



3 Berlin

Community Overview

The Town of Berlin encompasses 26.3 square miles of land area and had 19,866 residents as of the 2010 census (a population density of 755 persons per square mile). Elevation ranges from approximately 15 to 767 feet. Nearly all the land area in Berlin drains to Mattabeset River, a tributary to the Connecticut River. Other major streams in Berlin include Belcher Brook, Willow Brook, and Webster Brook. A small portion of land in southern Berlin drains to Sodom Brook, a tributary to the Quinnipiac River.

Berlin is primarily a suburban community, with some rural areas. The town features mainly decentralized development, with a large retail strip located along the State Route 5/15 corridor and three distinct village centers (Berlin, East Berlin, and Kensington). In addition to State Route 5/15, other major transportation routes through Berlin include State Routes 9, 71, 71A, 72, 160, 364, and 372. An Amtrak commuter rail line and the Hartford Line commuter rail pass through Berlin and make a stop in the Kensington area on the west side of town. Berlin’s major businesses and industries include construction, manufacturing, retail trade, and health care and social assistance.

Critical Facilities

Critical Facilities throughout the Capitol Region are listed in Appendix B. In Berlin, these include the Town Hall (which serves as the Emergency Operations Center), the Police Department (back-up EOC), four volunteer fire stations, the Senior Center, three Elementary Schools, one Middle School (secondary shelter), one High School (primary shelter), the Public Works Facility, an Ambulance Facility, and Marjorie Moore Housing Complex. The Town Hall has full backup power from a generator. The municipal sewer system includes twelve sewer pumping stations; the Water Control Department moves a portable generator from station to station during outages. The Town’s Physical Services (Public Works) Complex at 19 Town Farm Lane is in the Special Flood Hazard Area (SFHA).

Table 3-1: Critical Facilities, Berlin

Facility	Shelter	Generator
Town Hall (EOC)		X
Berlin Fire Department		X
East Berlin Fire Department		
Kensington Fire Department		
South Kensington Fire Department		
Police Department (Backup EOC)		
Senior Center		
Berlin High School	Primary	800 kW
Berlin Middle School	Secondary	
3 Elementary Schools		
Marjorie Moore Section 8 Housing		
12 sewer pumping stations		1 portable

The Town of Berlin recently renovated the high school and upgraded from a 135-kW generator to an 800-kW generator. The new generator allows the high school to function as the primary shelter. Town departments are able to relocate some functions to the high school during emergency events that make their offices unusable. The 135-kW generator is being relocated to the middle school. Berlin also has identified warming/charging stations.

The Town is in discussions with the Housing Authority to pursue acquisition of a generator for the Senior Center; if a generator is obtained, this building could be used as a backup shelter.

Capabilities

The Town of Berlin's hazard mitigation capabilities include its sheltering capacity, Plan of Conservation and Development (POCD) and Emergency Operations Plan (EOP), training program, building codes and land use regulations, emergency supplies, and mutual aid agreements.

Berlin is committed preservation of open space and rehabilitation of flood hazard areas. The POCD emphasizes strategic and smart growth principles and redevelopment. The Town recognizes that the 1% and the 0.2% annual chance floodplains and floodways should be protected. The POCD incorporates elements of the initial hazard mitigation plan, including a discussion of climate change impacts on flooding, and the potential impacts of dam failure.

Berlin's municipal codes and ordinances limit any activities on floodplains that would increase flood risk, and stipulate multiple floodproofing requirements. The Town seeks conservation easements for all new developments and acquires properties (when funding allows) that provide ecosystem services. Subdivision regulations require burial of utilities in new developments.

Berlin maintains an Emergency Operations Plan, has identified a variety of resources to assist with response to hazard events, and runs a training program for its emergency personnel. The Everbridge emergency notification system provides alert coverage above the CT Alerts system.

Drainage and flooding complaints are submitted through the town website, to Public Works, or to the Police Department, and are then routed to either the Fire Department or Public Works. The Town regularly sandbags certain properties at risk of flooding and owns a sandbag loader to lower the response time. The Town also evacuates flooding areas when necessary.

Berlin has an annual inspection and maintenance schedule for its 37 bridges and its culverts. Bridge replacements are prioritized based on whether or not a bridge is undersized based on the most recent NRCC rainfall return periods. New construction is designed using the most recent NRCC rainfall return periods.

Removal of the ice and snow for town-owned roads is handled by town workers and contractors; the town handles debris removal. The Town has an informal program to review



snow accumulation on town-owned roofs each winter, with clearing occurring when depths are sufficiently deep or wet.

Town departments have sufficient supplies to be prepared for the next major storm event. The Town has several chainsaws and a wood chipper, and a chipping and trimming contractor on call. Much of the tree trimming near power lines is conducted by Eversource Energy. The Town has a limited budget for tree maintenance (~\$15,000) which is considered sufficient at this time.

Berlin maintains mutual aid agreements with surrounding communities for fire protection. The Town has two dry hydrants, three 10,000-gallon underground storage tanks, and hydrants connected to municipal water systems. The Fire Department can require dry hydrants or cisterns in new developments. The Town has three Open Burning Officials.

The Town hired a consultant to perform dam inspections on a two-year and 5-year basis for its two dams based on the inspection requirements of Connecticut DEEP. The Town has prepared Emergency Action Plans (EAPs) for both dams and has copies of EAPs prepared for other dams whose failure could affect Berlin.

New Capabilities

Bridges and culverts replaced since adoption of the 2016-2021 Hazard Mitigation Plan for the Former Central Connecticut Region (“2016 HMP”) include the Farmington Avenue bridge and a culvert on High Road. Additional bridges are being reviewed for future replacement.

Berlin has posted information encouraging residents to sign up for the Everbridge emergency notification system on its website and emergency management Facebook page. Additionally, the police department has reverse 9-1-1 capabilities.

The Town’s “Dam Breakage Plan” is scheduled for completion in July 2018. The plan evaluates the dam-failure inundation areas for the two Town-owned dams. The Town will encourage residents in the at-risk areas to sign up for the Everbridge emergency notification system.

Challenges

Challenges Overview

The natural hazards that present the highest risk to Berlin include flooding, winter storms, and tropical storms/hurricanes. There have been 10 federally declared disasters or emergencies since 1999 that resulted in reimbursement requests to FEMA. The types of events on this list are consistent with the high-risk hazards identified above.

Berlin has experienced recurrent flooding throughout Town, with regular, localized flooding at known locations four to five times per year. The Town has identified flood risk areas along Farmington Avenue, Brook Meadow, Route 9, Fleming Road, and portions of Park Drive. Additionally, the downtown, various business parks, and shopping centers are in proximity to



streams. Six Repetitive Loss (RL) properties are listed in Berlin. At least one of them has been acquired, removed, and is now vacant land near the Stop & Shop Supermarket plaza. The RL properties are located in known areas of flood risk.

During larger precipitation events, floodwaters may divide the town into sections, isolating population centers such as Kensington and East Berlin. This can complicate evacuation and sheltering during emergencies. Berlin does not have any fixed evacuation routes in place.

During winter storms, ice and snow make roads impassable and knock down tree limbs, disrupting utility service. People can become stranded, potentially without heat or power. Similarly, the primary problem with regards to tropical storms and hurricanes is downed trees which interrupting power supply and hindering travel. Secondary impacts are generally caused by heavy rainfall.

Berlin is served by three public water systems that are interconnected with one another. The greatest areas of wildfire concern are the areas of Town that do not have public water service. These areas are located on the Metacomet side and the Southington side of Berlin. At the time of development of the 2016 HMP, the Town anticipated that a major burn would occur in the Ragged Mountain Preserve in the coming years because a significant amount of deadfall had accumulated. A number of fires have indeed occurred in that area, including small ones on May 5 and August 9, 2015, a large one on July 25, 2016, and another minor fire on April 17, 2017. Hikers are common in this area which increases potential risk for an accidental fire. A major burn in 1984 continued for a week and a half in this area.

A total of twenty-three dams could affect the Town of Berlin with their failure, and six Class C (high hazard) dams lie within the Town boundaries. The rupture of the Kenmere Dam in 1987 forced 80 million gallons of water into town; most of this water inundated a golf course, but had the downstream area been developed differently the outcome could have been far worse.

Hazard Losses

The economic losses faced by Berlin from natural hazards can be estimated by reviewing historic, and modeling future, loss figures. Loss estimates are summarized below.

Historic FEMA Payments

FEMA reimburses communities for hazard losses through programs including Public Assistance (PA) and the National Flood Insurance Program (NFIP). Combining PA and private flood insurance payments can give an estimate for total losses to a community.

The NFIP has paid 61 property damage claims in Berlin as of August 2017, totaling \$365,993. Berlin has 19 RL property claims to date from 6 RL properties totaling \$251,540.

Total PA reimbursements to the community were as follows:



- Flood Events: \$27,067 (\$1,425 annually)
- Hurricane Events: \$663,974 (\$34,946 annually)
- Winter Storm Events: \$1,573,671 (\$82,825 annually)

These are summarized in the tables below.

Table 3-2: Flood Event PA Reimbursements, Berlin

Incident	Sep 1999	Oct 2005
Declaration	9/23/1999	12/16/2005
Disaster No.	1302	1619
Entity	FEMA PA Reimbursement	
State	\$921	\$1,142
Municipal	\$5,542	\$19,461
Nonprofit	\$0	\$0
Total	\$6,463	\$20,604
Annualized	\$340	\$1,084

Table 3-3: Hurricane Wind Event PA Reimbursements, Berlin

Incident	Aug - Sep 2011 (T.S. Irene)
Declaration	9/2/2011
Disaster #	4023
Entity	FEMA PA Reimbursement
State	\$874
Municipal	\$663,100
Nonprofit	\$0
Total	\$663,974
Annualized	\$34,946

Table 3-4: Winter Storm PA Reimbursements, Berlin

Incident	Mar 2003	Dec 2003	Jan 2005	Feb 2006	Jan 2011	Oct 2011	Feb 2013
Declaration	3/11/03	1/15/04	2/17/05	5/2/06	3/3/11	11/17/11	3/21/13
Disaster #	3176	3192	3200	3266	1958	4046	4106
Entity	FEMA PA Reimbursement						
State	\$17,225	\$15,442	\$20,372	\$24,727	\$21,544	\$8,885	\$41,868
Municipal	\$50,642	\$54,130	\$66,290	\$68,307	\$62,727	\$868,827	\$250,754
Nonprofit	\$0	\$0	\$0	\$0	\$1,933	\$0	\$0
Total	\$67,867	\$69,572	\$86,661	\$93,033	\$86,203	\$877,712	\$292,622
Annualized	\$3,572	\$3,662	\$4,561	\$4,896	\$4,537	\$46,195	\$15,401



National Centers for Environmental Information Losses

The table below summarizes events in the National Centers for Environmental Information (NCEI) severe storm database that were specifically noted as having impacted the community since 2012.

Table 3-5: NCEI Database Losses since 2012, Berlin

Date	Event	Property Damage
7/18/2012	Lightning	\$10,000
5/31/2015	Flood	\$0
Total Thunderstorm		\$10,000
Total Flood		\$0

NCEI losses under other event categories (such as drought, high wind, flooding, and winter storms) were not specifically noted as impacting this community, though they did impact Hartford County and nearby towns. NCEI losses are reported in Section II of this Plan.

HAZUS-MH Losses

CRCOG used FEMA’s Hazus-MH model to analyze the risks that the community might face from flooding, hurricanes, and earthquakes. The model estimates economic losses due to damage to buildings and building contents, as well as other economic disruptions. Both residential and commercial structures are addressed. Losses from different hazards are summarized below. Where available, estimates from the previous and current versions of the HMP are provided side-by-side; differences between the two may have been caused by a combination of the following:

- Changes in methodology: such as hazard zone mapping
- Changes in data: such as population and property values
- Changes in the model: this HMP utilized Hazus-MH version 4.0 rather than 2.1
- Other factors: inherent in a complex software like Hazus-MH

More details are available in the Multi-Jurisdictional HMP. Ultimately, changes in the loss estimates reflect the reality that small differences in hazard event features can have a significant impact on losses incurred.



Table 3-6: Estimated Damages to Berlin from a 1% Annual-Chance Flood

Loss Type	2014 Results	2018 Results
Households Displaced	667	327
People Needing Shelter	1,297	421
Buildings at Least Moderately Damaged	61	0
Economic Losses		
Residential Building & Content Losses	\$22,720,000	\$17,023,179
Other Building & Content Losses	\$85,250,000	\$45,505,720
Total Building & Content Loss	\$108,350,000	\$62,528,899
Total Business Interruption Losses	\$390,000	\$2,800,644
TOTAL	\$108,740,000	\$65,329,543

Table 3-7: Estimated Damages to Berlin from a 1% Annual-Chance Hurricane

Loss Type	2014 Results (1938 event)	2018 Results (1% track)
Buildings at Least Moderately Damaged	681	1
Buildings Completely Damaged	2	0
Total Debris Generated (tons)	271,695	1743
Truckloads (at 25 tons/truck) of building debris	10,868	70
Economic Losses		
Residential Building & Content Losses	\$10,321,900	\$5,255,482
Other Building & Content Losses	\$1,027,950	\$244,254
Total Building & Content Loss	\$11,692,790	\$5,499,736
Total Business Interruption Losses	\$342,940	\$39,531
TOTAL LOSSES	\$12,035,730	\$5,539,267

Losses were calculated from a modeled probabilistic earthquake (1% annual-chance of occurrence), as well as for four specific scenarios with epicenters around Connecticut.

Table 3-8: Estimated Damages to Berlin from a Probabilistic Earthquake

Loss Type	2018 Results
Wage Loss	\$3,771
Rent Loss	\$2,952
Relocation Loss	\$5,170
Income Loss	\$3,287
Inventory Loss	\$689
Total Business Disruption	\$15,869
Structural Loss	\$10,861
Non-Structural Loss	\$34,433
Total Building Loss	\$45,294
Total Content Loss	\$15,159
TOTAL LOSSES	\$76,322



Table 3-9: Estimated Damages to Berlin from Modeled Earthquake Scenarios

Epicenter Location	Magnitude	Estimated Total Losses
East Haddam	6.4	\$606,079.85
Haddam	5.7	\$253,458.21
Portland	5.7	\$1,264,160.15
Stamford	5.7	\$8,983.53

Other Hazard Costs

Table 3-10 below considers the impact of Severe Winter Storms on the Town of Berlin based on Winter Storm Alfred in late October 2011. Debris removal was the biggest impact, costing \$615,000.

Table 3-10: Estimated Impacts from a Severe Winter Storm Comparable to Winter Storm Alfred, Berlin

Impact of Severe Winter Storm	Estimated Losses
Number of Electrical Customers Served (2013)	9,622
Maximum Outages During Severe Winter Storm (2011)	6,868
Maximum Outages Percentage of Customers (2011)	71.38%
Number of Businesses Experiencing Outages	9
Total Lost Wages (Daily)	\$1,872.08
Average Lost Wages (Weekly)	\$55,514.00
Miles of Local Roads Plowed by Town of Berlin	103.72
Municipal Cost (Plowing, Road Treatment)	\$806,438.88

Sources: Eversource, CCRPA Internal Analysis

The total property damage related to the 1987 Kenmere Reservoir dam failure was \$187,000.

Average Annualized Losses

Average Annualized Loss (AAL) figures are useful tools for comparison of the risks faced from different hazards with different likelihoods of occurring in a given time period. AAL estimates were prepared for the community based on the methodologies discussed in Section II of the Multi-Jurisdictional HMP. Dam failure, drought, tornado, and wildfire losses were sourced from the 2014 Connecticut Natural Hazard Mitigation Plan Update, with dam failure data supplemented by the National Performance of Dams Program and the Connecticut Department of Energy & Environmental Protection. Earthquake and hurricane losses were calculated in HAZUS-MH. Losses for flooding came from NFIP claims, for winter storms from Public Assistance Reimbursements, and for thunderstorms from the NCEI database. These are presented in the table below in dollars per year. Note that Hurricanes and Tropical Storms represent the largest share of total annualized losses.



Table 3-11: Average Annualized Losses, Berlin

Dam Failure	Drought	Earthquakes	Flooding	Hurricanes and Tropical Storms	Severe Winter Storms	Thunderstorms	Tornadoes	Wildfires	Total
\$36	\$0	\$76,322	\$11,056	\$1,245,371	\$82,825	\$2,638	\$291,471	\$4,892	\$1,714,611

Losses Summary

A review of the above loss estimates demonstrates that the Town of Berlin has experienced significant expenses as a result of natural hazards and is at risk for additional losses if some of the less-frequent events were to occur. These actual and potential losses justify hazard mitigation actions to reduce losses in the future.

Mitigation Strategies and Actions

Noted Hazard Mitigation Needs

The Town has expressed interest in a number of potential mitigation approaches, including:

- Determine an efficient, inexpensive method, such as using local newspapers, social media, and the Town website, to encourage residents to sign up for the Everbridge system.
- Acquire one more portable generator to provide additional redundancy to the existing backup power supplies.
- Acquire an additional portable generator for the Water Control Department to properly keep water and sewer infrastructure functioning during extended power outages.
- Acquire a generator for the Worthington Fire District water system.
- Codify low-impact development incentives into the subdivision and zoning codes.
- Purchase or elevate a home on Becker Avenue that frequently floods.
- Relocate the Physical Services Complex to an area outside the SFHA.
- Provide maintenance for, or replace, the dry hydrant in Paper Goods Pond.

Status of Previous Mitigation Strategies and Actions

The Town of Berlin reviewed the mitigation actions proposed in the 2016 HMP and determined the status of each. That information is included in the table below.



Table 3-12: Status of Previous Mitigation Strategies and Actions, Berlin

No.	Action	Notes	Status
GOAL: UPDATE TOWN POLICIES AND PLANS TO ENCOURAGE SOUND PRACTICES			
Objective 1: Update Town Policies and Plans to Encourage Sound Practices			
1.1	Complete the Dam Breakage Emergency Plan. This plan evaluates the impact of dam failure of two Town-owned dams and includes failure inundation mapping. Once this is complete, the Town will prepare formal EAPs for the two dams.	This plan is due for completion in July 2018. Town is looking for bonding to fix one of the dams. Town also looking to set aside money in budget next year for preparing new inundation maps for both dams.	Carry Forward with Revisions
1.2	Revise the subdivision/zoning code to offer incentives for low-impact development. Low-impact development techniques are anticipated to reduce the amount of stormwater runoff from new developments which could reduce the amount of flooding experienced over time.	Town has not made progress on this due to staffing and budgetary constraints.	Carry Forward
1.3	Incorporate updated hazard mitigation information into community plan updates. Hazard mitigation information will be incorporated into future plan updates such as the POCD.	POCD update will be in 2023. This is standard procedure and is a capability.	Capability
1.4	Participate in the statewide Water Utility Coordinating Committee process. The Connecticut DPH is preparing a Coordinated Water Supply Plan for the entire state beginning in 2016. The Town Water Department will participate to address drought-related public water supply needs throughout the community.	Berlin is a member of the Central WUCC planning region. Drought concerns include changing rainfall patterns with more rainfall occurring in spot events and more time between rainfall events, resulting in drier soils, lower groundwater tables, and potential impacts to groundwater safe yield. This is a capability.	Complete
1.5	Ensure local officials have most updated version of the Connecticut Drought Management Plan. The Connecticut Drought Management Plan is periodically updated. Local officials, land use commissions, health departments, fire departments, and local water utilities should all be made aware of updates to this plan.	Current Drought Plan is still from 2003, update is still in development. Town will make local officials aware of the newest plan when it is released. This is considered a capability.	Capability
Objective 2: Ensure access to critical facilities			
2.1	Relocate Physical Services Complex to higher ground. The Physical Services Complex is located in the floodplain and is at risk of flooding which can render it inoperable during flood events. A grant is necessary to relocate the facility.	This could not be implemented due to budget limitations. Town is looking at moving gasoline lines; all of these are in floodplain.	Carry Forward with Revisions



No.	Action	Notes	Status
2.2	Create duplicate facilities for the Physical Services Complex at the High School. The Physical Services Complex is located in the floodplain and is at risk of flooding which can render it inoperable during flood events. The High School has facilities (offices, computers, auto shop) that could allow it to act as a backup facility.	High School is surrounded by areas of flood risk, and student activity associated with the school is not compatible with public works operations. Therefore, it is preferable to move the complex to the golf course and Sage Park, which is remote open space. Priority changed to "medium".	Carry Forward with Revisions
Objective 3: Improve capacity to deal with hazards by investing in necessary equipment and training.			
3.1	Acquire generators for shelters and other critical facilities. The need for three generators has been identified to ensure that backup power is available for critical town functions. These include the purchase of an 800 kW generator for the High School so this facility can be converted to the primary shelter (and potentially backup Public Works use), an additional portable for the Town for general use, and an additional portable generator for the Water Control Department to ensure that sewer pumping stations can be maintained during outages. If the 800 kW generator is acquired, the existing 135 kW generator at the High School will be refurbished and installed onto a flatbed truck for portable use.	High School's 800 KW generator was purchased in Winter 2016. The existing 135 KW generator is currently being pulled out from high school and the town is looking at options to move it to middle school. Town needs a new generator for senior center; town is currently in discussions with the Housing Authority to pursue a generator for the senior center.	Carry Forward with Revisions
3.2	Refurbish or replace the dry hydrant in Paper Goods Pond. The dry hydrant is in a deteriorated condition and needs repair or replacement to function properly.	Town believes it has sufficient firefighting capacity without this hydrant; it may be abandoned.	Drop
3.3	Encourage the City of Meriden to perform repairs to Merimere Reservoir Dam. Merimere Reservoir Dam was listed as being in "Poor" condition on the 2013 Connecticut DEEP dam summary list. Town officials will contact the City and Connecticut DEEP to encourage repairs to reduce the likelihood of failure.	Project initiated in 2016. Town did hold discussions on this with Meriden and DEEP in recent past. The City of Meriden considers the dam to be in good condition based on an inspection in October 2017.	Drop



No.	Action	Notes	Status
Objective 4: Enable residents to better help themselves through preparedness education			
4.1	Encourage sign-ups for the Everbridge emergency notification system. The Town recently contracted with Everbridge to provide a town-wide emergency notification system. The Town wishes to use an efficient, inexpensive method to encourage sign-ups for this system beyond the current announcement on the Town website. Targeted mailings may be used to encourage signups in particularly vulnerable areas, such as special flood hazard areas and dam failure inundation areas.	Posted info on town website and on emergency management fb page (ongoing actions). Reverse 911 is in place with the Police Department.	Capability
Objective 5: Mitigate impacts to properties in the National Flood Insurance Program			
5.1	Acquire or elevate the property at risk of flooding on Becker Avenue. A home on Becker Avenue is routinely flooded. The Town routinely sandbags the property, and has instituted an enhanced culvert maintenance program nearby to reduce the frequency of flooding. However, the building continues to be at risk of flooding. The town would like to elevate or acquire and demolish the structure, but needs a grant to do so.	Town made several attempts with obtained HMPG grant money, met the requirements, but was reportedly denied grant. Town is now looking to see if culverts located upstream could be re-routed. Problem persists.	Drop; Replaced with New Action Below
5.2	Study the Mattabeset River culvert at Route 9 for potential mitigation options. The culvert conveying the river under Route 9 is considered undersized, but modifications will be expensive and could have downstream impacts. A study is needed to analyze alternatives and their potential impacts. The Town should work with CT DOT to study this area.	The Town has approached CT DOT, but that department has not been able to begin work at this point. Progress on this action is the responsibility of the State, and the Town is removing this action from its list.	Drop
5.3	Work with RL owners to mitigate RLs upon property owner request. Repetitive loss properties in Berlin are typically only damaged during severe flood events. Six repetitive loss properties are located in Berlin that have experienced 19 flood losses. Mitigation could include acquisition/demolition, elevation, floodproofing, or other techniques.	The Town has the capacity to work with RL owners if approached. This is a capability.	Drop Replaced with New RL-related Actions Below
5.4	Update the local floodplain management ordinance to meet current model ordinance requirements. The Town of Berlin last updated this ordinance in 2008. Since that time, FEMA and the Connecticut DEEP have revised the model ordinance including recommending the increase of the freeboard requirement to two feet for new buildings and substantial improvements.	Progress has not yet been made on this action due to lack of resources.	Carry Forward



Active Mitigation Strategies and Actions

The Town proposed to initiate several new mitigation actions for the upcoming five years. Additionally, a number of actions from the previous planning period are being carried forward or replaced with revised actions. These are listed below.

Each of the following actions has been prioritized based on FEMA guidelines, listed from highest to lowest priority, and numbered.

<i>Action #1</i>	
Enter the Sustainable CT program through Registration and review actions that can be undertaken to pursue Certification. Make progress with the actions related to hazard mitigation.	
Goal	4. Increase the use of natural, "green," or "soft" hazard mitigation measures, such as open space preservation and green infrastructure.
Category	Natural Resources Protection
Lead	Planning
Cost	\$0 - \$10,000
Funding	Town Operating Budget
Timeframe	01/2019 - 12/2019
Priority	High

<i>Action #2</i>	
Revise the subdivision/zoning code to offer incentives for low-impact development.	
Goal	2. Ensure Municipal Codes and Regulations support hazard mitigation
Category	Prevention
Lead	Planning
Cost	\$0 - \$10,000
Funding	Town Operating Budget
Timeframe	07/2019 - 06/2020
Priority	High



Action #3

Acquire generators for shelters and other critical facilities. The need for three generators has been identified to ensure that backup power is available for critical town functions. These include the purchase of an additional portable for the Town for general use, an additional portable generator for the Water Control Department to ensure that sewer pumping stations can be maintained during outages, and a new generator for the senior center.

Goal	7. Improve the emergency response capabilities of the region and its communities
Category	Preparedness & Emergency Response
Lead	Emergency Management
Cost	\$10,000 - \$25,000
Funding	Town Operating Budget / DEMHS
Timeframe	01/2019 - 12/2020
Priority	High

Action #4

Complete the Dam Breakage Emergency Plan.

Goal	7. Improve the emergency response capabilities of the region and its communities
Category	Preparedness & Emergency Response
Lead	Emergency Management
Cost	\$25,000 - \$50,000
Funding	Grants
Timeframe	07/2020 - 06/2021
Priority	High

Action #5

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

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



Action #6

Update the local floodplain management ordinance to meet current State guidelines.

Goal	2. Ensure Municipal Codes and Regulations support hazard mitigation
Category	Prevention
Lead	Planning
Cost	\$0 - \$10,000
Funding	Town Operating Budget
Timeframe	01/2020 - 12/2020
Priority	Medium

Action #7

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

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

Action #8

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

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



Action #9

Construct duplicate facilities for the Physical Services Complex at the golf course and Sage Park.

Goal	5. Improve the resilience of local and regional utilities and infrastructure using strategies including adaptation, hardening, and creating redundancies.
Category	Structural Projects
Lead	Public Works
Cost	More than \$100,000
Funding	Town Operating Budget / Grants
Timeframe	07/2022 - 06/2024
Priority	Medium

Action #10

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

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

Action #11

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

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



Action #12

Explore rerouting of culverts upstream of Becker Avenue to protect Becker Avenue property.

Goal	1. Minimize the impact of natural hazards on physical buildings and infrastructure
Category	Structural Projects
Lead	Public Works
Cost	\$10,000 - \$25,000
Funding	Town Operating Budget
Timeframe	07/2021 - 06/2023
Priority	Low

Action #13

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

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

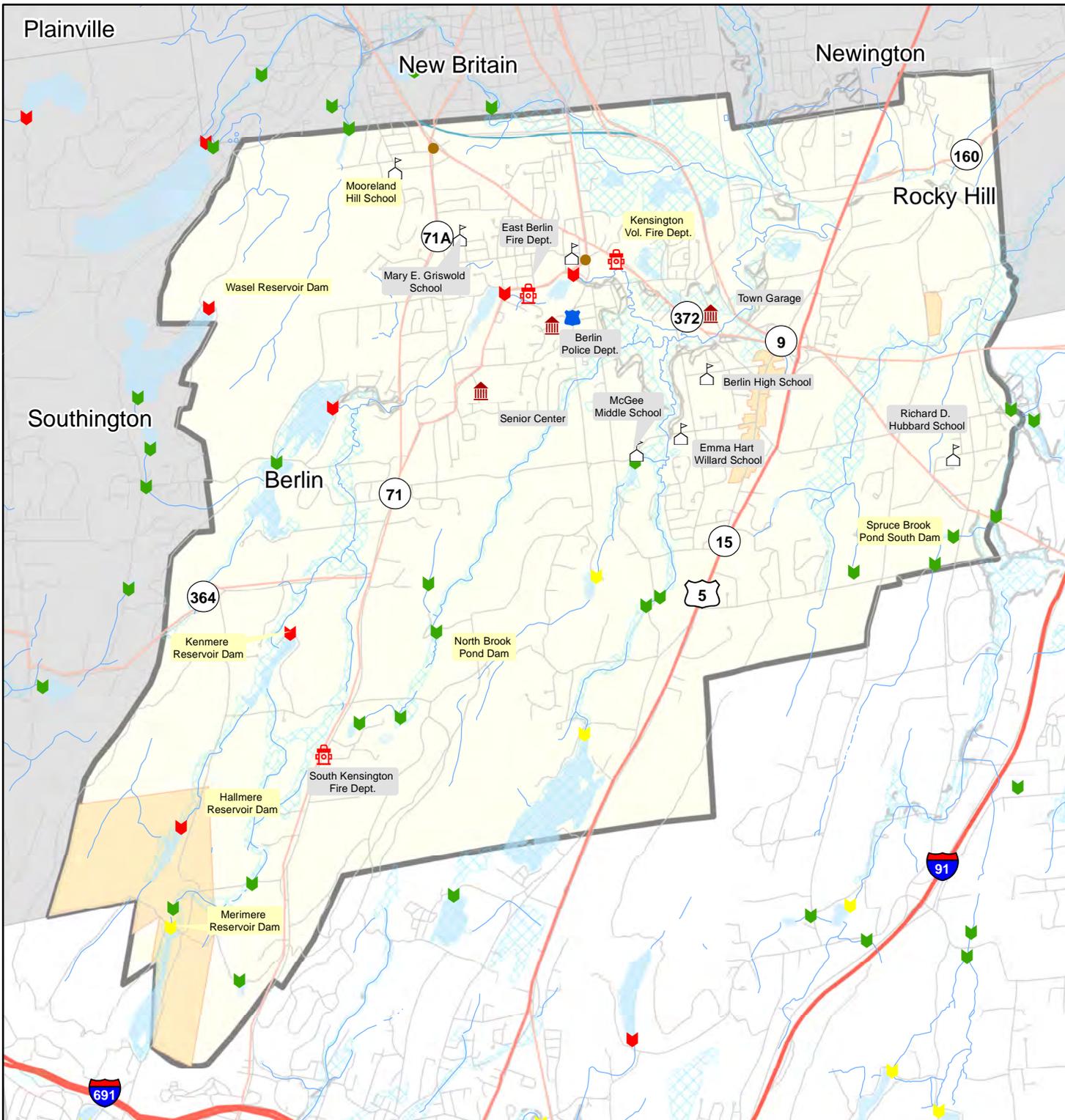
Action #14

Relocate gasoline lines feeding the Physical Services Complex to protect from flooding.

Goal	5. Improve the resilience of local and regional utilities and infrastructure using strategies including adaptation, hardening, and creating redundancies.
Category	Property Protection
Lead	Public Works
Cost	\$50,000 - \$100,000
Funding	Grants
Timeframe	07/2023 - 06/2024
Priority	Low







Capitol Region Natural Hazards Mitigation Plan Update

Berlin, Connecticut

Flood Plains, Dams & Critical Facilities

Dam Hazard Class

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

Critical Facilities

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

 NRHP Districts/Areas

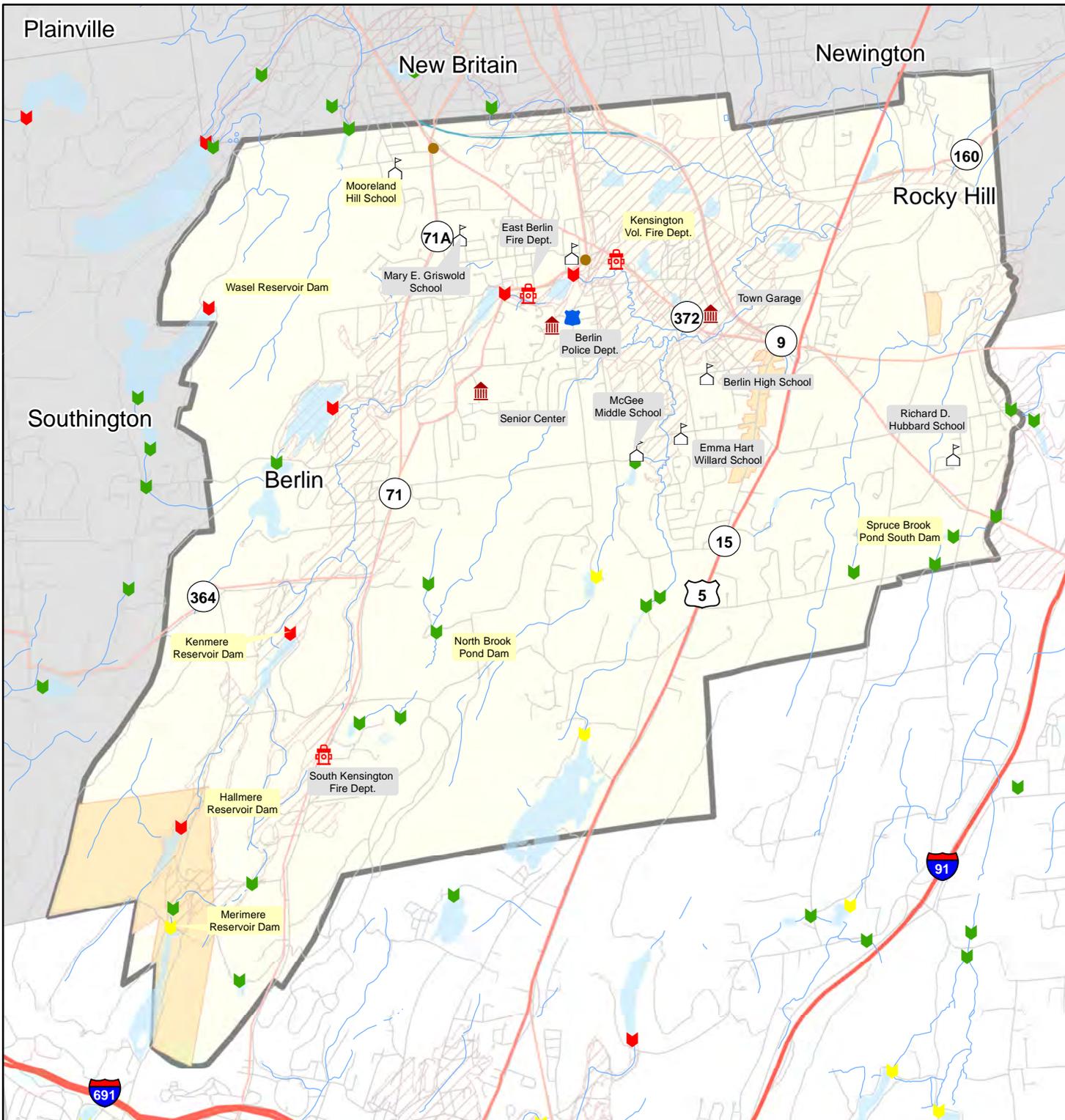
FEMA Flood Hazard Area

-  100 Year Flood Zone
-  500 Year Flood Zone

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



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Capitol Region Natural Hazards Mitigation Plan Update

Berlin, Connecticut

Dam Breach Inundation Area & Critical Facilities

Dam Hazard Class

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

Critical Facilities

-  Fire Station
-  Police Station
-  School
-  Healthcare Facility
-  State Facility
-  Town Facility
-  Waste Water Facility
-  Emergency Center
-  NRHP Buildings/Sites
-  NRHP Districts/Areas
-  Dam Breach Inundation Areas

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



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