

9.6 Borough of Berlin

This section presents the jurisdictional annex for the Borough of Berlin and includes resources and information to assist public and private sectors with reducing losses from future hazard events. This annex is not intended as guidance for actions to take during a disaster. Rather, this annex provides actions that can be implemented prior to a disaster to reduce or eliminate damage to property and people. The annex includes a general overview of the municipality and who in the Borough participated in the planning process, an assessment of the Borough of Berlin’s risk and vulnerability, the different capabilities used in the Borough, and an action plan that will be implemented to achieve a more resilient community.

9.6.1 Hazard Mitigation Planning Team

The Borough of Berlin followed the planning process described in Section 2 (Planning Process) in Volume I of this plan update and developed the annex over the course of several months with input from many Borough departments as summarized in the table below. The primary and alternate points of contact represented the community on the Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

The following table summarizes municipal officials that participated in the development of the annex and in what capacity, including the Borough of Berlin’s hazard mitigation plan primary and alternate points of contact. Additional documentation on the municipality’s planning process through Planning Partnership meetings is included in Section 2 (Planning Process) and Appendix C (Meeting Documentation).

Table 9.6-1. Hazard Mitigation Planning Team

Primary Point of Contact	Alternate Point of Contact
<p>Name/Title: Rushi Pandya, Emergency Management Coordinator Address: 59 South White Horse Pike, Berlin, NJ Phone Number: 856-904-9092 Email: emergencymanagement@berlinnj.org</p>	<p>Name/Title: Craig Fallstick, Deputy OEM Address: 59 South White Horse Pike, Berlin, NJ Phone Number: 609-685-2036 Email: cfallstick@comcast.net</p>
<p>NFIP Floodplain Administrator</p>	
<p>Name/Title: Debbie Simone, Zoning Official Address: 59 South White Horse Pike, Berlin, NJ Phone Number: 856-767-7777 Email: zoning@berlinnj.org</p>	
<p>Additional Contributors</p>	
<p>Name/Title: Fred Tuttle, Deputy Emergency Management Coordinator Method of Participation: Supported Mitigation Strategy and Project Development</p>	

9.6.2 Municipal Profile

According to the U.S. Census, the 2010 population for the Borough of Berlin was 7,588. The estimated 2019 population was 7,539, a 0.7 percent decrease from the 2010 Census. Data from the 2019 U.S. Census American Community Survey indicate that 5.1 percent of the population is 5 years of age or younger and 20.3 percent is 65 years of age or older. Communities must deploy a support system that enables all populations to safely reach shelters or to quickly evacuate a hazard area.

9.6.3 Jurisdictional Capability Assessment and Integration

The Borough of Berlin performed an inventory and analysis of existing capabilities, plans, programs, and policies that enhance its ability to implement mitigation strategies. Section 5 (Capability Assessment) describes the components included in the capability assessment and their significance for hazard mitigation planning. This section summarizes the following findings of the assessment:

- An assessment of planning, legal and regulatory capabilities.
- Development and permitting capabilities.
- An assessment of administrative and technical capabilities
- An assessment of fiscal capabilities.
- An assessment of education and outreach capabilities.
- Classification under various community mitigation programs.
- The community's adaptive capacity to withstand hazard events.

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. Annex development included reviewing planning and policy documents and surveying each jurisdiction to obtain a better understanding of their progress in plan integration and how risk reduction is supported. Areas with current mitigation integration are summarized in this jurisdictional Capability Assessment (Section 9.1.3). The updated mitigation strategy includes opportunities the Borough of Berlin identified for integration of mitigation concepts to be incorporated into municipal procedures.

9.6.3.1 Planning, Legal, and Regulatory Capability

Section 5 (Capability Assessment) provides an overview of the planning, legal, and regulatory capabilities. The table below summarizes the regulatory tools that are available to the Borough of Berlin, what is present in the jurisdiction, and code citation and date.

Table 9.6-2. Planning, Legal, and Regulatory Capability

	Do you have this? (Yes/No)	Required by State? (Yes/No)	Citation and Date (code chapter and enactment date or name of plan and date of plan)	Authority (local, Borough, state, federal)	Individual / Department / Agency Responsible
Codes, Ordinances, & Regulations					
Building Code		Yes		State and Local	
Zoning/Land Use Code		Yes, if the jurisdiction has a planning board		Local	
Subdivision Ordinance		Yes, if the jurisdiction has a planning board		Local	
Stormwater Management Ordinance		Yes		Local	
Post-Disaster Recovery/ Reconstruction Ordinance		No			
Real Estate Disclosure		Yes		State	
Growth Management		Yes, if the jurisdiction has a planning board		Local	
Site Plan Ordinance		Yes, if the jurisdiction has a planning board		Local and Borough	
Environmental Protection Ordinance		Yes, depends on type of environmental areas			
Flood Damage Prevention Ordinance		Yes		Federal, State, Borough and Local	
Wellhead Protection		No			
Emergency Management Ordinance		No			

	Do you have this? (Yes/No)	Required by State? (Yes/No)	Citation and Date (code chapter and enactment date or name of plan and date of plan)	Authority (local, Borough, state, federal)	Individual / Department / Agency Responsible
Climate Change Ordinance		No			
Disaster Recovery Ordinance		No			
Disaster Reconstruction Ordinance		No			
Other		-			

Codes, Ordinances, & Regulations Connection to Mitigation and Safe Growth

How are codes, ordinances and regulations contributing to risk reduction in your community?

- Building Code:
 - The State of New Jersey has adopted the 2018 International Building Code (IBC). Flood design provisions are found in the Building Subcode (Section 1612), Residential Subcode, Rehabilitation Subcode, and Plumbing, Mechanical, and Fuel Gas subcodes. The flood provisions are deemed by FEMA to meet or exceed NFIP requirements for buildings and structures.
 - The IBC includes design requirements for structural wind resistance. Design wind speeds in New Jersey vary based on structure type and location, with higher wind design speeds required in coastal areas.
- Flood Damage Prevention Ordinance:
 - A local flood damage prevention ordinance sets design standards for reducing flood losses and is required for participation in the National Flood Insurance Program.
 - The local flood damage prevention ordinance requires permits for floodplain development, adopts and enforces flood maps, requires new and substantially improved structures be elevated above the base flood elevation, among other standards.
 - In the State of New Jersey, all new and substantially improved structures are required to be elevated at least one foot above the base flood elevation.
- Stormwater Ordinance
 - New Jersey municipalities enact stormwater management ordinances to regulate runoff quantity and quality, groundwater recharge, and erosion control. Municipalities are required to update their municipal stormwater control ordinance to reflect amendments to the Stormwater Management rules at N.J.A.C. 7:8, adopted March 2, 2020 and should use [NJ DEP's Model Stormwater Control Ordinance for Municipalities](#).
 - Stormwater ordinances for major development require mitigating runoff by requiring that peak runoff rates for the 2, 10, and 100-year storms be below pre-construction conditions and not increase flood damage downstream of the site.

Prior to zoning changes or development approvals, does the jurisdiction review the hazard mitigation plan and other hazard analyses to ensure consistent and compatible land use?

Does the zoning ordinance discourage development or redevelopment within natural areas including wetlands, floodways, and floodplains?

Does the ordinance require developers to take additional actions to mitigate natural hazard risk?

Do rezoning procedures recognize natural hazard areas as limits on zoning changes that allow greater intensity or density of use?

Do the subdivision regulations restrict the subdivision of land within or adjacent to natural hazard areas?

	Do you have this? (Yes/No)	Required by State? (Yes/No)	Citation and Date (code chapter and enactment date or name of plan and date of plan)	Authority (local, Borough, state, federal)	Individual / Department / Agency Responsible
<i>Do the regulations provide for conservation subdivisions or cluster subdivisions in order to conserve environmental resources?</i>					
<i>Do the regulations allow density/development transfers where hazard areas exist?</i>					
Planning Documents					
Master Plan		Yes			
Capital Improvement Plan	No	No	-	-	-
Disaster Debris Management Plan	No	No	-	-	-
Floodplain Management or Watershed Plan		No			
Stormwater Management Plan		All but Boroughs of Pine Valley and Tavistock			
Stormwater Pollution Prevention Plan		All but Boroughs of Pine Valley and Tavistock			
Urban Water Management Plan	No	No	-	-	-
Habitat Conservation Plan	No	No	-	-	-
Economic Development Plan	No	No	-	-	-
Shoreline Management Plan	No	No	-	-	-
Community Wildfire Protection Plan	No	No	-	-	-
Community Forestry Management Plan	No	No	-	-	-

	Do you have this? (Yes/No)	Required by State? (Yes/No)	Citation and Date (code chapter and enactment date or name of plan and date of plan)	Authority (local, Borough, state, federal)	Individual / Department / Agency Responsible
Transportation Plan	No	No	-	-	-
Agriculture Plan	No	No	-	-	-
Climate Action/ Resiliency Plan	No	No	-	-	-
Tourism Plan	No	No	-	-	-
Business/ Downtown Development Plan	No	No	-	-	-
Other	No	No	-	-	-
Planning Connection to Mitigation and Safe Growth					
<i>How are your plans contributing to risk reduction in your community?</i>					
<i>Does the future land use map clearly identify natural hazard areas?</i>					
<i>Do the land use policies discourage development or redevelopment within natural hazard areas?</i>					
<i>Does the land use plan provide adequate space for expected future growth in areas located outside natural hazard areas?</i>					
<i>Is transportation policy used to guide growth to safe locations?</i>					
<i>Are transportation systems designed to function under disaster conditions (e.g. evacuation)?</i>					
<i>Are environmental systems that protect development from hazards identified and mapped (i.e., dunes, rip rap, defensible space, wetlands/natural shoreline)?</i>					
<i>Do environmental policies maintain and restore protective ecosystems?</i>					
Response/Recovery Planning					
Emergency Operations Plan		Yes			
Strategic Recovery Planning Report		No			
Threat & Hazard Identification & Risk		No			

	Do you have this? (Yes/No)	Required by State? (Yes/No)	Citation and Date (code chapter and enactment date or name of plan and date of plan)	Authority (local, Borough, state, federal)	Individual / Department / Agency Responsible
Assessment (THIRA)					
Post-Disaster Recovery Plan		No			
Continuity of Operations Plan		No			
Public Health Plan		No			
Other		-			
Response/Recovery Planning Connection to Mitigation and Safe Growth					
<p>How do your response/recovery plans contribute to risk reduction in your community?</p> <ul style="list-style-type: none"> Emergency Operations Plan (EOP): <ul style="list-style-type: none"> NJ Rev Stat § App.A:9-43.2 (2013) requires a written Emergency Operations Plan (EOP) for each Borough and municipality in the State that coordinates with neighboring jurisdictions. EOPs must address the needs of animals and individuals with animals; evacuation procedures for hospitals and health care facilities; and addressing evacuation of families and dependents of emergency responders. EOPs must include a basic plan as well as Emergency Support Functions (ESF) annexes that address public information, hazardous materials, emergency warnings, and related subjects. Emergency operations plans must be certified for approval by the New Jersey Office for Emergency Management. <p>Does your EOP cover short-term response and long-term recovery to address communications, evacuation, and housing necessary for identified hazards?</p>					

9.6.3.2 Development and Permitting Capability

The table below summarizes the capabilities of the Borough of Berlin to oversee and track development.

Table 9.6-3. Development and Permitting Capability

Indicate if your jurisdiction implements the following	Yes/No	Comment
Do you issue development permits? - If yes, what department is responsible? - If no, what is your process for development?		
Are permits tracked by hazard area? (For example, floodplain development permits.)		
Do you have a buildable land inventory? - If yes, describe. - If no, quantitatively describe the level of buildout in the jurisdiction.		

9.6.3.3 Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Borough of Berlin and their current responsibilities which contribute to hazard mitigation.

Table 9.6-4. Administrative and Technical Capabilities

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Administrative Capability		
Planning Board		
Zoning Board of Adjustments		
Planning Department		
Mitigation Planning Committee		
Environmental Board/Commission		
Open Space Board/Committee		
Economic Development Commission/Committee		
Public Works/Highway Department		
Construction/Building/Code Enforcement Department		
Emergency Management/Public Safety Department		
Warning Systems / Services (mass notification system, outdoor warning signals)		
Maintenance programs to reduce risk (stormwater maintenance, tree trimming, etc.)		
Mutual aid agreements		
Human Resources Manual - Do any job descriptions specifically include identifying or implementing mitigation projects or other efforts to reduce natural hazard risk?		
Other		
Technical/Staffing Capability		
Planners or engineers with knowledge of land development and land management practices		
Engineers or professionals trained in building or infrastructure construction practices		
Planners or engineers with an understanding of natural hazards		
Staff with expertise or training in benefit/cost analysis		
Professionals trained in conducting damage assessments		
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications		
Scientist familiar with natural hazards		

Resources	Available? (Yes/No)	Comments (available staff, responsibilities, support of hazard mitigation)
Surveyor(s)		
Emergency Manager		
Grant writer(s)		
Resilience Officer		
Other (this could include stormwater engineer, environmental specialist, etc.)		
How do your administrative/technical capabilities contribute to risk reduction in your community?		

9.6.3.4 Fiscal Capability

The table below summarizes financial resources available to the Borough of Berlin.

Table 9.6-5. Fiscal Capabilities

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
Community development Block Grants (CDBG, CDBG-DR)	
Capital improvements project funding	
Authority to levy taxes for specific purposes	
User fees for water, sewer, gas or electric service	
Impact fees for homebuyers or developers of new development/homes	
Stormwater utility fee	
Incur debt through general obligation bonds	
Incur debt through special tax bonds	
Incur debt through private activity bonds	
Withhold public expenditures in hazard-prone areas	
Other federal or state funding programs	
Open Space Acquisition funding programs	
Other (for example, Clean Water Act 319 Grants [Nonpoint Source Pollution])	
Fiscal Connection to Mitigation and Safe Growth	
<p>How do your fiscal capabilities contribute to risk reduction in your community?</p> <p>When constructing upcoming budgets, hazard mitigation actions will be funded as budget allows. Construction projects will be evaluated to see if they meet the hazard mitigation goals.</p> <p>Annually, the jurisdiction will review mitigation actions when allocating funding.</p> <p>Do budgets limit expenditures on projects that would encourage development in areas vulnerable to natural hazards?</p>	

Financial Resources	Are these accessible or eligible to use for mitigation? (Yes/No) If yes, please describe. If no, can this be used to support in the future?
<i>Do infrastructure policies limit extension of existing facilities and services that would encourage development in areas vulnerable to natural hazards?</i>	
<i>Do budgets provide funding for hazard mitigation projects identified in the Borough HMP?</i>	

9.6.3.5 Education and Outreach Capability

The table below summarizes the education and outreach resources available to the Borough of Berlin.

Table 9.6-6. Education and Outreach Capabilities

Outreach Resources	Available? (Yes/No)	Does the jurisdiction have any public outreach mechanisms / programs in place to inform citizens on natural hazards, risk, and ways to protect themselves during such events? If yes, please describe.
Public information officer or communications office	Yes	Borough Clerk
Personnel skilled or trained in website development	Yes	Borough Clerk
Hazard mitigation information available on your website	Yes	Emergency Management page
Social media for hazard mitigation education and outreach	Yes	Facebook, Twitter, Instagram
Citizen boards or commissions that address issues related to hazard mitigation	No	-
Other programs already in place that could be used to communicate hazard-related information	Yes	Newsletter
Warning systems for hazard events	Yes	Civic Ready Alert
Natural disaster/safety programs in place for schools	Unknown	-
Other	No	-

9.6.3.6 Community Classifications

The table below summarizes classifications for community programs available to the Borough of Berlin.

Table 9.6-7. Community Classifications

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	No	-	-
Building Code Effectiveness Grading Schedule (BCEGS)	No	-	-
Public Protection (ISO Fire Protection Classes 1 to 10)	No	-	-

Program	Participating? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Sustainable Jersey	No	N/A	Registered 10/18/2013
StormReady Certification	No	-	-
Firewise Communities classification	No	-	-

Note:

- N/A Not applicable
- NP Not participating
- Unavailable

9.6.3.7 Adaptive Capacity

Adaptive capacity is defined as “the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or respond to consequences” (IPCC 2014). In other words, it describes a jurisdiction’s current capabilities to adjust to, protect from, or withstand a future hazard event, future conditions, and changing risk. The table below summarizes the adaptive capacity for each hazard of concern and the jurisdiction’s rating.

Table 9.6-8. Adaptive Capacity

Hazard	Adaptive Capacity - Strong/Moderate/Weak*
Coastal Erosion/Sea Level Rise	Moderate
Dam Failure/Levee Failure	Moderate
Disease Outbreak/Pandemic	Moderate
Drought	Moderate
Earthquake	Weak
Extreme Temperatures	Strong
Flood	Moderate
Geological Hazards	Moderate
High Wind	Strong
Invasive Species/Harmful Algal Bloom	Moderate
Severe Summer Weather	Strong
Severe Winter Weather	Strong
Wildfire	Moderate

*Strong = Capacity exists and is in use, Moderate = Capacity may exist; but is not used or could use some improvement, Weak = Capacity does not exist or could use substantial improvement.

9.6.4 National Flood Insurance Program (NFIP) Compliance

The table below provides specific information on the management and regulation of the regulatory floodplain, including current and future compliance with the NFIP.

Table 9.6-9. NFIP Summary

NFIP Topic	Comments
Flood Vulnerability Summary	
<ul style="list-style-type: none"> # NFIP Policies: 2 # RL properties: 0 # SRL properties: 0 # RL/SRL mitigated: 0 	<ul style="list-style-type: none"> Total premium in force: \$909 # claims filed: 7 Total loss payments: \$10,063
Describe areas prone to flooding in your jurisdiction.	118 Cross keys Road, Berlin NJ
Do you maintain a list of properties that have been damaged by flooding?	No
Do you maintain a list of property owners interested in flood mitigation, and if so, how many are interested in (elevation or acquisition)?	No
How do you make Substantial Damage determinations? <ul style="list-style-type: none"> How many were declared for recent flood events in your jurisdiction? 	The last time this occurred, our local DPW was able to clean out the storm water drains
Detail any RiskMAP projects currently underway in your jurisdiction.	No
Do your flood hazard maps adequately address the flood risk within your jurisdiction? <ul style="list-style-type: none"> If not, state why. 	Yes
NFIP Administration	
What local department is responsible for floodplain management?	Zoning
Are any staff certified floodplain managers (CFMs) or is a consultant retained?	
Provide an explanation of who in your municipality provides NFIP administration services (permit review, GIS, education/outreach, inspections, engineering capability).	
What specific training or support does your floodplain management staff need to support its floodplain management program?	
How do you determine if proposed development on an existing structure would qualify as a substantial improvement?	
Do you have access to resources to determine possible future flooding conditions from climate change?	
NFIP Compliance	
List any outstanding NFIP compliance violations.	None
When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)?	None
What is the local law number or municipal code of your flood damage prevention ordinance? What is the date that your flood damage prevention ordinance was last amended?	
Does your floodplain management program meet or exceed minimum requirements? <ul style="list-style-type: none"> If exceeds, in what ways? 	Meets
Are there other local ordinances, plans, or programs (site plan review, consideration of flood risk reduction when granting	

NFIP Topic	Comments
height variances) that support floodplain management and meeting the NFIP requirements?	
Does your jurisdiction participate in CRS? <ul style="list-style-type: none"> If yes, is your jurisdiction interested in improving its CRS Classification? If no, is your jurisdiction interested in joining the CRS program? 	No

Source:

Notes:

RL—Repetitive Loss; SRL—Severe Repetitive Loss; NA—Not applicable

9.6.5 Growth/Development Trends

Understanding how past, current, and projected development patterns have or are likely to increase or decrease risk in hazard areas is a key component to understanding a jurisdiction’s overall risk to its hazards of concern. The table below summarizes recent and expected future development trends, including major residential/commercial development and major infrastructure development.

Table 9.6-10. Recent and Expected Future Development

Type of Development	2016		2017		2018		2019		2020		2021	
Number of Building Permits for New Construction Issued Since the Previous HMP* (within regulatory floodplain/ outside regulatory floodplain)												
	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA	Total	Within SFHA
Single Family	5	0	2	0	0	-	3	0	19	0	3	0
Multi-Family	0	-	0	-	5	0	1	0	5	0	1	0
Other	0	-	0	-	1	0	1	0	1	0	0	-
Total Permits Issued	5	0	2	0	6	0	5	0	25	0	4	0
Property or Development Name	Type of Development	# of Units / Structures		Location (address and/or block and lot)		Known Hazard Zone(s)*		Description / Status of Development				
Recent Major Development and Infrastructure from 2015 to Present												
Known or Anticipated Major Development and Infrastructure in the Next Five (5) Years												

SFHA Special Flood Hazard Area (1% annual chance flood event)

* Only location-specific hazard zones or vulnerabilities identified.

9.6.6 Jurisdictional Risk Assessment

The hazard profiles in Section 4 (Risk Assessment) provide detailed information regarding each plan participant’s vulnerability to the identified hazards. Section 4.2 (Methodology and Tools), Section 4.3 (Hazards of Concern), and Section 4.4 (Hazard Ranking) provide a detailed summary for the Borough of

Berlin’s risk assessment results, and data used to determine the hazard ranking are discussed later in this section.

Hazard area extent and location maps provided below illustrate the probable areas impacted within the jurisdiction. These maps are based on the best available data at the time of the preparation of this plan and are adequate for planning purposes. Maps were only generated for those hazards that can be clearly identified using mapping techniques and technologies and for which the Borough of Berlin has significant exposure. The maps also show the location of potential new development, where available.

DRAFT

Figure 9.6-1. Borough of Berlin Hazard Area Extent and Location Map 1

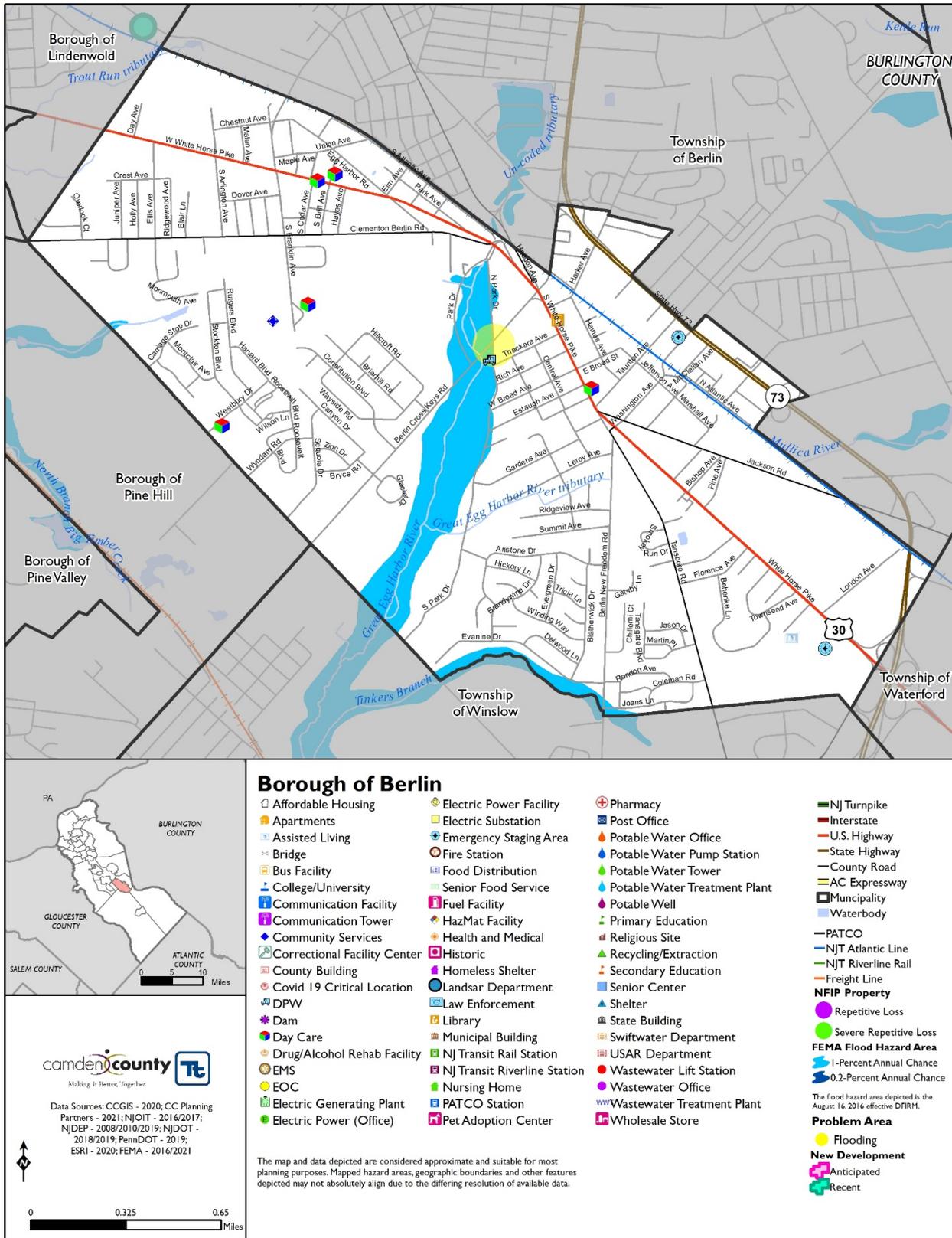


Figure 9.6-2. Borough of Berlin Hazard Area Extent and Location Map 2

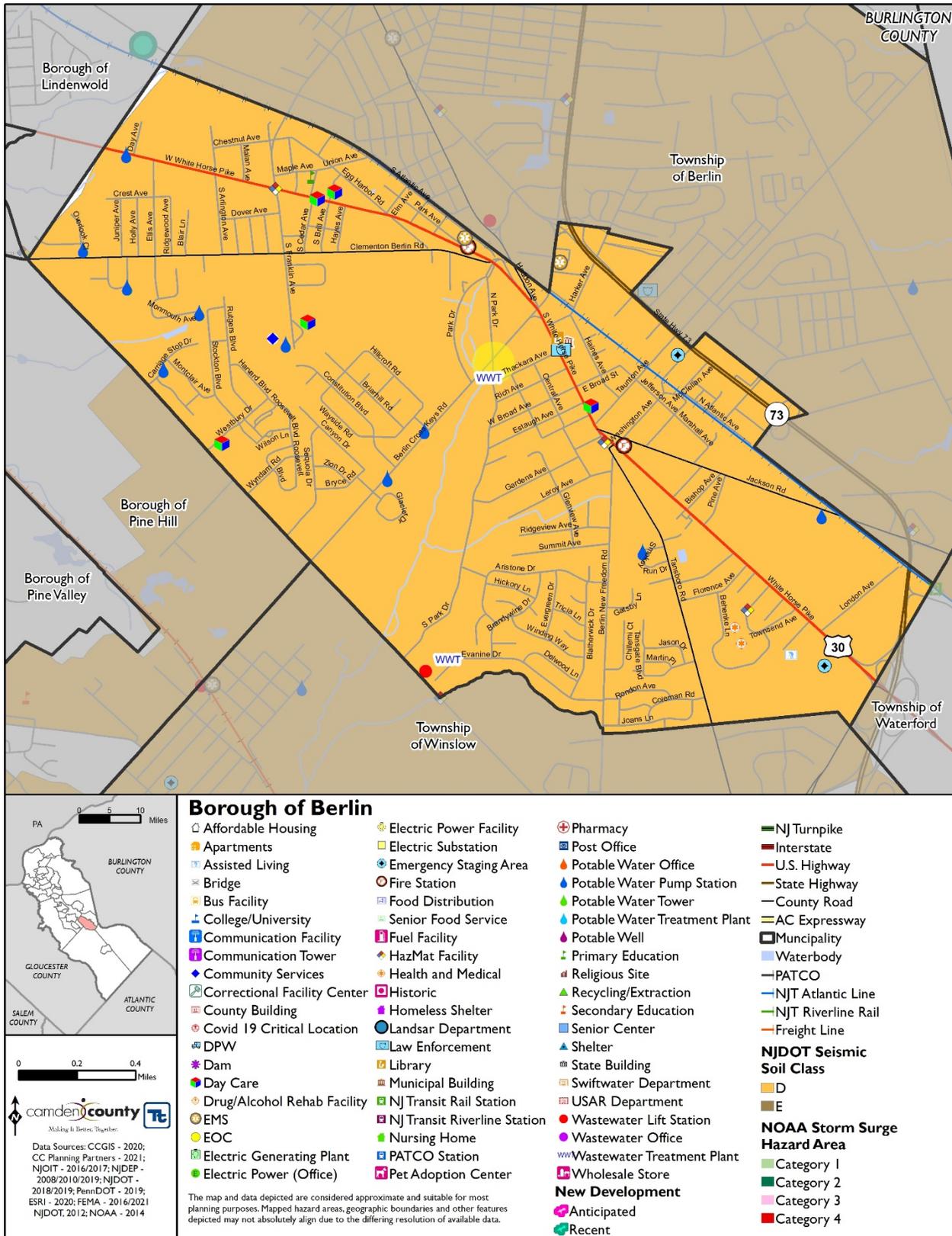


Figure 9.6-3. Borough of Berlin Hazard Area Extent and Location Map 3

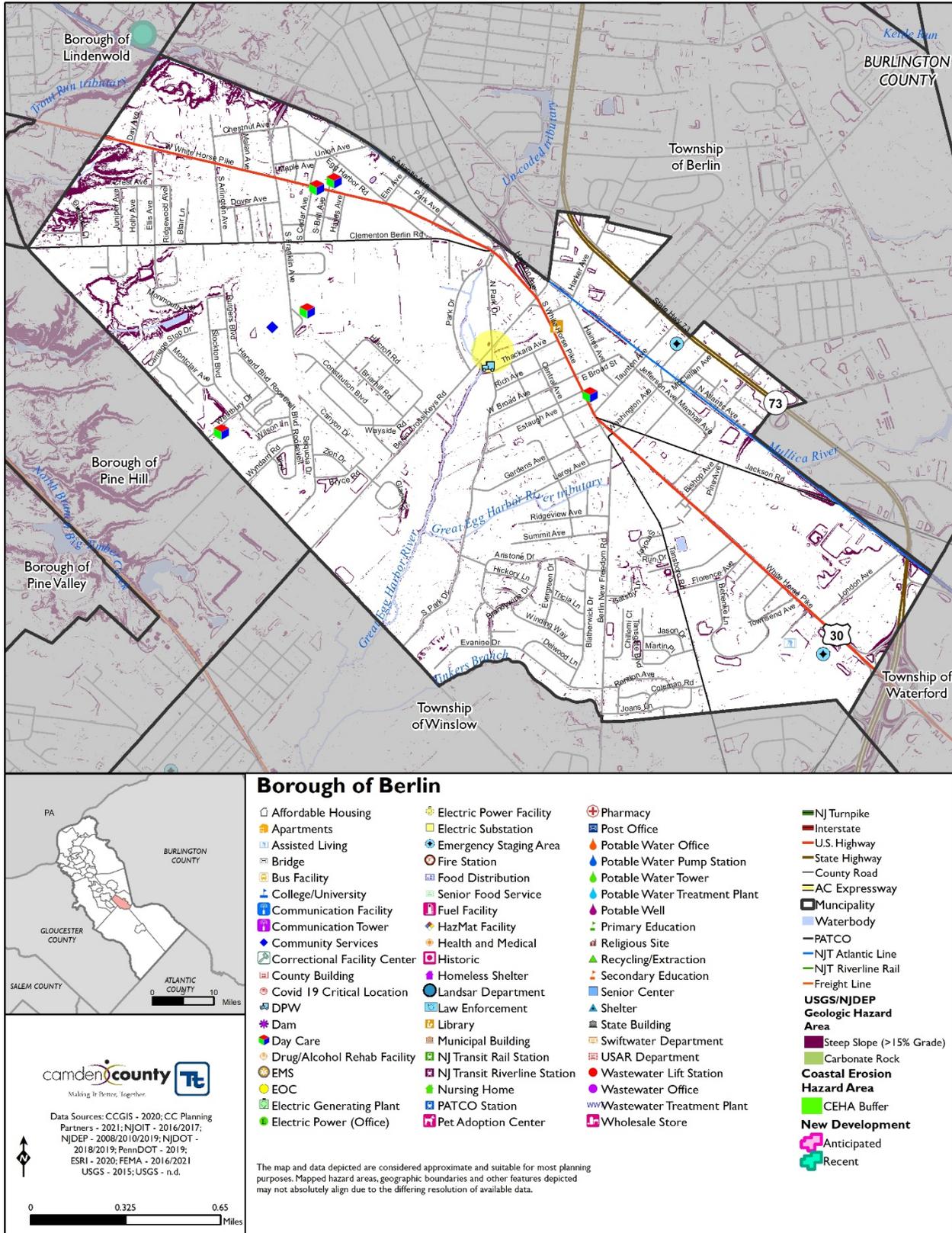
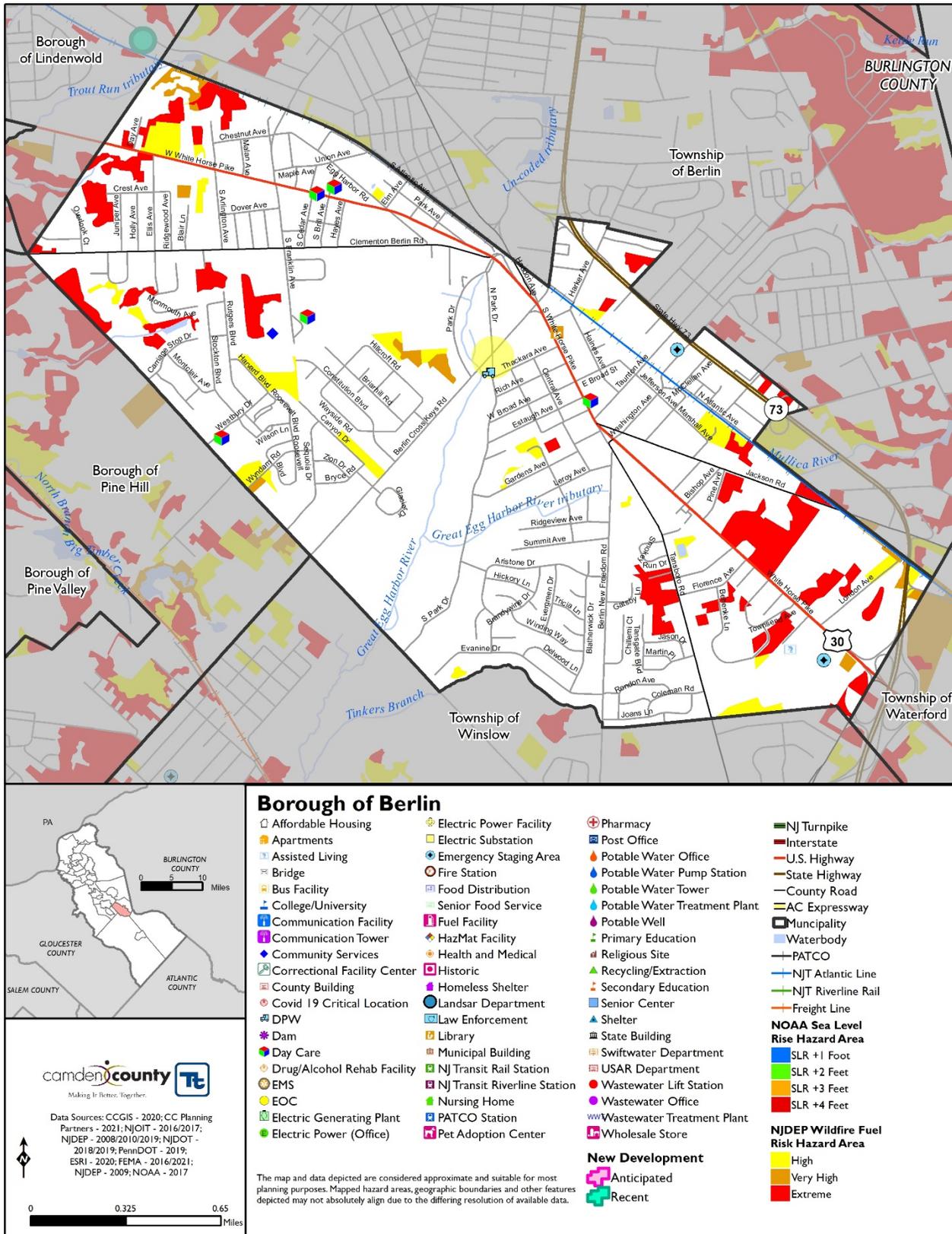


Figure 9.6-4. Borough of Berlin Hazard Area Extent and Location Map 4



9.6.6.1 Hazard Event History

Camden County has a history of natural hazard events as detailed in Section 4 (Risk Assessment) of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the Borough and its municipalities.

The Borough of Berlin’s history of federal declarations (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Camden County. The table below provides details regarding municipal-specific loss and damages the Borough experienced during hazard events since the last hazard mitigation plan update. Information provided in the table below is based on reference material or local sources.

Table 9.6-11. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
February 15, 2015	Cold/Wind Chill	No	The center of an arctic air mass brought some of the lowest wind chills and temperatures of the winter season to New Jersey. Wind chill factors were recorded as low as 22 degrees below zero, with actual temperatures reaching -2°F.	The extreme cold weather caused pipes to freeze and burst, displacing 16 residents from the Gloucester Township Senior Campus. Property damages in Camden County were estimated at \$150,000.
June 23, 2015	Severe Storm (DR-4231-NJ)	Yes	Hot and humid air combined with an approaching cold mass, resulting in a squall line of severe thunderstorms to move through southern new Jersey on the afternoon of June 23. Estimated wind gusts reached 85 mph and knocked down thousands of trees and caused extensive damages and power losses to over 410,000 homes throughout the area.	The Camden County Public Safety Office fielded over 3,500 calls for assistance during the event. Damages included crop losses, and structural damages to buildings and facilities throughout the County, an estimated total over \$3.35 million.
January 22 – 24, 2016	Severe Winter Storm and Snowstorm (DR-4264-NJ)	Yes	A low-pressure system moved up along the Carolina Coast intensifying into a major nor’easter, producing record snowfall in New Jersey on January 23. Wind gusts reached upwards of 60 mph and visibility was one-quarter mile or less throughout the region. Damages across the state were estimated at \$82.6 million.	Up to 22 inches of snow was reported in Camden County.

Dates of Event	Event Type (Disaster Declaration if applicable)	County Designated?	Summary of Event	Municipal Summary of Damages and Losses
March 6, 2018	Winter Storm	No	A low pressure system moved northeast across Delaware and New Jersey bringing a wintry snow/rain mix overnight on March 6. Across the state, snowfall totals ranged from 6 to 24 inches. Heavy, wet snow downed trees and limbs leaving 350,000 customers state-wide without power.	Snowfall totals in Camden County reached 9 inches in some areas near the Delaware River.
January 20, 2020 – Present	Covid-19 Pandemic (EM-3451-NJ) (DR-4488-NJ)	Yes	Beginning on January 20, 2020, the pandemic resulting from the Coronavirus Disease (COVID-19) created conditions of sufficient severity and magnitude to warrant a disaster declaration in the State of New Jersey.	Between March 1, 2020 and February 18, 2021, Camden County reported 38,352 confirmed cases of COVID-19, and 1,023 total fatalities.

Source: NOAA NCEI 2021

9.6.6.2 Hazard Ranking and Vulnerabilities

The hazard profiles in Section 4.3 (Hazards of Concern) of this plan have detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the Borough of Berlin’s risk assessment results and data used to determine the hazard ranking.

Hazard Ranking

This section provides the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 4 (Risk Assessment) of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 4.4 (Hazard Ranking), each participating jurisdiction can have differing degrees of risk exposure and vulnerability compared with Borough of Berlin as a whole. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Borough of Berlin. The Borough of Berlin reviewed the Borough hazard risk/vulnerability risk ranking table, including municipal-specific results, to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the Borough indicated the following:

- The Borough agreed that the calculated rankings accurately reflected the risk posed to the community

Table 9.6-12. Hazard Ranking Input

Coastal Erosion/ Sea Level Rise	Dam Failure/ Levee Failure	Disease Outbreak/ Pandemic	Drought	Earthquake	Extreme Temperatures	Flood
Low	Low	Medium	Medium	Low	Medium	Medium
Geological Hazards	High Wind	Invasive Species/ Harmful Algal Bloom	Severe Summer Weather	Severe Winter Weather	Wildfire	
Low	High	Medium	Medium	High	Low	

Note: The scale is based on the hazard rankings established in Section 4.4 (Hazard Ranking) and modified as appropriate during review by the jurisdiction.

Critical Facilities

The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazus estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.6-13. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Addressed by Proposed Action
		1% Event	0.2% Event	
Department of Public Works	DPW	A	-	2022-B. Berlin-003
Water Treatment Facility	Wastewater Treatment Plant	A	-	2022-B. Berlin-003

Source: FEMA DFIRM - 2016

9.6.6.3 Identified Issues

After review of the Borough of Berlin’s hazard event history, hazard rankings, jurisdiction specific vulnerabilities, hazard area extent and location, and current capabilities, the Borough of Berlin has identified the following vulnerabilities within their community:

- The Berlin EMS facility does not have backup power
- Flooding issues along County Roads – Cross Keys Road and Park Drive

Specific areas of concern based on resident response to the citizen survey include:

- “Recent storms have caused damage to our [Berlin EMS] building’s roof and during power outages we lose all power to our building since we do not have a backup generator.”

9.6.7 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

9.6.7.1 Past Mitigation Initiative Status

The following table indicates progress on the community’s mitigation strategy identified in the 2017 HMP. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and are discussed in the ‘Capability Assessment’ presented previously in this annex.

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Table 9.6-14. Status of Previous Mitigation Actions

#	2017 Action Description	Responsible Party	What is the status? (e.g., In Progress, No Progress, Ongoing Capability, or Completed) If in progress or completed, please describe the funding source, cost and who is implementing.	If you did not complete the action, should the action be included in the 2022 HMP (i.e., there is still a need, this is still a priority)?		
				Yes/No	If Yes, please describe the original problem (i.e., hazard, location, historic losses)	If Yes, identify the responsible department/person to implement the project.
M-1	Identify and pursue outreach and education opportunities.	Municipal OEM	Participate in Fall Festival.	Yes	Outreach must be ongoing	DPW/OEM
M-2	Prioritize critical facilities and complete site and facility surveys to identify vulnerabilities and potential mitigation measures.	Municipal OEM and Facility Managers	Currently identifying critical water infrastructure vulnerabilities and mitigation.	Yes	Identify critical Sewer and Stormwater vulnerabilities.	Engineer/DPW
M-3	Conduct regular Municipal Working Group meetings.	Municipal OEM and Municipal Working Group	Workshops help for critical water infrastructure vulnerabilities.	Yes	Outreach must be ongoing	Engineer/DPW/OEM
M-4	Install permanent back-up emergency power generator for the Community Center located at 250 South Franklin Avenue (CF-11).	Municipal OEM	No progress	Yes	-	DPW
M-5	Install permanent back-up emergency power generator for the EMS located at 8 Park Avenue (CF-1).	Municipal OEM	No progress	Yes	Highest Priority	DPW
M-6	Address identified Repetitive Flood Loss Properties.	Floodplain Administrator	No progress	Yes	Various locations.	DPW
MJ-1	Alleviate flooding along Camden County Route 692.	Municipal OEM, Camden County DPW	No progress	Yes	Flooding on Route 692	County Engineer
MJ-2	Improve drainage and clear out streams to alleviate flooding issue in Berlin Park.	Municipal OEM, Municipal DPW, Camden County DPW	Ongoing	Yes	Clear deadfall from streams	DPW

9.6.7.2 Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Borough of Berlin has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2017 HMP:

- The damages to the EMS roof following recent storms was repaired
- The Borough continues to work with Camden County to improve drainage at Berlin Park

9.6.7.3 Proposed Hazard Mitigation Initiatives for the HMP Update

The Borough of Berlin participated in a mitigation action workshop in May 2021 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

The table below indicates the range of proposed mitigation action categories.

Table 9.6-15. Analysis of Mitigation Actions by Hazard and Category

Hazard	FEMA				CRS					
	LPR	SIP	NSP	EAP	PR	PP	PI	NR	SP	ES
Coastal Erosion/Sea Level Rise										
Dam Failure/Levee Failure										
Disease Outbreak/Pandemic										
Drought										
Earthquake										
Extreme Temperatures										
Flood										
Geological Hazards										
High Wind										
Invasive Species/Harmful Algal Bloom										
Severe Summer Weather										
Severe Winter Weather										
Wildfire										

Note: Section 6 (Mitigation Strategy) provides for an explanation of the mitigation categories.

The table below summarizes the comprehensive range of specific mitigation initiatives the Borough of Berlin would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of

the 14 evaluation criteria to assist with prioritizing your actions as 'High', 'Medium', or 'Low.' The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.6-17 provides a summary of the prioritization of all proposed mitigation initiatives for the HMP update.

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Table 9.6-16. Proposed Hazard Mitigation Initiatives and Associated Priority

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
2022-B. Berlin-001	Backup Generators for Critical Facilities	Problem: The Berlin EMS and Berlin Community Center, both critical facilities, do not have backup power. Solution: The Borough will seek funding to purchase and install automatic, permanent backup generators with sufficient capacity at the above locations, with highest priority being for the EMS facility.	New	All Hazards	1, 3, 5, 6	EMS, DPW	FEMA HMGP, USDA Community Facilities Grant Program, Program, Municipal Budget	High, ensures continuity of operations	High, estimated \$70,000 each	Dependent on funding	High	SIP	ES
2022-B. Berlin-002	Cross Keys Road/Park Drive Flood Mitigation	Problem: A branch of the Great Egg Harbor River exacerbates flooding at Cross Keys Road and Park Drive, as well as flooding in Berlin Park. Solution: The Borough will work with the County to address flooding and concerns on Cross Keys Road. The Borough will also seek funding to clean out the stream and remove any debris and buildup that is negatively impacting waterflow and causing flooding during heavy rains. The DPW will work to determine a schedule for regular cleaning and dredging of the stream and ensuring that the streambanks are	Existing	Flood, Severe Winter Weather	1, 2	Camden County, DPW	County Budget	High, reduces flooding	High	Dependent on funding	High	SIP, NSP	SP, NR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		stabilized to reduce erosion. The Borough will also support the County to dredge the County-owned Berlin park and implement a new drainage system as the current drainage at Berlin Park is damaged and cannot be used.											
2022-B. Berlin-003	Critical Facilities Mitigation	Problem: The Borough DPW and Water Treatment facility are critical facilities located within the 1% SFHA (100-year floodplain). There have been no historical damages to the facilities due to flooding. Solution: The Borough will conduct a survey of the facilities, with an emphasis placed on lifeline facilities to determine any structural deficiencies that could lead to potential damages or limit functionality during hazard events. The Borough will then develop a list of potential retrofitting and mitigation actions that could be implemented. The Borough will then apply for funding and carry out the cost-effective measures.	Existing	Flood	1, 2, 4, 5, 6	OEM, Planning, Engineering	Municipal budget, FMA, HMGP, BRIC, CDBG	High, Protection of critical facilities and critical services	Medium for survey, High for retrofitting dependent on identified actions	Within 5 years	High	SIP	PP
2022-B. Berlin-004	Flood Damage Prevention Ordinance	Problem: The current flood damage prevention chapter of the Borough code does not meet the state's	New	Flood	1, 2, 4, 5	Floodplain Administrator, Administration	Municipal budget	High, Meet state and FEMA standards for	Low	6 months	Medium	LPR	PR

Project Number	Mitigation Initiative Name	Description of Problem and Solution	New or Existing Assets?	Hazard(s) to be Mitigated	Goals Met	Lead and Support Agencies	Potential Funding Sources	Estimated Benefits	Estimated Costs	Timeline	Priority	Mitigation Category	CRS Category
		<p>recommendation for a code-coordinated flood damage prevention ordinance.</p> <p>Solution: The Borough will update the flood damage prevention chapter using the NJ DEP's model code coordinated ordinance to create better coordination between NFIP implementation by the floodplain administrator, the New Jersey Flood Hazard Area Control Act (FHACA) implemented at the State level by the NJDEP, and the Uniform Construction Code (UCC) implemented by the Construction Official.</p>						flood damage prevention, reduce flood risk on new development					

Notes:

Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- EHP Environmental Planning and Historic Preservation
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable
- NFIP National Flood Insurance Program

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- BRIC Building Resilient Infrastructure and Communities Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

OEM Office of Emergency Management

Mitigation Category:

- *Local Plans and Regulations (LPR) – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.*
- *Structure and Infrastructure Project (SIP) – These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.*
- *Natural Systems Protection (NSP) – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.*
- *Education and Awareness Programs (EAP) – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities.*

CRS Category:

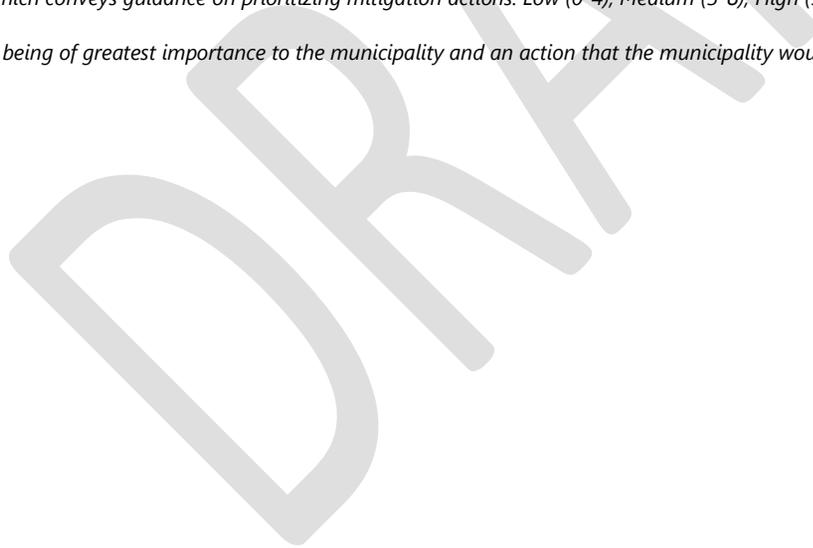
- *Preventative Measures (PR) - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.*
- *Property Protection (PP) - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.*
- *Public Information (PI) - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.*
- *Natural Resource Protection (NR) - Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.*
- *Structural Flood Control Projects (SP) - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.*
- *Emergency Services (ES) - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.*

Table 9.6-17. Summary Evaluation and Action Priority

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
2022-B. Berlin-001	Backup Generators for Critical Facilities	1	0	1	1	1	1	-1	0	1	1	1	1	1	1	11	High ⚠
2022-B. Berlin-002	Cross Keys Road/Park Drive Flood Mitigation	1	1	1	0	1	1	-1	0	0	1	1	1	1	1	10	High
2022-B. Berlin-003	Critical Facilities Mitigation	1	1	1	0	1	1	-1	0	0	1	1	1	1	1	10	High
2022-B. Berlin-004	Flood Damage Prevention Ordinance	0	1	1	1	0	1	1	1	0	1	0	1	0	0	8	Medium

Note: Section 6 (Mitigation Strategy), which conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).

⚠ This action has been identified as being of greatest importance to the municipality and an action that the municipality would like to complete as soon as funding is received.



9.6.8 Action Worksheets

The following action worksheets have been developed by the Borough of Berlin to aid in the submittal of grant applications to support the funding of high priority proposed actions. The State of New Jersey requires at least two projects be developed with action worksheets.

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Action Worksheet			
Project Name:	Backup Generators for Critical Facilities		
Project Number:	2022-B. Berlin-001		
Risk / Vulnerability			
Hazard(s) of Concern:	All Hazards		
Description of the Problem:	The Berlin EMS and Berlin Community Center, both critical facilities, do not have backup power.		
Action or Project Intended for Implementation			
Description of the Solution:	The Borough will seek funding to purchase and install automatic, permanent backup generators with sufficient capacity at the above locations, with highest priority being for the EMS facility.		
Is this project related to a Critical Facility?		Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Level of Protection:	N/A	Estimated Benefits (losses avoided):	High, ensures continuity of operations
Useful Life:	30 years	Goals Met:	1, 3, 5, 6
Estimated Cost:	High, estimated \$70,000 each	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	As soon as funding becomes available
Estimated Time Required for Project Implementation:	Dependent on Funding	Potential Funding Sources:	FEMA HMGP, USDA Community Facilities Grant Program, Program, Municipal Budget
Responsible Organization:	EMS, DPW	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Install solar panels	\$100,000	Weather dependent; need large amount of space for installation; expensive if repairs needed
	Install wind turbine	\$100,000	Weather dependent; poses a threat to wildlife; expensive repairs if needed
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Action Worksheet		
Project Name:	Backup Generators for Critical Facilities	
Project Number:	2022-B. Berlin-001	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Ensures operation of EMS
Property Protection	0	
Cost-Effectiveness	1	Passes BCA
Technical	1	
Political	1	
Legal	1	
Fiscal	-1	Will seek funding
Environmental	0	No concerns
Social	1	
Administrative	1	
Multi-Hazard	1	All Hazards
Timeline	1	
Agency Champion	1	EMS
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	

Action Worksheet			
Project Name:	Critical Facilities Mitigation		
Project Number:	2022-B. Berlin-003		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	The Borough DPW and Water Treatment facility are critical facilities located within the 1% SFHA (100-year floodplain). There have been no historical damages to the facilities due to flooding.		
Action or Project Intended for Implementation			
Description of the Solution:	The Borough will conduct a survey of the facilities, with an emphasis placed on lifeline facilities to determine any structural deficiencies that could lead to potential damages or limit functionality during hazard events. The Borough will then develop a list of potential retrofitting and mitigation actions that could be implemented. The Borough will then apply for funding and carry out the cost-effective measures.		
Is this project related to a Critical Facility?			Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Level of Protection:	500-year flood	Estimated Benefits (losses avoided):	High, Protection of critical facilities and critical services
Useful Life:	35 years	Goals Met:	1, 2, 4, 5, 6
Estimated Cost:	Medium for survey, High for retrofitting dependent on identified actions	Mitigation Action Type:	SIP
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 5 years
Estimated Time Required for Project Implementation:	Dependent on funding	Potential Funding Sources:	Municipal budget, FMA, HMGP, BRIC, CDBG
Responsible Organization:	EMS, DPW, Engineering	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation Planning
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Relocate facilities	\$5 million	Not cost effective as there have been no historical damages
	Elevate facilities	\$3 million	May not be necessary due to no historical damages
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			

Action Worksheet		
Project Name:	Critical Facilities Mitigation	
Project Number:	2022-B. Berlin-003	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Ensures operation of critical facilities
Property Protection	1	Reduces flooding
Cost-Effectiveness	1	Will ensure selected action passes BCA
Technical	0	May need additional engineering support
Political	1	
Legal	1	
Fiscal	-1	Will seek funding
Environmental	0	
Social	0	
Administrative	1	
Multi-Hazard	1	Flood, Storms
Timeline	1	
Agency Champion	1	
Other Community Objectives	1	
Total	10	
Priority (High/Med/Low)	High	