City of Medford

Photo Credits: Crosby, Schlessinger, Smallridge, LLC; Medford Chamber; Douglas Shoop; Oakley Hoops Bailey

Community Resilience Building Workshop

Summary of Findings

March, 2018

City of Medford
Community Resilience Building Workshop
Summary of Findings

Overview

The need for municipalities, academic institutions, regional planning organizations, states and federal agencies to increase resilience and adapt to extreme weather events and a changing climate is strikingly evident amongst the communities of the Commonwealth of Massachusetts. Recent events such as Tropical Storm Irene and Sandy have reinforced this urgency and compelled leading communities like the City of Medford to proactively collaborate on planning and mitigating risks. Ultimately, this type of leadership is to be commended because it will reduce the vulnerability of municipal residents, infrastructure, and ecosystems and serve as a model for other communities in Massachusetts, New England, and the Nation.

In fall of 2017, the City of Medford joined the Commonwealth's Municipal Vulnerability Preparedness program. The City of Medford was connected with the Nature Conservancy as a partner to help increase awareness of risks from natural and climate-related hazards. In March 2018, a municipal-based core team including graduate students from Tufts University, organized a Community Resilience Building Workshop facilitated by the Nature Conservancy. The core directive of this effort was the engagement with and between community stakeholders to facilitate the education, planning and ultimately implementation of priority adaptation actions. The Workshop's central objectives were to:

- Define top local natural and climate-related hazards of concern;
- Identify existing and future vulnerabilities and strengths;
- Develop prioritized actions for the City of Medford;
- Identify opportunities to collaboratively advance actions to increase resilience.

For the Workshop, the City of Medford employed a unique "anywhere at any scale", community-driven process known as the Community Resilience Building (CRB) Workshop (www.CommunityResilienceBuilding.org). The CRB's Risk Matrix and various data and maps were integrated into the Workshop process to provide both decision-support and risk visualization around shared values and priorities across Medford. The principle data and maps used were previously compiled and/or generated as part of Medford's Climate Vulnerability Assessment which was in final draft at the time of this CRB Workshop. Using this workshop process, rich with information, experience and dialogue, the participants produced findings which are outlined in this summary report. The following report provides an overview of the top hazards, current concerns and challenges, current strengths, and proposed actions to improve Medford's resilience to natural and climate-related hazards 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 additional stakeholders alike. The leadership displayed by the City of Medford 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

During the CRB Workshop, community members were provided with the top natural hazards informed by the core team in pre-workshop meetings via Medford's Draft Climate Vulnerability Assessment. Intensive heat, storm surge/sea level rise, inland flooding from intense storms and precipitation, and winter storms were predetermined as hazards of greatest concern for Medford. These hazards have direct and increasing impacts on Medford's residents and resources such as its neighborhoods, natural areas (river corridors, wetlands, watersheds, parks), roads, drinking and wastewater systems, health care facilitates, social support service to vulnerable populations, and other critical infrastructure and community assets.

Top Hazards and Areas of Concern for the Community

Top Hazards

- Extreme Heat
- Storm Surge and/or Sea Level Rise
- Inland Flooding (precipitation driven events)
- Winter Storms (snow, ice, wind, Nor'easters, etc.)

Areas of Concern (see Appendix for detailed maps)

Neighborhoods: South Medford; South Street Area; "Tree Neighborhoods"; West Medford ("The Ville"); Public Housing, in particular: High-rises on Riverside, Family development-LePrise Village, development off Mystic Avenue – Willis Ave, Walkling Court.

Societal: Non-english speaking communities (Haitian, Brazilian, etc.); Tufts students/faculty/staff; Elderly population-Medford Square/Riverside; Medford Housing Authority.

Ecosystems: Mystic River; Open space; Middlesex Falls; Riparian corridors; Urban tree canopy; Wetlands; MWRA Siphon (SSO); 12 CSO overflows - Mystic River; Victory Park.

Roads: Willis Avenue; Bonner Avenue; Tufts Park; Mystic Avenue; Mystic River Road; Harvard Street (by underpass); Lawrence Road.

Infrastructure: Quabbin Reservoir pipes/generators; Senior Center in Medford Square; Electrical powerlines; Amelia Earhart Dam; Wrights Pond Dam; Mystic River Dam; Sydney Street, Wellington, Condon Shell pump station; Craddock Bridge; Medford High School; McGlynn and Andrews Elementary Schools; Hockey rink; Hallmark Hospital; Lawrence Memorial Hospital; Wellington Station; Fire Station; Tufts University; Columbus School; City-wide stormwater drainage system; Back-up power generators; Police Station; Department of Public Works; Gas transmission line; MBTA Orange Line and commuter lines; West Medford commuter rail stop; Upper Mystic Lakes Dam; Medford Square; Cummings Building on Boston Avenue; West Medford Community Center; Medford City Hall; Public housing; Medford and Somerville CSO; Electrical substations (#9, #7, #52); Kidney dialysis center (Mystic Ave); Culverts-I-93.

Business Centers: Meadow Glen Mall; Mystic Valley Parkway; Medford Square; Commercial Street; Mystic Place; Station Landing.

Current Concerns and Challenges Presented by Hazards

The City of Medford has several concerns and faces multiple challenges related to the impacts of natural hazards and climate change. In recent years, Medford has experienced a series of highly disruptive and damaging weather events including Tropical Storm Irene (August 2011), Tropical Storm Sandy, (October 2012), winter Nor'easter Juno (January 2015). Impacts from Irene included heavy rain-induced inland flooding and wind damage. Sandy caused extensive power outages across large portions of Medford. Juno dropped nearly 36" of snow on the City knocking out power and isolating residents and neighborhoods. The magnitude and intensity of these events and others across Massachusetts has increased awareness of natural hazards and climatic change, while motivating communities like Medford to comprehensively improve resilience.

This series of extreme weather events highlights that for Medford the impacts from hazards are diverse; they range from flooding of surface streets and low-lying areas near rivers and wetlands during heavy precipitation events to 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 the elderly and disabled. The combination of these issues presents a challenge to preparedness, response and mitigation priorities and requires comprehensive yet tailored actions for particular locations and/or areas across Medford.

The workshop participants were generally in agreement that Medford is experiencing more intense and frequent storms events and heat waves. The impacts have affected the daily activities of most residents. Additionally, there was a general concern about the need for and challenges of being prepared with contingency plans for worst case scenarios during different times of the year (i.e. major disasters, storms, major hurricanes (Cat-3 or above)) particularly in the fall/winter due to more intense storms.

Downtown Medford (Credit: Pinterest)

(Credit: Cemtersandsquares.com)

Mystic River (Credit: Norton Group)

Specific Categories of Concerns and Challenges

Emergency Management

There was a concern raised about the current need to accelerate comprehensive planning and coordination on emergency management across Medford. Universally, participants recognized that greater resources and capacity should be directed to improving communications across all groups of residents to ensure the populous is better informed and prepared in the event of a major disaster. Suggestions range from improved assessments of sheltering capacity, conducting regular emergency drills, multi-lingual evacuation signage and preparedness materials, education on sheltering in place options, and enhanced communications systems among others discussed herein. One primary concern was the outdatedness of Medford's Emergency Action Plan (circa 2003).

Dams

Many participants raised alarms regarding management and long-term maintenance needs for dams in Medford - namely the Amelia Earhart and Wrights Pond Dam among other smaller dams. The concerns primarily revolved around the long-term ability of the Amelia Earhart Dam to provide storm surge protection in the future with elevated sea levels as well as the potentially significant impacts from catastrophic dam failures to residents and critical infrastructure in proximity to the Mystic River system and other connected waterbodies. In addition, questions were raised about the level of preparedness across the region and amongst other downstream and upstream municipalities in the event that such a catastrophe were to occur.

Housing and Community-based Facilities

Across participants there was a general sense of concern about risks related to housing and community-based facilities. These concerns ranged from the current lack or limitation of emergency management and evacuation plans for public housing, community centers, and senior centers to the provision of electricity, heat, and air conditioning within housing and/or at sheltering facilities. This concern extended to critical care facilities and dialysis centers in Medford.

Specific Categories of Concerns and Challenges continued...

Community Communication and Collaboration

There was a universal recognition amongst the participants that there is an immediate need to convene and coordinate a broad stakeholder effort to both foster a sense of community and initiate the development of a communications plan for the City of Medford. While there is a track record of collaboration, the participants recommended surfacing opportunities to strengthen ties in several meaningful ways identified herein.

Riparian Corridors and Wetlands

One of the key challenges raised during the Workshop was the limited awareness amongst residents of the benefits and critical services (including flood storage and prevention) provided by the river and wetlands ecosystems. The larger concern is that the rivers and wetlands are not being valued and incorporated as natural infrastructure that can help reduce risk and improve resilience.

Non-English Speaking Populations

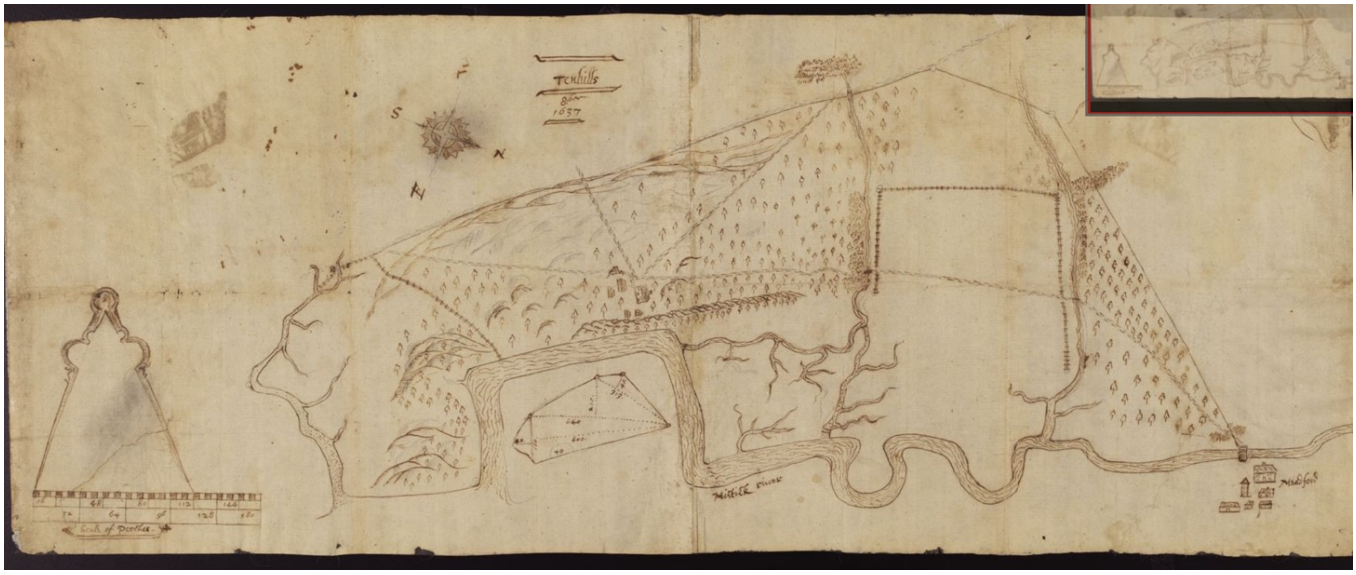
A focus was provided by participants on the need to increase outreach and education to non-English speaking populations (40 languages spoken in elementary schools) regarding the impacts of natural hazards and climate change via the emergency management communications in advance of, during, and after disasters. Suggestions explored included development of collaborative partnerships to better respond to the diverse needs of multiple populations by connecting with faith-based organizations and their congregations. It was pointed out that similar outreach and education needs are required across many other groups of residents including low income, environmental justice, disabled, minorities, elderly, impaired mobility, mentally challenged, and those with less than a high school education.

Stormwater System

The concerns raised regarding the stormwater system were largely attributed to the age and current capacity of Medford's system. This lead to discussion on ways to maximize on-site retention prior to entering the storm drain system, increased adherence to regulations, possibility of storm water fees or rates to generate funds to upgrade overall system, retrofitting outfalls with backflow preventers, protection of pump station, and general mapping of system to assist with prioritizing upgrades and stormwater retention.

Medford Square along river to Wellington

This area along the river from Medford Square to Wellington Circle was highlighted as a key challenge due to the clustering of social services, public offices, middle schools, an elementary school, retail, and groceries located in a flood zone with elevated heat risks for residents. The chronic street flooding and extended heat waves resulted in many suggestions by participants to this challenge.



"The first governor of Massachusetts, John Winthrop, owned property along the Mystic River. He called his estate Ten Hills. This manuscript map from the Winthrop family papers at the Massachusetts Historical Society was drawn in 1637 and depicts the town of Medford, the Mystic River, and various landmarks. The Winthrop farm is represented by buildings just to the left of the middle of the image." Source: Massachusetts Historical Society

Current Strengths and Assets

Because of the recent experiences with extreme weather, the City of Medford is well acquainted with existing and shared strengths. Reinforcing best practices and enhancing available assets will generate greater benefits to the City through increased resiliency to more frequent and intense storms, as well as to long term impacts from the ongoing increases in air temperature, precipitation, and drought.

- Clearly, the responsive and committed leadership exhibited by officials and senior staff is a very appreciated strength within the City of Medford. Ongoing collaboration between City, Commonwealth, and regional staff along with the business community and NGOs on the priorities as identified by the community below will help to advance comprehensive, cost-effective approaches to resilience.
- The City has solid, highly experienced, staff with access to adequate, but limited, resources for shorter duration events. The overarching coordination amongst various departments including Police, Fire, and EMS was cited as an ongoing, and highly valued community strength despite the need to update and improve emergency management/action plans.
- Highly active and engaged NGO community that provides ongoing services for various groups including disadvantaged and resource-limited residents.
- Supportive social services for elderly, youth, and families as well as faith-based organizations were highlighted as important community assets.
- Relatively intact forested watershed surrounding ponds and wetlands in the northern portion of the City coupled with riparian corridors along waterways such as the Mystic River which provide flood storage, enhance public amenities for recreation and gathering, and increased ecological function and biodiversity through Medford.
- Recent construction of a new Police Station and the establishment of the Emergency Operation Center in this facility will undoubtedly improve the City's long-term coordination and resilience.
- Opportunities to further cultivate partnership with Tufts University to accelerate resiliency across Medford.

Credit: Wikipedia

- The floodplains, inland wetlands, and open space through and across the municipality offer increased defense against storms through flood storage and surface runoff capture and infiltration. Intact forested watersheds, reservoirs, and other park lands along the Mystic River provide public amenities and serve to maintain water quality, flood storage, and heat amelioration for residents.

Top Recommendations to Improve Resilience

A common thread throughout the workshop discussions was the recognition that Medford needs to be better prepared through longer term community-based, contingency planning across all areas of concern. This need and additional core highlights surfaced by the Workshop participants are addressed below.

Highest Priority

- For all City-owned buildings conduct inventory of vulnerabilities and develop/ complete emergency preparedness reviews via checklist on an annual basis.
- For redevelopment and new development update and/or integrate design guidelines, building codes, and zoning ordinance that increase building resiliency and accelerate green infrastructure installation across Medford.
- Transition existing Emergency Operations Center (EOC) to new EOC in new Police Department building.
- Ensure respective authorities have emergency plans in place for all public housing facilities and senior centers and are coordinating with City and State Emergency Management personnel and planning efforts.
- Better integrate school reverse 911 system with city-wide reverse 911 system and conduct outreach to get more residents signing up.
- At the West Medford Community Center ensure the provision of information on evacuation, sheltering, and cooling center options occurs on a routine basis. Provide additional training for home owners and buyers on how to deal with flooding including actions they can take on their own property (sump pumps, rain gardens, green infrastructure, tree planting, native vegetation, etc.).

Community Resilience Building Workshop Recommendations

Highest Priority (cont'd)


© Adam Whelchel/TNC

- City needs to develop through broad public outreach a coordinated and comprehensive evacuation plan. Plan should connect and help coordinate the availability/needs of sheltering and cooling facilities.
- For the municipal stormwater system, identify, fix and/or replace pipes and simultaneously conduct a broad and comprehensive study to identify locations for green infrastructure that could elevate storm water runoff into system. In addition, explore establishing stormwater guidance for Utility to help reduce runoff and overflow discharges into Mystic River.
- Along the Mystic River identify and acquire more land adjacent to river in areas prone to routine flooding as well as conduct habitat restoration by planting more native tree and shrub species. In addition, explore designs that can maximize flood control, increase ecological function, and enhance recreational amenities. This could include actions in adjoining areas outside of the immediate riparian corridor/park such as increasing permeable pavement for greater infiltration and green infrastructure.
- Include McGlynn and Andrews Schools in the update on all sheltering capacity in Medford and define the use of schools as evacuation and/or sheltering options. This update should highlight the capacity of these two schools to serve as sheltering facilities. Reduce limitations of schools by installing retrofits to buildings and grounds that will reduce flooding and heat impacts. Install green infrastructure on grounds to reduce inland flooding.
- City to seek consultation with Hospital administration to enhance awareness of facilities emergency management plan and to identify ways to partner including shared services. Consider a process to establish a formalized cooperative agreement between City and Hospital.

Community Resilience Building Workshop Recommendations

High Priority (cont'd)

- City to consult with MBTA to determine plan of action to improve resilience of Wellington Station.
- City to reassess the benefits of South Medford Fire Station to support temporary overflow sheltering or to directly support to other sheltering facilities (kitchen, showers, etc.). Consider acquisition of high-water vehicles to help with rescues.
- Look to reduce language barriers to new immigrates and current residents by engagement through various forums such as local churches, identify community leaders and seek their help in reaching appropriate groups, and via local radio shows broadcast in multiple languages (perhaps in partnership with Tufts). City to consider hiring bi-lingual staff and offer language translation services.
- Conduct a robust identification and mapping project to clearly determine the location of special needs populations to help emergency management professionals be more targeted and effective at keeping people safe in Medford. This effort should include non-English speakers, low income, environmental justice communities, "less than high school educated", elderly, children, and disabled residents.
- Conduct targeted outreach via Tufts University administration and emergency management personnel and procedures to ensure students, staff, and faculty with special needs are properly identified for emergency management purposes.
- Need to conduct routine and year round maintenance of water mains due to age of system. Identify and prioritize replacement segments and begin installation with greatest priority.
- Ensure the urban forests of Medford (1/3 of land area) are properly maintained to the benefit of all residents. Furthermore, promote city-wide tree planting effort and work with state DCR to increase shade-tree canopy, shade structures, etc along Mystic Avenue and elsewhere. City to review and integrate zoning to accelerate tree canopy establishment and maintenance.
- To reduce heat impacts and improve ambient air quality increase and maintain tree cover across Medford.

Community Resilience Building Workshop Recommendations

High Priority (cont'd)

- Continue and strengthen Medford's partnership with MBTA and Sommerville to address flooding issues on the Harvard and Brown Avenue transportation corridors.
- Look to increase the resilience of existing electrical infrastructure across Medford long term. Short term identify critical restoration needs and facilities and ensure local utility has list to direct immediate recovery priorities after disaster.
- Conduct outreach to educate people about the location of flood zones across Medford and share with residents in vulnerable areas locations of shelters and services in the event of an emergency. Include in outreach offer for residents to sign-on to Medford's Smart 911 system.
- Need to increase effectiveness of emergency-related communications via multilingual methods that includes developing paper flyers and/or doorhangers in multiple languages that makes risk understandable and provides steps to become more resilient.
- Emergency Management Plan needs to be updated to properly communicate location of safe havens for residents during extreme weather events. Share existing and updated Emergency Management Plans with residents and organizations via an annual meeting.
- City needs to establish standards and determinates for opening and closing of cooling centers and shelters in Medford.
- Explore a replacement program for disconnected or disable AC units with focus on housing occupied by elderly and/or young families. Look to partner with Mystic Valley Elderly Association to help resolve cultural aversion to AC units.

Credit: Douglas Shoop

- Conduct increased education to enhance awareness of contamination of the Mystic River through sewer and storm drain discharge and other sources of contamination.

Community Resilience Building Workshop Recommendations

High Priority (cont'd)

- Initiate and complete a comprehensive plan for riparian corridors and greenways across Medford in partnership with adjoining municipalities, watershed organizations, and state agencies among others. Seek to increase the protection of open space and sensitive riparian corridors to provide both ecological and recreational health benefits to residents.
- For Medford Square, explore district wide backup energy opportunities (i.e. see Tufts University for example), move flood vulnerable services/utilities upstairs or elsewhere in City, retrofit buildings with temporary flood barriers, and identify key commercial partners who can assist with emergency services in nearby areas (i.e. Wegmans, Dunkin Donuts, Stop/Shop Target).
- Work collaboratively with upstream municipalities to ensure better floodplain management and storage along common waterways, wetlands, and open spaces.
- Look to establish storm water regulations on new development or retrofits to ensure no additional impacts to environment and storm water quantities. Coordinate this with an inventory of existing public and private storm water conveyance infrastructures.
- City to ensure storm drains, storm water retention areas, and catch basins are routinely cleaned out.
- For critical care facilities and dialysis centers, inventory availability of generators at all facilities and develop/update emergency action plans to ensure continuity of care for patients during and post-disaster.
- Continue to maintain and seek ways to strengthen Wrights Pond Dam including adding spillway to allow for greater volume control.
- For Amelia Earhart Dam conduct inspections and maintenance of Dam in direct partnership with Army Corps of Engineers and Commonwealth Department of Conservation and Development, and identify and install upgrades to Dam to ensure long-term safety to upstream and downstream communities.

Community Resilience Building Workshop Recommendations

High Priority (cont'd)

- For all dams in Medford continue to conduct routine maintenance and upgrading as necessary and feasible. Coordinate with agencies responsible for dams in region to create a regional approach to dam safety. Finally, initiate and refine modeling of flooding associated with catastrophic failure of each and all dams in Medford.
- Apply and secure funding to upgrade stormwater system in Medford. This should integrate a map of the entire system above and below ground, conduct work to reduce sewer overflow, and retrofit outfalls with backflow preventers.
- Secure and install cooling options in Medford Housing Authority housing. Secure generators for housing to ensure back-up power is localized. City to confer with and confirm MHA has emergency management plans for facilities as well as evacuation plans in place for residents.
- Conduct survey of all culverts in Medford. Identify city-owned culverts that need to be upgraded and determine design, cost, and schedule for each upgrade. Collaborate with DCR to improve resilience of culverts maintained by DCR. City to integrate improved design codes and standards for new and retrofitted culverts across Medford.
- Particular focus by electric utility on vulnerable substations (#7, #9) including increased accessibility for repairs during emergencies.

Source: Medford Public Library—Medford 1855

Community Resilience Building Workshop Recommendations

Moderate Priority

- Consideration by school board of potential health impacts from heat waves and reduced air quality to students engaged in high school recreational opportunities in the spring and summer.
- Need to coordinate with MBTA to ensure safe passage for students from schools during major winter storms.
- City and local representative for the community to conduct outreach to Haitian community in Haines Square and provide forum for integrating community voices into planning and emergency management dialogues.
- Increase communications through diverse actions including adopt flashing-light-on-traffic-light system for emergencies like Somerville, survey where people get cars towed during snow emergencies to determine where communications such as reverse 911 are not going through, and work towards centralized, high buy-in emergency communication for whole city to avoid fragmenting of communications (text threads, email chains, etc.).
- Partner with Portuguese and Creole-speaking radio stations to increase reach of emergency communications in Medford.
- Reduce and eventually eliminate contaminated runoff from specific excavation and construction sites across Medford.
- Look to increase tree canopy for downtown Medford and identify and install more green infrastructure to reduce heat and inland flooding impacts across Medford.
- Initiate drainage improvements for the Harvard Street Bridge as well as consider elevating to improve pedestrian access.
- For high-rise senior housing define opportunity to develop more robust "shelter-in-place" and/or integrated evacuation plans in support of the Medford Housing Authority.
- Explore alternate transportation for rail commuters to other stations when one gets closed. In addition, improve snow plowing coordination between City and MBTA.

Community Resilience Building Workshop Recommendations

Moderate Priority (cont'd)

- City to develop and submit recommendations on ways to improve resilience of commuter rail facilities to Commonwealth.
- Add solar and battery back-up capacity to school facilities along with air conditioning and emergency generators where needed to reduce impacts of heat on students, staff, and faculty.
- Change city building code to allow for lighter colored (white) asphalt roofs to reduce heat absorption.

Lower Priority

- City needs to invest in the improvement and distribution of emergency evacuation route signage at the street and neighborhood levels. In addition, seek ways to broadcast more broadly to residents maps and information about evacuation routes that visually tie into on street evacuation signage installation across Medford.
- Conduct more educational outreach to neighborhoods in proximity to standing water on mosquito control. Look to build and place bat houses to help control mosquito populations naturally. Engage with local youth groups to build bat houses.

Credit: AMC Boston Chapter

Credit: AMC Boston Chapter

CRB Workshop Participants: Department/Authority/Organization/Business

City of Medford-Office of the Mayor
City of Medford-Health Department
City of Medford-Office of Energy and Environment
City of Medford-Office of Community Development
City of Medford-Parks Department
City of Medford-Council on Aging
City of Medford-Water
City of Medford-Community Preservation Committee
City of Medford-School Department
City of Medford-Engineering Department
City of Medford-Diversity Director
City of Medford-Chamber of Commerce
City of Medford-Fire Department
City of Medford-Police Department
City of Medford-Public Works Department
City of Medford-Building Department
City of Medford-Tree Warden
City of Medford-Conservation Commission
City of Medford-Finance Department
City of Medford-Highway Department
City of Medford-Historic Commission
Massachusetts Emergency Management Agency
Massachusetts Department of Transportation
Massachusetts Department of Public Health
Massachusetts Water Resources Authority
Massachusetts Bay Transportation Authority
Metropolitan Area Planning Council
Mystic River Watershed Association
Tufts University
Friends of Mystic River
New England Development
Wynn Boston Harbor
Verizon Corporation
Friend of the Fells
Century Bank
Preotle, Lan & Associates, Ltd.
Comcast
Medford Interfaith Council
The Welcome Project
Cumming Property

CRB Workshop Project Team: Organization and Role

Medford Core Team

Alicia Hunt - City of Medford, Office of Energy and Environment
MaryAnn O'Connor - City of Medford, Health Department
Darya Mattes - City of Medford, Office of Energy and Environment (Tufts University)
Amanda Formica - City of Medford, Office of Energy and Environment (Tufts University)

Facilitation Team

The Nature Conservancy – Adam Whelchel, PhD (Lead Facilitator)
The Nature Conservancy – Drew Goldsman (Facilitator)
The Nature Conservancy - Kristie Giannetto (Facilitator)
A Better City (and Medford resident) - Yve Torrie (Facilitator)
The Nature Conservancy – Cary White (Facilitator)
The Nature Conservancy - Steve Long (Facilitator)
The Nature Conservancy - Eric Roberts (Facilitator)

Recommended Citation

Hunt, A., O'Connor M., Mattes D., Formica A. and A. W. Whelchel (2018). City of Medford Community Resilience Building Workshop Summary of Findings. City of Medford, The Nature Conservancy. Medford, MA.

Acknowledgements

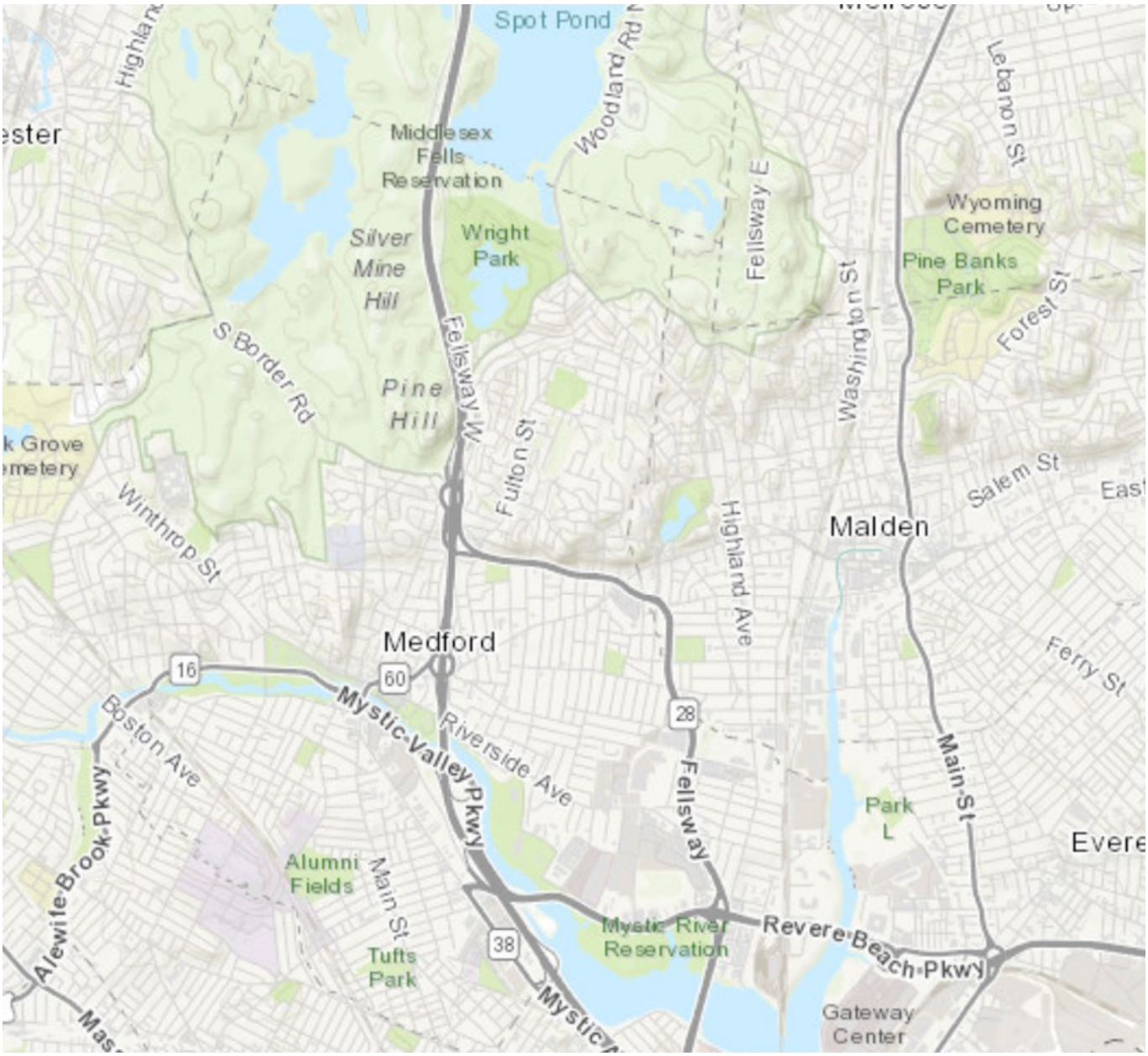
Special thanks to the City of Medford, Mayor, staff, and community members (local, regional, and state—see previous page) for their willingness to embrace this process in hopes of a more resilient future for Medford. Additional thanks to the City for providing convening space within the City Hall and for providing refreshments and food. Finally, thanks to the scribes that recorded the workshop dialogue.

This project was made possible in part through the generous contribution of the facilitation team by The Nature Conservancy to conduct Medford's Community Resilience Building Workshop in close partnership with the Medford Core Team as part of the Commonwealth's Municipal Vulnerability Preparedness Program.

Appendix

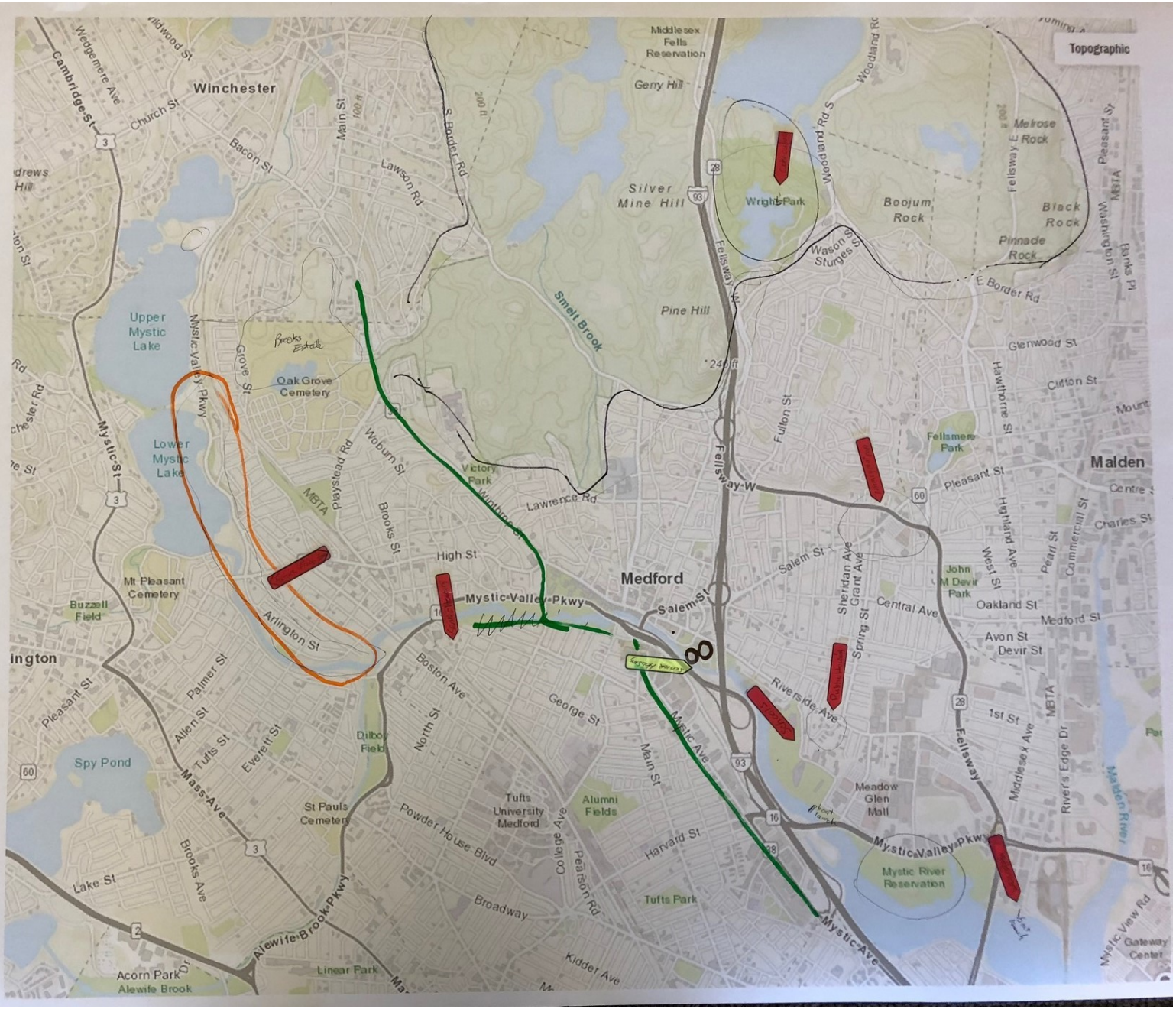
Base Map

Participatory Mapping - Base Maps



Medford Base Map

Base Map

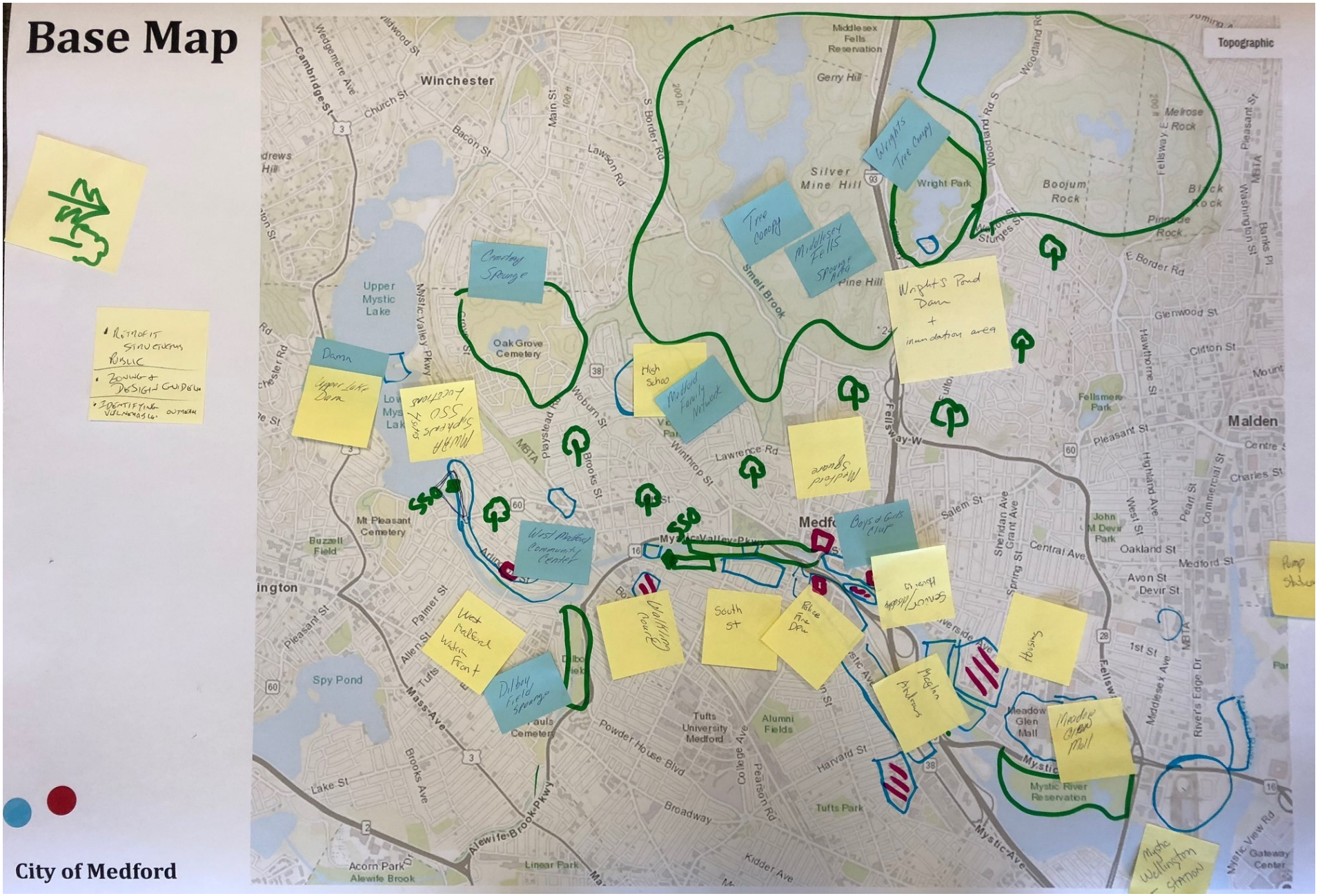


City of Medford

Base Map

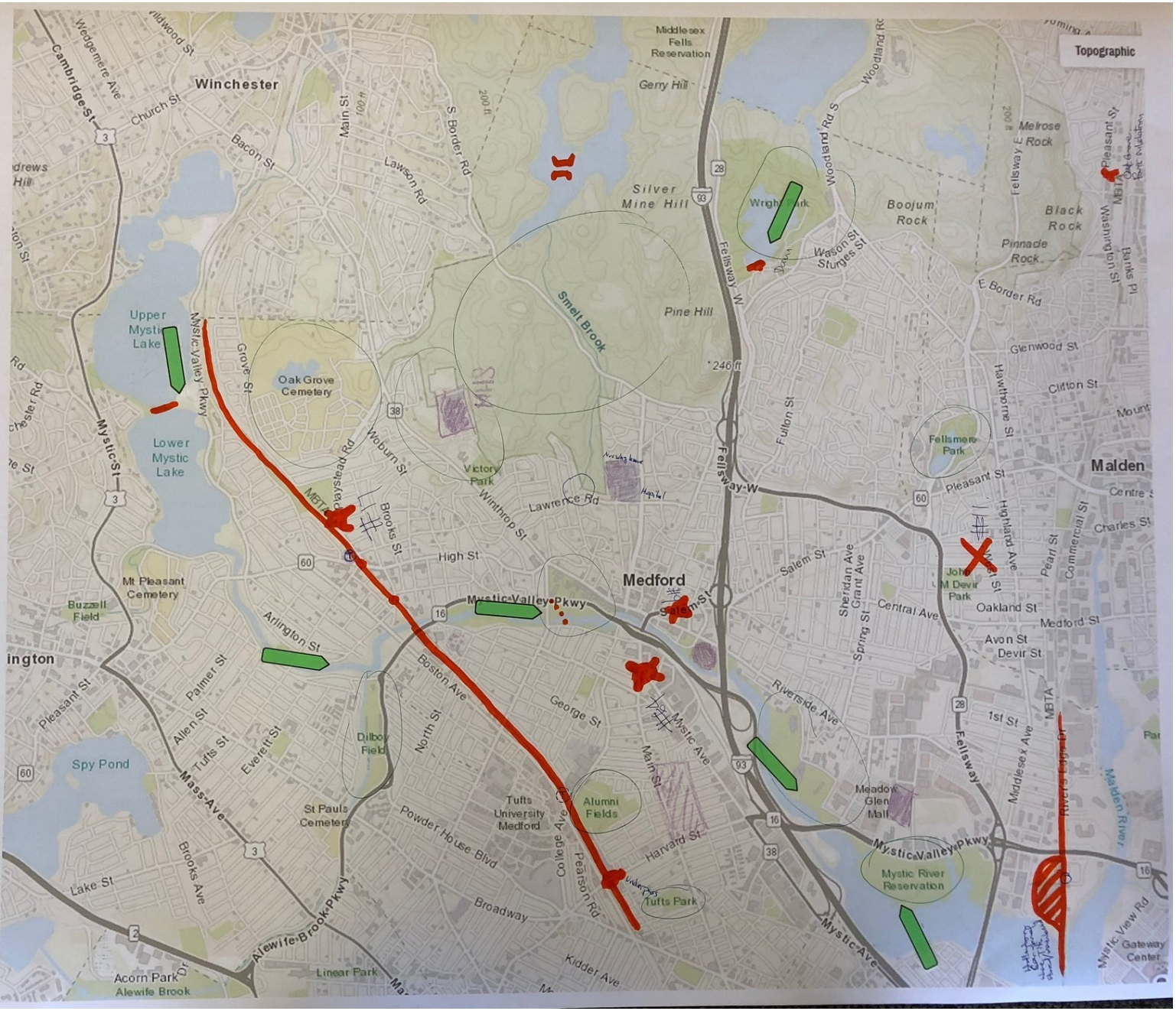
City of Medford

Base Map



City of Medford

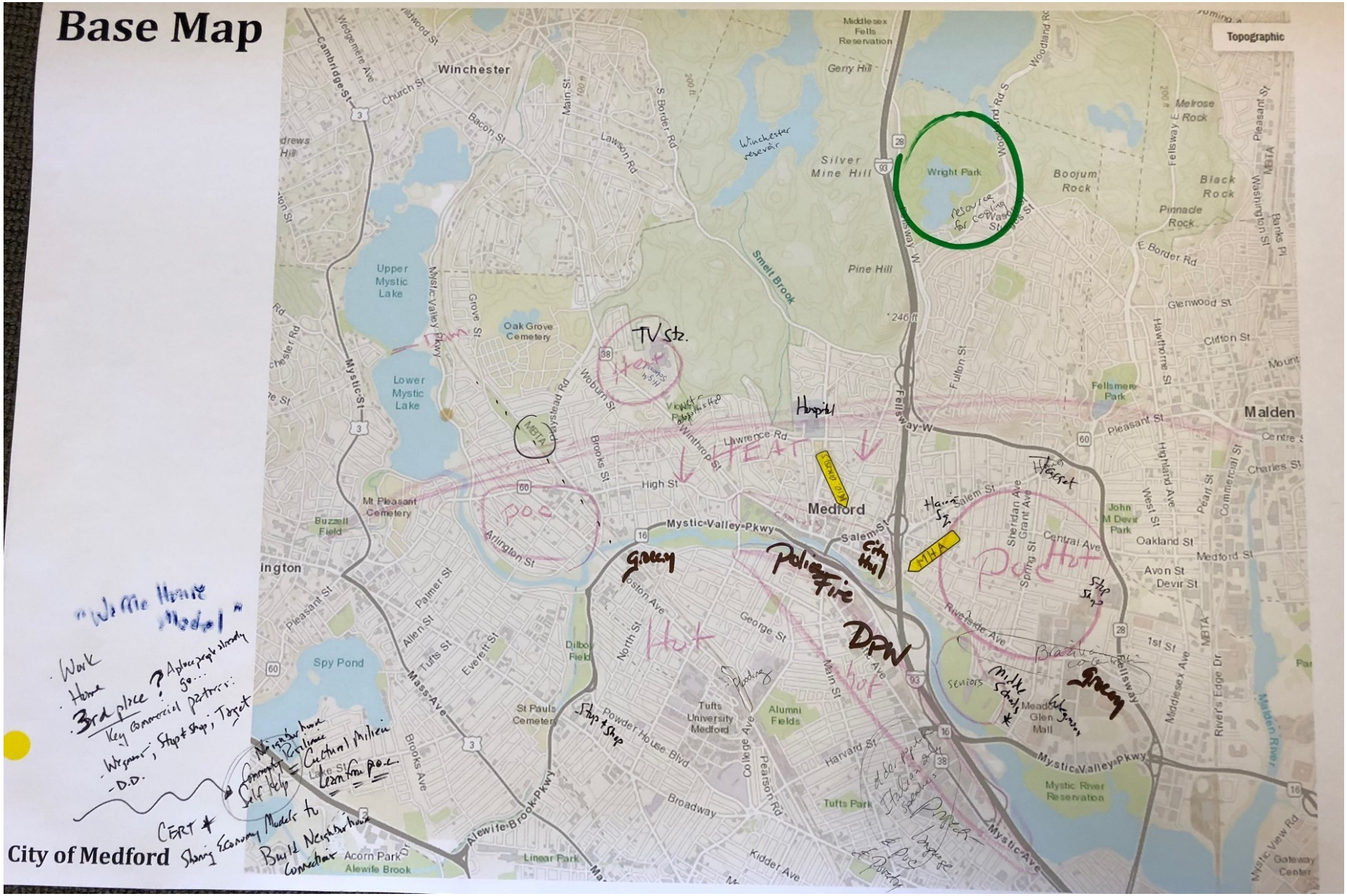
Base Map



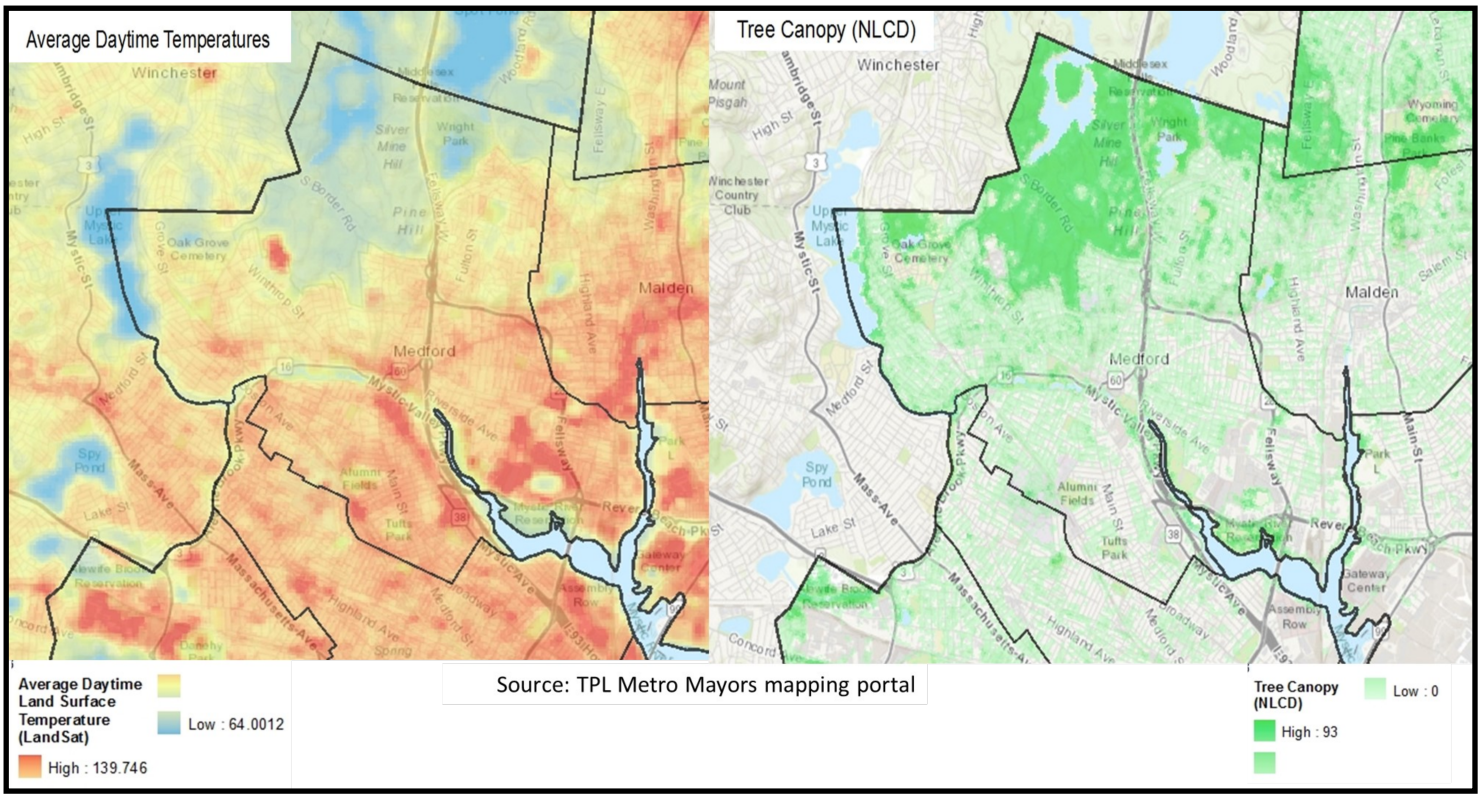
City of Medford

Base Map

ty of Medford
Medford
Malden
Winchester
Mystic Valley Pkwy
Fellsway
Mystic Ave
Main St
Salem St
College Ave
Broadway
North St
Boston Ave
Playstead Rd
Grove St
Lawson Rd
Wright Park
Woodland Rd S
Fulton St
Pine Hill
Silver Mine Hill
Middlesex Fells Reservation
Upper Mystic Lake
Lower Mystic Lake
Spy Pond
Oak Grove Cemetery
Mt Pleasant Cemetery
St Pauls Cemetery
Tufts University Medford
Tufts Park
Alumni Field
Dilboy Field
Buzzell Field
Mystic River Reservation
Glenn Meadow Mall
Victory Park
Fellsmere Park
Pleasant St
Main St
Church St
Cambridge St
Lake St
Pleasant St
Broadway
Powderhouse Blvd
Pearson Rd
Kidder Ave
Harvard St
Sheridan Ave
Grant Ave
Spring St
Central Ave
Oakland St
Highland Ave
Middlesex Ave
River's Edge Dr
Commercial St
Pearl St
Medford St
Charles St
Hawthorne St
Glenwood St
Clifton St
Fellsway E
Fellsway W
Pleasant St
Washington St
Banks Pl
Woodland Rd
Bacon St
Lawson Rd
S Border Rd
E Border Rd
Wedgemere Ave
Winthrop St
Lawrence Rd
Wyoma Sq
Wyoma Sq
Mystic Valley Pkwy
Alewife Brook Pkwy
Mass Ave
Broadway
Boston Ave
Mystic Ave
Fellsway
Salem St
Main St
Medford
Malden
Winchester
Topographic


Base Map
Topographic
Winchester
Middlesex Fells Reservation
Gerry Hill
Silver Mine Hill
Wright Park
Boojum Rock
Black Rock
Pinnacle Rock
Melrose Rock
Winchester reservoir
Pine Hill
Upper Mystic Lake
Lower Mystic Lake
Oak Grove Cemetery
Smelt Brook
TV Str.
Hospital
Medford
Malden
Fellsmere Park
Mt Pleasant Cemetery
Buzzell Field
Spy Pond
Dilboy Field
St Pauls Cemetery
Tufts University Medford
Alumni Fields
Meadow Glen Mall
Mystic River Reservation
Tufts Park
Acorn Park
Alewife Brook
Linear Park
Gateway Center
Lawrence Rd
High St
Salem St
Central Ave
Broadway
Harvard St
George St
Pleasant St
Mystic Valley Pkwy
Fellsway W
Mass Ave
Alewife Brook Pkwy
Main St
Woburn St
Brooks St
Arlington St
Powder House Blvd
College Ave
Pearson Rd
Kidder Ave
Riverside Ave
Commercial St
Medford St
Oakland St
Avon St
Devir St
Charles St
Clifton St
Glenwood St
E Border Rd
Pleasant St
Hawthorne St
Highland Ave
Sheridan Ave
Grant Ave
Spring St
Pearl St
John M Devir Park
Middlesex Ave
Rivers Edge Dr
1st St
Fulton St
Woodland Rd
Washington St
Pleasant St
Bacon St
Church St
Main St
Lawson Rd
S Border Rd
Cambridge St
Mystic St
Grove St
Palmer St
Allen St
Tufts St
Everett St
Winthrop St
Broadway
Kidder Ave
Mystic Ave
Mystic View Rd
Malden River
Fellsway-W
Fellsway E
Woodland Rd S
Pleasant St
MBTA
Banks Pl
Chester Rd
Andrews Hill
Wedgemere Ave
Elmwood St
Crystal Rd
Vine St
Lake St
Dr
Ave
St
Rd
Pkwy
Blvd
Hut
Poe
Police/Fire
DPW
City Hall
Library
Seniors
Middle School
Elder Pkwy
Italian Festival
Longfellow
Poe
Poverty
Resource for cooling
Heat
Work
Home
3rd place ?
Key Commercial patrons:
Wegmans, Stop & Shop, Target
-D.D.
Neighborhood Business Cultural Milieu
Community Civic Life
Learning Poe
CEPRT
Sharing Economy Models to Build Neighborhood Connection
"Middle Income Model"
City of Medford

Resources and Maps Used During Workshop



Source: City of Cambridge Climate Vulnerability Assessment, p.8

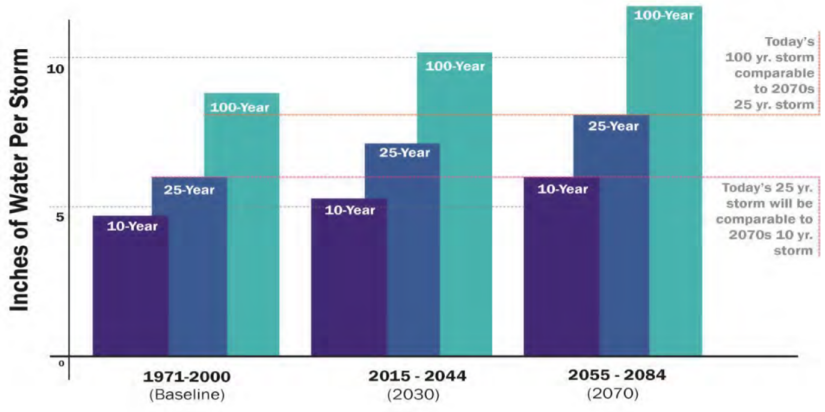
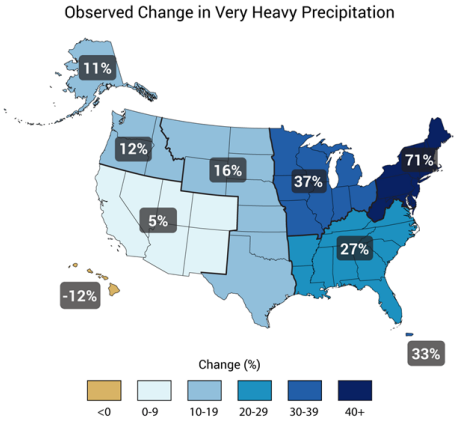


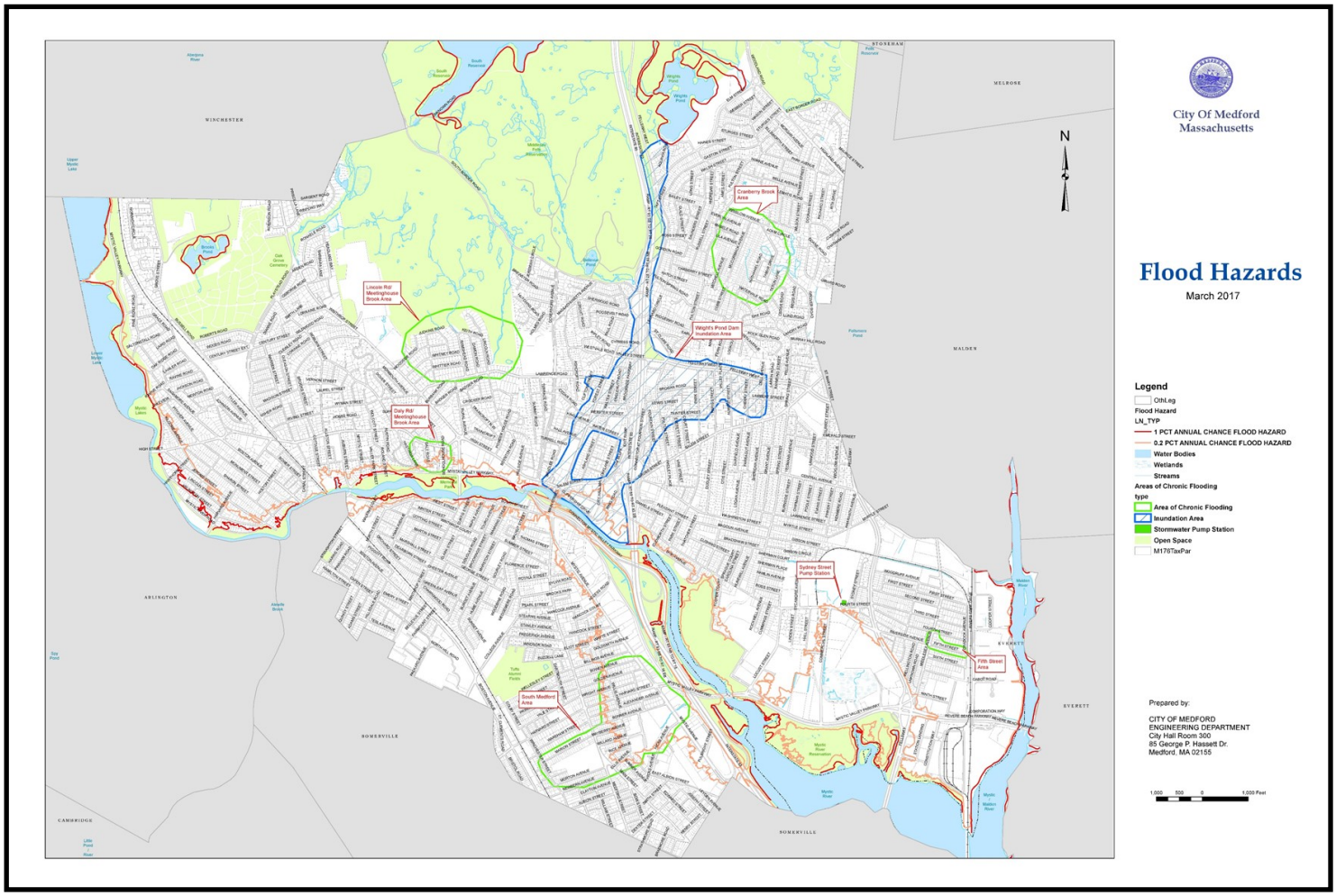
Figure 3: Precipitation projections (Source: Kleinfelder based on ATMOS projections November 2015)

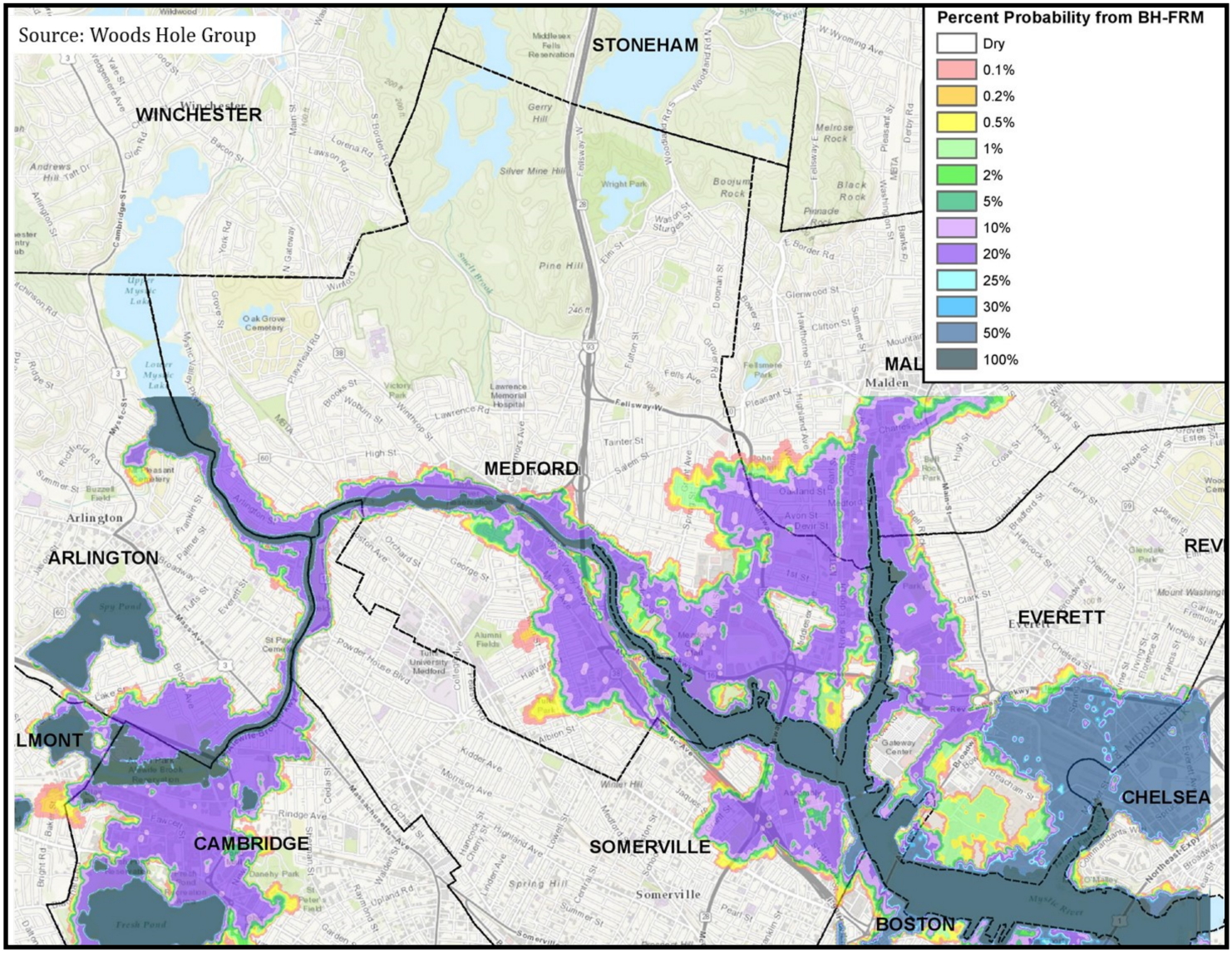
Source: Figure 2.18, 2014 U.S. NCA

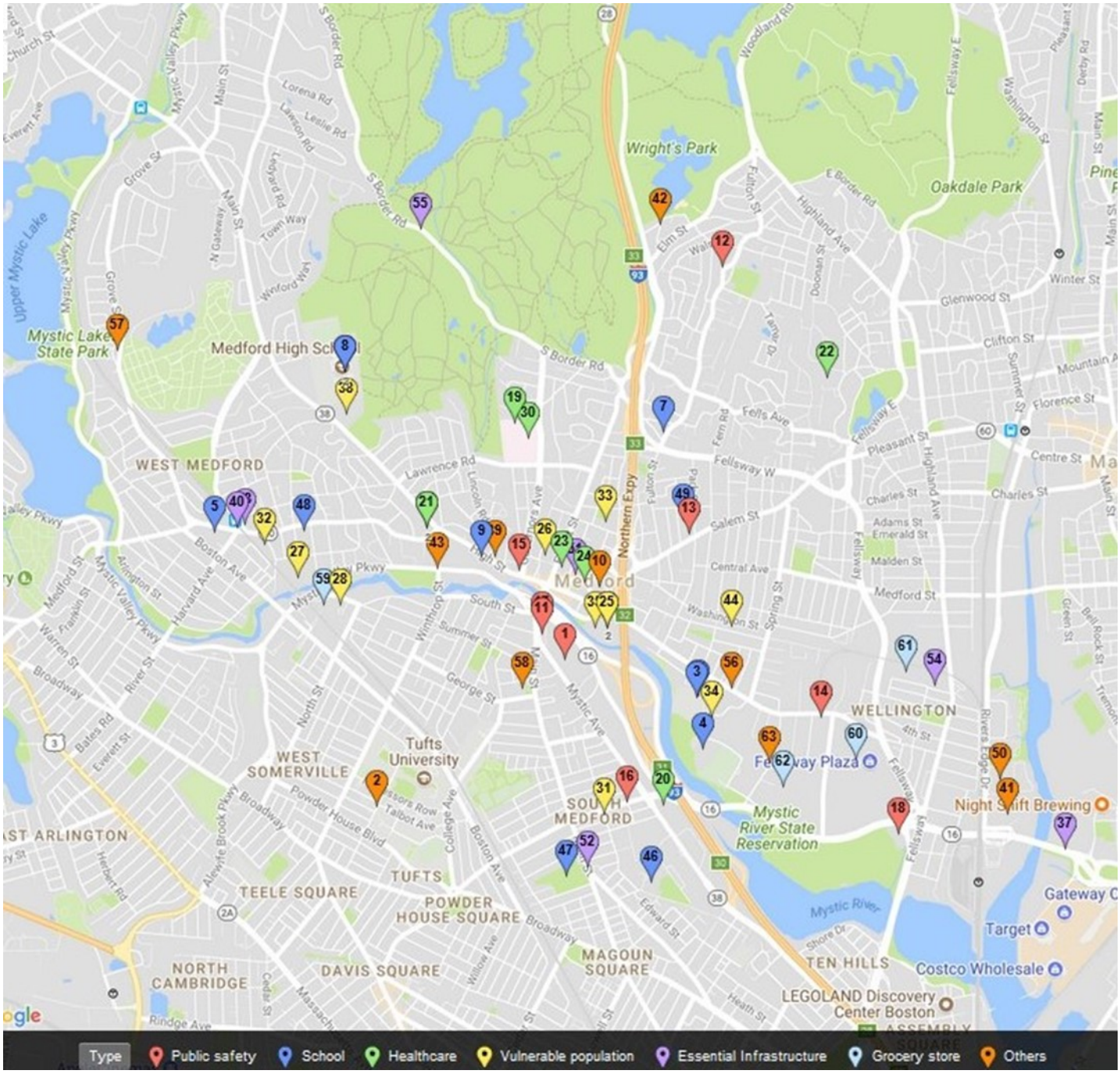


LIKELY YEARS OF INITIAL OCCURRENCE	VULNERABILITY ASSESSMENT SLR (ABOVE CURRENT TIDE LEVELS)	10-YEAR, 24-HOUR RAINFALL DEPTH
2030S–2050S[13]	9 INCHES	5.6 INCHES
2050S–2100S[14]	21 INCHES	5.8 INCHES
2070S OR LATER[15]	36 INCHES	6.0 INCHES

Source: Climate Ready Boston, Climate Vulnerability Assessment, p.19

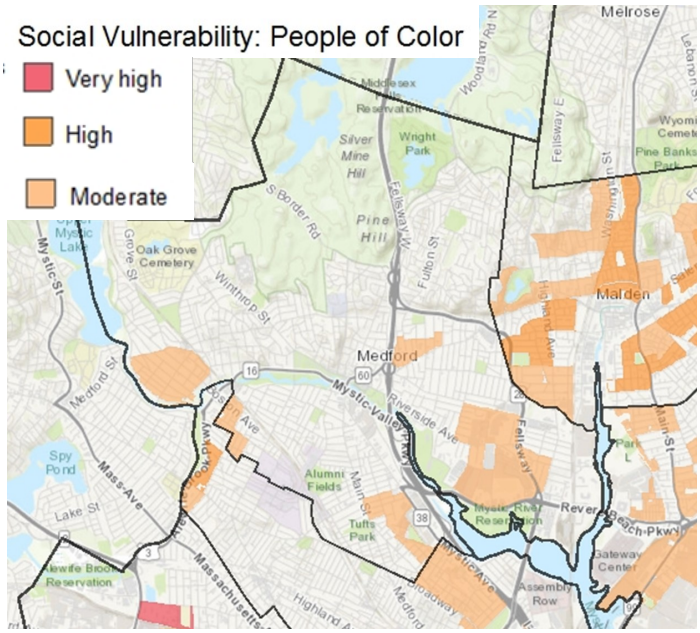

City Of Medford
Massachusetts
Flood Hazards
March 2017
N
Legend
OthLeg
Flood Hazard
LN_TYP
1 PCT ANNUAL CHANCE FLOOD HAZARD
0.2 PCT ANNUAL CHANCE FLOOD HAZARD
Water Bodies
Wetlands
Streams
Areas of Chronic Flooding
type
Area of Chronic Flooding
Inundation Area
Stormwater Pump Station
Open Space
M176TaxPar
Prepared by:
CITY OF MEDFORD
ENGINEERING DEPARTMENT
City Hall Room 300
85 George P. Hassett Dr.
Medford, MA 02155
1,000 500 0 1,000 Feet
Cranberry Brook Area
Lincoln Rd/ Meetinghouse Brook Area
Daly Rd/ Meetinghouse Brook Area
Wright's Pond Dam Inundation Area
Sydney Street Pump Station
Fifth Street Area
South Medford Area
WINCHESTER
MELROSE
MALDEN
EVERETT
ARLINGTON
SOMERVILLE
CAMBRIDGE


Source: Woods Hole Group
Percent Probability from BH-FRM
Dry
0.1%
0.2%
0.5%
1%
2%
5%
10%
20%
25%
30%
50%
100%
WINCHESTER
STONEHAM
MEDFORD
ARLINGTON
Arlington
LMONT
CAMBRIDGE
SOMERVILLE
Somerville
EVERETT
CHELSEA
BOSTON
Malden
Middlesex Fells Reservation
Gerry Hill
Silver Mine Hill
Wright Park
Pine Hill
Oak Grove Cemetery
Lawrence Memorial Hospital
Tufts University Medford
Alumni Fields
Gateway Center
Spy Pond
Fresh Pond
Mystic River

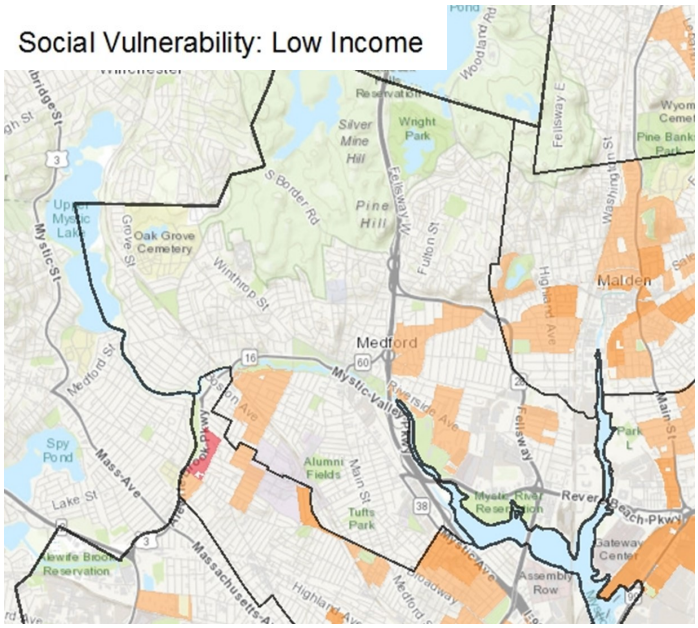

Wright's Park
Oakdale Park
Mystic Lake State Park
Medford High School
WEST MEDFORD
Medford
WELLINGTON
Tufts University
WEST SOMERVILLE
SOUTH MEDFORD
Mystic River State Reservation
TUFTS
TEELE SQUARE
POWDER HOUSE SQUARE
MAGOUN SQUARE
DAVIS SQUARE
NORTH CAMBRIDGE
TEN HILLS
Target
Costco Wholesale
LEGOLAND Discovery Center Boston
Night Shift Brewing
Type
Public safety
School
Healthcare
Vulnerable population
Essential Infrastructure
Grocery store
Others

NAME	Type	ADDRESS (Medford, MA)	NUMBER ON MAP
Department of Public Works Headquarters	Public safety	21 James Street	1
Tufts University Main Campus	Major institution	Packard Avenue	2
John J. McGlynn Middle School	School	3002 Mystic Valley Parkway	3
John J. McGlynn Elementary School	School	3004 Mystic Valley Parkway	4
St Raphael Elementary School	School	516 High Street	5
Andrews Middle School	School	3000 Mystic Valley Parkway	6
St Francis Of Assisi Elementray	School	1 St Clare Road	7
Medford High School	School	489 Winthrop Street	8
St Joseph Elementary	School	132 High Street	9
Medford City Hall	Major institution	85 George P. Hassett Drive	10
Fire Dept Headquarters	Public safety	120 Main Street	11
Fire Engine 6	Public safety	2 Ames Street	12
Fire Engine 3	Public safety	276 Salem Street	13
Fire Engine 4	Public safety	435 Riverside Avenue	14
Fire Engine 5	Public safety	0 Medford Street	15
Fire Engine 2	Public safety	26 Harvard Street	16
Medford Police Dept. Headquarters	Public safety	100 Main Street	17
State Police Barracks	Public safety	520 Fellsway	18
Courtyard Nursing Care Center	Healthcare	200 Governor's Avenue	19
Medford Visiting Nurse	Healthcare	278 Mystic Avenue	20
Integrated Health	Healthcare	300 Winthrop Street	21
Glen Ridge Nursing	Healthcare	120 Murray Street	22
Medford Dialysis	Healthcare	29 Forest Street	23
Harvard Vanguard Medical Associates	Healthcare	26 City Hall Mall	24
Saltenstall Builidng & Senior Center	Vulnerable population	121 Riverside Avenue	25
Weldon Gardens	Vulnerable population	35 Bradley Road	26
Tempone Apartments	Vulnerable population	22 Alston Street	27
Walkling Court	Vulnerable population	1 Walkling Court	28
Medford Vocational Tech High	School	489 Winthrop Street	29
Lawrence Memorial Hospital	Healthcare	170 Governors Avenue	30
Willis Avenue Development	Vulnerable population	Willis Avenue	31
Phillips Apartments	Vulnerable population	15 Canal Street	32
Medford Community Center	Vulnerable population	42 Water Street	33
Special Needs Housing	Vulnerable population	71 Foster Court	34
Riverside Towers	Vulnerable population	99 Riverside Avenue	35
La Prise Village	Vulnerable population	121 Riverside Avenue	36
Wellington MBTA Station	Essential Infrastructure	Revere Beach Parkway	37
Six Acres Day Care	Vulnerable population	475 Winthrop Street	38
Medford Public Library	Shelter	111 High Street	39
West Medford Commuter Rail Station	Essential Infrastructure	481 High Street	40
Kiss 108 Radio Station	Communications	1 Cabot Road	41
Wrights Pond Dam	Flood risk	Aquavia Road	42
Mystic Lakes Dam	Flood risk	Mystic Valley Parkway	43
Magoun Manor	Vulnerable population	68 Magoun Avenue	44
Winthrop House	Vulnerable population	300 Winthrop Street	45
Columbus School	School	37 Hicks Avenue	46
Curtis-Tufts High School	School	437 Main Street	47
Brooks School	School	388 High Street	48
Roberts School	School	35 Court Street	49
Worldcom	Communications	10 Cabot Road	50
Medford NO. 9 Substation	Essential Infrastructure	56 Salem Street	51
Codding Avenue, NO. 64 Substation	Essential Infrastructure	Codding Avenue	52
West Medford NO. 17 Substation	Essential Infrastructure	7 Playstead Road	53
Wellington NO. 11 Substation	Essential Infrastructure	37 Woodruff Avenue	54
SOUTH RES (SO TREATMENT PLANT)	Essential Infrastructure	South Border Road	55
Cradock House	Historic	Riverside Avenue	56
Brooks Estate	Historic	266 Grove Street	57
Royal House	Historic	15 George Street	58
Whole Foods Market	Grocery store	2151 Mystic Valley Parkway	59
Stop and Shop	Grocery store	760 Fellsway	60
BJ's Wholesale	Grocery store	278 Middlesex Avenue	61
Wegman's	Grocery store	3850 Mystic Valley Parkway	62
Meadow Glen Mall	Shelter	Locust Street	63

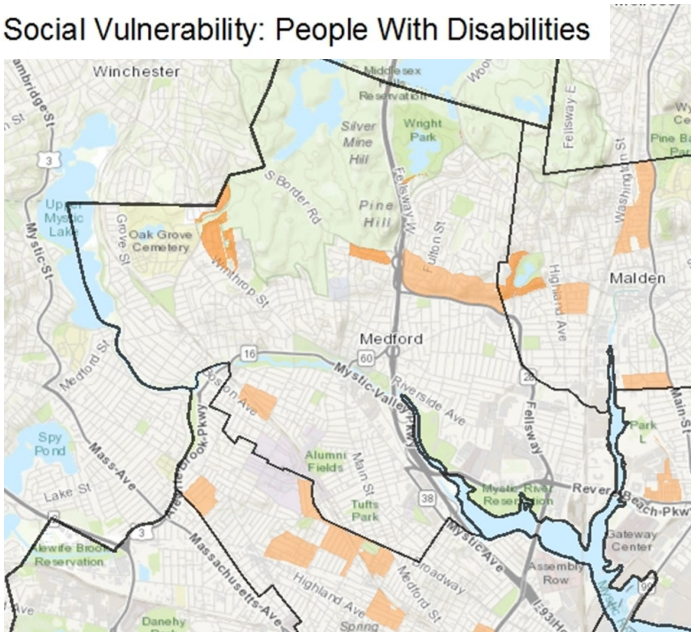
Social Vulnerability: People of Color



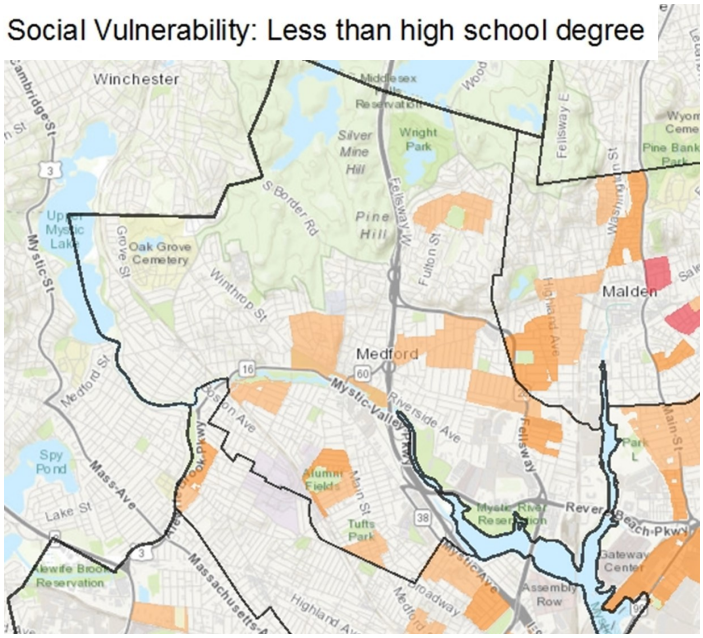
Social Vulnerability: Low Income



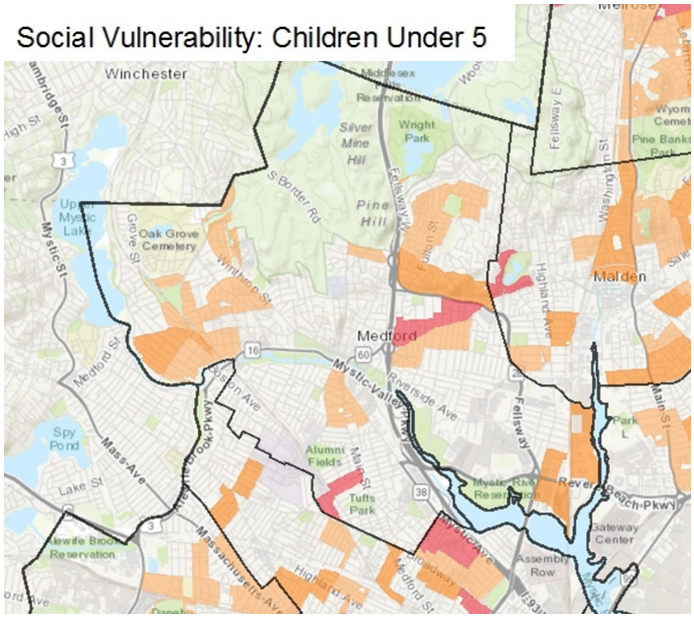
Social Vulnerability: People With Disabilities



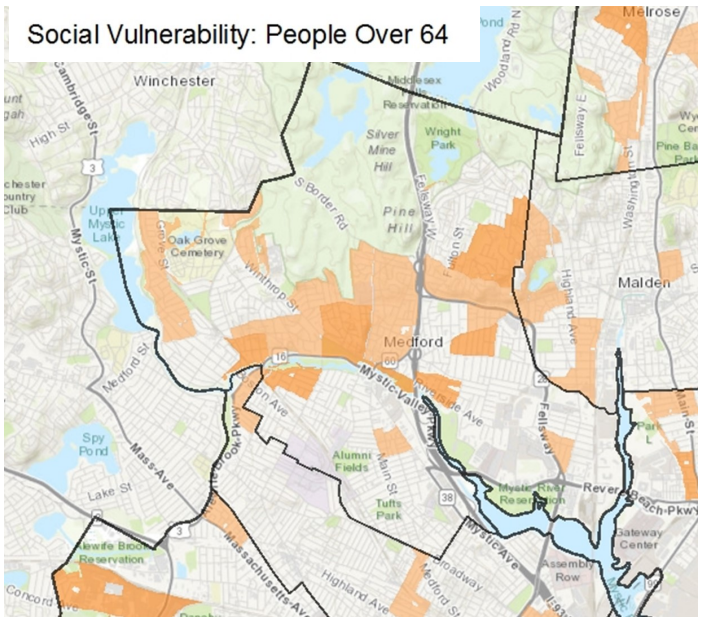
Social Vulnerability: Less than high school degree



Social Vulnerability: Children Under 5



Social Vulnerability: People Over 64



Page intentionally left blank.

Photo Credits: Pinterest

Photo Credits: Crosby, Schlessinger, Smallridge LLC