



CITY OF CHICOPEE

Community Resilience Building Workshops

Summary of Findings

June, 2019



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Overview

The City of Chicopee is located at the confluence of the Chicopee River and the Connecticut River, and much of the City is protected from riverine flooding by a system of flood control levees and pump stations. The community's geographic location is just one reason its residents have a high awareness of the need for addressing vulnerabilities and risks associated with natural hazards and climate change. Chicopee has experience with hazards including riverine flooding, severe precipitation flooding, high winds, and significant snow events.

In 2017, the Commonwealth announced the Municipal Vulnerability Preparedness (MVP) Planning Grant Program, designed provide support to cities and towns to complete climate change vulnerability assessments and develop action-oriented resiliency plans. The program provides funding for communities to run Community Resiliency Building (CRB) workshops with local stakeholders. Municipalities who complete this process and develop a final report will be designated as an "MVP Community," which leads to increased standing in other state grant programs, including additional MVP Action grants.

This *Summary of Findings* report presents the results of the CRB workshops held in Chicopee on February 21st and March 8th, 2019.

RISK, VULNERABILITY, AND RESILIENCE

Climate change typically refers to the changes in global and regional climate patterns observed since the mid-1900s and projected in the future, attributed primarily to rising levels of atmospheric carbon-dioxide and methane produced by human use of fossil fuels. The Massachusetts Integrated State Hazard Mitigation and Climate Action Plan (SHMCAP, 2018) notes that in Massachusetts climate change is leading to changing precipitation patterns, rising sea levels, rising temperatures, and more intense and damaging storms.

In the context of natural hazards and climate change, a community's **vulnerabilities** can be defined as those aspects of the community that may be damaged or otherwise negatively impacted by natural hazards or climate change effects. **Strengths** are features that can help the community prepare, respond, recover, and adapt to natural disasters and climate change.

Risk can be thought of as the combination of hazard frequency, community vulnerability, and community strengths:

$$risk = frequency + vulnerability - strength$$

Risk is pushed higher as the frequency of a hazard increases, or as the community vulnerability to that hazard increases. Risk is pushed lower as vulnerability decreases, or as the community strengths increase.



Climate change is increasing the frequency and severity of many climate hazards, which means that Chicopee is at a crossroads with regard to reducing risk. Vulnerabilities and strengths can remain static and risk can increase, or vulnerabilities can be reduced, and strengths increased to hold risk at bay. If vulnerabilities can be reduced and strengths increased even further, then risks can be lowered in the face of climate change, leading to increased **resilience**. Resilience is the capacity of a community to resist, absorb, recover from, and adapt to a disaster.

COMMUNITY RESILIENCE IN CHICOPEE

Chicopee has numerous existing planning documents and ongoing planning efforts that relate, in different ways, to hazard vulnerability and resilience. These plans include:

- Hazard Mitigation Plan (2017)
- West End Area-Wide Plan (2012)
- RiverMills at Chicopee Falls Vision (April 2011)
- Open Space and Recreation Plan (2015)
- Riverwalk & Bikeway (ongoing design and engineering)
- Brownfield redevelopment plans (there are several)
- Vision plans
- Emergency Operations Plan (reviewed annually)

While the Hazard Mitigation Plan and the Emergency Operations Plan build the community's resilience to natural disasters, and the other planning efforts target elements like open space and development, the MVP program was of particular interest to the community for two reasons:

1. Its unique approach to soliciting participation and input from stakeholders aside from the public at large
2. The opportunity to apply for state MVP Action Grant funding to implement the top actions developed during the MVP process

Chicopee is specifically interested in integrating the results of the MVP process with its initial Comprehensive Plan, to begin during summer 2019. Chicopee is in a unique position; by conducting the MVP process prior to development of the Comprehensive Plan the city can ensure that the document, which will guide community development and decision-making into the future, will take into account climate change and the effects it will have on all aspects of city life.

COMMUNITY RESILIENCE BUILDING WORKSHOP

To encourage participation in the workshop, Chicopee reached out to commissions, board members, environmental and cultural organizations, transportation authorities, the Chamber of Commerce, and more. In addition, the city encouraged municipal employees from several departments to participate. 21 stakeholders participated in the first 4-hour workshop, and 20



participated in the second, with most participants attending both sessions; 26 individuals participated in total.

In addition to the workshops, stakeholders who were unable to attend the evening sessions were contacted for an interview after the conclusion of the CRB to provide any additional input. This feedback can be found in Appendix I.

Organizations and municipal departments represented at the workshops were:

- Chicopee Chamber of Commerce
- Chicopee Council on Aging (COA)
- Chicopee Cultural Council
- Chicopee Department of Public Works (DPW)
- Chicopee Electric Light Department (CEL)
- Chicopee Emergency Management Department (CEMD)
- Chicopee Flood Control Department
- Chicopee Forestry Division
- Chicopee Health Department
- Chicopee Historical Commission
- Chicopee Information Technology Department
- Chicopee Parks & Recreation
- Chicopee Planning Department
- Chicopee School Committee
- Elms College
- Friends of Chicopee Senior Citizens
- Pioneer Valley Planning Commission (PVPC)
- Westover Metropolitan Airport

The Workshop's stated goals were to accomplish the following:

1. Foster dialogue, understanding, and collaboration
2. Develop a suite of community-resilience actions supported by a range of stakeholders
3. Integrate the results of this process with the Hazard Mitigation Plan and future Comprehensive Plan

Central objectives were as follows:

- Characterize primary climate-related hazards faced by Chicopee
- Identify the community's strengths and vulnerabilities
- Come to agreement on the top-priority actions for the community

The workshop was conducted in two, four-hour sessions in the community room at the Chicopee Public Library.



The first workshop opened with a presentation that included information about other related municipal initiatives (such as the Hazard Mitigation Plan and the future Comprehensive Plan) and the types of hazards that can threaten the region, and Chicopee in particular. The impacts that climate change is expected to have on those hazards was presented using data from the *resilient MA Climate Clearinghouse* (resilientMA.org). Following the presentation, participants were directed to “small team” tables, where they spent the rest of the workshop.



Participants were assigned to specific small teams prior to the workshop in order to ensure each team consisted of a diversity of stakeholders and interests. Within each small team, participants engaged in dialogue to identify the top hazards faced by Chicopee, and the key strengths and vulnerabilities of the City. Table 1 shows the groups and departments represented on each small team.

Table 1: Groups and Department Represented on Each Small Team

Blue Team	Yellow Team	Red Team
Planning Department	Planning Department	Planning Department
DPW	Flood Control Department	Flood Control Department
Chicopee Chamber of Commerce	Chicopee Cultural Council	Historical Commission
Elms College	Elms College	School Committee
Health Department	Parks & Recreation	Building Department
CEMD	CEL	CEMD
Information Technology	Westover Metropolitan Airport	Friends of Chicopee Senior Citizens
	COA	
	PVPC	

During the second workshop, attendees reconvened within their “small teams” and, following a brief review of the previous session, set to identifying actions that can be taken to support the strengths or protect the vulnerabilities identified in the previous session in the face of the top hazard threats to the City, as identified in the previous session.





Hazards

SPECIFIC HAZARD CONCERNS

Workshop participants identified a range of hazards of concern, including flooding, high winds, extreme high temperatures, extreme low temperatures, and forest degradation. Air pollution was noted as a significant concern for all teams but was not identified as a top-priority hazard by any teams.

Table 2 summarizes hazards of concern identified by participants. Note that some hazards overlap, or may be relevant to more than one category (for example, heavy precipitation occurs during summer and winter storms, and is a cause of river flooding). Specific concerns related to each hazard are also listed.

Table 2: Specific Hazards and Concerns

Hazard	Specific Concerns
River Flooding	<ul style="list-style-type: none">- Connecticut River and Chicopee River both pose risk for large-scale flooding- Flood Control System mitigates most flooding but there is concern about overtopping in extreme conditions or if flood patterns change (for example, due to climate change)
Street Flooding, Flash Flooding, or Poor Drainage Flooding	<ul style="list-style-type: none">- Flooding occurs during severe precipitation events- Related to inadequate drainage or undersized stream culverts
Dam Failure Or Mismanagement	<ul style="list-style-type: none">- There are multiple dams upstream of Chicopee on both the Connecticut River and Chicopee River (e.g. the Windsor Dam and the Goodnough Levee on the Quabbin Reservoir)- Dam failure could lead to major flooding in the city- Inadequate communication between dam operators could allow for poorly-timed releases to create flooding in the city
Failure of Flood Control Levees	<ul style="list-style-type: none">- This is considered to be extremely unlikely- Inspected annually by the city and every few years by the Army Corps of Engineers (USACE)- Failure would be catastrophic
Heavy Precipitation	<ul style="list-style-type: none">- Includes rain or snow- Can cause street or riverine flooding- Snow can lead to outages and blocked roads



Hazard	Specific Concerns
Severe Summer Storms	<ul style="list-style-type: none"> - Include high wind, lightning, heavy precipitation and heat - Concern about power outages during high temperature summer weather, leading to dangerous conditions for vulnerable populations left without air conditioning - Rising temperatures due to climate change increases risk
Severe Winter Storms	<ul style="list-style-type: none"> - Include high wind and heavy snow and ice - Concern about power outages during cold weather as well as loss of access
Extreme High Temperatures	<ul style="list-style-type: none"> - Health-related risks, especially for vulnerable populations - Impact on natural resources and parks - Increasing strain on electric grid - Rising temperatures due to climate change increases risk
Extreme Low Temperatures	<ul style="list-style-type: none"> - Health-related risks, especially for homeless populations
Forest Degradation	<p>Causes of Degradation:</p> <ul style="list-style-type: none"> - Deforestation due to development - Ecosystem changes due to climate change - Invasive pest species <p>Impacts of Degradation:</p> <ul style="list-style-type: none"> - Diminished flood mitigation capacity of forests - Loss of street trees exacerbates increasing temperature risks - Diminished capacity to improve air quality
Air Quality	<ul style="list-style-type: none"> - Rising temperatures may degrade air quality, and exacerbate the impacts of pollution

TOP HAZARDS

Ultimately, each small team arrived at four to five top hazards, as laid out in Table 3.

Table 3: Top Hazards Identified by Each Small Team

Red Team	Yellow Team	Blue Team
<ul style="list-style-type: none"> • Flooding (riverine) • Severe Storms • High Temperatures • Levee Failure 	<ul style="list-style-type: none"> • Flooding • Heavy Precipitation (rain or snow) • High Winds • Extreme Temperatures 	<ul style="list-style-type: none"> • Flooding • Damage to Forests • Severe Storms • Extreme Temperatures

As many of the top hazards were common between small teams, the list of top-priority hazards identified in the workshop can be condensed to the following:

- Riverine Flooding (includes dam or levee failure)
- High Precipitation Event
- High Wind Event
- Extreme Temperatures (includes high and low temperatures)
- Forest Degradation



Note that “High Precipitation Event” and “High Wind Event” may each refer to events that include both high precipitation and high wind (such as thunderstorms, nor’easters, and tropical storms); however, they are listed separately because of the different types of actions the city may take to reduce the risk from each hazard impact.

OTHER HAZARD CONCERNS

In addition to the priority natural hazards listed above, workshop participants brought up a variety of other issues they felt were important for the city to address. While outside the scope of the MVP program, they are listed here for consideration.



- **Pedestrian Safety:** One attendee noted that Chicopee’s pedestrian infrastructure (including lighting and crossing signals) is insufficient, creating a safety risk. This hazard is not related to natural hazards or climate change.
- **Westover Air Reserve Base:** The presence of a military facility in Chicopee was noted as a strength in many regards, yet attendees also stressed the risks posed by constant large-aircraft traffic, jet-fuel emissions, and the storage and transport of weaponry, ordnances, and other potentially hazardous materials. The question of what impacts rising temperatures may have on pollution impacts from the airport arose during the workshop. Severe storms may increase the chance of air accidents.
- **Host Community for Boston Area Disaster:** One attendee noted that, due to its location along the Massachusetts Turnpike, Chicopee is a potential host community in the event that a disaster initiates an evacuation of Boston-area communities. A changing climate that leads to increasing incidence of coastal flooding and severe storms increases the chance of such an evacuation occurring. Over the long term, significant climate change impacts may even lead to a more permanent shift in population from coastal to inland Massachusetts, including to Chicopee.
- **Springfield Flood Control System:** As of August 2017, the entirety of the Springfield flood control system had been rated as “unsatisfactory” by the U.S. Army Corps of Engineers (USACE). There may be lessons to be learned in Chicopee from Springfield’s process to bring the system into an acceptable state as that process proceeds. If the Springfield system were to fail during a flood event, that failure may impact the connected parts of Chicopee’s Flood Control System; additionally, Chicopee would likely provide emergency assistance to its neighbor.



Strengths and Vulnerabilities

Workshop participants identified features of interest in the context of climate resilience. These include features that are vulnerable to climate hazards, those that are strengths with regards to community resilience, and those that are both vulnerabilities and strengths. Features included specific locations as well as more general systems.

KEY ASSETS AND SYSTEMS

Assets and systems identified as being important to community resilience are summarized in Table 4. For each asset or system, the hazards relevant to that feature, either because the feature is at risk from that hazard or because it provides resilience against that hazard, are defined. Vulnerable locations, as identified by participants, are listed.

Table 4: Hazard-Relevant Assets and Systems Identified by Workshop Participants

Asset or System	Relevance					Locations / Notes
	Flooding	High Precipitation	High Wind	Extreme Temperature	Forest Degradation	
Infrastructural						
Electric Grid: Chicopee Electric Light (CEL)						Headquarters: Front Street
Telecommunication / Fiber Network						Underground conduits as well as above-ground wires.
Dams						Upstream on the Connecticut River Chicopee River (in the city and upstream) Bemis Pond Lower Dam on Abbey Brook
Bridges						Springfield Street Deady Memorial Bridge American Legion Memorial Bridge Willimansett Bridge
Roadways						Major Roadways - Interstate 90 & 91 - Route 291 & 391 Vulnerable Roadways - Meadow Street - Chicopee Street - North Chicopee Street @ Railroad Underpass - Memorial Drive - Grattan Street
Wastewater Treatment Plant						Chicopee & Connecticut River Confluence
Sewer System						Citywide



Asset or System	Relevance					Locations / Notes
	Flooding	High Precipitation	High Wind	Extreme Temperature	Forest Degradation	
Flood Control System						Along Connecticut River Along Chicopee River In Springfield
City Hall / Municipal Buildings						Downtown
Chicopee High School						Front Street
Chicopee Comprehensive High School						Montgomery Street
Public Works						Baskin Drive
Westover Air Reserve Base						Northeast part of City
Pumping stations						Six along the Connecticut River Two on the Chicopee River (RiverMills Area)
Hotels						Chicopee Marketplace (Memorial Drive)
Public Safety / Emergency Management						Public Safety Complex - Emergency Operations Center - Police Department - Fire Department Communications Tower Ambulances
Railroads						Throughout City
Water Supply						Conduit from Quabbin Reservoir through Ludlow
Societal						
Chicopee Marketplace						Memorial Drive (Route 33)
Valley Opportunity Council						Willimansett and Satellite Locations
College of Our Lady of the Elms						Springfield Street near Chicopee Center
Chicopee Boys & Girls Club						Willimansett
Loyal Order of Moose						Fuller Road
Knights of Columbus						1) Memorial Drive and James Street (Fairview) 2) Granby Road and Champagne Ave (Sandy Hill)
Lorraine's Soup Kitchen						Meadow Street, Willimansett
Health Centers						MedExpress Urgent Care: Memorial Drive Chicopee Health Center: Front Street Baystate Medical Center: Springfield



Asset or System	Relevance					Locations / Notes
	Flooding	High Precipitation	High Wind	Extreme Temperature	Forest Degradation	
Homeless Population						"Camp" Sites Known and Tracked by City
People with Dependence on Medical Life Assistance Equipment						Distributed
Senior population						Distributed
Women's Correctional Facility						Center Street on Springfield Line
Chicopee Cultural Council						City Hall
Populations with Language Barriers						Distributed
Senior Center						RiverMills at Chicopee Falls
Library						Front Street
Emergency Shelters						5 locations
Public Pools						Szot Park Sarah Jane Sherman Park Ray Ash Park Rivers Park
Historic Districts & Buildings						Dwight Manufacturing Co. Housing District Springfield Street Historic District Church Street Historic District Cabotville Common Historic District City Hall 28 Other Sites, Streetscapes, and Areas
Churches						Distributed
Community Health Care, Inc. Methadone Clinic						Center Street
Food Resources						Supermarkets Community Gardens Distributed
Environmental						
Rivers & Streams						Connecticut River Chicopee River (especially near Uniroyal) Stream Under Memorial Drive / Route 33 Water Quality a Concern
Chicopee State Park						Burnett Road
Szot Park						Bemis Pond
Bellamy Playground						Pendleton Ave behind Bellamy Middle School
Delta Park						Depot Street, Confluence of Chicopee River with Connecticut River
Other Parks						Distributed
Brownfield Sites						Uniroyal Factory, RiverMills Area



Asset or System	Relevance					Locations / Notes
	Flooding	High Precipitation	High Wind	Extreme Temperature	Forest Degradation	
Air quality						Concern about airport impacts
Golf Course						Burnett Road
Boat Launch						Medina Street
Pests						Distributed
Terrace Escarpment Soils						Distributed, North-South Orientation

The following section explores a selection of features identified by participants in more detail.

INFRASTRUCTURAL

CHICOPEE ELECTRIC LIGHT

Chicopee Electric Light (CEL) is the electric utility for the City of Chicopee, and serves some surrounding communities as well. Meeting attendees regard having a local utility like CEL as a strength, as the company is highly responsive to local needs and has been found to be a reliable power source for the community.

The company's headquarters are located on Front Street adjacent to the Chicopee River. The facility has an upper level containing offices and emergency generators, and a lower level containing switches and vehicle storage. Though adjacent to the Chicopee River, the facility is situated relatively high, and is outside of mapped high hazard flood zones.



The electric grid is vulnerable to hazards like wind and heat. Both underground conduits and above ground wires, for electricity but also for telecommunications, are vulnerable.

PUBLIC WORKS

The Chicopee Public Works facility is located at the end of Baskin Drive off Fuller Road. There is some risk that the facility could become isolated from the rest of the City if Fuller Road were to be blocked due to flooding or other damage.

PUBLIC SAFETY / EMERGENCY MANAGEMENT PROGRAM

Chicopee has a robust emergency management program (EM), which operates out of the Public Safety Complex (PSC) on Court Street in Chicopee Falls, along with the City's Police and Fire



Departments. The PSC has been undergoing renovations for the last two (2) years, with improvements including new utilities, modernized equipment, improved HVAC, and a new roof. Renovations are ongoing. The PSC has a standby generator capable of powering the entire facility. Though not in a mapped high-risk flood zone, the PSC is adjacent to the Uniroyal / RiverMills area that is protected from Chicopee River flooding by a flood-control levee and floodwall system.

Chicopee EM assets include the Public Safety Complex, a Public Safety Communications Tower, and a city-wide Closed-Circuit Camera System.

Meeting attendees felt that the City's emergency management program is very effective. There was, however, some concern expressed that local ambulances are lacking in capabilities and are only able to transport patients and provide minimal care.

WESTOVER AIR RESERVE BASE AND CIVILIAN MUNICIPAL AIRPORT

The Westover Air Reserve Base (WARB) is owned by the federal government, while the civilian airport on the same site is operated through a partnership between the City and the non-profit Westover Metropolitan Development Corporation.

Meeting attendees identified the airports as a community strength due to the potential of the facilities to provide support and assistance with regards to hazard response and recovery. Having a local military base provides an opportunity for rapid federal intervention, if needed, and the airport presents the possibility of receiving supplies and aid by air in the event that a major disaster hinders land transportation. Relevant to a less-severe situation, the airport includes large amounts of open space that could be used as an emergency response staging area. There may also be some shelter capabilities at the site. Unrelated to hazards, the airport provides economic benefit to the City.

Despite being considered a strength overall, the airport represents some risks to the City due to dangerous materials and air traffic; it also may be a source of air pollution that is exacerbated by rising temperatures.

RAILROADS

Railroads pass through the City but do not have any stops within the City, therefore they represent a vulnerability without providing any strengths.

The Depot Street railroad underpass at Delta Park is too small to allow emergency vehicles to pass should an emergency, rail-related or otherwise, occur west of the tracks.



Figure 1: Depot St. Underpass
Photo: Google Street View 2015



FLOOD CONTROL SYSTEM

The City's flood control system is owned by and maintained by the City and is certified and occasionally inspected by the USACE. This system effectively provides protection from floods as large as the 0.2-percent annual chance event and is monitored and maintained by full-time municipal staff; however, it may be vulnerable to an especially catastrophic event. The system includes:

- The Chicopee **Flood Control Team**, which falls within the Department of Public Works and operates out of a facility on Jones Ferry Road in Willimansett.
- A Network of **Flood Control Levees and Floodwalls** located along the Connecticut and Chicopee Rivers
- Eight **Pumping Stations**, six on the Connecticut River and two on the Chicopee River, which keep the footings of the levees dry and remove water that pools on the inland side of the system.



The pumping station on Plainfield Street was identified as being particularly of-note. Some attendees expressed concern about failure of the Springfield flood control system (currently rated "unsatisfactory", and potential secondary effects on Chicopee.

WATER SUPPLY

Chicopee's water supply comes from Quabbin Reservoir by way of a single pipe that enters the City through Ludlow. This is a clean and safe supply that, partly due to its location away from Chicopee, is protected from hazards that might directly impact Chicopee (such as severe storm flooding or flooding of the Connecticut or lower Chicopee Rivers). The single pipe is a vulnerability, as damage to it would cut off water; there is currently a project underway to add a second conduit.

ROADWAYS

Though roadways are always an essential feature to any community, roadways are particularly important to Chicopee due to its location at the interchange of Interstate 90 (Massachusetts Turnpike), Interstate 91, Route 291, and Route 391. The confluence of these major State highways in the community is a strength, allowing for rapid transit and evacuation in an emergency.

Specific roads identified as being at risk from flooding are Meadow Street, Chicopee Street, Memorial Drive, and Grattan Street. North Chicopee Street near the railroad underpass is of particular concern. Workshop participants reported that State roads tend to have insufficient drainage infrastructure. Participants also felt that there is a lack of education within elected officials about pavement management.



DAMS

Workshop participants reported that the Upper and Lower Bemis Pond dams in Szot Park are both in disrepair and could pose issues in the future. Dams on the Chicopee River were also identified as specifically of-concern. The dams that could potentially cause the most damage in Chicopee, as identified by workshop participants, are those on the Quabbin Reservoir; however, the risk of failure of either of those two dams is very small. The status and location of Emergency Action Plans (EAP) for dams in Chicopee were not known by workshop participants.

Aside from the outright failure of dams, participants also brought up the risk of flooding due to mismanagement of dams. Because there are multiple dams in sequence along both the Connecticut and the Chicopee Rivers, there is a risk that a lack of communication between managers could lead to flooding.

BRIDGES

Despite having multiple bridges over major rivers, including bridges connecting different parts of Chicopee itself, workshop attendees did not consider them to be significant features. According to participants, the bridges are all relatively new and thought to be in good condition.

WASTEWATER

Chicopee is served by a single Water Pollution Control Facility (WPCF), located south of Route 90 near the confluence of the Chicopee River and the Connecticut River. The facility is located in a high flood hazard zone. Workshop attendees expressed concern about the capacity of the facility, especially with increasing development and precipitation. Chicopee's wastewater system is an aged combined sewer overflow (CSO), creating a risk of pollution for the Connecticut River downstream of the WPCF.

BOAT LAUNCH

The Chicopee Public Boat Launch is located in Willimansett near the WPCF off Medina Street. Police and Fire boats launch from this site, as well as private boats. This site may serve an emergency response purpose in some situations. Workshop participants expressed concern that illegal dumping in this area risks making the site unusable if needed.

SOCIAL

CHICOPEE MARKETPLACE

Located on Memorial Drive (Route 33), this shopping center is located right near the State highways that run through the City, has extensive parking areas, and is not in a high hazard zone. The City has identified this location as a public gathering point in the event of a disaster and as an emergency response staging area.

COMMUNITY NONPROFITS, CIVIC ORGANIZATIONS, AND FRATERNAL ORGANIZATIONS

Workshop participants identified numerous organizations that provide community services and serve other community functions within Chicopee, and which will likely be important to aiding with response and recovery for any natural disaster:



- **Valley Opportunity Council (VOC):** Community Action Agency for Holyoke and Chicopee. The VOC has assets in Willimansett (low income apartments) as well as a number of satellite locations.
- **Chicopee Boys & Girls Club:** Located in Willimansett, serves youth-in-need aged 5-18 through leadership development, education, health and fitness, and creativity.
- **Moose Club:** Located on Fuller Road near Cooley Brook. Local chapter of an international organization focused on volunteering and community programs.
- **Knights of Columbus:** Chicopee has two Knights of Columbus (KOC) Councils: Council 4044 located in the Castle of Knights Meeting and Banquet House on Memorial Drive in Fairview; and Council 69 located on Granby Road south of Route 90.
- **Lorraine's Soup Kitchen:** Located in Willimansett. Serves the low-income and homeless populations.
- **Chicopee Cultural Council:** Affiliated with the City, this organization advances arts, humanities, and interpretive sciences.
- **Churches:** There are many churches located around the City. They provide important community and social services.

ELMS COLLEGE

Elm's College is a private institution of higher education located in the City Center. Workshop attendees pointed to the College as an institution that can provide support to the community during emergencies and may have some capacity for emergency sheltering. The College is also a potential space for the City to hold public education and outreach activities.

The Elm's College School of Nursing runs a mobile free clinic out of the "caRe vaN" to serve the homeless community in Chicopee. The caRe vaN may be a useful asset to assist the City during and following hazard events.

HEALTH CENTERS

There are two health centers in Chicopee, and one hospital located just over the border in Springfield. While the presence of these health centers is a strength, there is some concern regarding capacity.

- **MedExpress Urgent Care:** Memorial Drive
- **Chicopee Health Center:** Front Street
- **Baystate Medical Center:** Springfield

VULNERABLE POPULATIONS

Some populations within Chicopee may require special attention or additional assistance with regards to natural disasters.

- **People with Language Barriers:** Chicopee's population is culturally rich, with many non-English languages spoken by residents, such as Polish and Spanish.
- **People with Dependence on Medical Life Assistance Equipment:** Members of this population may have special requirements related to power and medical needs;



emergency shelters may not be able to meet those needs.

- **Homeless Populations:** The City is aware of population concentrations and tent camps located in or near parks that are prone to flooding; the police department regularly checks on these populations, and officers work to form positive relationships with homeless individuals.

Workshop attendees noted that some areas of Chicopee are food deserts, and therefore food distribution might be a challenge following a hazard event. Community gardens exist in the Chicopee Falls neighborhood of the City and may be able to reduce the food desert problem.

CITY HALL

City Hall is a historic building listed on both the Federal and the State Registers, and is currently undergoing a significant renovation. At this stage in the process, renovations are mostly focused on completing mechanical system upgrades.

The City's IT facilities are located on the building's third floor. Over the course of the renovation, some utilities will be moved to upper levels. Boilers were converted from oil to gas years ago and remain in the basement.

Emergency Action Plans and Fire Prevention Plans for all municipal buildings are currently being developed by the Health & Safety Committee

EMERGENCY SHELTERS

Chicopee has five emergency shelters that can be open to the public during and following a natural disaster. Four of the five are in buildings owned by the City. Workshop attendees reported that there is a need for public education about the locations of the shelters. Shelters identified during the workshop include:

- **Chicopee High School** – 820 Front Street
- **Chicopee Comprehensive High School** – 617 Montgomery Street
- **Chicopee Public Library** – 449 Front Street
- **Chicopee Senior Center (RiverMills Center)** – 5 West Main Street
- **Church of the New covenant in Willimansett** – 780 Chicopee Street

SENIOR CENTER

Chicopee boasts a newly constructed senior center in the Uniroyal / RiverMills area. The lower level of the building, which contains the utilities and most of the facility's services, is within the zone that is protected by the Chicopee River Flood Control System (that is, it would experience flooding during a 1%-annual-chance flood if the levees and floodwall were not present.)



This facility is a good location for the City to hold public engagement and education events.

HISTORIC DISTRICTS

There are no historic district commissions in Chicopee because the member requirements, as set forth in the City ordinances, have not successfully been met for many years. The City has a municipal Historical Commission, but it does not have any authority to prevent alterations or demolitions.

The four State and Federal Register Historic Districts in Chicopee are:

- Church Street Historic District (State Register)
- Dwight Manufacturing Company Housing District (State and Federal Register)
- Springfield Street Historic District (State and Federal Register)
- Cabotville Common Historic District. (State and Federal Register)

The City of Chicopee recognizes 29 other sites, streetscapes, and areas (one of which is listed on just the State Register and another of which is listed on both the State and Federal Register of Historic Places) as having significant historic or cultural significance.

HOTELS

Hotels in Chicopee represent both a strength and a vulnerability with regards to hazard resilience. The hotels have the ability to provide shelter and refuge to the community, and to other communities, in an emergency. At the same time, a large volume of visitors at hotels may lead to increased stress on the City's resources during an emergency event.

The large hotels in Chicopee are:

- Hampton Inn: Chicopee/Springfield – 600 Memorial Drive
- Residence Inn by Marriott: Springfield Chicopee – 500 Memorial Drive
- Tru by Hilton: Chicopee Springfield – 440 Memorial Drive
- Quality Inn: Chicopee-Springfield – 463 Memorial Drive
- Motel 6: Springfield - Chicopee – 36 Johnny Cake Hollow Road

PUBLIC POOLS

Chicopee has public pools that can be a resource for the public during extreme high temperature events. Workshop attendees have observed decreasing usage volumes of the pools over time, though no single reason for this trend was confirmed.

WESTERN MASSACHUSETTS REGIONAL WOMEN'S CORRECTIONAL CENTER

The Hampden County Sheriff's Department operates the Western Massachusetts Regional Women's Correctional Center (WCC), located on the Springfield Line.



Workshop attendees reported that the WCC has a Community Involvement Program.

ENVIRONMENTAL

BROWNFIELD SITES

Chicopee hosts numerous Brownfields. Sites that have not been assessed or cleaned up pose environmental concerns. An additional concern is that climate change or other natural hazards may affect remediated Brownfields or may limit cleanup alternatives. Brownfields are scattered throughout the City but are often located along rivers.

CHICOPEE MEMORIAL STATE PARK

The State Park is located on the eastern end of the City, south of Westover Airport, along Cooley Brook. The park's main entrance is located on Burnett Road.

The State Park is a great asset to the City, providing recreation and open space. The park experiences erosion from heavy rains.

Some workshop attendees identified hazardous materials as a concern for the area, possibly due to the nearby airport.

RIVERS AND STREAMS

Chicopee is defined by the confluence of two major rivers (the Connecticut and the Chicopee), but includes multiple smaller streams as well. These water bodies create recreational opportunities and green space, but also present flooding concerns.

Specific areas of interest noted by workshop attendees included:

- All areas of the City along the Connecticut River
- The Chicopee River along the Uniroyal site, downstream of Chicopee Falls (significant development is planned in this area)
- Willimansett Brook where it flows under Memorial Drive (Route 33; at the east end of Mountain Lake)

PARKS

There are twenty-nine parks in Chicopee. A few specific examples were brought up during the workshop.

- **Szot Park:** Located off Front Street and along Abbey Brook, Szot Park includes Upper and Lower Bemis Ponds and their associated dams. Workshop participants noted that there has been some interest within the community in removing the Upper Bemis Pond Dam. The park is prone to flooding from runoff.
- **Bellamy Park:** Located behind Bellamy Middle School, off of Pendleton Road. A stream flows along the edge of the park. The park is prone to flooding from runoff
- **Delta Park:** Located at the confluence of the Chicopee River with the Connecticut River,



this park is prone to river flooding. Homeless populations are known to live in tent camps in this area. Delta Park is a Brownfields, and a portion is slated for redevelopment.

- **Golf Course:** The municipal golf course is located on Burnett Road near the State Park. It was identified as a potential site for staging emergency response efforts.

OTHER ENVIRONMENTAL RESOURCES

Other features identified during the workshops include:

- **Pests:** participants expressed concern about pests to humans (such as ticks and mosquitos) as well as pests to ecosystems (such as invasive insects), and the effect that climate change will have on the presence and abundance of those pests.
- **Terrace Escarpment Soils:** These soils run linearly north-to-south throughout Chicopee, and are hazardous areas for construction because they are highly erodible and unstable. Education is still needed for people building on these soils.
- **Air Quality:** The impacts of climate change on air quality are concerns for workshop attendees.



Recommendations to Improve Resilience

After identifying top hazards, challenges, and strengths, each small team discussed possible strategies that could be pursued by the community to mitigate hazards, protect vulnerable assets, and support existing strengths. Strategies were then prioritized.



Following the individual group discussions, all workshop participants were brought together to decide on the full group's top recommendations. Each small team shared their top strategies with the full group. One group offered four high-priority strategies and two groups offered three each, for a total of ten. Similar strategies were consolidated with a resulting list of seven high-priority recommendations. Participants were then given the opportunity to vote for their top three recommendations using a sticker-dot voting method.

The results of this vote are presented in the table below.

Table 5: Top 10 Strategies Identified by the Large Group

Priority	Strategy Name	Recommendation	Votes
1	Urban Forestry and Tree Resiliency	Improve the resiliency of the City's tree stock by increasing the size of the municipal forestry department and changing the way the City chooses, plants, and maintains trees. These efforts will improve air quality, diminish the number of power outages from falling branches and downed trees, mitigate flooding from high precipitation events, provide shade in hot weather, and slow traffic speeds.	16
2	Vulnerable and Homeless Population Resiliency	Protect Chicopee's vulnerable and homeless populations from hazards including floods, severe storms, and extreme temperatures by partnering with community organizations, performing outreach, and incorporating efforts to protect those populations into formal hazard plans.	14
3	Pavement Management System	Develop a comprehensive plan and protocol that includes prioritized maintenance and improvements to roads, drainage systems, and culverts. Objectives are to minimize blockages due to flooding and debris such as tree limbs, avoid washouts due to culvert overtopping, allow for appropriate space for installation of green infrastructure and street trees, and protection of key utilities located beneath roads such as fiber optic lines.	12



Priority	Strategy Name	Recommendation	Votes
4	Municipal Operational Resiliency	<p>Improve the capacity of the City to continue essential operations during and following a severe event by taking the following steps:</p> <ul style="list-style-type: none"> • Digitize all paper records and documents to protect them from flooding, fire, or other disasters. • Set up a VPN or other "IT Agility" measure so that municipal staff are able to work remotely or from temporary off-site office spaces if municipal facilities are compromised by a hazard event. 	6
5	Emergency Power for Municipal Buildings	<p>Ensure power redundancy at all essential buildings as follows:</p> <ul style="list-style-type: none"> • Install switch gears on all essential buildings to allow for connection to portable generators • Acquire portable generators on trailers that can be brought to buildings in need of emergency power as necessary. 	5
6	Comprehensive River Management	<p>Develop a comprehensive river management plan or set of protocols that addresses:</p> <ul style="list-style-type: none"> • Maintenance of the existing flood protection systems • Incorporation of design criteria to improve the existing flood protection systems to respond to climate change, such as raising levee or wall heights • Coordination between dam operators to ensure releases are timed in a way to minimize flooding in Chicopee • Advocating for Springfield to bring its flood control system into compliance with USACE standards • Managing invasive plant species that grow along the rivers and may exacerbate flooding • Emergency Response • Selectively looking for opportunities to retire limited obsolete sections of flood protection systems to allow floodplain restoration 	4
7	Historic Resources and Historic District Resiliency	<p>Create guidelines on how property owners can restore their historic properties in a manner compatible with their historic character while also protecting them from natural disasters. Restore the Historic District Commissions to help enforce these guidelines, and also leverage the Historic District Commissions to take on other duties such as educating the public about natural hazards and proper use and maintenance of urban trees. Utilize pictures of historical floods (impacting historic buildings and neighborhoods) to develop targeted messages to the public about how floods have impacted Chicopee in the past.</p>	3

Based on the results of the voting exercise summarized above, the following strategies are suggested as the top priorities for the Chicopee Community as identified by the CRB Workshop Participants.



1. URBAN FORESTRY AND TREE RESILIENCY

Improve the resiliency of the City's tree stock by increasing the size of the municipal forestry department, increasing the species diversity of the City's urban forest, and changing the way the City chooses, plants, and maintains trees. These efforts will improve air quality, diminish the number of power outages from falling branches and downed trees, mitigate flooding from high precipitation events, provide shade in hot weather, and slow traffic speeds.

Specific actions within this strategy include:

- Add staff to the municipal forestry department and empower them to work with the public and with developers
- Use "smart" tree-planting and trimming techniques
 - o Select tree species based on hyper-local factors, considering overhead powerlines and future development impacts
 - o Consider future climate scenarios when selecting species for new tree plantings
 - o Trim roadside trees selectively and proactively to increase the hardiness and resilience of remaining trees, decreasing the risk of treefall onto roads or powerlines
- Identify locations that are heavily visited by senior populations and work to increase tree coverage to provide shade during summer months
- Increase the species diversity of municipal trees so the overall tree stock is more resilient to climate change and pests
- Address potential pests and invasive species that may harm urban forests and park forests
- Work with educational partners such as Elms College to foster local urban forestry programs.

2. VULNERABLE AND HOMELESS POPULATION RESILIENCY

Protect Chicopee's vulnerable and homeless populations from hazards including floods, severe storms, and extreme temperatures by partnering with community organizations, performing outreach, and incorporating efforts to protect those populations into formal hazard plans.

Specific actions within this strategy include:

- Work with community organizations and nonprofits such as Lorraine's Soup Kitchen, the Valley Opportunity Council (VOC), and local Churches to perform outreach to the public.
- Ensure that procedures for alerting linguistically isolated populations are available in multiple languages and through channels and organizations that can reach these populations.
- Formalize the procedure for alerting and relocating homeless individuals prior to a severe event.
- Add an annex or addendum to the City's Emergency Response Plan and Hazard Mitigation Plan specifically addressing protection of the homeless population from hazard events.
- Erect signs in locations with known concentrated homeless populations that provide information and resources about where to go (shelters and heating/cooling centers) and who to call during a natural hazard event. Where relevant, these signs should include indicators



highlighting the crests of historic flooding to encourage evacuation of the area during flood conditions.

- Ensure that shelters, heating and cooling centers, and other community facilities and staff are appropriately equipped to help homeless and other vulnerable populations.
- Develop a resource center that offers facilities or amenities (such as showers or kitchens) to support homeless or low-income populations.

3. PAVEMENT MANAGEMENT SYSTEM

Develop a comprehensive plan and protocol that includes prioritized assessment, maintenance, and improvements to roads, drainage systems, and culverts. Objectives are to minimize blockages due to flooding and debris such as tree limbs, avoid washouts due to culvert overtopping, allow for appropriate space for installation of green infrastructure and street trees, and protection of key utilities located beneath roads such as fiber optic lines.



Conclusions and Next Steps

The Chicopee CRB Workshop demonstrated that significant agreement exists across many different stakeholder groups with regard to the strengths, vulnerabilities, and potential resiliency actions for Chicopee.

An important outcome of the process was identification of many existing *strengths* the community has available to combat climate-related hazards, including active and competent emergency response capabilities, a number of resiliency-building projects that have already been initiated, natural resources that mitigate the effects of some hazards, and social service institutions that work with vulnerable populations. The high priority actions developed through the CRB process address the City's tree canopy, vulnerable and homeless populations, and road system. These results reflect a broad view of the community and its needs, addressing multiple different sectors of the City.

The City is preparing to advance a Comprehensive Plan, an effort that will serve as a roadmap for community development into the future, including coordination across different municipal departments about resiliency. The Comprehensive Plan will integrate information from the HMP and the MVP to create a vision for resilience in Chicopee.

Having completed the MVP program, Chicopee will become certified by the Massachusetts Executive Office of Energy and Environmental Affairs (EEA) as an MVP community and therefore be eligible for MVP Action Grant funding. MVP certification also increases Chicopee's standing for other grant opportunities from the Commonwealth. The MVP Action Grant provides funding to pursue priority climate resilience actions as identified through the MVP Planning Grant program. Chicopee intends to pursue MVP Action Grants for one or more of the top-priority recommendations described in this report.



Acknowledgements

CRB WORKSHOP PARTICIPANTS:

Table 6: Workshop Participants

Name	Affiliation	Title/Role	Attended:	
			2/21	3/7
Al Picard	Friends of Chicopee Senior Citizens	President	X	X
Benjamin Strepka	Parks & Recreation	Superintendent	X	X
Carl Dietz	Building Department	Building Commissioner	X	X
Chris Oswiak	Chicopee Flood Control		X	
Chris Scott	Forestry	Tree Forman		
Denise Moreau	Information Technology (IT)	Senior Systems Engineer	X	X
Elizabeth Soja	DPW and Emergency Management	Assistant to the Superintendent		X
Glenn Joslyn	Emergency Management Department	Director	X	
James Lisowski	Energy Conservation	Assistant General Manager		X
Jeff Bedard	Elms College	Campus Safety Security Supervisor	X	
Jeff Trask	Emergency Management	Staff	X	X
Jeffrey Cady	Electric Light Department	General Manager	X	
Josh Clark	Historical Commission	Chair	X	X
Karen Hansmann	Chicopee Chamber of Commerce	Staff	X	X
Katie Cyr	Health Department	Staff		X
Keith Davies	Chicopee River Watershed Council	Chair		
Kristen Pope	Planning	Senior Clerk		X
Lee Pouliot	Planning Department	Director	X	X
Lisa Sanders	Health Department	Health Director	X	
Mark St. Laurent	Westover Metropolitan Airport	Operations Manager		
Michael Bolton	Westover Metropolitan Airport	President/CEO		
Michael Pise	School Committee	School Committee member	X	X
Nathan Davis	Chicopee Flood Control	Staff	X	
Nathan Moreau	Mayor Office	Communications and Special Projects Manager		
Patrick Mckenna	Planning Department	Assistant Planner	X	X
Patty Gambarini	Pioneer Valley Planning Commission (PVPC)	Principal Environmental Planner	X	X
Quinn Lonczak	Sewer Commission	Project Advisor		
Ron Rickey	Elms College	Director of Facilities Planning & Operations	X	X
Shelly Santere	GIS	GIS Coordinator	X	X



Name	Affiliation	Title/Role	Attended:	
			2/21	3/7
Sherry Manyak	Council on Aging	Executive Director		X
Susan Knightly	Chicopee Cultural Council	Chairperson	X	X
Ted Hanna	Westover Metropolitan Airport	Airport Manager	X	X

CITATION

City of Chicopee, 2019. 2019 Chicopee Community Resilience Building Workshop Summary of Findings. City of Chicopee and Milone & MacBroom, Inc., Chicopee, Massachusetts.

SPECIAL ACKNOWLEDGEMENTS

Contributors from within the City and across the community helped make this project a success. The core team consisted of Patrick McKenna and Lee Pouliot. Workshop Scribes were Patrick McKenna, Patty Gambarini, and Shelly Santere. The facilitation team from Milone and MacBroom was comprised of David Murphy, Noah Slovin, and Victoria Brudz.

Special thanks to the entire Chicopee community for their willingness to embrace this process and remain engaged for the duration of two 4-hour workshops. This project was made possible through funding from the Massachusetts Executive Office of Energy and Environmental Affairs and the Municipal Vulnerability Preparedness (MVP) Grant Program.

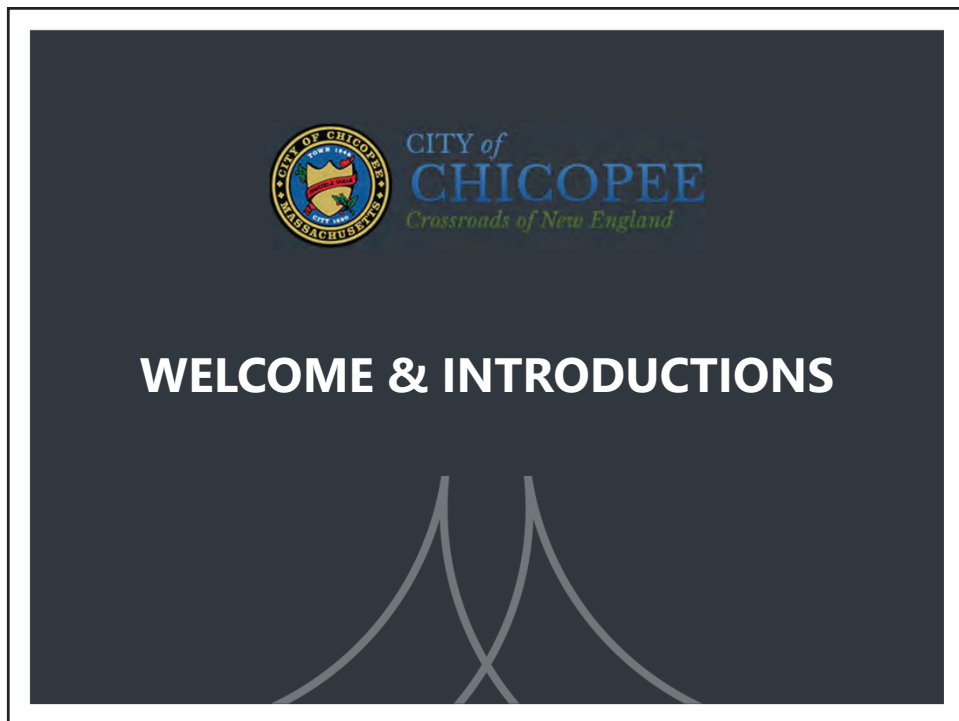


Appendix A

Opening Presentation



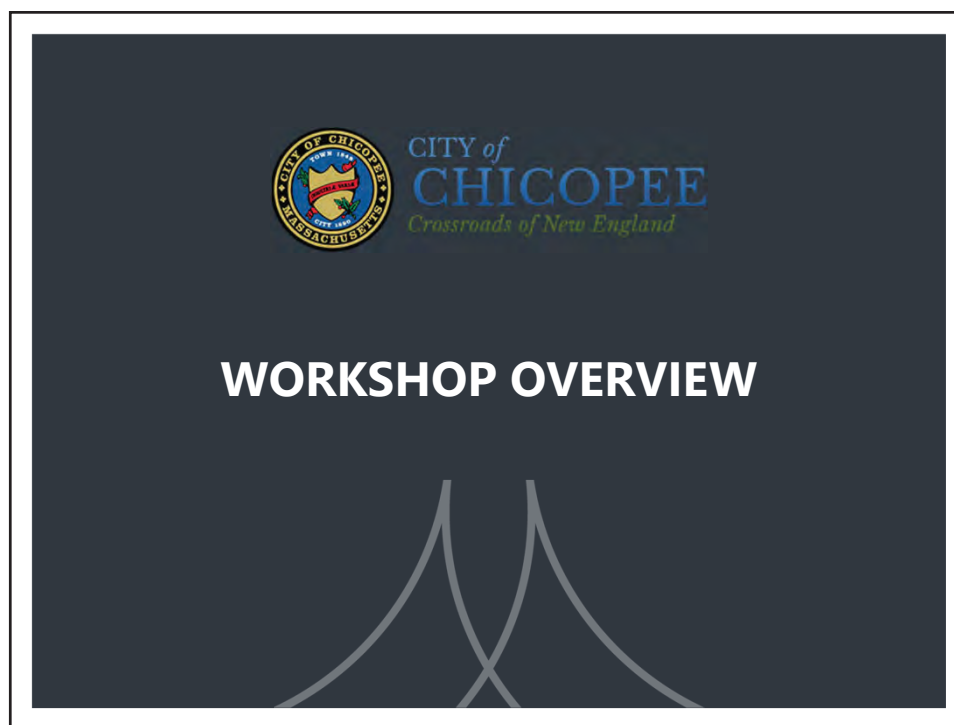
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TWO-DAY AGENDA		Day 1	Time	ACTIVITIES and OBJECTIVES
			5:00	Registration
			5:15	Welcome and Introductions
			5:30	Overview Presentation on Workshop
			5:45	Overview Presentation on Science and Resources
			6:00	Small Team Exercise
			7:00	DINNER (provided on-site)
			7:30	Small Team Exercise, Continued
			9:00	Adjourn
		Day 2	5:00	Registration
			5:15	Welcome & Review
			5:30	Small Team Exercise, Continued
			7:00	DINNER (provided on-site)
			7:30	Report Outs
			8:00	Top Priorities
			8:30	Wrap Up and Next Steps
			9:00	Adjourn

3



4

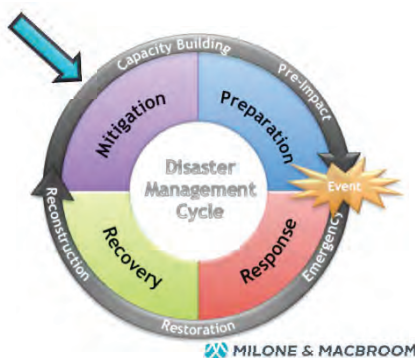
WORKSHOP OVERVIEW

OTHER PLANNING EFFORTS



Hazard Mitigation Plan

- All Natural Hazards
- Positioning for Mitigation Grants
- Limitations
 - 5-year planning window
 - Focus on loss reduction
 - Highly prescribed
 - Backward-looking
- Current Version Adopted in 2017



5

WORKSHOP OVERVIEW

OTHER PLANNING EFFORTS

- West End Area-Wide Plan
- RiverMills at Chicopee Falls Vision
- Open Space and Recreation Plan
- Riverwalk & Bikeway
- Brownfield redevelopment plans (there are several)
- Vision plans
- Emergency operations plan annex about flooding

MILONE & MACBROOM

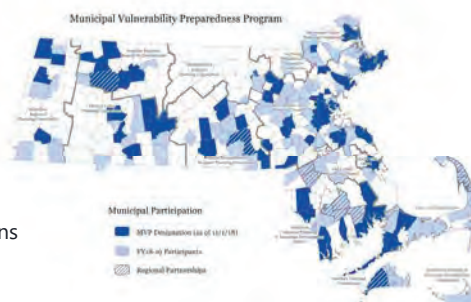
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WORKSHOP OVERVIEW

MUNICIPAL VULNERABILITY PROGRAM

- Massachusetts Commonwealth-Wide
- Community Resilience Building Approach
 - Stakeholder-Developed Priorities
 - Develop Relationships and Support
 - Process is Part of the Goal
- Two Opportunities
 - MVP Planning Grant
 - Stakeholder Workshop
 - Public Listening Session
 - Identification of Top Actions
 - MVP Action Plan
 - Implementation of Top Actions
 - Must be MVP Certified
- Other Benefits
 - MVP Communities get Priority for State Funding (future plan)

UTILIZE
PARTNERSHIPS &
LEVERAGE EXISTING
STRENGTHS



MILONE & MACBROOM

7

WORKSHOP OVERVIEW

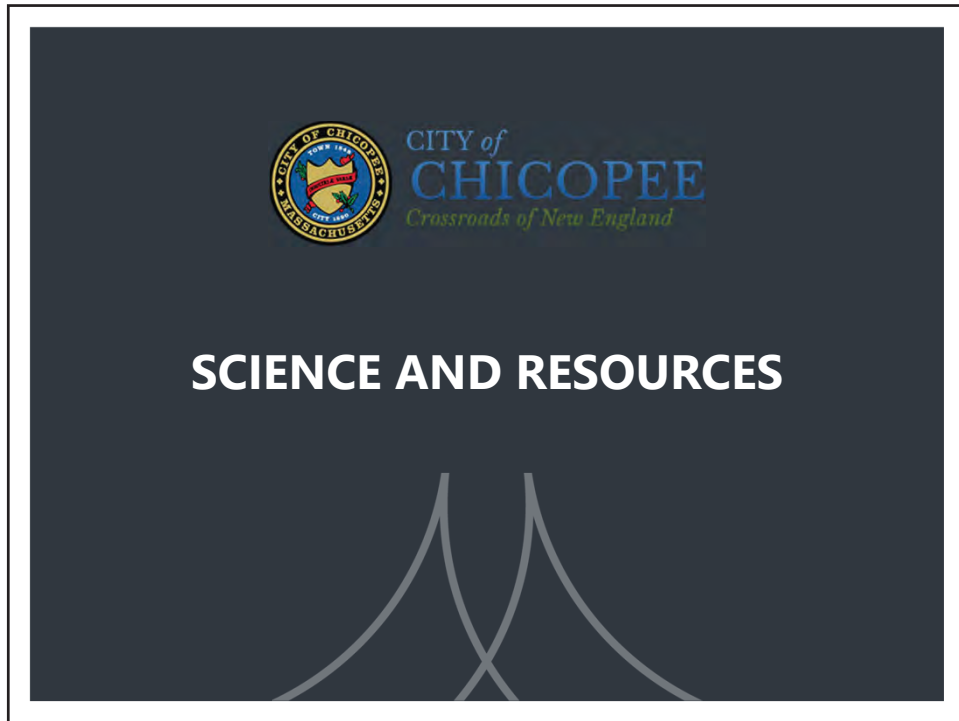
CHICOPEE CRB WORKSHOP

- **Goals:**
 - Dialogue, Understanding, and Collaboration
 - Stakeholder Supported Mitigation Actions
 - Integration with HMP
- **Objectives:**
 - Characterize Primary Hazards
 - Identify Strengths and Vulnerabilities
 - Agree on Priority Actions
- **Process:**
 - Full Group Presentation: Risks and Hazards in Chicopee
 - Small Group Workshops: Hazards, Strengths, Vulnerabilities, Actions
 - Full Group Dialogue: Top Actions



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8



9

RISKS AND HAZARDS IN CHICOPEE

HAZARD CHARACTERIZATION

DAM: RICHARD B JOHNSON
TREE: RACHEL ROBERTS / MASSLIVE
TORNADO: MATT PUTZEL

Group Activity:




What Climate Hazards Face Chicopee?

- Past Impacts?
- Current concerns?
- Anticipated for the future?

Hazards Addressed in the HMP

Flood	Earthquake
Winter Storm	Dam Failure
Hurricane/Tropical Storm	Drought
Thunderstorm	Extreme Temperature
Wildfire	Landslide

FIRE: MICHAEL S GORDON
FLOOD: MASSLIVE
SNOW: JEANETTE DEFORGE

MILONE & MACBROOM

10

RISKS AND HAZARDS IN CHICOPEE

CLIMATE CHANGE

Rising Global Temperatures
have
Complex Effects

- Average & Extreme Temperatures
- Changing Precipitation Patterns

DROUGHT: BOSTON HERALD
FLOOD: HADLEY POLICE DEPARTMENT

11

RISKS AND HAZARDS IN CHICOPEE

CLIMATE CHANGE

Average and Extreme Temperatures

- Public Health
- Infrastructure
- Agriculture
- Wildfire Risk
- Rain vs Snow
 - The Freeze Paradox
- Water Quality

AMBULANCE: MASSLIVE
CONCRETE: PICTURE-ALLIANCE/DPA/PLUGHAFEN HANNOVER
ALGAL BLOOM: DR. JENNIFER L. GRAHAM, USGS

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RISKS AND HAZARDS IN CHICOPEE

CLIMATE CHANGE

Changing Precipitation Patterns

- Total Rainfall
- Precipitation Event Magnitude
- Drought Frequency & Severity
- Wildfire Risk
- Ecosystem Impacts
- Agriculture Impacts
- Water Quality



RAIN: WWW.WWLP.COM
FIRE: JIM POWERS
FARM: WWW.WWLP.COM

MILONE & MACBROOM

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RISKS AND HAZARDS IN CHICOPEE

CLIMATE CHANGE



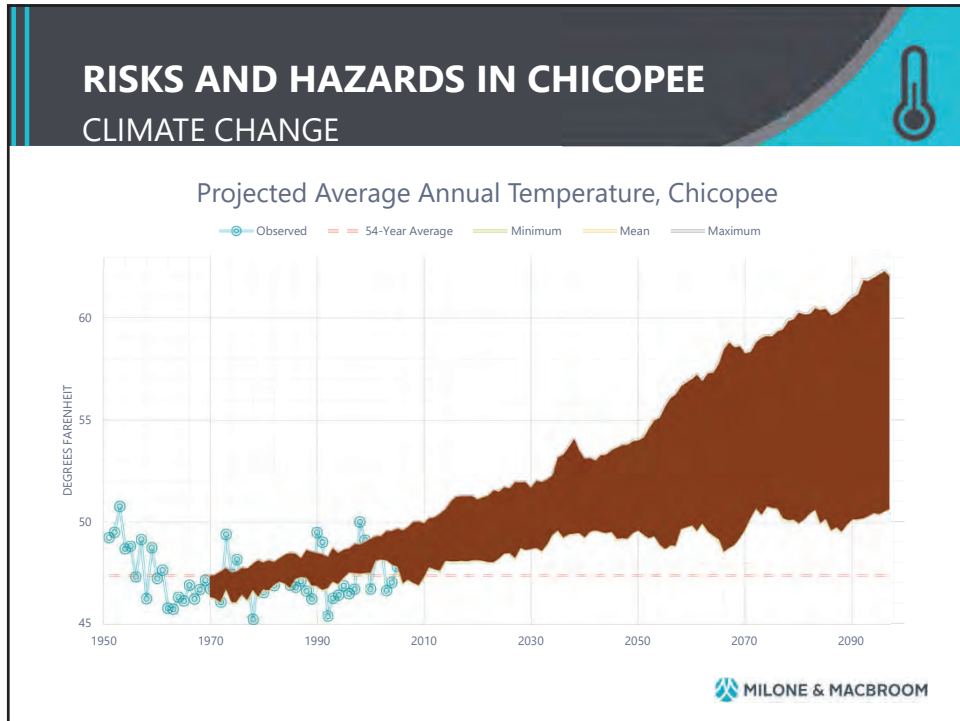
resilient MA

Climate Change Clearinghouse for the Commonwealth

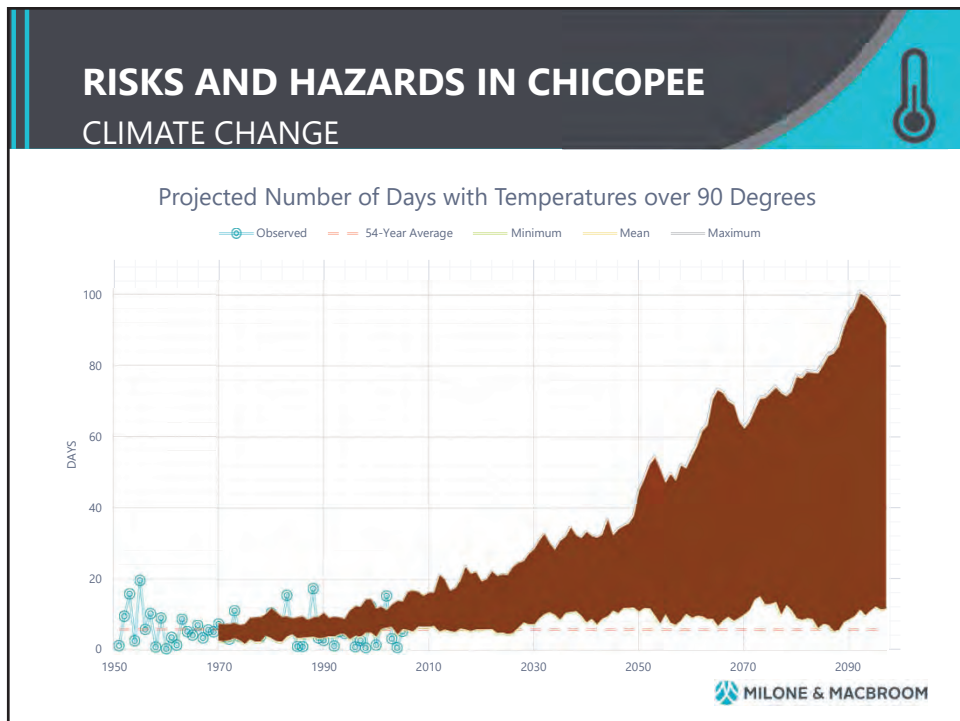
OBSERVATIONS & PROJECTIONS

- Clearinghouse for Massachusetts Climate Data
- Consistent Data for Region
- "Downscaled" from Global Projections

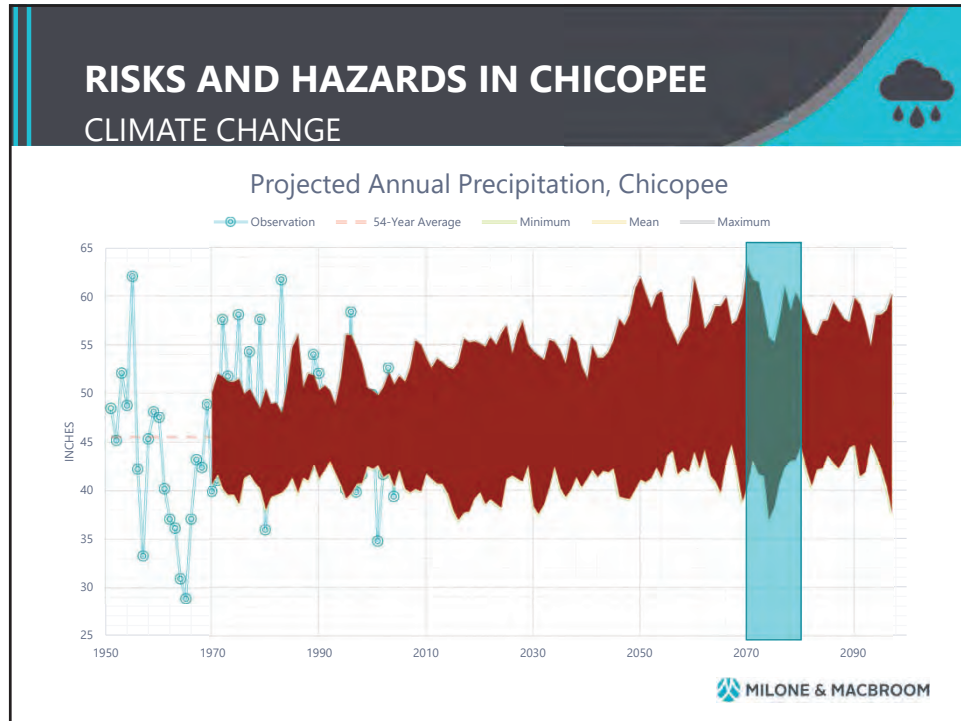
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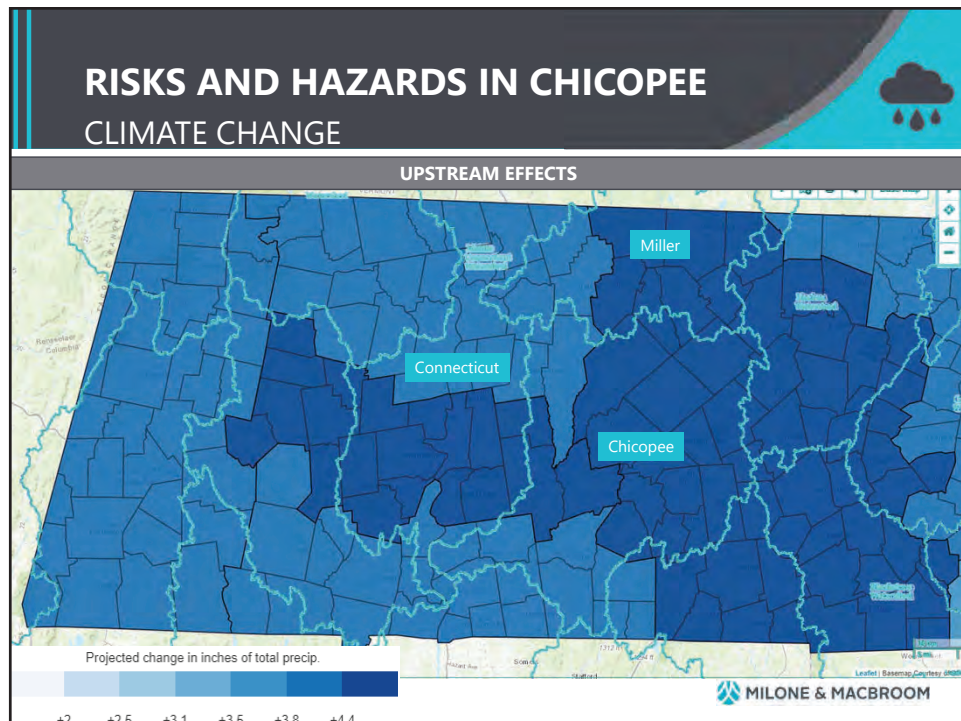
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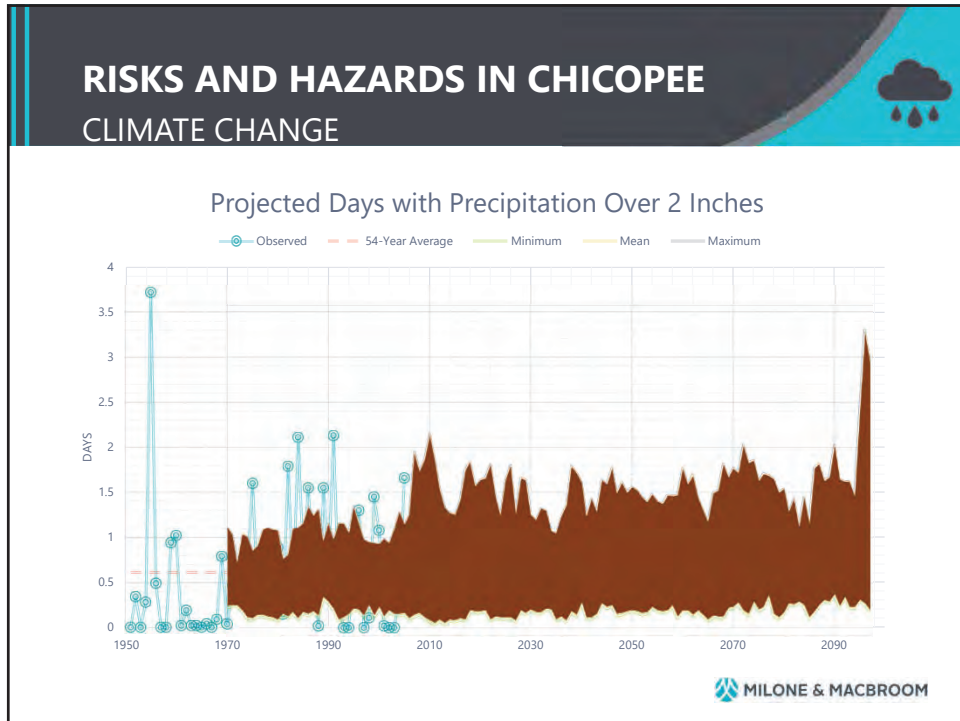
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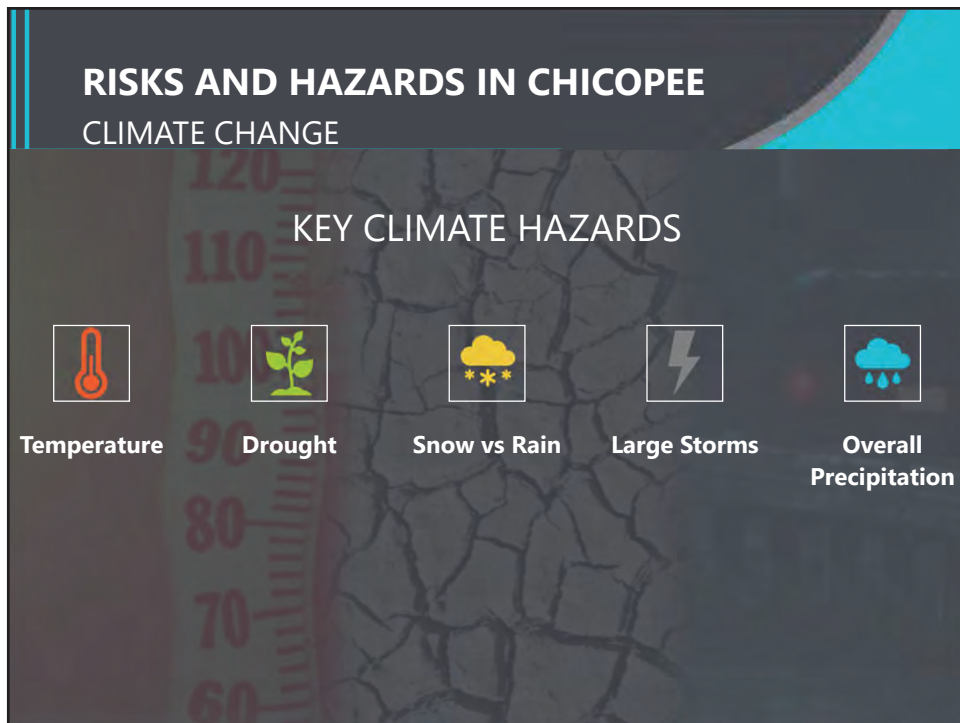
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RISKS AND HAZARDS IN CHICOPEE

CLIMATE CHANGE: KEY POINTS

KEY CLIMATE CHANGE IMPACTS

 <p>Physical</p> <p>Flooding Wind Heat</p>	 <p>Public Health</p> <p>Heat Injury Water Quality Diseases</p>
 <p>Economic</p> <p>Energy Use Tourism Agriculture Asset Damages</p>	 <p>Infrastructural</p> <p>Increased Load Direct Damage</p>

 MILONE & MACBROOM


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RISKS AND HAZARDS IN CHICOPEE

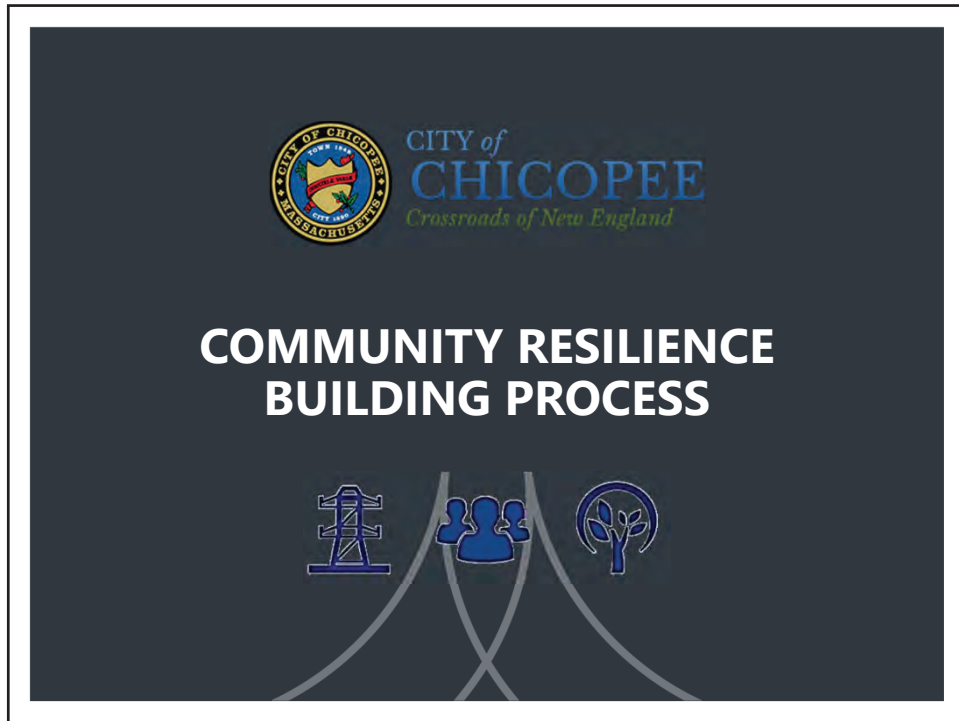
HAZARD CHARACTERIZATION

Revisit Chicopee Hazards List

Anything to add after review?

 MILONE & MACBROOM

22



23



24



25



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27



28

[illegible]

29

RISKS AND HAZARDS IN CHICOPEE

HAZARD CHARACTERIZATION

Hazard
Sun Exposure

What is a Hazard?
The Sun Example

Vulnerabilities

- Time in the Sun
- Amount of Exposed Skin
- Susceptibility to Burns

Capabilities

- Umbrella
- Sunscreen
- Sunglasses
- Clothing

Risk
Sunburn
Skin Damage

Actions

- Apply Sunscreen
- Wear Sunglasses
- Wear Clothing
- Move Under Umbrella

The diagram illustrates the hazard characterization process for sun exposure. It features a central illustration of a person relaxing on a beach chair under a large umbrella, wearing sunglasses and holding a drink. The sun is shining brightly. The diagram is divided into sections for Hazard, Vulnerabilities, Capabilities, Risk, and Actions.

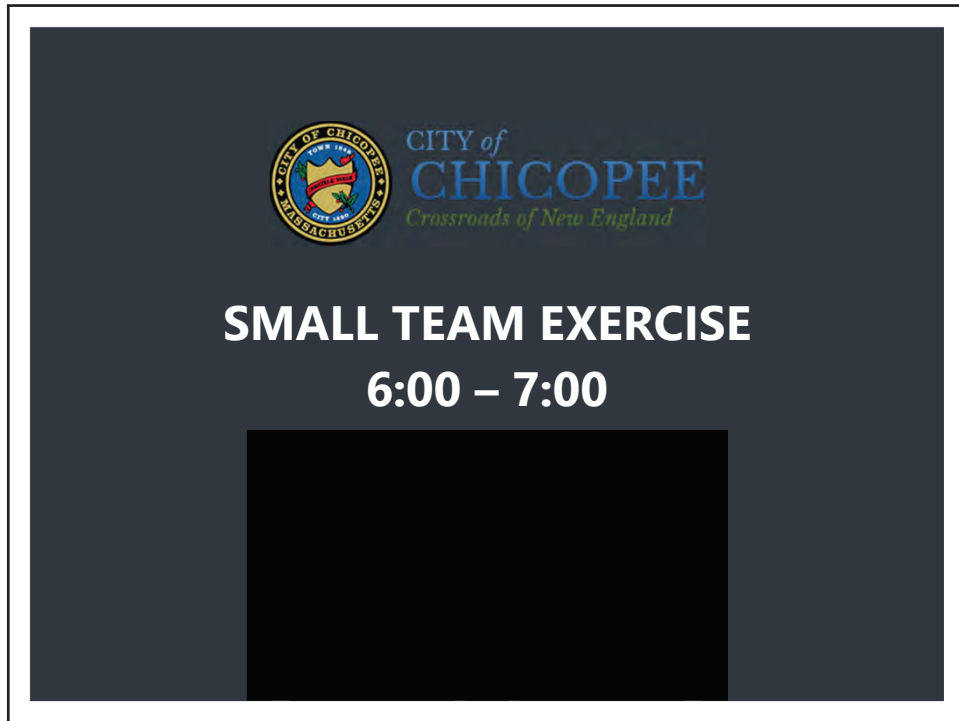
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COMMUNITY RESILIENCE BUILDING PROCESS				
H-M-L priority for action (V = Vulnerability S = Stress)		Sun Exposure	Priority	Time
Features	V or S		H M L	Short Long Ongoing
Infrastructural				
Skin	V	Limit amount of time skin is exposed to sun	M	O
Umbrella	S	Buy a new, larger umbrella	H	L
Sunscreen	S	Buy SPF-50 Sunscreen	L	S

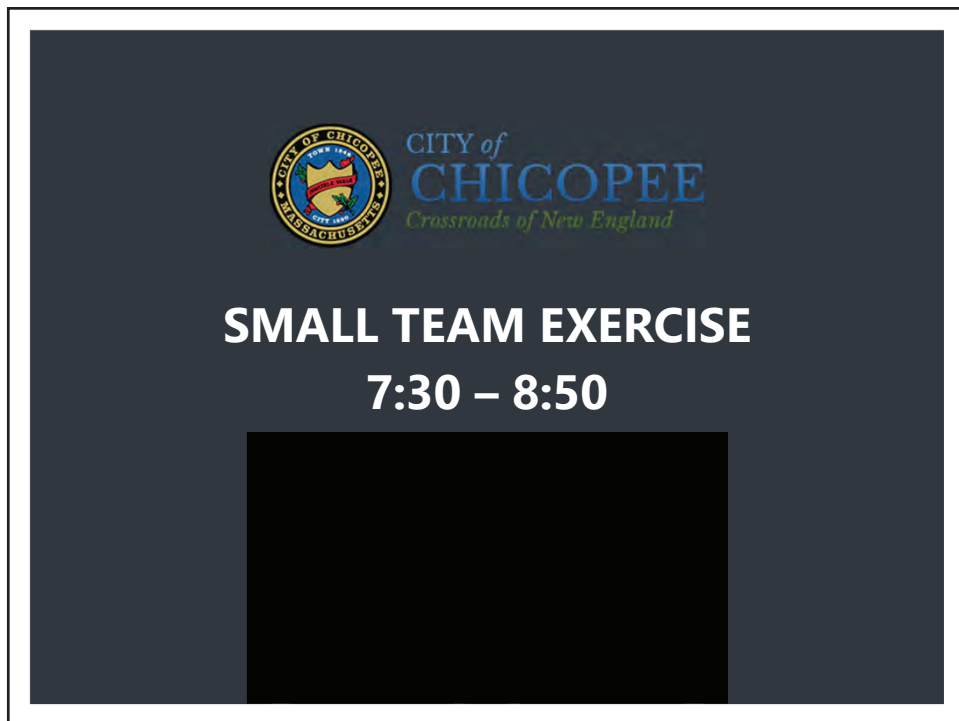
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COMMUNITY RESILIENCE BUILDING PROCESS	
<u>Expectations of Participants</u>	
<ul style="list-style-type: none"> • Permission to be <u>active participants</u> • Your ideas & expertise are needed • Respect contributions of others • Be creative and remain optimistic • Stay on task (as defined by your facilitators) • Be accountable for your group's discussions 	

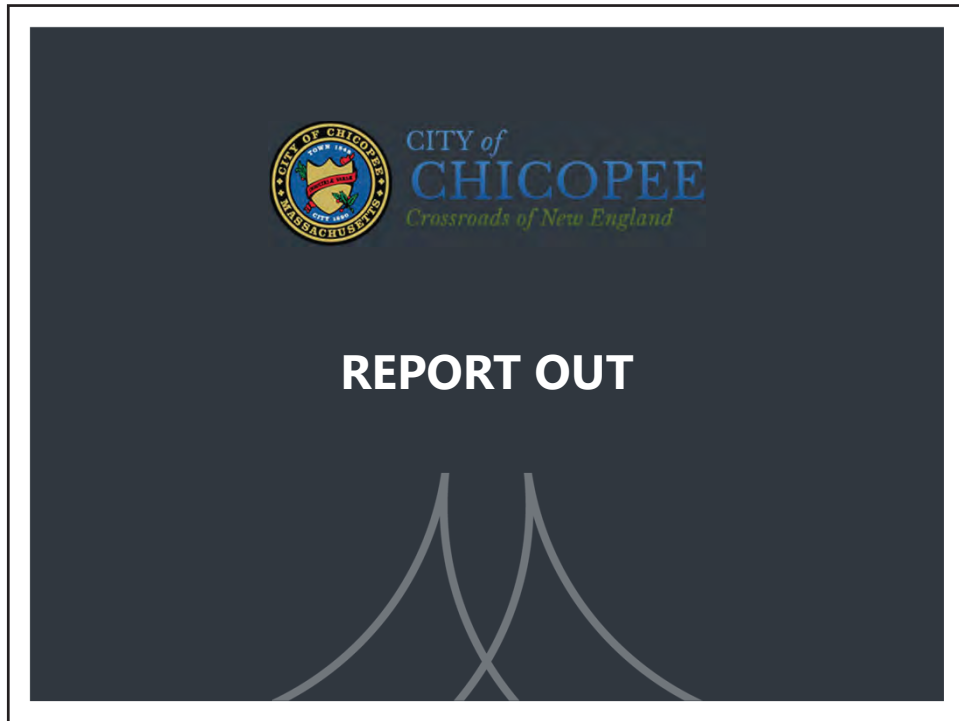
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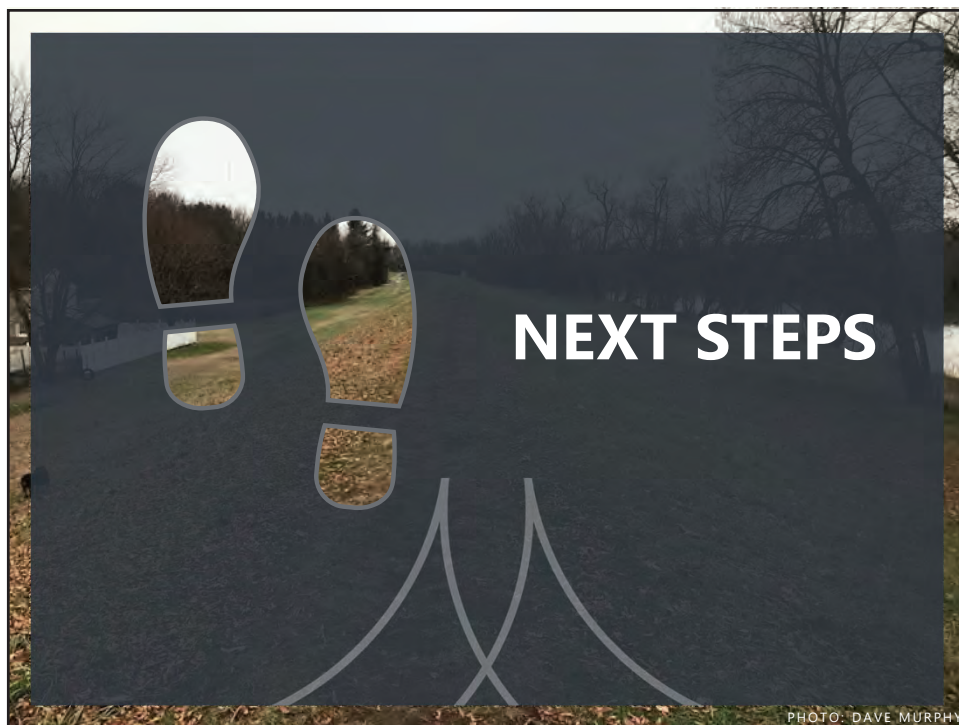
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NEXT STEPS

 Workshop #2: Thursday March 7

 Workshop Report

 Public Report-Out Meeting

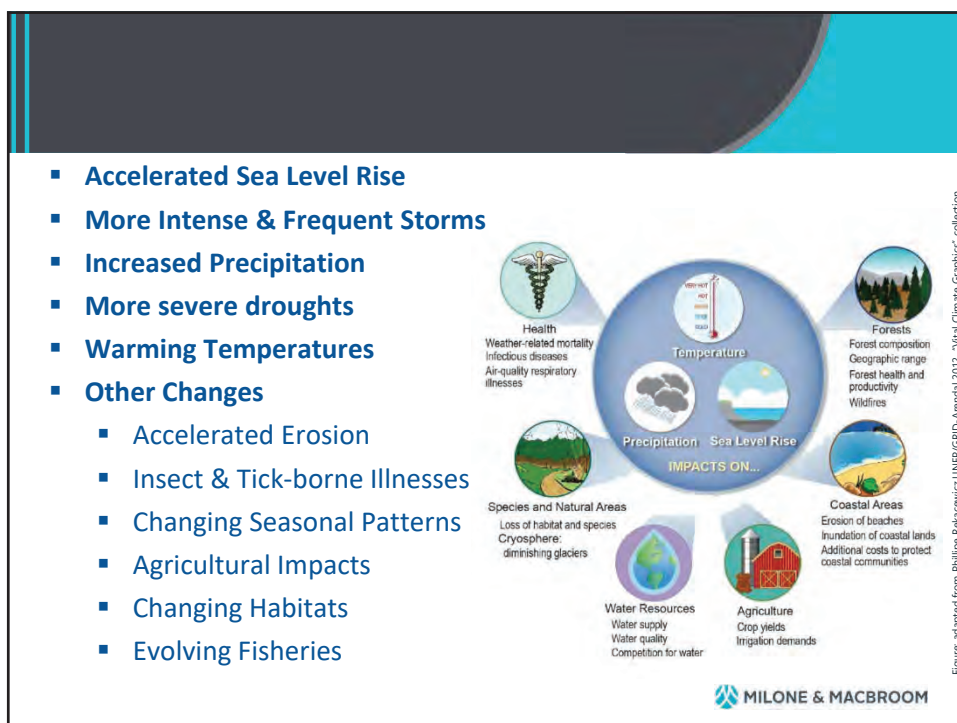
 MVP Certification and Funding Opportunities

 MILONE & MACBROOM

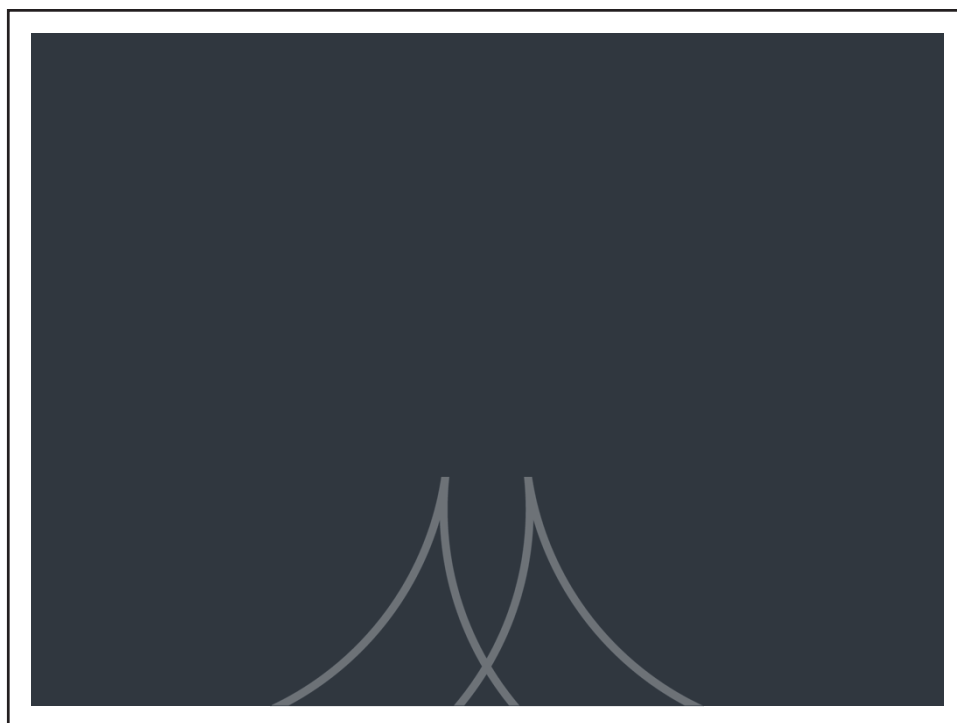
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Appendix B
Resource Packet



CITY of
CHICOPEE
Crossroads of New England

Municipal Vulnerability Preparedness

Community Resilience Building
In Chicopee

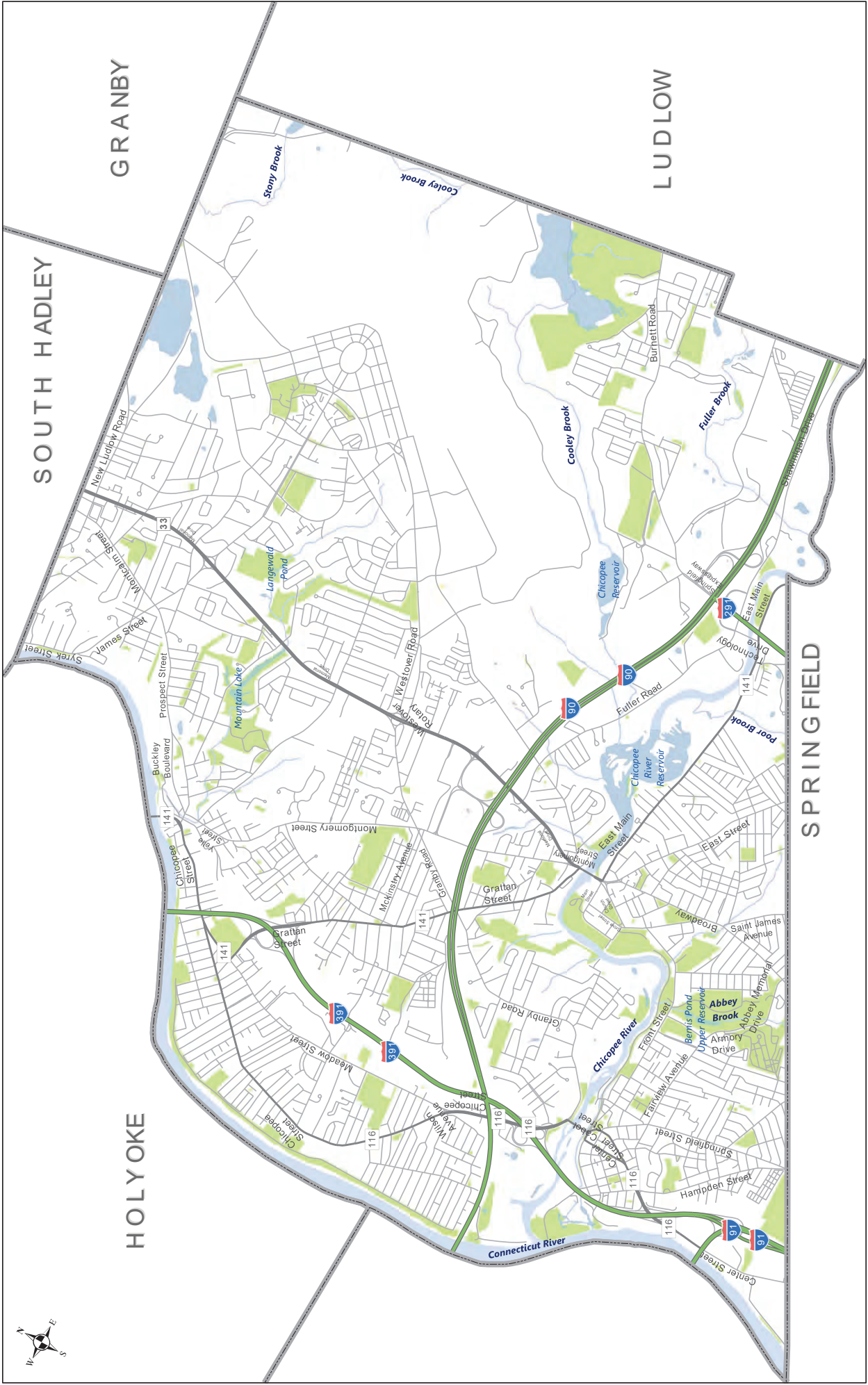
2019

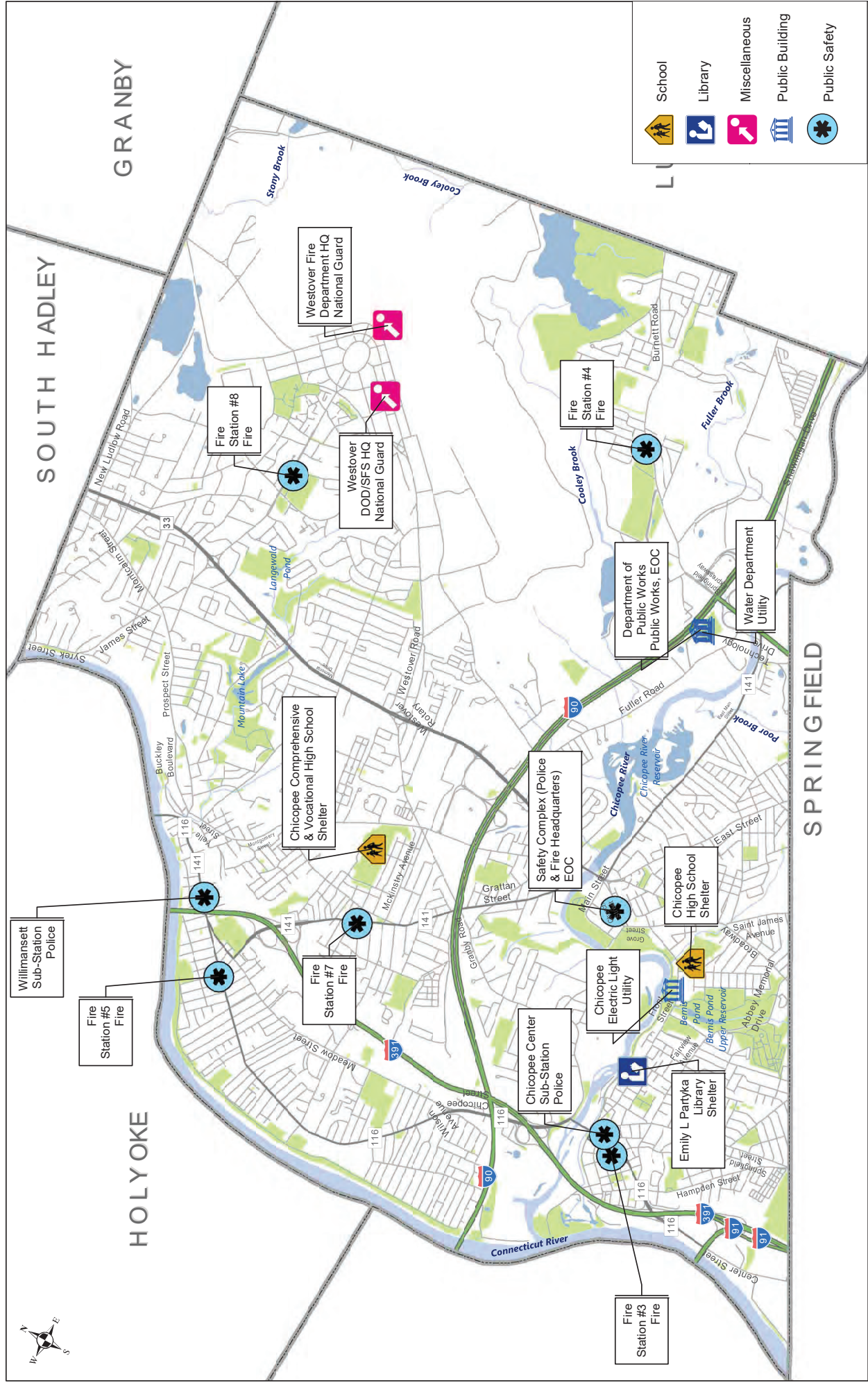
RESOURCE PACKET

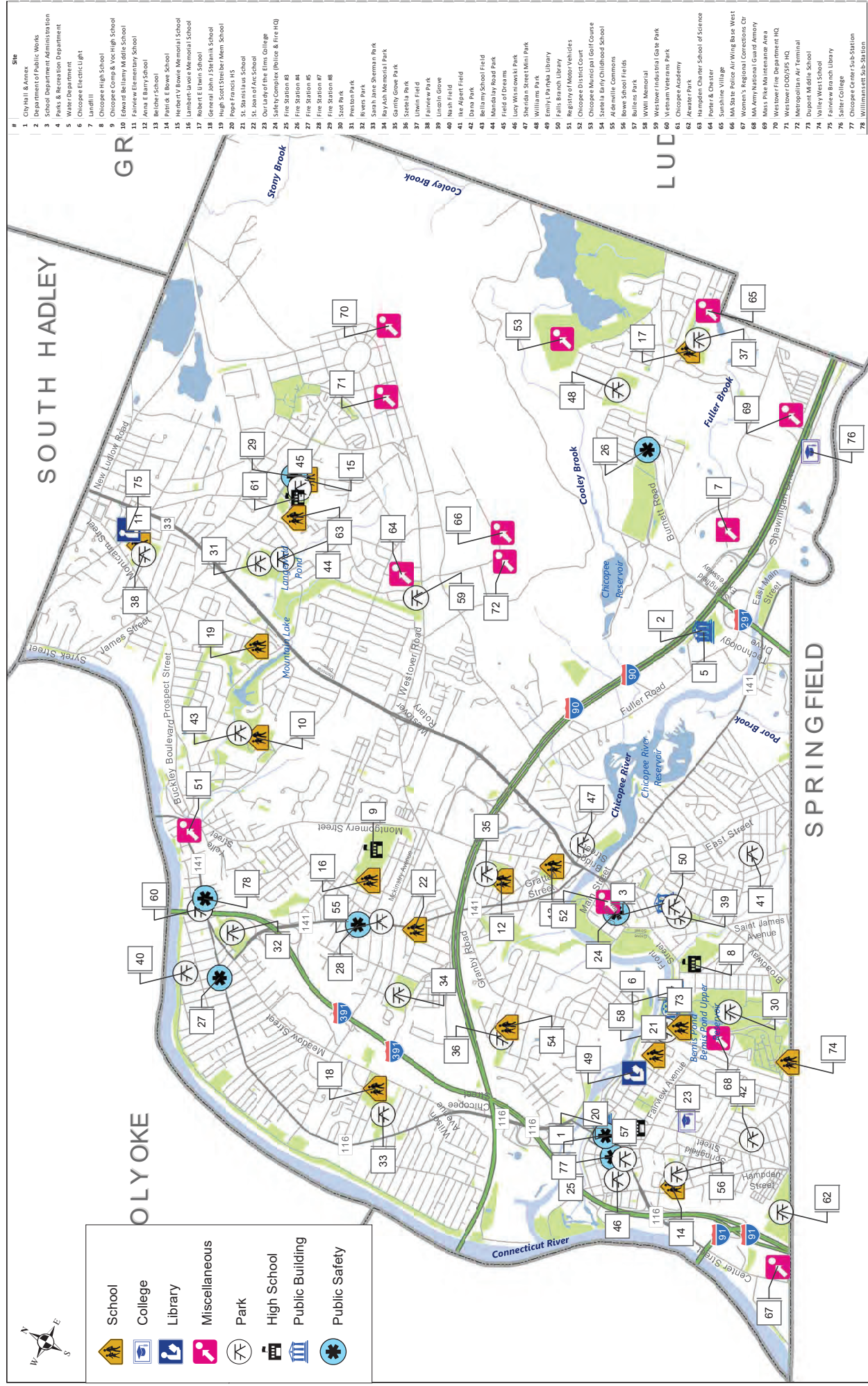


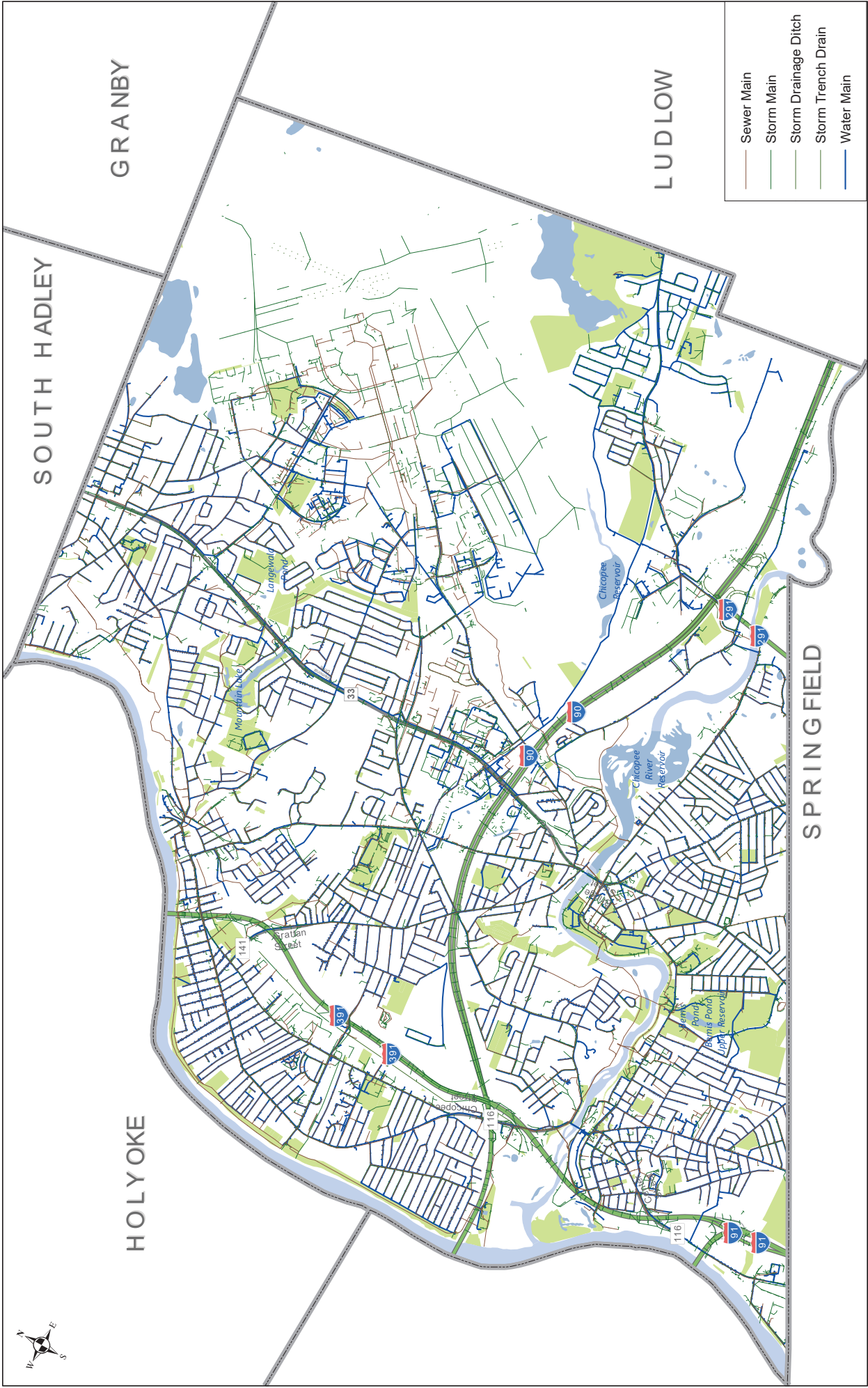
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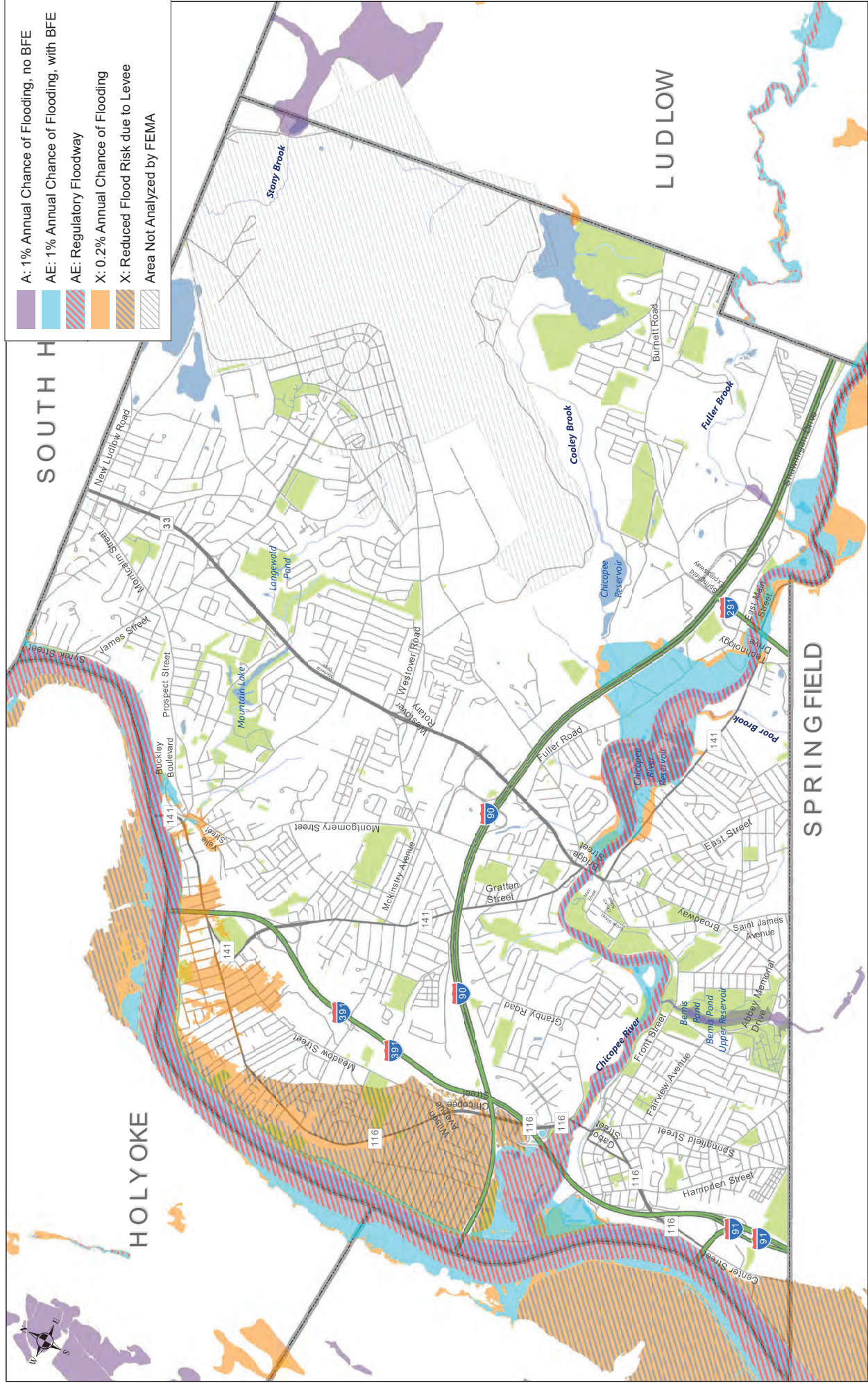
PHOTO: PAUL SAMSON

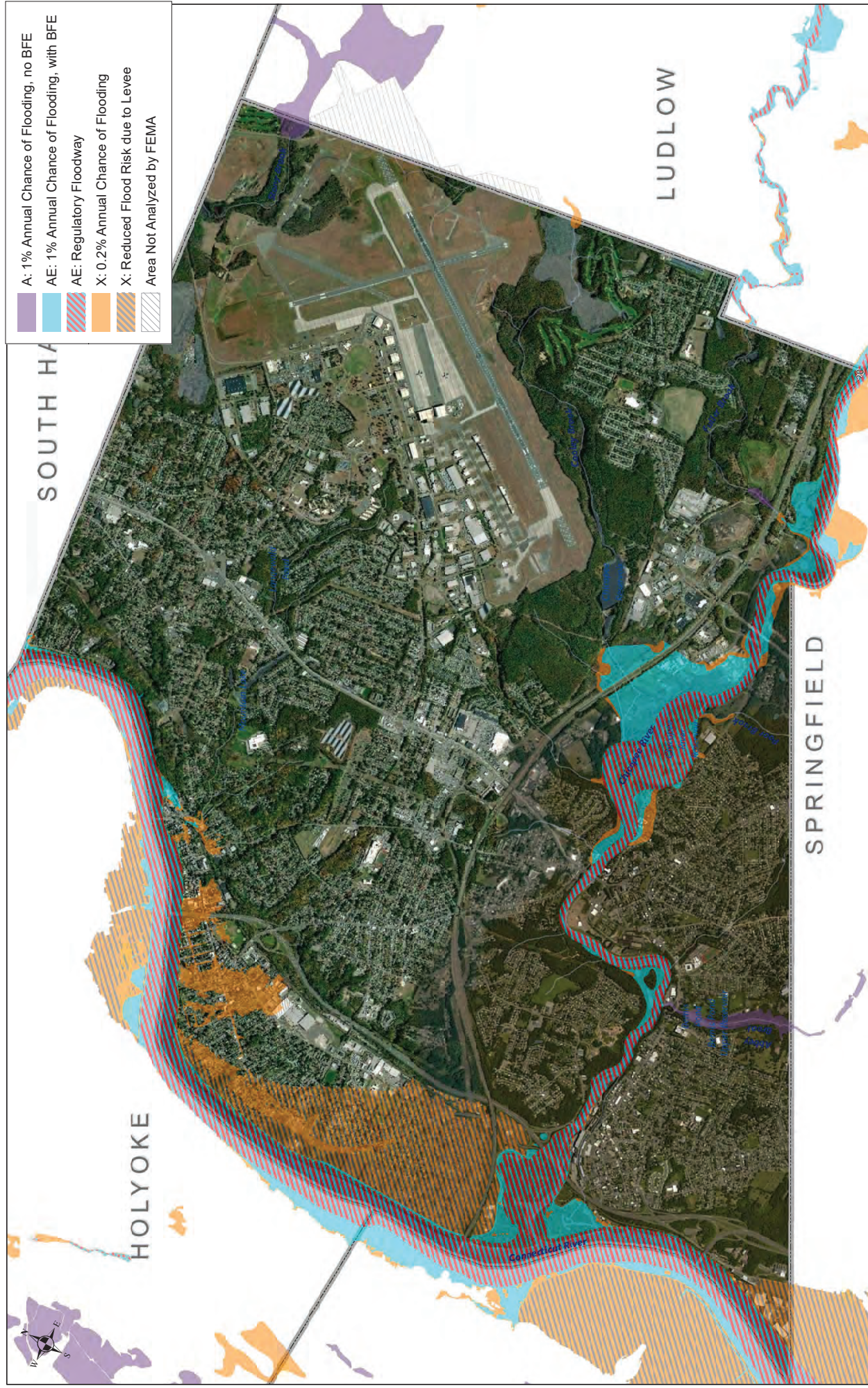


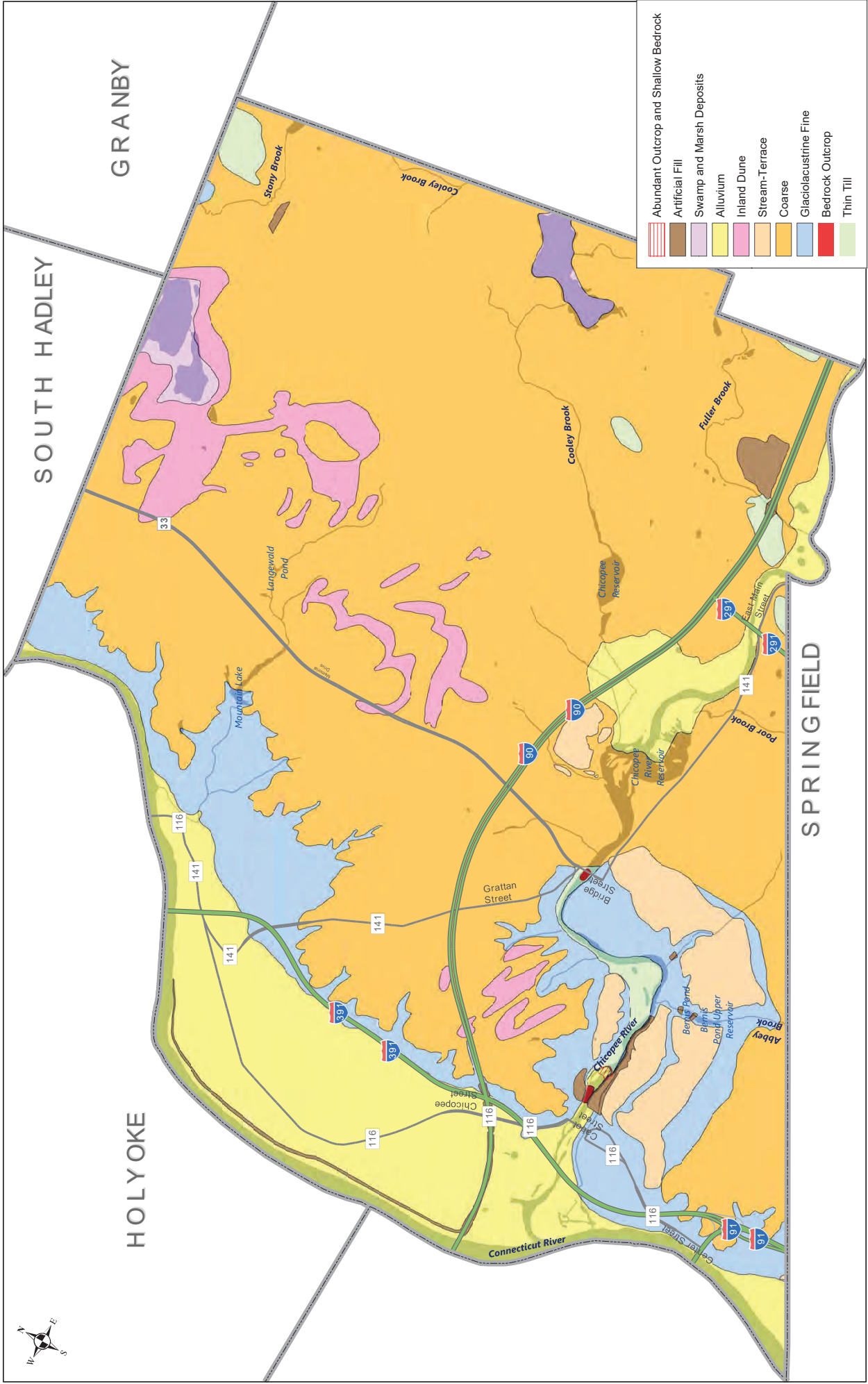


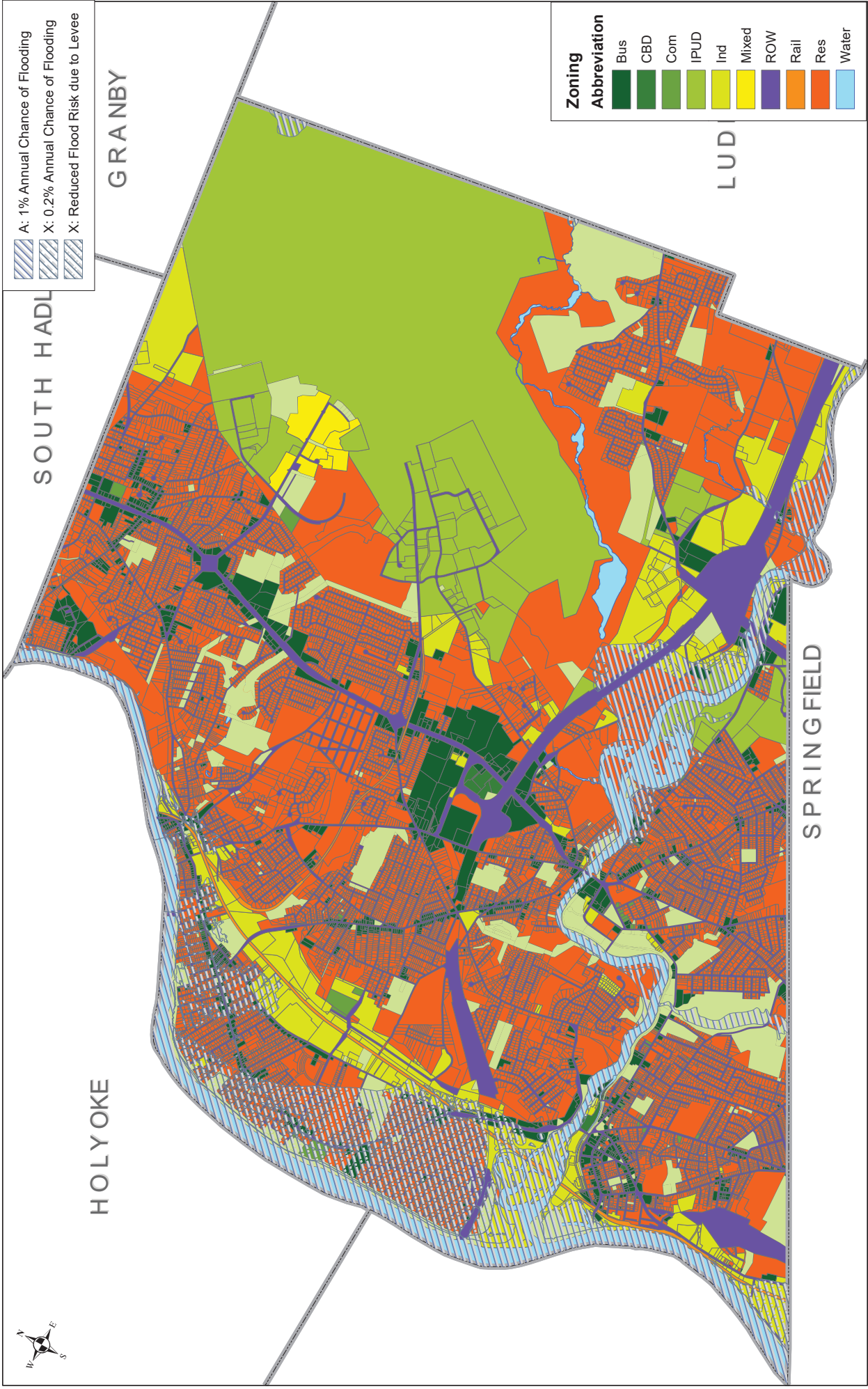




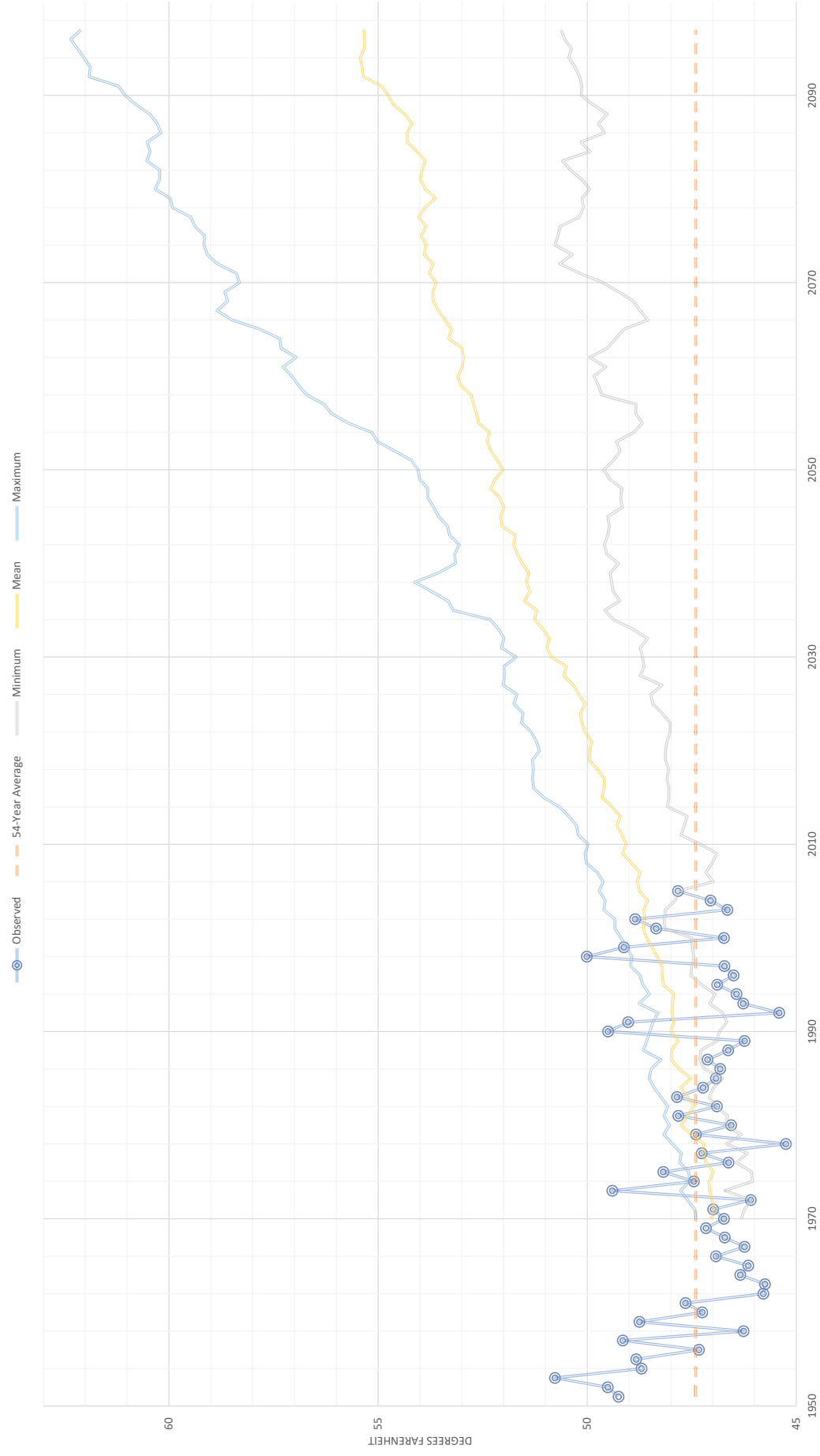




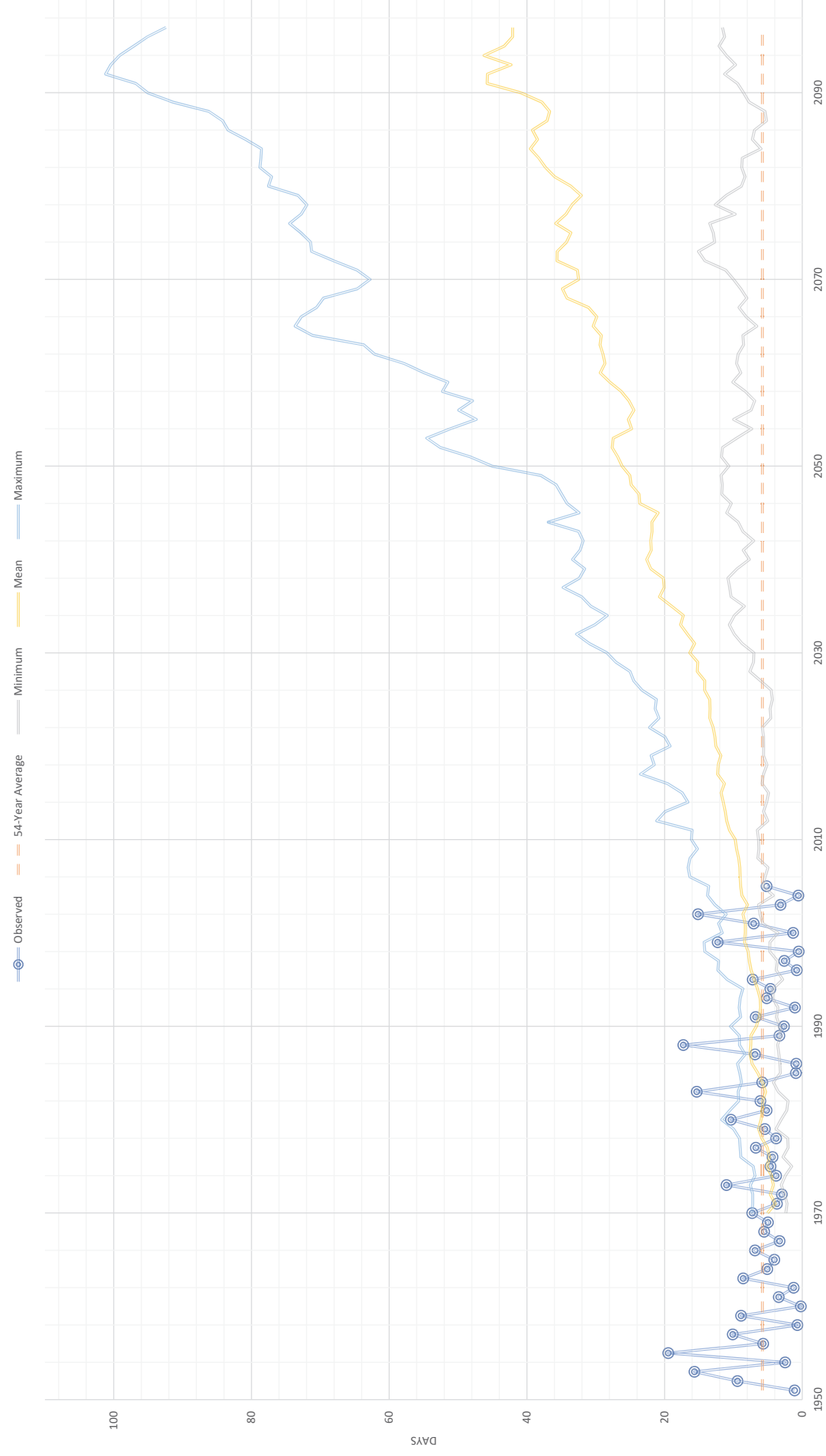




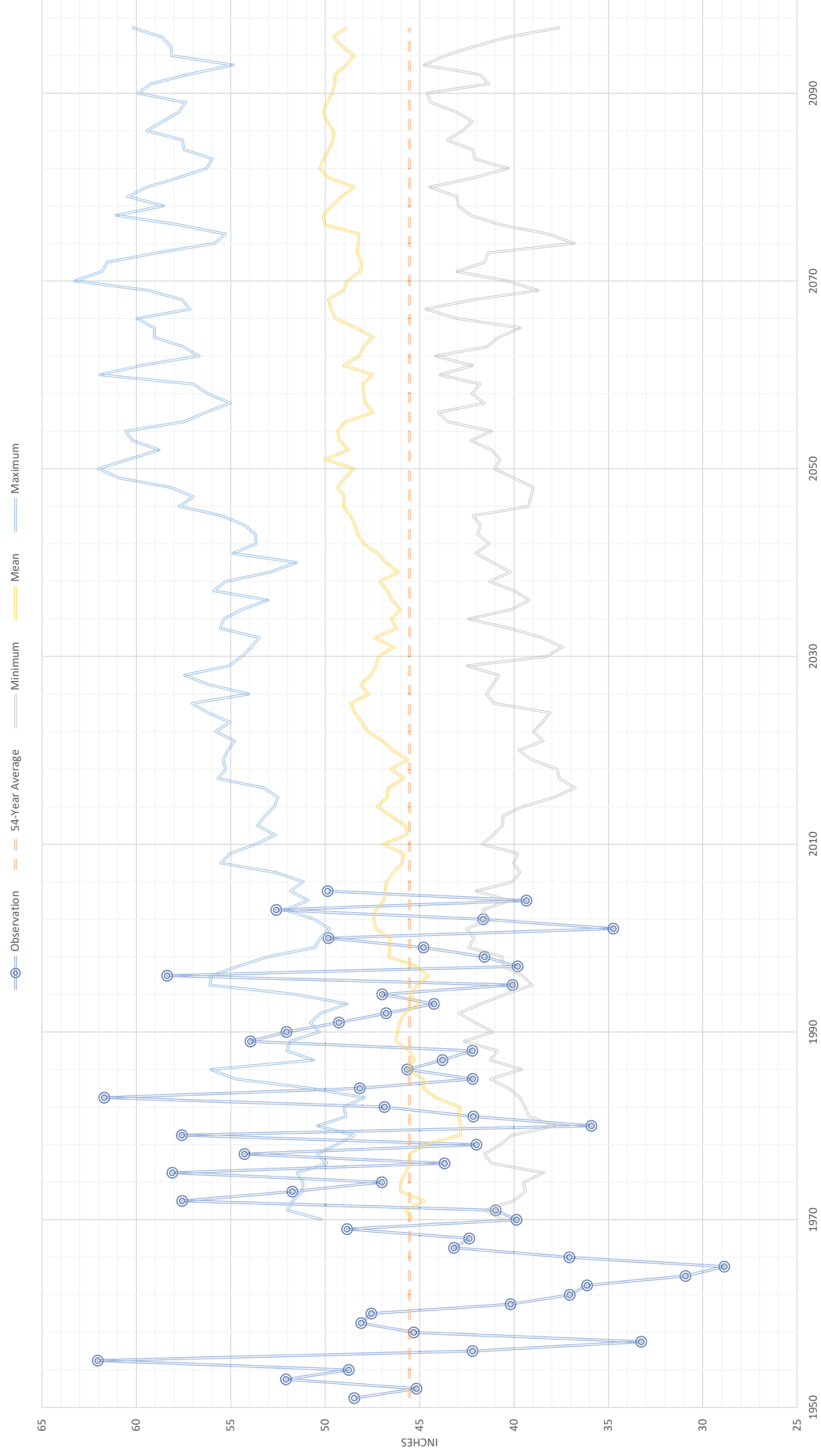
Projected Average Annual Temperature, Chicopee



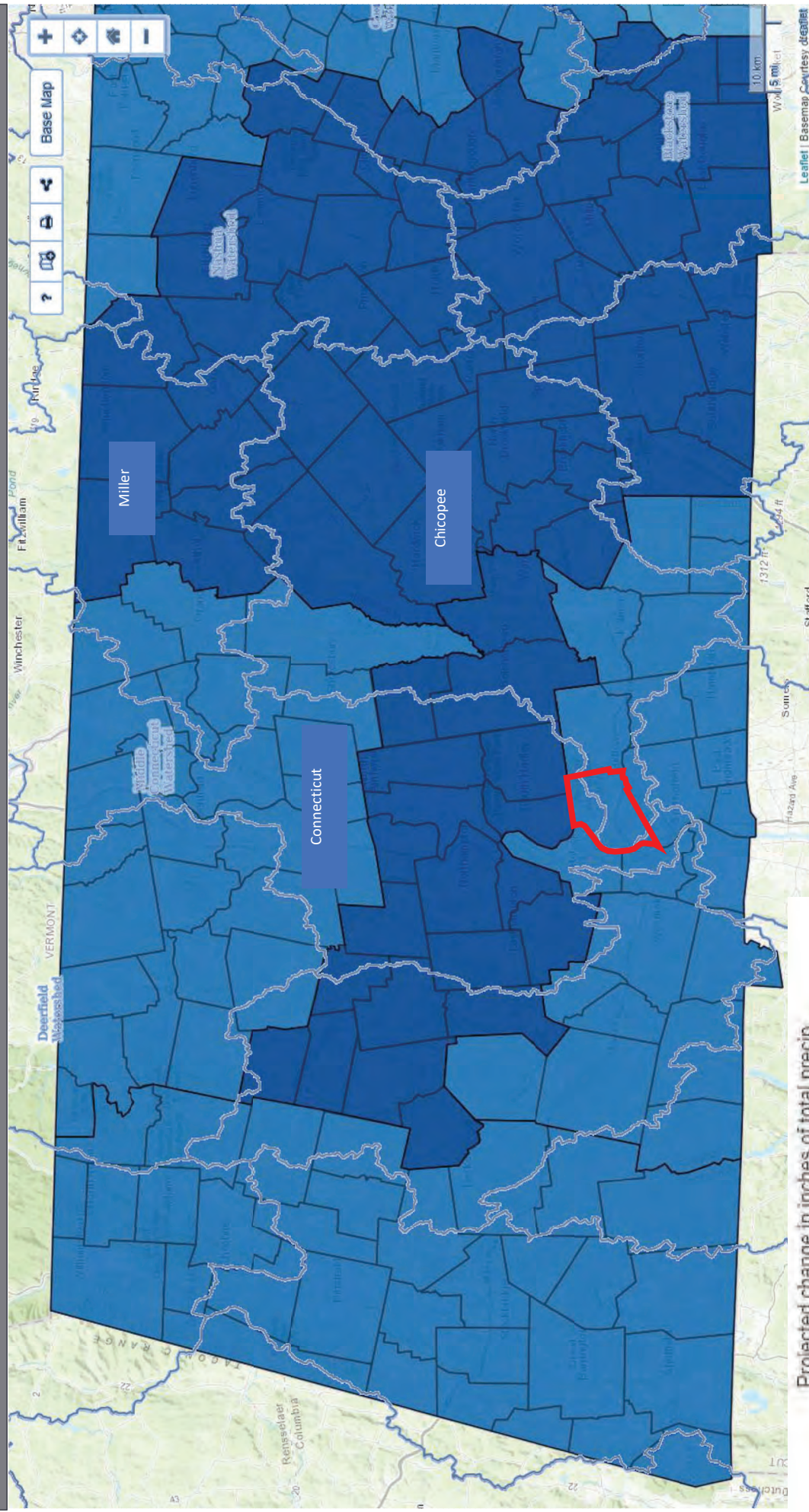
Projected Number of Days with Temperatures over 90 Degrees



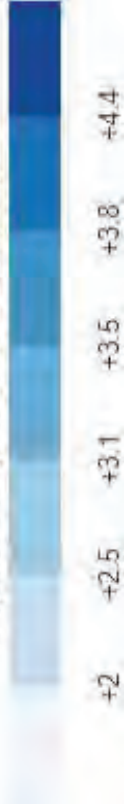
Projected Annual Precipitation, Chicopee



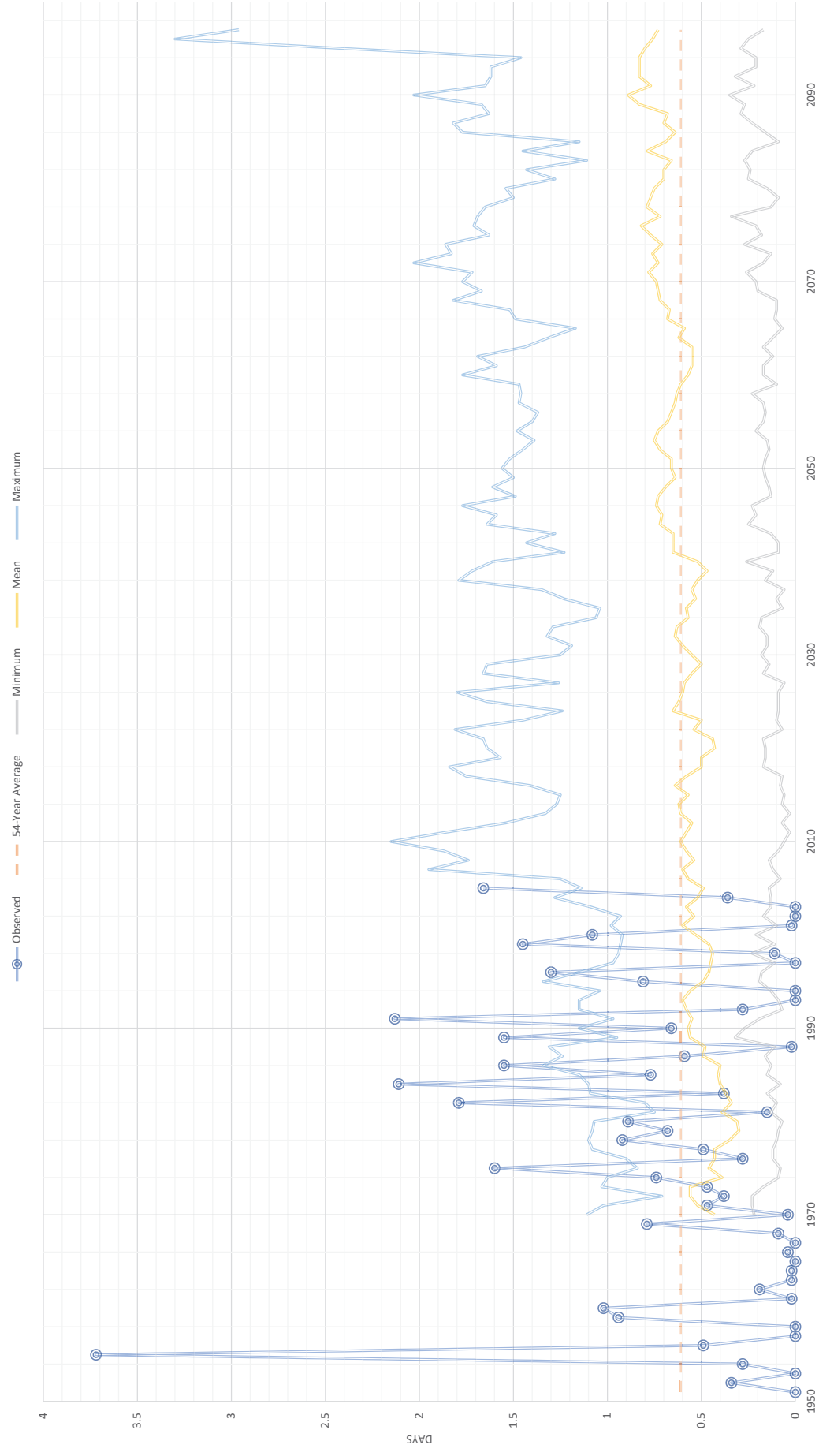
UPSTREAM EFFECTS



Projected change in inches of total precip.

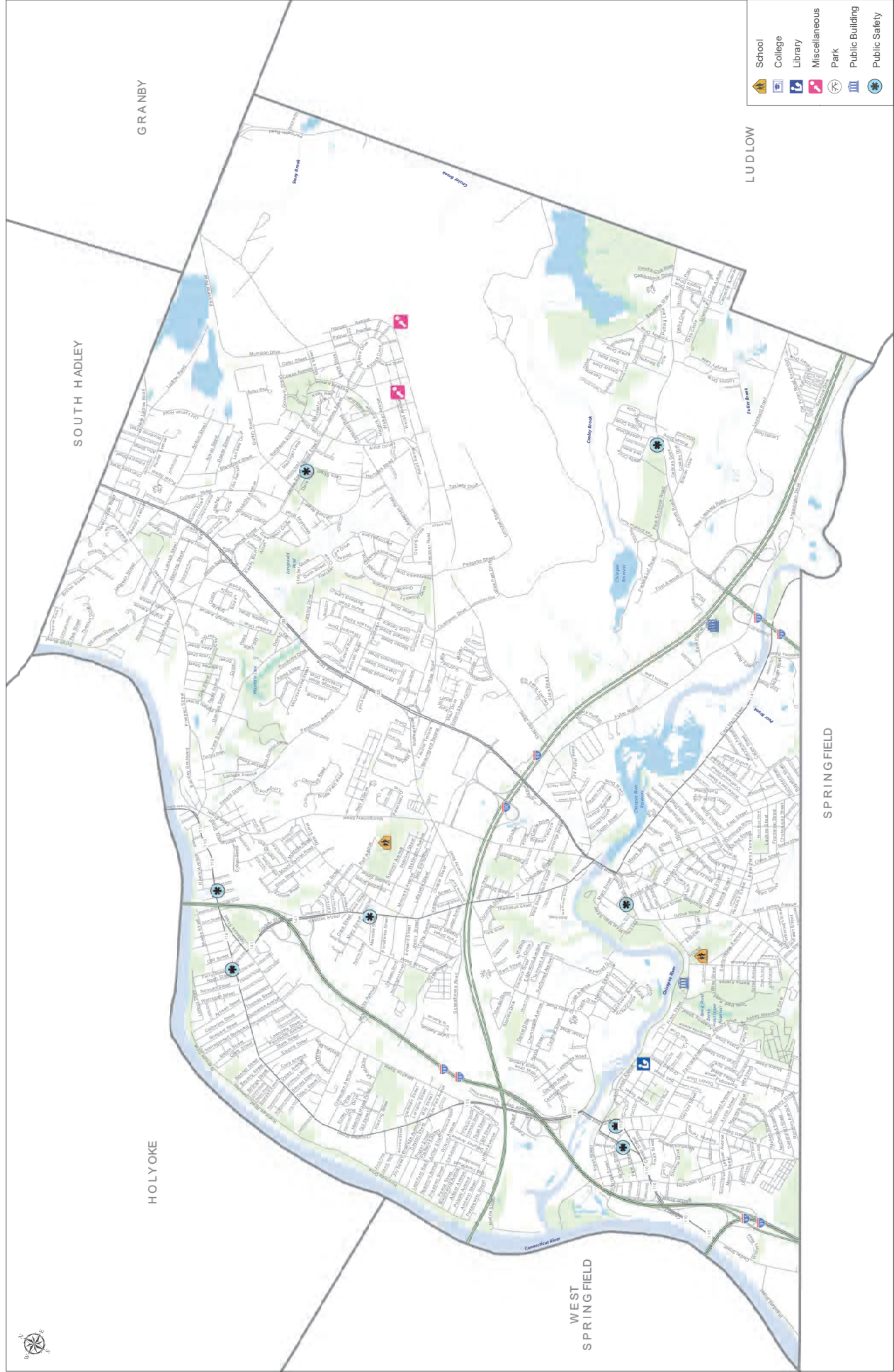


Projected Days with Precipitation Over 2 Inches



Appendix C

Base Maps Used for the Participatory Mapping Exercise



GRANBY

SOUTH HADLEY

HOLYOKE

WEST
SPRINGFIELD

LUDLOW

SPRINGFIELD

- School
- College
- Library
- Miscellaneous
- Park
- Public Building
- Public Safety

Appendix D
Completed Participatory Maps



SOUTH HADLEY

GRANBY

HOLYOKE

WEST
SPRINGFIELD

LUDLOW

SPRINGFIELD

State Capital Ctr

Westover
AFB
+ Metropolitan
Airport

Flamingo
Golf Course

Chicago
College
of Science

Boat
Park

Chicago
College
HS

Springfield
College

- School
- College
- Library
- Miscel
- Park
- Public
- Public





- School
- College
- Library
- Miscellaneous
- Park
- Public Building
- Public Safety

FEMA
Re Study
of Chic. River
Underway!

State
Park

university
campus

Spring
field

SPRINGFIELD

Not protected.
Can't do some
rebuild here

dam being
addressed
(remove tower)

Prison



Appendix E

Completed Risk Matrices



Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.com

H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquakes, drought, sea level rise, heat wave, etc.)

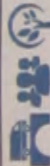
H-M-L priority for action over the Short or Long term (and Ongoing)										
Features		Location	Ownership	V or S	Flood	Damage to Forests	Severe Storms	Extreme Temp.	Priority	Time
Infrastructure										
Public Safety (PD, FD, EOC)	Church St	City	V, S	Protected by FPS has backup power					L	
Red Transmission (Water)	—	City	S	The new line resolves prior vulnerability				→	L	
WARB	NE	Fed	S	No actions					L	
Bridges (new, too)	Various	State	S	No actions					L	
Dams (discussed several specific)	Various	City, State	V	Locate ETPs?					L	
City Hall / Public Bldgs	Various	City	V, S	EAPs and FPPs being developed by Health & Safety Committee! Also need to address schools						
Societal										
Historic Resources / Bldgs	Various	Private	V	Use the historic pres of flooding for education			City Hall being fixed		L	
Valley Oppor. Council (VOC)	Everywhere	VOC	S	Multiple bldgs but too small to shelter - ESL training, good conduit for info					H	
Lorraine's Soup Kitchen	Mt. Carmel Ave	Self	S	- Need a sustainable income - Serve as conduit for information about hazards / resilience - Similar to Soup Kitchen - Can be conduit, serve food					H	
Boys & Girls Club		Self	S						H	
Civic Non-Profits		Various	S	- Similar - Can shelter, do meal prep - only somewhat at risk					H	
The 3 Historic Districts				The HDCs could be a pathway to get people thinking about risk / resilience they can also help address the very mature trees that are probably earned					M	
Environmental										
Air / Air Quality	—	—	V	Particulates in flood Need to understand			More trees + green space →	→	M	
Connecticut River	—	—	V, S	Already covered the FPS above					L	
Pests / Ticks	—	—	V				Education - how to manage / protect oneself		H	

redundant

is a manifestation

not native! Field threat

who has standing



Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.com

H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)

Features		Location	Ownership	V or S	FLOOD	DAMAGE TO FORESTS	SEVERE STORMS	EXTREME TEMPS	Priority	Time
Infrastructure									H - M - L	Short Long Ongoing
Telecom / Fiber		citywide	CEL	V	Protect conduits that are underground Reduce stormwater generation / runoff	- diversify urban forest - anticipate a major failure - use our urban forests to reduce stormwater	Strategizing - address utilities		H	
Sewers / CSOs		Varies	City	V	Investing and prioritizing stormwater infrastruct.	Shade the roads Road diet	Integrate GIS into plans and require it		H	O
Roads / Pavement		citywide	City	V, S	Keep maintained + work on climate change considerations / go higher	Shade the roads Road diet	Road diet		H	
Flood Prot. System		Rivers	City	V, S	- Look for areas for retreat - Need one in Fairview Area - "a" in Burnside Rd Area	Shade the roads Road diet	Road diet		M	
Schools that are shelters		Various	City (4/5)	V, S	Need one in Fairview Area - "a" in Burnside Rd Area	Shade the roads Road diet	Road diet		M	
Electric Utility		Citywide	CEL	V, S	Final control for the utility's HRC!!	Shade the roads Road diet	Road diet		M	
Societal										
Senior Center		W. Main	City	V, S	Maintain the FPS!!	Post + forest related workshops!	Planting emergency supplies in Senior Ctr	Let people know if can be a heat/cold center	M	
People who need special assistance		Citywide	—	V	Is shelter appropriate?	Published information	Made sure list is avail to all		L	
People w/ language barriers		Citywide	—	V	Interpreter on hand	Need a comprehensive approach!	Same as floods	Same as floods	H	
Homeless Pop.		Citywide (Chicago)	—	V	Need a comprehensive approach!	Need info - what can their comm. involvement program do?	Social workers?	to plan, help, right help	H	
Womens Prison		Springfield	County	V	Need info - what can their comm. involvement program do?	Urban Forestry Program?	There's a core van that can help/dispatched	Provide eating for	L	
Elms College		Elms Coll.	Elms C.	V, S	Need a plan to know how when Elms can help w/ sheltering or staging	Urban Forestry Program?	There's a core van that can help/dispatched	Provide eating for	L	
Environmental										
Parks (29!)		Various	City	S	Increase diversity, Watch for invasives	Education still needed for people building in those soils!	Extend the street tree inventory to parks!	Spray + water parks for parks	M	
Terr. escap. soils		Linear N-S	Various	V	Education still needed for people building in those soils!	Plan for approp. dev. Trees!	less pavement if possible	Fit	L	
Chicopee River Delta		Confluence	City	?	Study/address current emergency	Plan for approp. dev.	less pavement if possible		L	
Stream under Memorial (Rt 33)		Rt 33	City	V	Study/address current emergency	Plan for approp. dev.	Capped/Can't do G&T		L	
Chic. River along Uniroyal		D/S of Chic Falls		V	Plan for approp. dev.	Plan for approp. dev.	less pavement		L	
D. Brownfield near CT River		Delta Park		V	Plan for approp. dev.	Plan for approp. dev.	less pavement		L	

3/31/20
these are the
hazards we
are
worried about!

Address
Uniques
Threats
N. Chicopee St
Need to
eliminate
eleated officials
about pavement
mgt. system!



Community Resilience Building Risk Matrix

www.CommunityResilienceBuilding.com

Top Priority Hazards (tornado, floods, wildfire, hurricane, earthquake, drought, sea level rise, heat wave, etc.)

H-M-L priority for action over the Short or Long term (and Ongoing)

V = Vulnerability S = Strength

Features	Location	Ownership	V or S	Flood	Heavy Precipitation (rain or snow)	High Winds	Extreme Temps.	Priority		Time
								H - M - L	Short Long Ongoing	

Infrastructural

Dams	Army Brook	City	V							
Wastewater treatment Plant	By Boat-ramp	City	V	Identify an alternative methods for water treatment	Nature conservation promotion					L
Flood control levees, pumping stations, flood walls			V/S							
Airport			V/S				Identify long-term air quality impacts	L		L
Elms College		privately	S							
Schools - middle schools			S							

Societal

Low-income population			V				community center w/ resources (tools, food) supporting the utility populations organically	H		L/S
Police Dept.			S							
Air force Base - Westover			S							
Frontal organizations (volunteer)			S							
Senior Population			V/S	back up power supply		increasing staff skills		M		ongoing
City Government - planning			V/S				publicize resources on bus stops for emergency info etc.			

Environmental

State Park	very Accessible where Chicago Lake is located	State	V/S							ongoing
Chicago River			V/S	know licensing schedules on upstream	train EMDs on educating citizens impacts on flooding threats					
CT River			V/S	address spring flow + flood control/levee failure				M to H		ongoing
Brownfield sites			V	climate assessment				M to H		ongoing

Community Resilience Building Risk Matrix



H-N-L priority for action over the **S**hort or **L**ong term (and **U**ngoing)
V = Vulnerability **S** = Strength

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Top Priority Hazards (tornado, floods, wildfire, earthquake, drought, sea level rise, heat wave, etc.)

[illegible]

Community Resilience Building Risk Matrix



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H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquakes, drought, sea level rise, heat wave, etc.)

Priority for account over the short or long term (and ongoing)											
V = Vulnerability S = Strength				River Flood		Severe Storm T Storm High Wind Storm Flood		High Temp	Dike Failure	Priority H-M-L	Time Short Long Ongoing
Features	Location	Ownership	V or S								
Infrastructure											
Meadow St	Grattan St	Mun State	V				Basins & G.I.	Street tree planting		H	O
Chicopee St	Dams on Chicopee	Mun/PR	V								
Front St	Bridges	Mun	V				Stage EM on both sides of river				O
Monmouth Dr											
Cameras Around City	Evergreen	Mun	S								
Homeless Populations / Tent City	—	—	V				formalized plan/process to alert & relocate	Sign up in common areas w/ info. Drought	Include heat	H	S
Societal City Hall functions	digitize Records, etc						Review Cas Plan, bring up to date	Set up VPN or other IT facility for work		H	S
Schools											
Chicopee High School (Bldg)		Mun	S				Ensure power redundancy & emergency generator but no generator but get up for it. - all cont. Proc.	Portable air		H	S
Senior Center (Rivermill)		Mun	S								
Public Safety Center (Police & Fire)		Mun	S								
Library (sketch)		Mun	S								
Chicopee Comprehensive HS (sketch)		Mun	S								
Environmental Methadone Clinic											
State Park	Barnette Rd	State	V/S								
Golf Course	Barnette Rd	Mun	S								
Rivers			V				Flood mitigation esp Williams St	Flood mitigation requirements for development zoning	REVIEW Zoning w/ hazard water	M	S
Szot Park - Barnette and dam	Front St	Mun	S/V				Review Dam report			L	L
Boat Launch	Williamette	Mun	S/V				Install camera to monitor usage, to keep clear in case of emergency	Floding informing public safety team launched there		M	S
Churches	Evergreen	PR	S				amend red to homeless about outdoor tents	Include heat			

Meadow St
Grattan St
Chicopee St
Front St
Monmouth Dr
Mun.

EOC

Community Resilience Building Risk Matrix



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H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquakes, drought, sea level rise, heat wave, etc.)

Features	Location	Ownership	V or S
Infrastructure			

Priority	Time
H - M - L	Short Long Ongoing

Chicago Electric Light	On River Front St	Mun	V/S						
Public Works	Barkin Dr	Mun	S						
Flood Control Team	Jones Ferry	Mun	S						
EM Program		Mun	S						
Westover AFB (open space)	Westover	Feds	S but also Risk						
Highways - 90/241/341/91		State	S						
Societal Municipal AP	Westover	Pris/Mun	S						
Railroads		State	V						
P.S. Communications Tower		Mun	S						
Dikes	Along CT Along Chesapeake	Mun	S						
8 Pumping Station (F.C.)	6 CT 2 Chz. Plainfield St.	Mun	S						
Water Supply - Main Line from Culley		Mun	S/N						
Mem Drive Shopping Center / Chapel Marketplace		Put	S						
Environmental - Societal									
Valley Opportunity Council	Sanctuary Villamansett	NP	S						
Elms College	Center	Put	S						
Ch. Boys & Girls Club	Villamansett	NP	S						
Ch. Cultural Council	City Hall	Mun	S						
Knights of Columbus	Sandy Hill Farmview	PVT NP	S						
Lorraine's Soup Kitchen	Villamansett	PVT NP	S						
Baystate Med Center	Springfield	PVT	S						

in the
Culley
AP.

Appendix F
Summary Risk Matrix with Compiled Results



Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)

H=High priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

H-M-L priority for action over the Short or Long term (and Ongoing)												
V = Vulnerability S = Strength												
Features		Location		Ownership		V or S						
Infrastructure												
Chicopee Electric Light (CEL)		Front Street		Municipal / CEL	V & S	Flood control may be needed for utility HQ	Increase forestry staff to assist in expediting removal/trim requests				M	Adjacent to Chicopee River
Public Works		Baskin Drive		Municipal	S	Develop emergency access road off of Route 90	Backup power available				M	S
Public Safety Complex - Police Department		Church Street		Municipal	Both	Protected by Flood Protection System (FPS)					L	EDC, Police, Fire
Public Safety Communications Tower					Both							Ambulances are "shells" - cannot provide care, only transport
C-Closed-Circuit Camera System		Everywhere		Municipal	S	Backup Tower (already exists)					M	O
Westover Airforce Base (WARB)		Northeast		Federal Government	S/V			Identify long term air quality impacts			L	L
Civilian/Municipal Airport		Westover		Private / Municipal Partnership	S							Cameras all around city
Railroads		Through City		State & Private	V							Includes large amounts of open space that can be an asset for the city. Considered a strength but can also be risk in of itself due to dangerous materials, air traffic, pollution.
Flood Control System		Along Rivers		Municipal	Both	Keep maintained & incorporate climate change					M	At Westover
Flood Control Team		Jones Ferry Road		Municipal	S							Some risk due to air traffic
Flood Control Dikes		Along Connecticut & Chicopee Rivers		Municipal	S							Just create risk. No steps in city.
8 Pumping Stations		6 on CT River 2 on Chicopee River Plainfield Street of particular note		Municipal	S							Within Public Works Department
Water Supply - Main line from Ludlow		North end of city		Municipal	S / V							Strength that it brings in clean water from Quabbin, so no risks to water source from hazard. Vulnerability because one line could be cut off. There is a project underway to add a second line - resolves prior vulnerability.
Roads: Meadow Street - Chicopee Street / N Chicopee St -Front Street - Memorial Drive -Grattan Street		Around City		Municipal / State	Both	Inventory & prioritize stormwater infrastructure Pavement Management System.	Bioswales and green infrastructure Drainage Maintenance Pavement Management System.				M / H	O
Dams		Chicopee River Abby Brook		Municipal / State	V	Locate Emergency Action Plans (EAPs)					L	
Bridges		Over Rivers		Municipal / State	Both	Stage emergency response operations on both sides of river prior to event.						O
Wastewater Treatment Plant		Near boat ramp		Municipal	V	Identify alternative sites/methods for treatments to alleviate system stress (long term) promote water conservation (short term)						L
Transportation ("replaces city government" category in Yellow Matrix)					Both							
Telecom / Fiber		Citywide		CEL	V	Protect underground conduit	Encourage comprehensive site-specific tree design and species diversity during streetscaping to consider telecom and fiber systems, to lessen impacts on overhead lines					
Sewers / CSO		Varies		Municipal	V	Reduce stormwater generation / runoff	Incorporate Green Infrastructure into regulations, and enforce. Plant more trees to mitigate stormwater runoff. Continue with city's plan for elimination of CSOs.					O
											H	
						</						

Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)

H,M,L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

H-M-L priority for action over the Short or Long term (and Ongoing) V = Vulnerability S = Strength												
Features		Location	Ownership	V or S	River Flood	Severe Storm/Thunderstorm/High Wind/Street Flood	Dike Failure	Extreme Temperatures	Damage to Forests	Priority	Time	Notes
Societal												
Chicopee Marketplace / Memorial Drive Shopping Center	Memorial Drive / Rt. 33	Private	S									Right near highway, lots of parking, good place to stage emergency response operations. Should be in Societal category.
Valley Opportunity Council	Williamsonett Low Income Apartments & Satellite Locations	Nonprofit	S							H		Community Action Agency for Holyoke & Chicopee Education. Multiple buildings but too small to use for shelters. Conduct ESL training, good conduit for information. Do they have standby power?
Elms College	City Center	Private	Both		Need a plan to know how & where Elms College can help with sheltering or staging	There is a care van that can help / be dispatched. More backup power on campus	Can be a conduit for information like the soup kitchen and others on this list.		Start an urban forestry program with pest & forest-related workshops	L		
Chicopee Boys & Girls Club	Williamsonett City Hall	Nonprofit	S							H		Do they have standby power?
Knights of Columbus	Sandy Hill, Fairview	Nonprofit	S									
Other Civic Non-Profits	Williamsonett	Nonprofit	S									
Lorraine's Soup Kitchen	Mt. Carmel Ave	Nonprofit	S							H	S	Action is part of 'Homeless Populations' Action. Do they have standby power?
Moose Club	Various	Various	S							H		Do they have standby power?
Baystate Medical Center	Springfield	Private	S									Nearest major hospital
Homeless Populations / Tent Camps	Citywide (Bridges)	-	V		Formalized plan/process to alert, relocate, and protect this population - include in HMP as Addendum and Emergency Response Plan as Annex. Put signs up in common gathering areas/tent camps with information and historic flood depth indicators. Include information about flooding, cold, heat.	Community center with resources. Heating & cooling centers. Have police learn about the populations. Utilize old unused housing instead of demolition.				H	S	Need a comprehensive approach to help them plan, have the right help. Social Workers? Partner with other agencies - many of the homeless are along the river.
Low Income Populations			V									
Schools												
Chicopee High School (Shelter)	City Hall / Municipal/Public Buildings	Municipal	Both		Ensure power redundancy at all critical facilities by setting each up to enable hooking up to portable generators, and buy portable generators on trailers. Place portable generators strategically prior to forecast storms.	Digitize Records. Review Continuity of Government Plan, bring up to date.				H	S	
Chicopee Comprehensive High School (Shelter)	Municipal	Municipal	Both		Maintain Flood Protection System near the center	Maintain emergency supplies in Senior Center		Urban forestry program, pest & forest related workshops		H	S	All have capability to be shelters
Senior Center (Rivemill)	West Main St.	Municipal	Both							M		Use space for hazard workshops!
Library (Shelter)		Municipal	S									
Methodone Clinic		Private	S									
Churches	Everywhere	Private	S		Outreach to homeless about hazards					H	S	Action is part of 'Homeless Populations' Action
Historic Districts	3	Private	V		Review and develop guidelines for how to renovate historic structures to historical accuracy while mitigating hazards. Reinstatement historic district commissions (HDCs) to enforce these standards. Use the HDCs to help encourage people to think about risk and resilience, and to help address trees on private property.					H/M	S	HDCs have not been active. Field Street... Only somewhat at risk. HDCs could be a pathway to get people thinking about risk & resilience
Historic Properties	Various	Private	V		Use the historic photographs of flooding for education of the public	City Hall vulnerabilities are being fixed				L		
Food Resources			V									
Hotels			V									
Two Health Centers (MedExpress Urgent Care & Chicopee Health Center?)	1505 Memorial 505 Front St	Both	Both									
Senior Populations			V/S		Backup Power Supply			Increase forestry staff to increase shade coverage		M	O	
Shelters (5)	Various	Municipal (4/5)	Both							M		Education about where shelters are!
People dependent on medical/life assistance equipment	Citywide	-	V		Is the shelter able to serve these populations?			Make sure list of individuals is available to all.		L		
People with Language Barriers	Citywide	-	V					Publish information in multiple languages. Where are the shelters? Have interpreters on-hand		H		Also information on shelter location
Women's Prison	Springfield Line	County	V					City needs information - what can their community involvement program do to build resilience?		L		

H-M-L priority for action over the Short or Long term (and Ongoing)
V = Vulnerability S = Strength

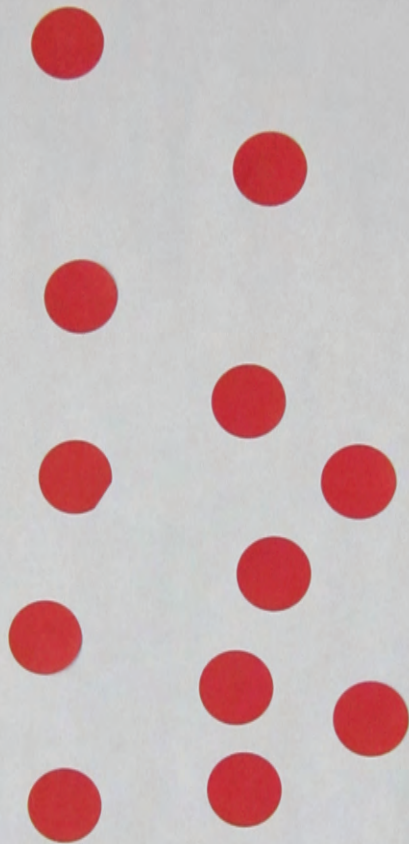
Top Priority Hazards (tornado, floods, wildfire, hurricanes, earthquake, drought, sea level rise, heat wave, etc.)

H-M-L priority for action over the Short or Long term (and Ongoing)												
V = Vulnerability S = Strength												
Features		Location	Ownership	V or S	River Flood	Severe Storm/Thunderstorm/High Wind/Street Flood	Dike Failure	Extreme Temperatures	Damage to Forests	Priority	Time	Notes
Environmental												
State Park		Burnett Road	State	V/S								Hazardous Materials concern in area
Golf Course		Burnett Road	Municipal	S								Very accessible
Rivers				V	Invasive species removal, especially in Willimansett.					M	S	
Chicopee River				Both	Know licensing schedules of upstream releases Train EMD, conduct of release and flood Educate citizens on flooding threats.						O	
Connecticut River				Both	Address Springfield flood control system and levee failure; see above under "Flood Protection System"					M / H / L	O	
Scot Park		Front Street	Municipal	V/S								
Boat Launch		Willimansett	Municipal	V/S	Install camera to monitor usage & flooding to inform							Include Bonus Pond and Dam May serve some emergency response purpose.
Brownfield Site				V				Climate assessment to determine how future weather may impact site and surrounding environment.		M / H	O	
Bellamy Park				V								
Air / Air Quality				V	Need to understand pathogens in flood waters that can become airborne.				More trees & greenspace	M		
Pests / Ticks				V					Education - how to manage & to protect oneself.	H		
City Parks (29)		Various	Municipal	S		Extend the street tree inventory to parks.		Add spray & water park features; fix the pools	Increase diversity, watch for invasives.	M		
Terrace Escapment Soils		Linear N-S	Various	V		Education still needed for people building in these soils				L		
Chicopee River Delta		Confluence of Chicopee & Connecticut	Municipal	-	Plan for appropriate development.	Less pavement if possible			Incorporate trees	L		
Stream under Memorial St. (Rt 33)		Rt 33	City	V	Study & address culvert conveyance					L		
Uniroyal Area Adjacent to Chicopee River		Downstream of Chicopee Falls		V	Plan for appropriate development.	Capped; Thus green infrastructure not feasible			Incorporate trees	L		
Brownfield near Ct River (Delta Park)		Delta Park		V	Plan for appropriate development.	Less pavement			Incorporate trees	L		

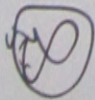
Appendix G

Sticky-Dot Voting Boards

Pavement
Management
System



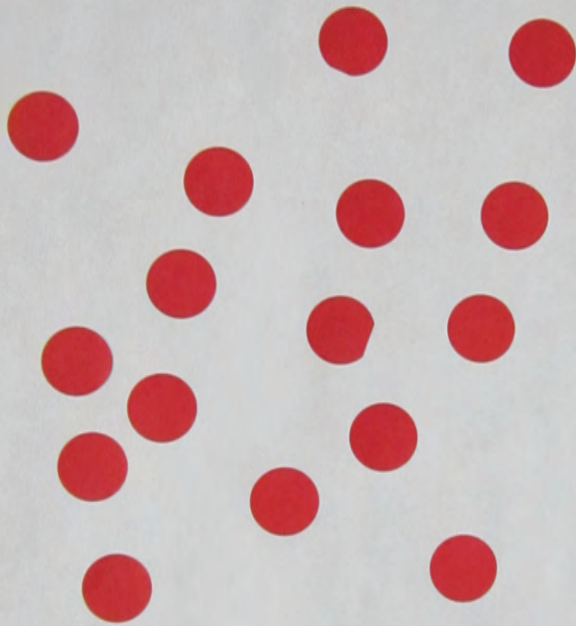
12



TREES

- * FORESTRY STAFFING
- * SMART PLANTING
- * AIR QUALITY
- * PROPER TRIMMING
- * ↓ OUTAGES

Increase tree
diversity +
density which
leads to
resiliency.



9/16

7

RIVERS

- * COORD. w/ HYDRO OPERATORS
- * SPFLD FLOOD CONTROL NON-COMPLIANCE
- * EMERG. RESPONSE
- * INVASIVE SPECIES



4

9

Ensure power redundancy with portable trailers w/ generators that can connect to switch gears on all essential buildings

5

Historic districts

- Create guidelines on how property owners can restore their properties while protecting from natural disasters
- Restore historic district commissions



①

Homeless population

- formalized process to alert and advocate
- annex in response plan
- erect a sign with historic flood info
- of concentrated homeless population w/ resources available
- ~~provide resources~~

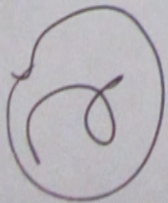
Positively address outreach to the public, through the EAP's + using existing non-profits

HOMELESS/LOW INCOME

↑ RESOURCES

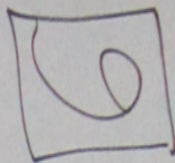
COMMUNITY CENTER
HEATING/COOLING CENTERS

14



Digitize all paper records, etc.

Set up VPN or other IR capability for remote work (cell repeaters)



Appendix H
MVP Listening Session Notes

**MVP Listening Session
City of Chicopee
May 16, 2019**

A public listening session was conducted on May 16, 2019 at 6 PM at the Chicopee Senior Center. Attendees from the City included Lee Pouliot, Patrick McKenna, and Michelle Santerre. Stakeholder attendees included Susan Knightly from the Chicopee Cultural Council and Glenn Joslyn, Emergency Management Director. Consultant team members were David Murphy, Noah Slovin, and Victoria Brudz of Milone & MacBroom, Inc.

David Murphy briefly introduced the purpose of the meeting. Noah Slovin presented a series of slides to summarize the outcome of the CRB workshops, and Victoria Brudz presented the interactive ArcGIS Story Map. General discussion points were as follows:

1. Methane leaking from infrastructure could be a risk to trees. A map of this risk may exist somewhere.
2. A discussion took place about whether levees (the flood protection systems) could protect the City from floods occurring throughout the watershed. Attendees noted that although the flood protection systems are designed for severe conditions such as the 0.2% annual chance flood, they do not take into account climate change.
3. Attendees asked how long the Story Map would be available. Milone & MacBroom, Inc. staff noted that the tool could exist in perpetuity depending on the wishes of the City.
4. Michelle noted that some of the data layers might be secure information and may need to be hidden. She will check this before the Story Map is made public.
5. Trash/garbage is a pending concern for the City, as the landfill is closing and then garbage will need to be shipped to Virginia. Attendees discussed how this may intersect with resiliency.

Appendix I

Stakeholder Interview Summary

Chicopee Municipal Vulnerability Preparedness Plan (MVP) Follow-up Interviews

Many stakeholders were invited to participate in the Community Resilience Building (CRB) workshops, which are an important component of the MVP process. While the workshops had robust attendance, a small number of invitees were unable to attend either evening. In order to ensure that input was given by all parties who wished to do so, brief interviews were conducted with individuals that wanted to partake in the process. A full list of those contacted can be found in table 1.

Table 1: Stakeholders contacted for comments

Name	Organization
Quinn Lonczak	Project Advisor – City of Chicopee
Christ Scott	Tree Forman – City of Chicopee
Nathan Moreau	Communications and Special Projects Manager – City of Chicopee
Shane Brooks	Chair of Zoning Sub Committee – City of Chicopee
Glenn Joslyn	Director – City of Chicopee
Eric Nelson	President/CEO – Westmass Area Development
Michael Bolton	President/CEO – Westover Air Reserve Base
Mark St. Laurent	Operations Manager – Westover Air Reserve Base
Dan Kost	Community Planner – Westover Air Reserve Base
Keith Davies	Coordinator – Chicopee 4Rivers Watershed Council
Andrew Fisk	Executive Director – Chicopee 4Rivers Watershed Council
James Reidy	Chairman – Conservation Commission
Jeffrey Cady	General Manager – Elms College
Jeff Bedard	Campus Safety/Security Supervisor – Elms College
Jason Reed	Executive Director – Boys and Girls Club
Stephen Huntley	Executive Director – Valley Opportunity Council
Monica Pacello Blazic	Housing Authority

Of those that were contacted, two phone interviews were conducted, and one individual, the Executive Director of the Boy and Girls Club, responded via email. The Director's response indicated that the findings of the MVP were sufficient, and he did not provide any additional information.

Chicopee Water Pollution Control (WPC) Department

One phone interview was conducted on March 26, 2019 with a project supervisor for the Chicopee Water Pollution Control (WPC) department. As a result, it was reported that most of the natural hazard threats that were identified during the CRB were likewise a concern for the WPC as a whole. Flooding and heavy rain events could impact various infrastructural components, while heavy windstorms could implicate power supply. Forest degradation is also a concern, as many underground pipes reportedly rely on vegetation for soil stability.

One action recommended to improve the resiliency of the wastewater system is to invest in upgraded backup power supplies. Aging infrastructure is typically a concern for most municipalities. Specifically, the Chicopee WPC relies on many generators for backup power supply during storms, with their main generator becoming more vulnerable as time evolves. Another action recommended was to continue to develop coordination with other departments. During natural events, especially floods, resources from some departments need to be shared with others when responding to emergencies. While there is already a certain level of coordination within departments, such as Department of Public Works and the Flood Control Department, it was reported that in the event of a larger flood, there may be gaps in coordination, therefore impacting the response of the flood control team.

While the city has a myriad of other possible actions to be taken to improve resiliency, both municipal operational resiliency and emergency power were top priority actions from the CRB workshops that would have the greatest beneficial impacts to the Chicopee WPC.

Chicopee 4Rivers Watershed Council (C4Rivers)

On March 27, 2019 a coordinator from the Chicopee 4Rivers Watershed Council (C4Rivers) was asked to provide any thoughts on the MVP hazards, assets, and top priority actions. The C4Rivers is a volunteer organization that focuses on the entire Chicopee Watershed by conducting water quality monitoring, improving public river access, and as of lately, have begun educating on stormwater management.

The coordinator reported that natural hazards that are of greatest concern to Chicopee are those that can potentially implicate the stormwater system; so typically storms that produce heavy runoff and precipitation. Concerns were raised regarding vulnerabilities of the city's stormwater management system and the presence of CSOs. It was stated that when CSOs are overloaded, they proceed to dump into the river, in turn reducing water quality, which is a direct concern of the coordinators. Also, by developing a stronger stormwater infrastructure maintenance schedule, runoff can be better controlled ultimately improving the watershed. It was also expressed that other actions should be sought, such as implementing other stormwater management techniques where feasible, such as retention or detention basins.

In short, the coordinator felt that by improving stormwater management, and any associated infrastructure, other elements can benefit. For example, by controlling runoff, roadways are less prone to washout and damage, also water quality will likely improve due to a reduction in non-point pollution into nearby waterbodies.

Appendix J
Public Notifications

MUNICIPAL VULNERABILITY PLANNING

****LISTENING SESSION****

THURSDAY
MAY
16

OPEN TO THE PUBLIC!

ALL ARE WELCOME!

RIVERMILLS SENIOR CENTER

SMALL GARDEN ROOM

5 W MAIN ST, CHICOPEE

6-7 PM

RSVP TO PATRICK MCKENNA

PMCKENNA@CHICOPEEMA.GOV

The Municipal Vulnerability Preparedness (MVP) program provides support for Massachusetts communities to complete climate-change vulnerability assessments and to develop action-oriented climate resiliency plans. Each community that completes the MVP process is then eligible for MVP action grant funding, and other opportunities that may assist in implementing actions and projects.