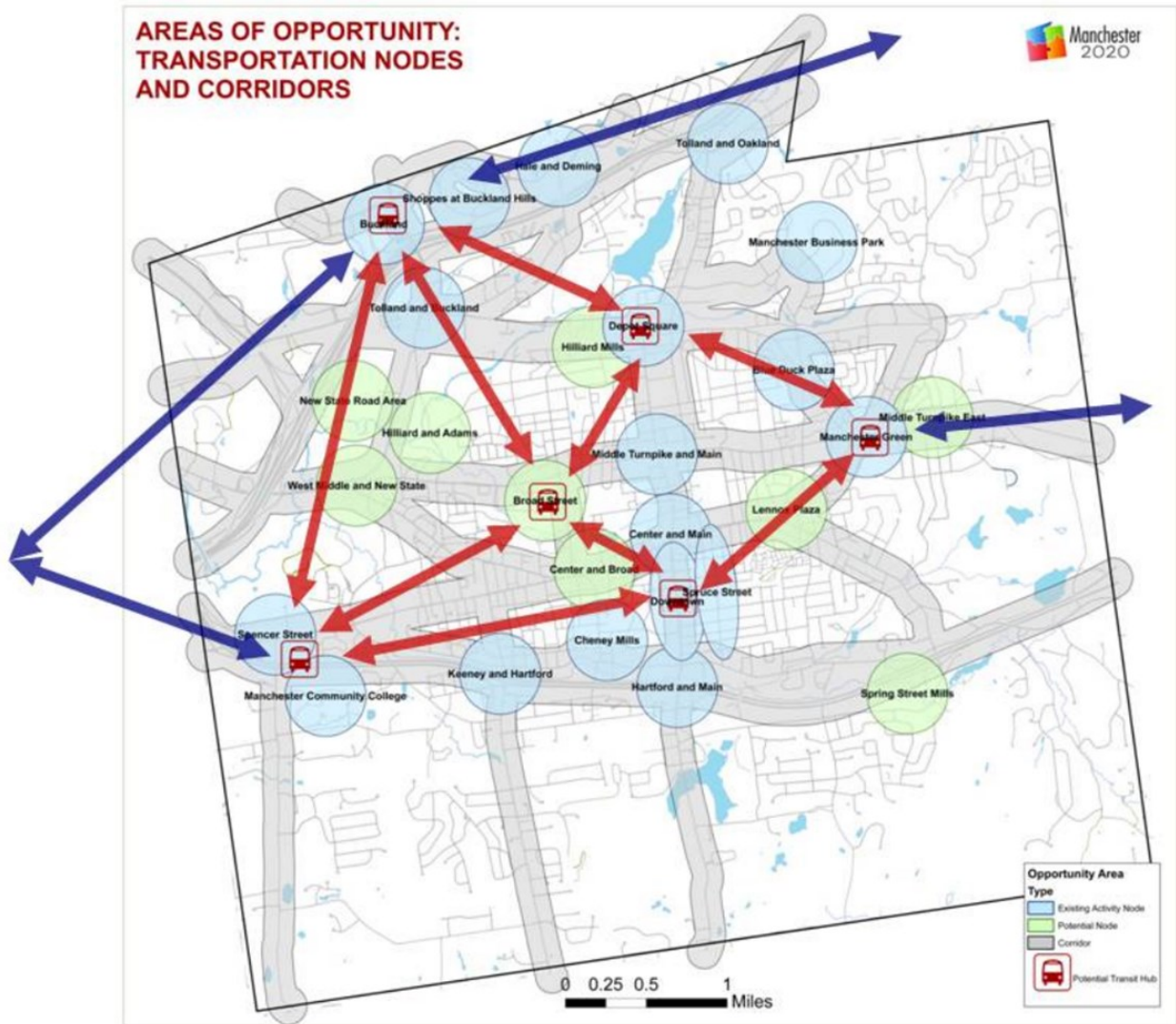
Map 4: CT Transit Manchester Bus Routes



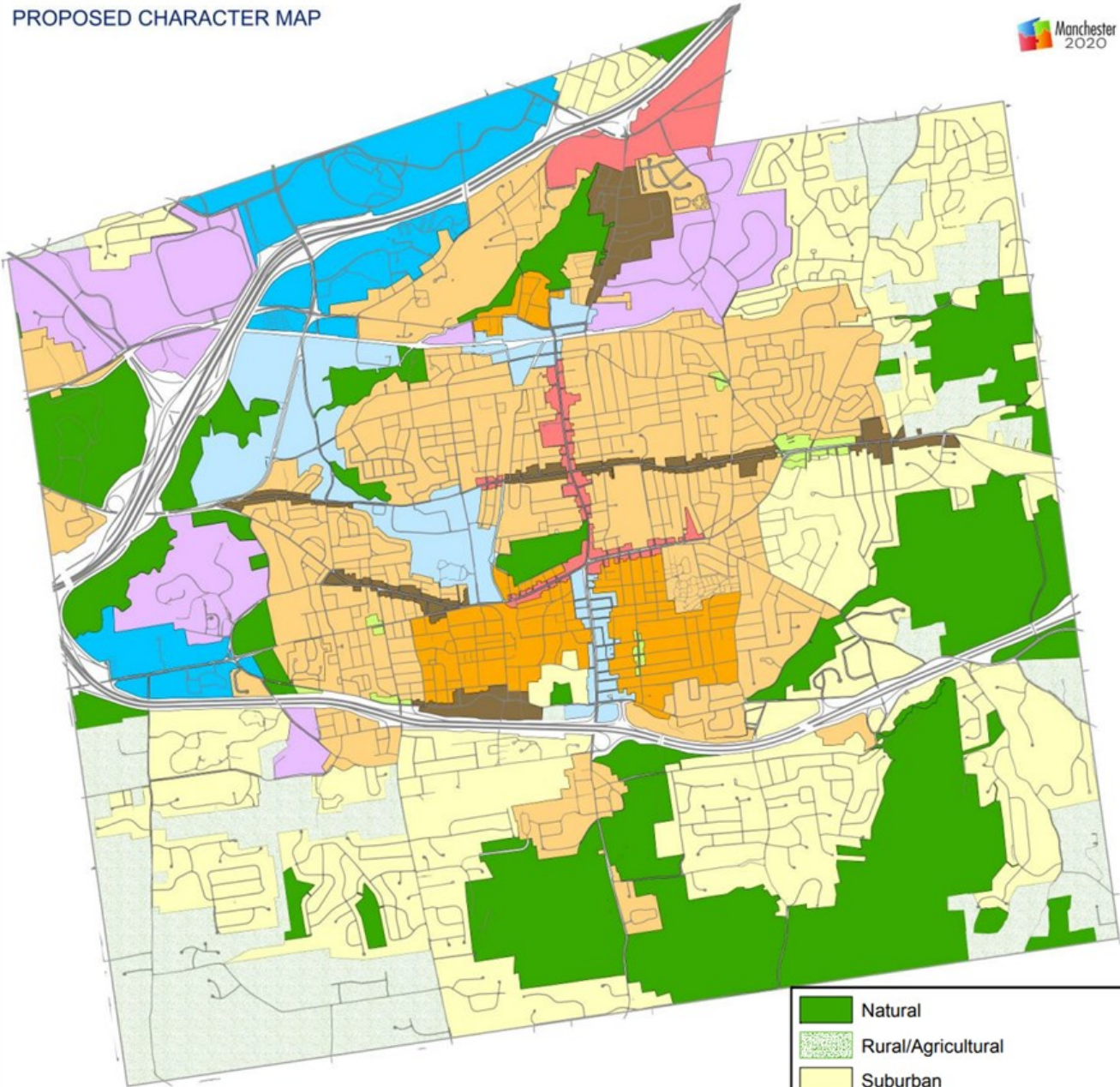
Map 6: Street Networks



Map 9: Potential Transit Node Connections

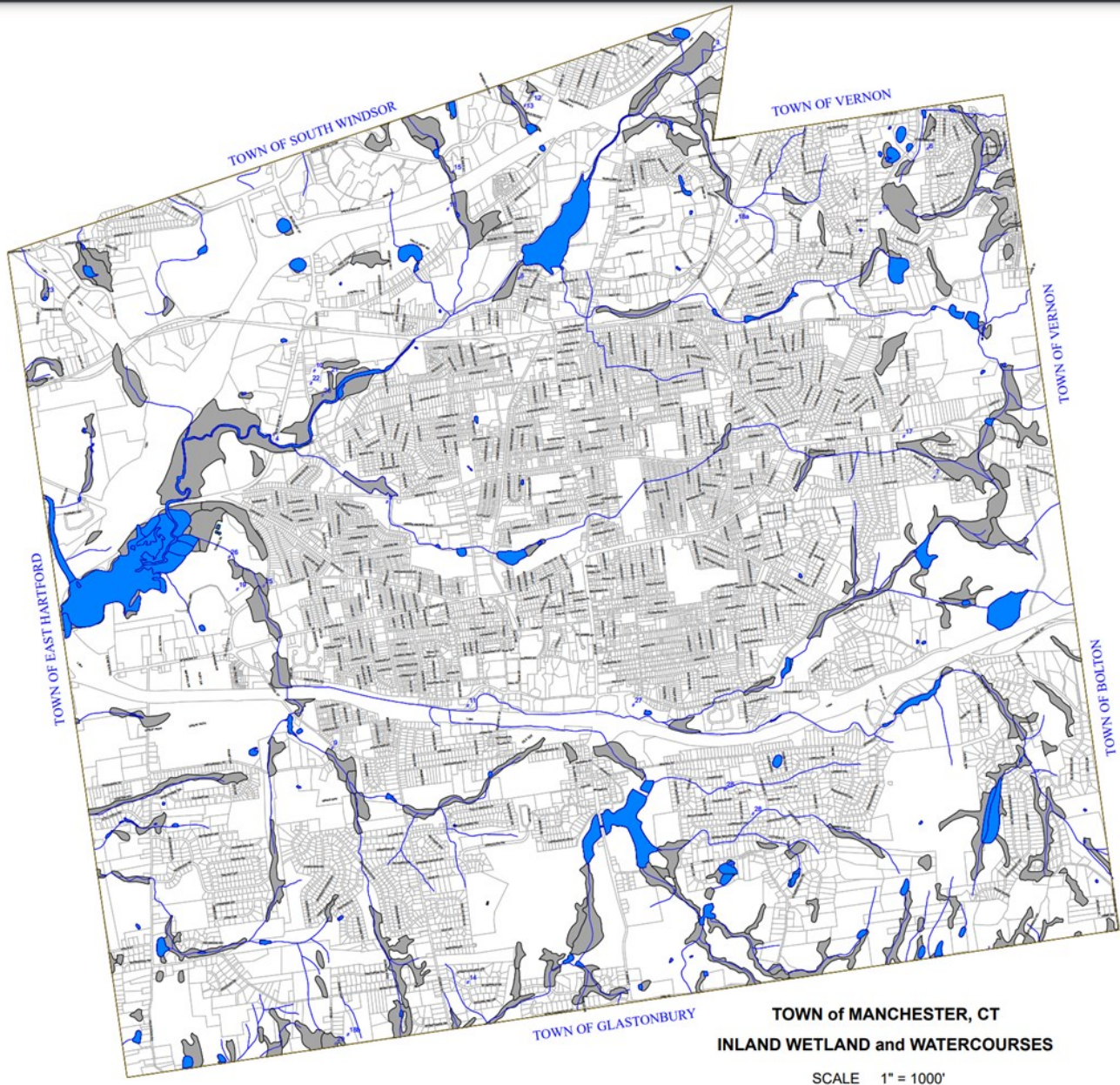


PROPOSED CHARACTER MAP



Manchester
Planning Department

-  Natural
-  Rural/Agricultural
-  Suburban
-  Traditional Suburban
-  Core Neighborhood
-  Neighborhood Center or Corridor
-  Mixed Use Center
-  Mixed Use Regional Center
-  Community Corridor
-  Commercial Corridor
-  Business Park/Industrial



**TOWN of MANCHESTER, CT
INLAND WETLAND and WATERCOURSES**

SCALE 1" = 1000'



§ Wetland Boundary Amendments *

- | | | |
|--------------------------------|-----------------------------------|----------------------------------|
| 1 Effective Nov. 28, 1978 | 13 Effective Feb. 22, 1989 M-117 | 23 Effective July 7, 1993 M-199 |
| 2 Effective Feb. 29, 1984 | 14 Effective Apr. 17, 1989 F-072 | 24 Effective Jun. 19, 1995 B-172 |
| 3 Effective June 9, 1986 T-086 | 15 Effective May 15, 1989 T-116 | 25 Effective May 18, 1998 T-269 |
| 4 Effective July 7, 1986 D-038 | 16 Effective July 17, 1989 R-043 | 26 Effective June 5, 2000 T-312 |
| 5 Effective July 7, 1986 H-049 | 17 Effective Jan. 17, 1990 D-057 | 27 Effective June 5, 2000 T-313 |
| 6 Effective Feb. 2, 1987 F-055 | 18 Effective Jan. 17, 1990 B-111 | 28 Effective June 9, 2001 H-147 |
| 7 Effective July 6, 1987 D-045 | 18a Effective Mar. 19, 1990 C-087 | 29 Effective Aug. 23, 2003 R-097 |
| 8 Effective Apr. 4, 1988 P-070 | 18b Effective Apr. 16, 1990 B-112 | |

LEGEND

- Wetlands
- Standing Water
- Water Courses

Sources: D.E.P. "DESIGNATED INLAND WETLAND and WATERCOURSES" for the Town of Manchester - October 1972
 U.S.D.A. Soil Conservation Service "SOIL SURVEY - TOWN OF MANCHESTER - HARTFORD COUNTY, CONNECTICUT" April 1965
 Digitized version of U.S.D.A. Soil Conservation Service "SOIL SURVEY - TOWN OF MANCHESTER - HARTFORD COUNTY, CONNECTICUT" April 1965 obtained from UCONN MAGIC Website
 Digital hydrography data for waterbodies and watercourses obtained from D.E.P.
 Manufactured by the Manchester Planning Department



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