Town of Becket

COMMUNITY RESILIENCE BUILDING WORKSHOP
SUMMARY OF FINDINGS

DRAFT: MAY 7, 2020

Cover Photos
Top: Bonnie Rigg Hill Road after culvert failure during Hurricane Irene, 2011. Source: Massachusetts EOEEA.
Bottom: New span at Bonnie Rigg Hill Road. It is designed to withstand large storms and to enable wildlife to passage. Source: Meredyth Babcock

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1. OVERVIEW

As the effects of climate change are becoming apparent globally and locally, Massachusetts is beginning to prepare for climate change. Average annual temperatures in Massachusetts have increased by about 3°F over the past century[1] with greater increases in more recent decades—half of a degree Fahrenheit per decade since the 1970's. Winter temperatures have been rising at a faster rate of 0.9°F per decade on average.[2] Meanwhile Massachusetts has seen an 81% increase in extreme precipitation events since 1948[3], including some directly affecting Becket. Tropical Storm Irene dropped up to nine inches of rain onto an already-saturated landscape after a particularly rainy summer in 2011.[4] During that storm, Route 20 to Chester was closed,[5] roads were damaged in Sherwood Forest, and a culvert washout cut off the southern portion of Bonny Rigg Hill Road from Route 20.

Mindful that its future will be shaped by climate change, Becket applied for and was awarded a grant for Municipal Vulnerability Preparedness (MVP) Planning from the Executive Office of Energy and Environmental Affairs (EOEEA) MVP program. The MVP program is Massachusetts' flagship effort to support towns in building local resilience and preparing for climate change. Towns that complete the MVP Planning process become "MVP-certified" which makes them eligible for MVP Action grants to implement projects identified during the planning process. Communities across the state have received millions of dollars in recent years to protect or update local infrastructure, harness natural processes to reduce flooding and its impacts, update local bylaws, improve emergency communication, and more. Becket received funding to simultaneously complete a Municipal Vulnerability Preparedness Plan to update its Hazard Mitigation Plan. This report addresses the first task.

This report describes Becket's MVP planning process, records the key information it gathered, and presents recommendations for increasing resilience in Becket.

[1] Northeast Climate Adaptation Science Center, "Massachusetts Climate Change Projections."
[2] Northeast Climate Adaptation Science Center.
[3] Madsen and Wilcox, "When It Rains, It Pours: Global Warming and the Increase in Extreme Precipitation from 1948 to 2011."
[4] "Storm Events Database - Event Details | National Centers for Environmental Information."
[5] Fanto, "Tropical Storm Irene Five Years Later: 'A Lot Worse than Anybody Thought' | The Berkshire Eagle | Pittsfield Breaking News, Sports, Weather, Traffic."

2. COMMUNITY RESILIENCE BUILDING WORKSHOP

Becket received a Municipal Vulnerability Preparedness (MVP) grant in 2019. The project was led by Meredyth Babcock, supported by a core team which included Christopher Bouchard (Highway Department), Al Blake (Energy Committee), William Caldwell (Town Administrator), Cindy Delpapa (River Ecologist), Alison Dixon (Conservation Commission), Ray Ferrin (Ambulance), David Johnson (Conservation Commission), Kristopher McDonough (Police Chief and Emergency Management Director), Jim Peters (Forestry Specialist), Chris Swindlehurst (Board of Selectmen), and Maria Wallington (Health Specialist).

The Core Team selected MVP-certified provider Dodson & Flinker of Florence, Massachusetts and Jamie Caplan Consulting of Easthampton, Massachusetts to facilitate the process. The planning process began with a kick-off meeting on November 25, 2019, which introduced the MVP planning and Hazard Mitigation Plan processes. Core group members discussed Becket's key natural hazards, and its strengths and vulnerabilities. They identified critical facilities in the community, discussed local priorities for the MVP planning process, and reviewed a draft map of Becket for the workshop.

Over the course of the following months, the Core Team held several information sharing and gathering sessions around the Town. Sessions were held on November 23rd.in Sherwood Forest, December 10th at the Becket /Washington Athenaeum and on December16th at the Becket Town Hall. The sessions raised awareness of the MVP planning process, recruited individuals for the workshop, and introduced nature-based solutions and climate resilience planning. Information that was gathered from meeting participants was incorporated into the background materials for the MVP workshop.

Meanwhile, the core team and the consultants prepared for the Community Resilience Building (CRB) workshop—a full day invitation only workshop which is the heart of the MVP planning process. They gathered background information, developed a schedule and agenda for the workshop, and recruited a group of invited stakeholders. Stakeholders were selected to represent a variety of Town departments, boards, and committees, as well as local businesses, regional organizations, and vulnerable populations. The participants included representatives from: Town departments, including Police and Fire, Town Highway; Town Boards, like the Conservation Commission, Planning Board, Energy Committee, Board of Health, and Historical Commission; local lake and road districts; local businesses and organizations; experts on river ecology, forests, and public health; representatives of neighboring communities; and State and regional agencies including MassDOT, Berkshire Regional Planning Commission. See the full list of participants at the end of this report.

The Community Resilience Building (CRB) workshop was held on January 11, 2020. The workshops followed a community-driven planning process that has been tested and refined in dozens of communities throughout Massachusetts and beyond (see the CRB Workshop guide available at www.communityresiliencebuilding.com).

The workshop's central objectives were to:

- Define top local natural and climate-related hazards of concern
- Identify existing and future strengths and vulnerabilities

- Develop prioritized actions for the community
- Identify immediate opportunities to collaboratively advance actions to increase resilience.

In addition, local goals for the workshop were to identify opportunities for nature-based solutions, collect community input for an update of Becket's Hazard Mitigation Plan and to provide an opportunity for the Town's stakeholders to gather and discuss their respective focus areas and how they overlap and relate.

The workshop began with a presentation that explained the workshop process and terminology, gave background information on climate change including watershed-level projections of climate change in Massachusetts, described past climate-related natural hazard events in Becket, and provided background information about Becket's infrastructural, societal, and environmental strengths and vulnerabilities. See the Appendix for the full presentation. The presentation was followed by a group discussion of how climate change might influence natural hazards in Becket and which hazards would be most important to evaluate. For the next several hours, participants worked in small groups to identify Becket's top hazards and its infrastructural, societal, and environmental strengths and vulnerabilities.

The second half of the workshop began with a puppet interlude by Meredyth Babcock, the local MVP point person, followed by a discussion of Becket's long-term goals and how climate resilience actions could support those goals and a presentation about how to craft effective actions for building local resilience with a focus on nature-based solutions (see the Appendix). Workshop participants then worked for the afternoon in small groups to brainstorm and prioritize actions that could build on Becket's strengths or mitigate its vulnerabilities to the top climate change related natural hazards identified by the group.

At the end of the second workshop, the full group assembled again. Each small group shared their priority actions. The full group discussed the priority actions and then used dot voting to indicate the highest priority actions overall.

Breakout groups were facilitated by MVP-certified consultants Peter Flinker, Allison Gramolini, Dillon Sussman and Dan Shaw from Dodson & Flinker.

This report captures the wealth of information and ideas that were generated during the CRB workshop. It highlights the top hazards, the key infrastructural, societal, and environmental vulnerabilities and strengths identified by workshop participants, and the key actions that Becket could take to build on its strengths and mitigate its vulnerabilities.

This report was reviewed by the MVP core team, who over the course of two meetings synthesized and prioritized the top actions that came out of the workshop. It was then revised based on input from XXXXXX community members who attended a web-based listening session on May 18th, 2020. (Due to COVID-19, an in-person meeting could not be held). The report was endorsed by the Board of Selectmen and the following committees: xxxxx, xxxx, xxx.

3. TOP HAZARDS & VULNERABLE AREAS

Natural hazards are natural events that threaten lives, property, and other assets. Often, natural hazards can be predicted. They tend to occur repeatedly in the same geographical locations because they are related to weather patterns or physical characteristics of an area.

The Berkshire County Regional Hazard Mitigation Plan from 2012 is Becket's most recent approved hazard mitigation plan. The Town is currently working on updating their hazard mitigation plan in conjunction with its MVP planning. The 2012 regional hazard mitigation plan evaluated Becket's risk from various hazards. Its findings are listed below.

High Risk Hazards:

- Flooding,
- Winter storms (blizzards, snow, ice storms)
- Severe snowstorms (thunderstorms, wind, hail, lightning)

Moderate Risk Hazards:

- Tornadoes
- Hurricanes and tropical storms
- Extreme temperatures
- Dam failure
- Wildfire

Low Risk

- Drought
- Landslide
- Earthquake
- Ice Jams

The hazard risk evaluation above was the starting point for the assessment of hazards at the MVP workshop. It was augmented by climate change projections provided by the MVP program, information from the Massachusetts Integrated State Hazard Mitigation and Climate Adaptation Plan about climate change and its interactions with natural hazards, and the knowledge, wisdom and experience of a broad range of Becket's citizens.

At the CRB workshop, each workshop group identified the top four natural hazards that they thought would have the greatest impact on Becket. The groups identified the following as top hazards that Becket faces:

- Flooding
- Severe weather (storms in all seasons)

- Ecosystem Change
- Average and Extreme Temperatures
- Poorly Planned Development

Areas of Concern (Specific Locations)

Workshop groups mapped specific locations where natural hazards are particularly problematic. The marked-up maps are included in Appendix to this report. Specific areas of concern include:

- Summer camps which draw thousands of young people to Becket in the summer
- Jacob's Pillow which draws tens of thousands of visitors
- Roads that get may icy (Jacob's Ladder Road east of the Mass Pike, Leonhardt Road, Brooker Hill Road), may flood (Jacob's Ladder Road south of the Mass Pike near Greenwater Pond, Hamilton Road), or vulnerable to erosion (Leonhardt Road, Route 8 south of North Becket center, Main Street between McNerney Road and Carter Road). Often these roads are on steep slopes.
- Route 20 east of Main Street/Bonny Rigg Hill Road is a key route into, out of and through Becket. It has potential for landslide and/or flooding.
- Culverts that are undersized and/or structurally deficient including one on Hamilton Brook under Hamilton Road, Benton Hill Road at the intersection of Surriner Road, YMCA Road at South Cove Road, Werden Road over Thomas Brook,
- Areas that could be a priority for conservation including Palmer Brook Reservoir and wetlands and floodplains throughout town.
- Areas of beaver activity with potential to flood roads or other infrastructure: behind the Becket motel; adjacent to YMCA road west of the First Congregational Church; north of the Mass Pike between Arrowhead Lane and Old Carriage Lane; County Road west of Stanley Road; near the intersection of Yokum Pond Road and Leonhardt Road; Bancroft Road near Surriner Road; Wade Inn Road east of Big Bass Lane; Bonny Rigg Hill Road near Spark Brook; Quarry Road near Cushman Brook
- Cell towers throughout the town that are critical for emergency communication
- Flooding: west of Shaw Pond
- Waterways: the Westfield River which is a federally designated Wild and Scenic River; Palmer Brook which is impaired.
- Lakes throughout town. Lakes are a key draw for seasonal visitors and essential to Becket's economy. Most are man-made. Dams may be vulnerable to increased water. Lakes may experience warming water, lower water levels, increases in toxic algae, and increased invasive aquatic species.

4. CURRENT CONCERNS AND CHALLENGES PRESENTED BY HAZARDS AND CLIMATE CHANGE

Projected Changes in Becket's Climate

To prepare for the future, Becket needs to know how the climate of Becket may change over the coming decades and how that will impact natural hazards. The workshop built on the following key information resources: The Berkshire County Regional Hazard Mitigation Plan from 2012, the 2018 Massachusetts State Hazard Mitigation and Climate Adaptation Plan, and "Massachusetts Climate Change Projections" by Northeast Climate Science Center at the University of Massachusetts.

Although there is uncertainty about how rapidly the climate will change over the coming decades or how extreme the results will be, we do know the general direction of climate change and from that we can generally predict how climate change will influence natural hazards. We know that annual air temperatures in the Northeast have been warming at an average rate of 0.5°F (nearly 0.26°C) per decade since 1970. Winter temperatures have been rising at a faster rate of 0.9°F per decade on average.[6] The increases in temperature are projected to accelerate over the coming decades. Climate projections for the Westfield River Watershed that were produced by the Northeast Climate Science Center at the University of Massachusetts predict that by the 2050's:

- Average annual temperature will rise 3.1°-6.6°F (7-15%)
- Average winter temperatures will rise from 23.3° to 26.5°-31.6° (13-35%)
- The biggest increases in maximum temperatures will happen in fall (3.6°-7.3° or 6-13%) and winter (2.8°-7.4° or 9-22%) by mid-century and then summer (3.9°-13° or 5-17%) and fall (4.2°-12.5° or 7-21%) by the end of the century.
- Increases in winter temperature will result in a longer frost-free season with 20-38 fewer days below 32°F (a decline of 12-23%) by the middle of this century and 24-62 fewer days below 32°F by the end of the century. The largest loss of frost-free days will occur in the fall.

Becket has historically been relatively cool in summer because of its high elevation and large areas of forest. Many buildings do not have air conditioning. Over the coming decades residents will likely increasingly install air conditioning as the number of cooling degree days increases 72%-199% by mid-century and 99%-414% by the end of the century. This will result in increased home energy use in warmer months and the associated costs will impact those with limited incomes the most. At the same time, energy use for home heating will decrease.

Along with higher average temperatures there will also be more extremely hot days. By mid-century, Becket may experience the following increases in extremely hot days:

- Days Over 90°F: from 3 days to 9-27 days per year
- Days Over 95°F: From <1 day to 1-9 days per year
- 9-60 more days over 90° per year by end of century

[6] Northeast Climate Adaptation Science Center, "Massachusetts Climate Change Projections."

Extremely hot days can cause heat stress, especially for children, older adults, and those with chronic health conditions. Heat waves can be extremely dangerous and result in more deaths than cold snaps. Extreme heat can result in blackouts, stress pavement on the town's roads, contribute to forest fire risk. Meanwhile, overall warmer temperatures can stress numerous species that have adapted to cooler conditions and can increase the prevalence of invasive species and vector-borne diseases which can devastate ecosystems and human health.

With climate change more annual precipitation is expected, especially in winter when Becket will experience a 1%-25% increase in precipitation. Precipitation in summer and fall could increase or decrease. Likewise, drought may increase or decrease. More precipitation will fall in large events. Days per year with precipitation over 1" may increase from 8 days to 9–12 days (13-25%).

Overall, changes in temperature and precipitation patterns are going to disrupt the relatively stable and hospitable climate that Becket's residents and its plants and animals are accustomed to. Although New Englanders like to complain about the weather, we know how to deal with minor snowstorms and our summers are relatively bearable. In the coming decades Becket is likely to experience more unpredictable and more extreme weather patterns.

Winter may bring more crippling snowstorms, more ice storms, winter flooding due to rapid thaws or rain on frozen ground, and decreased snowpack which will impact animal habitat and groundwater recharge.

Spring, summer, and fall may bring more extreme temperatures, larger and more frequent tropical storms and hurricanes, thunderstorms, tornados, and microbursts. These larger storm events may exceed the design-capacity of some of Becket's road and stormwater infrastructure which were designed for more moderate events. Already, some other communities have decided to consider the 500-year flood plain the new 100-year flood plain. Larger storm events may result in erosion and may reduce the ability of natural systems to cleanse and infiltrate stormwater which could reduce aquifer recharge and impact water quality.

Impacts of Climate Change on Hazards in Becket

The Town of Becket has been impacted by many natural hazards over the years, though its greatest hazard risks are associated with flooding, major winter storms, and other severe weather events. Of the 22 federally declared emergencies or disasters that have affected Berkshire County since 1953, nearly all were the result of these types of hazard events. Becket was also greatly impacted by a destructive dam failure in 1927 that wiped out much of the town's commercial center at the time (North Becket Village). The center never regained the level of development and activity it had at the time of the dam disaster. Some property transfers in this part of Becket are hobbled by the loss of boundary markers that are referenced on deeds, the land having been reshaped by the flood waters. In more recent years the town has been impacted by smaller but more frequent flood events that cause repeated damage and disruption to local roadways, bridges, and culverts. The hazards of greatest concern for the community today and in the future include flooding, severe weather events, and rising temperatures, each of which is projected to increase in frequency and magnitude due to climate change.

Workshop discussions about the impact of climate change on hazards in Becket recognized both the potential impacts on the developed portions of Becket—with harm to human lives, properties, and infrastructure—and impacts on the town's natural systems—with harm to forests, water

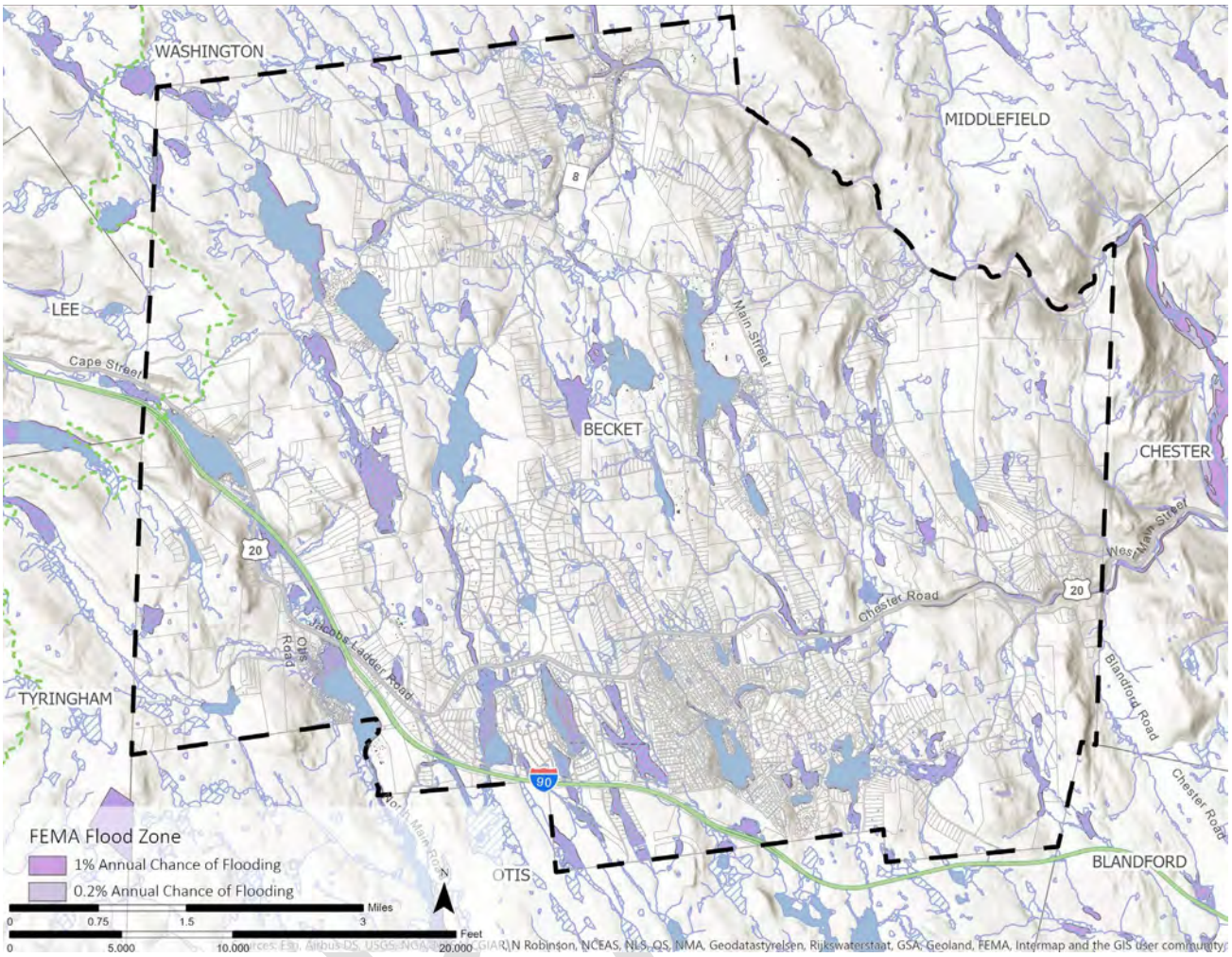
systems, plants, animals, etc. Workshop participants also recognized that there are feedback loops between built and natural systems that could exacerbate harm to both.

On the human side, discussion of impacts hazards largely focused on roads, culverts, dams, flooding, and storms. Residents are concerned that Becket does not have adequate emergency response capacity to deal with increased natural hazards. They expressed that emergency communication may not be adequate, and that the town's shelters are not well publicized and may not be adequately distributed throughout the town.

Workshop participants highly value Becket's environment, its water bodies, forests, ecosystems, and biodiversity. They expect broad ecological changes as a result of climate change with impacts on plants and animals, carbon and water cycles, and ultimately people. Participants are particularly concerned about the possibility that changing temperature and precipitation patterns, combined with invasive species and pests will result in wide-spread forest dieback. Forest dieback could, in turn, lead to forest fires, erosion, and more rapid movement of water into streams and rivers exacerbating flooding. Likewise, warming and changing precipitation patterns threaten Becket's water resources, especially its cold-water fisheries. Many workshop participants expressed deep sadness about the potential loss of biodiversity in Becket.

Key Hazards

Flooding: Flooding was cited as a top concern by workshop participants. Flooding will predominantly impact roads, especially at road-stream crossings. During Hurricane Irene, Becket experienced several damaged roads from blown out culverts and road washouts. Structures in Becket are also vulnerable to flooding, especially those that were built within floodplains and/or close to wetlands.



Map of FEMA Flood Zones

Severe weather (storms in all seasons): Between 1958-2012, the Northeast experienced a 71% increase in precipitation that falls as part of a heavy precipitation event. Severe storms create the risk of flood events, as highlighted above. They also bring additional hazards like high winds, lightning, snow and ice that create additional challenges for homes and electrical utilities. Loss of electricity is particularly threatening to the elderly and those with health concerns, who may depend on heating, cooling, or lifesaving machines for survival. Power outages are particularly likely during winter storms, when snow and ice buildup on power lines often occurs. Most of Becket's population relies on private wells powered by electricity. Power outages can result in drinking water shortages for residents. Becket routinely loses power, but Eversource's efforts to trim trees and establish back-feed loops appear to be paying off. Recent power outages have been brief and limited in geographic area.

Average and Extreme Temperatures: Current trends indicate that the climate in New England is steadily warming, with more extremes in both rainfall and drought. On average, the Northeast experienced 10 more frost-free winter days between 1991-2012 than it did from 1901-1960.

Current trends indicate there will be more and more days per year above 90 in the coming decades.[7] These changes are going to harm both Becket's people and its ecosystems, as described elsewhere.

Ecosystem change or collapse: Becket is fortunate to have large areas of forest, cold-water streams, wetlands, and a handful of natural ponds, that provide wildlife habitat, ecosystem services, recreational opportunities, and quality of life benefits. Changing temperature and precipitation patterns may stress or alter these ecosystems. The current species of forest trees are not likely to survive warmer conditions. Their demise opens the way for invasive tree and shrub species to take over. It is not likely that valuable native species of the warmer US states that will succeed Becket's current forest species, but rather that introduced non-native species will outcompete natives. Mile-a-minute vine and kudzu are two warm-weather species that could devastate Becket's forests and open lands. In addition, climate change may worsen the impact of introduced pests, such as the Hemlock Woolly Adelgid, Emerald Ash Borer, and diseases, such as chestnut blight and Dutch elm disease. Lastly, heightened storm frequency and intensity increases the potential for destructive wind or ice storms to damage trees. Likewise, Becket's water resources are threatened by increased temperatures, changes in precipitation, and attendant invasive species and algae blooms, and the potential response from people which will be to chemically treat the waterbodies. The broadscale change in Becket's ecosystems threatens numerous species and key qualities that make Becket what it is, its natural history and legacy. Direct impacts on humans include the potential for increased risk of forest fires due to large quantities of standing dead wood, the loss of valuable timber species and maple sugar production, potentially reduced property values, the potential closures of recreational waters, and decline of popular recreational fishing species.

Impacts of Past Development: Humans have heavily shaped Becket's landscape. Numerous streams were dammed, and wetlands were excavated, to make ponds and lakes in the town. The town experienced rapid growth and housing development between the 1960's and the 1990's. The development was predominantly along lakefronts and in relatively large subdivisions compared to other Berkshire County communities. Workshop participants see this past development as a hazard because it resulted in a large number of dams, many small properties that lack adequate space for wells or septic systems, roads and structures located in flood-prone areas, and degraded ecosystems.

[7] Northeast Climate Adaptation Science Center.

5. SPECIFIC CATEGORIES OF CONCERNS AND CHALLENGES

Infrastructural Vulnerabilities

Roads

Climate change may exacerbate the difficulties of maintaining Becket's road network. Climate change could damage roads through the following: more frequent freeze-thaw cycles, larger storm events could cause road erosion, washouts, and blockages and damage from downed trees and power lines, increased erosion due to rain that follow periods of drought (rain on dry soil is more likely to run off than rain on moist soil), finally, extreme heat can soften asphalt leading to rutting and subsidence.[8] [9] [10]

- Route 20 – Route 20 is the Town's main route to the east with few good alternative routes. It is vulnerable to flooding in Becket and landslide in Chester.
- Town Roads – The Town has many miles of gravel and dirt roads that are susceptible to erosion and washouts, particularly when ditches fill up with debris. Examples include:
    - Leonhardt Road, which is steep with ledges, and is subject to washout, erosion, and flooding.
    - Hamilton Road, which is steep, has an undersized culvert, floods on upstream side, and the inlet has previously filled in;
    - YMCA Road which has beaver activity. Currently there are three beaver deceivers in place.
    - Luce Road which has a culvert that is a severe wildlife barrier. There is only one house on the far side of the culvert;
    - McNerney Road to Carter Road.
- Private Roads – There are many miles of private HOA roads in Becket. Private roads are mostly in relatively good shape, but HOA's sometimes lack funding for emergency repairs and they do not qualify for many grants. Vulnerabilities include:
    - Sherwood Forest is a state-chartered road district. Taxes collected in the district pay for road maintenance, which is performed by the district, not the town. This could lead to inconsistency between practices the town uses and those used by the district. For example, recently Sherwood Forest is only plowed when there is 4" or more of snow. The Town sometimes needs to plow private roads to provide emergency access. During Hurricane Irene, roads in Sherwood Forest sustained significant damage.

[8] "TechBrief: Climate Change Adaptation for Pavements, FHWA-HIF-15-015."
[9] "MA Climate Change Clearinghouse."
[10] Meyer and Weigel, "Climate Change and Transportation Engineering."

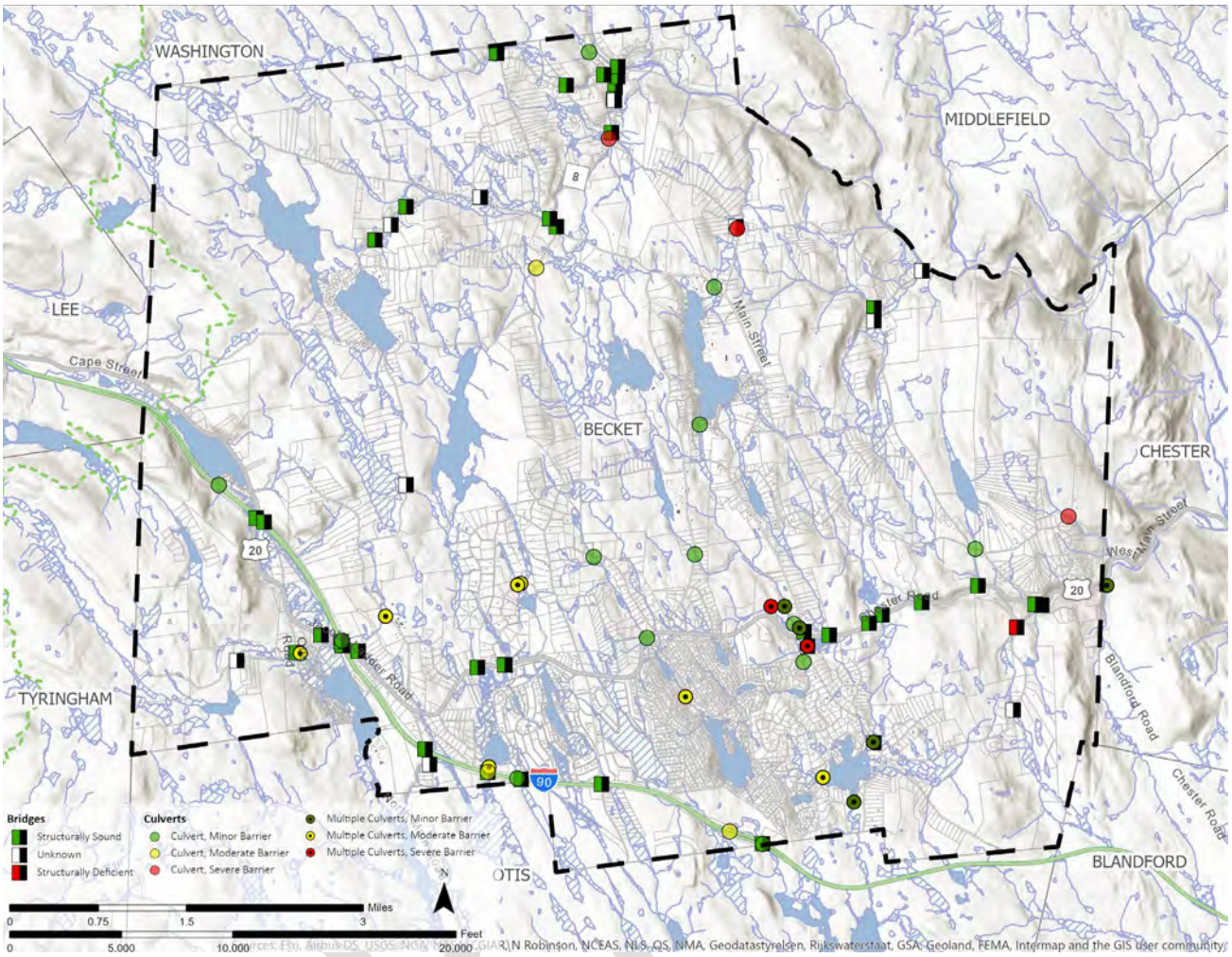
    - It can be difficult for the town to keep track of the shifting contractors for HOA road maintenance. This could present communication challenges during a natural hazard event.

- State Roads – MassDOT road are generally in good shape. Some roads have issues with beavers and culverts. Route 20 east of Route 8 into Chester is a significant concern as described above. Other concerns:
    - An undersized culvert under Route 8 where it turns north off Route 20 occasionally floods, which blocks the road through town and can interfere with emergency access, and access to the MassDOT highway facility just north of the culvert.
    - McNerney Road to Carter Road is also vulnerable to flooding, but there are alternative routes.
    - The Massachusetts Turnpike passes through southern Becket. It could potentially flood from adjacent wetlands in Becket. Improper beaver management previously resulted in flooding on the Mass Pike in Becket.

Road-Stream Crossings (Bridges and Culverts)

Climate change will impact culvert and bridges through large storm events that have the potential to scour or damage bridge piers and abutments, to overtop bridges, or to lift bridges off their piers.[11] In addition, many existing culverts in Becket, like the rest of the state, are undersized. When a culvert cannot adequately pass the required flow of water, either because the culvert is undersized or clogged with debris, water can overtop the road leading to washouts and road closures.[12] For example, the culvert at Bonnie Rigg Hill Road washed out three times before it was finally replaced with a sufficiently-sized span after Hurricane Irene. In addition to disrupting transportation, when roads wash out the resulting sediment degrades downstream habitat. There is also some evidence that climate change may accelerate degradation of materials used in bridges and culverts including steel and concrete. In addition, banks adjacent to bridges and culverts may erode faster and possibly fail due to faster stream velocities and the loss of bank stabilizing [13,14] Knotweed is often dislodged during storm events and subsequently resprouts near road-stream crossings, where it further destabilizes banks.

[11] Nasr et al., “Bridges in a Changing Climate.”
[12] “Baker-Polito Administration Helps Cities and Towns Upgrade Road-Stream Crossings.”
[13] Nasr et al., “Bridges in a Changing Climate.”
[14] Meyer and Weigel, “Climate Change and Transportation Engineering.”



Map of known culverts and bridges in Becket

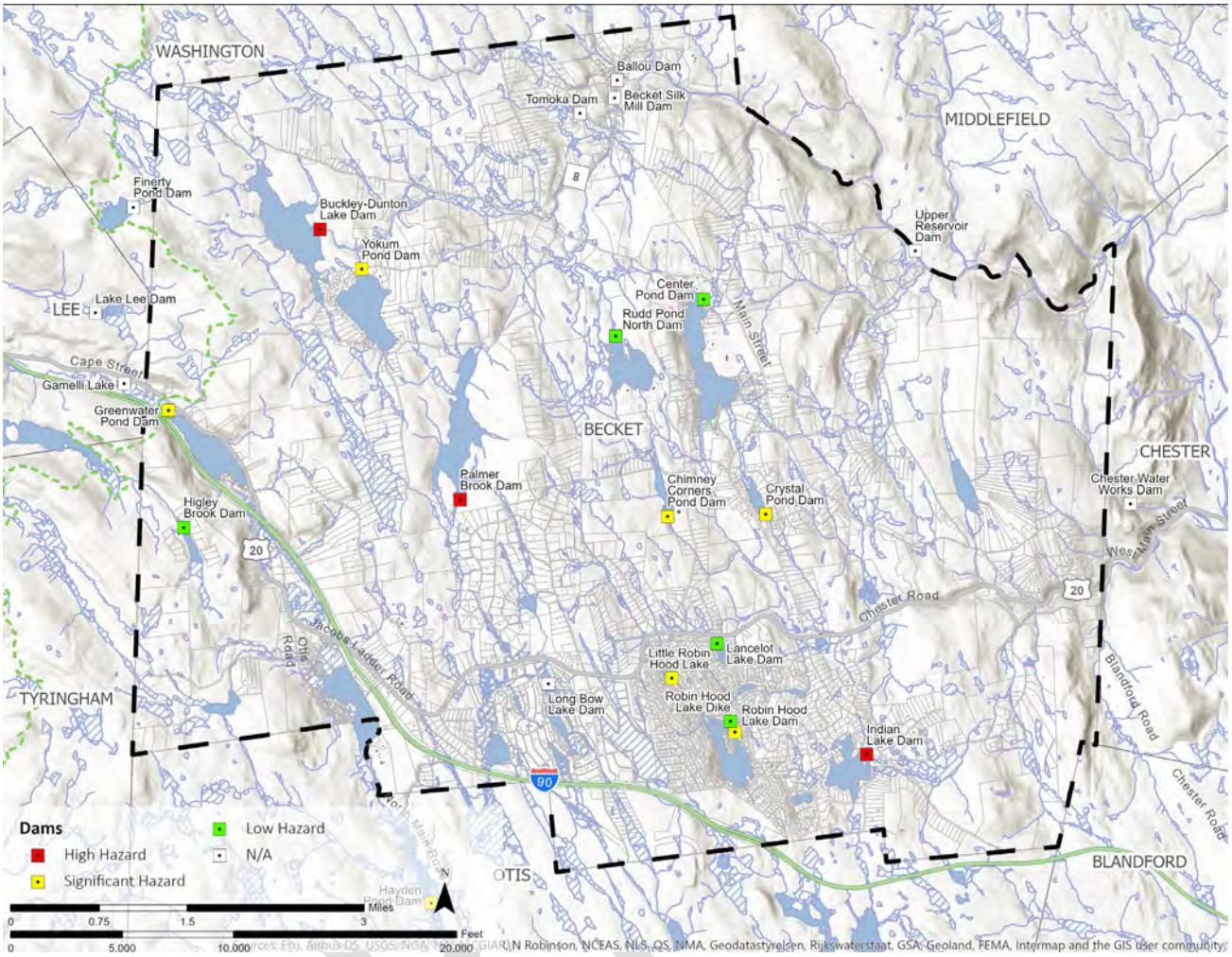
Becket's primary bridge/culvert vulnerabilities include:

- Cushman Road bridge which is scheduled for a 2024 replacement
- The culvert on Benton Hill Road at the intersection of Surriner Road needs replacement. The culvert is a high priority wildlife barrier and the road provides an important transportation connection. The town has applied several times for funding for its replacement, but the town has yet to obtain funding. The estimated project cost is $400,000.
- Other top priority culverts for replacement include one on Hamilton Road and one on YMCA Road at South Cove Road.
- Although the town regularly cleans out culverts, debris continues to be an issue. Major storm events can bring a lot of debris down from woods that can then clog ditches and culverts.

Dams

Almost all of Becket's lakes and ponds are man-made. There are at least eighteen dams in the Town, according to MassGIS data. Of those, at least three are owned by the Town of Becket, two by Department of Conservation and Recreation, several are owned by local Lake Districts, and the remainder are privately owned.[15] Massachusetts Office of Dam Safety is responsible for maintaining records on dams statewide to ensure that best practices related to inspection, maintenance, and emergency planning are followed by dam owners. The Office of Dam Safety assigns a hazard potential rating for each dam. This rating indicates how likely failure of the dam would lead to loss of life, damage to property, or interruption of important services—it does not indicate whether a dam is likely to fail (i.e. it is not based on structural integrity). All dam owners are required to have their dam regularly inspected by a qualified engineer. The required interval for the inspection varies by the dam's hazard potential: every two years for a high hazard potential dam, every five years for a significant hazard potential dam, and every ten years for a low hazard potential dam. In addition, owners of high and significant hazard potential dams are required to annually submit an Emergency Action Plan to the Office of Dam Safety and any agencies who would be involved in emergency actions.[16] Several dams in town have recently been repaired. Sherwood Forest, received several state grants, totaling over $750,000 to study, design, and repair Lancelot Lake Dam. Workshop participants expressed concerns about the capacity of dam owners throughout town to maintain and manage their dams, especially in the face of increasing storm events.

[15] "MassGIS Data: Dams." Note: this data has not been updated since 2012 and is likely out of date.
[16] "Office of Dam Safety."

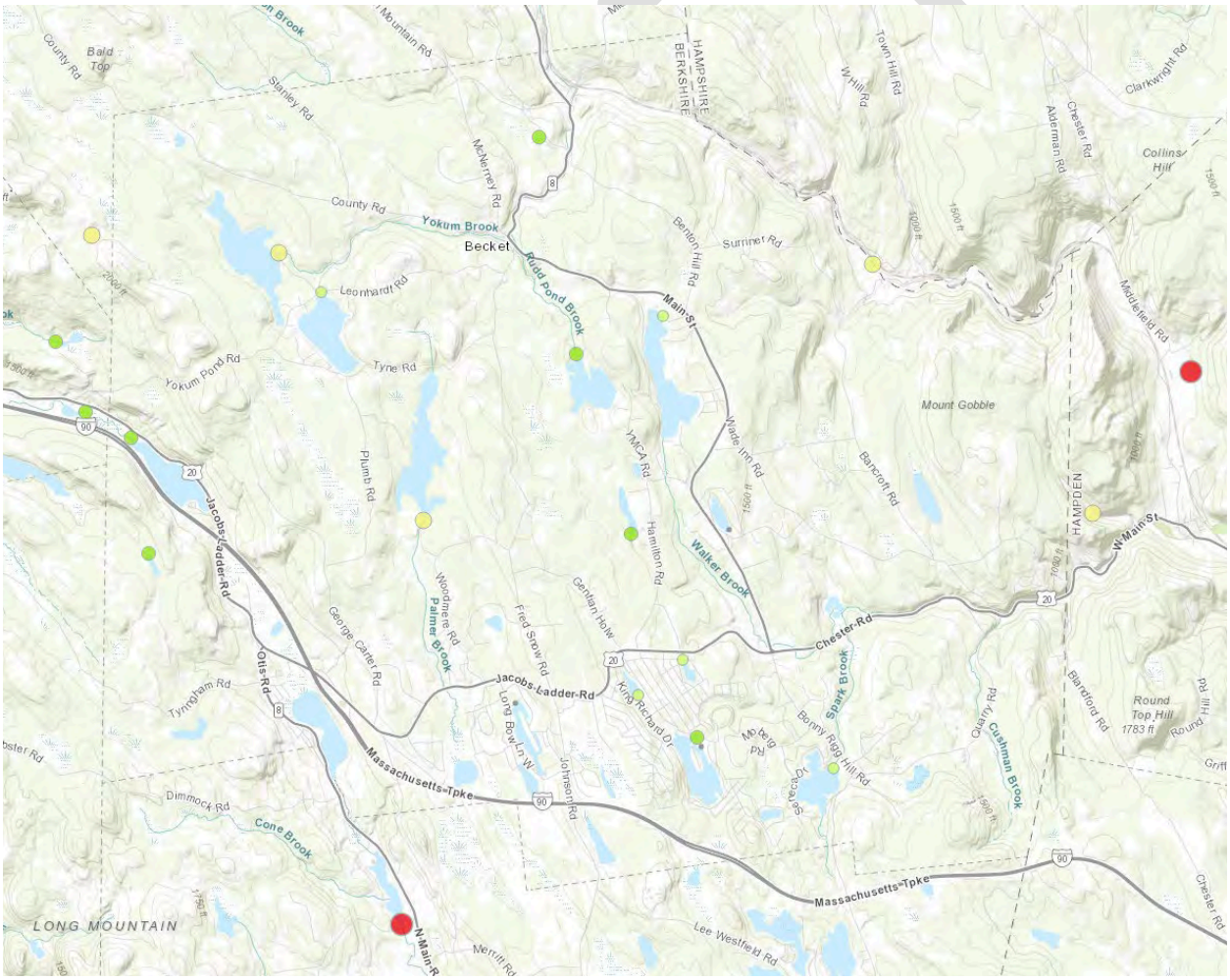


Map showing dams in Becket symbolized by Hazard Potential rating

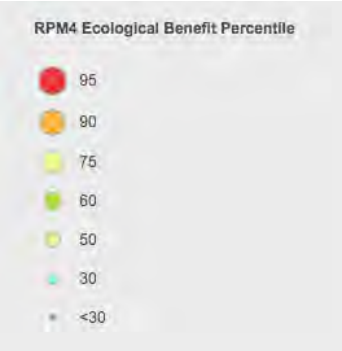
- Buckley-Dutton, Indian Lake, and Palmer Brook Dams are classified as high hazard potential dams. The classification indicates dams whose failure would likely cause loss of life and serious damage to homes, facilities, and/or roads. The "high hazard" classification does not indicate that a dam is structurally unsound.
- The US Army Corps of Engineers maintains a database of dams in the United States. Data for Massachusetts was last updated in 2018. At that time, there was no record of inspection for two low hazard potential dams and one high hazard potential dam's inspection was not up to date. Of the ten high or significant hazard dams in Becket, the database showed only two had up to date emergency action plans (EAP), three had out of date EAPs, and there was no record of an EAP for the remainder.[17]
- There has been beaver activity in the vicinity of the Yokum Pond Dam. The Town has been unsuccessful in finding anyone to take responsibility for it.

[17] "National Inventory of Dams."

- The Becket Police Department has a binder of information about dams in the town, including inspection reports and emergency management plans. It is not clear whether the owners of dams are regularly providing the Town with updated information or whether this information is being effectively shared with other relevant parties in Town.
- Massachusetts Division of Ecological Restoration created an online mapping tool that estimates the potential ecological benefit of removing a dam.[18] In the map below, each dam is color coded to show the relative potential benefit of its removal compared to other dams statewide (shown as percentiles). The highest-ranking dams in Becket are the Palmer Brook Dam, the Buckley-Dunton Lake Dam, and the Upper Reservoir Dam. They rank in the 75th percentile statewide (higher rank equals more benefit). As mentioned previously, Palmer Brook Dam and the Buckley-Dunton Lake Dam are also high hazard dams. It is important to note that several dams within adjacent communities are within the 95th percentile for potential benefit, including dams in Chester, Otis, Tyringham, and Lee.



[18] "Dam Removal and Ecological Benefit Estimation Tool."



Map from the DER Dam Removal and Ecological Benefit Estimation Tool. It shows that removal of any of the dams in Becket would have high benefits. All of the dams rank within the top 50th percentile dams statewide for potential ecological benefit from removal. However, several dams in adjacent communities are more highly ranked—including dams that rank in the 95th percentile statewide.

Utilities

- Cell towers are essential for local communication. There are cell towers on Otis Road, Johnson Road, George Carter Road, McNerney Road, and Cross Road. Most are accessible if there is need for an emergency repair. The cell tower on George Carter Road is the most difficult to access, but because MassDOT also has a tower there, it is likely MassDOT would prioritize maintaining access to the tower
- Some locations in Becket do not have adequate cell service. This makes landlines the primary, or only, means of communication for some residents. These residents are more vulnerable to damage to phone lines, for example from downed trees.
- Powerlines are susceptible to damage from downed trees due to wind, ice and snowstorms. Eversource actively maintains power lines in Becket and it has been creating back feed loops from multiple sources to prevent loss of electricity during severe weather events. During recent weather events, power outages have been short and limited to smaller areas. Due to the beautiful old maple trees along Bonnie Rigg Hill Road it may be the area that is most susceptible to power line damage from downed trees.
- The electrical grid may be more vulnerable to blackouts due to increasing demands in the future, particularly increased use of air conditioning during heat waves.
- Broadband – Becket has limited broadband service, but it is expanding. The lack of broadband limits communication and access to information within the town. This may hamper residents' ability to prepare and respond effectively to climate change. On the other hand, the expansion of broadband in Becket, may trigger result in new residents settling in the town, which could have complex impacts on the town's land use, economy, and environment, and ultimately its climate resilience.

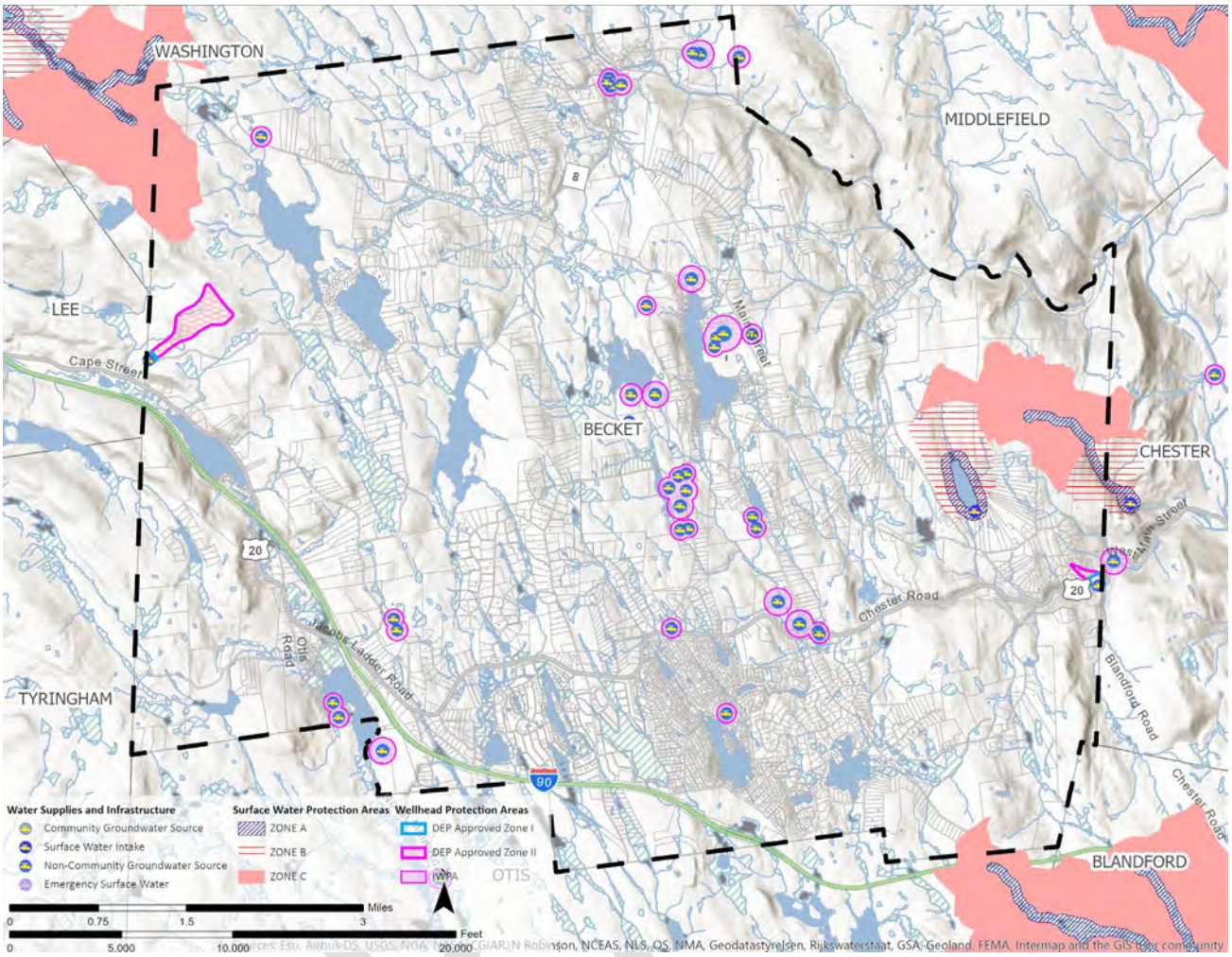
Beaver Activity

Beavers expand their territory continuously and flood areas. The flooding may directly impact structures and roads. Increased precipitation due to climate change may result in more water being held by beaver dams. This may increase the potential damage from beaver dam failure. However, beaver dams can also be beneficial to the overall hydrology and the quality of the habitat.

- The town has many beaver deceivers in place.
- Areas where beaver activity has the potential to flood roads or other infrastructure include:
    - Behind the Becket Motel
    - Adjacent to YMCA road west of the First Congregational Church
    - North of the Mass Pike between Arrowhead Lane and Old Carriage Lane
    - County Road west of Stanley Road
    - Near the intersection of Yokum Pond Road and Leonhardt Road
    - Bancroft Road near Surriner Road
    - Wade Inn Road east of Big Bass Lane
    - Bonny Rigg Hill Road near Spark Brook
    - Quarry Road near Cushman Brook
- The town has not delineated areas where beaver expansion would be beneficial. As such, the town does not have a plan for accommodating or harnessing beaver activity.

Water and Wastewater

The Town of Becket does not have a public drinking water or wastewater system. Most residents rely on private wells and septic systems. There is a high number of community wells and private wastewater systems in Becket serving institutions like Jacob's Pillow, local businesses, and camps.



Map of Water Supplies, Infrastructure, and Protection Areas

- Climate change may reduce the availability of groundwater due to drought, or changes in precipitation patterns that result in more runoff of water and less groundwater infiltration (for example less snow, or more precipitation falling in heavy events). Some wells may run dry, while others may have increased pollutant loads.[19] Workshop participants pointed out that some Becket residents have already experienced wells that have gone dry.
- Becket may see a growth in population due to its comparatively mild climate and the abundance of lakes. This could result in an increase of groundwater withdrawals.
- As discussed under the Utilities section, climate change may increase power outages. With the loss of power comes the loss of drinking water for residents who rely on private wells and who do not have back up power.
- Becket does not have arrangements for emergency water supplies. In an emergency, the Town would likely bring in a tanker truck with water.

[19] "Massachusetts State Hazard Mitigation and Climate Adaptation Plan."

- In 2019, concerns about contamination led the state to require that Becket close a spring that was used by residents of Becket and adjacent towns for drinking water. The spring was located on private land along a busy roadway. Closing the spring reduced residents' access to drinking water, both when well runs dry and when power outages make wells inoperable.
- Septic systems can contribute nutrients to water bodies that can spur growth of algae blooms and/or invasive species. Increased temperatures due to climate changes may further accelerate growth. Climate change may also lead to more residents in Becket which could increase use of problematic septic systems. Workshop participants were concerned that some Becket residents, use septic systems improperly and/or do not pump them out frequently enough.

Structures

- Structures throughout Becket are vulnerable to wind, rain, snow, ice, and downed trees from storms throughout the seasons. The MVP planning process did not identify any structures that were particularly vulnerable to these impacts. The impacts of flooding on structures is more predictable. There are no National Flood Insurance Program repetitive flood loss structures in Becket according to data in the Massachusetts State Hazard Mitigation and Climate Adaptation Plan.[20] However, Becket does have numerous structures that are built close to areas that could flood. According to GIS analysis conducted by Dodson & Flinker based on data from MassGIS, there are approximately 200 structures on about 115 different parcels in Becket that are within the FEMA 100-year floodplain. Structures range from small outbuildings to the Becket-Washington School, which appears to have a corner within the floodplain. The vast majority of these structures are associated with single-family use. It is important to note that the FEMA map for Becket that is available on MassGIS was digitized from paper maps and appears to be poorly aligned with other GIS data. This likely creates inaccuracies in the GIS identification of flood-risk structures in Becket. At the same time, since the FEMA flood map was delineated due precipitation in Becket has increased, especially the heaviest storm events. It is therefore likely possible that the actual 100-year floodplain is more extensive than the FEMA map shows in some locations. The following structures are particularly of concern due to flood risks:
    - Buildings, vehicles, and materials storage at the Highway Garage site which is adjacent to Depot Brook which feeds into the federally designated Wild and Scenic Westfield River.

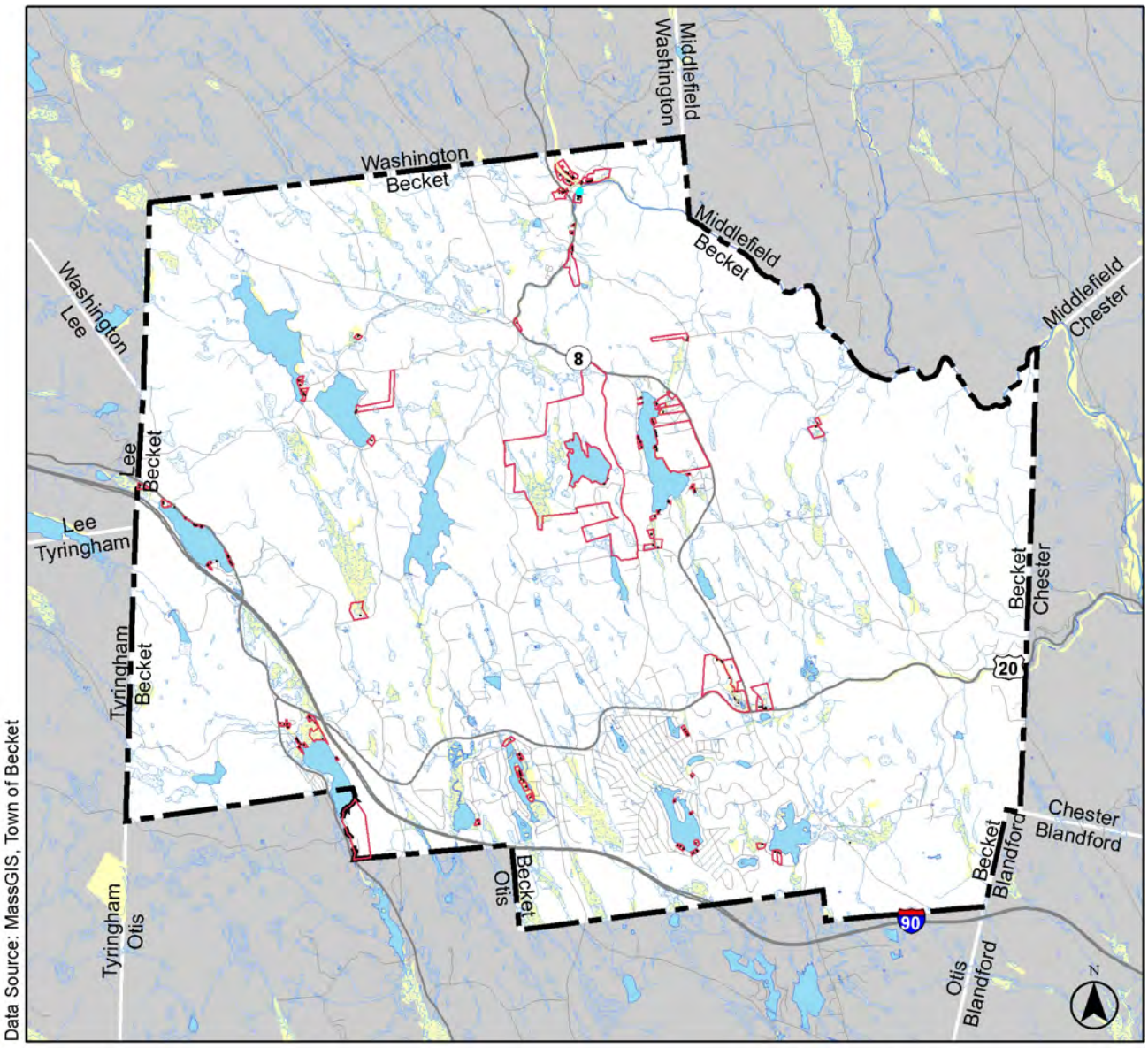
[20] "Massachusetts State Hazard Mitigation and Climate Adaptation Plan."

Spare culverts on the banks of the Depot Brook below the Highway Garage site (Source: Meredyth Babcock).

- The Becket-Washington School
- Papa Bob's
- Bonnie Rigg Camping Club
- Camp Greylock—several structures
- Camp Becket YMCA—several structures
- A cluster of residential structures in North Becket Center
- Several structures along Long Bow Lane
- Several structures around Big Robin Lake
- Several structures on Shawnee Shore Road and nearby
- Structures north of Shaw Pond

- Becket has about 1,791 Housing Units. Of those units, 811 are occupied, while 980 are vacant. The vacant units are primarily for seasonal use. Vacant units are more common in the west part of the town (60% vacant units) as compared to the east (40% vacant units). The vacancy rate is high even by Berkshire County standards. Of the 145 Census block groups in Berkshire County, the block group comprising the western half of Becket has the 4th highest vacancy rate. The eastern half of the town has the 13th highest vacancy rate in the county. The high rate of vacant housing implies that during some hazard event—for example a hurricane in the fall—there will be no one in place to prepare more than half of Becket's housing units for the hazard or to address damage immediately after the event. In addition, first responders and clean-up crews may not know which houses are occupied and therefore may not know how best to prioritize their resources.

- About 75% of housing was built after 1960 with the biggest percentage of houses built 1980-1999. This implies that much of Becket's housing is built to higher building code standards than housing in other western Massachusetts communities where a greater share of housing is significantly older. Becket's newer housing may be better able to withstand natural hazards from climate change. In 2010 Becket adopted the "Stretch Code." Housing built since it went into effect in 2011 has met higher energy efficiency standards and thus will be able to remain comfortable for longer periods of time when heat or air conditioning is unavailable due to a loss of power. Because these houses use less energy for heating and cooling than comparably sized houses, they help mitigate (slow) climate change.



Legend

- Parcels with Structures in FEMA 1% Flood Zone
- Structures in FEMA 1% Flood Zone
- FEMA 1% Flood Zone
- Rivers and Streams
- Wetlands
- Open Water
- Becket Town Boundary
- Town Boundaries

Roads

- Interstate
- U.S. Highway
- State Route
- Non-numbered Road

Feet: 0 — 4,000 — 8,000 — 16,000

Miles: 0 — 0.75 — 1.5 — 3

Societal Vulnerabilities

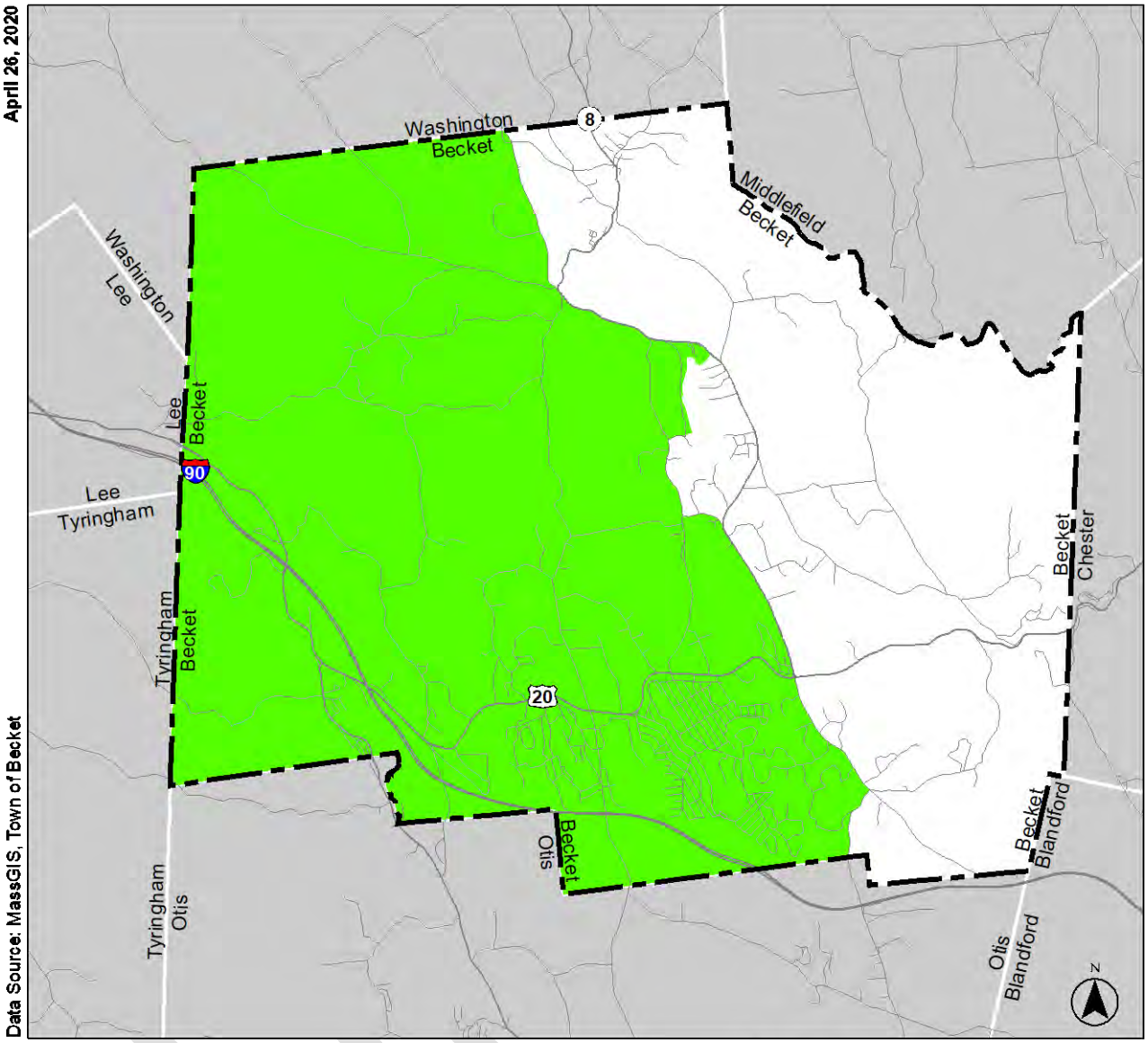
The social aspects of a community shape its ability to prepare for and respond to natural hazards and climate change.

Vulnerable Populations

In general, people with less economic or social power are more likely to be disproportionately impacted by the effects of hazards and climate change. People who are poor, elderly, disabled, or children, experience heightened "mental, emotional and bodily stress due to natural disaster exposure."[21] Poor people, black and Hispanic people, some older adults, and people with disabilities typically have fewer economic resources which makes it difficult to prepare for, or evacuate from, natural hazards when necessary. These groups also are more likely to have chronic diseases or other health problems that can exacerbate harm from climate-related disasters.[22] Limited English proficiency can also make people more vulnerable to climate related hazards.

- Based on Becket's demographics, it appears that the town's people will be relatively resilient to climate change. Becket has very limited numbers of vulnerable populations, though there are certain groups and individuals that would benefit from extra attention from the Town. The Town has a relatively small numbers of racial and ethnic minorities compared to Massachusetts or the United States as a whole. It is 94.7% white, with other races as follows: black, 1.6%; two or more races, 1.2%; 2.5% some other races. Only 4.2% of the population is Hispanic. The percentage of the Massachusetts population which is Hispanic is about three times higher. While 4.8% of the population speaks a language other than English at home, predominantly Indo-European languages (example, French, German, Italian, etc.) including 1.7% who speak Spanish, only .4% of households have limited English proficiency, compared to 5.9% of households for Massachusetts as a whole. The poverty rate in Becket is 7.3% vs. 10.8% for Massachusetts. Likewise, the percent of household receiving food stamps is lower in Becket (6.9%) than in Massachusetts (12%).[23] The west half of Becket is designated by the State of Massachusetts as an Environmental Justice area based on income.[24]

[21] Benevolenza and DeRigne, "The Impact of Climate Change and Natural Disasters on Vulnerable Populations."
[22] "Massachusetts State Hazard Mitigation and Climate Adaptation Plan."
[23] "Census - Geography Profile." All data in this paragraph and the next are drawn from the 2018 American Community Survey (ACS) 5-year estimate. The ACS is conducted by the U.S. Census Bureau. Data is available in various tables at data.census.gov
[24] An environmental justice area based on income is an area that has a median income less than or equal to 65% of the state median income. The designation was last completed based on 2010 Census Data. Based on 2018 ACS 5-year data, the area would no longer meet the criteria, but the 2010 designation is still in place.



Legend

Environmental Justice 2010 Populations

EJ Criteria, by Block Group

- Income
- Becket Town Boundary
- Other Town Boundaries

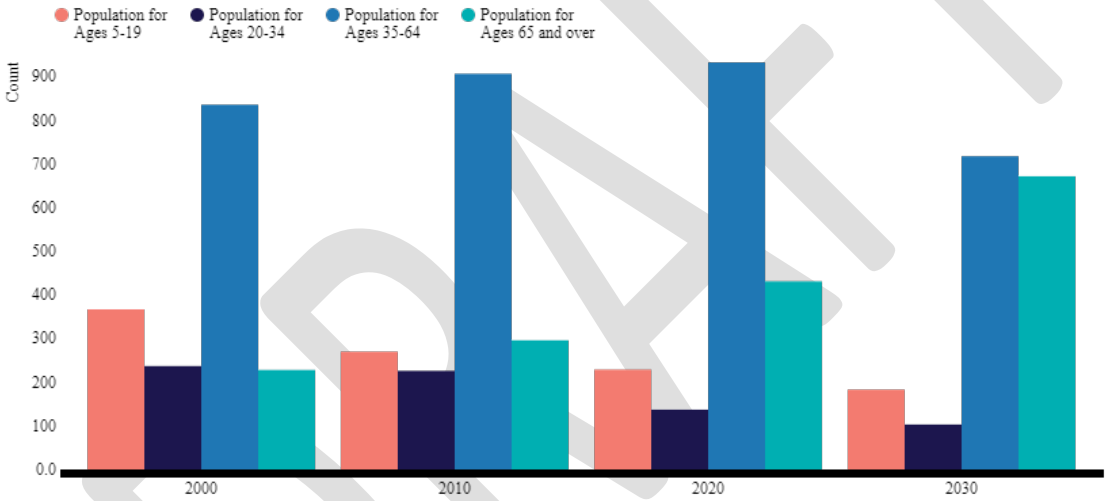
Roads

- Interstate
- U.S. Highway
- State Route
- Non-numbered Road

Feet
0 4,000 8,000 16,000

Miles
0 0.75 1.5 3

- Older Adults. The most significant vulnerable population in Becket is older adults. 32.1% of the Town's people are over 60 years old, compared to 22.1% for Massachusetts. The median age is 51.8 years significantly older than the state as a whole (38.2 years). The number of older adults in Becket is expected to grow over the next decade while the number of younger people is expected to fall.
    - Older adults with lower incomes, those who are socially isolated, and those who have health issues will be especially vulnerable.
    - Workshop participants explained that when older people get to the point of needing a lot of health care, they often leave Becket (if they can afford to) because services are not available in Town.
    - The Council on Aging provides a meals program, but it may not be effectively connecting with new older adult residents and seasonal residents.



Source: Housing MA: The Massachusetts Housing Data Portal[25]

- School-age Children. Children, particularly those in low-income families, are vulnerable to the impacts of climate change, especially average and extreme temperatures.
- People with health conditions that will be exacerbated by climate change—especially asthma and COPD.

[25] MAPC, "Housing Becket MA."

- People with disabilities. About 12% of Becket's population, including 36% of residents 75 years or older, has one or more disabilities.[26] This group will be more vulnerable to climate change.

- Seasonal Residents. Another unique feature of Becket that may impact its societal climate resilience is the size of its seasonal population compared to its year-round population. The population swells from 1,859 people to about 8,000 in the summer. Workshop participants expressed concern that seasonal residents may not be adequately prepared for natural hazards. For example, some visitors to Becket for Thanksgiving 2019 were not prepared for winter weather conditions that occurred.

- Campers and Staff. Becket's summer population includes several thousand young people who attend summer camps in Becket. Workshop participants were particularly concerned about the Town's ability to assist summer campers in the event of a natural hazard. The camps likely have emergency management plans, but the town does not always know what they are. Staff changes at camps result in the town not knowing who to contact at camps and vice versa.

Population Growth or Decline

- Becket grew rapidly in the between 1960 and 2000. Over that time its population increased 230%.[27] Since then, population has been much more modest. The town added just 4 people between 2000 and 2010, and another 4% of its population between 2010 and 2018. The current population is estimated to be 1,859. Rapid population growth can impact a town's sense of cohesiveness, which can impact its ability to prepare for and respond to stresses. Rapid growth can also have impacts on Infrastructural and Environmental resilience. Those impacts are discussed elsewhere.

- The UMass Donahue Institute produced population projections for every community in Massachusetts in 2018. They predict that Becket's population will shrink by about 8% over the next 15 years.[28] If Becket's population shrinks it could negatively impact its tax base and its volunteer base. The Donahue Institute projections "assume that recent historical trends in migration, mortality, and fertility will persist in future years."[29] They do not include disruptions in current trends based on climate migration, the impacts of major economic upheavals, or other similar factors.

- It is difficult to predict whether climate change will result in population growth in Becket and therefore increased development in the Town. Although Becket's climate is changing, and climate change is happening more rapidly in the Northeast than in other parts of the United States, Becket will likely continue to have a relatively comfortable and safe climate,

[26] US Census Bureau, "American Community Survey, 2018 ACS 5-Year Estimates, Table S1810."
[27] "Becket, Massachusetts."
[28] UMass Donahue Institute, "Massachusetts Population Projections."
[29] Strate, "RE: 2018 Vintage Population Projections Full Report," April 24, 2020.

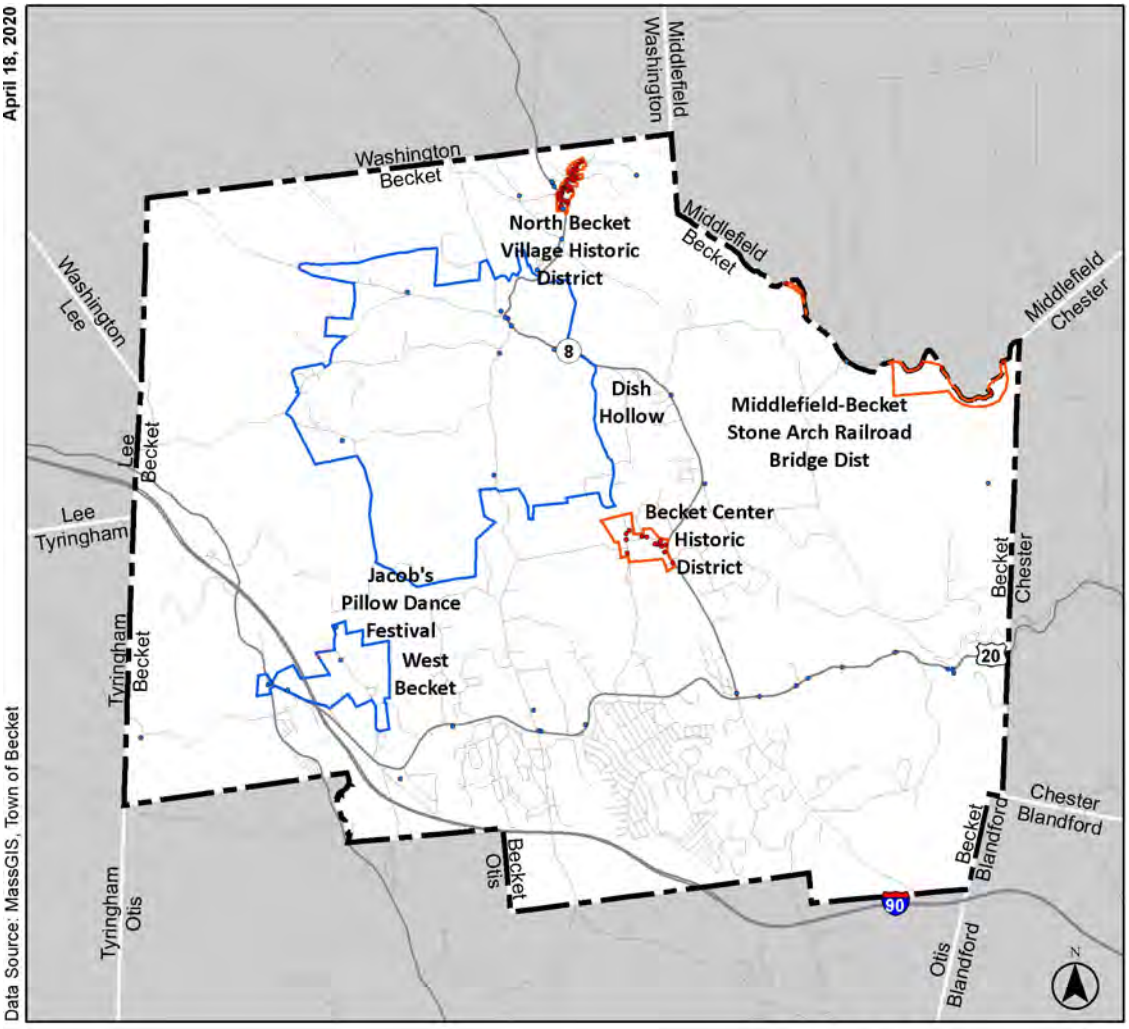
with plentiful access to lakes and ponds compared to other parts of the country. The aspects of Becket that have previously drawn visitors and seasonal residents will likely only get more appealing in the future, especially as temperatures rise throughout the world.

- A thorough analysis of Becket's potential buildout and the most likely parcels to be developed would help the town better understand the potential impacts of future development on its climate resilience. Some workshop participants said that there is limited remaining "good" land to develop in Becket, because most of the lakeshores are already developed, septic system requirements limit density, and Becket has a 2-acre minimum lot size. However, a thorough analysis of Becket's build-out potential has not been completed recently and what is deemed "buildable" can quickly change depending on market conditions and regulatory revisions.

Cohesion and Communication

- Becket's development and geographic patterns likely reduce its social cohesion. Historically, development was concentrated in Becket's two centers—North Becket and Becket Center. More recent development has been distributed throughout the town. Many people in Becket live far from their neighbors and do not see them regularly.[30] The town has a limited number of places where residents regularly congregate to see each other and build social bonds. The town's topography and road network has resulted in the town have several sections that are not well connected physically. For example, residents from different parts of town likely shop for groceries in different neighboring towns. Employed residents of Becket also have long commutes to work, averaging 33.9 minutes.[31] This reduces their available time to participate in civic and social life. Overall, these patterns, may make it more difficult for the Town to prepare for, and respond to, climate change. For example, the spread of information through the town by word of mouth is likely hampered by the lack of strong social networks that cross all ages, classes, and parts of town.
- No single channel of communication is going to reach all people in town. Some residents primarily use cell phones. Others do not get a cell signal and rely on land lines. Some residents have email, while others do not. The lack of broadband means that accessing information by the internet can be difficult for many residents. There is no local television station. Most available broadcast news comes out of Albany and so is not focused on Massachusetts news.
- If Becket's school-age population declines as is projected, this may have outsized impacts on social cohesion in the Town because the school has been a major source of social connections for Town residents. Decisions around elementary school closures have been divisive in other Berkshire and Hilltown communities.

[30] Becket's population density is 39 people per square mile, which is lower than that of Berkshire County (142) or Massachusetts (839). Source: US Census Bureau, 2010 Census.
[31] "Census - Geography Profile."



Legend

- Nat'l Register of Historic Places
- Inventoried Property
- Nat'l Register of Historic Places
- Inventoried Area
- Becket Town Boundary
- Other Town Boundaries

Roads

- Interstate
- U.S. Highway
- State Route
- Non-numbered Road

Feet
0 4,000 8,000 16,000

Miles
0 0.75 1.5 3

Availability of Goods and Services

- The local retail economy is limited. Residents often need to travel long distances to meet basic needs. This may hamper residents' ability to buy basic supplies during a hazard event.
- The lack of a gas station was identified as a vulnerability by workshop participants.
- The absence of public transportation and lack of sidewalks makes access to goods and services without access to a car very difficult
- A rail line runs through the center of North Becket Village. If passenger rail were expanded on this line, it could improve access to goods and services for Becket residents while reducing greenhouse gas emissions and mitigating climate change.

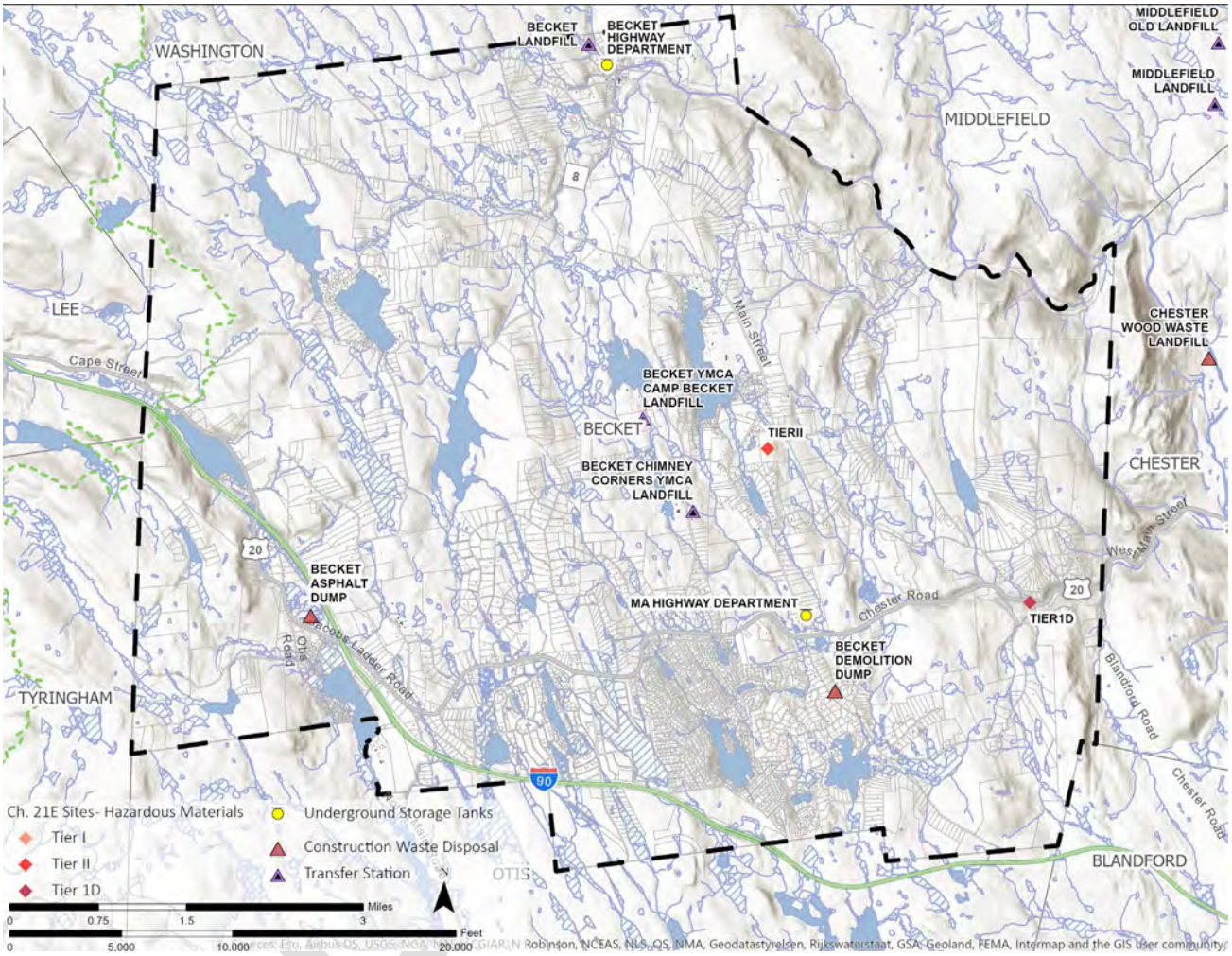
Town Government/Emergency Response

- The town's paid staff is small. The town lacks staff dedicated to proactive planning and grant writing. This reduces the Town's ability to prepare for climate change and natural hazards.
- Communication between town boards, and between the town staff and the general public, can be challenging.
- The town has shelters at: Town Hall, the Becket-Washington School, and the YMCA Camp (girl's side) seasonally
    - Workshop participants were concerned that shelters are not distributed throughout the whole town and that road closures could make it difficult for residents from some parts of town to reach shelters if needed.
    - The YMCA Camp has an emergency shelter at the girl's camp. It is only operational when the camp is open.
    - It is unclear whether all emergency shelters are full accessible for people with disabilities.
    - It is unclear whether all emergency shelters are fully provisioned.
- The town's EMS maintains a list of priority vulnerable residents to contact in an emergency.
- The town does not currently have a stormwater bylaw or other mechanism for ensuring use of low impact development and/or green infrastructure.
- The town does not have a bylaw regulating development on steep slopes or hilltops and ridgelines.
- The school has only one point of access for vehicles—a bridge. There is potential for an additional emergency evacuation route on foot through the woods, but it has not been formalized. This is particularly important because the school is an emergency shelter.

Environmental Vulnerabilities

Hazardous Materials

Climate change can increase the risk of harm from chemical releases. Floods can result in chemical releases and spills and emergency shutdowns. Extreme heat can increase chemical temperatures increasing risk for explosions. Extreme cold can result in power outages, frozen pipes, and HVAC failure, while storms can result in power outages, HVAC failure, and infrastructure failure. All of these climate driven events can increase the risk of chemical release.[32]



Map of sites with potentially hazardous materials in Becket

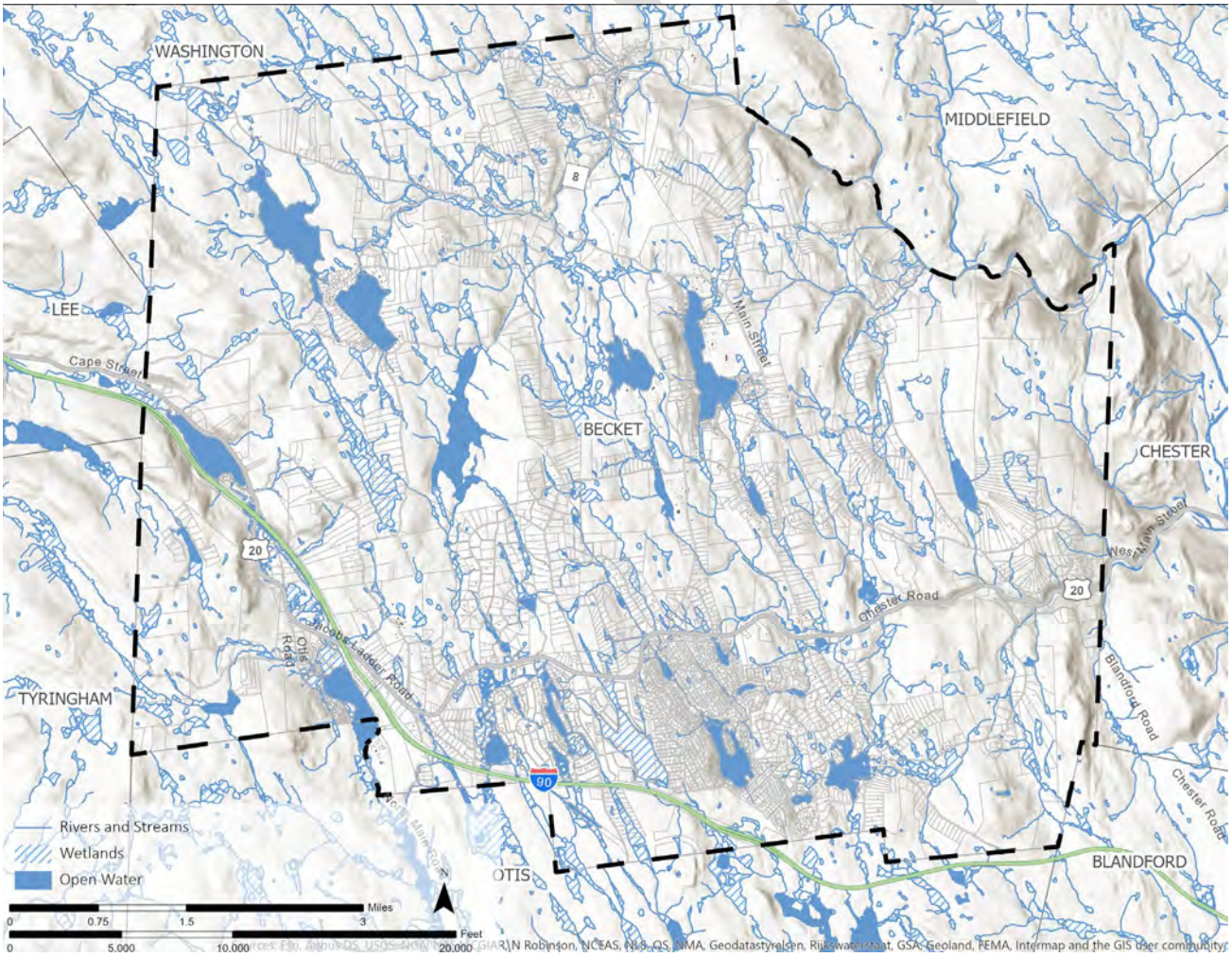
- The Mass Pike and the rail lines through town both carry hazardous materials. The railroad has CSX and Amtrak trains, including a 90-car methane train that regularly passes through Becket. Methane poses a risk of fire. Between Hinsdale and Chester (i.e. Becket) is one of the highest risk areas on the rail line because there is limited track access. The town is not prepared for a large-scale evacuation that could be required if there was a significant release of hazardous materials on one of these transportation corridors.

[32] Tiffany Skogstrom, "OTA Resources & Climate Change Preparedness."

- Other sources of potential hazardous materials in Becket include several landfills, underground storage tank at the MassDOT Highway Department site and the Becket Highway Department site, and several “21E sites”—locations where releases of oil or hazardous materials have been reported to the Massachusetts Department of Environmental Protection’s (MassDEP) Bureau of Waste Site Cleanup (BWSC). Climate change can impact these

Water Resources

Becket’s water resources are one of its most defining characteristics. The town is crisscrossed by numerous streams and rivers and studded with wetlands and lakes and ponds. The town’s water resources are both a major strength and vulnerability for town. The water resources provide valuable habitat and high recreational value. That said, most lakes and ponds in Becket are manmade. They were often created by excavating wetlands and floodplains and have resulted in the loss of natural flood protection, water cleansing, and diverse habitats throughout the town. These water resources will play a central role in the Town’s climate resilience.



Map of water resources in Becket

Lakes and Ponds

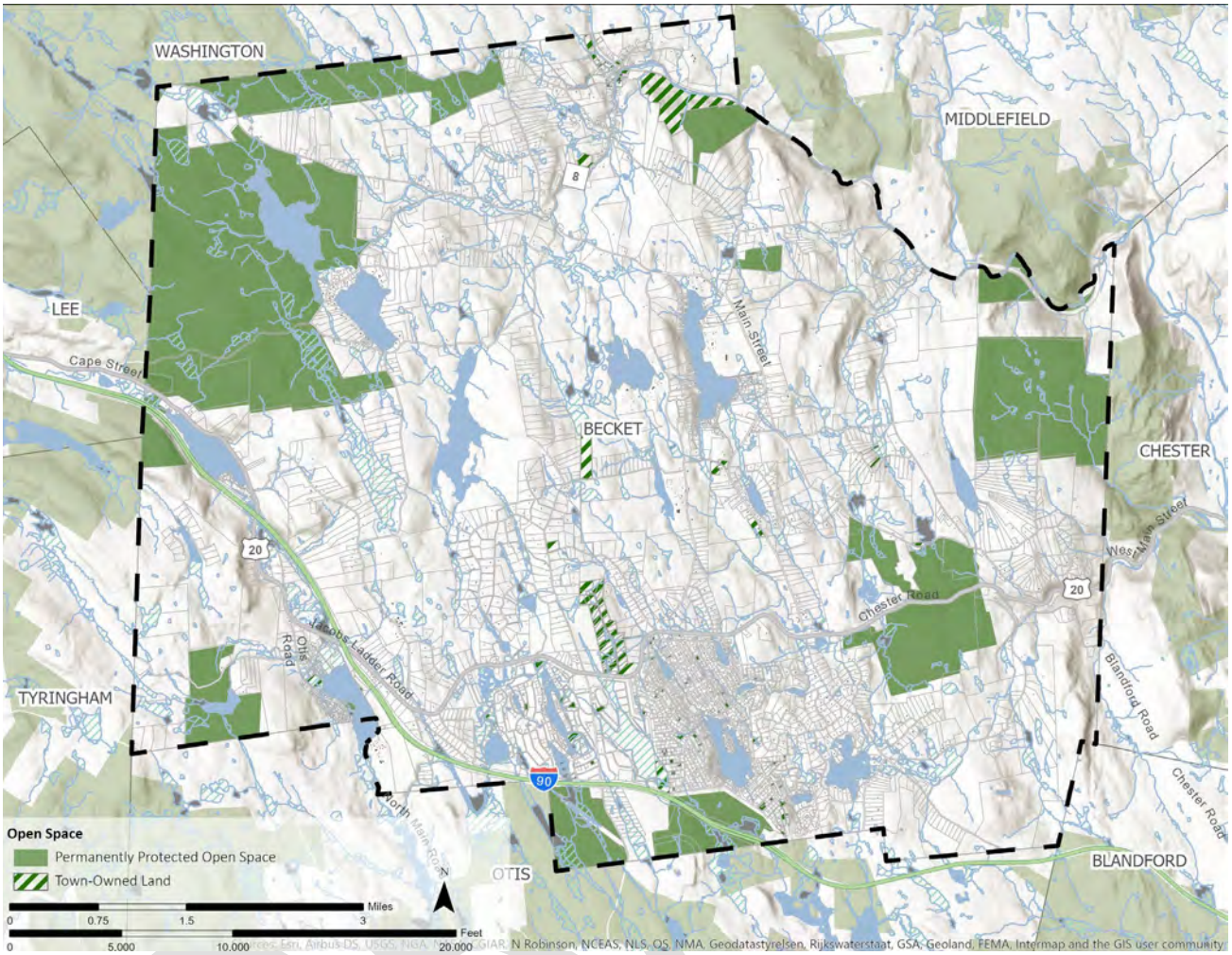
- Aquatic invasive species are already an issue in Becket's waterbodies. Aquatic invasive species may become more extensive due to increased air and water temperatures, increased CO2, altered stratification regimes, and altered hydrologic regimes. For example, increase water flows from increased precipitation may move seeds of invasive plant species into new territory.[33] Aquatic invasive species may also benefit from "decreased cold temperature or winter hypoxia that currently prevent survival."[34] Reservoirs, like the numerous manmade lakes and ponds in Becket, are particularly vulnerable to invasions which then are more able to spread to natural water systems.[35] The response to invasive species can have themselves have negative effects. Herbicides can harm native species. Water drawdowns can result in increased water temperatures downstream.
- Climate change may increase the water temperature of Becket's water bodies. Becket's lakes are often shallow and so they warm quickly. The warm water has downstream impacts and could get worse with climate change.
- Warmer weather and drought can contribute to harmful algae blooms in water bodies, particularly lakes.[36] The lakes sometimes need to be closed for recreational use. Cyanobacteria is a particularly harmful bacterium that can cause skin irritation, sore throat or more serious health effects.[37] There is some evidence that climate change may increase cyanobacteria blooms.[38]

Streams/Wetlands

- The Westfield River is Massachusetts' first nationally designated Wild and Scenic River
- Becket has twenty-three cold water fisheries, which are a critical habitat. Becket is at headwaters of three watersheds: the Westfield River, the Farmington River, and the Housatonic River. Becket has a responsibility to all those downstream to pass on clean, cool water and to not increase flooding.
- There are extensive wetlands throughout town. The wetlands provide valuable services for the town, including water storage and filtering, and flood storage and attenuation. Over time, the town has lost wetlands as they were filled for farming or development or excavated for converted to lakes and ponds. Development that was located near current and former wetlands is particularly vulnerable to flooding. Becket does not have a local wetlands bylaw.
- Increased precipitation may increase the amount of sediment and road salt being washed into waterways from dirt roads.

[33] US EPA, "Effects Of Climate Change On Aquatic Invasive Species And Implications For Management And Research (Final Report)."
[34] Rahel and Olden, "Assessing the Effects of Climate Change on Aquatic Invasive Species."
[35] Havel et al., "Aquatic Invasive Species."
[36] "Massachusetts State Hazard Mitigation and Climate Adaptation Plan."
[37] "Climate Change and Cyanobacteria (Blue-Green Algae)."
[38] Bartosiewicz et al., "Effects of Climate Change and Episodic Heat Events on Cyanobacteria in a Eutrophic Polymictic Lake."

Forests



- Approximately 3,275 acres of land in Becket are conserved (permanently protected).Most of that land is forested, including a large chunk of land in the northeast of Town which is part of October Mountain State Forest, and Chester watershed protection land in the west of town. The vast majority of forest in Becket is not protected. There is low use of Chapter 61 in town.[39]
- Land trust activity is limited in town. The Town does not have an established mechanism or funding source for purchasing conservation easements.
- Workshop participants expressed serious concerns about future changes to Becket's forests. Most of the most key native trees in Becket's forests are under stress, including sugar maple, red maple, ash, beech, and hemlock. Some trees are threatened by warmer temperatures, while others are being impacted by invasive insect pests. Emerald ash borer was found in Becket in 2019. Some people expect that within ten years ash trees will be

[39] Chapter 61 is a Massachusetts tax abatement program for land being used for agriculture or forestry. It offers limited protection from development; when land is withdrawn from the program, the property owner must pay back taxes and the town has a right of first refusal to purchase the property. In practice, municipalities rarely have sufficient cash or the ability to move fast enough to exercise their right of first refusal.

eliminated from Becket's forests. When forests die, native species are replaced with species with less ecological value, including invasive species. Forest dieback can make wildfires worse (though Becket's forests do not have a thick duff layer like on west coast forests). Forest dieback can also increase the speed of water moving across land and into waterbodies. It can therefore contribute to increased flooding and erosion, and decreased ground water infiltration, which ultimately can result in less drinking water. Loss of forest could also increase the potential for landslides on Becket's numerous steep slopes.

- Workshop participants were concerned that many landowners do not currently have the knowledge or skills to manage their forests, have little awareness of the changes that are coming, and are unaware of steps they could take to make their forests more resilient. The situation is made more complicated by conflicting information about the best way to manage forests for climate change as the science develops.
- Invasive species are already displacing native species throughout Becket's ecosystems. Climate change may make the problem worse. Invasive plants such as Japanese knotweed and barberry outcompete native plants harming the integrity of the native ecosystem. These plants spread quickly and do not retain soil as well as a robust network of native plants, so the spread of invasive plants increases erosion and reduces ecosystem diversity. Some non-native invasive plants alter soil acidity and nitrogen levels, reducing the biological activity of native soils. Others form dense layers, interfering with succession and regeneration of native species, often crowding out, shading, or smothering natives. Some outcompete native plant species for pollinators, which is even more critical in the face of bee colony collapse disorder. The loss of pollinators endangers crop and orchard success. Some non-native invasive plants threaten native butterfly species by outcompeting their native host plants that are relied upon for egg laying and larval feeding. Caterpillars are often highly specialized and therefore particularly vulnerable to loss of native plants. The loss of caterpillars can then impact bird populations, which rely heavily on caterpillars for feeding their young. Invasive plants can also reduce food supplies for other wildlife. Finally, invasive insects present widespread risks to trees and human health as described elsewhere. Invasive species are often overlooked in the early phases of their introduction when it would be easiest to control their spread. More outreach and education of property owners could help spur early detection and control actions.

- The Appalachian Trail passes through northwest Becket. Workshop participants expressed concern that trail users may accidentally start forest fires, especially if climate change causes drought or large-scale forest dieback that increases the risk of forest fire.

- Because of the value of large-scale solar installations, Becket, like other communities in Massachusetts, has experienced forests being cleared to make room for solar installations. Workshop participants are concerned this practice could expand in Becket.

Environmentally linked Diseases

- Warmer winter temperatures are likely to increase the number of ticks that carry Lyme disease, babesiosis, and other tick-borne diseases.

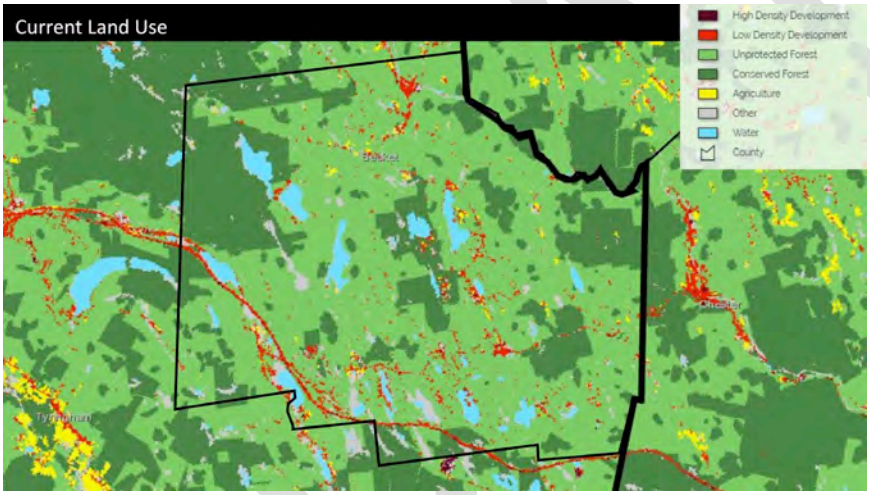
- Vector-borne diseases: Wetter and warmer conditions lead to increased mosquito populations which can increase human diseases like West Nile Virus, and Eastern Equine

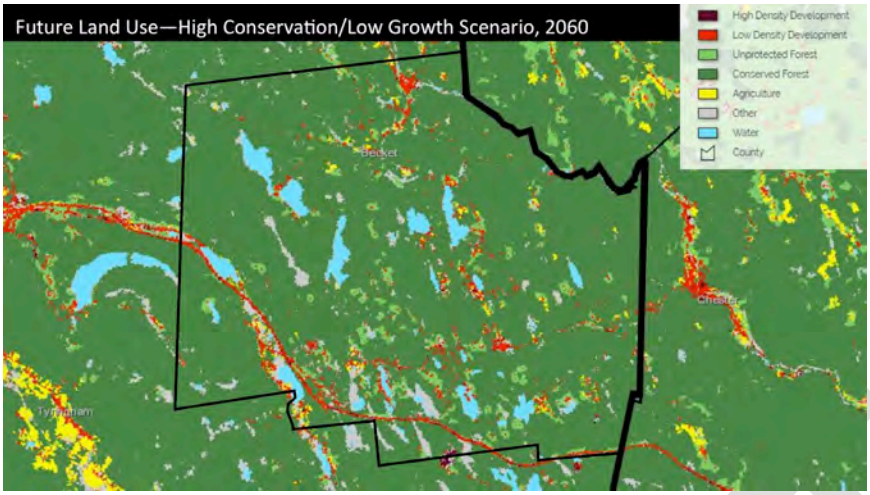
Encephalitis (EEE). Warmer winters can result in larger pest populations and increases the spread of tick-borne diseases like Lyme disease and babesiosis.

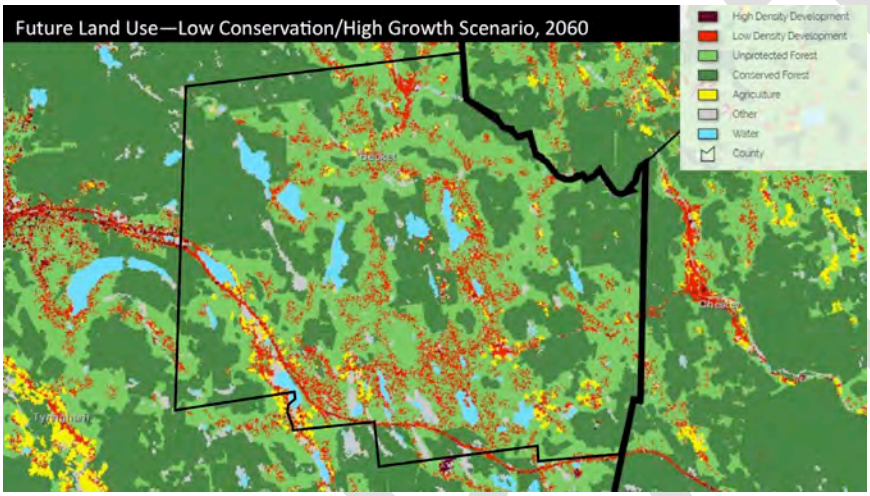
- Climate change may also impact the spread of water-borne illnesses
- By disrupting ecosystems and animal behaviors across the globe, and changing patterns of human development and food production, climate change is resulting in increased disease and pandemics. .

Land Use

Becket's land use is currently composed of unprotected forest. Compared to many of its neighbors, Becket has a relatively little conserved land. Development is concentrated in North Becket, along major road corridors (Route 8 Route 20, along lake fronts, and in developments like Sherwood Forest. Almost all development in town is low density—meaning houses are spread far apart. On the one hand, this keeps the rural look of Becket. On the other hand, low density development can fragment habitats and is dependent on automobiles—whose emissions are a major contributor to climate change. As discussed elsewhere it is difficult to predict whether climate change will result in increased or decreased development in Becket. The following maps are provided as food for thought. Which future land use pattern looks most likely? Which is most desirable?







The top map shows Becket's land use in 2010. The middle map predicts Becket's land in 2060 if the town experiences low growth and high conservation. The bottom map predicts land use in Becket in 2060 if the town experiences significant population growth combined with limited conservation. Developed land is shown in red, agricultural land in yellow, unprotected forest in light green, and protected forest in dark green. The maps were created by the New England Landscape Futures Project. Explore more scenarios at https://newenglandlandscapes.org/. (Source: NEFL)

6. CURRENT STRENGTHS AND ASSETS

Infrastructural Strengths

Roads

- Town roads are generally well maintained
- Private roads, especially more recent ones, were well designed and are often well maintained, partially as a result of the Town's effective subdivision review regulations and process.
- The road districts provide an effective funding and maintenance mechanism for roads that could otherwise become problematic.

Road-Stream Crossings (bridges and culverts)

- Some culverts have been replaced and upgraded to current standards, including on Bonnie Rigg Hill Road.

Utilities

- Most cell towers are accessible in case there is need for an emergency repair.
- Eversource actively maintains power lines in Becket, has been creating back feed loops from multiple sources to prevent loss of electricity during severe weather events. During recent weather events, power outages have been short and limited to smaller areas.
- Broadband – Broadband is currently being installed in Becket.

Wells/Septic Systems

- The lack of a centralized drinking water and wastewater system provides a lot of redundancy for these essential services in Becket.

Structures

- Becket does not have a high number of flood-prone structures compared to other communities. Waterways are often contained with channels with steep banks, this prevents the waterways from spilling their banks.
- Becket has a relatively high proportion of structures that were recently built compared to other western Massachusetts communities.

Societal Strengths

Populations

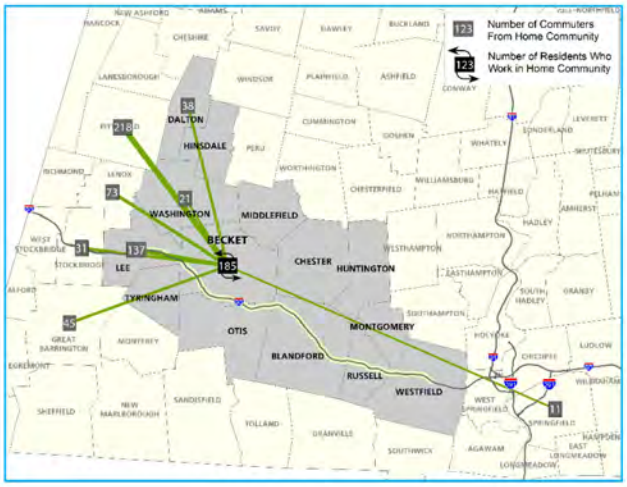
- Older adults are a resource for the town particularly related to volunteerism, expertise, and wisdom.
- Yankee Culture. Becket residents are generally self-sufficient/resilient, but some are unwilling to ask for or accept help.
- Seasonal houses support the town's tax base while requiring fewer services. This puts Becket it in a better fiscal position than some neighboring communities.

Social Cohesion

- The town has a strong sense of community and friendliness. There are many volunteers.
- Some vulnerabilities will only impact some parts of town leaving others able to help.
- There are several email lists in in town, for example: for the Athenaeum, the Arts Center, and the Town list. All are opt-in.
- Several businesses are social centers including The Dream Away Lodge, Sherwood Shoppes, General Store, and Papa Bob's

Good and Services

- Becket has several businesses. This is increasingly rare in rural communities in Western Massachusetts.
- Becket has a fair number of jobs for a rural community. About 185 Becket residents work in the town.



Map of workplace locations of Becket Residents from the recent I-90 Interchange Study)[40]

[40] Derrig et al., "I-90 Interchange Study."

Cultural Institutions

- Becket Athenaeum is a strength
- Mullen House, Becket Arts Center are strengths and provide youth programs.
- Hilltown Brouhaha (Becket/Washington Community Fair) builds community.
- Jacob's Pillow draws huge crowds to Becket. It is an economic and cultural asset, but also potentially a significant challenge if a hazard impacted it.

Town Government/Emergency Management

- Becket has strong municipal services compared to many small towns. For example, it has full time police, ambulance, and town administrator.
- Reverse 911 is in place, but enrollment is low enrollment and the alerts only go to landlines. Greater redundancy would be beneficial. The phone list needs to be update regularly.
- The Berkshire County Sheriff provides 9-1-1 dispatch for 27 Hampden and Hampshire communities from its headquarters in Pittsfield. The Sheriff's Office also has a mobile command center and command tent. The Dispatch Center can be tapped into for MREs/emergency food resources.
- The camps have facilities like beds and kitchens and are equipped to take care of large groups of people. It may be possible to expand their use as shelters, and for emergency food supply.
- Town hall is located on high ground and is centrally located.
- One fire station and ambulance station are on high ground. The other fire station is on a low-lying parcel. The latter serves Washington and Becket.
- The Town's zoning bylaws and subdivision regulations have been updated regularly and are relatively progressive. However, the bylaws would benefit from a thorough review and revision to ensure that they are aligned with best practices for climate adaptation and low impact design. For example, Flexible Residential Development (also known as Open Space Residential Design) enables residential development to be more environmentally sensitive than conventional subdivision practices. The Town has a Flexible Residential Development bylaw. However, the bylaw requires a special permit, whereas current best practices is to make flexible development mandatory, or at least allow it by right. The bylaw also requires creation of a yield plan rather than the current best practice of using a formula to determine allowed density. Both requirements increase costs for the applicant which creates a disincentive to pursue flexible development. The zoning bylaws and subdivision also do not make specific mention of low impact development and in some cases may unintentionally create barriers to it, for example by requiring clearing and grubbing of the entire right-of-way in a subdivision.

Demographic Changes

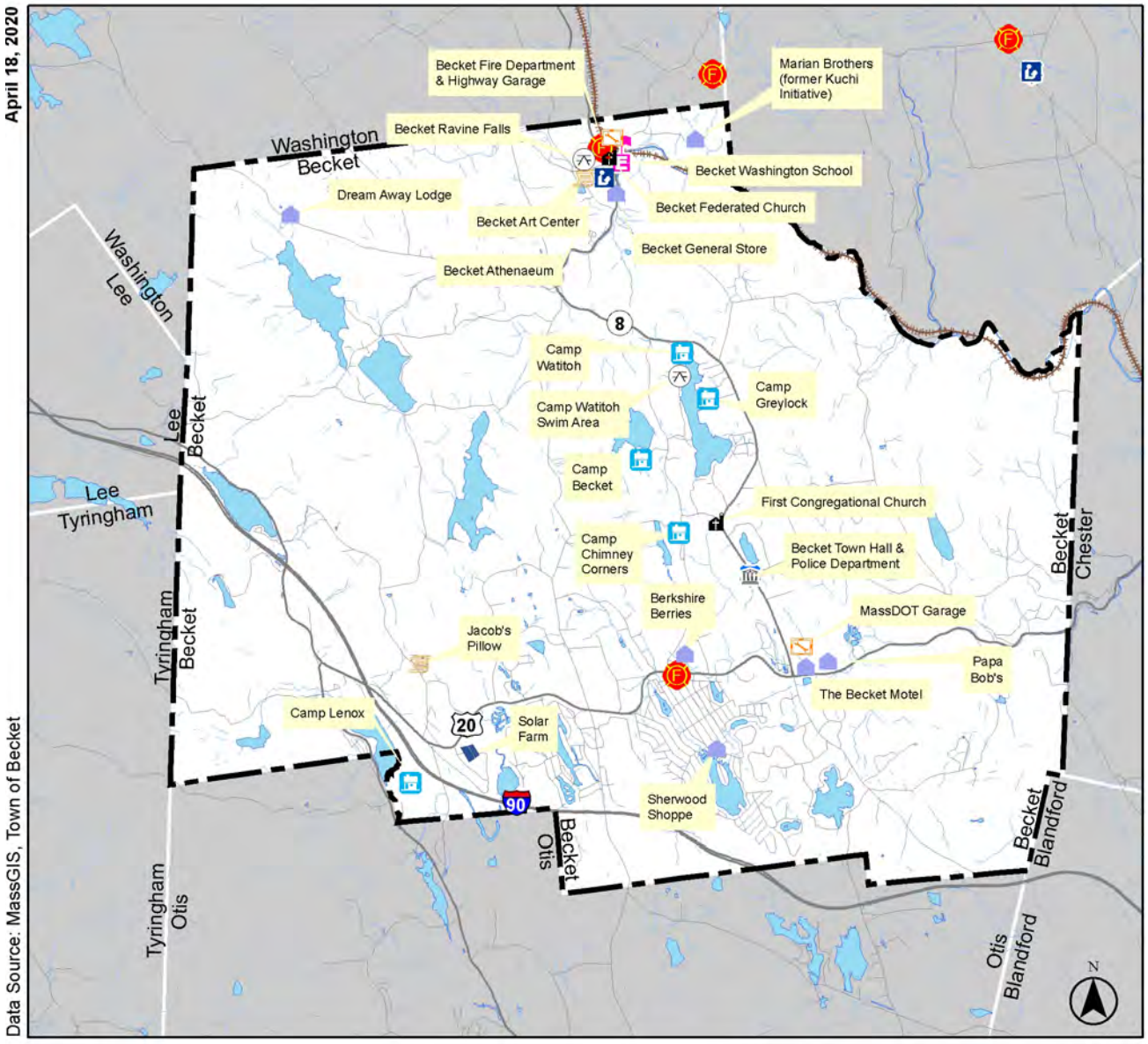
- In the coming decades, Becket is likely to experience demographic changes that will impact the town's resilience. Several trends may drive demographic changes:
    - Climate migration from areas that will become unbearably hot, storm-prone, or inundated by sea level rise.
    - Regional transportation changes. For example, if another exit was added to the Mass Pike[41].
    - Digital communication improvements. For example, expansion of broadband and 5G could make Becket more appealing to prospective residents, both seasonal and year-round.
    - Changes in the broader economy. For example, an increase in remote working, especially when coupled with expanded broadband in the town
    - Response to COVID-19. For example, people may migrate out of cities and other locations perceived to be riskier for virus exposure.

  The potential demographic changes could impact the town's climate resilience in many ways:

    - The number of members of vulnerable groups in the Town could go up or down.
    - Changes in the culture of the town could impact self-reliance, volunteerism, or community connectedness for better or worse.
    - The economy of the town could strengthen or weaken.
    - New development could be sited in vulnerable areas or could improve the resilience of existing areas.

  How the town plans for and responds to demographic and economic changes will play a major role in whether those changes decrease or increase the town's overall climate resilience.

[41] In March 2020, MassDOT completed a study of a new Massachusetts Turnpike exit between Westfield and Lee. The study concluded a new exit in Blandford would be feasible from a "conceptual engineering persective." It ruled out a new exit in Becket. The report does not mean that a new exit is politically feasible or whether funding could be obtained. The report is available at: Derrig et al., "I-90 Interchange Study.". The report shows that a new exit would significantly increase traffic on Route 8 in Becket while even more significantly reducing traffic on Route 20 in town.


April 18, 2020
Data Source: MassGIS, Town of Becket
Becket Fire Department & Highway Garage
Marian Brothers (former Kuchi Initiative)
Becket Ravine Falls
Washington
Becket
Becket Washington School
Dream Away Lodge
Becket Federated Church
Becket Art Center
Becket General Store
Becket Athenaeum
Washington
Lee
8
Camp Watitoh
Camp Greylock
Camp Watitoh Swim Area
Lee
Becket
Camp Becket
Lee
Tyringham
First Congregational Church
Camp Chimney Corners
Becket Town Hall & Police Department
Becket
Chester
Berkshire Berries
MassDOT Garage
Jacob's Pillow
Tyringham
Becket
Papa Bob's
The Becket Motel
Camp Lenox
20
Solar Farm
90
Sherwood Shoppe
Becket
Otis
Becket
Blandford
Tyringham
Otis
Otis
Blandford
N
Legend
Camp
Commercial
Garage
Institution
Outdoor Attraction
Place of Worship
Solar
Local Police
Fire Stations
Town and City Halls
Public Elementary
Becket Town Boundary
Other Town Boundaries
Rivers and Streams
Open Water
Roads
Interstate
U.S. Highway
State Route
Non-numbered Road
Railroads - Active Service
Feet
0
4,000
8,000
16,000
Miles
0
0.75
1.5
3

Environmental Strengths

Water Resources

Wetlands:

- There are approximately 1,800 acres of wetlands in Becket, which is about 6% of the Town's land area. These provide habitat for a wide variety of plants and animals, including rare and endangered species. They also provide temporary storage of floodwaters, which helps to reduce water volume and velocity in rivers and streams during storms. Numerous wetlands in Becket serve critical flood reduction functions but are not currently conserved. For example, a large wetland on the west side of Sherwood Forest that sits north of The Massachusetts Turnpike has significant flood storage capacity. This land was platted for house lots before environmental regulations made development of the lots infeasible.

Ponds and Lakes

- Becket's ponds and lakes provide natural cooling opportunities for residents and visitors. This will become increasingly valuable as temperatures rise due to climate change.
- Becket has an active and effective hand pulling program for aquatic invasive species. This could be expanded elsewhere. There is an interest in developing a training program for divers and managing DASH boats to reduce the use of herbicides in Becket's Lakes and Pond management.

Forests

- About 86% of Becket's land area is forested, including about 15,000 acres of deciduous forest and 10,000 acres of evergreen forest. Large forested areas filter air and water and reduce the speed of stormwater runoff. By performing these functions, they help maintain the health of the town's water bodies and drinking water supplies and reduce the risk for flood-prone structures. Becket's forests also sequester carbon. The northwest portion of Becket is part of October Mountain, Massachusetts's largest state park. There are significant blocks of unfragmented forest in Becket, particularly in this northwest quadrant of the town.

Protected Land

- About 6,000 acres of land are permanently protected in Becket, representing nearly 20% of the town's land area. The majority of that is October Mountain State Forest. This land is mostly upland forest and provides ecosystem services such as water and air purification, as well as wildlife habitat.

7. TOP RECOMMENDATIONS TO IMPROVE RESILIENCE TO HAZARDS

Participants in the Community Resilience Building workshop identified dozens of potential actions to improve Becket's climate resilience. During the CRB workshop, workshop participants prioritized potential action and whittled them down to ten top items. These priorities were subsequently evaluated and prioritize by the Core Team over the course of two meetings. They were then reviewed during the Listening Session held on May 18th, 2020. The top recommendations are described in detail below including recommended next steps, where appropriate. These are followed by lists of other recommended actions, which are organized by the workshop's three categories of infrastructural, societal, and environmental action items and classified into highest, moderate, and lower priority. The full list of recommended actions is included in the compiled matrix in the Appendix. The list below is also supplemented by top recommendations from the 2020 Hazard Mitigation Plan (HMP).

Culvert Assessment

Conduct a town-wide culvert assessment to identify those that need retrofit. The assessment would evaluate the existing structural condition of culverts and their vulnerability to climate driven hazards. It would also evaluate the potential ecological restoration if culverts are improved. The assessment should result in a prioritized list of culverts retrofits and replacements, with estimated design costs and likely funding sources.

Town Bylaws

Review and amend current local bylaws, subdivision ordinances, and zoning regulations to reduce risk and damages from extreme weather, heat, flooding, and other climate change impacts. Include requirements for low impact development best practices, incentives to develop away from high hazard areas, hydrologic study requirements, and updated road standards. Include a requirement that the Town consider the feasibility of pervious paving whenever retrofitting or building parking lots on Town property and that private entities do the same for major developments.

Outreach and Education

Improve emergency communication in Becket and develop an outreach and education plan for all residents related to climate change. The plan should include information on how to sign-up for the Reverse 911 system, where emergency shelters are located, and how to mitigate potential impacts of climate change such as heavier rain events, periods of drought or high heat, and power outages.

Emergency Shelters

Develop a shelter management plan that includes identifying and retrofitting shelters (Town Hall, YMCA Camp) if necessary. Include an education and a transportation component so citizens know where to go during a disaster and those that cannot travel are assisted. Include a plan for cooling and warming centers. Include energy resilience strategies with clean energy sources. Prioritize locations that are currently significant energy users so that clean energy sources can be both used for shelters and reduce the emissions of Becket's largest greenhouse gas emitters.

Master Plan

Update the Town's Master Plan to include smart growth best practices as well as plans for climate adaptation, conservation, and hazard mitigation.

Forest Study

Conduct a broad-scale study and plan for forests in Becket. The study would document forest composition in Becket, the various functions of forests, and how forests may change in the coming decades. The plan would set the Town's goals, objectives, and actions for forest management, including climate resiliency. Disseminate findings of the study and plan to residents and landowners to encourage forestry across the town that is aligned with Town goals. Topics could include, use of nature-based solutions on private land, management of invasive plants, responding to forest pests, carbon sequestration, holistic forest management, fire management, and existing resources for landowners like the Landowner Incentive Plan (LIP) through UMass MassWoods.

Protect Wetlands and Floodplains

Identify and protect wetlands and floodplains that are especially valuable for mitigating the impacts of climate change, because they reduce floods, maintain water quality, and maintain biodiversity among other benefits. Where possible, acquire conservation restrictions or purchase high priority wetlands and floodplains and adjacent properties for floodplain expansion. Partner with land trusts where possible. If possible, coordinate this action with an update of the Opens Space and Recreation Plan and/or the Town Master Plan.

Additional Priorities

Infrastructural Actions

Highest Priority

- Conduct a land use study of areas in Becket with concentrated development and a high probability of flood inundation to assess potential for, and mitigate, well and septic cross contamination and potential nature-based solutions for reducing flooding.
- Replace culverts at the following locations to prevent flooding, Leonhardt Road, Hamilton Road, YMCA Road, Route 8 between McNerney Road and George Carter Road. Replace Benton Hill Road culvert. Replace the culvert on Cushman Brook at Quarry Road.
- Move the Highway Garage out of the floodplain for the purposes of natural flood storage. Clean-up and revegetate the current site.
- Build a two-way radio repeater tower to enhance EMS and other emergency communications.

Moderate Priority

- Conduct a study of town owned roads to identify areas of high sedimentation and identify potential maintenance solutions to reduce sedimentation and maintain clean ditches.

- Maintain a list of dams and dam owners at the Town Hall. Develop an outreach program to private dam owners to educate them about dam maintenance requirements including inspections, pre-flood release coordination, and safety information.
- Create a climate mitigation plan for Becket including an inventory of greenhouse gas emissions across the town, development of a greenhouse gas emission reduction target, and identification of feasible actions to meet the target. The plan would expand upon the town's Green Community Program energy reduction plan, which focuses only on municipal energy use. This could include, for example, adding electric vehicle charging stations, expanding clean energy generation, and weatherization of buildings.

Lower Priority

- Communicate with MassDOT to support minimizing road salt application near sensitive environmental areas, utilizing green infrastructure to maximize the longevity of road maintenance, and to minimize risk to flooding and landslide along Route 20.
- Determine the best method for providing access to a public drinking water supply. At Town meeting in 2019, The Town of Becket voted to explore installation of external taps, with automatic shut off valves, at the Town Hall and the Becket/Washington Athenaeum. There has also been discussion about acquiring a piece of land that has a natural spring that could be monitored and made accessible to all as climate change could compromise community members' wells.

Societal Actions

Highest Priority

- Review zoning and subdivision regulations for smart growth best practices.
- Develop a public education and communication program that educates citizens in rural Becket about the potential impacts of climate change and the organizations (such as the Berkshire Regional Planning Commission) who can provide support to home owners with issues such as sealing wells to prevent contamination from flood waters, back-up power and renewable energy sources.

Moderate Priority

- Partner with camps and other local organizations to promote and implement conservation, alternative energy sources and renewables. Explore the opportunities these organizations may have to act as shelters during a disaster.
- Expand outreach to seniors and include a system of interviewing seniors to understand their needs related to climate resilience and hazard mitigation. Collaborate with Age-Friendly Berkshires.
- Incorporate educational efforts into all other climate resilience actions to encourage alignment of public and private efforts.

Lower Priority

- Work with the Council on Aging and Age Friendly Berkshires to identify vulnerable residents and provide them with hazard mitigation and preparedness information.

Environmental Actions

Highest Priority

- Update the town's Open Space and Recreation Plan (OSRP). Include consideration of priority parcels to conserve, wildlife corridors, and ecological landscaping.
- Develop holistic plans for water resources in Becket, especially lakes. The plans could include cover management of the water resources themselves, including management of aquatic invasive species, water quality monitoring, citizen science efforts, consideration of establishing a town boat washing station, and maintenance and/or removal of dams. Plans could also establish recommendations for appropriate activities adjacent to waterways including development intensity, septic system maintenance, maintaining vegetated buffers, minimizing pesticide use, etc.
- Purchase Palmer Brook Reservoir for conservation (purchase by Town, land trust, conservation group, state, or likely a combination of these groups)
- Control flooding and erosion along stream banks with nature-based solutions like maintaining buffers, revegetation and slowing movement of water into streams.
- Adopt a local wetlands bylaw. Increase the community's understanding of the Wetlands Protection Act and its support for the board tasked with implementing it.
- Create a baseline survey and action plan for invasive species in Becket and neighboring communities. Survey trees near roads, powerlines, and other critical infrastructure to identify those impacted by pests. Remove dead/dying trees before they fall on roads, powerlines, and critical facilities. Focus on early eradication of invasives and minimizing the movement of invasive species along waterways from their headwaters in Becket to downstream communities. Remove phragmites and restore native vegetation to improve floodplain functioning. Develop an early eradication program for Japanese knotweed to minimize streambank erosion. Educate residents of Becket about emerald ash borer and other tree pests, including proper disposal of effected wood, to minimize their spread.
- Develop plans for control of disease-vectors with a focus on nature-based solutions for controlling mosquitos and ticks.
- Review bylaws to identify measures that will preserve biodiversity, habitat integrity and water resources.

Moderate Priority

- Explore adoption of a stormwater management bylaw to address stormwater impacts of development in Becket

- Explore adoption of an erosion control and sedimentation bylaw to ensure best practices are used when sites are disturbed
- Promote ecological landscaping. Install demonstration projects on town owned land. Amend the zoning bylaw to include requirements for ecological landscaping. Conduct educational efforts about ecological landscaping, especially within areas under the jurisdiction of the conservation commission. The removal of trees along power lines or for other purposes, or their loss, provides the opportunity for replanting with native vegetation.

Lower Priority

- Continue to utilize best management practices for roads adjacent to sensitive aquatic areas, including road salt treatment. Continue to work with others who maintain roads in Becket to ensure they are using best practices.
- Continue use of beaver deceivers

8. POSSIBLE FUNDING SOURCES

Funding for implementation from public sector sources could include:

- MVP Implementation grants from Massachusetts Executive Office of Energy and Environmental Affairs, ranging from $10,000 - $2,000,000 are available to municipalities upon completion of the MVP planning process
- Massachusetts Emergency Management Agency (MEMA) grants
- FEMA's Hazard Mitigation Grant Program (HMGP)
- MassWorks Infrastructure grants from Massachusetts Executive Office of Housing and Economic Development
- Massachusetts Division of Ecological Restoration's Culvert Replacement Municipal Assistance grants
- Dam and Seawall Repair or Removal grants from Massachusetts Executive Office of Energy and Environmental Affairs, which addresses inland flood control infrastructure as well as coastal features
- Massachusetts Department of Environmental Protection 604b Water Quality Management Planning Grants
- Other state funds for land conservation
- EPA grants
- See additional grant opportunities on the Massachusetts Community Grant Finder at https://www.mass.gov/lists/community-grant-finder

9. CRB WORKSHOP INVITEES AND PARTICIPANTS

First Name	Last Name	Representing	Present
Meredyth	Babcock	Becket's MVP Point Person (Core Team)	*
Dave	Bacon	Canterbury Farms	
Linda	Bacon	Canterbury Farms	
Alvin	Blake	Planning Board, Energy Commission (Core Team)	*
Chris	Bouchard	Highway Department/Tree Warden (Core Team)	*
Sean	Cahill	Sherwood Forest Rep	*
Colleen	Cahill	Sherwood Forest Rep	
William J.	Caldwell	Town Administrator (Core Team)	*
Dave	Christopolis	Hilltown CDC	
Peter J	Connor	YMCA--Camps and Berkshire Outdoor Center	
Becky	Cushing	Mass Audubon Berkshire Wildlife Sanctuaries	*
Cindy	Delpapa	River Ecologist (Core Team)	*
Alison	Dixon	Conservation Commissioner (Core Team)	*
Ray	Ferrin	Ambulance (Core Team)	*
Peter	Flinker	Dodson & Flinker, Facilitator	*
Leanda	Fontaine	Mass Department of Fish and Game	*
Rita	Furlong	Parks and Recreation & USPS worker	
Allison	Gramolini	Dodson & Flinker, Facilitator	*
Francisca	Heming	MassDOT, District 1	*
Tim	Hickey	Environmental Science professor at BCC	
Ethan	Hoch	Community Member	
Lilly	Hoch	Community Member	
David	Johnson	Core Team member	*

Karen	Karlberg	Jacob's Pillow & Community member	*
Gail	Kusek	Historical Commission	
Gale	LaBelle	Board of Health	*
Denniis	Lynch	Monterey community member	
Caroline	Massa	BRPC	*
Kristopher	McDonough	Police Chief, EMD (Core Team)	*
Purr	McEwen	Yokum Pond area	
Paul	Mikaniewicz	Fire Department	*
Andrew	Myers	Chester community member	
Amy	Permutter	Community Member	*
Jim	Peters	Forestry specialist (Core Team)	*
Carrieanne	Petrik	MVP Program Western Coordinator	*
Sue	Purser	Sherwood Forest residents	*
Jodi	Shafiroff	Library Admin.	
Dan	Shaw	Dodson & Flinker, Facilitator	*
Dillon	Sussman	Dodson & Flinker, Facilitator	*
Chris	Swindlehurst	Select BoardMember (Core Team)	*
Ann Marie	Visconti	Middlefield EMD	*
Carol	Waag	Middlefield Conservation Commission	*
Maria	Wallington	Health specialist (Core Team)	*
Jill	Weinberg	New resident, Business owner	*
Jeffrey	Zukowski	Massachusetts Emergency Management Agency	

10. ACKNOWLEDGEMENTS

The planning process was made all the sweeter and more fulfilling due to the brilliant breakfast, supplied by Jill Weinberg of the soon to open “Becket Village Kitchen” and the luscious lunch prepared by Chef Heather of the Becket General Store. We also want to thank the staff at the Becket Town Hall for making everything run smoothly and helping us carry this event off with a smile.

11. MVP PROJECT TEAM

Meredyth	Babcock	Becket's MVP Point Person (Core Team)
Alvin	Blake	Planning Board, Energy Commission (Core Team)
Chris	Bouchard	Highway Department/Tree Warden (Core Team)
William J.	Caldwell	Town Administrator (Core Team)
Cindy	Delpapa	River Ecologist (Core Team)
Alison	Dixon	Conservation Commissioner (Core Team)
Ray	Ferrin	Ambulance (Core Team)
Kristopher	McDonough	Police Chief, EMD (Core Team)
Jim	Peters	Forestry specialist (Core Team)
Chris	Swindlehurst	Select BoardMember (Core Team)
Maria	Wallington	Health specialist (Core Team)
Carrieanne	Petrik	MVP Program Western Coordinator
Peter	Flinker	Dodson & Flinker, Facilitator
Allison	Gramolini	Dodson & Flinker, Facilitator
Dan	Shaw	Dodson & Flinker, Facilitator
Dillon	Sussman	Dodson & Flinker, Lead Consultant, Facilitator

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14. APPENDICES

1. **Maps from Workshop Groups**
2. **Combined Workshop Matrix**
3. **Workshop Presentations**

[Note: Appendices will be added to the final draft]